Wednesday, 11 September 2024

Te Hui o Te Kaunihera ā-Rohe o Heretaunga
Hastings District Council
Heretaunga Takoto Noa Māori Standing Committee Meeting

Kaupapataka

Attachments Under Separate Cover

Te Rā Hui: Meeting date:	**Wednesday, 11 September 2024**
Te Wā: Time:	**1.00pm**
Te Wāhi: Venue:	**Council Chamber** **Ground Floor** **Civic Administration Building** **Lyndon Road East** **Hastings**

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HASTINGS DISTRICT COUNCIL
207 Lyndon Road East, Hastings 4122 | Private Bag 9002, Hastings 4156
Phone **06 871 5000** | **www.hastingsdc.govt.nz**
TE KAUNIHERA Ā-ROHE O HERETAUNGA

LEVELS OF CULTURAL VALUES PROTECTION ACROSS WORKSITES

All Slip/Bridge/Culvert Repair & Rebuild Sites

Resource Consent
Waterway protection
Protection of fish
Optional monitoring of remediation works
Accidental discovery protocol for taonga or kōiwi
Karakia – importance and what it does for each site/group of sites

Sites where impact of physical works has minimal effect/is more than 100m of sites of interest

Area-specific education of contractor staff by Mana Whenua (proposed)
Linked to resource consent conditions
Local values/areas of importance
Karakia – importance and what it does for each site where applicable
Site walkover

Sites where physical works may have a more than minimal impact, or are 10-100m from sites of significance

Site-specific additional protections, e.g. marking out zone of exclusion 20 from site of significance
Intermittent cultural monitoring
Karakia – importance and what it does for each site where applicable
Precedent based on buffer zones which vary for each site

Unique sites (e.g. rebuilds)

Site specific cultural impact assessment detailing specific measures
Karakia – importance and what it does for each site

Training content would cover

Explain the "Why"

Environmental Protections

Tikanga tūhura taonga neherā

Resource Consent Conditions

Mana Whenua perspective Introduction of the area

Event of accidental discover of taonga and/ or kōiwi tangata

Area-specific geographic features

Protocol to follow (i.e., how best to secure sites, who to contact per area)

Information of any expected taonga or kōiwi tangata specific to area to look out for based on area knowledge

If any different protocols between kōiwi tangata and taonga discovery.

HERETAUNGA HASTINGS DISTRICT COUNCIL

Hastings District Council

CYCLONE RECOVERY

CULVERT AND BRIDGE REMEDIATION

Application for Resource Consent to Hawkes Bay Regional Council

AUGUST 2024

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REV	DATE	DETAILS
1	23/08/24	Final Draft

	NAME	DATE	SIGNATURE
Prepared by:	Andrea Elgie	9 August 2024	
Reviewed by:	Kate Graham	15 August 2024	

FORM 9 - RESOURCE CONSENT APPLICATION PURSUANT TO SECTION 88 AND THE FOURTH SCHEDULE OF THE RESOURCE MANAGEMENT ACT 1991

To: Hawke's Bay Regional Council
Private Pag 6006
Napier 4142

Applicant: Hastings District Council
Private Bag 9002
Hastings 4156

Consents Required:

Permit Type	Description of Activity
Land Use	Vegetation clearance within 5m of a river (s9 of the RMA)
Land Use	The disturbance in, on, under or over a river bed for the repair, remediation, alteration, extension, removal and demolition of an existing structure, placement of new structures and other disturbances to the river bed (s13 of the RMA).
Discharge Permit	Discharge of cleanfill to land and temporary discharge of sediment (s15 of the RMA).
Water Permit	Temporary diversion of a stream and relocation of the stream channel to pre Cyclone Gabrielle location (s14 of the RMA).

Discretionary Activity pursuant to Rules 8, 52, 59, and 69 of the Hawke's Bay Regional Council Regional Resource Management Plan.

Discretionary Activity pursuant to Regulation 71 of the Resource Management (National Environment Standard for Freshwater) Regulations 2020.

Proposal: To undertake repair and remediation works to 191 culvert and bridge sites damaged by severe flooding from Cyclone Gabrielle in February 2023.

Location: Various locations in and adjoining the road reserve across the Hastings District.

Consent Duration: 10 Years (duration of recovery programme)

Actual or Potential Effects on the Environment: An assessment of actual and potential environmental effects that the proposed activities may have on the environment is presented in this application, in accordance with the Fourth Schedule to the Resource Management Act 1991.

Consultation: Please refer to Section 5 of this report.

Additional Information: All of the information that is required by the Hawke's Bay Regional Plan is included in the assessment in this report.

ABBREVIATIONS

HDP	Hastings District Plan
HBRC	Hawke's Bay Regional Council
NES	National Environmental Standard
NES-CS	Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011
NES-FW	Resource Management (National Environmental Standards for Freshwater) Regulations 2020
NPS	National Policy Statements
NPS-B	National Policy Statement for Indigenous Biodiversity 2023
NPS-FM	National Policy Statement for Freshwater Management
RMA	Resource Management Act 1991
RCEP	Regional Coastal Environment Plan
RRMP	Hawke's Bay Regional Resource Management Plan
TANK	Plan Change 9 – Tūtaekuri, Ahuriri, Ngaruroro and Karamū Catchments

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1 INTRODUCTION

1.1 APPLICATION

Pursuant to Section 88 of the Resource Management Act 1891 (RMA), Hastings District Council (HDC) seeks resource consent from Hawke's Bay Regional Council (HBRC) under the Hawke's Bay Regional Resource Management Plan (RRMP) for the repair and remediation of 191 culverts and bridges over the next 10 years as part of the Cyclone Gabrielle recovery programme.

The purpose of the application is to obtain an 'area wide' consent that will overcome the need for HDC to apply to HBRC for separate resource consent applications for the various repair and remediation works required.

The resource consents (Land Use, Discharge Permit and Water Permit) for the culvert and bridge remediation works have been assessed as a Restricted Discretionary activity under Rule 8 of the RRMP, and Discretionary activities under Rules 52, 59 and 69 of the RRMP, and Regulation 71 of the National Environmental Standard for Freshwater (NES-FW). The resource consents required have been bundled together. The overall activity status of this application is Discretionary.

The resources consents being sought are:

- Land use consent for vegetation clearance within 5 metres of permanently flowing rivers or any other river with a bed width in excess of 2 metres – Restricted Discretionary Activity (Rule 8 of the RRMP);
- Land use consent for the removal/demolition of existing structures in rivers, the repair, remediation, alteration and extension of an existing structure in rivers, the placement of new structures in rivers, and other disturbances to river beds - Discretionary Activity (Rule 69 of the RRMP, and Rule 46 of the RCEP);
- Discharge permit for discharges to land of cleanfill and other associated earthworks within 20 metres of a surface water bodies - Discretionary Activity (Rule 52 of the RRMP);
- Water permit for temporary diversion of water in rivers and alteration of river channel back to pre-cyclone location - Discretionary Activity (Rule 59 of the RRMP).
- Water permit for not complying with the culvert conditions of regulation 70(2)(d) and (e) in the NES-FW - Discretionary Activity (Regulation 71 NES-FW).

A thorough assessment of the reasons for consent is provided in Section 4 of this report. This application has been prepared in accordance with those matters set out in Section 88 and the Fourth Schedule of the Resource Management Act 1991 (the 'Act'). This Assessment of Effects on the Environment accompanies and forms part of this resource consent application report.

1.2 BACKGROUND

The Hawke's Bay region was severely hit by Cyclone Gabrielle on the 14 February 2023. Hawke's Bay Regional Council (HBRC) rainfall figures show that Cyclone Gabrielle was one of the most significant weather events to impact the region on record. The impacts of Cyclone Gabrielle have been significant and widespread and are still being felt across the region and its communities.

The unprecedented rainfall caused flooding in all rivers and streams in the region and brought down slips, silt, and slash with the flood water. Riverbanks were breached and many of the transport routes were closed due to bridges and embankments being washed away or damaged.

A National State of Emergency was declared on 14th February 2023 under Section 70 of the Civil Defence and Emergency Management Act 2002 (CDEM). This ended on 14th March and a transition period came into force under Section 94A of CDEM for 90 days and ended 12th June 2023.

Within the Hastings District, the rural roading network was significantly affected cutting off communities in the immediate aftermath of the cyclone. Hastings District Council has undertaken temporary repairs to re-establish the roading network and provide access for a number of communities that were isolated. The initial emergency response included clearing approximately 600 slips, carrying out emergency repairs to approximately 300 bridges and culverts, and installing 10 temporary bridges.

Temporary fixes have enabled connectivity to be restored across much of the roading network but issues persist from badly damaged roads, bridge and culvert structures that are in need of further, permanent remediation works to restore them generally to their pre-cyclone state. Furthermore, future weather events may exacerbate existing damage, causing further damage to bridge and culvert structures making repairs even more challenging and costly.

The 7-10 year transportation recovery programme includes the rebuild of 19 bridges and large culverts, the repair of 161 damaged bridges and 52 culverts, and 220 major slips.

The consenting approach is to bundle sites that are similar together into 'area wide' consent applications to enable the adverse effects from similar activities to be considered together and to avoid large numbers of individual resource consent applications for similar or identical activities with similar adverse effects in different parts of the roading network.

Resource consents AUTH-103671-01, AUTH-130672-01, AUTH-130673-01, and AUTH-130674-01 have been granted for the remediation of 133 slip sites. Separate resource consents are being applied for, for the rebuild of large bridge and culvert structures which were completely washed out by the cyclone and any unique sites (i.e. sites in close proximity to wāhi tapu etc).

This resource consent application is an 'area wide' application for the repairs required to 191 bridges and culverts.

A pre-application meeting was held with Simon Moffitt and Sophia Edmead of HBRC on the 31 July 2024, to discuss the approach to the application, outline what was being applied for and any concerns. The main concern raised was relating to maintenance of fish passage and it was suggested that any sites that didn't comply with the NES-FW should be excluded from the consent. The application has retained non-compliance with the NES-FW in relation to a non-compliance with Regulation 70(2)(d) and (e) only which relate to the culvert sizes and embedment depth. We consider the effects can be adequately addressed under this application with suitable conditions on the consent as fish passage will be maintained.

1.3 AREA WIDE CONSENT APPROACH

While the assessment of damage is ongoing, Hastings District Council proposes remediation works to bridges and culverts that have been identified as significant and in need of urgent repair to enable local roads to be restored to a functional and safe state. Resource consents are required to authorise the proposed repair and remediation works across 191 sites in the district.

The purpose of the area-wide consents being sought is to avoid large numbers of individual resource consent applications for similar or identical culvert and bridge repair activities with similar adverse effects across different parts of the roading network. As a result, there will be cost and time savings associated with preparing and processing the necessary consents, which is important to enable the repairs to be undertaken in a timely manner for the safe function of the roading network. It provides certainty on which activities are covered, and a consistent approach for managing effects on the environment. It also enables Mana Whenua to participate in a consistent manner.

1.3.1 DESIGN PHILOSOPHY STATEMENTS

Design philosophy statements have been prepared to document and outline the engineering design approach for cyclone-damaged culverts across the HDC local road network and sets out the requirements relative to providing supporting documentation. These are contained in Appendix C.

The statements are intended to form the basis for assessment and design of the remediation works by using criteria and a Tier 0 to 3 structure. The bridge and culvert design philosophy forms the basis of an assessment and design for the remediation works for bridges and culverts where performance and/or capacity has been compromised because of Cyclone Gabrielle. It ensures that an appropriate level of investigation and design is carried out based on assessment of risk and the importance of the route to local communities across the network. It also informs HDC of the risk and resilience expectations associated with the approach.

A tiered design philosophy has been developed to allow for a range of design approaches based on budget, resilience, residual risk, and reliance on the route. The intention of the tiered design philosophy is to assign a design tier to each site primarily based on current risk, expected performance, and route importance.

The design approach and tier system has helped to inform a high-level planning assessment to determine what bridges and culverts are likely to require consent based on a number of typical scenarios identified (e.g. works in waterways, waterway diversions, fish passage). This has identified potential adverse environmental effects that need to be avoided, remediated or mitigated with the assessment concluding that 191 bridge and culvert sites require consents.

1.3.2 EXISTING GLOBAL CONSENTS

HDC hold global consents issued by HBRC which authorise some maintenance activities required to be undertaken to enable the safe and continued function of the road network. They cover maintenance activities listed in a schedule of bridges and culverts (referred to as Schedule 1), attached to the global consents.

Consent numbers LU100366Ca, DP100364Wa, DP100365Aa, WP110027Da, WP110026Ma authorise HDC to undertake the following:

- To discharge contaminants to air and water from abrasive blasting of structures in the water bodies listed in Schedule 1;
- Undertake bridge and culvert maintenance works (minor concrete repairs and removal of bridge components) in the bed of water bodies listed in Schedule 1 and to undertake other activities directly associated with the works that may be restricted by Section 13 of the RMA;
- Temporarily divert and dam water to create a dry work area while undertaking bridge and culvert maintenance work.

While these existing global consents for road maintenance activities may cover limited maintenance works on the road network, they do not cover the extent of works required for the repair and remediation of bridges and culverts.

2 DESCRIPTION OF ENVIRONMENT

Resource consents are required to authorise repair and remediation works at 191 culvert and bridge sites that are located throughout Hastings District. At the time of writing this report, of the 191 bridge and culvert sites 95 sites have had emergency works or permitted activity works completed and a further 15 are currently in construction. These sites have been included in this application as further repair and remediation may be required at these sites, particularly following rainfall events. The remaining 81 sites are in various different pre-construction phases.

The location of each site covered by this application is described in Appendix A and shown on a map in Figure 2.1 below and a more detailed series of maps are in Appendix B.

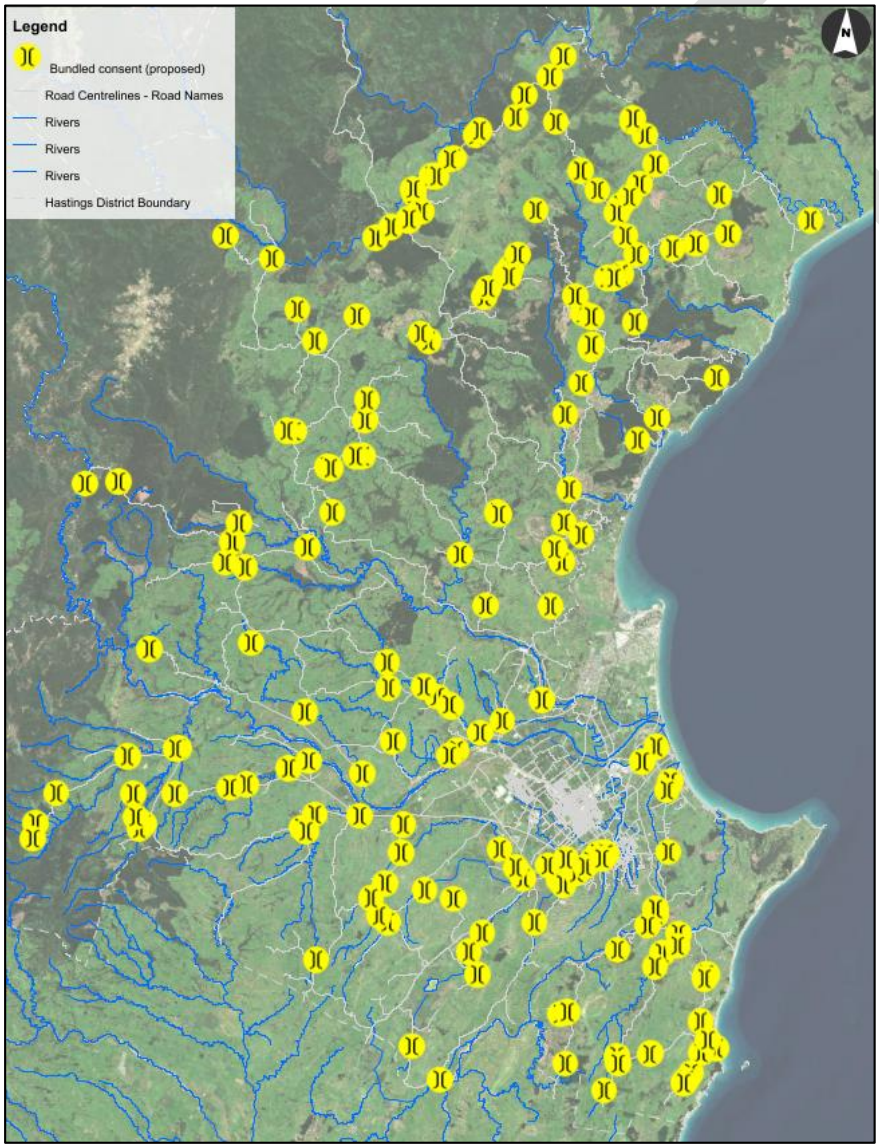


Figure 2.1 – Map showing location of Bridge and Culvert Sites

An overview of the damage caused by the Cyclone Gabrielle flooding to the bridge and culvert sites is outlined below.

- Scour around the culverts inlet and outlet.
- Partial blockage of the culverts causing scour and bank slipage.
- Blockage of the culvert causing overtopping of the road with damage to the road and culvert.
- Complete wash out or destruction of the culvert and damage to the road
- Scour around bridge abutments, wingwalls, crib walls and retaining walls.
- Minor damage to bridge structure, piers and abutments.

The following Sections provides an overview of the typical environment in which the sites are located.

2.1 GENERAL OVERVIEW

The Hastings District, shown in Figure 2.2, is located on the east coast of the North Island of New Zealand and covers a land area of 5,229km^2 (522,900 hectares). With a population of 85,965 (New Zealand Census 2023), it comprises the main urban centres of Hastings, Havelock North, Flaxmere and Clive, as well as numerous rural service and coastal settlements, and a large number of marae. The Pacific Ocean lies to the east of the Hastings District, with five other territorial authorities sharing its remaining boundaries - Central Hawke's Bay District, Rangitikei District, Napier City, Taupo District and Wairoa District.

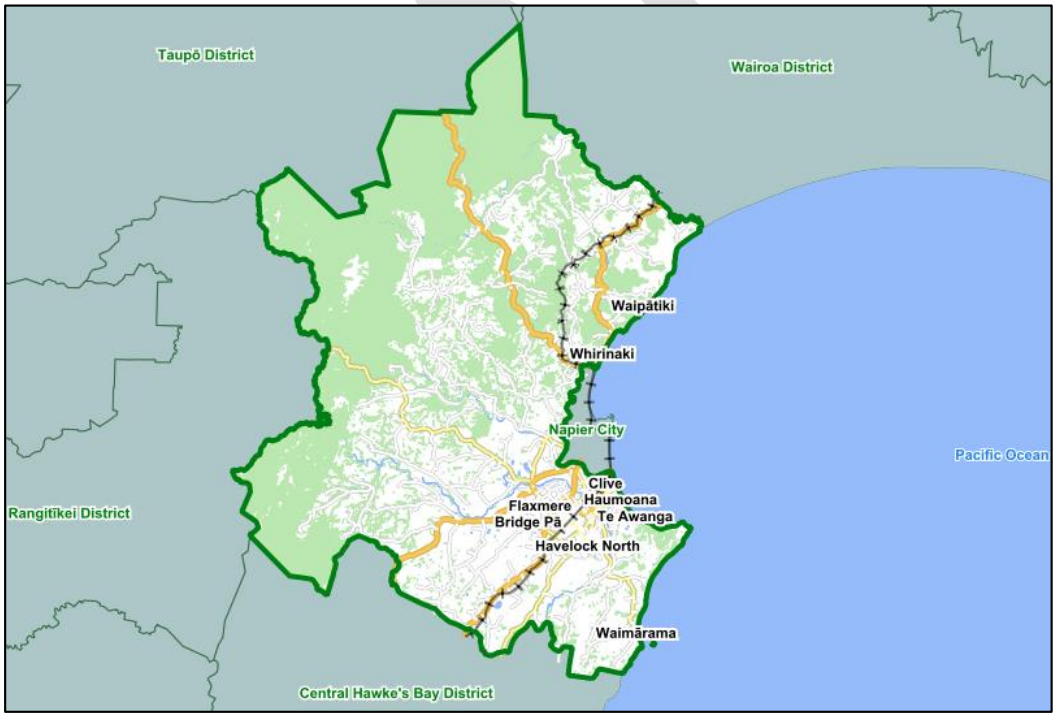


Figure 2.2 – Overview of Hastings District

2.2 LAND USE

The topography of the Hastings District is characterised by mountain ranges to the west with hill country progressing to productive plains in the east. Much of the region has been highly modified through generations of forestry, farming and development. There are three main urban areas being Hastings, Flaxmere and Havelock North, and several smaller rural and coastal urban areas including Clive, Te Awanga, Haumoana and Waimarama.

The rural area of the Hastings District, which makes up the majority of the land area, incorporates a wide variety of land and soil types which, when combined with District's climate, are capable of sustaining an extensive range of productive land activities such as agriculture, horticulture and viticulture. Forestry, and sheep and cattle farming are predominant in the hilly parts of the District, while horticulture and viticulture are significant land uses on the plains. The Hastings District is New Zealand's largest producer of apples, pears and peaches, and the second largest producer of grapes and wines. There has also been significant growth in the number of rural-residential (lifestyle) properties across the District. The majority of the culvert and bridge repair sites are located within the rural areas of the District.

2.3 ROADS

As a major producer of primary products, linkages to both domestic and international markets are vital in maintaining the economy of the Hastings District. Accordingly, the provision of safe, resilient roads capable of transporting goods and employees/workers, as part of a wider transport network, is essential to the local economy.

The rural road network in Hastings is characterised by narrow sealed and unsealed roads that largely service rural land uses. Many experience low traffic volumes and are the only available route to service some areas. They often traverse steep terrain alongside streams and rivers and are vulnerable to damage during weather events.

The key local roads in the District which sustained damage following Cyclone Gabrielle include:

- Tukituki Road
- Waimārama Road
- Kahuranaki Road
- Middle Road
- Whakapirau Road
- Kereru Road
- Matapiro Road
- Dartmoor Road
- Taihape Road
- Puketapu Road
- Puketitiri Road
- Ohurakura Road
- Waitara Road
- Matahorua Road
- Glengarry Road

All local roads in Hastings District are designated under the operative Hastings District Plan (HDP) (reference HDC-16) for the 'operation, maintenance, replacement, refurbishment and upgrading of existing roads for roading purposes'.

2.4 RIVERS AND STREAMS

The main rivers in Hastings District include the Mangaone River, Tūtaekurī River, Ngaruroro River, Esk River and the Tukituki River. These are mostly fast flowing, clean, gravel rivers, with extensive braided reaches. Recreational activities undertaken in/on and alongside rivers in the District include trout fishing, kayaking, rafting, jet boating, swimming, whitebaiting, horse riding, biking, walking and bird watching. The District's rivers are also used for water supply and irrigation purposes and generally have good water quality. There are tributaries of varying sizes throughout the hill country, many of which are unnamed. A map of the catchments and sites is shown below in Figure 2.3.

The Hawke's Bay region is characterised by a total of 14 river catchments, which contain a range of watercourse system types: from lowland coastal rivers to spring-fed upland streams. Eight of these catchments are based around the area's major rivers, while the six additional catchments represent smaller systems in urbanised and isolated patches. While water quality is generally good throughout the region, frequent issues with elevated nitrogen and phosphorus, high sedimentation, and faecal contamination, are a direct response to the area's close association with intensive agricultural, farming (sheep/cattle), and forestry operations (LAWA, 2024).

A high-level 'Watercourse Assessment Report' was prepared by Stantec for Hastings District Council to support the resource consent application for the remediation of the 133 slip sites across the District which has been granted be the Regional Council (AUTH AUTH-103671-01, AUTH-130672-01, AUTH-130673-01, and AUTH-130674-01). This Report is contained in Appendix D and while it is not specific to this application it provides a good description of each of the seven catchments that the culvert and bridge sites are located within, Sections 2.1-2.7, and Appendices C and D provide the historical fish records and distribution for these catchments. Fish species recorded in the District's rivers include longfin and shortfin eel, torrentfish, kōkopu īnanga, lamprey, bullies, brown and rainbow trout and koura. Some fish species have 'at risk' and 'threatened' conservation status

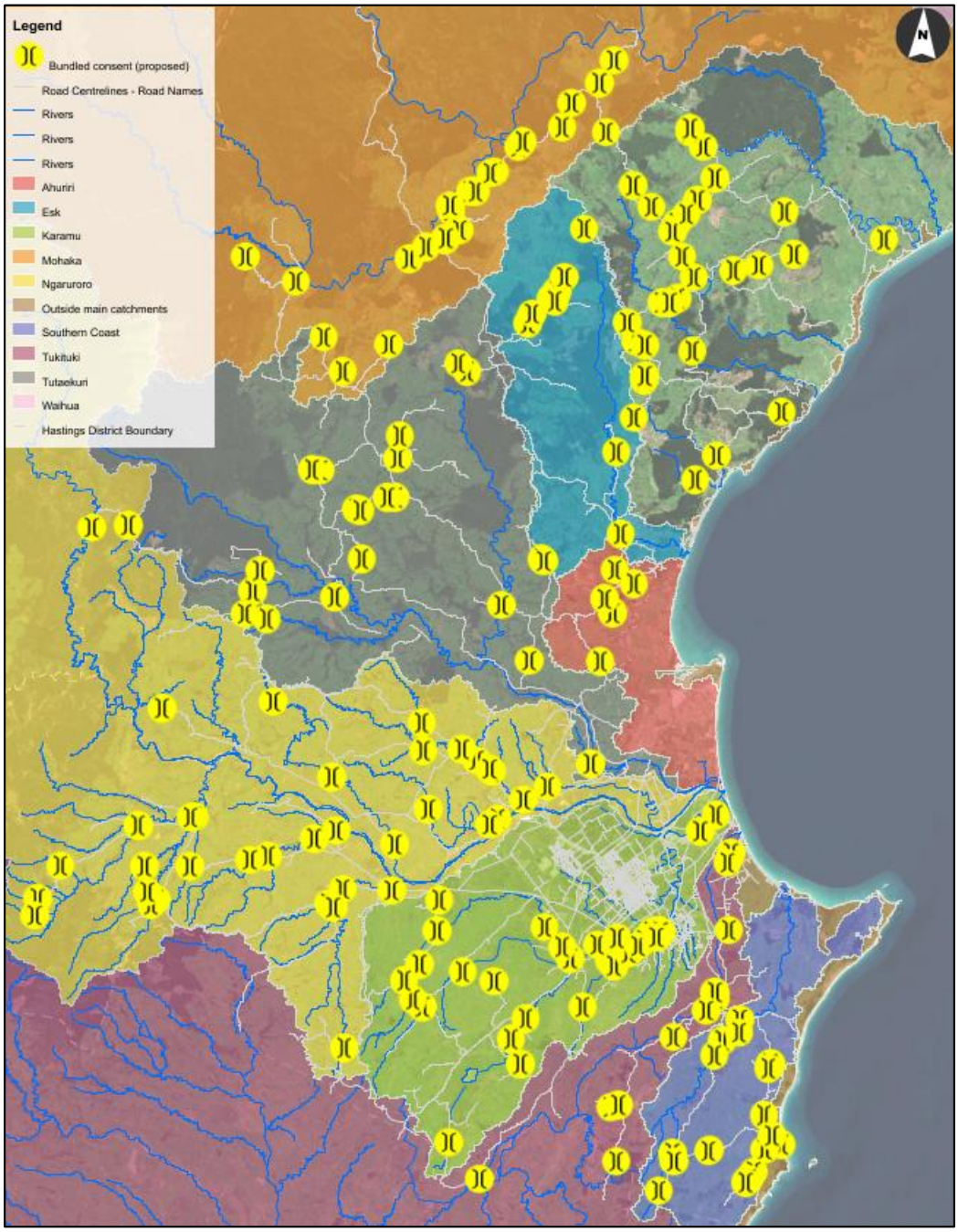


Figure 2.3 – Catchment Management Areas and location of Bridge and Culvert Sites.

2.5 COASTAL ENVIRONMENT

The proposal includes two sites that are located within the Coastal Environment as shown in Figure 2.4 below. These sites are both located in the coastal settlement of Waimarama, along Harper Road, and are not located within the Coastal Marine Area (CMA).

The Coastal Marine Area is the seaward side of Mean High Water Springs one kilometre upstream from the river mouth; or a point upstream calculated by multiplying the width of the river mouth by 5. In defining how far up a river the CMA extends, the Coastal Plan Maps determine those boundaries and the streams at Waimarama are not included in the CMA.

Figure 2.4 – Waimarama Coastal Environment with location of two bridge / culvert sites.

2.6 ARCHAEOLOGY AND AREAS OF INTEREST TO MANA WHENUA

Archaeological sites, particularly pre-European sites, in Hastings District are predominantly located near the coast. Inland, there are clusters of sites (generally pā sites) in the vicinities of Lake Tūtira, Te Mata Peak, Mount Erin, and the Kaokaoroa Range, as well as elsewhere. There are also archaeological sites scattered throughout the inland hill country.

There are only two archaeological sites recorded on the New Zealand Archaeological Association's (NZAA) ArchSite as being located within 100m of the 191 bridge and culvert sites identified in this application. Harpers Culvert in Waimarama is near middens/ovens and Kuripapango Bridge is near the old Kuripapango Hotel site. The maps in Appendix B include the locations of known archaeological sites in relation to the bridge and culvert sites listed in this application.

Post-European settlement heritage areas or sites are predominantly recorded as being in urban areas. There are no sites of this nature that are in the vicinity of the bridge and culvert repair sites.

There are a number of Wāhi Taonga sites across the District of which a small number are mapped and listed in the Hastings District Plan and the majority are not publicly available. The proposal does

not include any sites located within any known Wāhi Taonga area. A map of the bridge and culverts sites was provided to the seven relevant mana whenua entities in June 2024 with a request for feedback. Follow up meetings have been held or requested and to date no concerns have been raised about proximity of unregistered Wāhi Taonga to the 191 bridge and culvert sites. Engagement is ongoing, and should any sites be identified as requiring further cultural assessment work would be paused until that could be done.

A map showing the location of known archaeological sites and the Wāhi Taonga sites listed in the Hastings District Plan is below in Figure 2.5. A map of the Mana Whenua areas in relation to the location of the bridge and culvert sites is provided below in Figure 2.6. These maps are also in Appendix B.

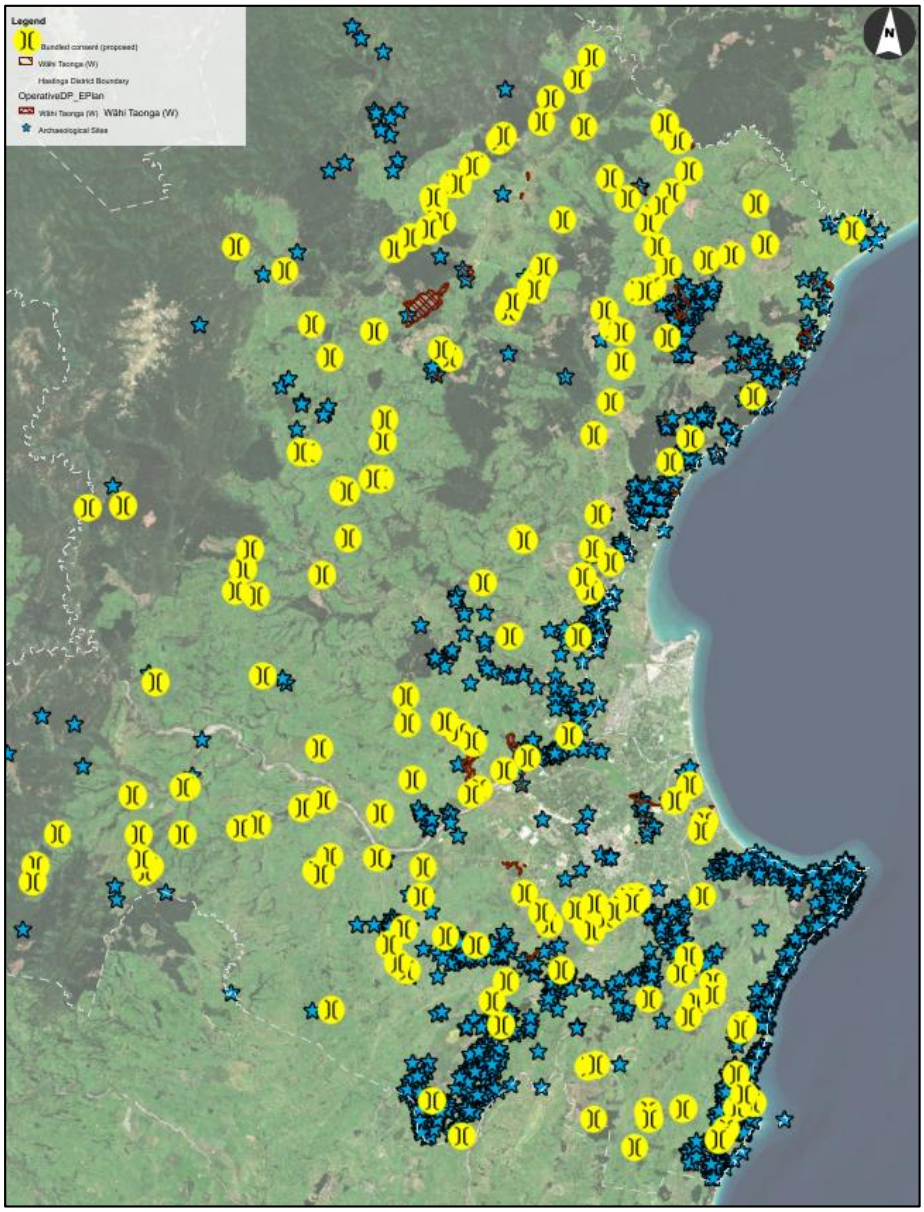


Figure 2.5 – Bridge and Culvert sites showing listed archaeological and Wāhi Taonga sites.

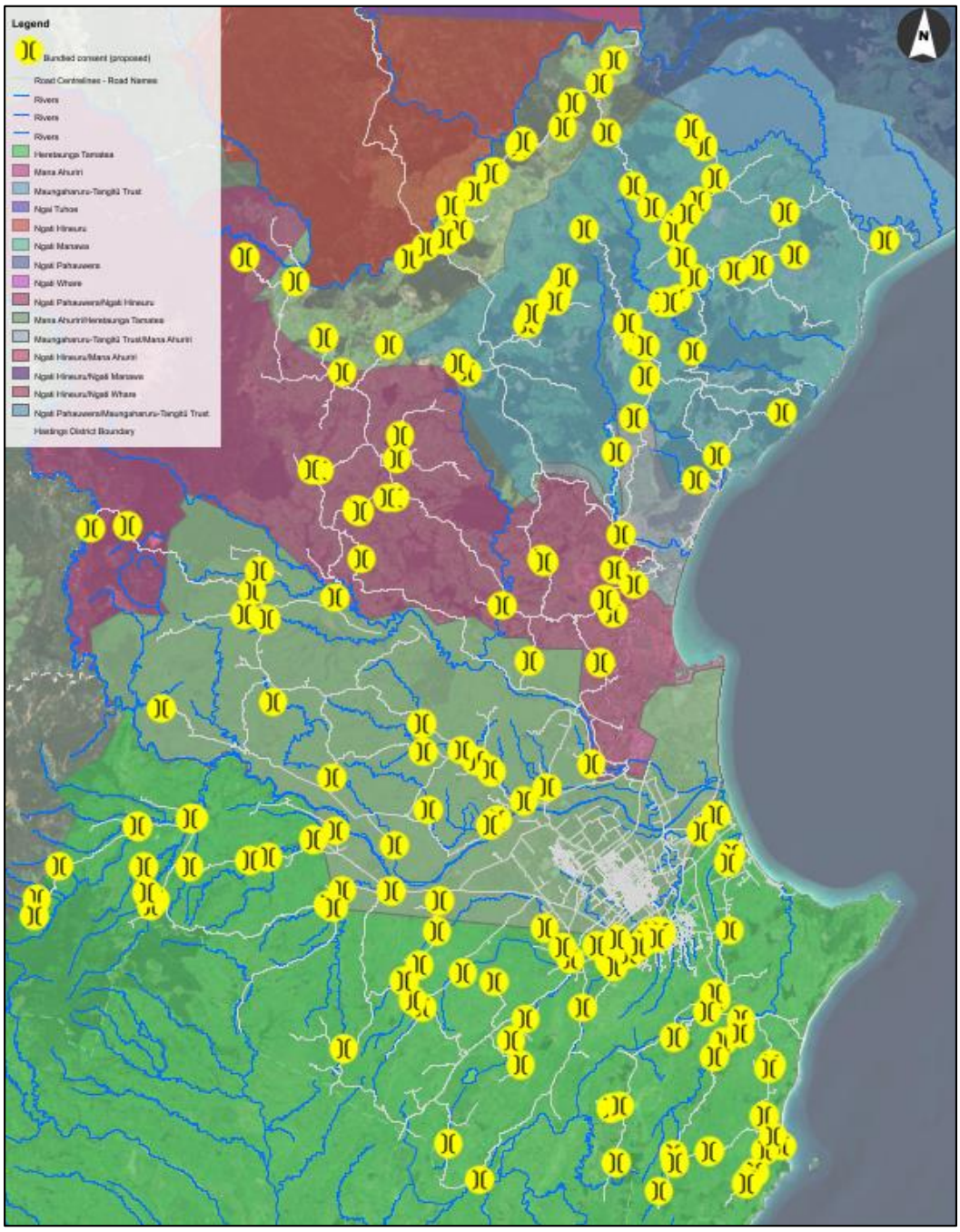


Figure 2.6 – Map of Mana Whenua areas in relation to Bridge and Culvert Sites

2.7 OTHER FEATURES

2.7.1 AQUIFERS

The Heretaunga Plains has a confined and unconfined aquifer system which flows under the plains in the vicinity of Hastings City. The groundwater in the system has a high quality, sufficient quantity and flow, is the main source of drinking water and also used for irrigation.

2.7.2 LANDSCAPE VALUES

There are several areas in inland Hastings identified in the HDP as having higher landscape qualities, including:

- The Kaweka and Ruahine Ranges the Maungaharuru and Te Waka Ranges, Mt Erin and Te Mata Peak which are identified as Outstanding Natural Landscapes (ONLs),
- Significant Amenity Landscapes (SALs) such as parts of the Maungaharuru and Te Waka Ranges and Lake Tūtira Basin in the north of the District and Roys Hill, Kaokaoroa Raukawa Valley and the area surrounding Mt Erin in the south of the District.
- Multiple Rural Landscape Character Areas (RLCAs), particularly in the lower hill country to the west of Hastings City.

Some of the bridge and culverts sites are within the RLCAs, one site is within a SAL, and none are in any ONLs.

2.7.3 LAND OWNERSHIP

Land in Hastings rural area is predominantly privately-owned farmland or lifestyle properties. The proposed repair works will largely be located within road reserve administered by HDC although in some cases they may need to extend into river beds owned by the Crown or into adjacent private property.

3 PROPOSAL DESCRIPTION

There are a number of culverts and bridges across the district that have been damaged as a result of the heavy rainfall from Cyclone Gabrielle. Repair and remediation works are required to 191 culvert and bridge sites listed in Appendix A, to the extent necessary to enable waterways and roads to be restored to their pre-cyclone states, or in most cases will be better where practicable, so that they provide increased fish passage and safe and functional access. Due to the significant number of sites that require remediation and their priority, design plans of the culvert and bridge remediation works have not been prepared for each site yet.

There are four groups of bridge and culvert, repair and remediation activities sought by this area wide resource consent application[1]:

- Structural repairs, replacement, and upgrading of culverts including:
  - Maintenance, repair and minor upgrades of existing culverts.
  - Demolition and removal of existing culverts.

[1] The 196 sites included in this area wide resource consent application are listed in Appendix A.

  - Replacement and construction of new culverts that have the same or greater capacity as what previously existed pre-cyclone.
  - Replacement and construction of multiple culverts at a site which could include a mixture of old and new.
  - Headwall works.

- Structural repairs, maintenance, and upgrades to bridges including:
  - Structural repair and strengthening works.
  - Replacement and/or upgrading of bridge components.
  - Installation of reinforcement structures, temporary structures (e.g. scaffolding access platforms) and patch repairs for maintenance, repair and preservation.
  - Application of protective coatings.
  - Wingwall works.

- Bank protection and stabilisation including the installation of new or replacement of existing retaining walls, scour protection and bank stabilisation structures.

- Other works associated with the remediation of the bridges and culverts, such as vegetation clearance, soil disturbance, stream diversion, discharge to land within 20m of a waterway, discharge to water, and slope stabilisation works.

Each of these activities is described below in more detail[2].

3.1 CULVERT AND BRIDGE SITES

Appendix A contains a table of all 191 culverts and bridge sites that are subject to this area-wide resource consent application, providing the following information for each site:

- Bridge and Asset ID;
- Site Name
- Road name
- RP location;
- NZTM coordinates of bridge or culvert location;
- Name of River or Stream
- Catchment;

The locations of the sites are also shown on the overview maps in Appendix B and earlier in Figure 2.1.

The nature of the proposed remediation works will involve works within the waterway.

3.2 PROPOSED REMEDIATION

3.2.1 CULVERTS

The extent of damage at each culvert identified in Appendix A varies from minor damage where maintenance is required, being partially blocked by silt and debris, to being severely damaged or completely washed away.

The culvert remediation works required for each site will need to be assessed on a case-by-case basis to determine the scale of the work required. These works can include, but are not limited to:

[2] Please note that the list and description of culvert and bridge remediation activities are not an exhaustive list of all potential bridge and culvert repair and remediation measures that will be required.

- Maintenance, repair and minor upgrades of an existing culvert;
- Demolition and removal of existing culverts;
- Replacement and construction of new culverts that have the same or greater capacity as what previously existed pre-cyclone;
- Multiple culverts at a site which could include a mixture of old and new; and
- Headwall works.

The maintenance, repair and minor upgrading of existing culverts could include things like culvert extension and measures to provide an improved level of fish passage. These works will maintain or improve the existing level of fish passage through the culvert.

New culverts will generally be concrete box culverts or pipes made from PPE or concrete. However, depending on the situation, they could also be a different style and material.

All new culverts will be either the same size or larger than the culvert that existed pre-cyclone. The replacement and construction of new culverts are more than likely to have a larger culvert or multiple culverts installed for greater capacity and resilience for future heavy rainfall events and to provide for fish passage. Determining the size will depend on the catchment flow rates which will be determined through the culvert design process.

All new culverts will be designed to comply with the NES-FW and NIWA culvert design standards unless there are site specific constraints that prevent this from occurring. This situation arising would be rare as the majority of culverts covered under this consent were constructed prior to 2020 and are exempt from the fish passage requirements[3]. The NES-FW fish passage and culvert regulations are only applicable for new and replacement culverts. Fish passage will be provided however the size and embedment depth required in Regulation 70(2)d) and (e) for new and replacement culverts may be difficult to meet in some environments. This consent includes approval for non-compliance with the NES-FW culvert design standards where in rare situations the environment limits compliance with Regulation 70(2)(d) and (e).

Culverts are often constructed with headwalls around the inlet and outlet. This application includes repair, maintenance and upgrading of existing headwalls and construction of new headwalls around both existing culverts and new culverts.

Major culverts are deemed to be bridges under the NZTA requirements and are often referred to as a bridge by engineers. For clarification all major culverts are referred to as a culvert under this consent application and not a bridge.

3.2.2 BRIDGES

The extent of damage at each bridge identified in Appendix A varies from minor damage where maintenance is required, to a requirement for significant structural repair.

The bridge remediation and repair works required for each site will depend on whether the bridge is steel, concrete or timber and level of damage sustained. Each site will need to be assessed on a case-by-case basis to determine the scale of the work required which can include, but is not limited to:

- Structural repair and strengthening works;

[3] Regulation 60 of the NES-FW specifies that the NES-FW requirements for the passage of fish affected by structures does not apply to *"(a) an existing structure, meaning a structure that was in the river or connected area at the close of 2 September 2020, and including any later alterations or extensions of that structure"*.

- Replacing and/or upgrading bridge components;
- Installation of temporary structures (scaffolding and access platforms) to provide access to the bridge structure to carry out repairs and maintenance, and
- Wingwall works.

Structural repair and strengthening work cover a broad range of activities that can be undertaken on bridges and could include, deck repair, crack and concrete repairs, wrapping and sleeves, strengthening of piles and bridge piers, repairing bridge abutments, and other structural repairs as required.

Replacing and upgrading bridge components could include joint replacements, deck replacement, replacement and upgrading of barriers, and installation of additional components to provide greater resilience of the structure.

Wingwalls are sometimes located near the abutments of bridges to prevent soil erosion, slips and undercutting of bridge abutment. This application includes repair, maintenance and upgrading of existing wingwalls and construction of new wingwalls on either side of the bridge abutments.

3.2.3 ASSOCIATED STRUCTURES

Associated structures covers a wide range of structures that are often associated with, or required as part of any culvert and bridge works previously described above. These works include maintenance, repair and upgrading of existing structures and construction of new structures.

These types of structures are required upstream and downstream from the culvert and bridge sites for up to 50m in either direction in order to prevent scour, erosion and slips around them.

These structures can be grouped broadly into the following categories;

- Retaining wall structures;
- Scour protection structures;
- Bank stabilisation structures.

Retaining wall structures are any structure that holds back earth and includes timber retaining walls, block walls, gabions, sheet pile walls and so forth.

Scour protection structures are designed to prevent the loss of sediment from the banks and bed of the waterway and can include rock rip rap structures, gabions and shotcrete.

Bank stabilisation structures include things like engineered soil slopes, reno mattresses and the use of shotcrete.

These structures may also be required to stabilise the banks of the road once it has been reconstructed back over the culvert.

3.2.4 ASSOCIATED WORKS

Associated works covers any other related works associated with the maintenance, repair, upgrade and construction of the culvert, bridge or associated structure across the 191 sites identified in Appendix A. These works include but are not limited to:

- Temporary diversion of the waterway to allow for a dry work space to carry out remediation works;
- Vegetation removal and soil disturbance as required to access the remediation sites;
- Discharges of cleanfill material to land;
- Slope stabilisation and stormwater management works.

The nature of the proposed works means they will all be undertaken in and around waterways. The works may require temporary diversions of the waterway while the works are being undertaken and will be assessed on a case-by-case basis.

Vegetation removal and soil disturbance is likely to be undertaken within 5m of the waterway for each site. This is required in order to obtain access to the site for any machinery and vehicles required to undertake the works; for the works themselves to be undertaken; and for any associated structures to be constructed. The type of vegetation removed will vary between sites and may only be grass or regenerating bushes or could tree removal.

Discharge to land within 20m of a waterway is likely to be required in order provide suitable access to the sites, to undertake seismic and geotechnical testing, and to undertake works associated with the construction of bank protection structures. The discharge will consist of cleanfill and could include other materials used for road construction or filling geotechnical testing holes.

The nature of the works means there is likely to be a temporary discharge of cleanfill and sediment within the waterway for things like the bunding and creation of a diversion; vehicles and machinery crossing the waterway where there is no other practical option; the construction of associated structures like rock rip rap along the banks and around abutments; and the clearing of debris and silt from the site.

Stabilising the slopes around the sites and stormwater management works can be undertaken in various ways which do not require structures. These works can include excavating and benching; placement of engineered fill; use of geosynthetic liners; erosion control blankets; drains and spillways; use of shotcrete; and planting of vegetation.

3.3 MITIGATION MEASURES

This application includes a number of mitigation measures to reduce the effects of the works proposed under this application particularly during the temporary construction stage. Appendix F contains an outline of the mitigation measures proposed for each activity and the relevant conditions proposed.

Conditions are volunteered to be placed on the area-wide consent to provide a clear scope of the repair and remediation works, to enable a consistent works methodology, and to set out management plans to be implemented, all of which will assist in appropriately managing adverse effects on the environment. A full list of the volunteered resource consent conditions is attached in Appendix G. The wording of these conditions has been aligned, where relevant, with the conditions in the area wide slip remediation resource consent AUTH-103671-01, AUTH-130672-01, AUTH-130673-01, and AUTH-130674-01, which was suggested by an HBRC Environmental Compliance Officer.

3.3.1 ENVIRONMENTAL MANAGEMENT PLANS

An Environmental Management Plan (EMP) will be prepared prior to any works being undertaken and implemented for the duration of works to appropriately manage construction related effects. This may be site specific or cover a series of similar culvert and bridge remediation works. The EMP will include an Erosion and Sediment Control Plan (ESCP) and Spill Management Plan (SMP). The requirement for management plans is volunteered as a condition of consent.

3.3.2 EROSION AND SEDIMENT CONTROL

An Erosion and Sediment Control Plan (ESCP) is a key management tool to ensure that the effects of the remediation works are appropriately managed. The main objective of the ESCP is to minimise sediment runoff into the waterways from exposed earthworks. This is done by minimising the area of exposed surfaces as reasonably practical, targeting high risk areas with ESCP strategies such as silt fences and bunds, and reinstating exposed surfaces as soon as practical by hydroseeding, planting or using stable materials such as a structure or hardfill.

The implementation of the ESCP will mitigate the potential effects of sediment discharges from construction works.

3.3.3 SPILL MANAGEMENT

A Spill Management Plan (SMP) is a key management tool to prevent contamination of the waterways and environment from the use of machinery and contaminations required for the remediation works. The SMP objective is to manage and contain accidental spills of fuel, transmission fluid, oils, agrichemicals or any other hazardous substances. This plan will outline where hazardous substances will be stored at least 20m away from any waterbody, the location of spill kits, how to safely identify and contain hazardous substances spills, procedures for cleaning up and disposing of contaminated material, and reporting of any spills.

3.4 CONSTRUCTION PROGRAMME AND METHDOLOGY

The programme of culvert and bridge remediation works is a 7-10 year programme of recovery works where some work have already been completed. At the time of writing this report there are 113 sites included in the Appendix A list of sites where works have been completed or are in construction under the permitted activity rules of the RRMP or as emergency works under s330 of the RMA. This application includes these 113 sites as further repair and remediation works could be required. There have already been some sites where following rainfall further repair works were undertaken.

Due to the length of the recovery programme a definitive construction programme is not available. Once this resource consent application is granted works will be undertaken shortly afterward, given the timing with fish spawning season ending and finer weather making it more suitable for construction to be begin in waterbodies. Works on a couple of high priority sites are in the final design stage, like Kahika Culvert, and may be undertaken as emergency works and follow the s330 process. These sites have already been notified to the Regional Council and the process they follow will depend on the timing of this consent being granted so that progress is not slowed down.

Restoring and providing resilience for the transport network is critical for the economy and community connections. The remediation works will be prioritised with design options and final designs currently being prepared and considered for approximately 34 sites. The length of time taken for remediation to be completed at each site will vary depending on the scale and complexity of the work required.

The relevant construction methodology for each site will be prepared and provided to HBRC prior to works beginning. The requirement for providing a construction methodology is volunteered as a condition of consent (refer to Appendix G).

4 REASONS FOR APPLICATION AND ACTIVITY STATUS

The application is required to be assessed against the provisions of any relevant National Environmental Standard and the Hawke's Bay Regional Resource Management Plan (RRMP) to determine the activity status of the proposal.

Sections 4.1 and 4.2 below include a summary of the relevant NES regulations and RRMP rules. Due to the scope of the works proposed and the environment in which the works will be undertaken a number of permitted standards cannot be met. A full assessment of the proposal against the relevant rules / regulations is included in Appendix E.

4.1 NATIONAL ENVIRONMENTAL STANDARDS

There are a number of National Environmental Standards (NES) that contain rules that need to be complied with relating to certain activities and effects. The proposed culvert and bridge remediation works may trigger the requirements of the NES for Freshwater (NES-FW) or NES for Assessing and Managing Contaminants in Soil to Protect Human Health (NES-CS).

The culvert and bridge remediation works will require work to be undertaken within waterways due to the nature of the work. The NES-FW contains a number of regulations for works and structures located within waterways including culvert works and vegetation clearance and earthworks that modify natural inland wetlands (100m). The list of sites in Appendix A identifies that there are no sites located within 100m of any known wetlands. If it is found that works on any of the sites will be located within 100m of a wetland and the NES-FW rules are triggered then a separate resource consent application will be applied for.

The culvert remediation works will be undertaken in accordance with the permitted activity conditions of regulation 70 where this is possible. However, there may be rare instances where these conditions cannot be met due to constraints within the environment. The majority of culverts covered under this consent were constructed prior to 2020 and would be exempt from the fish passage requirements under Regulation 60[4]. Where new or replacement culverts are proposed and the culvert conditions in regulation 70 are applicable fish passage will be maintained however the size and embedment depth required in Regulation 70(2)(d) and (e) may be difficult to meet in some environments. This consent includes approval for non-compliance with the NES-FW culvert design standards where in rare situations the environment limits compliance with Regulation 70(2)(d) and (e). Where the conditions cannot be met the proposal is to be assessed as a Discretionary Activity under Regulation 71.

The NES-CS contains rules in relation to contaminated land with the only activity triggered by the remediation works being soil disturbance activities. The location and nature of these sites makes it unlikely for the land to have an activity on it that is in the HAIL. Therefore, resource consent under the NES-CS is not sought for the proposed remediation works.

In conclusion resource consent is being applied for as a Discretionary Activity under regulation 71 of the NES-FW. All other National Environmental Standards are either not applicable to the proposal or resource consent is not required under the regulations.

4.2 HAWKE'S BAY REGIONAL RESOURCE MANAGEMENT PLAN AND REGIONAL COASTAL ENVIRONMENT PLAN

The RRMP contains the relevant rules for the proposed culvert and bridge repair and remediation works. Proposed Plan Change 9 for Tūtaekurī, Ahuriri, Ngaruroro and Karamu Catchments (TANK) has legal effect but is not currently operative. Given a number of sites are located within these catchments the proposal has been assessment against the TANK rules, however the proposal either complies with these rules or they are not applicable due to the nature of the works.

Two of the sites located in Waimarama are within the Coastal Environment Area identified under the RCEP, but are not located within the Coastal Marine Area (CMA). Works on these two sites need to be assessed against the rules in the RCEP.

[4] Regulation 60 of the NES-FW specifies that the NES-FW requirements for the passage of fish affected by structures does not apply to *"(a) an existing structure, meaning a structure that was in the river or connected area at the close of 2 September 2020, and including any later alterations or extensions of that structure"*.

A full assessment of the proposal against the relevant rules of the RRMP and RCEP is contained in Appendix E. The RRMP and RCEP contain similar rules in relation to works being undertaken on land and within the beds of streams and rivers. In summary resource consent is being sought from HBRC as a Discretionary Activity under the RRMP and RCEP for the following reasons;

- Vegetation clearance of indigenous vegetation may be required within 5m of a waterbody (Rule 7) which triggers Rule 8.
- There will be a discharge of contaminants to land, including cleanfill, within 20m of a waterbody and above an unconfined aquifer that does not meet all of the permitted standards rules 48 and 49 and triggers Rule 52.
- A temporary diversion of water may be required and does not meet the permitted standards of Rule 56 and will trigger Rule 59.
- The proposal includes the removal and demolition of structures, erection and placement of structures and other disturbances of the riverbed. These works do not meet the permitted standards of Rules 66, 72 and 75. Rule 69 of the RRMP will be triggered for the following reasons;
    - Works may be required to be undertaken during fish spawning season,
    - Require a diversion of the waterbody for more than 5 consecutive days
    - Works will be undertaken within a catchment exceeding 150ha
    - A change to the natural course of the river back to its pre-cyclone location, and
    - Disturbing more than $5m^2$ of the riverbed.
- The proposal includes the erection and placement of structures and other disturbances of the riverbed. These works do not meet the permitted standards of Rules 47 and 53 of the RCEP and Rule 46 will be triggered for the following reasons;
    - Works may be required to be undertaken during fish spawning season,
    - Require a diversion of the waterbody for more than 5 consecutive days
    - Disturbing more than $5m^2$ of the riverbed.

5 CONSULTATION

5.1 PUBLIC COMUNICATIONS AND ENGAGEMENT

HDC has ongoing communication with the community on Cyclone Gabrielle recovery through their website[5]. A Section on roading recovery includes useful information on the culvert and bridge repairs required. Updates to the community have also been done with ward-level and district-wide level newsletters, through media channels, media releases and community meetings. Under the wider rebuild and recovery programme, numerous meetings have been held with communities on site-specific projects, such as bridge replacements, culverts and road realignments. Details of meetings have been recorded and well documented, many of which appear on the website.

On the Hastings District Council website an interactive map shows the location of all major slips, bridge rebuilds and bridge repairs.

Consultation and engagement with the local community has been extensively carried out since the Cyclone. For other standalone projects, such as in planning the construction of permanent bridges

[5] https://www.hastingsdc.govt.nz/cyclone-Gabrielle/

to replace those destroyed during Cyclone Gabrielle, targeted consultation and engagement has occurred. Following these engagement sessions, it was apparent, given the vast number of culvert and repair sites, that key considerations include:

- Working in the waterway
- Erosion and sediment control measures
- Spill management plans
- Facilitation of fish passage and measures around working in waterways during fish spawning season
- Recognition of statutory acknowledgements over waterways
- Project partnership of design and build of bridges, culverts and slips
- Cultural impact assessments (when they are required for sensitive sites).

Engagement is ongoing and will continue throughout the roading recovery project rebuild. Further consultation will be through HDC providing ongoing updates, such as:

- Community meetings.
- Project page on the HDC website with specific bridge sub-pages
- Ward based newsletters outlining the current situation, upcoming work and progress by geographic area (ward), (includes newsletter sign-ups, rural, transportation companies, emergency services, and schools)
- Media releases and posts on HDC social channels

Individual property owners around these sites have not specifically been consulted at this stage due to the broad nature of the works and the likelihood of most works being located within the road reserve. Where any works cross over into provide property the landowners approval will be sought. Where the works adjoin private property then these landowners and occupiers will be notified prior to works commencing.

5.2 MANA WHENUA ENGAGEMENT

HDC partner with Mana Whenua for projects that have an impact to waterways. This partnership is underpinned by the principles of the Treaty of Waitangi and the statutory acknowledgments of Mana Whenua over local rivers. Statutory acknowledgements record some of the special associations Mana Whenua have with sites or areas, associations that are recognised by the Crown through the Treaty of Waitangi settlement process and the Acts that give effect to those settlements.

The applicant has been engaging with a number of Mana Whenua entities throughout the district as part of the broader response and recovery phases following the significant damage to property and assets from Cyclone Gabrielle.

Post-Treaty settlement governance entities (PSGE) represent organisations established after the Treaty settlement with the Crown that have the purpose of representing the Mana Whenua members and managing any assets resulting from the settlement. Mana Whenua engagement is ongoing and is being co-ordinated through seven Mana Whenua authorities which include five PSGEs and two hapu groups. Where we refer to Mana Whenua engagement, we are referring to the following Mana Whenua authorities (representative Post Treaty Settlement Governance Entities and Hapū Trusts):

1. Tamatea Pōkai Whenua Trust
2. Mana Ahuriri Trust
3. Maungaharuru-Tangitū Trust

4. Ngāti Pāhauwera Trust
5. Ngāti Hineuru Trust
6. Ngā Piringa Hapū o Ōmāhu
7. Ngāti Pārau Hapū Trust.

The Heretaunga Takoto Noa Māori Standing Commitee provides governance and final decision making for all engagement decisions. The five PSGEs have representation on Heretaunga Takoto Noa and the two hapu groups are invited to be part of the decision making process for the transport recovery programme.

In relation to this project, engagement has been undertaken with each Mana Whenua group which included providing them with maps of their respective areas and the sites where works are proposed under this application. Any sites which have been identified as requiring further cultural assessment of values or any unlisted wāhi tapu areas have not been included in the list of sites attached to this consent. These sites will require a separate resource consent application for the works.

Engagement to date has included several hui with the seven Mana Whenua authorities. Maps showing the recovery sites within each area have been provided for discussion. The key items discussed at these hui included:

- Mana Whenua guidance regarding which marae and hapū HDC should engage with for each project.
- Mana Whenua guidance on what an effective Engagement Programme across all projects looks like.
- How the delivery of the HDC Transport Recovery Programme can be improved?
- What problems (resourcing/capacity etc) or concerns (programme coordination) Mana Whenua have and how we, HDC and Mana Whenua can work together to overcome these challenges.
- Reflections and Mana Whenua feedback regarding Mana Whenua Engagement completed to date (including during the emergency response immediately after the cyclone).

A wānanga was held on 20 June 2024 at the Hastings District Council Chambers to discuss and confirm the engagement approach for consenting. An area wide approach to resource consenting of the roading recovery project (bundling large groups of similar consents together) was discussed and agreed.

It was agreed that an area wide approach made sense for all partners, given the volume and scale of the work and the limited capacity of all partners. This was on the provision that unique sites (near wāhi taonga or large bridge rebuilds) would be treated separately. Mana Whenua groups requested additional information about the programme and sites, which has been provided via the map, email and table outlining the timing of works. To date, no bridge or culvert sites in this application have been identified as being near unregistered wāhi taonga and engagement is ongoing to confirm this.

6 ASSESSMENT OF ENVIRONMENTAL EFFECTS

Section 88 and Schedule 4 of the Resource Management Act 1991 ("the Act") require the applicant to prepare an assessment of any actual or potential effects that the proposed activity may have on the receiving environment and the ways in which those effects may be avoided, remedied, or mitigated. Section 88 requires that the assessment shall be in such detail as corresponds with the scale and significance of the actual and potential effects that the activity may have on the environment.

As confirmed in Section 4, the proposed repair and remediation works to 191 bridge and culvert sites across the hastings district is to be assessed as a Discretionary Activity.

In terms of Section 104(1)(a) and (ab) of the 'Act', when considering this application, consent authorities must have regard to any actual and potential effects on the environment and any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate any adverse effects on the environment.

It is considered that the matters relevant in the assessment of this application relate to the following:

- Effects on the flow and flood-carrying capacity of waterbodies
- Effects on water quality
- Effects on ecological values
- Effects on cultural and heritage values
- Positive effects

6.1 EFFECTS ON FLOW AND FLOOD-CARRYING CAPACITY OF WATERBODIES

The application seeks approval to undertake remediation works to bridges, culverts and their associated structures as a result of the damage caused by the Cyclone Gabrielle floods in February 2023. The remediation works consist of repair, replacement and upgrading of damaged culverts and bridges across a number of sites listed in Appendix A.

Where structures are located within a stream and there are disturbances of the stream bed this has the potential to affect the flow and flood carrying capacity of the water body where the structure is located.

6.1.1 CULVERTS

Catchment analysis is currently being undertaken to inform the design and scope of works required for each site and take into account climate change. The size and design of any new or upgraded culverts and their associated structures will be engineer designed to ensure they are capable of conveying flood waters, sediment and debris to avoid culvert blockages, scour and washouts across the Hastings District Council network and improve resilience. All culvert related works will either retain their pre-cyclone capacity or have an increased capacity to cope with similar or higher flows as experienced during Cyclone Gabrielle and provide for future resilience. Some culverts will be significantly increased in size, such as Patoka Culvert, that they will be large enough to meet the NZTA bridge design standards.

Works will be undertaken during fine weather and where higher flows are anticipated all machinery and equipment will be removed from the riverbed. Most sites are located within the rural environment.

Given the capacity of the culverts will either remain the same or be increased from their pre-cyclone size, it is considered that the resulting adverse effects from the remediation works on the flow and flood carrying capacity of the associated waterbody will be will be less than minor and acceptable.

6.1.2 BRIDGES

The proposed works around bridges include structural repair and strengthening works whereby these works cover a wide range of activities including structural repairs to the piles and piers which support the bridge structure, works around piers and abutments, wrapping bridge piers, and other means of structural support located within the waterbody.

The remediation work to repair/strengthen the bridge piles, piers, and abutments will result in a minimal increase to the overall size of the bridge structure. The proposed repair work will be and will be attached to an existing structure for strengthening and support This application does not include the construction of additional permanent support structures in the waterway (i.e. additional bridge piers). Rule 72 of the RRMP allows structures occupying an area of 10m^2 to be located within the bed of a river provided they do not increase the risk of flooding. The type of works proposed will result in a very small increase in the size of the existing bridge piers, piles and abutments. Therefore, it is considered that any associated adverse effects on the flow and flood carrying capacity of the river/stream will be minimal.

During the construction phase of any bridge repair and strengthening works a construction platform or access structure may be required to access the bridge structure to carry out the remediation works. To reduce any impact on flood capacity these works will be undertaken at times of low flows and will be removed upon completion of the works. Given the temporary nature and timing of this work it is considered they will have minimal effects on the flood capacity of the waterbody.

It is considered that due to the small increase in the pier and abutment footprint, and the temporary nature of access structures, the proposed remediation works will not have a noticeable effect on the flow of water and is considered to have less than minor adverse effects on the flood carrying capacity of the respective waterbody.

6.1.3 ASSOCIATED STRUCTURES AND WORKS

The proposed remediation works include the construction of other structures and works along the river/stream banks including bank stabilisation work, and scour protection structures. These structures will be located outside of the wetbed of the river/stream, in the same or similar location pre-cyclone, or along a new bank location to provide for a widened bed width providing a greater level of resilience. These works and structures will not alter the current flow of the river/stream and will provide either the same or an improved flood carrying capacity within the waterbody. It is considered that the resulting adverse effects on the flood carrying capacity of the waterbody will be less than minor and acceptable.

6.1.4 SUMMARY

The purpose of the consent is to remediate the sites damaged by flooding and provide improved resilience to infrastructure of Hastings District Council. The proposed works for each site can vary significantly due to the different types of structures involved. Conditions have been suggested to mitigate the effects on flow and flood capacity by requiring structures to be engineer designed, and there to be no decrease in flood capacity.

All culvert works and associated structures and works will either maintain the existing pre cyclone flow and flood carrying capacity or in most cases will have an increased capacity while maintaining the flow rate. The bridge repair and strengthening works would have a small increase in footprint but the effects on flow will not be noticeable.

Overall, it is considered that any adverse effects on the flow and flood carrying capacity of the streams from the proposed repair and remediation works for culverts and bridges and their associated structures will be less than minor.

6.2 EFFECTS ON WATER QUALITY

Water quality is mostly affected by a change in the composition of the water, mainly from contaminants and sediment entering the waterbody. The works associated with the repair and remediation of the cyclone damaged culverts and bridges across the district will require a variety of works to be undertaken which can affect the water quality of the river/streams where the structures are located.

The greatest adverse effects on water quality will be during construction, repair and cleaning where sediment or other contaminants enter the waterbody either directly or through runoff. This can be caused by vegetation clearance; soil disturbance and discharge to land; works within the bed of the waterbody; scour; spills and cleaning.

6.2.1 VEGETATION CLEARANCE

Vegetation clearance only requires consent when the works fall under this definition and is undertaken within 5m of the riverbed. Due to the nature of the sites and types of works proposed it is possible that this standard will not be met as access to the bridge culvert structure is required to carry out the remediation works. Vegetation will only be cleared for access to the site and to undertake the construction works. All vegetation removed will be cleared from the work area and transported away from the river/stream to ensure it does not immobilise and wash into the river/stream. Appropriate erosion and sediment controls will be in place for the duration of the remediation works. Conditions of consent are volunteered requiring an ESP to be provided for each site prior to construction commencing and for the erosion and sediment control measures to be maintained. Once works are completed the surrounding banks and work area will re-contoured to compliment the surrounding landscape and revegetated in appropriate vegetation which will typically be grass, to prevent erosion and runoff from the banks.

6.2.2 SOIL DISTURBANCE AND DISCHARGE TO LAND

Soil disturbance and a discharge to land is required to undertake most of the repair and construction works and can result in sedimentation of the waterbody. Some sedimentation is unavoidable due to the works being in and around water however it is only when there is a significant effect after reasonable mixing that a resource consent is required.

In order to reduce the amount of sediment entering the stream and avoid causing a significant adverse effect on the water body, an erosion and sediment control plan will be prepared in line with the scale of the works proposed and be submitted to HBRC for approval prior to works commencing (refer to volunteered conditions in Appendix G). Where works require soil disturbance and discharges to land the erosion and sediment controls will be installed in accordance with an erosion and sediment control plan. Erosion and sediment controls may include silt fences, bunding, limiting access points, cleaning machinery prior to entering the riverbed, and minimising dust.

All discharges to land will compromise of either cleanfill or reuse of the soil existing within this environment where appropriate. This will ensure any sediment run off into the stream is not contaminated or is appropriate within this environment.

6.2.3 BED DISTURBANCE

Demolition, construction and repair works undertaken within the bed of the river can cause sedimentation and contamination of the waterbody. To reduce bed disturbance, works will be undertaken from the banks of the stream where possible.

Temporary diversions of the water may be required to create a dry bed to undertake the construction works and reduce bed disturbance. The placement of a diversion only causes a small amount of sediment to enter the water and clears after reasonable mixing. Creating a dry work area for any demolition and construction works significantly reduces sediment entering the waterbody and reduces the risk of contamination. This will allow for materials such as concrete to be used for the repair and remediation works and time for it to be sufficiently dry so it doesn't contaminate the water.

6.2.4 SCOUR

Culverts and bridges often include various scour protection structures to be constructed to ensure they function as designed and are not undermined by scour. Scouring from the water can lead to bank destabilisation and increased sediment volumes entering the water. Preventing scour and maintaining the viability of the culvert or bridge is a high priority for these types of infrastructure works. The application includes the repair, upgrading and construction of scour protection structures for up to 50m upstream and downstream of the site. These types of structures include, but are not limited to, rock rip rap, reno mattresses, headwalls, wingwalls and retaining walls. It is considered that these scour protection structures once constructed will result in minimal effects on water quality as they will improve bank stabilisation and reduce sediment from banks dislodging and entering the waterbody.

6.2.5 SPILLS AND CONTAMINATION

Vehicles and machinery use around waterbodies can result in contamination of the water. To avoid this works will be undertaken within a dry bed where possible. All vehicles and machinery will be parked and refuelled more than 20m away from the waterbody. A condition of consent is volunteered requiring a spill management plan to be prepared and undertaken on site during construction works. Upon completion of the works the site will be tidied up and all materials removed.

The demolition or partial removal of a structure within the bed of the stream can lead to parts of the structure contaminating the water. To avoid this the works will be undertaken within a dry bed where possible. If not possible then catchers or other devices will be placed within the waterbody to ensure any debris or remnants of the structure are captured and removed from the waterbody.

All construction materials used for remediation works located within the bed of rivers/streams will be non-toxic to ensure the water quality of the river/ stream over the long term is not compromised. All discharges to land will also consist of either cleanfill materials or reuse of existing soils.

6.2.6 SUMMARY

The proposed works will have a temporary effect on the water quality of the stream during the construction phase. As outlined above these effects can be avoided by installing erosion and sediment controls, following a spill management plan, creating a dry bed to undertake works, and revegetation planting once works are completed. The adverse effects of the temporary construction works are considered to be less than minor as any effects can be avoided and mitigation by imposing suitable conditions on the consent.

Over the longer term the proposed works are likely to reduce the effects of scour and sedimentation along the stream banks in comparison to the existing environment as they will improve bank stability through the use of engineer designed structures.

Overall, it is considered that with the proposed mitigation measures and imposition of the volunteered conditions that any associated adverse effects from the proposed remediation works on water quality will be less than minor and acceptable.

6.3 EFFECTS ON ECOLOGICAL VALUES

The proposed repair and remediation works to bridges, culverts and associated structures are all located within and around waterbodies and have the potential to result in adverse effects on the ecology of the streams in which the works are being undertaken.

The potential adverse effects on ecology comes from undertaking works during fish spawning season; damage to instream and terrestrial habitats; water quality and contamination; and physical changes to the environment.

6.3.1 INSTREAM HABITAT / FISH PASSAGE

The proposed remediation works have the potential to result in adverse effects on fish passage and instream habitat from the creation of temporary diversions to carry out the works, and from the remediation works required within waterbodies.

The diversion of water may be required to provide dry work areas within stream beds. Diversions may be in place for periods of several weeks while construction within stream beds takes place. All diversions will be removed upon completion of works. Works requiring diversions will likely occur during the summer construction season when water flows are expected to be low, which will allow flows to continue within streams throughout construction and allow for fish passage. Diversions are likely to be earth bunds and will only be a partial diversion.

Where possible the works proposed will be undertaken outside fish spawning season which runs from 1 May until 30 September. However, given the season runs for 5 months of the year, this is not always practicable or achievable on every site. The scale of works, construction timeframe, urgency and contractor availability are all examples of factors that can influence the timing of works during the year.

As discussed above, culverts may not meet the size and embedment depth required under Regulation 70(2)(d) and (e) of the NES-FW, however fish passage will continue to be provided at all sites. Alternative methods such as spat ropes and baffles may be required. Site specific fish passage requirements will be included in the construction methodology prepared for each site.

Water quality also has a big impact on instream fauna and habitat. These effects are assessed in Section 6.2 above.

6.3.2 WETLANDS

The sites listed in Appendix A of this application are not located near any identified or listed wetlands. There could however be unidentified wetlands within 100m of a site particularly given the changes to the environment following the Cyclone Gabrielle floods. This application does not include any works within 100m of a wetland that could not be undertaken as a permitted activity under the NES-FW or the RRMP.

Where any possible wetlands are identified within 100m of a site through desk top analysis, a walk over, or by other means, an ecologist will investigate and the site and determine if area is deemed to be a wetland. Where the area is identified by an ecologist as a wetland and is within 100m of the site, a separate resource consent will be prepared for these works.

6.3.3 SUMMARY

Overall, the scope of the repair and remediation works, and the environmental constraints in which the sites are situated varies greatly. The majority of sites will not require extensive works to be

undertaken in the wet bed of the stream but there is the possibility that some sites may require changing the channel back to its pre-cyclone location, undertaking works during fish spawning and providing alternative means for fish passage.

An ecological assessment of the repair and remediation works has not been prepared for this application due number of sites and unknown details of the works required for each site. As assessed above the ecological effects of the application can be mitigated through the imposition of suitable conditions on the consent. It is considered that with the imposition of the proposed mitigation measures and volunteered conditions, the adverse effects from the proposed remediation works on the ecological value of the rivers and streams where the works are located will be less than minor and acceptable.

6.4 CULTURAL AND HERITAGE VALUES

The streams and river catchments across the Hastings District are taonga to Mana Whenua with its rich history and cultural values. These waterbodies are also Statutory Acknowledgement Areas for a number of Mana Whenua.

A cultural values assessment has not been provided with the application due to the broad range of sites and spread of locations across the District. Taking into account cultural values is important to the applicant as a treaty partner Mana Whenua engagement has been a key part of the cyclone recovery programme with regular hui, wānanga, and updates being provided to the Mana Whenua authorities about the works proposed, being undertaken. This engagement has been helpful in forming partnerships with Mana Whenua and building trust. Cultural impact/values assessment were discussed at the wānanga on 20 June (refer to Section 5.2 above), area wide cultural impact/values assessments will not be provided due to the large scale of the recovery works. Instead, engagement will continue throughout the recovery project and any unique sites identified will be treated differently (individual resource consents will be applied for).

The proposed remediation works have the potential to result in an adverse effect on the māuri of the water bodies where they are being undertaken. While the author of this application is not an expert in Cultural Values, māuri is understood to mean the life force of the waterbody and its continual quality as an essential part of the surrounding ecosystem.

There are a number of wāhi tāpu sites located in close proximity to rivers and streams. Engagement has identified that only approximately 1% of these areas are registered and mapped. Protecting wāhi tapu and wāhi taonga is very important. Through the engagement undertaken Mana Whenua have had the opportunity to identify which sites need further cultural assessment and these sites have been removed from this application. The application does not include any works within or in close proximity to wāhi tapu or wāhi taonga areas and a condition of consent is suggested to ensure that if any non-registered areas are identified in close proximity to the sites included in this application that works at these sites are not covered by this application and individual resource consents will be sought.

To minimise the adverse effect on the māuri of the water bodies, mitigation measures will be in place for the duration of the works at all remediation sites. These mitigation measures are discussed in detail in the assessment of adverse effects on water quality and ecological values in Sections 6.2 and 6.3 above. Mitigation measures include, erosion and sediment control measures, and spill management procedures to avoid, where practicable, sediment and contaminants from machinery entering the water bodies. On completion of the works, vegetation will be re-instated and the sites stabilised. With the inclusion of these mitigation measures, it is considered that the adverse effects on the water bodies are likely to be less than minor.

Engagement will be on-going throughout the roading recovery programme and guidance or suggestions from Mana Whenua on how adverse effects on the mauri of the water bodies can be avoided, remedied or mitigated at each site will be sought and incorporated into the design of the

remediation works, construction methodology, erosion and sediment control plans, and spill management plans. A condition requiring notification of the works for each site and inviting them to participate in site inspections has been recommended as a condition of consent.

There are no heritage listed sites located in proximity to the sites and there are only two recorded archaeological sites located within 100m of the 191 bridge and culvert sites as outlined in Section 2.5 of this report. Harpers Culvert in Waimarama is near middens/ovens and Kuripapango Bridge is near the old Kuripapango Hotel site. If works are required at these sites then further assessment as to their exact location will be undertaken and if required an Archaeological Authority from Pouhere Taonga Heritage New Zealand will be obtained prior to works commencing.

All works will be undertaken pursuant to an accidental discovery protocol which has been recommended as a condition of consent. This will ensure that if any archaeological items are discovered during construction works that works will stop immediately and the protocol set out in the accidental discovery protocol will be followed.

Overall, it is considered, with the proposed exclusion of sites which require further cultural assessment, the mitigation measures proposed, and ongoing engagement throughout the recovery project the adverse effects from the repair and remediation of bridge and culverts across the District on the cultural and heritage values will be minimal.

6.5 POSITIVE EFFECTS

The proposed culvert and bridge repair and remediation works will contribute to the health and safety of the community, as a stable and more resilient roading network will provide for economic, social and cultural wellbeing for the people within the district. People rely on the roading network to travel to and from their properties, farms, places of work, schools, shopping centres and other amenities and often in rural environments there are no other alternatives.

The culverts and bridge works proposed will mostly be an improvement and upgrade to what was existing pre-Cyclone Gabrielle to provide additional flood capacity within the structure. This additional resilience will minimise the risk of further damage, scouring and blockage occurring around the culvert and bridge in the future, resulting in less sediment and contamination entering the waterbody over the longer term.

Overall, the positive effects on the social and economic wellbeing of people and the environment would outweigh any minor adverse effects that the remediation of the bridges and culverts will have on the surrounding environment.

6.6 SUMMARY OF EFFECTS

Overall, it is considered that with the implementation of the mitigation measures outlined in the assessments above and suitable conditions placed on the consent such as those recommended in Appendix G, the adverse effects of the remediation works will be reduced as far as practicable and the effects on the environment will be less than minor.

7 NOTIFICATION ASSESSMENT

Sections 95 to 95F of the 'Act' sets out the requirements for notification, limited notification and non-notification. The public and limited notification assessments are outlined below.

7.1 PUBLIC NOTIFICATION ASSESSMENT – SECTION 95A

Section 95A of the 'Act' requires a step-by-step process to be taken by the consent authority when determining whether public notification is mandatory or not. The Table below contains an assessment of each step under Section 95A.

Table 1. Section 95A Public Notification Assessment

Step 1: Mandatory Public Notification in certain circumstances:	YES	NO
Has the applicant requested public notification? [s95A(2)(b)]		X
Is Public Notification required under s95C?		X
The application is made jointly with an application to exchange recreation reserve land under Section 15AA of the Reserves Act 1977.		X
Step 2: Public Notification precluded in certain circumstances:	**YES**	**NO**
Does a rule or NES preclude public notification of the application? [s95B(2)]		X
Is the application a controlled activity?		X
Is the application for a boundary activity [87AAB]		X
Step 3: Public Notification required in certain circumstances:	**YES**	**NO**
Does a rule or NES require public notification of the application? [s95B(2)]		X
Are adverse effects on the environment more than minor? [s95A(2)(a)]		X
Step 4: Public notification required in special circumstances:	**YES**	**NO**
Do special circumstances apply that warrant public notification? [s95A(4)]		X

The assessment in Section 6 of this application found that the adverse effects of this application will be no more than minor, and I consider there are no special circumstances that would require the application to be publicly notified.

It is concluded that the application can proceed without public notification.

7.2 LIMITED NOTIFICATION ASSESSMENT – SECTION 95B

Where public notification of the application is not required under Section 95A, then Section 95A(9)(b) of the 'Act' requires the Council to determine whether limited notification of the application is required under Section 95B. Section 95B of the 'Act' requires a step-by-step process to be taken by the consent authority when determining whether limited notification of the application is mandatory or not. The table below contains an assessment of each step under Section 95B.

Table 2. Section 95A Public Notification Assessment

Step 1: Certain affected groups and affected persons must be notified:	YES	NO
Are there any affected protected customary rights groups? [s95F]		X
Are there any affected customary marine title groups? [s95G]		X
Is the activity on, adjacent to or likely to affect land that is the subject of a statutory acknowledgement area and would you consider the person(s) for		X

whom the statutory acknowledgement is made to be an affected person? [s95E]		
Step 2: Limited Notification precluded in certain circumstances:	YES	NO
Does a rule or NES preclude limited notification of the application?		X
Is the land use consent a controlled activity under the District Plan?		X
Step 3: Certain other affected persons must be notified:	YES	NO
Are there any adverse effects on a person that are minor or more than minor? [s95E]		X
Step 4: Limited notification required in special circumstances:	YES	NO
Do special circumstances apply for notification to any other persons?		X

The culvert and bridge sites subject of this consent are located across the district and involve works in and around waterbodies. The works will be undertaken within the Statutory Acknowledgement Areas of Mana Ahuriri Hapū, Tamatea Pōkai Whenua (previously Heretaunga Tamatea Settlement Trust), Maungaharuru-Tangitu Trust and Ngati Hineuru.

As discussed earlier in Sections 5 and 6 of this report the applicant has engaged with the local community and Mana Whenua partners under the wider rebuild and recovery programme. This engagement is ongoing and will continue over the coming months and years.

In relation to this application a copy of the maps identifying the list of sites covered under this application has been discussed with Mana Whenua at various hui around the district over the past month. Any sensitive sites identified by Mana Whenua as having high cultural values and requiring further cultural assessment have been removed from this application and will be addressed under separate site-specific applications. Ongoing communication and notification of works starting for each site has been requested and is proposed to be included as a condition of consent.

The majority of works are undertaken within the road reserve but where they are on private property the landowners consent will be obtained. Where any dwellings or sensitive activities such as water takes are located in near proximately to the site then these people will be notified prior to works commencing as suggested in the conditions of consent in Appendix G.

The assessment in Section 6 of this application found that the adverse effects of this application will be less than minor with appropriate conditions placed on the consent to address the range of adverse effects described in the application and any adverse effects towards Mana Whenua and other people can be appropriately mitigated.

There are no special circumstances that would require the application to be limited notified to any persons and it is concluded that the application can proceed without limited notification.

7.3 NOTIFICATION SUMMARY

Considering the above assessments there are no preclusions, or special circumstances which require public or limited notification of the application. The assessment of adverse effects in Section 6 concluded that they would be no more than minor on the surrounding environment and are considered less than minor towards any person.

In conclusion the application can proceed to be processed on a non-notified basis.

8 STATUTORY ASSESSMENT

When considering an application for resource consent Section 104(1) of the RMA sets out the matters that Council must have regard to, subject to Part 2. These matters are,

(a) Any actual and potential effects on the environment of allowing the activity; and

(ab) Any measure proposed or agreed to by the applicant for the purpose of ensuring positive effects on the environment to offset or compensate for any adverse effects on the environment that will or may result from allowing the activity; and

(b) Any relevant provisions of:

(i) a national environmental standard:
(ii) other regulations:
(iii) a national policy statement:
(iv) a New Zealand coastal policy statement:
(v) a regional policy statement or proposed regional policy statement:
(vi) a plan or proposed plan; and

(c) Any other matters the consent authority considers relevant and reasonably necessary to determine the application.

When processing a resource consent for a Discretionary Activity Section 104B of the RMA states that:

After considering an application for a resource consent for a discretionary activity or non-complying activity, a consent authority—

(a) may grant or refuse the application; and
(b) if it grants the application, may impose conditions under Section 108.

In accordance with S104B of the RMA, the Regional Council can approve or refuse the application. As discussed in the assessment of environmental effects above, it was concluded that the adverse effects on the environment from the proposal would be minor.

In accordance with S104(1)(b), below is an assessment of the relevant planning matters that the Regional Council must have regard to when making a decision.

8.1 NATIONAL ENVIRONMENTAL STANDARDS

Section 4 of this report outlined that the only national environmental standard relevant to the application is the NES-FW. Resource consent is sought as a discretionary activity as the culvert repair and remediation works outlined in this application may not meet all of the relevant permitted conditions under regulation 70 for every site.

Where possible the culvert remediation works will be undertaken in accordance with the permitted activity culvert conditions of regulation 70 in order to provide for fish passage however there may be the instances where meeting these standards is not possible or practicable for reasons such as the environmental constraints of the site and alternative means of fish passage may be required, such as using spat ropes or baffles.

When the permitted standards cannot be met the conditions of regulations 62, 63 & 69 shall be imposed on any consent application. Given the limited number of sites that may not comply with these standards the conditions should only apply to sites where the permitted standards cannot be met.

The NES-FW also contains regulations regarding works within 100m of a wetland. The list of bridge and culvert sites are not located within 100m of any known wetlands. If it is found that works on any of the sites will be located within 100m of a wetland then a separate resource consent application will be applied for and assessed independently from this application.

Overall, with suitable conditions placed on the consent as outlined in the Section 6 assessment the proposed repair and remediation works will be in general accordance with the overall intent of the NES-FW.

8.2 NATIONAL POLICY STATEMENTS

There are a number of national policy statements prepared by the Ministry for the Environment that Council's must have regard to when making a decision on an application. The only relevant national policy statements in relation to the repair and remediation works for cyclone damaged bridges and culverts is the New Zealand Coastal Policy Statement 2010, National Policy Statement for Freshwater Management 2020 (NPS-FM) as amended February 2023, and the National Policy Statement for Indigenous Biodiversity 2023 (NPSIB).

8.2.1 NEW ZEALAND COASTAL POLICY STATEMENT 2010

The purpose of the New Zealand Coastal Policy Statement (NZCPS) is to state policies in order to achieve the purpose of the RMA in relation to the coastal environment of New Zealand. The NZCPS recognises that the coastal environment has challenges, qualities and uses that mean there are particular challenges in promoting sustainable management. There are 7 objectives and 29 policies in the NZCPS. The objectives broadly include:

- Safeguarding of the integrity, form, functioning and resilience of the coastal environment and sustaining its ecosystems;
- Preservation of natural character and protection of natural features and landscape values;
- Taking into account the principle of the Treaty of Waitangi, recognise the role of tangata whenua as kaitiaki, and providing for the involvement of tangata whenua in management of the coastal environment;
- To maintain and enhance public open space and recreation opportunities of the coastal environment;
- To ensure that coastal hazard risks are appropriately managed and take into account climate change;
- To enable people and communities to provide for their social, economic and cultural wellbeing and their health and safety through appropriately managed subdivision, use and development; and
- To ensure that management of the coastal environment recognises and provides for New Zealand's international obligations.

It is my opinion that the following policies of the NZCPS are relevant to the proposal.

- Policy 2 – The Treaty of Waitangi, tangata whenua and Māori heritage
- Policy 6 – Activities in the Coastal Environment
- Policy 11 – Indigenous Biological Diversity (biodiversity)
- Policy 13 – Preservation of Natural Character
- Policy 15 – Natural features and Natural landscapes
- Policy 17 – Historic heritage identification and protection
- Policy 21 – Enhancement of water quality
- Policy 22 – Sedimentation
- Policy 23 – Discharge of Contaminants
- Policy 25 – Subdivision, use, and development in areas of coastal hazard risk

The proposed bridge and culvert repair and remediation works proposed under this consent include only two sites of the 191 proposed which are located within the coastal environment. Both of these sites are located within the coastal settlement of Waimarama and neither are located within the Coastal Marine Area.

Where the work is to a bridge within the coastal area, it will be undertaken in a manner that continues to maintain the coasts natural biological and physical processes and New Zealand's indigenous coastal flora and fauna. The sites are not located within an outstanding landscape and any work will be undertaken will not increase the risk of any hazards on the surrounding environment.

Erosion and sediment controls and a spill management plan have been proposed as conditions of consent to mitigate the impacts of sedimentation on the coastal environment. An archaeological accidental discovery protocol is proposed as a condition of consent in case of any uncovered archaeological finds during works.

The principles of the Treaty of Waitangi have been considered, as outlined earlier in Section 5 where extensive engagement with Mana Whenua has and continues to be ongoing.

Overall is it considered that with suitable conditions placed on the consent the proposal will be consistent with the objectives and policies of the New Zealand Coastal Policy Statement 2010.

8.2.2 NATIONAL POLICY STATEMENT FOR FRESHWATER MANAGEMENT 2020

The NPS-FM is based on the fundamental concept of Te Māna o te Wai, which refers to the fundamental importance of water and recognises that protecting the health of freshwater, protects the health and well-being of the wider environment. This concept has six principles relating to the roles of tangata whenua, authorities and other New Zealanders in the management of freshwater.

The NPS-F has one objective and 15 policies that seek to ensure natural and physical resources are managed in a way that prioritises:

(a) first, the health and well-being of water bodies and freshwater ecosystems
(b) second, the health and needs of people (such as drinking water)
(c) third, the ability of people and communities to provide for their social, economic, and cultural well-being, now and in the future.

The potential adverse effects associated with the repair and remediation of culvert and bridge sites has been assessed earlier in Section 6 as having less than minor adverse effects on the environment. Having considered the objective and policies of the NPS-FM it is considered that the proposed repair and remediation works will not be inconsistent with these objective and policies.

8.2.3 NATIONAL POLICY STATEMENT FOR INDIGENOUS BIODIVERSITY

The overall objective of the NPSIB is to maintain the indigenous biodiversity of New Zealand and contains 17 policies to support this objective.

The site and surrounding environment do not contain any identified Significant Natural Areas (SNA's). The floods damaged a lot of vegetation within the beds of streams and rivers where the works are proposed and may only require the removal of selective regenerating indigenous vegetation over a small area for access to the site and construction works.

The proposed repair and remediation works proposed under this application will not be inconsistent with the objective and policies of the NPSIB and there will not be a loss of biodiversity associated with the works.

8.3 REGIONAL RESOURCE MANAGEMENT PLAN

The Regional Resource Management Plan (RRMP) includes the Regional Policy Statement objectives and policies in chapters 2 and 3 and the Regional Plan objectives and policies in chapter 5. The relevant objectives and policies of the RRMP are addressed in the table below and includes those changes made under Proposed Plan Change 9 – Tūtaekuri, Ahuriri, Ngaruroro and Karamu Catchments (TANK) Decision Version 9 September 2022, which have not yet been incorporated into the RRMP.

Table 3: Regional Resource Management Plan Objectives and Policies Assessment as amended by TANK Plan Change 9

Regional Policy Statement (RPS)	
Chapter 2.3 Plan Objectives	Objective 1 *To achieve the integrated sustainable management of the natural and physical resources of the Hawke's Bay region, while recognising the importance of resource use activity in Hawke's Bay, and its contribution to the development and prosperity of the region.*
<u>Assessment</u> The proposal is seeking consent for repair and remediation of bridges and culverts that are part of the hastings District Council's roading network following the flooding from Cyclone Gabrielle. The assessment of effects outlined that with suitable conditions placed on the consent the potential adverse effects would be less than minor on the natural and physical environment. As outlined in Section 6 above relating to the positive effects of the proposal the road network provides is a critical asset for the overall social and economic well-being of communities namely those in the rural environment. The proposal will therefore be consistent with the overall objective of the Regional Policy Statement.	
Chapter 3.1A Integrated Land Use and Freshwater Management	Objective LW 1 – Integrated management of fresh water and land use and development *Fresh water and the effects of land use and development are managed in an integrated and sustainable manner which includes:* *1. protecting the quality of outstanding freshwater bodies in Hawke's Bay;* *1A. protecting wetlands, including their significant values;* *2. the maintenance of the overall quality of freshwater within the Hawke's Bay region and the improvement of water quality in water bodies that have been degraded to the point that they are over-allocated;* *2B. establishing where over-allocation exists, avoiding any further over-allocation of freshwater and phasing out existing over-allocation;* *3. recognising that land uses, freshwater quality and surface water flows can impact on aquifer recharge and the coastal environment;* *4. safeguarding the life-supporting capacity and ecosystem processes of fresh water, including indigenous species and their associated fresh water ecosystems;* *5. recognising the regional value of fresh water for human and animal drinking purposes, and for municipal water supply;* *6. recognising the significant regional and national value of fresh water use for production and processing of beverages, food and fibre;* *7. recognising the potential national, regional and local benefits arising from the use of water for renewable electricity generation;* *8. recognising the benefits of industry good practice to land and water management, including audited self-management programmes;*

	8A. recognising the role of afforestation in sustainable land use and improving water quality; *9. ensuring efficient allocation and use of water;* *12. recognising and providing for river management and flood protection activities;* *13. recognising and providing for the recreational and conservation values of fresh water bodies; and* *14. promoting the preservation of the natural character of the coastal environment, and rivers, lakes and wetlands, and their protection from inappropriate subdivision, use and development.* Objective LW3 Tāngata whenua values in management of land use and development and freshwater *Tāngata whenua values are integrated into the management of freshwater and land use and development including:* *a. recognising the mana of hapū, whanau and iwi when establishing freshwater values; and* *b. recognising the cumulative effects of land use on the coastal environment as recognised through the Ki uta ki Tai ('mountains to the sea') philosophy; and* *c. recognising and providing for wairuatanga and the māuri of fresh water bodies in accordance with the values and principles expressed in Chapter 1.6, Schedule 1 and the objectives and policies in Chapter 3.14 of this Plan; and* *d. recognising in particular the significance of indigenous aquatic flora and fauna to tāngata whenua.*
Assessment As discussed in Sections 6.1-6.3 of this report the water quality, quantity and ecological effects from the proposed culvert and bridge repair and remediation works will be less than minor with suitable conditions placed on the consent to maintain the life support capacity of ecosystems. Conditions are recommended in relation to erosion and sediment controls, spill management plan, and ecological assessment under certain circumstances, to reduce any potential construction effects on the sites and maintain fish passage and biodiversity. The proposal will be consistent with objective LW1 namely as the remediation works will not decrease the flow and flood carrying capacity of the river and where possible will improve the existing situation; the passage of fish will be maintained; works will not affect wetlands; and maintain or improves the flood carrying capacity to cope with future events which will have less impact over the longer term on the environment. As outlined in Section 6.4 of this assessment the site is located within Statutory Acknowledgement Areas for a number of Mana Whenua groups. The applicant has engaged with Mana Whenua over the proposal as outlined in Section 5 and are supportive of an area wide consent for these works and any unique sites requiring further assessment of cultural effects has been excluded. Overall it is considered that the approach taken and measures proposed are consistent with Objectives LW1 and LW3.	
Chapter 3.10 Surface Water Resources	Objective 27 – Surface Water Quality *The water quality in rivers, lakes and wetlands is suitable for sustaining or improving aquatic ecosystems, and for other freshwater objectives identified in accordance with a catchment-based process set out in Policy LW1 and Policy LW2, including contact recreation purposes where appropriate.* *Objective 27A*

	Riparian vegetation on the margins of rivers, lakes and wetlands is maintained or enhanced in order to: *a) maintain biological diversity;* *b) maintain and enhance water quality and aquatic ecosystems; and* *c) support the use of surface water resources in accordance with tikanga Māori.*
Assessment As previously mentioned, the proposal will have less than minor adverse effects on water quality of the streams in which the sites are located on the basis that conditions will be placed on the consent for erosion and sediment controls and spill management plan where works are undertaken within 20m of the waterbody. Riparian vegetation was damaged by the flooding in February 2023 and a minimal amount of regenerating vegetation may be required to be removed to provide for access and construction works to be undertaken. This will have less than minor effects on the biological diversity of the river. As such, the proposal will be consistent with Objectives 27 and 27A.	
Chapter 3.12 Natural Hazards	Objective 31 *The avoidance or mitigation of the adverse effects of natural hazards on people's safety, property, and economic livelihood.*
Assessment The proposal is for the repair and remediation of culverts and bridges that sustained some level of damage due to the severe flooding associated with Cyclone Gabrielle earlier this year. The works are required to maintain the road network and improve its resilience to future flood events by remediating the sites to the same or an improved design and capacity than what existed prior to the cyclone. The sites are mostly located within rural environments where there is very little flood mitigation infrastructure. As mentioned under Sections 6.1 and 6.6 the works will have no more than minor adverse effects on the flood carrying capacity of the streams in which they are located and will improve the resilience of this infrastructure to cope with future events leading to less effects from flooding on people and properties up and downstream from the sites. The proposal will be consistent with Objective 31.	
Chapter 3.13 Maintenance and Enhancement of Physical Infrastructure	Objective 32 *The ongoing operation, maintenance and development of physical infrastructure that supports the economic, social and/or cultural wellbeing of the region's people and communities and provides for their health and safety.*
Assessment As mentioned above the repair and remediation works proposed around a number of culvert and bridge sites across the Hastings District is required to maintain a safe and efficient roading network that supports the economic, social and cultural wellbeing of the region's communities. The proposal is therefore consistent with Objective 32.	
Chapter 3.14 Recognition of Matters of Significance to Iwi/Hapū	Objective 34 *To recognise tikanga Maori values and the contribution they make to sustainable development and the fulfilment of HBRC's role as guardians, as established under the RMA, and tangata whenua roles as kaitiaki, in keeping with Maori culture and traditions.* Objective 35

	To consult with Maori in a manner that creates effective resource management outcomes.

Assessment

The applicant has and is continuing to engage with local Mana Whenua in relation to the Cyclone Gabrielle recovery works which will be undertaken over the next 10 years. The potential adverse effects on cultural values have been considered in Section 6.4 and concluded that the proposal will have less than minor adverse effects on cultural values.

I consider the engagement work being undertaken is consistent with Objectives 34 and 35.

Regional Plan	
Chapter 5.1A Consolidated Regional Plan provisions inserted by various national directions	Objective 37A Fish Passage *The passage of fish is maintained, or is improved, by instream structures, except where it is desirable to prevent the passage of some fish species in order to protect desired fish species, their life stages, or their habitats.* Policy 66B Loss of river extent and values *The loss of river extent and values is avoided, unless the council is satisfied:* *(a) that there is a functional need for the activity in that location; and* *(b) the effects of the activity are managed by applying the effects management hierarchy.*

Assessment

The construction of the culvert and bridge works will be undertaken to maintain or improve the existing passage of fish, where possible. Due to environmental constraints of a site there is a possibility that some works may need to include additional measures, such as spat ropes and baffles, for fish passage to occur and this will be done in consultation with an ecologist.

The proposal will not result in a loss of river extent and values and there is a functional need for these activities to be undertaken in their location due to the road alignment.

Therefore, the proposal will be consistent with Objective 37A and Policy 66B.

Chapter 5.8 Beds of Rivers and Lakes	Objective 45 *The maintenance or enhancement of the natural and physical resources, and use and values, of the beds of rivers and lakes within the region as a whole.* Policy 79 *To manage the effects of activities affecting river beds and lake beds in accordance with the environmental guidelines set out in Table 12.*

Assessment

It is considered that the proposal is consistent with Objective 45 and Policy 79. As assessed earlier in this report the potential adverse effects of the proposed works on the values of the river are less than minor. The majority of adverse effects will be temporary and with suitable conditions on the consent the works will be in accordance with the environmental guidelines in Table 12.

Chapter 5.10 TANK Objectives General Objectives	OBJ TANK 1 *Land and freshwater in the Tūtaekurī, Ahuriri, Ngaruroro and Karamū catchments are sustainably managed as integrated natural resources so that:*

Water Quality General	*b) Te Mana o te Wai and, ki uta ki tai (mountains to the sea) are upheld and recognised* *c) The interconnectedness between land and water and between surface water and groundwater are recognised* *d) Indigenous biodiversity is protected and life-supporting capacity and the aquatic ecosystem processes are safeguarded* *e) outstanding water bodies in Schedule 25 and the values in the plan objectives are appropriately protected and provided for* *and that:* *f) the kaitiaki responsibilities of tangata whenua to land and freshwater and cultural connection are recognised and provided for* *g) tangata whenua are supported in carrying out cultural practices with respect to water management in their rohe.* OBJ TANK 2 *Mauri enhancement and ecosystem health outcomes are achieved through:* *a) Collectively managing all of the specified attributes described in Schedule 26* *b) Establishing and implementing minimum flows and allocation limits in rivers and streams* *c) Establishing an interim allocation limit of 90million cubic metres per year for takes of groundwater* *d) Allocating water based on Actual and Reasonable use* *e) Flow enhancement schemes.* OBJ TANK 4 *The quality of the TANK freshwater bodies is maintained where objectives are currently being met, or is improved in degraded waterbodies so that they meet target attribute states in Schedule 26 by 2040 provided that:* *a) for any specific water body where the attribute state is found to be higher than the target attribute state given in Schedule 26, the higher state is to be maintained* *b) progress is made over the life of this Plan towards the long term target attribute states by the mixture of regulatory and non-regulatory provisions in this Plan.* OBJ TANK 5 *Riparian margins are protected or improved where necessary to provide for aquatic ecosystem health and mauri of water bodies in the TANK catchment and to:* *a) reduce effects of contaminant loss from land use activities* *b) improve aquatic habitat and protect indigenous species including fish spawning habitat* *c) reduce stream bank erosion* *d) enhance natural character and amenity* *e) improve indigenous biodiversity* *f) reduce water temperature in summer*

Catchment Objectives	*g) reduced nuisance macrophyte growth.* OBJ TANK 6 *Activities in source protection areas for Registered Drinking Water Supplies do not cause source water in these areas to become unsuitable for human consumption, and that risks to the supply of safe drinking water are appropriately managed.* OBJ TANK 7-10

Assessment

The TANK plan change rules are not triggered under this application however the Objectives are relevant to consider as the proposed repair and remediation of some culvert and bridge sites are located within the four catchments the TANK plan change covers.

The relevant objectives above focus on sustainable management of the Tūtaekuri, Ahuriri, Ngaruroro and Karamū catchments by maintaining and enhancing the water quality and quantity of the catchment, enhancing mauri and ecosystem health. Objectives 7-10 are the catchment specific objectives applicable to the application and have similar objectives to each other and the previous objectives and therefore have not been copied into this report.

Mana Whenua engagement has and is continuing to be undertaken by the applicant throughout the Cyclone Gabrielle recovery and has included the proposed work sites under this application. The various Mana Whenua groups agreed that a single application was appropriate for these works and any sites requiring further cultural assessment have been excluded from this application.

As assessed earlier in this report the potential adverse effects of the repair and remediation works will have less than minor adverse effects on water quality, mauri and ecology of the TANK catchments and can be adequately mitigated with conditions of consent imposed to protect and maintain these values. Upon completion of works the riparian areas where access and construction has been undertaken will be contoured into the surrounding landscape and revegetated.

Overall the proposal will be is consistent with TANK Objectives 1, 2, 4, 5, 6, 7, 8, 9 & 10.

Regional Coastal Environment Plan	
Chapter 9 Surface Water Quality	Objective 9.1 *The maintenance and enhancement of the water quality of rivers and lakes in order that the existing species and natural character are sustained, while providing for resource availability for a variety of purposes, including groundwater recharge, maintenance or enhancement of mauri, and the protection of aquatic ecosystems.* Policy 9.1 *To manage the effects of activities affecting the quality of water in rivers, lakes and wetlands in accordance with the environmental guidelines set out in Table 9-1 and Table 9-2.*

Assessment

The bridge and culvert repair and remediation works on the two sites located within the coastal environment will have less than minor adverse effects on water quality of the streams in which the sites are located on the basis that conditions will be placed on the consent for erosion and sediment controls and spill management plan where works are undertaken within and near the waterbody.

Any proposed works undertaken will meet the environmental guidelines in tables 9-1 and 9-2 and overall will be consistent with Objective 9.1 and Policy 9.1.

Chapter 13.1 Bes of Rivers and Lakes	Objective 13.1 *The maintenance or enhancement of the natural and physical resources, and use and values, of the beds of rivers and lakes within the Region as a whole.* Policy 13.1 *To manage the effects of activities affecting river beds and lake beds in accordance with the environmental guidelines set out in Table 13-1.*
Assessment The environmental guidelines in table 13.1 contain 12 issues that have already been considered in this application. These matters relate to fish passage; fish spawning; bed stability; habitat; flow regimes; other structures and activities; flood risk; debris risk; damage to property; temporary activities; outstanding natural features; and historic heritage and significant cultural values. A number of conditions have been suggested to mitigate any adverse effects on the environment relating to these issues and fish passage will be maintained. Overall the proposal will be consistent with Objective 13.1 and Policy 13.1.	

8.4 CONCLUSION

The repair and remediation proposed for cyclone damaged culverts and bridges across the Hastings District has been assessed above against the relevant statutory documents and plans. This assessment has concluded that there the proposal will be consistent with the objectives and policies of the relevant National Policy Statements and with suitable conditions on the consent will be in general accordance with the overall intent of the NES-FW.

Table 3 above outlines the objectives and policies of the RRMP and RCEP that are considered relevant to this application and an assessment is provided against each of these. In conclusion the proposal will not be inconsistent with the relevant objectives and policies of the Regional Resource Management Plan and Regional Coastal Environment Plan.

9 OTHER MATTERS – SECTION 104(1)(C)

Section 104(1)(c) of the RMA requires that Council consider any other matters relevant and reasonably necessary to determine an application. There are no other matters considered relevant in the assessment of this application.

10 PART 2 PURPOSE AND PRINCIPLES OF THE RMA

Section 104 is subject to Part 2 of the RMA; therefore, the following Sections of the Act are relevant to the Section 104 assessment.

Section 5 describes the purpose of the Act:

1 The purpose of this Act is to promote the sustainable management of natural and physical resources.

2 In this Act, sustainable management means managing the use, development, and protection of natural and physical resources in a way, or at a rate, which enables people and communities to provide for their social, economic, and cultural wellbeing and for their health and safety while:

(a) Sustaining the potential of natural and physical resources (excluding minerals) to meet the reasonably foreseeable needs of future generations; and

(b) Safeguarding the life-supporting capacity of air, water, soil, and ecosystems; and

(c) Avoiding, remedying, or mitigating any adverse effects of activities on the environment.

Section 6 describes the matters of national importance, as follows:

In achieving the purpose of this Act, all persons exercising functions and powers under it, in relation to managing the use, development and protection of natural and physical resources, shall recognise and provide for the following matters of national importance:

(a) The preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use, and development:

(b) The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development:

(c) The protection of areas of significant indigenous vegetation and significant habitats of indigenous fauna:

(e) The relationship of Maori and their culture and traditions with their ancestral lands, water, sites, waahi tapu, and other taonga:

(f) The protection of historic heritage from inappropriate subdivision, use, and development:

(g) The management of significant risks from natural hazards.

Section 7 describes other matters that are relevant. In relation to this proposal these matters include:

(a) *Kaitiakitanga:*

(aa) The ethic of stewardship:

(b) The efficient use and development of natural and physical resources:

(c) The maintenance and enhancement of amenity values;

(d) Intrinsic values of ecosystems;

(f) Maintenance and enhancement of the quality of the environment;

(g) Any finite characteristics of natural and physical resources:

(h) The protection of the habitat of trout and salmon:

(i) The effects of climate change:

Section 8 requires that the principles of the Treaty of Waitangi be taken into account. The principles include partnership, active participation and protection.

Comment:
The repair and remediation works proposed are consistent with Sections 5, 6 and 7 of the RMA. The relevant Section 6 and 7 matters have been addressed earlier in the report under the assessment of adverse effects (Section 6) and objectives and policies of the RRMP (Section 8.3). Any adverse effects on the environment as a result can be appropriately avoided, remedied, or mitigated to appropriate levels with suitable conditions placed on the consent.

The purpose of the application is for the repair and remediation of culverts and bridges damaged from a severe flood event and provides vital road infrastructure for the rural communities. The works

will maintain and improve the flood carrying capacity of the streams and will provide resilience to the roading network while also reducing the effects of flooding on the waterbody.

Extensive and ongoing engagement with Mana Whenua has and is continuing by the applicant for the duration of the cyclone recovery programme over the next 7-10 years. The proposal does not raise any matters which would be contrary to the Principles of the Treaty of Waitangi in Section 8.

11 CONCLUSION

Resource consent as a discretionary activity is sought for the repair and remediation of 191 bridge and culvert sites across the Hastings District that sustained damage from the Cyclone Gabrielle flooding in February 2023. The works are required to repair and improve the resilience of the applicant's roading network which provides for the wellbeing of communities particularly within the rural environment.

Mana Whenua and community engagement has been undertaken and will continue throughout the cyclone recovery programme. Through the engagement, Mana Whenua and the communities have been supportive of repairing all cyclone damaged sites to reinstate the roads back to pre-cyclone condition or better and more resilient.

The adverse effects on flood capacity, water quality, ecology and cultural values have been assessed in the application and can be avoided or adequately mitigated through the imposition of conditions on the consent. A draft list of conditions is proposed and attached in Appendix G.

Taking into consideration the notification 'tests' set by Section 95 of the Act, it is considered that the application can be processed by Council without any notification as the adverse effects are no more than minor and there are no persons or statutory acknowledgment holders identified as being adversely affected due to the engagement undertaken and conditions placed on the consent.

The proposal has been assessed against the relevant matters in Section 104(1)(a) of the Resource Management Act including the objectives and policies of the Regional Resource Management Plan. The proposal will not be inconsistent with the NES-FW and will be consistent with the relevant objectives and policies of the National Policy Statement and Regional Resource Management Plan namely in relation to maintaining ecosystem health, mauri of the water and the quality of the environment.

Accordingly, it is concluded that the proposal satisfies all matters the consent authorities are required to address under the Resource Management Act 1991 and the consent sought can be granted, subject to conditions.

It is requested that the draft consent conditions for the proposal be sent to us to review prior to issuing the decision. This will provide an opportunity to provide comments on whether the conditions are practical and achievable.

APPENDIX A

LIST OF BRIDGE AND CULVERT SITES

LIST OF BRIDGE AND CULVERT SITES

BRIDGE / ASSET ID	SITE NAME	ROAD	RP START	RP END	EASTING (NZTM)	NORTHING (NZTM)	STREAM	CATCHMENT
101	PORTERS	PAKURATAHI VALLEY ROAD	2025	2037	1935152.9	5637784.4	Pakuratahi Stream	Waikari
104	WAIPATIKI	WAIPATIKI ROAD	4944	4956	1942067.6	5643227.2	Waipatiki Stream	Waikari
106	DARKEYS SPUR NO. 2	DARKYS SPUR ROAD	2746	2760	1930381.3	5648932.9	Tributary of the Waikoau River	Waikari
107	KAIWAKA	WAIPUNGA ROAD	18201	18206	1931052	5645790.3	Tributary of Poningo Stream	Waikari
110	MCINTYRES LOW LEVEL	MCINTYRES ACCESS ROAD	149	171	1934902.2	5648074.5	Waikoau River	Waikari
111	WAIKOAU GORGE	WAIKOAU ROAD	2085	2125	1933766.1	5652355.9	Waikoau River	Waikari
112	HAMMONDS OVERHEAD	WAIKOAU ROAD	4234	4248	1932443.6	5652038.8	N/A	Waikari
113	WAIKOAU OVERHEAD	WAIKOAU ROAD	7710	7713	1929698.6	5650366.2	N/A	Esk
114	MOKA MOKA BRIDGE	MOKAMOKA ROAD	11896	11904	1926227.3	5657939.6	Tributary of the Esk River	Esk
115	GRANTS OVERHEAD	MATAHORUA ROAD	742	765	1935041.1	5654052.9	N/A	Waikari
116	MATAHORUA OVERHEAD	MATAHORUA ROAD	18484	18500	1942347.9	5659262	N/A	Waikari
117	SHINES	HEAYS ACCESS ROAD	4498	4513	1935778.2	5664521.8	Maori Stream	Waikari
118	HEAYS	HEAYS ACCESS ROAD	6662	6684	1934693.1	5665703.5	Waikari River	Waikari
119	HEAYS GORGE	HEAYS ACCESS ROAD	7026	7037	1934745.4	5665970	Waikari River	Waikari
120	KAHIKA NO. 1 CULVERT	KAHIKA ROAD	2660	2666	1940228.3	5655000.9	Kahika Stream	Waikari
121	KAHIKA NO. 2 CULVERT	KAHIKA ROAD	6795	6801	1943126.5	5655901.1	Tributary of Matahorua Stream	Waikari
123	PARAHAU BRIDGE	WAIKARE ROAD	8718	8730	1950361.6	5657008.8	Whitianga Stream	Waikari
124	NO NAME CULVERT	MATAHORUA ROAD	8941	8943	1935287.1	5660225.1	Matahorua Stream	Waikari
126	ELLIOTTS BRIDGE	OHURAKURA ROAD	3797	3818	1921669.7	5650335.5	Tributary of Okurakura Stream	Esk
127	AVERYS BRIDGE	OHURAKURA ROAD	4893	4908	1922034.4	5651130.1	Tributary of Okurakura Stream	Esk
128	PALMERS CULVERT	OHURAKURA ROAD	6983	6985	1923577.7	5652353.8	Tributary of the Esk River	Esk
129	HARTGILLS BRIDGE	OHURAKURA ROAD	7669	7685	1923977.6	5652754.7	Tributary of the Esk River	Esk
130	LOPDELLS BRIDGE	OHURAKURA ROAD	7918	7934	1924083.5	5652965.5	Tributary of the Esk River	Esk
131	STRACHANS BRIDGE	OHURAKURA ROAD	9504	9516	1924613.2	5654028.8	Tributary of the Esk River	Esk
132	BERRY BRIDGE	BERRY ROAD	480	491	1923881.1	5652109.2	Tributary of Okurakura Stream	Esk
133	MIMIHA NO. 1 BRIDGE	MIMIHA ROAD	95	122	1915502.4	5659353.1	Mimiha Stream	Mohaka
134	MIMIHA NO. 2	MIMIHA ROAD	1788	1805	1916199.3	5657868.3	Tributary of Mimiha Stream	Mohaka
135	MANGAWHATA CULVERT	WAITARA ROAD	1245	1251	1915033.6	5657058.5	Mangowhata Stream	Mohaka
136	WATERFALL	WAITARA ROAD	4546	4561	1915454.1	5659808.8	Mimiha Stream	Mohaka
137	KAKAPONUI	WAITARA ROAD	6922	6951	1917080.5	5660925.5	Kakaponui Stream	Mohaka
138	GLENFALLS	WAITARA ROAD	7747	7775	1917514.3	5660951.3	Waitara Stream	Mohaka

BRIDGE / ASSET ID	SITE NAME	ROAD	RP START	RP END	EASTING (NZTM)	NORTHING (NZTM)	STREAM	CATCHMENT
139	RANGIWHAKAHAROA BRIDGE	WAITARA ROAD	10533	10558	1919087.3	5662495.4	Rangiwhakaharoa Stream	Mohaka
140	DOUBLE CULVERT	WAITARA ROAD	13668	13672	1920935.2	5664516.4	Tributary of Mohaka River	Mohaka
141	GORGE	WAITARA ROAD	14031	14080	1921276.5	5664950.1	Tributary of Mohaka River	Mohaka
142	VISTA BRIDGE	WAITARA ROAD	18469	18537	1924495.3	5666085.9	Tributary of Mohaka River	Mohaka
143	COPPERMINE CULVERT	WAITARA ROAD	21200	21203	1925228.5	5668037.6	Tributary of Mohaka River	Mohaka
145	HEDGLEY BRIDGE	HEDGELEY ROAD	2842	2847	1928700.4	5630556.3	Unnamed tributary	Ahuriri
146	HOLT NO. 1	HOLT ROAD	1133	1139	1928463.6	5627228.4	Unnamed tributary	Ahuriri
147	HOLT NO. 2 BRIDGE	HOLT ROAD	1306	1316	1928533.8	5627103.2	Unnamed tributary	Ahuriri
148	MCVICARS	MCVICAR ROAD	3885	3959	1912153.3	5655529.3	Mohaka River	Mohaka
150	RUKUMOANA	TE WAKA ROAD	1359	1379	1916788.2	5646477.4	Waikinakitangata Stream	Tutaekuri
151	SEAFIELD NO. 1	SEAFIELD ROAD	2736	2741	1930208.3	5629422.9	Unnamed tributary	Ahuriri
152	SEAFIELD NO. 2	SEAFIELD ROAD	5633	5638	1927892	5628272.7	Unnamed tributary	Ahuriri
153	SEAFIELD NO. 3	SEAFIELD ROAD	5777	5781	1927826.8	5628145.7	Unnamed tributary	Ahuriri
154	SERVICE	ELLIS WALLACE ROAD	7688	7699	1928790.1	5640001.2	Drain	Esk
155	TE WAKA	TE WAKA ROAD	3349	3364	1916057.3	5647153.1	Kings Stream	Tutaekuri
156	WAIPUNGA	WAIPUNGA ROAD	221	369	1929160.9	5633401.6	Te Wai-o-Hingānga / Esk River	Esk
161	SMITHS TWIN CULVERT	HEAYS ACCESS ROAD	857	861	1936738	5661943.9	Tributary of Waikari River	Waikari
203	BLACKS	TAIHAPE ROAD	12763	12822	1913141.2	5618222.3	Mangatarata Stream	Ngaruroro
204	CAMELBACK BRIDGE	WAIHAU ROAD	16760	16773	1907917.8	5635427.6	Waihau Stream	Tutaekuri
205	CARSWELLS	CARSWELL ROAD	747	763	1906816.1	5646433.1	Inangatahi Stream	Mohaka
206	CROWNTHORPE	CROWNTHORPE ROAD	1471	1494	1905936.7	5613914.5	Kikowhero Stream	Ngaruroro
213	HARPERS BRIDGE	TAUHARA ROAD	655	669	1913734.3	5611275.2	Waitio Stream	Ngaruroro
214	HAWKSTON NO. 1	HAWKSTON ROAD	4860	4863	1904980.7	5638517.4	Tributary of Mangatutu Stream	Tutaekuri
215	HAWKSTON NO. 2	HAWKSTON ROAD	5786	5802	1904339.2	5638578.9	Mangatutu Stream	Tutaekuri
218	HORGANS	WAIHAU ROAD	8672	8683	1908358.5	5631430.7	Mangaone Stream	Tutaekuri
220	KAWERA BRIDGE	TAIHAPE ROAD	7289	7333	1917536.6	5615208.1	Ohiwa Stream	Ngaruroro
222	KURIPAPANGO	TAIHAPE ROAD	56347	56406	1886592.7	5633920.7	Ngaruroro River	Ngaruroro
223	MAKAHU CULVERT	MAKAHU ROAD	10	13	1903064.6	5653718.7	Tributary of the Mohaka River	Mohaka
224	DAMPNEY CULVERT	DAMPNEY ROAD	824	827	1906152.8	5628400	Tributary of Tutaekuri River	Tutaekuri
232	OHITI NO. 1	OHITI ROAD	2813	2824	1919249.1	5610547.7	Ototara Stream	Ngaruroro
233	OHITI NO. 2	OHITI ROAD	3540	3556	1918679.4	5610104.9	Waitio Stream	Ngaruroro
234	OHIWIA	TAIHAPE ROAD	1759	1810	1921325.4	5612061.3	Ohiwa Stream	Ngaruroro
235	OMAPERE	OMAPERE ROAD	3386	3433	1911006.6	5608465.8	Kikowhero Stream	Ngaruroro
238	PA CULVERT	PUKETITIRI ROAD	1826	1832	1927498.7	5623184.4	Unnamed tributary	Ahuriri

BRIDGE / ASSET ID	SITE NAME	ROAD	RP START	RP END	EASTING (NZTM)	NORTHING (NZTM)	STREAM	CATCHMENT
241	PEKA PEKA CULVERT	SOLDIERS SETTLEMENT ROAD	470	483	1919600.9	5627694.1	Peka Peka Stream	Tutaekuri
242	POTTERS BRIDGE	POTTER ROAD	4641	4665	1910489.5	5648596.4	Inangatahi Stream	Mohaka
244	PUKEHAMOAMOA	TAIHAPE ROAD	8764	8805	1916442.2	5616123.9	Okawa Stream	Ngaruroro
249	RUNUNGA	TAIHAPE ROAD	5664	5690	1918809.2	5614385.9	Ohiwa Stream	Ngaruroro
250	RUNUNGA OVERFLOW	TAIHAPE ROAD	5885	5893	1918660.4	5614550.5	Drain	Ngaruroro
252	SWAMP CUTTING	TAIHAPE ROAD	51557	51586	1889570.2	5634131.5	Waikarekare Stream	Ngaruroro
253	TAYLORS	KIKOWHERO ROAD	1405	1426	1901212.4	5619955.1	Kikowhero Stream	Ngaruroro
254	TOIS	TAIHAPE ROAD	33612	33650	1900720.8	5626648.9	Waikonini Stream	Tutaekuri
257	WILLOWFORD CULVERT	TAIHAPE ROAD	36250	36253	1899547.9	5628846.1	Tributary of Otakarara Stream	Tutaekuri
258	WILLOWFORD	WILLOWFORD ROAD	2090	2101	1900146.4	5630466.4	Otakarara Stream	Tutaekuri
260	WAITATA	WAITATA ROAD	666	678	1892292.3	5619444.2	Tributary of Mangarakau Stream	Ngaruroro
302	CRYSTAL NO. 1 CULVERT	CRYSTALL ROAD	1627	1631	1928231.2	5599200.1	Drain	Karamu
303	CRYSTAL NO. 2 CULVERT	CRYSTALL ROAD	2264	2271	1928633.8	5598709	Louisa Stream	Karamu
307	DOUGLAS NO. 2 CULVERT	DOUGLAS ROAD	2215	2217	1921107	5590831.7	Tributary of Poukawa Stream	Karamu
308	FIELDS	MARAETOTARA ROAD	14648	14661	1933340.4	5583703.2	Maraetotara River	Southern Coast
309	HARPERS CULVERT	HARPER ROAD	1345	1350	1942050.6	5584346.3	Unnamed Coastal Tributary	Southern Coast
310	HAWEA	KAHURANAKI ROAD	18101	18104	1928774.8	5583015.1	Tributary of Hawea Stream	Tukituki
311	HORONUI CULVERT	HORONUI ROAD	4684	4687	1918969.9	5597500.4	Tributary of Awanui Stream	Karamu
312	LAMBS HILL NO. 1	OKAIHAU ROAD	6171	6184	1936328.2	5583912.6	Waingongoro Stream	Southern Coast
313	LAMBS HILL NO. 2	OKAIHAU ROAD	6457	6469	1936174.3	5583878.8	Waingongoro Stream	Southern Coast
314	LIME WORKS CULVERT	WAIMARAMA ROAD	5899	5903	1936832	5596069.9	Tributary of Tukituki River	Tukituki
316	MARAETOTARA	WAIMARAMA ROAD	9438	9470	1938793	5594428.3	Maraetotara River	Southern Coast
317	MARAETOTARA GORGE CULVERT	MARAETOTARA ROAD	2637	2641	1937330.8	5592758.2	Tributary of Maraetotara River	Southern Coast
318	TUKITUKI CULVERT	TUKI TUKI ROAD	8026	8028	1937877.7	5601589.7	Tributary of Tukituki River	Tukituki
320	MCIVORS	CRYSTALL ROAD	43	70	1927227.8	5600434.4	Awanui Stream	Karamu
321	MCKENZIE LOW LEVEL	MACKENZIE ROAD	810	822	1928361	5587388.8	Tributary of Tukituki River	Tukituki
322	POSSUM	KAHURANAKI ROAD	4802	4826	1933381.1	5593034.2	Tributary of Tukituki River	Tukituki
323	MUTINY	MUTINY ROAD	3816	3822	1926095.8	5595480.7	Waikaha Stream	Karamu
324	OHO	KAHURANAKI ROAD	13148	13160	1929026.6	5587510	Tributary of Tukituki River	Tukituki
325	PAKI PAKI BRIDGE	OLD MAIN ROAD	539	548	1925077.1	5599335.1	Karewarewa Stream	Karamu
326	PAPANUI BRIDGE	MIDDLE ROAD	27029	27038	1917835	5581610	Tributary of Papanui Stream	Tukituki
327	PEACH GULLY	WAIMARAMA ROAD	20793	20802	1940657.3	5586737	Waingongoro Stream	Southern Coast
328	RIGGIRS	MARAETOTARA ROAD	4769	4777	1936652	5591510.1	Tributary of Maraetotara River	Southern Coast

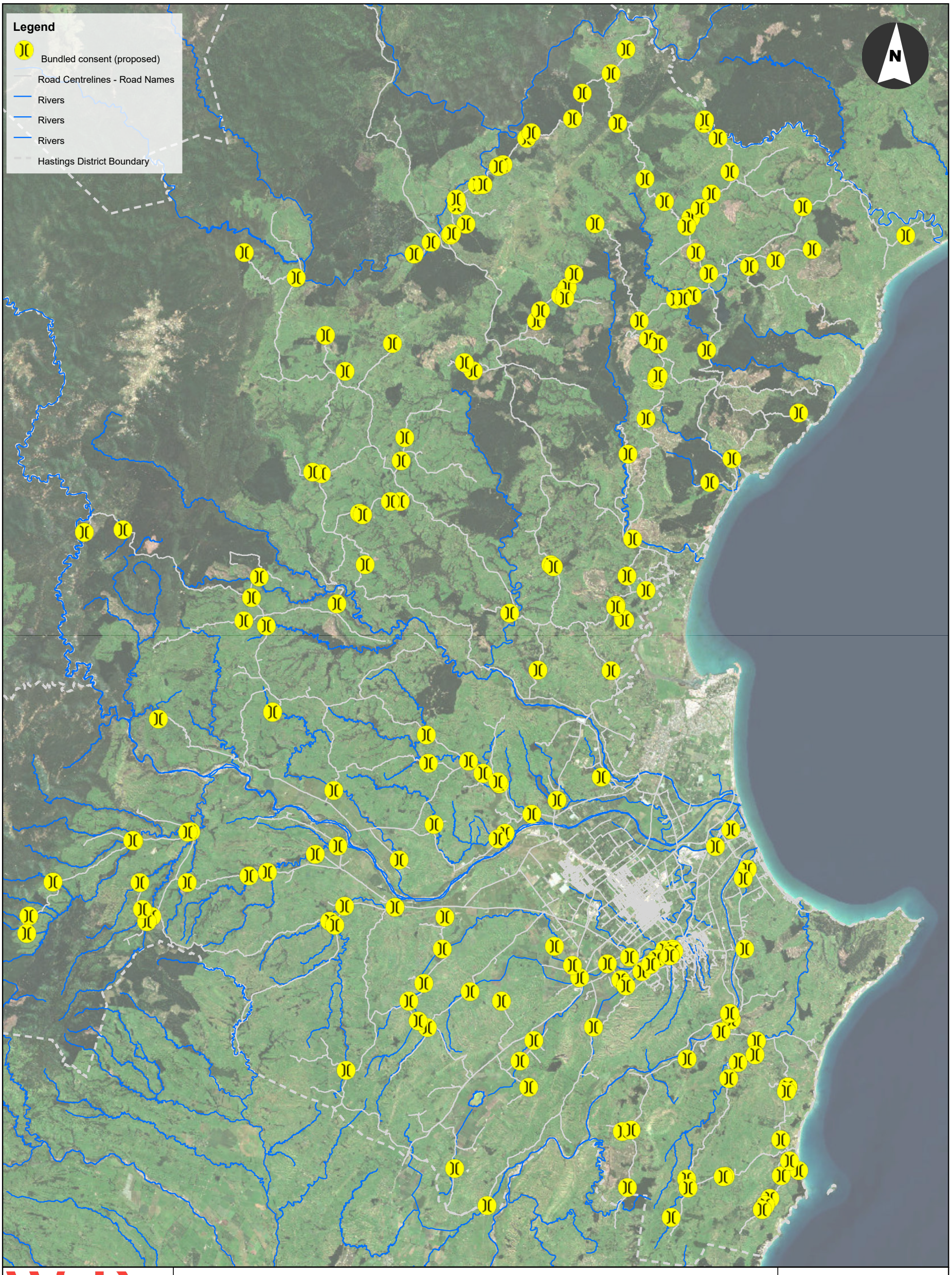
BRIDGE / ASSET ID	SITE NAME	ROAD	RP START	RP END	EASTING (NZTM)	NORTHING (NZTM)	STREAM	CATCHMENT
329	SCHOOL ROAD CULVERT	SCHOOL ROAD (POUKAWA)	689	696	1929858.4	5599800.6	Louisa Stream	Karamu
330	TAWA	TAWA ROAD	950	962	1932167.1	5580695.1	Maraetotara River	Southern Coast
331	TAWSE CULVERT	MARAETOTARA ROAD	1182	1194	1938664.4	5593336.5	Tributary of Maraetotara River	Southern Coast
332	TE APITI NO. 1	TE APITI ROAD NORTH	1903	1931	1940703.9	5583971.7	Pouhōkio Stream	Southern Coast
333	TE APITI NO. 2	TE APITI ROAD NORTH	4243	4276	1939819.7	5582210.7	Pouhōkio Stream	Southern Coast
334	TE APITI NO. 3	TE APITI ROAD NORTH	4912	4936	1939464.2	5581653.2	Pouhōkio Stream	Southern Coast
335	TE APITI NO. 4	TE APITI ROAD NORTH	5328	5331	1939227.4	5581313.9	Pouhōkio Stream	Southern Coast
336	TE ARATIPI	MARAETOTARA ROAD	16185	16195	1933464.6	5582984.1	Maraetotara River	Southern Coast
337	TE AUTE TRUST CULVERT	TE AUTE TRUST ROAD	4676	4682	1915323.2	5584552.8	Waipapa Stream	Karamu
338	TE MAHANGA NO.1	TE MAHANGA ROAD	779	785	1921501.3	5594478.5	Poukawa Stream	Karamu
339	TE MAHANGA NO.2	TE MAHANGA ROAD	2986	2996	1920368.8	5592831.9	Poukawa Stream	Karamu
341	RED BRIDGE	WAIMARAMA ROAD	5373	5703	1936687.4	5596564.9	Tukituki River	Tukituki
343	WAIMARAMA	HARPER ROAD	120	145	1941326.8	5585108.9	Pouhōkio Stream	Southern Coast
344	TWIN CREEKS NO.1	WAIMARAMA ROAD	15460	15472	1941218.5	5590876.4	Waipuka Stream	Southern Coast
345	TWIN CREEKS NO.2	WAIMARAMA ROAD	15497	15512	1941221.7	5590840.4	Waipuka Stream	Southern Coast
346	WAIPUKA	WAIMARAMA ROAD	15883	15887	1941088	5590516	Waipuka Stream	Southern Coast
402	HASSELLS	RAUKAWA ROAD	8904	8914	1916495	5598256.2	Waipiropiro Stream	Karamu
403	RAUKAWA	RAUKAWA ROAD	13633	13638	1913197.6	5595461.6	Mangarotai Stream	Karamu
404	MCFARLANES	RAUKAWA ROAD	14500	14506	1912514.4	5595989.1	Patangata Stream	Karamu
405	VALLEY NO. 1	VALLEY ROAD	830	837	1914575.7	5604026	Tributary of Paritua Stream	Karamu
406	VALLEY NO. 2	VALLEY ROAD	3873	3882	1914363	5601561.3	Waikorure River	Karamu
408	TAITS	TAIT ROAD	132	166	1906783.9	5604876.2	Maraekakaho River	Ngaruroro
409	YARROW	SALISBURY ROAD	750	766	1905631.1	5603739.1	Maraekakaho River	Ngaruroro
410	MARAEKAKAHO	KERERU ROAD	335	391	1910706.1	5604824.5	Maraekakaho River	Ngaruroro
411	OLRIG	KERERU ROAD	11317	11358	1900814.2	5607498.6	Okauawa Stream	Ngaruroro
412	WHANAKINO (OLRIG NO. 2)	KERERU ROAD	12872	12888	1899334	5607255.3	Mangatahi Stream	Ngaruroro
413	KERERU LAND BRIDGE	KERERU ROAD	18566	18578	1894560.6	5606713.5	N/A	Ngaruroro
414	AORANGI BRIDGE	AORANGI ROAD	1883	1955	1906278	5609590.6	Mangatahi Stream	Ngaruroro
415	MANGATAHI LOW LEVEL	MANGATAHI ROAD	2990	3024	1904505.2	5608937	Mangatahi Stream	Ngaruroro
416	DOGLEG	BIG HILL ROAD	4450	4482	1894858.9	5610687.6	Poporangi Stream	Ngaruroro
417	OHARA (BIG HILL NO. 2)	BIG HILL ROAD	5001	5059	1894585.6	5610618.7	Ohara Stream	Ngaruroro
418	MANGLETON BRIDGE	MANGLETON ROAD	5019	5050	1890394	5609965.6	Ohara Stream	Ngaruroro
419	TARAPEKE CULVERT	MANGLETON ROAD	12599	12603	1884099.1	5606773.7	Tarapeke Stream	Ngaruroro
421	SENTRY BOX	MANGLETON ROAD	17191	17200	1882251.5	5604124.4	Sentry Box Stream	Ngaruroro
422	TRIPLE CULVERT	MANGLETON ROAD	19203	19206	1882069.7	5602768.7	Kaumatua Stream	Ngaruroro
423	MATTHEWS	GULL FLAT ROAD	23	31	1890339.8	5610014.4	Matthews Stream	Ngaruroro

BRIDGE / ASSET ID	SITE NAME	ROAD	RP START	RP END	EASTING (NZTM)	NORTHING (NZTM)	STREAM	CATCHMENT
424	POPORANGI BRIDGE	DUFF ROAD	1063	1119	1891810.3	5604068.5	Poporangi Stream	Ngaruroro
425	PAUTAKI LOW LEVEL	DUFF ROAD	1715	1751	1891411.3	5603665.8	Pautaki Stream	Ngaruroro
426	GADDUMS	POPORANGI ROAD	4186	4201	1890877.2	5606731.9	Waitangi Stream	Ngaruroro
427	RAYS	RAYS ROAD	112	122	1912937.2	5598875.5	Waikorure River	Karamu
428	NESTORS CULVERT	TAHEKE ROAD	99	102	1906937.1	5592150.6	Maraekakaho River	Ngaruroro
430	ROSSERS BRIDGE	ROSSER ROAD	1418	1430	1923080.4	5601801.8	Karewarewa Stream	Karamu
433	TURAMOE NO. 1	TURAMOE ROAD	311	323	1924493.7	5600290.4	Karewarewa Stream	Karamu
504	MCDONALDS BRIDGE	TE AUTE ROAD	945	954	1931638.6	5601486.9	Herehere Stream	Karamu
510	MANGARAU BRIDGE	TE AUTE ROAD	330	339	1932236	5601587.6	Mangarau Stream	Karamu
514	MIDDLE RD NO.1 BRIDGE	MIDDLE ROAD	189	202	1932370.4	5601415.5	Mangarau Stream	Karamu
515	MIDDLE RD NO.2 BRIDGE	MIDDLE ROAD	685	698	1932038.7	5601040	Herehere Stream	Karamu
801	AWANUI	TE AUTE ROAD	4101	4126	1928910.2	5600951.9	Awanui Stream	Karamu
812	LOUISA	TE AUTE ROAD	1885	1898	1931033.5	5600830.2	Louisa Stream	Karamu
817	RICHARD ROAD CULVERT	RICHARD ROAD	659	666	1930565	5600368	Louisa Stream	Karamu
907	SCHOOL CULVERT	SCHOOL ROAD	520	523	1936788.8	5610865.4	Muddy Creek	Karamu
908	MUDDY CREEK	RICHMOND ROAD (CLIVE)	199	203	1935591.9	5609551.5	Muddy Creek	Karamu
912	JENSENS	TUKI TUKI ROAD	380	384	1938044.1	5607799	Grange Creek	Tukituki
913	BAKERS	TUKI TUKI ROAD	1249	1253	1937728.6	5607022.3	Grange Creek	Tukituki
924	MIDDLE RD FOOTBRIDGE NO2	MIDDLE ROAD	691	708	1932034.7	5601035.5	Herehere Stream	Karamu
931	CULVERT - 5314M	WAIMARAMA ROAD	5317	5319	1936714.8	5596609.4	Drain	Tukituki
932	CULVERT - 1203M	KAHURANAKI ROAD	1201	1203	1936035.6	5595151.3	Tributary of Tukituki River	Tukituki
938	VALLEY NO.3	VALLEY ROAD	9411	9431	1911752.6	5597534.3	Mangarotai Stream	Karamu
945	MAKAHU (DOC)	MAKAHU ROAD	7448	7460	1898990.4	5655661.3	Mangatutunui Stream	Mohaka
946	MATAHORUA STOCK UNDERPASS	MATAHORUA ROAD	6290	6294	1933682.7	5658377.3	N/A	Waikari
947	WAIKOAU STOCK UNDERPASS	WAIKOAU ROAD	3410	3414	1933081.3	5652050.1	N/A	Waikari
958	MCVICARS CULVERT	MCVICAR ROAD	1656	1658	1913492.4	5656487.1	Mohaka River	Mohaka
963	PATOKA CULVERT	HENDLEY ROAD	1130	1170	1911188	5639477	Mangahina Stream	Tutaekuri
965	SALISBURY RD	SALISBURY ROAD	200	242	1906026	5603434	Ettrick Stream	Ngaruroro
996	MATAHORUA ROAD CULVERT	MATAHORUA ROAD	3170	3170	1934092.8	5655669.2	Tributary of Papakiri Stream	Waikari
1232	POPORANGI ROAD CULVERT	POPORANGI ROAD	996	996	1891083	5604651	Drain	Ngaruroro
4091	WAIPUNGA ROAD CULVERT	WAIPUNGA ROAD	18462	18462	1931031.5	5645934.1	Tributary of Poningo Stream	Waikari
4206	WAIPUNGA ROAD CULVERT	WAIPUNGA ROAD	13557	13557	1930221.1	5642761.3	Tributary of Te Ngarue Stream	Waikari

BRIDGE / ASSET ID	SITE NAME	ROAD	RP START	RP END	EASTING (NZTM)	NORTHING (NZTM)	STREAM	CATCHMENT
4222	WAIPUNGA ROAD CULVERT	WAIPUNGA ROAD	18646	18646	1931120.8	5646093.5	Tributary of Poningo Stream	Waikari
4484	WAITARA ROAD CULVERT	WAITARA ROAD	1353	1353	1915104.1	5657151.2	Tributary of Mangowhata Stream	Mohaka
4954	GLENGARRY ROAD CULVERT	GLENGARRY ROAD	9744	9744	1922801.9	5631436.3	Drain	Esk
5044	MATAHORUA ROAD CULVERT	MATAHORUA ROAD	5489	5489	1933334.4	5657684.6	Tributary of Papakiri Stream	Waikari
5208	WAITARA ROAD CULVERT	WAITARA ROAD	10226	10226	1918702.6	5662349.5	Tributary of Rangiwhakaharoa Stream	Mohaka
8257	POHOKURA ROAD CULVERT	POHOKURA ROAD	6678	6678	1930132	5661397.9	Tributary of Waikoau Stream	Waikari
8315	POHOKURA ROAD CULVERT	POHOKURA ROAD	22690	22690	1928633.1	5671426.6	Tributary of Mohaka River	Mohaka
8329	POHOKURA ROAD CULVERT	POHOKURA ROAD	20221	20221	1927457.3	5669608	Tributary of Anticline Creek	Mohaka
8345	POHOKURA ROAD CULVERT	POHOKURA ROAD	14512	14512	1928024.7	5665709	Tributary of Anticline Creek	Mohaka
16196	APLEY ROAD CULVERT	APLEY ROAD	2636	2636	1921800.6	5623252.1	Tributary of Tutaekuri River	Tutaekuri
16600	CROWNTHORPE SETTLEMENT ROAD CULVERT	CROWNTHORPE SETTLEMENT ROAD	2685	2685	1913287.7	5615993.5	Okawa Stream	Ngaruroro
22294	GLENGARRY ROAD CULVERT	GLENGARRY ROAD	10048	10048	1923005.7	5631233	Drain	Esk
22398	MATAHORUA ROAD CULVERT	MATAHORUA ROAD	7326	7326	1934401.7	5659100.6	Tributary of Waiongawahine Stream	Waikari
29228	SWAMP ROAD CULVERT	SWAMP ROAD	1331	1331	1923280.5	5613120.4	Drain	Ngaruroro
29498	BRECKENRIDGE ROAD CULVERT	BRECKENRIDGE ROAD	1570	1570	1926748.2	5614932.5	Upokohino Stream	Tutaekuri
30571	HENDLEY ROAD CULVERT	HENDLEY ROAD	3257	3257	1911431.3	5641294.8	Mangarangiora Stream	Tutaekuri
30692	GLENROSS ROAD CULVERT	GLENROSS ROAD	1662	1662	1898949.1	5627053.4	Tributary of Otakarara Stream	Tutaekuri
30797	HUKANUI ROAD CULVERT	HUKANUI ROAD	3679	3679	1905279.3	5649265.7	Tributary of Inangatahi Stream	Mohaka
32180	WAIHAU ROAD CULVERT	WAIHAU ROAD	20816	20816	1911094.5	5636371.1	Tributary of Waiiti Stream	Tutaekuri
32186	WAIHAU ROAD CULVERT	WAIHAU ROAD	20017	20017	1910355.5	5636365	Tributary of Waiiti Stream	Tutaekuri
32198	WAIHAU ROAD CULVERT	WAIHAU ROAD	17073	17073	1908198	5635279.1	Tributary of Waihau Stream	Tutaekuri
32621	POKOKURA ROAD CULVERT	POHOKURA ROAD	3292	3292	1931620.2	5659652.3	Tributary of Te Awatamatea Stream	Waikari
32798	TANGOIO SETTLEMENT ROAD CULVERT	TANGOIO SETTLEMENT ROAD	175	175	1936854.7	5639664.9	Te Ngarue Stream	Waikari
32906	RIDGEMOUNT ROAD CULVERT	RIDGEMOUNT ROAD	1477	1477	1938238.7	5654588	Tributary of Matahorua Stream	Waikari
32907	DARKEYS SPUR CULVERT	DARKYS SPUR ROAD	1602	1602	1931144.3	5648539.5	Drain	Waikari

APPENDIX B

MAPS OF SITES



wsp

Geospatial
Level 3, 100 Beaumont St, Auckland 1010 | Tel (09) 355 9500

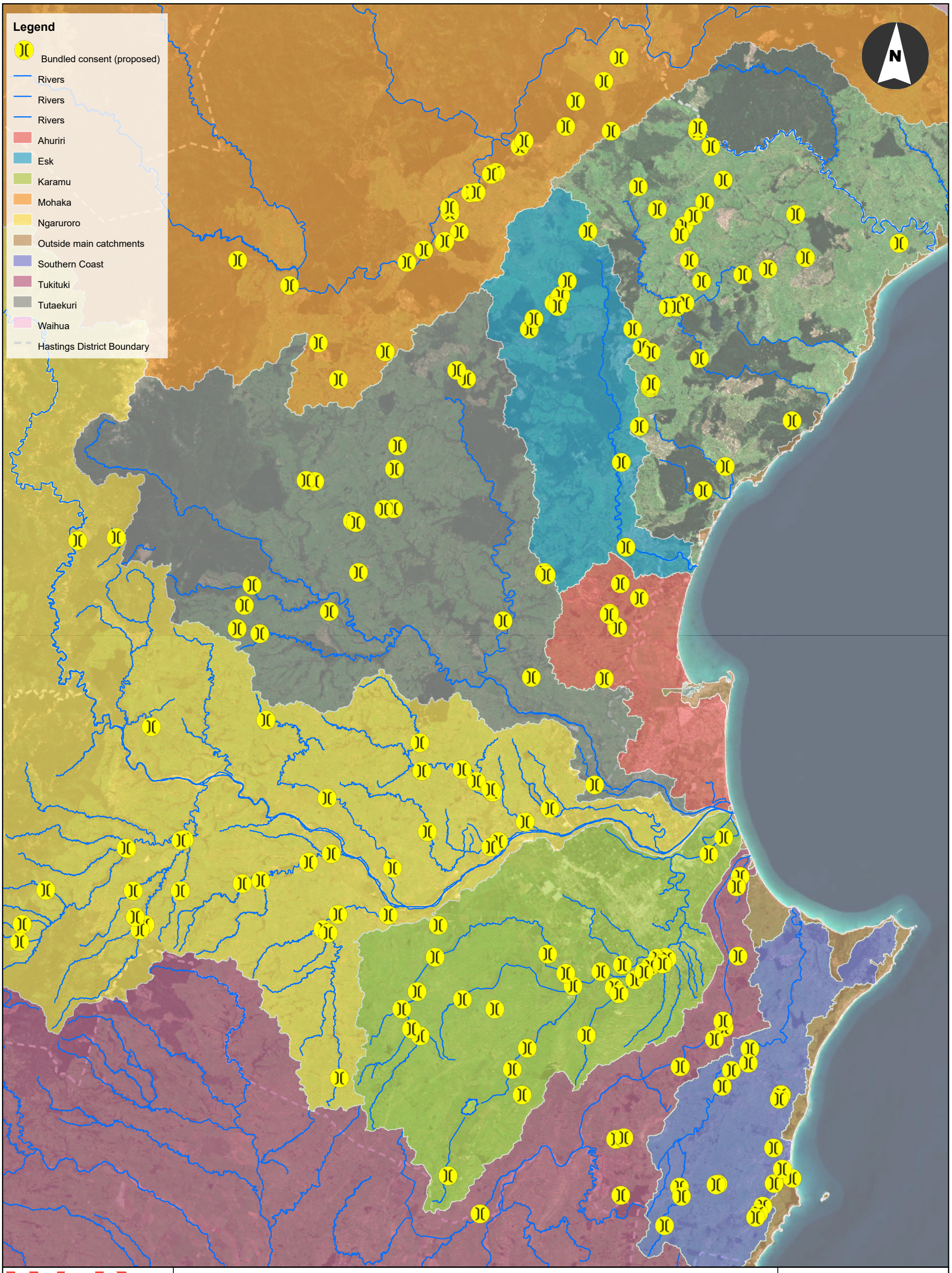
Bridge and Culvert Sites

Scale: 1:260,000 @ A3

0 3 6 km

Author: WSP

Date Exported: 20/08/2024



wsp

Geospatial
Level 3, 100 Beaumont St, Auckland 1010 | Tel (09) 355 9500

Bridge/Culvert Sites & Catchment Areas of Hastings District

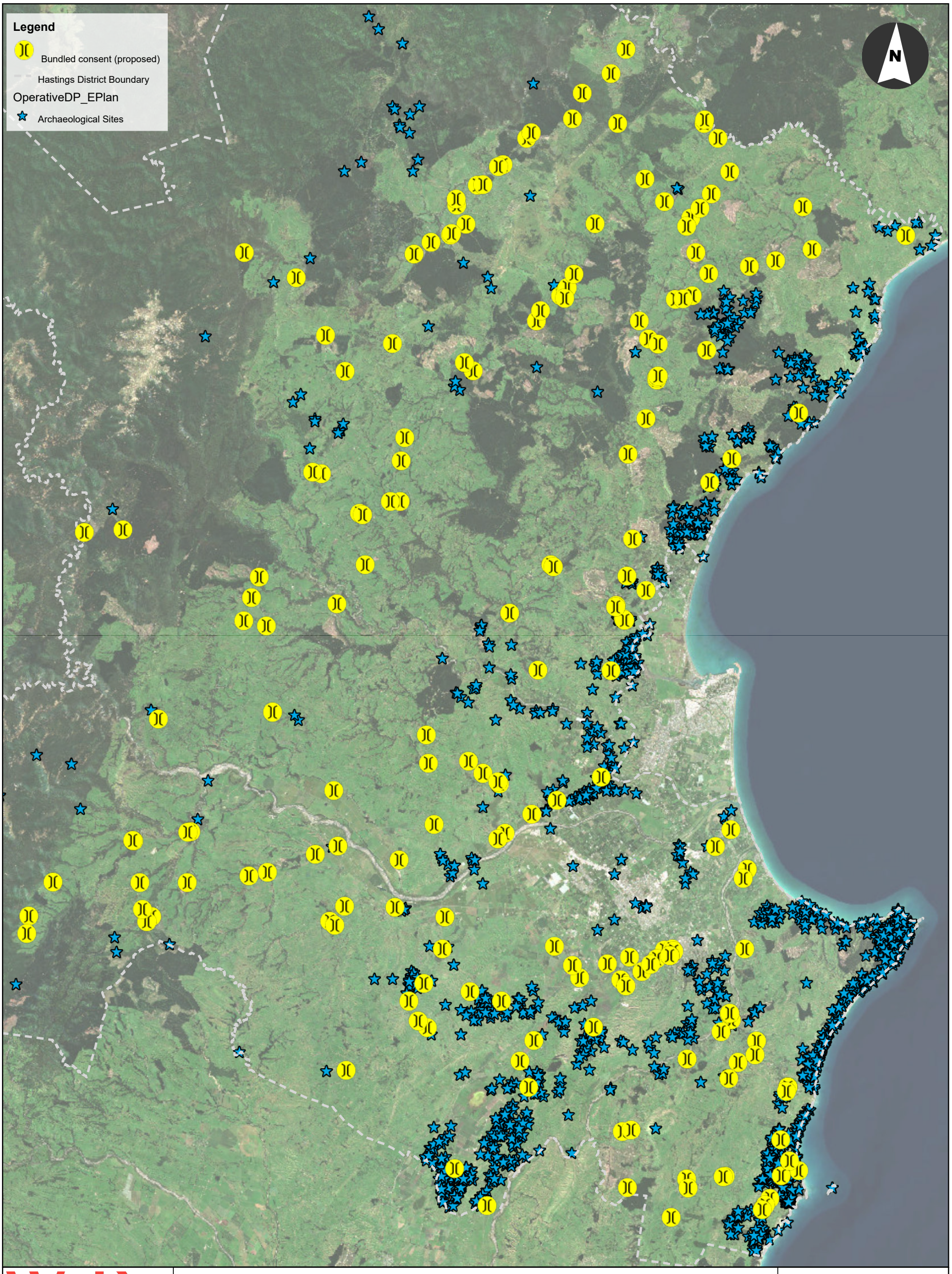
Scale: 1:260,000 @ A3

0 3 6
km

Earthstar Geographics, Stats NZ, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS, Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

Author:
WSP

Date Exported: 20/08/2024



Bridge/Culvert Sites and Archaeological Sites

Scale: 1:260,000 @ A3

0 3 6 km

Author: WSP

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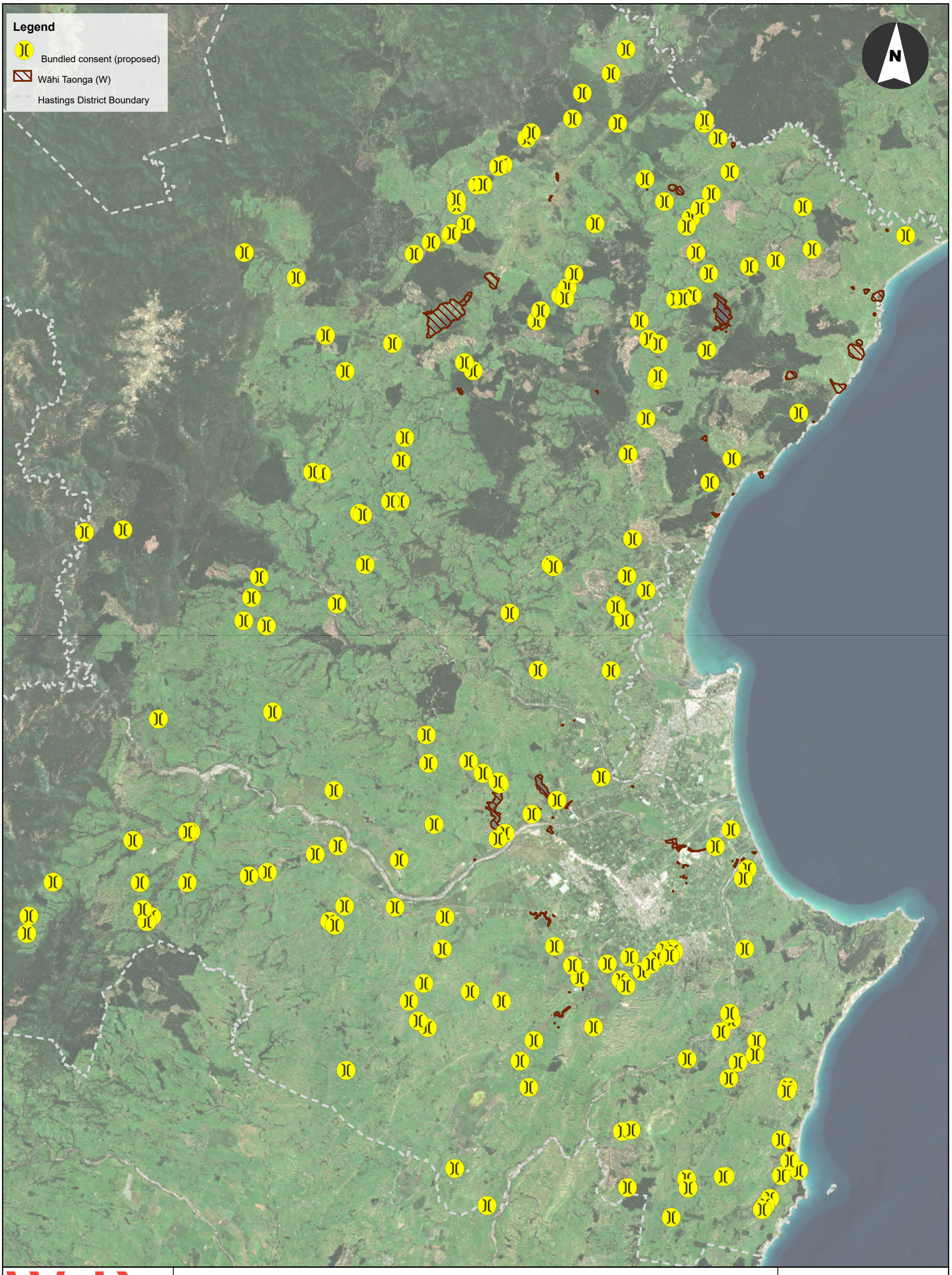


wsp

Geospatial
Level 3, 100 Beaumont St, Auckland 1010 | Tel (09) 355 9500

Bridge/Culvert Sites and Wāhi Taonga Sites

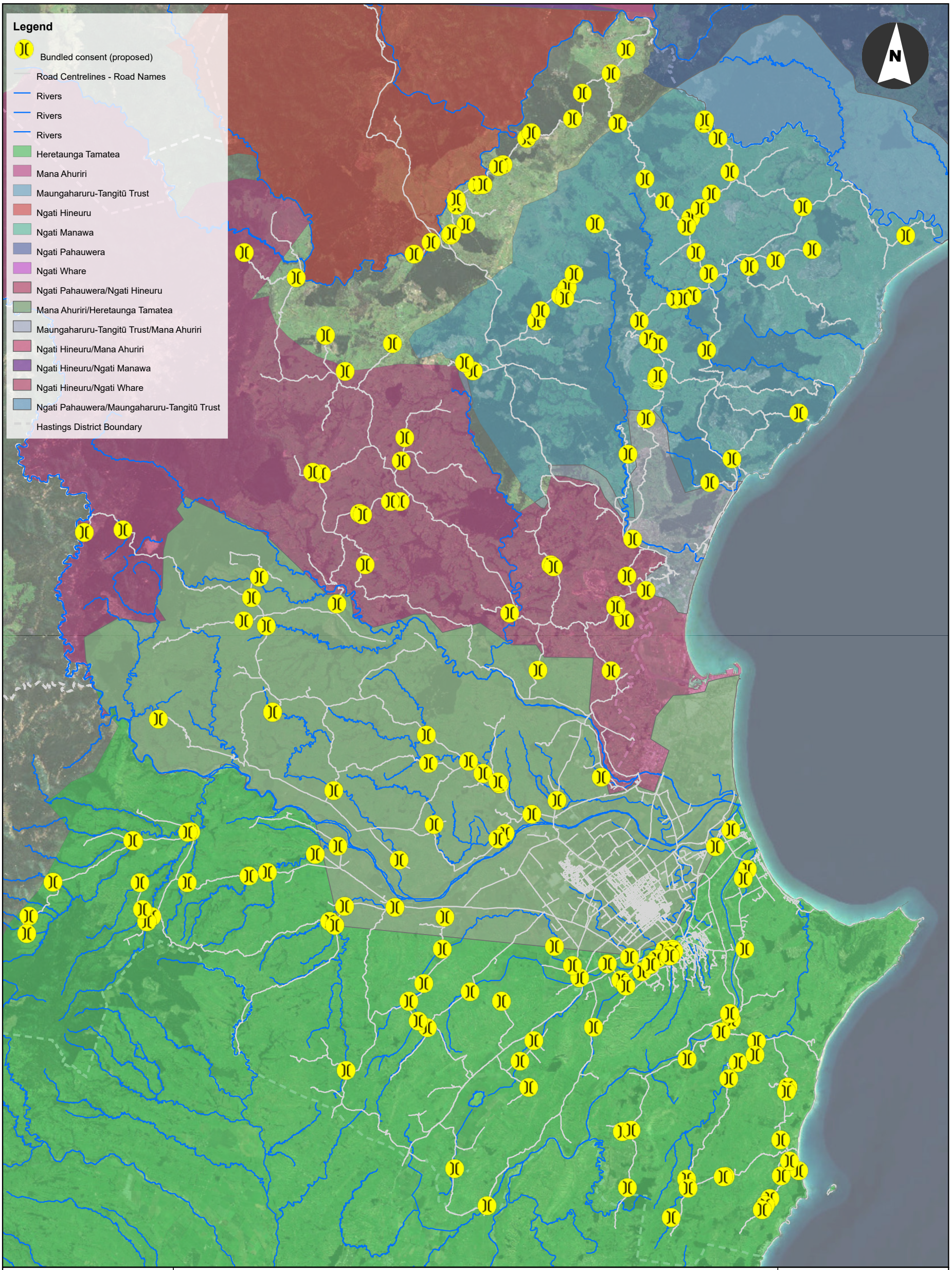
Scale: 1:260,000 @ A3

0 3 6
km

Hastings District Council, Earthstar Geographics, Stats NZ, Esri, TomTom, Garmin, Foursquare, FAO, METI/ NASA, USGS, Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

Author:
WSP

Date Exported: 20/08/2024



Geospatial
Level 3, 100 Beaumont St, Auckland 1010 | Tel (09) 355 9500

Hastings District Council Treaty Partners Areas

Scale: 1:260,000 @ A3

0 3 6 km

Earthstar Geographics, Stats NZ, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS, Eagle Technology, Land Information New Zealand, GEBCO, Community maps contributors

Author: WSP

Date Exported: 20/08/2024

APPENDIX C

BRIDGE AND CULVERT DESIGN PHILOSOPHY STATEMENTS

Design Philosophy Statement
Cyclone Gabrielle Recovery
Bridges & Major Culvert Repairs

REV	DATE	Details
1	17/05/2023	For client review
2	6/12/2023	Updated to address internal review comments
3	15/01/2024	Updated to reflect the process as implemented
4	21/03/2024	Minor changes

	Name	Date	Signature
Prepared by:	David Plowman	21/03/2024	
Reviewed by:	Jono Watkins & Kwan Chin	6/12/2023	
Approved by:	Francois Blay		

1. Introduction

This design philosophy statement has been prepared to document and outline the design approach for cyclone and flood damage repairs to the bridges, bridge approaches and major culverts as per the Bridge Manual, NZTA Highway Structures Design Guide and outlined below for Hastings District Council (HDC) to provide supporting documentation for building consent exemptions (if required).

For the purposes of this document, a major culvert is a culvert that has been assigned an Asset Bridge ID and classified as a bridge within the HDC asset management system, or that requires a cross sectional area of 3.4m^2 or greater and will then be added to the HDC system as a bridge.

The compliance with the New Zealand Building Code (NZBC) is expected to be demonstrated through NZTA Highway Design Guide and Bridge Manual as an alternative solution. Refer to section 4.2 of the NZTA Highway Structures Design Guide for structures that require a building consent.

This document is intended to supplement the NZTA Highway Structures Design Guide and NZTA Bridge Manual and form the basis for the assessment and design of remedial options for cyclone damaged sites across the network.

2. Design Philosophy

A dated copy of the site assignments is attached at the back of this document. This assignment is subject to change. Refer to the live tracker for the up to date assignment.

A "site" shall consist of any bridge structure which includes works that would be logged against any of the 40 elements on a S6 form.

Initially, sites have been assessed and grouped based upon the perceived level of observed damage and the assumed complexity of the required remedial solution. These groups, known as Tiers 0, 1, and 2 indicate increasing levels of damage and complexity with the increase in tier number.

The consultants should carry out a desktop assessment to ensure that elements with observed damage T0,1 or 2 are being addressed consistently and in line with the criteria in Table 1.

Sites can be reclassified as further information is gathered or developed.

Tier changes should be discussed and agreed with HDC.

The handling and requirements for each tier differs both in terms of management and design approach as appropriate to the increasing tier. i.e. increased design and monitoring requirements for more complex remediations.

Table 1: General Bridge Repair Tier Level Response

General Bridge Repair Tier Level Response	Tier 0	Tier 1 – Minor or Simple	Tier 2 – Large or Complex
General alignment to S6 forms	Routine Maintenance.	Structural Maintenance.	
Remedial works	Minor works, clearing channels, debris etc non structural works that don't affect the structure.	Minor repair work effecting the structural elements or supporting the carriageway.	Large scale or complex remedial works required that effect the structure or carriageway.
Management	Contractor led.	Consultant led in coordination with contractor.	Consultant led.
Status Tracking	Consultant confirms information is filed and updates tracker.	Consultant updates tracker.	Consultant updates tracker.
Design	No design required, Application of standard details.	Limited investigation and design of works. Application of standard details by agreement between the consultant and contractor.	Bespoke engineering analysis and design. PS1.
MSQA	By Contractor.	Detailed Consultant Input and Monitoring. Contractor PS3. As-Builts.	By Consultant. Contractor PS3. Consultant PS1 and PS4. As-Builts.

Table 2: Design Philosophy

Design Philosophy	Tier 0	Tier 1	Tier 2
General objective	Reinstate the site to the pre-cyclone level of service using modern standards where appropriate.		
Vertical Loading	Reinstate previous level of service.	Reinstate previous level of service	Reinstate previous level of service. Identify opportunities for improvements that might align with the scope of remedial works.
Global Stability	Should not be required.	Should not be required.	As required and recommended by the Consultant.
Seismic Design Compliance*	No.	Only where specific design is required.	As required to achieve pre cyclone level of service or where new components are

2

Design Philosophy	Tier 0	Tier 1	Tier 2
			required to comply with NZBC. Identify opportunities for improvement that might align with the scope of the required remedial works.
Liquefaction Design	No.	No.	As appropriate to the site and as required for new structural components to comply with NZBC.
Target Factor of Safety (static)	N/A.	N/A.	As required to comply with NZBC
Typical Ground Investigation	Hand Auger/Scala.	Hand Auger/Scala.	As required by consultants including Hand Auger/Scala and/or Borehole/CPT.
Retaining Wall Associated with the Structure	N/A.	Consultant to provide design concept sketches for contractor with MSQA required. Provide specific design PS1 & PS4 where design falls outside of the exemption limit from the Highway Design Guide.	Detailed design and MSQA required.
MSE Slopes/Walls Associated with the Structure.	N/A.	Consultant to provide design concept sketches for contractor with MSQA required. Provide specific design PS1 & PS4 where design falls outside of the exemption limit from the Highway Design Guide.	Detailed design and MSQA required.
Earthworks (fills and retreats)	Contractor to use typical details provided by Council/proprietary products.	Consultant to provide design concept sketches for contractor with MSQA required.	Detailed design and MSQA required.
Culvert and inlet and outlet	Contractor to use typical details provided by Council/proprietary products.	Consultant to provide design concept sketches for contractor with MSQA required.	Detailed design and MSQA required.
Approach drainage**	Contractor to clear and service drainage and repair using typical details provided by Council (to be developed).	Consultant to provide design concept sketches for contractor with MSQA required.	Detailed design and MSQA required.
Road safety barrier	Reinstate to same type as previous except where modern equivalent can be replaced at similar or lower cost.		

3

Design Philosophy	Tier 0	Tier 1	Tier 2
Catchment Analysis	Not required.	Not required. Unless specifically recommended by the consultant.	Yes: 50-year ARI Culvert Capacity.
Geometric Design	Not required.	Not required.	Site dependent.
Pavement Design	Not required.	Not required.	Site dependent.

**Seismic design loading shall be from Standards New Zealand NZS 1170.5:2004 Structural design actions. Part 5 Earthquake actions – New Zealand. (Incorporating Amendment No. 1: 2016). Reference shall be made as appropriate to the Earthquake geotechnical engineering practice modules (2021,New Zealand Geotechnical Society and Ministry of Business Innovation & Employment). However, adoption of the National Seismic Hazard Model 2022 is not considered necessary as the remainder of the structure would have been designed to historic seismic design loadings.*

***Where drainage works are adjacent to a slips site ensure the designs are coordinated to discharge the surface water as required.*

3. Output Level

Engineering design and documentation will be tailored based on tier criteria and complexity. The outputs proposed for each design tier are provided in Table 3. Tender documentation is not included in the deliverables.

It is recommended that for all sites, work undertaken by contractors is captured by as-builts which could be in the form of mark-ups on site photos through to red-line markups of *For Construction* drawings. For Tier 1 & 2 sites, a PS3 is required by the Council. The as-builts and PS3 are key documents to verify what was built and support Council obtaining retrospective building consent exemption and resource management approval. For Tier 2 sites and structures that require a building consent, Council require a design memo and PS1 from the design consultant. For any site with a total site remediation cost exceeding $100,000 for the 40 elements from the S6 form, Council require an options memo from the design consultant.

For any new structure the design outputs shall be as per the Highway Structures Design Guide (First Edition, Amendment 0) and the Bridge Manual (Third Edition, Amendment 4).

Table 3: Output Level

Criteria	Tier 0	Tier 1	Tier 2
Sketch incl. standard construction details (i.e. specification reference or appended manufacturer specifications)	Typical details only (e.g., typical rip-rap remediation).	Concept drawings and sketches for contractor.	N/A.
For Construction Drawing (including specification for Tier 2)	No.	No.	Yes.
Design memo or report	Not required or options memo if total site physical works >$100,000.	Short form concept memo or options memo if total site physical works >$100,000.	Standard length design memo.
Cost estimation	Rough order cost estimation.	Rough order cost estimation.	Engineers Estimate.
Schedule of Quantities	No.	Yes.	Yes.
Specification	No.	No.	Yes – can be on drawings or a separate document.
Safety-in-design	Yes.	Yes.	Yes.
Exception's reporting – residual risks council is accepting that	Yes.	Yes.	Yes.

1/7/24 DP-clarification. Concept memo required where work <100k

4

have been separately agreed due to specific site characteristics not already allowed for in this DPS			
Project completion	Site works records identifying works carried out. Photos of Condition before and after. Update Ramm	Site works records identifying the works carried out. Quality records. Inspection reports. As-Builts. Update Ramm. Contractor PS3 (if available). Other applicable requirements anticipated from NZS3910:2013 if that form of contract is used. Consultant close out memo advising that the works are completed to an appropriate standard, confirming residual risk and monitoring recommendations.	Site works record identifying the works carried out. Quality records. Inspection reports. As-Builts. Update Ramm Consultant PS1, PS4 Contractor PS3. Other applicable requirements anticipated from NZS3910:2013 if that form of contract is used. Consultant close out memo advising that the works are completed to an appropriate standard, confirming residual risk and monitoring recommendations.

4. Programme, Prioritisation and Status Tracker

The consultants should prioritise and programme bridge design and construction works in their ward based on the risk profile of each site. Criteria should include the risk to the structure deteriorating further and risk to community connection (i.e. are there alternative routes) also if the road is a bypass to a State Highway.

Project programmes should be prepared and maintained. HDC is to be notified when work is required to deviate from the agreed programmes.

The consultants will update the "Tracker" for T0,1 and 2 bridge sites weekly to reflect the status of design or construction and engage with the contractor to ensure this information is current.

5. Tier 0 Sites

At the request of the Council, low-risk sites, where it is expected that simple remediation work can be undertaken directly by experienced Contractors, shall be addressed using a schedule of suggested "Tier 0" sites accompanied by a set of relevant Council developed Typical Details and any site-specific requirements.

All Tier 0 sites shall be those where no engineering intervention is required by the Council.

It is recognised that the categorisation of Tier 0 sites is subjective and will be based on recommendations by the Design Consultant's through interpretation of geotechnical risk, traffic volumes, and the importance of the route. The Consultants have been responsible for identifying Tier 0 sites.

It is expected that Tier 0 sites will mainly consist of sites where work does not need a building consent (refer to section 4.2 of NZTA Highway Structures Design Guide) or where the importance level is 1.

Contractors should record and file information regarding the remediation works into RAMM.

5

Consultants should check this information has been loaded to ramm and set the site to complete.

5.1 Tier 1 Sites and Close Out.

Tier 1 sites present and medium level of risk to the bridge structures.

Some of these sites have been remediated by the contractors already. Going forward these sites would be managed by the Consultants.

HDC requires a project completion record for each Tier 1 site. Ideally, this is in the form of a 1 or 2 page memo including:

- A brief summary of the works that have been carried out including before and after photos.
- An opinion from a suitably experienced engineer of the completed works based on the observed site conditions and available records or construction information.
- Identify the residual risks to HDC at the site based on available information.
- Recommendations and engineers estimate for any further required remediation work to meet the intent of this DPS or reduce the residual risk or monitoring recommendations to manage those risks.

It is expected that collaboration with the contractor will be required to produce these memos.

6. Intrusive Site Investigation

In general, geotechnical site investigation will require site investigation and topographic survey, tailored to the conditions and risks at each site. Consultants shall recommend appropriate levels of investigation for T1 and T2 sites.

Site investigations for Tier 0 & 1 sites will consist of visual observation, hand-measured cross sections, and hand-augured drillholes with accompanying insitu strength testing (Dynamic Cone Penetrometer and shear vane) to inform simple ground models and parameter selection for design.

It is expected that a deeper and more intrusive investigation, such as Cone Penetration Testing and/or machine-cored drillholes, will be required for Tier 2 sites with more complex and/or deeper failure mechanisms and retention design solutions.

CPT and drillhole investigation will be carried out following the assessment of the failure mechanism and where the risk of unforeseen ground conditions at depth has the potential to result in significant re-design, construction risk or a high residual risk of failure. For Tier 2 sites, the scope of CPT and drillhole investigation will be agreed upon on a site-specific basis with the Council.

Other materials testing of the existing structures and soils may be required as appropriate and as recommended by the Consultants.

7. Catchment Analysis

Catchment assessment will be completed as per Table 2 for Tier 2 sites where culverts are to be replaced or fixed as part of the flood damage repair, for existing culverts with a total waterway less than 3.4m2 refer to the HDC Culverts DPS. All pipe sizes or stormwater infrastructure shall be calculated for the appropriate ARI rainfall event, as specified by the selected design tier, assuming the pipe is under inlet control conditions. Larger events will overtop the road, and Council will give guidance on pipe backfill to maximise the embankment stability above the pipe in such situations. New culverts/pipes shall be designed using industry-standard methods and to appropriate design events as detailed in the latest edition of Waka Kotahi-NZTA's Bridge Manual unless the Council specifies otherwise.

The extent and characteristics of the catchment will be confirmed by using the Council's high-resolution LiDAR data (if available), 1:50 000 topographic maps, and/ or aerial imagery (google earth, LINZ).

For small catchments (<1km^2 for urban catchment and <10km^2 for rural catchment), run-off will be confirmed using the Rational Method and using the latest available NIWA HIRDS (currently v4 as of 10 May 2023) rainfall where empirical data is not available or is assessed as not representative or appropriate to use for the catchment by a hydrologist, to derive design rainfall event from (up to the appropriate catchment area threshold).

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For large catchments, empirical data will be used (where available and assessed as suitable and representative of the catchment by a hydrologist) to derive flow estimates for the site of interest. These empirical based flows will then be compared to NIWA (2018) Regional Method estimates to determine the most appropriate flow values to use for design. Climate change adjustments will be incorporated for the RCP 6.0 Scenario (as advised by Council), 2081 to 2100 time horizon if this interval is appropriate for the design life of the structure. For structures with a longer design life the time horizon of 2100-2120 should be adopted for climate change adjustments. This approach and these parameters can be adjusted to reflect updates in calculation methods and available data (including any empirical data). In this instance, prior Council approval is required.

8. Pavement and Geometric Design

Where required for Tier 2 sites, pavement, and geometric design will be carried out based on the methodology outlined in the Council's Engineering Code of Practice and relevant Waka Kotahi/NZTA standards.

Unless advised otherwise by Council, the intention of the remedial works is to reinstate the original road and shoulder widths as was previously present at each site, within context with the local and adjoining road corridor environment.

Departures from the relevant standards need to be agreed with Council on a site-specific basis and included in the design memos. Where required, a pavement design cross-section and specification notes will be included as part of Tier 2 construction drawings.

9. Cantilever Retaining Structures

Where integral with the structure and as determined by the consultant, retaining structures shall be addressed with the bridge remediation design or refer to Hastings District Council Design Philosophy Statement Cyclone Gabrielle Slip Remediation where appropriate.

10. MSE Walls and Slopes

Where integral with the structure and as determined by the consultant, MSE walls and slopes shall be addressed with the bridge remediation design or refer to Hastings District Council Design Philosophy Statement Cyclone Gabrielle Slip Remediation where appropriate.

11. Bridge Structures Including Associated Retaining Structures and Earth Slopes

The design of bridge structural repairs shall follow the general requirements of the NZTA Bridge Manual (v3.4) and the criteria outlined below. Exceptions from the Bridge Manual and/or the recommended criteria outlined in this document shall be assessed and agreed upon in writing by the Council. For this DPS a culvert is deemed to be a bridge (major culvert) when one or more adjacent culverts have a total waterway area greater than 3.4m2 as per the Bridge Manual. For culverts with a total waterway greater than 3.4m2 the more onerous requirements of the Bridge & Major Culverts and Culverts DPS shall be adopted.

The following applies to the element of the bridge (e.g., pier, beam, approach embankment) that is proposed to be repaired/remediated. Unless requested by Council or agreed between Council/Consultant, is it not required to assess the capacity of elements undamaged by the Cyclone or the overall capacity of the structure.

It is recommended that Council's are advised of other maintenance items that could be addressed cost-effectively whilst the Cyclone related repairs are undertaken. It is also recommended that the Consultant advise Council of the resilience of the bridge structure as a whole to future events, if possible.

Tier 1 – Minor and simple repairs

- The primary purpose of the repair is to reinstate the original (pre-cyclone) access and/or vertical load capacity.
- The cross-section (e.g., lane and shoulder width, kerb height, barrier height) shall match the original but may be reduced if approved by the Council.
- The modified structure should comply with NZBC to at least the same extent that it did pre-cyclone.
- Records for the site should identify the residual risk.

Tier 2– Significant or Complex Repair

- The primary purpose of the repair is to reinstate the original (pre-cyclone) access and/or vertical load capacity. With reference to the Building Act and Highways Structures Design Guide section 4.3, "If it did not comply with the other provisions of the Building Code, it will continue to comply to at least the extent as before the alteration".
- Cross section and clearances (vertical and horizontal) shall match the original, unless required by the Council.
- Assessment loading of existing superstructure or substructure/foundation (where required) should:
    - Establish required work to reinstate pre-cyclone level of service.
    - Highlight opportunities aligned with the scope of work that could offer improved level of service or resilience.
- The modification of any structure is to ensure that the previous live load and lateral capacity of the existing structural elements, including substructures and foundation, is not reduced.
- No strengthening to the existing superstructure or substructure/foundation is required unless requested by the Council.
- If the superstructure or substructure/foundation is being replaced, the design life of the new element shall be 100 years or as appropriate to the remaining design life for the structure and designed in accordance with the NZTA Bridge Manual v3.4 and as modified below*:
    - Lateral load of the modified structure is to be calculated using the following AEPs for wind, earthquake, and flood:
        - Tier 2 – Importance level 2 - ULS = 1/500, SLS1 = 1/25, SLS2 = 1/50;
        - The approach embankment shall be designed to withstand, without sustaining damage, up to SLS2 flood only.
    - Water forces and debris load against superstructure and substructure to be considered in accordance with NZTA Bridge Manual v3.4 section 2.3. Log impact load to be considered in accordance with AS5100.2 (A1) clause 16.7.2.
    - The foundations shall be designed for the effects of scour in accordance with NZTA Bridge Manual v3.4 section 2.3.
    - Effect of climate change to be considered when calculating freeboard and forces due to water flow.
    - The effect of logs or debris rafting shall be treated as load case *FW* in combination 2C of NZTA Bridge Manual Tables 3.2 and 3.3. Both of these combinations require consideration of concurrent traffic loading. Subject to the approval of the Council, a reduced concurrent traffic load may be used in the case where the structure is expected to be overtopped during a flood.

Rev5 - Typical, Where NZTA Bridge Manual requires IL3 or IL4, consultant to consider options and sensitivity for discussion with HDC.

The use of scour protection to achieve the above is to be avoided and/or minimised where possible.

- A like-for-like replacement of side barriers only is required, but at a minimum to meet NZBC F4.

*AEPs modified to reflect that most of the bridge structures and associated earthworks requiring repair were constructed 50-years ago on average. Departures to lower the AEPs can be sought from Council if the resulting flood/wind/earthquake flood loads are resulting in significantly expensive repairs relative to the benefit delivered.

New Replacement Structures

New replacement structures are outside of the scope of this DPS but are expected to address the following:

- Shall fully comply with NZTA Bridge Manual v3.4.
- Output as per NZTA Highway Structures Design Guide and Bridge Manual v3.4.
- Seismic Design loading shall be adopted from the National Seismic Hazard Model 2022. Reference shall be made to the Earthquake geotechnical engineering practice modules (2021, New Zealand Geotechnical Society and Ministry of Business Innovation & Employment).

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12. Slope Stability Design Criteria

If slope stability (including earth slopes) is required as part of the design, the criteria in Table 2 shall be met. If the minimum factor of safety for the seismic case cannot be met, acceptable levels of deformation can be considered subject to structure type

Table 2: Slope stability design criteria

Case	Minimum Factor of Safety
Long-term	≥1.5
Elevated groundwater	≥1.2
Seismic	≥1.0 or acceptable deformation levels

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Bridge ID	Bridge Name	Tier	Ward	Road	Consultant	Consultant PM
101	PORTERS	Tier 0	T1 - Tutira (SH2)	PAKURATAHI VALLEY ROAD	Stantec	Joanna Davenport
103	TANGOIO	Tier 1	T1 - Tutira (SH2)	TANGOIO SETTLEMENT ROAD	Stantec	Joanna Davenport
104	WAIPATIKI	Tier 1	T1 - Tutira (SH2)	WAIPATIKI ROAD	Stantec	Joanna Davenport
106	DARKEYS SPUR NO. 2	Tier 0	T1 - Tutira (SH2)	DARKYS SPUR ROAD	Stantec	Joanna Davenport
107	KAIWAKA	Tier 2	T1 - Tutira (SH2)	WAIPUNGA ROAD	Stantec	Michelle Parnell
109	ARAPAOANUI	Tier 1	T1 - Tutira (SH2)	AROPAOANUI ROAD	Stantec	Michelle Parnell
110	MCINTYRES LOW LEVEL	Tier 2	T1 - Tutira (SH2)	MCINTYRES ACCESS ROAD	Stantec	
111	WAIKOAU GORGE	Tier 2	T1 - Tutira (SH2)	WAIKOAU ROAD	Stantec	Michelle Parnell
112	HAMMONDS OVERHEAD	Tier 0	T1 - Tutira (SH2)	WAIKOAU ROAD	Stantec	Joanna Davenport
113	WAIKOAU OVERHEAD	Tier 0	T1 - Tutira (SH2)	WAIKOAU ROAD	Stantec	Joanna Davenport
114	MOKA MOKA	Tier 0	T1 - Tutira (SH2)	MOKAMOKA ROAD	Stantec	Michelle Parnell
115	GRANTS OVERHEAD	Tier 0	T1 - Tutira (SH2)	MATAHORUA ROAD	Stantec	Michelle Parnell
116	MATAHORUA OVERHEAD	Tier 0	T1 - Tutira (SH2)	MATAHORUA ROAD	Stantec	Joanna Davenport
117	SHINES	Tier 0	T1 - Tutira (SH2)	HEAYS ACCESS ROAD	Stantec	Joanna Davenport
118	HEAYS	Tier 0	T1 - Tutira (SH2)	HEAYS ACCESS ROAD	Stantec	Joanna Davenport
119	HEAYS GORGE	Tier 2	T1 - Tutira (SH2)	HEAYS ACCESS ROAD	Stantec	Michelle Parnell
121	KAHIKA NO. 2 CULVERT	Tier 1	T1 - Tutira (SH2)	KAHIKA ROAD	Stantec	Joanna Davenport
123	PARAHAU	Tier 0	T1 - Tutira (SH2)	WAIKARE ROAD	Stantec	Joanna Davenport
124	NO NAME	Tier 1	T1 - Tutira (SH2)	MATAHORUA ROAD	Stantec	Joanna Davenport
126	ELLIOTTS	Tier 2	T2 - Tutira (SH5)	OHURAKURA ROAD	GHD	Vishala Prakash
127	AVERYS	Tier 2	T2 - Tutira (SH5)	OHURAKURA ROAD	GHD	Vishala Prakash
128	PALMERS CULVERT	Tier 1	T2 - Tutira (SH5)	OHURAKURA ROAD	GHD	Duncan Tindall
129	HARTGILLS	Tier 2	T2 - Tutira (SH5)	OHURAKURA ROAD	GHD	Duncan Tindall
130	LOPDELLS	Tier 1	T2 - Tutira (SH5)	OHURAKURA ROAD	GHD	Duncan Tindall
131	STRACHANS	Tier 0	T2 - Tutira (SH5)	OHURAKURA ROAD	GHD	Duncan Tindall
132	BERRY	Tier 1	T2 - Tutira (SH5)	BERRY ROAD	GHD	Duncan Tindall
133	MIMIHA NO. 1	Tier 1	T2 - Tutira (SH5)	MIMIHA ROAD	GHD	Duncan Tindall

134	MIMIHA NO. 2	Tier 1	T2 - Tutira (SH5)	MIMIHA ROAD	GHD	Duncan Tindall
135	MANGAWHATA CULVERT	Tier 2	T2 - Tutira (SH5)	WAITARA ROAD	GHD	Duncan Tindall
136	WATERFALL	Tier 2	T2 - Tutira (SH5)	WAITARA ROAD	GHD	Duncan Tindall
137	KAKAPONUI	Tier 1	T2 - Tutira (SH5)	WAITARA ROAD	GHD	Duncan Tindall
138	GLENFALLS	Tier 1	T2 - Tutira (SH5)	WAITARA ROAD	GHD	Duncan Tindall
139	RANGIWHAKAHAROA	Tier 1	T2 - Tutira (SH5)	WAITARA ROAD	GHD	Duncan Tindall
140	DOUBLE CULVERT	Tier 2	T2 - Tutira (SH5)	WAITARA ROAD	GHD	Duncan Tindall
141	GORGE	Tier 2	T2 - Tutira (SH5)	WAITARA ROAD	GHD	Winston Gee
142	VISTA	Tier 1	T2 - Tutira (SH5)	WAITARA ROAD	GHD	Duncan Tindall
143	COPPERMINE CULVERT	Tier 1	T2 - Tutira (SH5)	WAITARA ROAD	GHD	Duncan Tindall
145	HEDGLEY	Tier 1	T2 - Tutira (SH5)	HEDGELEY ROAD	GHD	Duncan Tindall
146	HOLT NO. 1	Tier 0	T2 - Tutira (SH5)	HOLT ROAD	GHD	Duncan Tindall
147	HOLT NO. 2	Tier 1	T2 - Tutira (SH5)	HOLT ROAD	GHD	Duncan Tindall
148	MCVICARS	Tier 0	T2 - Tutira (SH5)	MCVICAR ROAD	GHD	Duncan Tindall
150	RUKUMOANA	Tier 2	T2 - Tutira (SH5)	TE WAKA ROAD	GHD	Duncan Tindall
151	SEAFIELD NO. 1	Tier 0	T2 - Tutira (SH5)	SEAFIELD ROAD	GHD	Duncan Tindall
152	SEAFIELD NO. 2	Tier 0	T2 - Tutira (SH5)	SEAFIELD ROAD	GHD	Duncan Tindall
153	SEAFIELD NO. 3	Tier 1	T2 - Tutira (SH5)	SEAFIELD ROAD	GHD	Duncan Tindall
154	SERVICE	Tier 1	T2 - Tutira (SH5)	ELLIS WALLACE ROAD	GHD	Duncan Tindall
155	TE WAKA	Tier 2	T2 - Tutira (SH5)	TE WAKA ROAD	GHD	Duncan Tindall
156	WAIPUNGA	Tier 0	T1 - Tutira (SH2)	WAIPUNGA ROAD	Stantec	Michelle Parnell
161	SMITHS TWIN CULVERT	Tier 0	T1 - Tutira (SH2)	HEAYS ACCESS ROAD	Stantec	Joanna Davenport
203	BLACKS	Tier 3	K2 - Kaweka (Taihape)	TAIHAPE ROAD	GHD	Winston Gee
204	CAMELBACK	Tier 1	K1 - Kaweka (Puketitiri)	WAIHAU ROAD	WSP	Tony Smith
205	CARSWELLS	Tier 1	K1 - Kaweka (Puketitiri)	CARSWELL ROAD	WSP	Tony Smith
206	CROWNTHORPE	Tier 1	K2 - Kaweka (Taihape)	CROWNTHORPE ROAD	WSP	Tony Smith
213	HARPERS	Tier 1	K2 - Kaweka (Taihape)	TAUHARA ROAD	WSP	Tony Smith
214	HAWKSTON NO. 1	Tier 1	K1 - Kaweka (Puketitiri)	HAWKSTON ROAD	WSP	Tony Smith
215	HAWKSTON NO. 2	Tier 1	K1 - Kaweka (Puketitiri)	HAWKSTON ROAD	WSP	Tony Smith
218	HORGANS	Tier 1	K1 - Kaweka (Puketitiri)	WAIHAU ROAD	WSP	Tony Smith
220	KAWERA	Tier 1	K2 - Kaweka (Taihape)	TAIHAPE ROAD	GHD	Duncan Tindall
222	KURIPAPANGO	Tier 3	K2 - Kaweka (Taihape)	TAIHAPE ROAD	GHD	Winston Gee
223	MAKAHU CULVERT	Tier 1	K1 - Kaweka (Puketitiri)	MAKAHU ROAD	WSP	Tony Smith
224	DAMPNEY CULVERT	Tier 2	K2 - Kaweka (Taihape)	DAMPNEY ROAD	WSP	Tony Smith
232	OHITI NO. 1	Tier 2	K2 - Kaweka (Taihape)	OHITI ROAD	WSP	Tony Smith
233	OHITI NO. 2	Tier 2	K2 - Kaweka (Taihape)	OHITI ROAD	WSP	Tony Smith
234	OHIWIA	Tier 1	K2 - Kaweka (Taihape)	TAIHAPE ROAD	GHD	Duncan Tindall
235	OMAPERE	Tier 2	K2 - Kaweka (Taihape)	OMAPERE ROAD	WSP	Tony Smith
238	PA CULVERT	Tier 1	K1 - Kaweka (Puketitiri)	PUKETITIRI ROAD	WSP	Tony Smith
241	PEKA PEKA CULVERT	Tier 0	K1 - Kaweka (Puketitiri)	SOLDIERS SETTLEMENT ROAD	WSP	Tony Smith
242	POTTERS	Tier 2	K1 - Kaweka (Puketitiri)	POTTER ROAD	WSP	Tony Smith
244	PUKEHAMOAMOA	Tier 3	K2 - Kaweka (Taihape)	TAIHAPE ROAD	GHD	Winston Gee
249	RUNUNGA	Tier 1	K2 - Kaweka (Taihape)	TAIHAPE ROAD	GHD	Duncan Tindall
250	RUNUNGA OVERFLOW	Tier 1	K2 - Kaweka (Taihape)	TAIHAPE ROAD	GHD	Duncan Tindall

252	SWAMP CUTTING	Tier 3	K2 - Kaweka (Taihape)	TAIHAPE ROAD	GHD	Duncan Tindall
253	TAYLORS	Tier 2	K2 - Kaweka (Taihape)	KIKOWHERO ROAD	WSP	Tony Smith
254	TOIS	Tier 1	K2 - Kaweka (Taihape)	TAIHAPE ROAD	GHD	Duncan Tindall
257	WILLOWFORD CULVERT	Tier 3	K2 - Kaweka (Taihape)	TAIHAPE ROAD	GHD	Duncan Tindall
258	WILLOWFORD	Tier 2	K2 - Kaweka (Taihape)	WILLOWFORD ROAD	WSP	Tony Smith
260	WAITATA	Tier 1	K2 - Kaweka (Taihape)	WAITATA ROAD	WSP	Tony Smith
302	CRYSTAL NO. 1	Tier 0	P - Poukawa	CRYSTALL ROAD	Stantec	Michelle Parnell
303	CRYSTAL NO. 2 CULVERT	Tier 0	P - Poukawa	CRYSTALL ROAD	Stantec	Michelle Parnell
307	DOUGLAS NO. 2 CULVERT	Tier 0	P - Poukawa	DOUGLAS ROAD	Stantec	Michelle Parnell
308	FIELDS	Tier 0	P - Poukawa	MARAETOTARA ROAD	Stantec	Michelle Parnell
309	HARPERS CULVERT	Tier 0	P - Poukawa	HARPER ROAD	Stantec	Michelle Parnell
310	HAWEA	Tier 0	P - Poukawa	KAHURANAKI ROAD	Stantec	Michelle Parnell
311	HORONUI CULVERT	Tier 0	P - Poukawa	HORONUI ROAD	Stantec	Michelle Parnell
312	LAMBS HILL NO. 1	Tier 0	P - Poukawa	OKAIHAU ROAD	Stantec	Michelle Parnell
313	LAMBS HILL NO. 2	Tier 0	P - Poukawa	OKAIHAU ROAD	Stantec	Michelle Parnell
314	LIME WORKS CULVERT	Tier 0	P - Poukawa	WAIMARAMA ROAD	Stantec	Michelle Parnell
317	MARAETOTARA GORGE CULVER	Tier 0	P - Poukawa	MARAETOTARA ROAD	Stantec	Michelle Parnell
318	TUKITUKI CULVERT	Tier 1	P - Poukawa	TUKI TUKI ROAD	Stantec	Michelle Parnell
320	MCIVORS	Tier 0	P - Poukawa	CRYSTALL ROAD	Stantec	Michelle Parnell
321	MCKENZIE LOW LEVEL	Tier 0	P - Poukawa	MACKENZIE ROAD	Stantec	Michelle Parnell
322	POSSUM	Tier 0	P - Poukawa	KAHURANAKI ROAD	Stantec	Michelle Parnell
323	MUTINY	Tier 0	P - Poukawa	MUTINY ROAD	Stantec	Michelle Parnell
324	OHO	Tier 0	P - Poukawa	KAHURANAKI ROAD	Stantec	Michelle Parnell
325	PAKI PAKI	Tier 0	P - Poukawa	OLD MAIN ROAD	Stantec	Michelle Parnell
326	PAPANUI	Tier 0	P - Poukawa	MIDDLE ROAD	Stantec	Michelle Parnell
327	PEACH GULLY	Tier 0	P - Poukawa	WAIMARAMA ROAD	Stantec	Michelle Parnell
328	RIGGIRS	Tier 0	P - Poukawa	MARAETOTARA ROAD	Stantec	Michelle Parnell
329	SCHOOL ROAD CULVERT	Tier 0	P - Poukawa	SCHOOL ROAD	Stantec	Michelle Parnell
330	TAWA	Tier 0	P - Poukawa	TAWA ROAD	Stantec	Michelle Parnell
331	TAWSE CULVERT	Tier 0	P - Poukawa	MARAETOTARA ROAD	Stantec	Michelle Parnell
332	TE APITI NO. 1	Tier 0	P - Poukawa	TE APITI ROAD NORTH	Stantec	Michelle Parnell
333	TE APITI NO. 2	Tier 1	P - Poukawa	TE APITI ROAD NORTH	Stantec	Michelle Parnell
334	TE APITI NO. 3	Tier 2	P - Poukawa	TE APITI ROAD NORTH	Stantec	Michelle Parnell
335	TE APITI NO. 4	Tier 0	P - Poukawa	TE APITI ROAD NORTH	Stantec	Michelle Parnell
336	TE ARATIPI	Tier 0	P - Poukawa	MARAETOTARA ROAD	Stantec	Michelle Parnell
337	TE AUTE TRUST CULVERT	Tier 0	P - Poukawa	TE AUTE TRUST ROAD	Stantec	Michelle Parnell
338	TE MAHANGA NO.1	Tier 0	P - Poukawa	TE MAHANGA ROAD	Stantec	Michelle Parnell
339	TE MAHANGA NO.2	Tier 1	P - Poukawa	TE MAHANGA ROAD	Stantec	Michelle Parnell
340	TIAKITAI	Tier 0	P - Poukawa	TIAKITAI ROAD	Stantec	Michelle Parnell
341	RED	Tier 0	P - Poukawa	WAIMARAMA ROAD	Stantec	Michelle Parnell
342	WAIKAKA	Tier 0	P - Poukawa	MIDDLE ROAD	Stantec	Michelle Parnell
343	WAIMARAMA	Tier 0	P - Poukawa	HARPER ROAD	Stantec	Michelle Parnell
344	TWIN CREEKS NO.1	Tier 0	P - Poukawa	WAIMARAMA ROAD	Stantec	Michelle Parnell
345	TWIN CREEKS NO.2	Tier 0	P - Poukawa	WAIMARAMA ROAD	Stantec	Michelle Parnell
346	WAIPUKA	Tier 0	P - Poukawa	WAIMARAMA ROAD	Stantec	Michelle Parnell
401	BRIDGE PA	Tier 2	M - Maraekakaho	RAUKAWA ROAD	Stantec	Michelle Parnell
402	HASSELLS	Tier 0	M - Maraekakaho	RAUKAWA ROAD	Stantec	Michelle Parnell
403	RAUKAWA	Tier 0	M - Maraekakaho	RAUKAWA ROAD	Stantec	Michelle Parnell
404	MCFARLANES	Tier 1	M - Maraekakaho	RAUKAWA ROAD	Stantec	Michelle Parnell
405	VALLEY NO. 1	Tier 0	M - Maraekakaho	VALLEY ROAD	Stantec	Michelle Parnell
406	VALLEY NO. 2	Tier 0	M - Maraekakaho	VALLEY ROAD	Stantec	Michelle Parnell
408	TAITS	Tier 0	M - Maraekakaho	TAIT ROAD	Stantec	Michelle Parnell
409	YARROW	Tier 0	M - Maraekakaho	SALISBURY ROAD	Stantec	Michelle Parnell
410	MARAEKAKAHO	Tier 1	M - Maraekakaho	KERERU ROAD	Stantec	Michelle Parnell
411	OLRIG	Tier 2	M - Maraekakaho	KERERU ROAD	Stantec	Michelle Parnell

412	WHANAKINO (OLRIG NO. 2)	Tier 2	M - Maraekakaho	KERERU ROAD	Stantec	Michelle Parnell
413	KERERU LAND BRIDGE	Tier 0	M - Maraekakaho	KERERU ROAD	Stantec	Michelle Parnell
414	AORANGI	Tier 2	M - Maraekakaho	AORANGI ROAD	Stantec	Michelle Parnell
415	MANGATAHI LOW LEVEL	Tier 0	M - Maraekakaho	MANGATAHI ROAD	Stantec	Michelle Parnell
416	DOGLEG	Tier 1	M - Maraekakaho	BIG HILL ROAD	Stantec	Michelle Parnell
417	OHARA (BIG HILL NO. 2)	Tier 2	M - Maraekakaho	BIG HILL ROAD	Stantec	Michelle Parnell
418	MANGLETON	Tier 1	M - Maraekakaho	MANGLETON ROAD	Stantec	Michelle Parnell
419	TARAPEKE CULVERT	Tier 1	M - Maraekakaho	MANGLETON ROAD	Stantec	Michelle Parnell
421	SENTRY BOX	Tier 0	M - Maraekakaho	MANGLETON ROAD	Stantec	Michelle Parnell
422	TRIPLE CULVERT	Tier 1	M - Maraekakaho	MANGLETON ROAD	Stantec	Michelle Parnell
423	MATTHEWS	Tier 0	M - Maraekakaho	GULL FLAT ROAD	Stantec	Michelle Parnell
424	POPORANGI	Tier 0	M - Maraekakaho	DUFF ROAD	Stantec	Michelle Parnell
425	PAUTAKI LOW LEVEL	Tier 0	M - Maraekakaho	DUFF ROAD	Stantec	Michelle Parnell
426	GADDUMS	Tier 0	M - Maraekakaho	POPORANGI ROAD	Stantec	Michelle Parnell
427	RAYS	Tier 0	M - Maraekakaho	RAYS ROAD	Stantec	Michelle Parnell
428	NESTORS CULVERT	Tier 0	M - Maraekakaho	TAHEKE ROAD	Stantec	Michelle Parnell
430	ROSSERS	Tier 1	M - Maraekakaho	ROSSER ROAD	Stantec	Michelle Parnell
433	TURAMOE NO. 1	Tier 0	M - Maraekakaho	TURAMOE ROAD	Stantec	Michelle Parnell
504	MCDONALDS	Tier 1	P - Poukawa	TE AUTE ROAD	Stantec	Michelle Parnell
510	MANGARAU	Tier 1	P - Poukawa	TE AUTE ROAD	Stantec	Michelle Parnell
514	MIDDLE RD NO.1	Tier 0	P - Poukawa	MIDDLE ROAD	Stantec	Michelle Parnell
515	MIDDLE RD NO.2	Tier 1	P - Poukawa	MIDDLE ROAD	Stantec	Michelle Parnell
801	AWANUI	Tier 0	P - Poukawa	TE AUTE ROAD	Stantec	Michelle Parnell
812	LOUISA	Tier 0	P - Poukawa	TE AUTE ROAD	Stantec	Michelle Parnell
817	RICHARD ROAD CULVERT	Tier 0	P - Poukawa	RICHARD ROAD	Stantec	Michelle Parnell
907	SCHOOL CULVERT	Tier 0	P - Poukawa	SCHOOL ROAD	Stantec	Michelle Parnell
908	MUDDY CREEK	Tier 0	P - Poukawa	RICHMOND ROAD (CLIVE)	Stantec	Michelle Parnell
912	JENSENS	Tier 0	P - Poukawa	TUKI TUKI ROAD	Stantec	Michelle Parnell
913	BAKERS	Tier 0	P - Poukawa	TUKI TUKI ROAD	Stantec	Michelle Parnell
924	MIDDLE RD FOOTBRIDGE NO2	Tier 0	P - Poukawa	MIDDLE ROAD	Stantec	Michelle Parnell
931	CULVERT - 5314M	Tier 2	P - Poukawa	WAIMARAMA ROAD	Stantec	Michelle Parnell
932	CULVERT - 1203M	Tier 0	P - Poukawa	KAHURANAKI ROAD	Stantec	Michelle Parnell
945	MAKAHU (DOC)	Tier 1	K1 - Kaweka (Puketitiri)	MAKAHU ROAD	WSP	Tony Smith
946	MATAHORUA STOCK UNDERPAS	Tier 0	T1 - Tutira (SH2)	MATAHORUA ROAD	Stantec	Michelle Parnell
947	WAIKOAU STOCK UNDERPASS	Tier 0	T1 - Tutira (SH2)	WAIKOAU ROAD	Stantec	Michelle Parnell

Site Distribution at	**11/03/2024**
Tier 0	81
Tier 1	48
Tier 2	27
Tier 3	5
Total	161
Stantec	
Tier 0	75
Tier 1	18
Tier 2	11
Tier 3	0
Total	104
GHD	
Tier 0	5
Tier 1	19
Tier 2	9
Tier 3	5
Total	38
WSP	
Tier 0	1
Tier 1	11
Tier 2	7
Tier 3	0
Total	19

Heretaunga Hastings District Council Design Philosophy Statement Cyclone Gabrielle Culvert Remediation

14 August 2023

To	Marius Van Niekerk (HDC)		
From	Matt James	**Project No.**	12606259
Project Name	HPSC Cyclone Gabrielle Professional Services Support		
Subject	Heretaunga Hastings District Council – Design Philosophy Statement – Cyclone Gabrielle Culvert Remediation		

1. Introduction

This design philosophy statement (DPS) has been prepared to document and outline the design approach for cyclone-damaged culverts across the Hastings District Council (HDC) local roads network and sets out the requirements relative to providing supporting documentation.

This document is intended to form the basis for assessment and design of the remedial works for culverts where performance and /or capacity has been compromised because of Cyclone Gabrielle. The criteria and Tier structure outlined below is recommended to ensure that an appropriate level of investigation and design is carried out based on assessment of risk and the importance of the route to local communities across the network. It also informs HDC of the risk and resilience expectations associated with the approach.

2. Design philosophy

A Tiered design philosophy has been developed to prioritise repair and design. The intention of the Tiered design philosophy is to assign a Tier to each site primarily based on current risk and expected performance.

The categorisation of Tier sites is subjective and will be based on the design consultant's interpretation of site risk following initial inspections. The assessment will take into consideration the importance of the route, which is determined by the list of priority roads which council has provided and is summarised in Table 2. As such, the consultant shall be responsible for selecting suggested Tier sites and must accompany the list of sites with documentation outlining: the basis of selection, the application of appropriate drawings (including typical details where appropriate), any site-specific recommendations, statement on residual risk, and any limitations. The level of detail will increase as Tier level increases.

If needed, the consultant can be available to answer any contractor queries.

2.1 Tier 0 culverts

Tier 0 culverts shall be those that require no design work on them and are require clearing only. These culverts are in good condition, and do not need to be analysed further. The consultant is responsible for assigning suggested Tier 0 sites based on the culvert and road inspections. Should further damage be revealed, the culvert will be reassigned the appropriate tier.

2.2 Tier 1 culverts

Tier 1 culverts are low to moderate risk sites, where it is expected that simple repairs can be undertaken directly by competent experienced Contractors, shall be addressed using a schedule of suggested “Tier 1” sites accompanied by a set of relevant Typical Details and any site-specific requirements. All Tier 1 sites shall be those where no direct engineering intervention is required by HDC.

2.3 Tier 2 culverts

Tier 2 culverts are high to very high-risk sites where it is likely that more significant engineering repairs will be required, including full replacement of pipes, headwalls and other infrastructure as appropriate. These sites will require engineering input from consultants and are likely to require catchment to establish whether the existing culvert size is appropriate.

2.4 Blocked Culverts

Blocked culverts refer to culverts that are blocked with debris and silt affecting their capacity. No repair works will typically be expected to the culvert itself initially during unblocking, though there may be exceptions and there will be instances where blocked culverts will also require design. Once the culvert becomes unblocked, further assessment will be undertaken to determine if additional remediation works are required and a Tier will then be allocated depending on whether damage is identified and with consideration of location. Further assessment will be based on engineering judgement or by CCTV footage if deemed necessary.

Blocked culverts are assigned a priority in accordance with Table 1. The potential for future blockage should also be considered with channels 200m upstream of the culvert to also be reformed or cleared of loose debris. The percentage blocked is based at the time of initial inspection carried out on the culvert and as shown in RAMM.

Table 1 Criteria for Blocked Culverts

Criteria	All roads	Non-priority roads			Priority roads		
Percentage Blocked (%)	<10%	10-30%	30-75%	75-100%	10-30%	30-75%	75-100%
Pre-repair risk level for another weather event	Very low	Low	Moderate	High	Moderate	High	Very High
Clearance requirements	No works required	Clean and unblock culvert including material at inlet. Clear away debris up to 200m upstream of channel (if necessary).					

2.5 Priority Roads

Culverts on priority roads that were significantly blocked (greater than 75%) should be inspected and cleared out immediately after heavy rain to prevent further damage from occurring. Culverts on non-priority roads with greater than 75% blockage should be inspected and cleared out immediately after all the priority road culverts have been cleared. Further inspection should be completed on roads that are prone to flooding (or have flooded in the past). A list of the Priority Roads and their corresponding ward is found below in Table 2. A list of previous flooded roads can be found in Attachment 1.

Table 2 List of Priority Roads

Road Name	Ward
Kahuranaki Road	P - Poukawa
Taihape Road	K2 - Kaweka (Taihape)
Puketitiri Road	K1 - Kaweka (Puketitiri)
Waimarama Road	P - Poukawa
Waihau Road	K1 - Kaweka (Puketitiri)
Glengarry Road	T2 - Tutira (SH5)
Dartmoor Road	K1 - Kaweka (Puketitiri)
Kereru Road	M - Maraekakaho
Salisbury Road	M - Maraekakaho
Price-Cockburn Road	K1 - Kaweka (Puketitiri)
Matahorua Road	T1 - Tutira (SH2)
Maraetotara Road	P - Poukawa
Matapiro Road	K2 - Kaweka (Taihape)
Mangleton Road	M - Maraekakaho
Waipunga Road	T2 - Tutira (SH5)
Waitara Road	T2 - Tutira (SH5)
Pohokura Road	T1 - Tutira (SH2)

2.6 Damage criteria

The Tier system for damaged culverts is provided in Table 3 and should be used in conjunction with the design philosophy in Table 4, and an understanding of the design outputs in Table 5. HDC, in conjunction with their consultants, will assign the appropriate Tier and HDC accepts that designs and deliverables will be undertaken based on the design approach included in Table 3 for each design Tier.

Table 3 Tier Criteria for Damaged Culverts

Criteria	Tier 0	Tier 1	Tier 2
Pre-repair risk level for another weather event	Very low	Low and Moderate	High to Very High
Typical type of damage*	Culvert undamaged – blockage only	Minor cracks or pipe deformation. Minor damage to headwalls. Minor scour upstream and downstream	Large cracks. Broken headwalls. Broken culverts. Significant scour upstream and downstream
Location of culvert	Access culvert, cut-out culvert and cross culvert	Cross culverts and cut-out culverts (access culvert by exception)	Cross culvert only
Signs of local flooding / overtopping	No	No	Yes

Criteria	Tier 0	Tier 1	Tier 2
Signs of scour / wash out	No	Typically, no but may include minor scour	Yes (major scour)
Output Level (See Table 5)	Not Required	Typical Details only	Detailed Design

* Typical type of damage: *Minor damage - repairable, no immediate replacement required. Major damage - inlet/outlet/culvert structure requires immediate replacement. Minor scour is just superficial requiring only minor shaping and planting, major scour - undermined inlet/outlet structure, bank collapse.*

For sites with multiple damage criteria identified, the final Tier classification shall be assigned based on the highest Tier at each culvert, e.g. a culvert identified with minor cracking (Tier 1) and signs of flooding (Tier 2) will result in the culvert being classified Tier 2.

Where a slip has been detected in the proximity of a culvert, liaison with the geotechnical/slip team is necessary to determine a suitable design solution. Requirements set out in the slips Design Philosophy Statement (DPS) may need to be applied.

Where no cross culvert exists and there is evidence of a flow path then this should be discussed with council and investigated on a case-by-case basis. Downstream property owners will be consulted in the design process to remove risk of property flooding. Access culverts and cut-out culverts will be on a case-by-case basis.

Where there are signs of flooding, but the culvert has minor to no damage (refer to Table 3) then the percentage of blockage shall be reviewed to determine whether this was a factor in the flooding. Where flooding is noted, and blockage was less than 25% then discussions with HDC shall be carried out to confirm the desire to investigate whether the culvert will require upsizing.

If at any stage, the Tier allocated is not reflective of the risk to HDC as outlined in this document, HDC must be advised prior to completion of the design. Adjustment of an initial Tier rating, prior to design, can be undertaken in conjunction with HDC. Adjustments can be made to either increase or reduce the Tier as appropriate.

A step-by-step process for assigning Tiers to each culvert is illustrated in a diagram found in Attachment 2.

2.7 Design Philosophy

Table 4 Design Philosophy

Design Philosophy	Tier 0	Tier 1	Tier 2
Culvert repair requirements	No repair works required – clearance only	Minor repairs to existing culvert, headwall etc as applicable. No replacement or adjustment required.	Replace culvert and/or engineering solution required. Capacity to be checked.
Catchment Analysis (check upsizing requirements)	No	No	Yes 5- to 50- year ARI Culvert Size recommended – refer to Table C7 in the HDC Engineering Code of Practice 2020. Also included in Attachment 3
Pavement design	No	Site dependent (Standard details only)	Site dependent (Design may be required)
Outfall protection	No	Site dependent (Standard details only)	Site dependent (Design may be required)
Account for Future Land Development	No	No	Yes

3. Output level

Engineering design and documentation will be tailored based on Tier criteria and complexity. The output proposed for each design Tier is provided in Table 5. Tender documentation is not included in the deliverables.

Table 5 Output Level

Criteria	Tier 0	Tier 1	Tier 2
Sketch	No	Typical details only	No
For Construction Drawing	No	No	Yes
Design memo (including options considered)	No	No	Yes
Rough order cost estimate (completed after inspections)	No	Yes	Yes
Engineers estimate (completed with design)	No	No	Yes
Schedule of Quantities	No	No	Yes
Specification	No	Yes	Yes
Safety in design	No	No	Yes
Exceptions reporting – residual risk in design not already allowed for in this DPS	No	Yes	Yes
Construction Oversight	None	Address contractor queries	Hold point inspections to support construction review certificate

4. Investigation and monitoring

Further investigation into the condition of the culvert may be required in areas where a full inspection was unable to be carried out due to accessibility or extensive blockage of the culvert. Furthermore, Tier 2 culverts may require monitoring, by contractors delegated by council as part of the MSQA, to understand the risk they pose while the design process is being undertaken.

5. Culvert design

Design guidelines were obtained from the Hastings District Council Engineering Code of Practice 2020, and the Ministry for the Environment Manatū Mō Te Taiao Culvert and Bridge Construction 2004. Design guidelines are summarised below in Table 6.

Table 6 Culvert Design Guidelines

Criteria	Design Guidelines	
Minimum Cover	0.75 m within Road	If an existing culvert does not have sufficient cover, but the culvert itself does not need to be replaced then it can be left as is.
	0.60 m within Berm	If an existing culvert needs to be replaced and it is not feasible to

Criteria	Design Guidelines	
		provide sufficient cover then opportunities to increase cover via a concrete protection slab or material of pipe (quality/stiffness) may need to be considered.
Minimum Culvert Diameter	375 mm diameter for cross culverts	If an existing culvert does not achieve the minimum culvert diameter, but the culvert itself does not need to be replaced then it can be left as is. Information of the non-compliant culvert size should be reported to council.
	300 mm diameter for access and cut-out culverts	For all culverts needing replacement, then the minimum culvert size requirements shall be followed.
Culvert material	There are several possibilities for culvert materials such as concrete, and polyethylene/plastic. When choosing a material, consider the site conditions and the expected traffic loads over the culvert. • In difficult to access locations a lighter material may make construction simpler whereas if the traffic loading is high the pipe material will need to be able to cope with this. • In soft soils a single length flexible pipe will cope better than multiple section rigid pipes. In very soft soils or high traffic loads, an engineer is to provide a specific design. • Refer to Drawing WS201 in the Hastings District Council Engineering Code of Practice 2020 for standard embedment details for class HS2 flexible and rigid pipes. Engineering judgement for individual sites is required based on site characteristics. • Steel culverts are strongly advised against.	
Culvert Extension	Culvert extensions are to be considered for Tier 1 and Tier 2 culverts where it will provide safety and performance benefits. Liaison with HDC should also be held to determine strategy around long term road upgrades / widenings.	
Headwall Requirements	Headwalls should be provided at the culvert inlet and outlet. For new cross culverts, headwalls are to be installed unless there are site limitations. A variety of headwall constructions may be suitable including precast concrete, posts with timber lagging, in-situ concrete, and rock. Refer to Drawing WS107 and WS108 in the Hastings District Council Engineering Code of Practice 2020 for headwall details. Council to confirm on headwall installation necessity based on site information. Additional measures such as inlet debris screens, scruffy domes, etc. may be taken into consideration if the culvert is prone to blockage. This is not a necessity as it is not required by council.	
Fish Passage Requirements	For culverts located within a natural stream, allowance must be made in construction for fish passage. Below summarizes the design criteria for fish passage: • Culvert span will be greater than bankfull width. The stream bed inside the culvert should be 1.2 x bankfull width + 0.6m. • Open bottom culverts will be used, or the culvert invert will be embedded by 25-50% of culvert height. Substrate matching the composition and stability of the reference stream will be present throughout the full length of the culvert bed. If in doubt, the culvert designer should consult a planner or ecologist experienced in fish passages to confirm whether the culvert needs to meet the design and criteria requirements for fish passages.	

Criteria	Design Guidelines
	Refer to the New Zealand Fish Passage Guidelines (NIWA, 2022) for further information.
Bedding Material	The construction of pipelines shall be carried out in accordance with the requirements of: • Applicable New Zealand Standards. • Manufacturers published recommendations. • Designer specified tolerances. Backfill around the culvert should be compacted during construction to a density of not less than 95% of the Maximum Dry Density. It is important that the pipe bedding is firm and supports the pipe barrel. Fill should be free of organic materials2 and shall be placed in 150 mm layers. Imported material shall be used where insitu material is inappropriate fill. Bedding Material shall be consistent with Hastings District Council Engineering Code of Practice 2020, drawings WS104, WS107 and WS201.
Minimum Culvert Gradient	0.5%
Scour at culvert outlet.	Scour at the culvert outlet can be minimised by: - Pipe grade - Outlet velocity - Riprap & energy dissipaters Depending on site conditions, a flume or sock may be required to be put on the outlet of the culvert if there is a significant distance from the outlet invert to the existing ground level. This will be based on engineering judgement.
Upstream Channel	Ensure the channel is clean of debris approximately 200 m from the culvert inlet.
Maintenance	Ensure all culverts are clear by checking regularly particularly before and immediately after heavy rain. Culverts on priority roads shall be examined first, followed by the tier rankings.

6. Catchment analysis – Tier 2 culverts

Catchment analysis will only be completed for Tier 2 culverts where culverts are to be replaced or repaired to confirm whether upsizing of the culvert diameter is required. The pipe size shall be calculated for the appropriate ARI rainfall event as stated in Attachment 3, assuming the pipe is under inlet control conditions. Larger events will overtop the road, and the designer will give guidance on pipe backfill to maximise the embankment stability above the pipe in such situations.

The catchment extents and characteristics will be confirmed by using high-resolution LiDAR data (if available) or 1:50,000 topographic maps and Google Earth imagery. Run-off will be confirmed using the Rational Method (up to 10 ha catchments) and using NIWA HIRDS v4 Rainfall parameters incorporating climate change for the RCP 6.0 Scenario, 2081 to 2100 time horizon. Where large parts of the catchment are forestry, subject to clear-felling, additional conservative measures will be taken such as accounting for blockage and completing a sensitivity analysis on the catchment. Refer to Section 3.3.19.7.2 in the New Zealand Standard 4404 – Land Development and Subdivision Infrastructure and Attachment 4 for blockage requirements.

For larger catchments (greater than 10 ha) methods including the TM61 method, McKercher and Pearson 1989 Regional Method, and 2018 HIRDS Regional method will be used to estimate the peak flow. The estimated peak flow will then be confirmed by completing a sensitivity analysis of the catchment.

7. Pavement design

Unless advised otherwise by HDC, the intention of the remedial works is to reinstate the original road and shoulder widths as was previously present at each site. Departures from the relevant standards need to be agreed with Council on a site-specific basis. Existing pavement details can be retrieved from RAMM. Drawings WS104 and WS201 from the Hastings District Council Engineering Code of Practice 2020 should be referred to for pavement design. Where required, a pavement design cross-section and specification notes will be included as part of Tier 2 construction drawings. Rural, unsealed roads shall be reinstated using material excavated for consistency with the surrounding road.

8. Limitations

This report: has been prepared by GHD for Hastings District Council and may only be used and relied on by Hastings District Council for the purpose agreed between GHD and Hastings District Council as set out in section 1 of this report.

GHD otherwise disclaims responsibility to any person other than Hastings District Council arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

9. Acceptance by Hastings District Council

Hastings District Council acknowledges and accepts the content of the Design Philosophy Statement – Cyclone Gabrielle Culvert Remediation.

Signed	
Name	
Position	
Date	

10. Acceptance by Panel Members

WSP and Stantec acknowledges and accepts the content of the Design Philosophy Statement – Cyclone Gabrielle Culvert Remediation.

Signed	
Name	
Position	
Date	

Signed	
Name	
Position	
Date	

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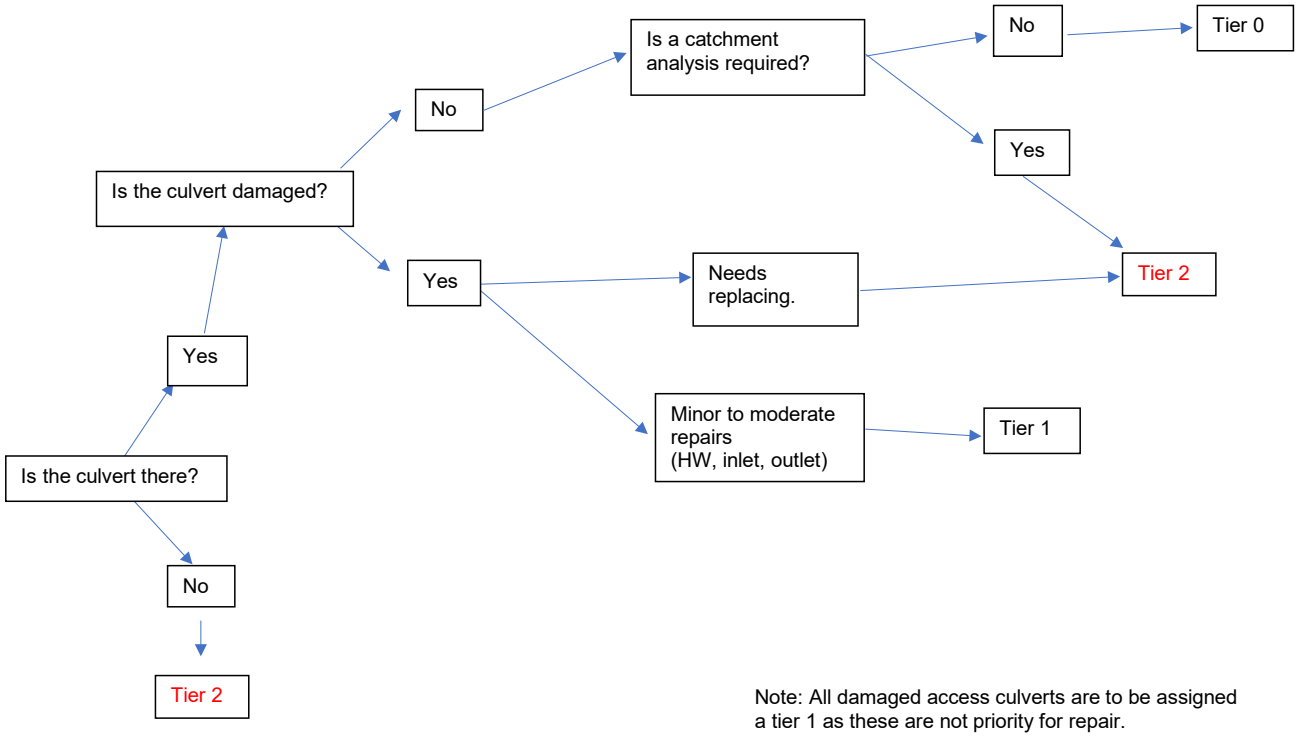
Project name		HPSC Cyclone Gabrielle Professional Services Support					
Document title		Heretaunga Hastings District Council Design Philosophy Statement Cyclone Gabrielle Culvert Remediation					
Project number		12606259					
File name		Draft Design Philosophy Statement - Culverts.docx					
Status Code	**Revision**	**Author**	**Reviewer**		**Approved for issue**		
			Name	**Signature**	**Name**	**Signature**	**Date**
S(3)	0	Christine McCarthy & Kathryn Mack	Matt James & Matt Kneebone		Duncan Tindall		3 July 2023
S(4)	1	Christine McCarthy	Matt James		Duncan Tindall		14 August 2023

Attachment 1 – Roads with Flooding History

Road	Sub area
ALLEN ROAD	CLIVE
AORANGI ROAD	MARAEKAKAHO
APLEY ROAD	KAWEKA
AROPAOANUI ROAD	TUTIRA
AWAHURI ROAD	KAWEKA
BRECKENRIDGE ROAD	KAWEKA
BROOKFIELDS ROAD	CLIVE
CARRICK ROAD	HERETAUNGA
CHESTERHOPE ROAD	CLIVE
COPELAND ROAD	HASTINGS
CRAGGY RANGE ROAD	POUKAWA
CROSSES ROAD	HERETAUNGA
CURTIS ROAD	HERETAUNGA
DARTMOOR ROAD	KAWEKA
DOMAIN ROAD	CLIVE
ELWOOD ROAD	HERETAUNGA
EVANS ROAD	HERETAUNGA
EVENDEN ROAD	HERETAUNGA
FARNDON ROAD	CLIVE
FERRY ROAD	CLIVE
FLAG RANGE ROAD	KAWEKA
FRANKLIN ROAD	CLIVE
GILBERTSON ROAD	CLIVE
GILLIGAN ROAD	CLIVE
GLENGARRY ROAD	TUTIRA
HAVELOCK ROAD	HERETAUNGA
HEDGELEY ROAD	TUTIRA
HELLYERS LANE	CLIVE
HENDERSON ROAD (NORTHBOUND)	FLAXMERE
HENDERSON ROAD (SOUTHBOUND)	HASTINGS
HILL ROAD	HERETAUNGA
HILL ROAD (PRIVATE)	TUTIRA
HODGSON ROAD	CLIVE
HOLT ROAD	TUTIRA
KAHURANAKI ROAD	POUKAWA
LANDFILL ACCESS ROAD	KAWEKA
LINDEN CLOSE	TUTIRA
MARAETOTARA ROAD	POUKAWA
MIDDLE ROAD	POUKAWA
MILL ROAD	CLIVE
MILLER ROAD	HERETAUNGA
MORLEY ROAD	HERETAUNGA
MOTEO PA ROAD	KAWEKA
NICHOLL ROAD	HERETAUNGA
NORTH SHORE ROAD	TUTIRA
OCEAN BEACH ROAD	POUKAWA

Road	Sub area
OHITI ROAD	KAWEKA
OKAIHAU ROAD	POUKAWA
OMARUNUI ROAD	KAWEKA
OMARUNUI SETTLEMENT ROAD	KAWEKA
ORMOND ROAD	HERETAUNGA
OTENE ROAD	HERETAUNGA
PAKOWHAI ROAD	PAKOWHAI ROAD
PAKURATAHI VALLEY ROAD	TUTIRA
PIRAU ROAD	KAWEKA
PITAKA LANE (PRIVATE)	HERETAUNGA
POHUTUKAWA DRIVE	TUTIRA
PUKETAPU ROAD	KAWEKA
PUKETITIRI ROAD	KAWEKA
RAUPARE ROAD	HERETAUNGA
RICHMOND ROAD (HASTINGS)	HASTINGS
RIVER ROAD (KAWEKA)	KAWEKA
RIVERSLEA ROAD SOUTH	HASTINGS
RUAHAPIA ROAD (NORTH)	HERETAUNGA
RUAHAPIA ROAD (SOUTH)	HERETAUNGA
SCHOOL ROAD	CLIVE
SEAFIELD ROAD	TUTIRA
SHAW ROAD	TUTIRA
SISSONS ROAD	CLIVE
SOLDIERS SETTLEMENT ROAD	KAWEKA
SPRINGFIELD ROAD (KAWEKA)	KAWEKA
ST ANDREWS ROAD	HERETAUNGA
ST GEORGES ROAD	HERETAUNGA
STAFFORD STREET	CLIVE
SWAMP ROAD	KAWEKA
TAIHAPE ROAD	KAWEKA
TAITS ROAD	TUTIRA
TANGOIO SETTLEMENT ROAD	TUTIRA
TE ARA KAHIKATEA	CLIVE
TE AUTE TRUST ROAD	POUKAWA
THOMPSON ROAD (TWYFORD)	HERETAUNGA
TROTTER ROAD	HERETAUNGA
TUKI TUKI ROAD	CLIVE
TWYFORD ROAD	HERETAUNGA
VICARAGE ROAD	KAWEKA
WAIMARAMA ROAD	POUKAWA
WAIOHIKI ROAD	HERETAUNGA
WAIPATIKI ROAD	TUTIRA
WAIPUNGA ROAD	TUTIRA
WHEATLEY ROAD	KAWEKA
YULE ROAD	TUTIRA

Attachment 2 – Tree Diagram for Assigning Culvert Tiers



Note: All damaged access culverts are to be assigned a tier 1 as these are not priority for repair.

Attachment 3 – Stormwater Level of Service
From HDC Engineering Code of Practice 2020

It will be necessary to refer to Table C 7 for Expected Road Corridor Stormwater Level of Service requirements.

TABLE C7 - REQUIRED ROAD CORRIDOR LEVEL OF SERVICE FOR STORMWATER MANAGEMENT

Hierarchy Classification	Stormwater Return Period (Yrs.)			
	5	10	20	50
Arterial Road	All designed movement lanes	All designed movement lanes	2 X Full traffic lane	2 X Full traffic lane
Collector Road	All designed movement lanes	2 X Full traffic lane	2 X Full traffic lane	1 X Full traffic lane
Access Road	1 X Full traffic lane	1 X Full traffic lane	0 mm depth on the carriageway centreline	100 mm depth on the carriageway centreline
Lane	1 X Full traffic lane	0 mm depth on the carriageway centreline	100 mm depth on the carriageway centreline	200 mm depth on the carriageway centreline

On rural roads the provision of a surface water channel a minimum of 0.5m below the adjacent road surface is appropriate on a majority of rural roads where 5:1 verge slopes can be readily constructed. In situations where open drains are inadequate, additional stormwater systems such as kerb and channel, sealed, paved or concrete channels and subsoil drains will be necessary.

Attachment 4 – Sump Design Accounting for Blockage

From New Zealand Standard 4404 – Land Development and Subdivision Infrastructure

3.3.19.7.2 Sump design

Sumps should be designed to intercept and convey stormwater run-off flow from design storm of the AEP set out by the TA, or otherwise stated in section 4 of this Standard, while allowing a reasonable frequency and degree of traffic interference. Depending on the road classification, as specified by the TAs, portions of the road may be inundated during major storm events. See 4.3.4.2 for allowable floodwater depths.

The following general guidelines should be used in the design of sumps:

(a) General safety requirements

(i) Provide for the safety of the public from being swept into the stormwater system; the maximum allowable opening shall not exceed 100 mm in width

(ii) Openings are sufficiently small to prevent entry of debris that would clog the stormwater system

(iii) Openings be sized and oriented to provide for safety of pedestrians and cyclists. Cycle-friendly sump grates shall be used where required by the TAs. These grates may be built either with bars transverse to the side channel direction or closely spaced bars in a wavy pattern in a longitudinal direction;

(b) Sump inlet capacities

Inlet capacities of any sump used should be determined using manufacturers' and suppliers' data which should be based on either rational analysis or first principle calculations, otherwise sump inlet capacities should be calculated using approved ➤

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design methods where applicable. When no proper data is available, the capacity of the single 675 x 450 back entry sump with standard grating should be limited to 28 L/s.

The calculated sump inlet capacities should be reduced to account for partial blockage of the inlet with debris as follows:

On-grade grated back entry sump	10% reduction
On-grade grated sump	50% reduction
On-sag grated sump	50% reduction
On-sag grated back entry sump	Include back entry capacity only

(c) The use of silt traps is encouraged in all sumps to provide partial treatment to stormwater at the source, but in all cases, trapped sumps should be used where discharge to a soakage device is permitted.

APPENDIX D

DESKTOP WATERCOURSE ASSESSMENT REPORT

Desktop Watercourse Assessment Report

Cyclone Gabrielle Slip Consenting

03/04/2024 **Ref: 310206000**

PREPARED FOR:
Hastings District Council

PREPARED BY:
STANTEC

Stantec

Revision Schedule

Revision No.	Date	Description	Prepared by	Quality Reviewer	Independent Reviewer	Project Manager Final Approval
1	03/04/2024	Draft Report	Finbar MacLeod	David Cameron	Paul Morgan	

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Abbreviations

Abbreviations	Full Name
DOC	Department of Conservation
FENZ	Freshwater Ecosystems of New Zealand
FPAT	Fish Passage Assessment Tool
FFR	Freshwater Fisheries Regulations
HBRC	Hawke's Bay Regional Council
HDC	Hastings District Council
NES-F	National Environmental Standards for Freshwater
NPS-FM	National Policy Statement for Freshwater Management
NZFFD	New Zealand Freshwater Fish Database
NZFPG	New Zealand Fish Passage Guidelines
REC	River Environment Classification
RMA	Resource Management Act
RRMP	Regional Resource Management Plan

1. Introduction

The Hawke's Bay region was severely hit by Cyclone Gabrielle on 14 February 2023. Hawke's Bay Regional Council (HBRC) rainfall figures show that Cyclone Gabrielle was one of the most significant weather events to impact the region on record. The impacts of Cyclone Gabrielle have been significant and widespread and are still being felt across the region and its communities. The event caused extensive flooding, ground instability, slips, damage to public infrastructure and related damage to the road network across the region, among other impacts to individuals, communities, and the country.

Within the Hastings District, the rural road network was significantly affected by slips, which cut off communities in the immediate aftermath of the cyclone. Temporary fixes have enabled connectivity to be restored across much of the road network, but issues persist from badly damaged roads that are in need of further, permanent remedial works to restore them generally to their pre-cyclone state. Furthermore, future weather events may exacerbate existing slips, causing further damage to roads, and making repairs even more challenging and costly.

While the assessment of damage is ongoing, the Hastings District Council (HDC – the applicant) proposes remedial works to slips that have been identified as significant and in need of urgent repair to enable local roads to be restored to a functional and safe state. At the time of writing, it was understood that resource consents are required to authorize the proposed remedial works across 133 sites in the district.

A number of these slip sites involve culverts in need of either repair or replacement. These culverts connect to various streams and river systems across the region. To provide an understanding the effects that culvert remediation may have on these watercourses, particularly fish passage, a high-level desktop assessment has been requested. This will form part of the resource consent application, and feed into the design phase of the rebuild.

1.1 Scope of Report

Due to the large number of sites and complexities around each particular slip, this report does not provide individual assessments. This high-level desktop review will group the slips (and culverts) according to catchment, and discuss values associated with known watercourses within those areas that may potentially be affected by remediation.

This assessment will consist of the following:

- Identification of streams and rivers connected to or adjacent to culverts.
- Assessment of historical fish records for identified streams and rivers, using the New Zealand Freshwater Fish Database (NZFFD).
- Modelling of species-specific fish passage potential throughout each catchment, using Freshwater Ecosystems of New Zealand (FENZ) spatial data[1]. This combines sampling data with environmental predictors to calculate the likelihood of a species' presence in a given watercourse.
- Summary of guidelines and recommended approach to fish passage assessment, based on current literature and legislation.
- Suggested conditions of consent for remedial works.

[1] This tool is most useful for predicting potential species at a specific stream/river reach (section). As this assessment is high-level, data from all watercourses in each relevant catchment has been analysed, and any instances where the probability of presence is ≥0.5, has been discussed.

2. Catchment and Slip Summary

The Hawke's Bay region is characterised by a total of 14 river catchments, which describe a range of watercourse system types: from lowland coastal rivers to spring-fed upland streams. Eight of these catchments are based around the area's major rivers, while the six additional catchments represent smaller systems in urbanised and isolated patches. While water quality is generally good throughout the region, frequent issues with elevated nitrogen and phosphorus, high sedimentation, and faecal contamination, are a direct response to the area's close association with intensive agricultural, farming (sheep/cattle), and forestry operations (LAWA, 2024). As defined by the Hawke's Bay Regional Council (HBRC), these catchments are presented below in Figure 2-1.

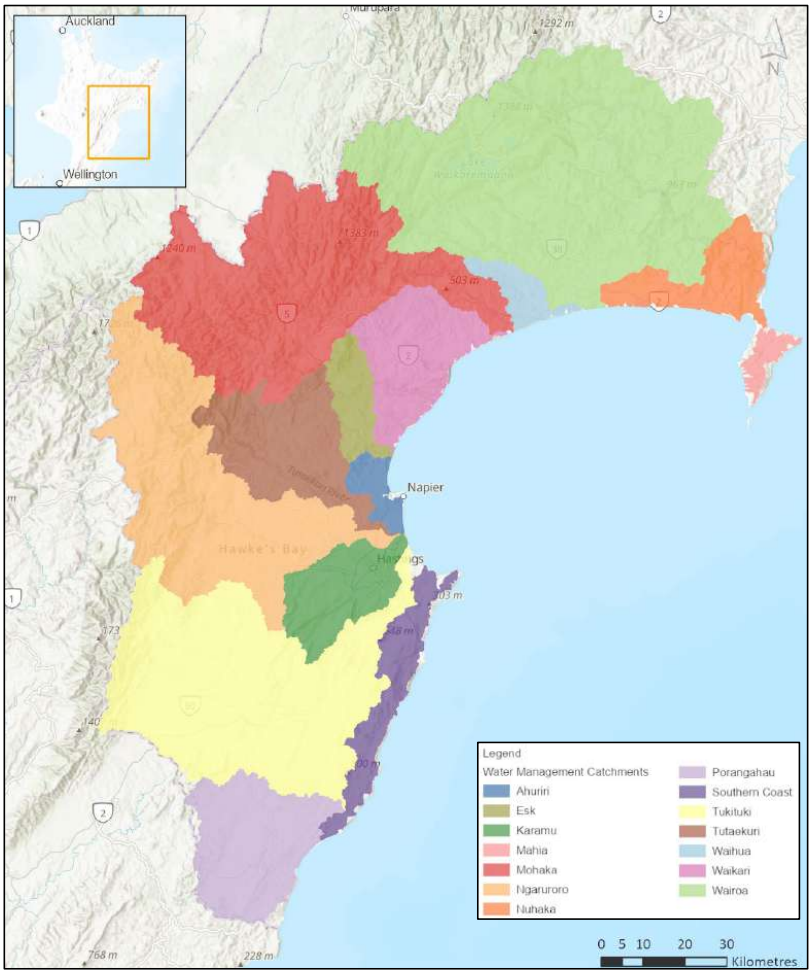

Figure 2-1: Map of catchments within the Hawke's Bay region (Hawke's Bay Regional Council 2024).

Of the available data on slip sites, 78[2] were confirmed as culverts with watercourse interaction. As summarised in Table 2-1, these culverts are spread throughout the catchments: Esk, Mohaka, Ngaruroro, Southern Coast, Tukituki, Tūtaekurī, and Waikari. While care was taken to determine which slip sites included a culvert, it is possible that some culverts may have been missed due to the sheer number of sites and desktop nature of the review. However, any such omissions are not critical to this assessment, as it is not site-specific. Further follow up assessments will be undertaken on a site-by-site basis as the design of the remedial works progress.

While culverts and slips are discussed according to catchment, a map of all sites across the entire region is attached in Appendix A.

Table 2-1: Culvert sites and watercourses according to catchment.

Catchment	No. of Culverts	Interacting Watercourses	No. of Interactions
Ahuriri	0	N/A	N/A
Esk	8	Esk River (& Assoc. Tributaries)	8
Karamū	0	N/A	N/A
Mahia	0	N/A	N/A
Mohaka	5	Mohaka River (& Assoc. Tributaries)	4
		Rangiwhakaharoa Stream	1
Ngaruroro	7	Lake Gully Stream	1
		Mangatahi Stream	1
		Ngaruroro River	Indirect – downstream confluence to all
		Okauawa Stream	2
		Poporangi Stream	2
		Whanaukini Stream	1
Nūhaka	0	N/A	N/A
Pōrangahau	0	N/A	N/A
Southern Coast	2	Maraetōtara River	1
		Waipuka Stream	1
Tukituki	10	Hawea Stream	2
		Mangangarara Stream	2
		Tukituki River (& Assoc. Tributaries)	6
Tūtaekurī	17	Gold Creek	1
		Kings Stream	2
		Mangaone River	1
		Otakarara Stream	4
		Tūtaekurī River (& Assoc. Tributaries)	1
		Waiiti Stream	4

[2] Coordinates for one site (Asset ID 881) were not provided, so it has not been assessed.

Catchment	No. of Culverts	Interacting Watercourses	No. of Interactions
		Waihau Stream	1
		Waikinakitangata Stream	3
Waihua	0	N/A	N/A
Waikari	29	Kahika Stream	1
		Matahorua Stream	5
		Papakiri Stream	3
		Poningo Stream	8
		Sandy Creek	2
		Tararere Stream	1
		Te Ngarue Stream	Indirect – 3 sites just upstream of confluence with Poningo Stream
		Waikari River (& Assoc. Tributaries)	4
		Waikoau River (& Assoc. Tributaries)	5
Wairoa	0	N/A	N/A
Total	**78**		

2.1 Esk Catchment

2.1.1 Description

With a catchment area of around 252 km^2, the Esk River Catchment is relatively small (Figure 2-2). The river begins in the Maungaharuru Range, and flows south-east, discharging at Whirinaki approximately 14 km north of Napier.

The upper reach of the catchment is characterized by plantation forestry, with patches of dairy farming. The middle and lower end of the catchment is predominantly pastoral farming, with some vineyards and orchards, plus lifestyle property development. It is noted that after Cyclone Gabrielle caused significant damage within the Esk River catchment, and current land use is relatively limited, as many pockets of the catchment remain unoccupied (LAWA, 2024).

2.1.2 Watercourses

Eight culverts are situated within the Esk catchment, and all are located far upstream in the northern sector along either Ohurakura Road, Berry Road, or Mokamoka Road. These culverts connect to eight separate unnamed tributaries of the Esk River, as identified under the River Environment Classification (REC2) New Zealand (NIWA, 2020). Therefore, the relevant watercourses are as follows:

- Esk River (and associated tributaries)

2.1.3 Fish Records and Passage Modelling

A search of the NZFFD found 175 records from the Esk River and wider Esk catchment (Table C-1). In total, 17 species were identified; 14 of which were native. Six species are considered 'At Risk' under the current threat status classification[3]: tuna/longfin eel (*Anguilla australis*), torrentfish (*Cheimarrichthys fosteri*), kōaro (*Galaxias brevipinnis*), īnanga (*Galaxias maculatus*), giant bully (*Gobiomorphus gobioides*), and bluegill bully (*Gobiomorphus hubbsi*). A table of historical records across catchments is presented in Appendix C.

To address any gaps in historical records, the FENZ predicted species distribution model was utilised. Data on 'predicted probability of capture' was compiled from all watercourses within the Esk catchment, and any instances where the probability of presence was ≥0.5 was noted[4]. Ten native species presented a probability of ≥0.5 in at least one watercourse within the Esk catchment. Of these, five are considered 'At Risk': tuna/longfin eel, torrentfish, īnanga, giant bully, and bluegill bully. A table of FENZ predicted distribution is presented in Appendix D.

It is noted that this model can be used to predict fish species distribution in relation to individual culverts and will be one of the factors used to determine site specific fish passage requirements for culvert design.

[3] (Dunn, et al., 2018)
[4] Model is based on more commonly identified species. Data deficient species are not included in the model.

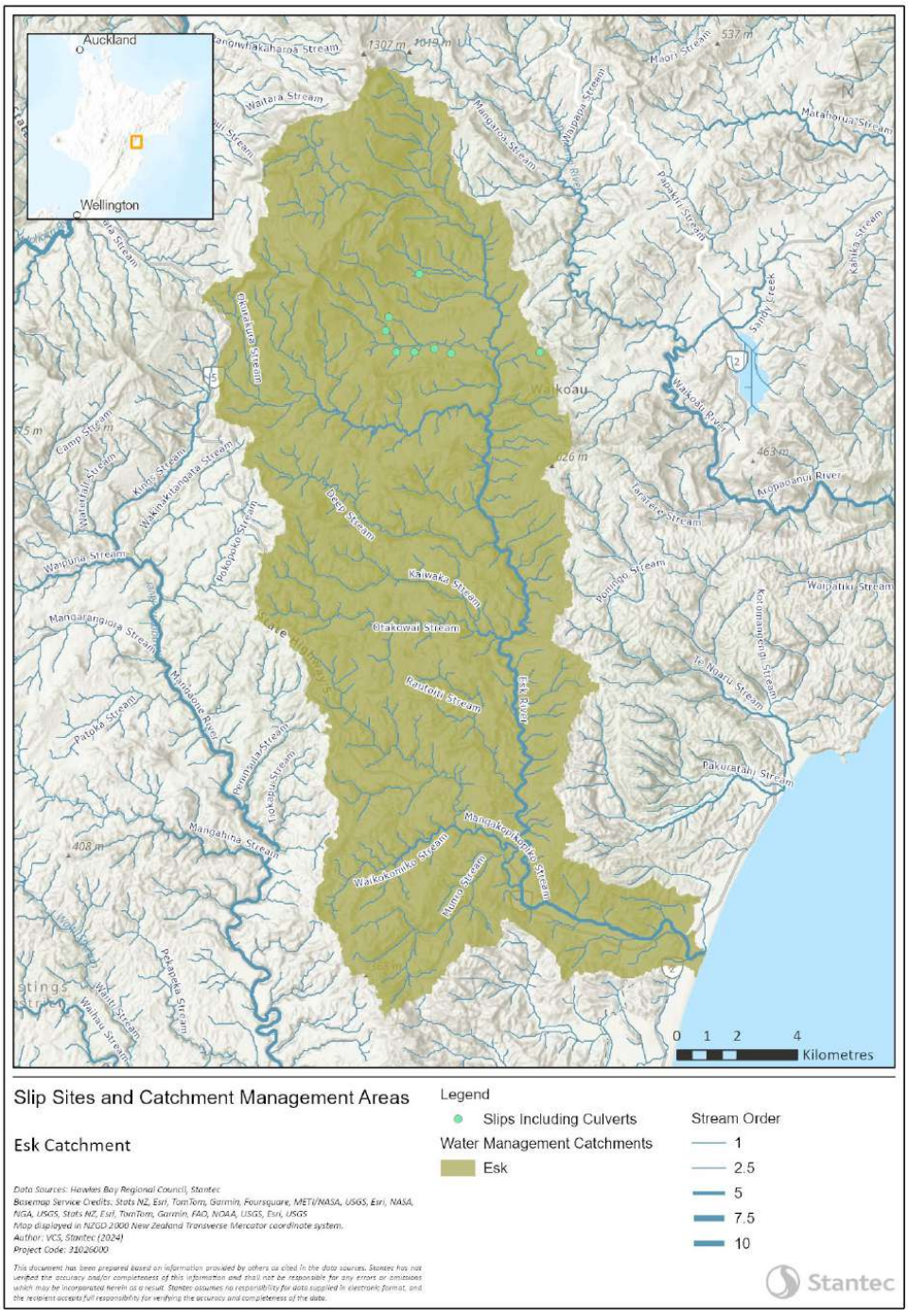

Figure 2-2: Map of culverts (green circles) and watercourses (blue lines) within the Esk catchment (dark green).

2.2 Mohaka Catchment

2.2.1 Description

With a catchment area of 2,444 km^2, the Mohaka River catchment is one of the largest in Hawke's Bay (Figure 2-3). The Mohaka River is the second largest in the region; stretching approximately 124 km from the upper Kaweka Ranges to the township of Mohaka, roughly 22 km south-west of Wairoa. The river is highly valued for its scenic, cultural, and recreational qualities (Hawke's Bay Regional Council, 2020)

At its headwaters, the climate is cool and wet with land use a mixture of pastoral farming and forestry (indigenous and exotic). The lower reach of the Mohaka River shifts to warm and wet, with land use restricted mainly to pastoral farming. Habitat quality is considered relatively diverse with riffles, pools and beds, and a cobble streambed throughout. Riparian margins are well maintained in the upper reaches, but further downstream riparian margins have been stripped and eroded; indicative of the changing land use (LAWA, 2024). However, water quality throughout the Mohaka catchment is generally excellent (Hawke's Bay Regional Council, 2015).

2.2.2 Watercourses

Five of the culverts are located within the Mohaka catchment, and these are situated along both Pohokura Road and Waitara Road. All culverts connect to unnamed tributaries, which feed directly into the Mohaka River. Therefore, the relevant watercourses are as follows:

- Mohaka River (and associated tributaries)
- Rangiwhakaharoa Stream

2.2.3 Fish Records and Passage Modelling

A search of the NZFFD found 329 records from the Mohaka catchment, with 89 records specific to the Mohaka River and its tributaries. In total, 16 species were identified; 14 of which were native. Five species are considered 'At Risk' under the current threat status: tuna/longfin eel (*Anguilla australis*), torrentfish (*Cheimarrichthys fosteri*), kōaro (*Galaxias brevipinnis*), īnanga (*Galaxias maculatus*), and bluegill bully (*Gobiomorphus hubbsi*). A table of historical records across catchments is presented in Appendix C.

To address any gaps in historical records, the FENZ predicted species distribution model was utilised. Data on 'predicted probability of capture' was compiled from all watercourses within the Mohaka catchment, and any instances where the probability of presence was ≥0.5 was noted. Eight native species presented a probability of ≥0.5 in at least one watercourse within the Mohaka catchment. Of these, four are considered 'At Risk': tuna/longfin eel, torrentfish, kōaro, and īnanga. A table of FENZ predicted distribution is presented in Appendix D.

It is noted that this model can be used to predict fish species distribution in relation to individual culverts and will be one of the factors used to determine site specific fish passage requirements for culvert design.

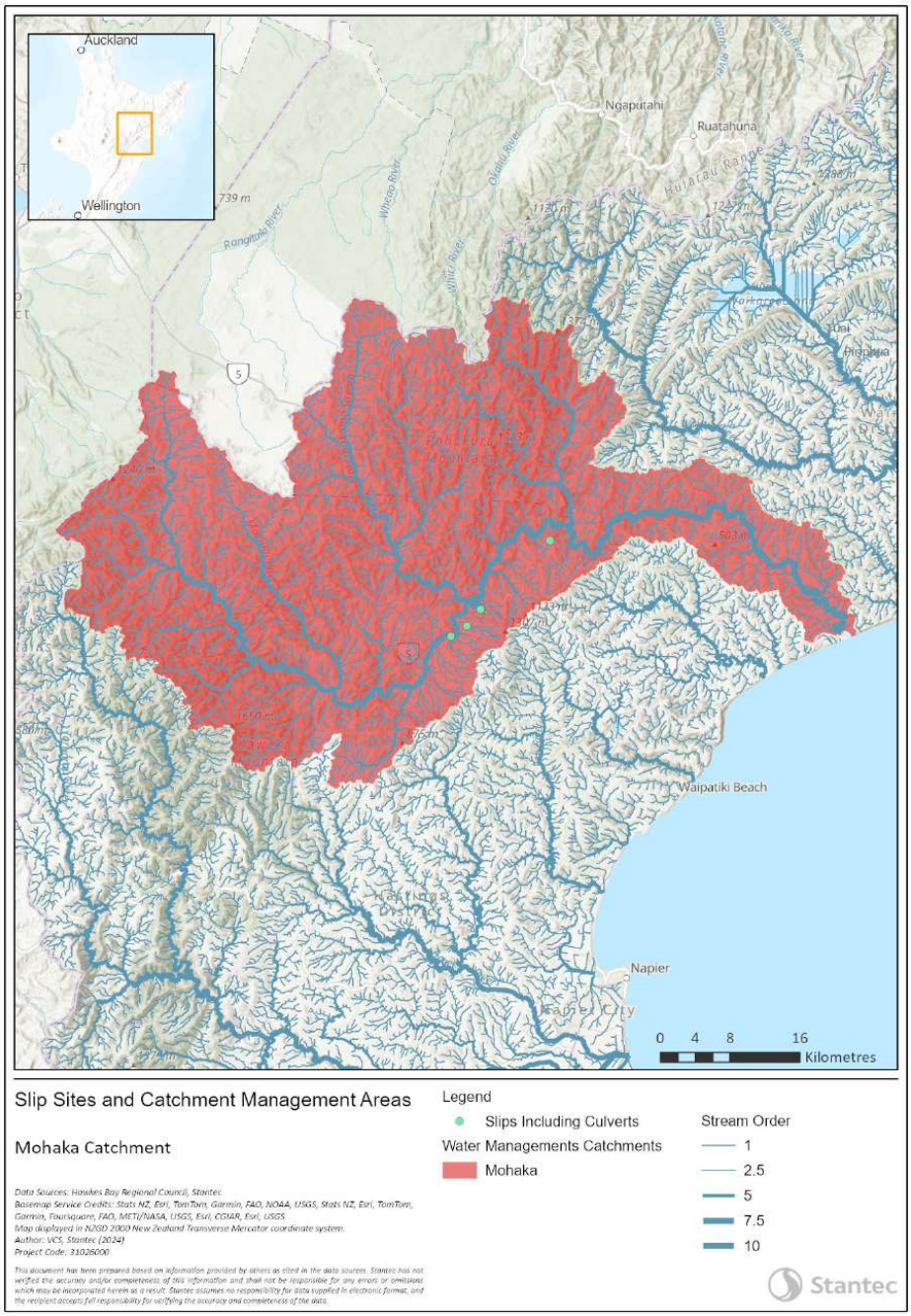

Figure 2-3: Map of culverts (green circles) and watercourses (blue lines) within the Mohaka catchment (red).

2.3 Ngaruroro Catchment

2.3.1 Description

The Ngaruroro catchment begins between the southern tip of the Kaweka Ranges and northern end of the Ruahine Ranges, stretching south-east and, discharging at Clive, just south of Napier (Figure 2-4). The Ngaruroro River is braided; its wide and flat nature generating a surface area of approximately 1,950 km^2, making it the fourth largest river in Hawke's Bay (LAWA, 2024).

Land use in the upper catchment is restricted to large patches of native forest (Department of Conservation land), with some exotic logging operations. Downstream, land use shifts to pastoral farming and vineyards, with patches of urban development (Hawke's Bay Regional Council, 2022). Habitat quality across the Ngaruroro River is relatively diverse with riffles, pools and beds, and a cobble streambed throughout. The climate class is 'cool and wet' (LAWA, 2024). The river is valued for its self-sustaining trout fishery, alongside kayaking, swimming, and jet boating throughout (Hawke's Bay Regional Council, 2016).

2.3.2 Watercourses

Seven of the culverts are located within the Ngaruroro catchment, situated along Kereru Road, Aorangi Road, Big Hill Road, and Duff Road. The culverts connect to a mix of unnamed tributaries and named streams, which all feed into the Ngaruroro River. Therefore, the relevant watercourses are as follows:

- Lake Gully Stream
- Mangatahi Stream
- Ngaruroro River (indirectly)
- Okauawa Stream
- Poporangi Stream
- Whanaukini Stream

2.3.3 Fish Records and Passage Modelling

A search of the NZFFD found 553 records from the Ngaruroro catchment; with 227 records specific to the Ngaruroro River, Mangatahi Stream, and Poprangi Stream, alongside associated tributaries[5]. It is noted that records were not available for Okauawa Stream, Lake Gully Stream, or Whanaukini Stream.

In total, 18 species were identified; 16 of which were native. Seven of which are considered 'At Risk' under the current threat status classification: tuna/longfin eel (*Anguilla australis*), torrentfish (*Cheimarrichthys fosteri*), kōaro (*Galaxias brevipinnis*), dwarf galaxias (*Galaxias divergens*), īnanga (*Galaxias maculatus*), giant bully (*Gobiomorphus gobioides)* and bluegill bully (*Gobiomorphus hubbsi*). Additionally, one species, the lamprey (*Geotria australis*) is considered 'Threatened – Nationally Vulnerable'. A table of historical records across catchments is presented in Appendix C.

To address any gaps in historical records, the FENZ predicted species distribution model was utilised. Data on 'predicted probability of capture' was compiled from all watercourses within the Ngaruroro catchment, and any instances where the probability of presence was ≥0.5 was noted. 11 native species presented a probability of ≥0.5 in at least one watercourse within the Ngaruroro catchment. Of these, six are considered 'At Risk': tuna/longfin eel, torrentfish, kōaro, īnanga, giant bully, and bluegill bully. A table of FENZ predicted distribution is presented in Appendix D.

It is noted that this model can be used to predict fish species distribution in relation to individual culverts and will be one of the factors used to determine site specific fish passage requirements for culvert design.

[5] Marine/estuarine species were removed from result lists.

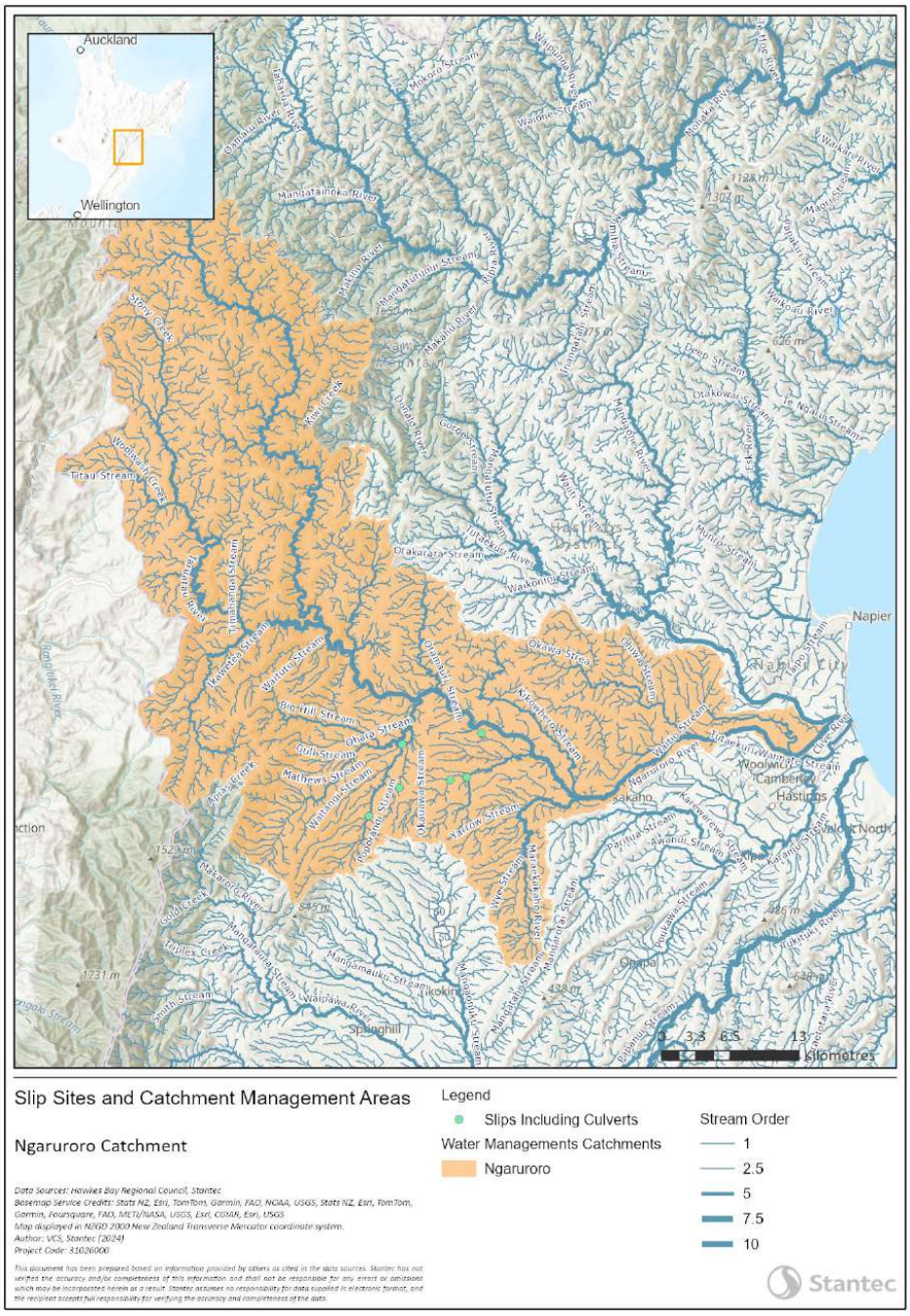

Figure 2-4: Map of culverts (green circles) and watercourses (blue lines) within the Ngaruroro catchment (orange).

2.4 Southern Coast Catchment

2.4.1 Description

The Southern Coast catchment includes a collection of smaller watercourses: the Maraetōtara River, Pouhokio, Waingongoro, Waipuka and Mangakuri streams (Figure 2-5). Only the Maraetōtara River flows into Hawke's Bay, whereas the other watercourses discharge on the eastern coastline. The Maraetōtara River is spring fed, and traverses 32 km to Te Awanga; with a catchment area of 182 km^2. The Waingnongoro and Pouhokio streams originate in Te Apiti Valley and discharge at Waimarama, with catchment areas of 23 km^2 and 37 km^2 respectively. The Mangakuri and Waipuka streams are comparatively small.

Land use within the catchment is predominantly pastoral farming, with some smaller coastal settlements such as Waimarama, Pourere, and Blackhead. Habitat quality within the Southern Coast catchment varies due to the number of watercourses but is generally considered average; aside from the upper reaches of the Maraetōtara, which has undergone extensive restoration (LAWA, 2024).

2.4.2 Watercourses

Two of the culverts are located within the Southern Coast catchment, along Maraetōtara Road and Waimarama Road. The One culvert directly connects to the Maraetōtara River, whereas the other site is connected to a tributary of Waipuka Stream. Therefore, the relevant watercourses are as follows:

- Maraetōtara River
- Waipuka Stream

2.4.3 Fish Records and Passage Modelling

A search of the NZFFD found 192 records from Maraetōtara River and Waipuka Stream; within the Southern Coast catchment. In total, 17 species were identified; 14 of which were native. Six species are considered 'At Risk' under the current threat status classification: tuna/longfin eel (*Anguilla australis*), torrentfish (*Cheimarrichthys fosteri*), kōaro (*Galaxias brevipinnis*), īnanga (*Galaxias maculatus*), giant bully (*Gobiomorphus gobioides*), and bluegill bully (*Gobiomorphus hubbsi*). A table of historical records across catchments is presented in Appendix C.

To address any gaps in historical records, the FENZ predicted species distribution model was utilised. Data on 'predicted probability of capture' was compiled from all watercourses within the Southern Coast catchment, and any instances where the probability of presence was ≥0.5 was noted. 11 native species presented a probability of ≥0.5 in at least one watercourse within the Southern Coast catchment. Of these, five are considered 'At Risk': tuna/longfin eel, torrentfish, īnanga, giant bully, and bluegill bully. A table of FENZ predicted distribution is presented in Appendix D.

It is noted that this model can be used to predict fish species distribution in relation to individual culverts and will be one of the factors used to determine site specific fish passage requirements for culvert design.

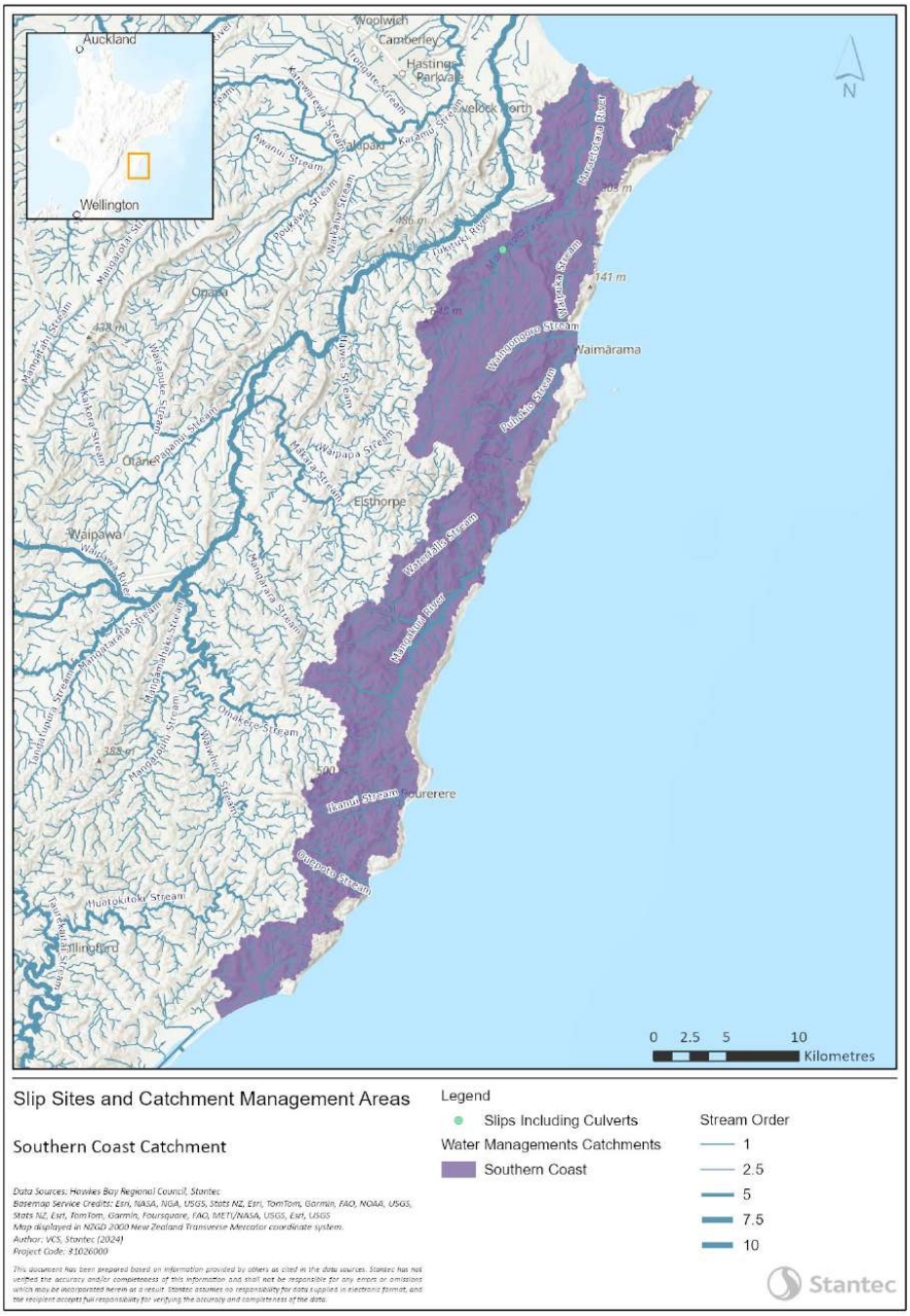

Figure 2-5: Map of culverts (green circles) and watercourses (blue lines) within the Southern Coast catchment (purple).

2.5 Tukituki Catchment

2.5.1 Description

With a catchment area of approximately 2,500 km^2, the Tukituki River flows approximately 80 km from the Central Hawke's Bay, through Waipawa and Waipukurau, to the small seaside town Haumoana. A number of tributaries feed into the Tukituki River, including the Waipawa, Tukipo, Makaretu, Pōrangahau, and Mangatarata rivers.

The headwaters of the catchment is restricted to large area of native forest. Further downstream, land use shifts to widespread and intensive agriculture, farming (sheep/cattle) and exotic forestry. The Waipawa and Waipukurau townships provide urban runoff and discharges into the catchment, including treated wastewater.

2.5.2 Watercourses

Ten of the culverts are located within the Tukituki catchment; all within the lower end towards, south of the Havelock North area. Culverts are located along Tukituki Road, Waimarama Road, Kahuranaki Road, and Mackenzie Road, and are mostly connected to unnamed tributaries of the Tukituki River, alongside two connections to Mangangarara Stream and Hawea Stream. Therefore, the relevant watercourses are as follows:

- Hawea Stream
- Mangangarara Stream
- Tukituki River (and associated tributaries)

2.5.3 Fish Records and Passage Modelling

A search of the NZFFD found 570 records from the Tukituki catchment; with 97 records specific to the Tukituki River and tributaries, alongside the Mangangarara Stream[6]. It is noted that records were not available for Hawea Stream.

In total, 17 species were identified; 15 of which were native. Six of which are considered 'At Risk' under the current threat status classification: tuna/longfin eel (*Anguilla australis*), torrentfish (*Cheimarrichthys fosteri*), dwarf galaxias (*Galaxias divergens*), īnanga (*Galaxias maculatus*), giant bully (*Gobiomorphus gobioides)* and bluegill bully (*Gobiomorphus hubbsi*). Additionally, one species, the lamprey (*Geotria australis*) is considered 'Threatened – Nationally Vulnerable'. A table of historical records across catchments is presented in Appendix C.

To address any gaps in historical records, the FENZ predicted species distribution model was utilised. Data on 'predicted probability of capture' was compiled from all watercourses within the Tukituki catchment, and any instances where the probability of presence was ≥0.5 was noted. 10 native species presented a probability of ≥0.5 in at least one watercourse within the Tukituki catchment. Of these, five are considered 'At Risk': tuna/longfin eel, kōaro (*Galaxias brevipinnis*), īnanga, giant bully, and bluegill bully. A table of FENZ predicted distribution is presented in Appendix D.

It is noted that this model can be used to predict fish species distribution in relation to individual culverts and will be one of the factors used to determine site specific fish passage requirements for culvert design.

[6] Marine/estuarine species were removed from result lists.

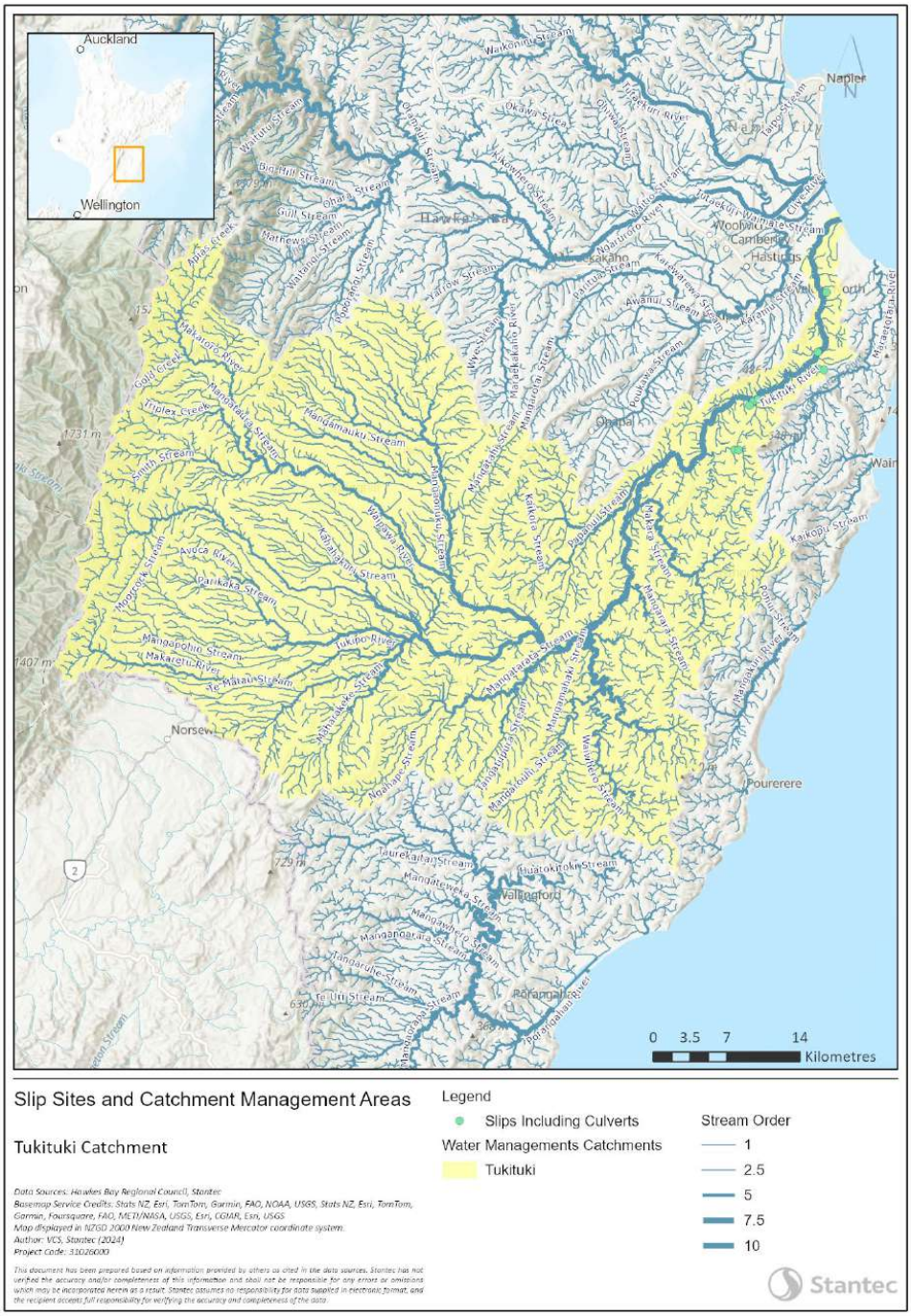

Figure 2-6: Map of culverts (green circles) and watercourses (blue lines) within the Tukituki catchment (yellow).

2.6 Tūtaekurī Catchment

2.6.1 Description

The Tūtaekurī catchment is approximately 831 km^2 (Figure 2-7). The river begins in the Kaweka Ranges and flows across the Heretaunga Plains; discharging at Clive where it adjoins to the Ngaruroro and Karamū rivers. The two main tributaries to the Tūtaekurī River are the Mangatutu and Mangaone rivers.

Land use mainly consists of farming (sheep/cattle) and exotic forestry at the headwaters, with a transition to agriculture downstream (Hawke's Bay Regional Council, 2022). The Tūtaekurī River has good quality habitat through most of its length, with regular riffles, pools and bends, and a cobble streambed. The river is highly valued for its self-sustaining trout fishery; with spawning known to occur in a number of tributaries. Kayaking and swimming are common recreational activities throughout the catchment (Hawke's Bay Regional Council, 2016).

2.6.2 Watercourses

17 of the culverts are located within the Tūtaekurī catchment; spread throughout. Culverts are located along Dartmoor Road, Glengarry Road, Taihape Road and Te Waka Road, and are connected to a number of streams and rivers within the catchment. The relevant watercourses are as follows:

- Gold Creek
- Kings Stream
- Mangaone River
- Otakarara Stream
- Tūtaekurī River (and associated tributaries)
- Waiiti Stream
- Waihau Stream
- Waikinakitangata Stream

2.6.3 Fish Records and Passage Modelling

A search of the NZFFD found 188 records from the Tūtaekurī catchment; with 109 records specific to the Tūtaekurī River and watercourses mentioned above.

In total, 17 species were identified; 15 of which were native. Six of which are considered 'At Risk' under the current threat status classification: tuna/longfin eel (*Anguilla australis*), torrentfish (*Cheimarrichthys fosteri*), kōaro (*Galaxias brevipinnis*), īnanga (*Galaxias maculatus*), giant bully (*Gobiomorphus gobioides)* and bluegill bully (*Gobiomorphus hubbsi*). Additionally, one species, the lamprey (*Geotria australis*) is considered 'Threatened – Nationally Vulnerable'. A table of historical records across catchments is presented in Appendix C.

To address any gaps in historical records, the FENZ predicted species distribution model was utilised. Data on 'predicted probability of capture' was compiled from all watercourses within the Tūtaekurī catchment, and any instances where the probability of presence was ≥0.5 was noted. Nine native species presented a probability of ≥0.5 in at least one watercourse within the Tūtaekurī catchment. Of these, six are considered 'At Risk': tuna/longfin eel, torrentfish, kōaro, īnanga, giant bully, and bluegill. A table of FENZ predicted distribution is presented in Appendix D.

It is noted that this model can be used to predict fish species distribution in relation to individual culverts and will be one of the factors used to determine site specific fish passage requirements for culvert design.

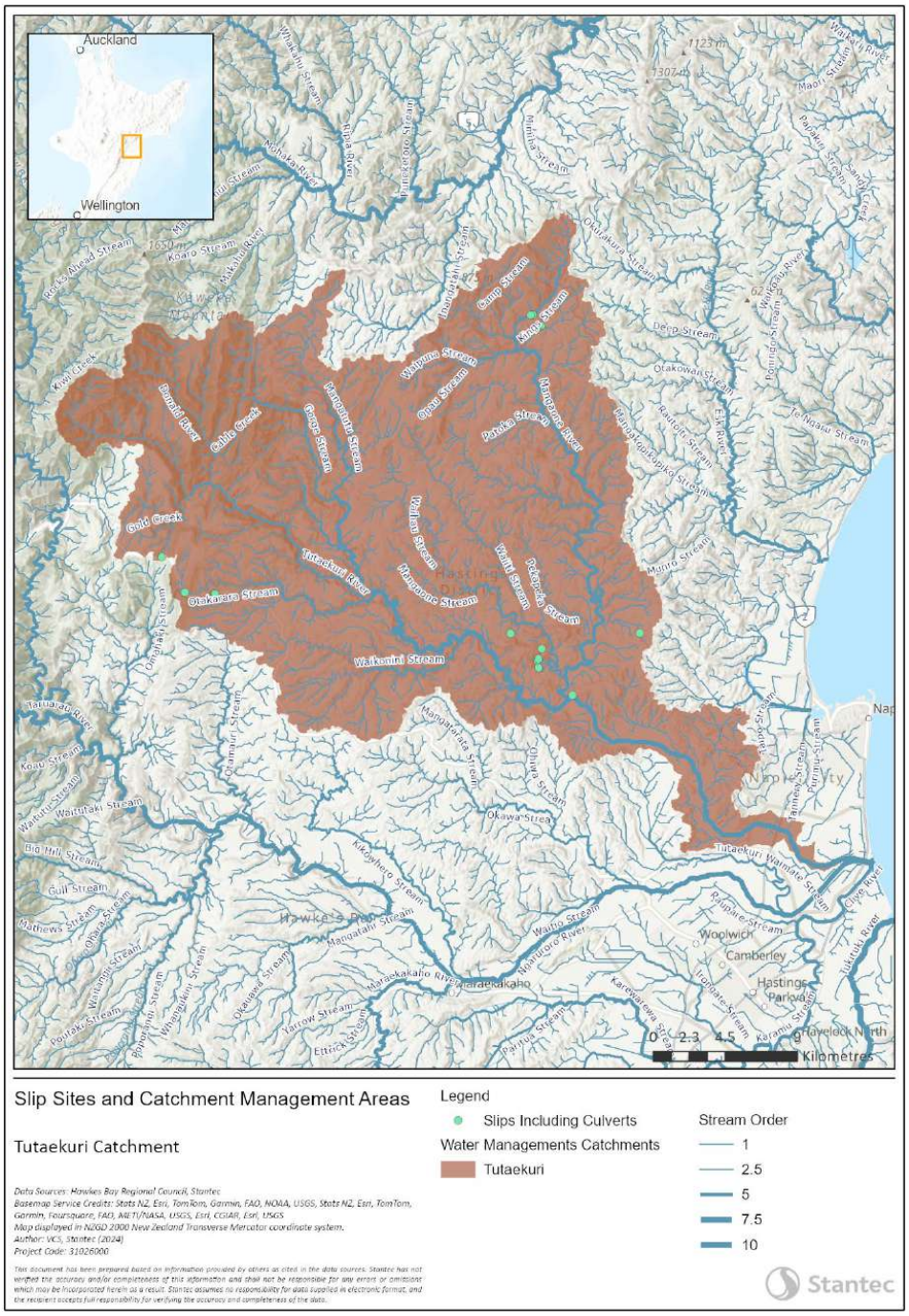

Figure 2-7: Map of culverts (green circles) and watercourses (blue lines) within the Tūtaekurī catchment (brown).

2.7 Waikari Catchment

2.7.1 Description

The Waikari catchment is in hill country, with limited land use aside from farming (sheep/cattle) and some forestry. It encompasses land around Putorino, and includes one main river; the Waikari River, alongside the smaller Aropaoanui River. The Waikari river is considered of 'warm, low elevation', and a dry climate type. Upstream, water quality is generally good throughout the catchment, but degrades with proximity to the coast due to accumulation of farming and forestry runoff (Hawke's Bay Regional Council, 2009).

2.7.2 Watercourses

29 of the culverts are located within the Waikari catchment, spread throughout. Culverts are located along Heays Access Road, Kaiwaka Road, Kahika Road, Matahorua Road, Mokamoka Road, Ridgemount Road, Sandy Creek Road, Turnbull Road, Waikoau Road, Waipunga Road. The relevant watercourses (including tributaries of such) are as follows:

- Kahika Stream
- Matahorua Stream
- Papakiri Stream
- Poningo Stream
- Sandy Creek
- Te Ngarue Stream
- Taraere Stream
- Waikari River
- Waikoau River

2.7.3 Fish Records and Passage Modelling

A search of the NZFFD found 348 records from the Waikari catchment; with 148 records specific to the watercourses mentioned above[7]. It is noted that records could not be located for Kahika Stream, Papakiri Stream, or Poningo Stream.

In total, 15 species were identified, 14 of which were native. Six of which are considered 'At Risk' under the current threat status classification: tuna/longfin eel (*Anguilla australis*), torrentfish (*Cheimarrichthys fosteri*), kōaro (*Galaxias brevipinnis*), īnanga (*Galaxias maculatus*), giant bully (*Gobiomorphus gobioides)* and bluegill bully (*Gobiomorphus hubbsi*). A table of historical records across catchments is presented in Appendix C.

To address any gaps in historical records, the FENZ predicted species distribution model was utilised. Data on 'predicted probability of capture' was compiled from all watercourses within the Waikari catchment, and any instances where the probability of presence was ≥0.5 was noted. 11 native species presented a probability of ≥0.5 in at least one watercourse within the Waikari catchment. Of these, six are considered 'At Risk': tuna/longfin eel, torrentfish, kōaro, īnanga, giant bully, and bluegill bully. A table of FENZ predicted distribution is presented in Appendix D.

It is noted that this model can be used to predict fish species distribution in relation to individual culverts and will be one of the factors used to determine site specific fish passage requirements for culvert design.

[7] Marine/estuarine species were removed from result lists.

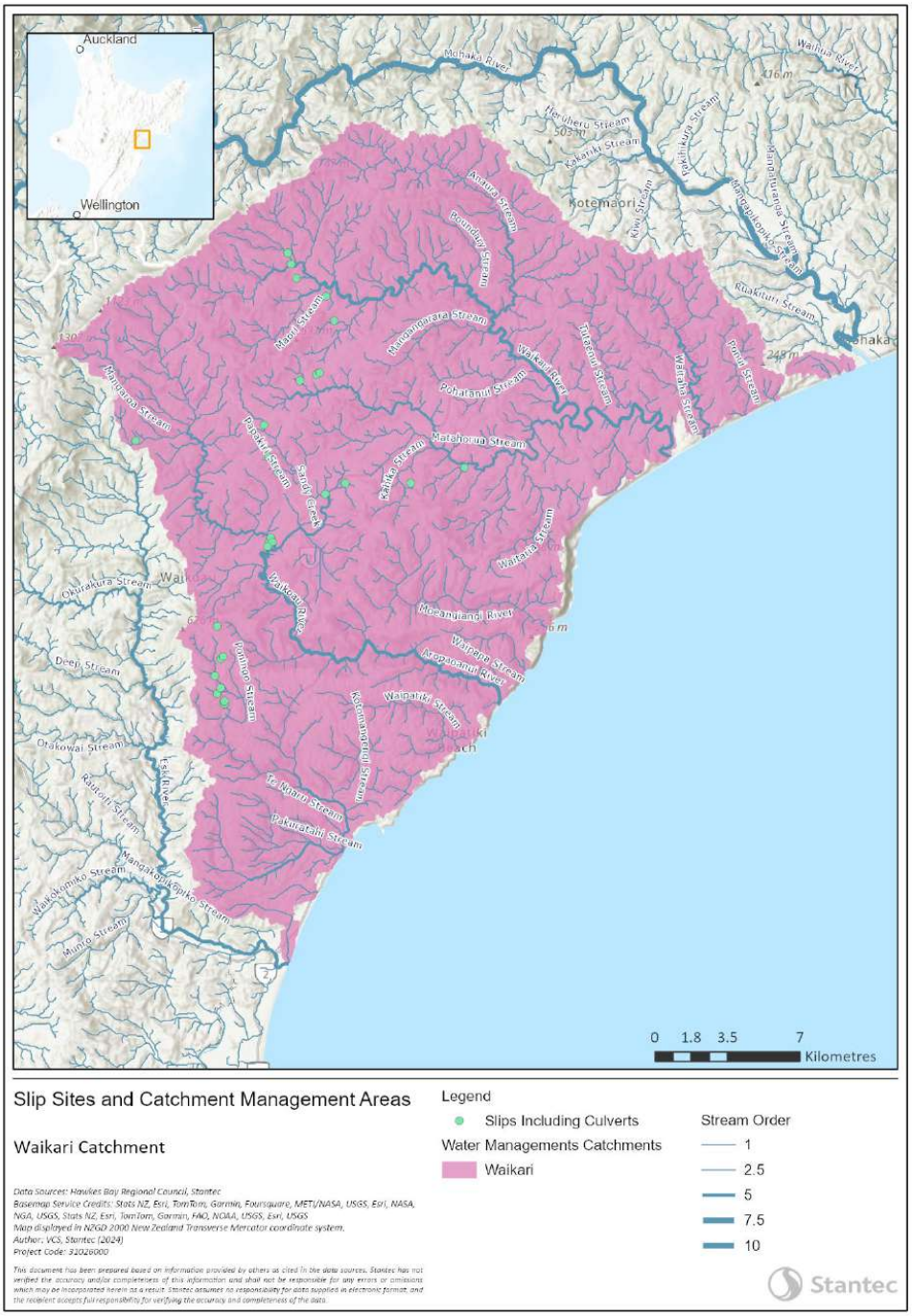

Figure 2-8: Map of culverts (green circles) and watercourses (blue lines) within the Waikari catchment (pink).

3. Approach to Fish Passage Assessment

This watercourse assessment is strictly high-level. Sites have not been discussed on an individual basis, and no fieldwork has been conducted as part of this assessment. The characteristics of each individual slip and culvert are unique, and for remediation to achieve successful fish passage, site-specific assessment is required.

With this in mind, the following summary of fish passage guidelines and recommended consent conditions are presented to provide a simplified, general understanding of requirements when progressing with remediation works.

3.1 Summary of Fish Passage Guidelines

The National Policy Statement for Freshwater Management (NPS-FM) 2020 requires that "*The passage of fish is maintained, or is improved, by instream structures, except where it is desirable to prevent the passage of some fish species in order to protect desired fish species, their life stages, or their habitats*."

The National Environmental Standards for Freshwater (NES-F) 2020 notes that in-stream structures such as culverts, fords, dams, ramps, weirs, and flap gates must meet the minimum environmental conditions for fish passage set out in the NPS-FM (Department of Conservation, n.d.). Such devices may need a resource consent, unless they are considered a 'permitted activity' (Hawke's Bay Regional Council, 2024).

Under the NES-F, the placement/use/reconstruction of a culvert can potentially be considered a permitted activity, and therefore not require a consent (Ministry for the Environment, 2023). However, to be a permitted activity, all of the following requirements drawn from NES-F Regulation 70 must be fulfilled:

i) Culvert must provide for the same passage of fish upstream and downstream as would exist without the culvert.
ii) Culvert must be laid parallel to the slope of the riverbed or connected area.
iii) Mean cross-sectional water velocity in the culvert must not be greater than that in all immediately adjoining river reaches.
iv) Width of culvert where it intersects with the riverbed or connected area (s), and the width of the bed at that location (w), both measured in metres, must comply with:
    a. Where $w \leq 3$, $s \geq 1.3 \times w$; and
    b. where $w > 3$, $s \geq (1.2 \times w) + 0.6$
v) Culvert must be either open-bottomed, or invert placed so that at least 25% of the culvert's diameter is below level of bed.
vi) Bed substrate must be present over the full length of the culvert and stable at the flow rate at or below which water flows for 80% of the time.
vii) Culvert must provide for the continuity of geomorphic processes (such as the movement of sediment and debris).

The Department of Conservation (DOC) and regional councils have independent fish passage regulations under the Freshwater Fisheries Regulations 1983 (FFR), and Resource Management Act 1991 (RMA), as noted in the New Zealand Fish Passage Guidelines (NZFPG) (Franklin, Gee, Baker, & Bower, 2018). Under the FFR, DOC has a suite of specific requirements which outline the following:

- Culverts and fords may not be built in such a way as to impede fish passage without a permit (regulation 42(1)).
- Culverts and fords must be maintained by the occupier to prevent the development of fish passage barriers, unless removed or exempted (regulation 42(2)).
- DOC may require that any dam or diversion structure to be built has a fish facility included and set conditions on their design and performance (regulations 43 & 44).
- Approval is required for any person to make a structural change to a fish facility (regulation 48).

The Hawke's Bay Regional Council requires NES-F Regulation 70 (described above) and the Regional Resource Management Plan (RRMP) rules be applied for culvert installation. Information be provided within 20 days of installation into a waterway, regardless of whether the activity is permitted or consented. This can be collected and submitted via the Fish Passage Assessment Tool (FPAT) mobile app (NIWA, 2021; Hawke's Bay Regional Council, 2024).

A template of required information is attached in Appendix E.

3.2 Method for Determining Fish Passage Requirements

To assess if and how the design of a culvert should account for fish passage, Stantec has produced the following stepwise methodology.

3.2.1 Site Information

Information on the design requirements of the culvert, alongside ecological and cultural values of the site must be collected and collated. As a minimum, the following data should be sourced:

1. Culvert measurements, as outlined in the Fish Passage Assessment Tool (FPAT).
   - Can be undertaken by any staff visiting the site, familiar with the FPAT.
2. Freshwater Fish Database (NZFFD) records for the affected watercourse or catchment.
   - Undertaken by an ecologist.
3. Freshwater Ecosystems of New Zealand (FENZ) spatial data for the watercourse reach affected by the culvert (preferably upstream reach, if available).
   - Undertaken by an ecologist or GIS specialist.
4. Mātauranga Māori through input from mana whenua, including stream, fish, and cultural knowledge.
   - Provided by mana whenua.

3.2.2 Outcome of Site Information

If the outcome of the ecological assessment or mātauranga Māori confirms the need for fish passage, then the culvert design phase can be progressed to allow for this requirement.

3.2.3 Existing Culvert or New Culvert?

If an existing culvert is to remain, then it must be assessed for fish passage using the following methodology:

1. Assessment of fish species present or likely to be present in the watercourse. Derived from collected site information.
2. Assessment of flow velocity and length of the culvert, in comparison to swimming speeds and modes of potential fish species. Outlined in the NZFPG. Currently there is only suitable data available for Īnanga however as these are known to be weak swimmers in comparison to most species then this is considered a reasonable basis for assessment.
3. Assessment of the suitability of culvert outlet for potential fish species passage. Outlined in the NZFPG.
4. Mātauranga Māori through input from mana whenua, including stream, fish, and cultural knowledge. Derived from collected site information.
5. If the existing culvert does not meet the requirements for fish passage, mitigation options should be assessed. Mitigation options could include the addition of baffles in the culvert, or inclusion of a ramp or spat rope at the outlet depending on species present.
6. If mitigation is unable to achieve fish passage, then a new culvert will need to be constructed.

If a new culvert is required, then the design process must account for fish passage through either Stream Simulation or Hydraulic Design.

3.2.4 Stream Simulation or Hydraulic Design

Stream Simulation aims to design a culvert crossing that has similar dimensions and characteristics to the adjacent stream, based on physical characteristics. It involves:

1. Initial Assessment (suitability of the site for a stream simulation approach).
2. Site Assessment. Includes survey and reference to base the design from.
3. Stream simulation design.
4. Final design and construction.

Hydraulic Design aims to meet a series of criteria relating to water flow.

1. Initial Assessment.
   - Includes physical measurements at the site to understand the stream, as well as confirmation of fish species and life stages to be designed for.
2. Assessment of the design flows for the site.

- Typically, this will be between the Q_{20} and Q_{95}; the flows that occur between 20% to 95% of the time. The design flood peak flow will also be estimated, which will be based upon local planning rules as to what flow can be passed without increased flood risk upstream.

3. Definition of allowable velocities for the culvert.
   - This will be based upon the swimming speeds of present / potentially present fish species or from the conditions of the adjacent stream.
4. Definition of water depths.
5. Completion of a hydraulic design.

4. Suggested Conditions of Consent

It is recommended that a site-specific fish passage assessment in accordance with Section 3.2 should be required for any new culvert or culvert modification proposed in a natural watercourse. That requirement should be specified by a condition of the consent authorizing the new structure.

Recognising that this watercourse assessment focuses on the design of culverts for fish passage, the resource consent application will also outline measures to protect fish during construction. The following conditions have therefore been proposed in the resource consent application (refer to Appendix G of the resource consent application):

- The design and construction of all structures shall be undertaken in a manner that provides for the ongoing passage of fish where practicable. A site-specific fish passage assessment shall be undertaken to inform the design of culverts.
- No works shall be conducted in the wet bed of the waterbody during fish spawning season (1 May to 30 September).
- The consent holder must ensure that any fish found stranded as a result of the remedial works are immediately placed into a clear flowing section of the stream/river, upstream of the works.

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APPENDIX E

RULES ASSESSMENT TABLE

RULES ASSESSMENT

E.1 NATIONAL ENVIRONMENTAL STANDARDS FOR FRESHWATER ASSESSMENT

Regulation	Wording	Comments
Subpart 1 – Natural Inland Wetlands		
Maintenance and operation of specified infrastructure and other infrastructure		
Regulation 46 Permitted activities	*(1) Vegetation clearance within, or within a 10 m setback from, a natural inland wetland is a permitted activity if it—* *(a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and* *(b) complies with the conditions.* *(2) Earthworks or land disturbance within, or within a 10 m setback from, a natural inland wetland is a permitted activity if it—* *(a) is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and* *(b) complies with the conditions.* *(3) The taking, use, damming, diversion, or discharge of water within, or within a 100 m setback from, a natural inland wetland is a permitted activity if—* *(a) the activity is for the purpose of maintaining or operating specified infrastructure or other infrastructure; and* *(b) there is a hydrological connection between the taking, use, damming, diversion, or discharge and the wetland; and* *(c) the taking, use, damming, diversion, or discharge will change, or is likely to change, the water level range or hydrological function of the wetland; and* *(d) the activity complies with the conditions.* *Conditions* *(4) The conditions are that—*	**Complies** None of the sites are located within 100m of any known wetlands. If it is found that works on any of the sites will be located within 100m of a wetland and the NES-FW rules are triggered then a separate resource consent application will be applied for.

	(a) the activity must comply with the general conditions on natural inland wetland activities in regulation 55...; and *(b) the activity must not be for the purpose of increasing the size, or replacing part, of the specified infrastructure or other infrastructure unless the increase or replacement is to provide for the passage of fish in accordance with these regulations; and* *(c) the activity must not result in the formation of new pathways, boardwalks, or other accessways; and* *(d) if the activity is vegetation clearance, earthworks, or land disturbance, the activity must not occur over more than 500 m2 or 10% of the area of the natural inland wetland, whichever is smaller; and* *(e) if the activity is earthworks or land disturbance,—* *i. trenches dug (for example, to maintain pipes) must be backfilled and compacted no later than 48 hours after being dug; and* *ii. the activity must not result in drains being deeper, relative to the natural inland wetland's water level, than they were before the activity; and* *(f) if the activity is a discharge of water, it must not be a restricted discretionary activity as described in regulation 47(3A).* *(5) However, the condition in subclause (4)(d) does not apply if the earthworks or land disturbance is for planting.*	
Subpart 3 – Passage of Fish Affected by Structures		
How this subpart applies		
Regulation 60 When this subpart does not apply	*This subpart does not apply to any of the following structures in, on, over, or under the bed of any river or connected area:* *(a) an existing structure, meaning a structure that was in the river at the close of 2 September 2020, and including any later alterations or extensions of that structure.* *(b) a customary weir, meaning a weir that is used for the purpose of practising tikanga Māori, including customary fishing practices.*	The majority of culverts covered under this consent were constructed prior to 2020 and would be exempt from the fish passage requirements under Regulation 60. Where new or replacement culverts are proposed and the culvert conditions in regulation 70 are applicable
Culverts		

Regulation 70 Permitted activities	*(1) The placement, use, alteration, extension, or reconstruction of a culvert in, on, over, or under the bed of any river or connected area is a permitted activity if it complies with the conditions.* *Conditions* *(2) The conditions are that—* *(a) the culvert must provide for the same passage of fish upstream and downstream as would exist without the culvert, except as required to carry out the works to place, alter, extend, or reconstruct the culvert; and* *(b) the culvert must be laid parallel to the slope of the bed of the river or connected area; and* *(c) the mean cross-sectional water velocity in the culvert must be no greater than that in all immediately adjoining river reaches; and* *(d) the culvert's width where it intersects with the bed of the river or connected area (s) and the width of the bed at that location (w), both measured in metres, must compare as follows:* *i. where $w \leq 3$, $s \geq 1.3 \times w$:* *ii. where $w > 3$, $s \geq (1.2 \times w) + 0.6$; and* *(e) the culvert must be open-bottomed or its invert must be placed so that at least 25% of the culvert's diameter is below the level of the bed; and* *(f) the bed substrate must be present over the full length of the culvert and stable at the flow rate at or below which the water flows for 80% of the time; and* (g) *the culvert provides for continuity of geomorphic processes (such as the movement of sediment and debris).*	Does not Comply Where possible the permitted standards of Regulation 70 will be met however, there may be some situations due to environmental constraints of the site where it is not possible to comply with standards (d) & (e) regarding the culvert width and embedment depth. All other conditions will be met.

E.2 HBRC REGIONAL RESOURCE MANAGEMENT PLAN (INC TANK) RULES ASSESSMENT

Rules	Conditions, Standards, Terms	Comments
6.3 Land Use Activities		
Rule 7 Vegetation Clearance and Soil disturbance	Vegetation clearance and soil disturbance activities are <u>permitted</u> subject to the following conditions: *a. All cleared vegetation, disturbed soil or debris shall be deposited or contained to reasonably prevent the transportation or deposition of disturbed matter into any water body.* *b. Vegetation clearance or soil disturbance shall not give rise to any significant change in the colour or clarity of any adjacent water body, after reasonable mixing.* *c. No vegetation clearance shall occur within 5 metres of any permanently flowing river, or any other river with a bed width in excess of 2 metres, or any other lake or wetland, except that this condition shall not apply to:* *ii. the areas identified in Schedule X to this Plan.* *d. Deposition of soil or soil particles across a property boundary shall not be objectionable or offensive, cause property damage or exceed 10 kg/m^2.* *e. Where the clearance of vegetation or the disturbance of soil increases the risk of soil loss the land shall be:* *i. re-vegetated as soon as practicable after completion of the activity, but in any event no later than 18 months with species providing equivalent or better land stabilisation; or* *ii. retained in a manner which inhibits soil loss.* *f. In the Tūtaekurī, Ahuriri, Ngaruroro and Karamū catchments, there is no clearance of indigenous vegetation within 10m of any rivers except:* *i. where the clearance is part of improvements to riparian management for water quality/biodiversity purposes as specified in the relevant Freshwater Farm Plan or Catchment Collective Plan*	**Does not Comply** Permitted standard c is unlikely to be complied with for every site for the following reasons; • The remediation and repair works may require clearance of native species within 5m of a water body, where it is unavoidable. • Some of the sites are located outside of the Schedule X areas. • The clearance includes access to the site and area of works. The works for other sites will be undertaken in a manner that ensures all other standards can be met for the following reasons; • Erosion and sediment control measures will be implemented for each site. • Soil deposition across a property boundary is unlikely but if required will met standard d. • Re-vegetation planting will be undertaken on exposed areas following the completion of works. • The works undertaken under this consent are associated with the repair and remediation of the road environment (network service) where it crosses a waterbody and therefore are exempt from standard f. • The works do not involve any cultivation of land.

	ii. where the clearance is necessary for construction of crossings or installation of a reticulated or network service. *g. In the Tūtaekurī, Ahuriri, Ngaruroro and Karamū catchments there is no cultivation of land over 20 degrees of slope except where it is less than 10% of the paddock area.* *h. In the Tūtaekurī, Ahuriri, Ngaruroro and Karamū catchments, there is no cultivation of land that results in exposure of bare soil within:* *i. 5 m of any river, modified watercourse or drain or lake or wetland where the land is flat to gently rolling (0-7 degrees of slope)* *ii. 10 m of any river, modified watercourse or drain or lake or wetland where the land is moderately rolling (>7 – 20 degrees of slope)* *iii. 15 m of any river, modified watercourse or drain or lake or wetland where the land is over 20 degrees of slope.* *i. Except conditions h(i) – (ii) do not apply:* *i. where cultivation is part of improvements to riparian management for water quality/biodiversity purposes as specified in the relevant Freshwater Farm Plan or Catchment Collective Plan* *ii. where the cultivation is in relation to activities permitted by Rule 70.*	
Rule 8 Vegetation clearance or soil disturbance	*Vegetation clearance and soil disturbance activities are which are not permitted under Rule 7* – To be a Restricted Discretionary Activity.	Triggered As discussed above, the works at some sites will not meet permitted standard c. under Rule 7.
6.6 Discharges to Land/Water		
Rule 47 Discharges to surface water	The discharge of contaminants into surface water, except as expressly regulated by other rules in this Plan is permitted subject to the following conditions: *a. The rate of discharge shall be no greater than 50 m^3/d.* *b. There shall be no adverse flooding effects on any property owned or occupied by another person, as a result of the discharge activity.* *c. There shall be no scouring or erosion of any land or any water course beyond the point of discharge.*	Complies The proposed repair and remediation works will be undertaken in and around waterways. The works may result in a discharge of contaminants to water that may not be covered by other rules in the RRMP. Where this rule applies, any discharge of contaminants to water will be undertaken in a manner that complies with these permitted standards.

	d. The discharge shall not cause the natural temperature of any receiving water to be changed by more than 3°C from normal seasonal water temperature fluctuations, after reasonable mixing or cause an exceedance of the temperature limit in Table 5.9.1A (Tukituki River catchment). *e. The discharge shall not cause the pH to change by more than 0.2 units, or to extend outside the range 6.5 to 9.0 units, after reasonable mixing.* *f. There shall be no production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials, or any emission of objectionable odour, in any receiving water after reasonable mixing.* *g. There shall be no conspicuous change in the colour or visual clarity of any receiving water after reasonable mixing or cause an exceedance of the water clarity limits in Policy TT3(1) (Tukituki River catchment).* *h. The discharge shall not cause the biochemical oxygen demand to increase by more than 2 g/m^3 in any receiving water body after reasonable mixing or cause an exceedance of the biochemical oxygen demand limit in Policy TT3(1) (Tukituki River catchment).* *i. The discharge shall not cause any increase in the concentration of pathogenic organisms or cause an exceedance of the E.coli limits in Table 5.9.1A (Tukituki River catchment).* *j. The discharge shall not cause the concentration of dissolved oxygen in any river or lake to drop below 80% after reasonable mixing or cause an exceedance of the dissolved oxygen limit in Table 5.9.1A (Tukituki River catchment).* *k. The discharge shall not cause the concentration of ammoniacal nitrogen (NH_4^+) in any river or lake to exceed 0.1 mg/l after reasonable mixing or cause an exceedance of the acute total ammoniacal nitrogen limits in Policy TT3(1) or the chronic ammoniacal nitrogen limits in Table 5.9.1A (Tukituki River catchment).* *l. The discharge shall not cause the concentration of dissolve inorganic nitrogen (DIN) in any river to exceed 0.8 mg/l as set out in Table 5.9.1B (Tukituki River catchment) after reasonable mixing.*	

	m. The discharge shall not cause the concentration of soluble reactive phosphorus in any river or lake to exceed 0.015 mg/l or cause an exceedance of the dissolved reactive phosphorus limits in Table 5.9.1B (Tukituki River catchment) after reasonable mixing. *n. The discharge shall not cause the concentration of any other contaminant (including other nutrients, heavy metals, hazardous substances and indicator bacteria), after reasonable mixing, to:* *i. Increase by more than 5% in any natural or modified receiving water body or 10% in any artificial receiving water body;* *ii. Exceed the following standards:* *a. The contact recreation guidelines contained in "Bacteriological Water Quality: Guidelines for Marine and Fresh Water" (Ministry of Health and Ministry for the Environment, December 1998).* *b. The guidelines for the protection of freshwater aquatic ecosystems contained in the "Australian Water Quality Guidelines for Fresh and Marine Waters" (ANZECC, 1992).* iii. *Exceed limits for other toxicants in Table 5.9.1A (Tukituki River catchment).*	
Rule 48 Discharges of solid contaminants to land that will not enter water	The discharge of solid contaminants, including cleanfill, onto or into land in circumstances that will not result in any contaminant entering water, except as expressly regulated by other rules in this plan is permitted subject to the following conditions: *a. The discharge shall not increase land instability or the risk of erosion.* *b. The discharge shall not cross the boundary of the subject property onto any other property, unless written approval is obtained from the affected property owner.* *c. The discharge shall not cause any increase in the concentration of any hazardous substances or pathogenic organisms on or in any land.* *d. The discharge shall not cause any increase in the risk of human or animal disease.* *e. The discharge shall not have any acid producing potential.* *f. Upon request by the HBRC, a management plan, setting out how the conditions above*	Does not Comply Permitted standard g. cannot be met for the following reasons; • The proposed works are likely to require a discharge of contaminants to land, particularly cleanfill. • The discharge could include filling of bore drilling holes; fill along riverbanks; bridge approach works. • Due to the nature of these works most discharges will be located within 20m of a water body. • Some sites may be located over an unconfined aquifer. All other standards can be complied with for the following reasons; • The discharges will be designed to improve stability

	will be met shall be prepared and provided to the HBRC. *g. There shall be no discharge within 20 m of any surface water body, or over the Heretaunga Plains or Ruataniwha Plains unconfined aquifers as shown in Schedule IV, or within 20 metres of the coastal marine area, except for material extracted from a surface water body associated with the maintenance of legally established structures.* *h. Where the volume of solid contaminants on the subject property is greater than 100m³ the person responsible for the discharge shall notify the Hawke's Bay Regional Council within 7 days of that volume being reached or exceeded.*	• The discharge will consist of cleanfill and reuse of onsite soils. • Where work is required on private property landowner approval will be obtained. • If the volume exceeds 100m³ then HBRC will be notified.
Rule 49 – Discharges to land that may enter water	The discharge of contaminants onto or into land, in circumstances which may result in those contaminants entering water, except as expressly regulated by other rules in this Plan is permitted subject to the following conditions: *a. The rate of discharge shall be no greater than 50 m³ /d.* *b. The discharge shall not result in a breach of any of the conditions set out in Rule 47.* *c. The discharge shall not result in a breach of any of the conditions set out in Rule 48.* *d. The point of discharge shall occur no less than 600 mm above the winter ground water table.* *e. There shall be no surface ponding in the area of discharge, or runoff of any contaminant into a surface water body as a result of the discharge.* *f. The discharge shall not result in any airborne liquid contaminant being carried beyond the boundary of the subject property.* *g. There shall be no discharge within 20m of any surface water body, or over the Heretaunga Plains or Ruataniwha Plains unconfined aquifers as shown in Schedule IV, except for material extracted from a surface water body associated with the maintenance of legally established structures.* *h. There shall be no surface ponding in the area used to store, mix or use the organic material, and no runoff of contaminants into any surface water body.*	Does not Comply Permitted standard a. c. d & g. may not be complied with for the following reasons; • The nature of the proposed works around water means it's likely that the discharge of contaminants to land will enter water. • The repair and remediation works proposed may have discharges exceeding 50m³/d • The discharge could be less than 600mm above the winter ground water table. • The discharge will be located within 20m of a water body. • Some sites could be located over an unconfined aquifer. All other standards will be met for the following reasons; • The proposal complies with rule 47. • There will be no discharge within a ponding area. • Erosion and sediment control measures will be implemented for each site to avoid unreasonable runoff into the water body.

	i. There shall be no discharge within 30m of any bore drawing groundwater from an unconfined aquifer into which any contaminant may enter as a result of the discharge. *j. The discharge shall not cause any degradation of existing ground water quality in confined aquifers in the Heretaunga Plains and Ruataniwha Plains aquifer systems.* *k. For other aquifers, the discharge shall not cause or contribute to a breach of the following guidelines after reasonable mixing:* *i. The "Drinking Water Quality Standards for New Zealand" (Ministry of Health, 1995).* *ii. The guideline for irrigation contained in the "Australian Water Quality Guidelines for Fresh and Marine Waters" (Australian and New Zealand Environment and Conservation Council, 1998).* *l. Where the quality of ground water in any aquifer encompassed by condition (k) breaches the standards specified in that condition prior to the discharge occurring, the discharge shall not cause any further degradation of the quality of ground water in any such aquifer after reasonable mixing.*	• The discharge will not result in any contaminant entering a bore from an unconfined aquifer. • The discharge will mainly consist of cleanfill and will not affect any aquifers.
Rule 52 Discharges that do not comply with rules 9-14, 16, 31-51	The discharge of: • *contaminants onto or into land, or into water, or* • *water into water* *which does not comply with any condition on a permitted activity rule, or any standard or term on a controlled activity rule within this Plan, but which is not expressly classified as a discretionary, non-complying or prohibited activity* – To be a Discretionary Activity	Triggered Does not meet all permitted standards under Rules 48 and 49.
.7 Take & Use of Water		
Rule 56 Minor diversions	The diversion of water, except as expressly provided for by other rules within this Plan is permitted subject to the following standards: *a. Either:* *i. The catchment area above the diversion shall not exceed 50 hectares, or* *ii. The diversion shall remain within the bed of the affected water body, or* *iii. The diversion shall divert no more than 10% of the flow of the affected water*	Does not Comply Permitted standard a. is unlikely to be met for the following reasons; • Minor diversions are likely to be required for a number of culvert repair and remediation works and may be required for bridge works in order to create a dry riverbed prior to starting works.

	body, and the diverted water shall be returned to the affected water body no more than 100 m downstream of the point at which the water is diverted. *b. The activity shall not adversely affect any wetland.* *c. The diversion shall not be from one catchment to another.* *d. The diversion shall not cause any scouring or erosion of any land or any water course beyond the point of discharge.* *e. The diversion shall not adversely affect any lawfully established take, which existed at the time that the diversion commenced.* *f. The activity shall be undertaken in a manner that continues to provide for the existing passage of fish past the diversion.* *g. There shall be no adverse flooding effects on any property owned or occupied by another person, as a result of the diversion activity*	• The sites are located across different catchments but each one is larger than 50 hectares • The diversion is unlikely to remain in the riverbed • The diversion may divert more than 10% of the flow in the water body. All other standards can be met as any diversion; • Will not affect any wetland. • Will not mix waters between catchments. • Will not cause any scour or erosion. • Will not affect any known water takes. • Will be undertaken in a manner to provide for the existing passage of fish. • Will not create any flooding.
Rule 59 Diversions that cannot comply with rules 56-58	*Any diversion of water which cannot comply with any condition on a permitted activity rule, or any standard or term on a controlled activity rule within this Plan, but which is not expressly classified as a discretionary or non-complying activity* – To be a Discretionary Activity.	Triggered Does not meet all permitted standards under Rule 56.
6.8 Use of River & Lake Beds		
Rule 66 Removal & demolition of structures	The removal or demolition a structure, or any part of a structure, in, on, under or over the bed of a river or lake, and 1. any associated disturbance of the river or lake bed, and 2. any associated discharge of sediment, and 3. any associated diversion of water; except as provided for by Rule 70, is permitted subject to the following conditions: *a. There shall be no discharge of contaminants, other than sediment, into the river or lake.* *b. Any release of sediment shall not cause any conspicuous change in the colour or visual clarity of water after reasonable mixing.* *c. All removal and demolition material shall be removed from the bed by completion of the activity.*	Does not Comply Permitted standard g. & k. may not be able to be complied with for the following reasons; • Diversion of the river may on a couple of larger remediation sites be required for more than 5 consecutive days to remove or demolish the structures. • Removal and demolition works may need to be undertaken in fish spawning season. This will be avoided where possible however due to the number of sites requiring works and other influencing factors such as funding and contractor availability it may be unavoidable. All other standards can be met for the following reasons;

	d. All materials used shall not be toxic to aquatic ecosystems. *e. The activity shall be undertaken in a manner that continues to provide for the existing passage of fish past the structure.* *f. There shall be no reduction in the ability of the channel to convey flood flows, or impedance to the passage of floating debris.* *g. Any diversion of water for the purposes of carrying out the activity shall be for a period of no more than five consecutive days.* *h. Upon completion of any channel bank works within a river or lake bed, the banks shall be reinstated to a natural contour and revegetated.* *i. There shall be no damage or destruction to flood control or river protection works.* *j. The HBRC shall be informed in writing of the removal or demolition of any of the following structures, at least 15 working days prior to the commencement of the activity:* *i. Access structures in or on the bed of a river or lake, including bridges, culverts, and fords, which are located within a catchment greater than 50 hectares;* *ii. Structures which occupy more than 5 m^2 of the bed of the river or lake.* *k. In areas of fish spawning there shall be no disturbance by the use of mobile machinery of any part of the bed covered by water from 1 May to 30 September (fish spawning season).*	• When structures, such as culverts, are removed from the bed of the river they will follow an appropriate methodology for the site and scale of the works to prevent the discharge of contaminants and ensure all material is removed from the bed of the river. • The works will follow an erosion and sediment control plan to prevent unreasonable sedimentation of the water body. • Materials used will be non-toxic to aquatic ecosystems. • The works will be undertaken in a manner that continues to provide for fish passage. • The removal and demolition works will be undertaken in fine weather and will not impede flood flows. • The removal and demolition of any structure will be undertaken in association with the replacement of a new structure. Once all works are completed the surrounding area will be contoured into the landscape and revegetated. • This work will not damage flood control or river protection works. • HBRC will be notified of all removal and demolition works that meet the criteria in j.
Rule 69 River & lake bed activities that are not expressly regulated by other rules	*Any activity which cannot comply with any of the rules in section 6.8 of this Plan and which is not expressly regulated by other rules in this Plan.* Non-compliance with rules 63-76 is to be a Discretionary Activity.	Triggered Does not meet all permitted standards under Rules 66, 72 & 75.
Rule 70 River control & drainage works & structures	*Any activity, as described in the Hawke's Bay Regional Council Environmental Code of Practice for River Control and Drainage Works (1999), that is carried out by a local authority exercising its powers, functions and duties under the Soil Conservation and Rivers Control Act 1941, the Land Drainage Act 1908, or the Local Government Act 1974, in relation to flood control and drainage, including:* • *edge protection works*	N/A This rule is only relevant where there is a discharge of sediment associated with flood control and drainage works undertaken by a local authority. Some of the works proposed under this application may be small in scale and meet these permitted activity standards.

	• *planting* • *river protection maintenance works* • *irrigation intake maintenance* • *weed and vegetation control (excluding spraying)* • *drain maintenance, and drainage outlet maintenance* • *drain crossings* • *river mouth openings for the purpose of flood mitigation* • *river management and drainage for the maintenance of surface water quality* • *channel diversions within a river bed or drain, ancillary to the above activities* *that would otherwise contravene section 13 or section 14 of the RMA, or section 15 of the RMA in relation to the discharge of sediment* is permitted subject to the following conditions: a. *The activity or structure shall be undertaken in a manner that continues to provide for the existing passage of fish past the structure.* b. *The appropriate Fish and Game Council, iwi and Department of Conservation office, shall be notified at least 5 working days before any channel diversion is undertaken.* c. *There shall be no discharge of contaminants, other than sediment, arising from the use of machinery in the bed of any river or lake.* d. *The activity shall not adversely affect any wetland.* e. *All activities shall be undertaken in accordance with the Hawke's Bay Regional Council Environmental Code of Practice for River Control and Drainage Works, 1999.*	This application is seeking approval for works outside of this rule.
Rule 72 Erection & placement of other structures, including bridges, culverts & other access structures.	*The erection or placement of any structure in, on, under, or over the bed of a river or lake, that is not expressly regulated by other rules within this Plan, and* 1. *any associated disturbance of the river or lake bed, and* 2. *any associated discharge of sediment, and* 3. *any associated damming or diversion of water.* Is permitted subject to the following conditions; a. *The scale of the structure shall comply with the following:* i. *Access structures in or on the bed of a river or lake, including bridges, culverts, and fords, shall be located in a*	Does not Comply Permitted standard a. b. h & k. will not be complied with for the following reasons; • The access structures proposed under this application will be located in catchments greater than 150ha • Due to the scale of works and damage at some sites the stream has moved course. The proposed works may involve changing the course of the stream back to its pre-cyclone location.

	catchment that is no greater than 150 ha. *ii. Other structures in or on the bed of a river or lake shall occupy an area of bed no greater than 10 m².* *b. The structure shall not change the natural course of any river or lake.* *c. Any release of sediment shall not cause any conspicuous change in the colour or visual clarity of water after reasonable mixing.* *d. There shall be no discharge of contaminants, other than sediment, into the river or lake.* *e. All materials used shall not be toxic to aquatic ecosystems.* *f. The activity shall be undertaken in a manner that continues to provide for the existing passage of fish past the structure.* *g. The structure shall not cause any increase in the risk of flooding or damage to any property during flood events, including the risk resulting from trapped debris.* *h. Any diversion of water for the purposes of carrying out the activity shall be for a period of no more than five consecutive days.* *i. The activity or structure shall not cause any erosion, scour or deposition beyond the area of the activity or structure or adversely affect any other lawfully established structure.* *j. All excess materials shall be removed from the bed by completion of the activity.* *k. In areas of fish spawning there shall be no disturbance of any part of the bed covered by water from 1 May to 30 September (fish spawning season) except in relation to the erection of whitebait stands, maimai, and necessary access structures to these, or where emergency works are required.* *l. Any whitebait structure shall be removed within 14 days of the end of any whitebait season.*	• A diversion of water to undertake the activity within a dry bed will in some cases be required for more than 5 consecutive days. • Due to the number of sites and scale of works required for some sites it may not be possible to avoid works during fish spawning season. Any works during this time will be under the guidance of an ecologist. All other standards can be met as any diversion; • Any new structures on the bed of the river will not exceed 10m². • Erosion and sediment controls will be undertaken to prevent unreasonable sedimentation of the water body. • Spill management plan and procedures will be implemented during works to prevent contamination of the waterbody. • Materials used will be non-toxic to aquatic ecosystems. • Existing passage of fish will continue. • All new structures, including culverts, will be designed to provide the same or in most cases an improved level of flow to cope with future flood events and trapped debris. • Any structures will be designed to avoid erosion and scour beyond the area of works nor affect other structures. • All materials will be removed from the bed of the river upon completion. • No whitebait structures are proposed.
Rule 75 Other disturbances of river and lake beds	*The disturbance of the bed of a river or lake, except as provided for by other rules. This may be caused for example by tunnelling, drilling, or excavation* is permitted subject to the following conditions: *a) The maximum area of disturbance shall be no greater than 5 m².*	Does not Comply Permitted standard a. b. g & j. may not be complied with for the following reasons; • Other river bed disturbance activities may be undertaken in association with the proposed

	b) The disturbance shall not change the natural course of any river or lake. *c) Any release of sediment shall not cause any conspicuous change in the colour or visual clarity of water after reasonable mixing.* *d) There shall be no discharge of contaminants, other than sediment, into the river or lake.* *e) The activity shall be undertaken in a manner that continues to provide for the existing passage of fish past the structure.* *f) The disturbance shall not cause any increase in the risk of flooding or damage to any property during flood events, including the risk resulting from trapped debris.* *g) Any diversion of water for the purposes of carrying out the activity shall be for a period of no more than five consecutive days, and for no more than 12 hours, on any one day within those five days.* *h) The activity or structure shall not cause any erosion, scour or deposition beyond the area of disturbance or adversely affect any other lawfully established structure.* *i) All excess materials shall be removed from the bed by completion of the activity.* *j) There shall be no disturbance of any part of the bed covered by water from 1 May and 30 September (fish spawning season).*	works. These may require disturbing more than 5m^2 of the river bed. • The works may require a change to the natural course of the river, back to its original or similar location, as described above. • A diversion of water to undertake the activity within a dry bed will normally be undertaken with other activities and therefore may require a diversion to be in place for more than 12 hours and exceed 5 consecutive days. • This type of work will normally be associated with other activities, and it may not be possible to avoid works during fish spawning season. Any works during this time will be under the guidance of an ecologist. All other standards can be met as any diversion; • Erosion and sediment controls will be undertaken to prevent unreasonable sedimentation of the water body. • Spill management plan and procedures will be implemented during works to prevent contamination of the waterbody. • Existing passage of fish will continue. • The works will not increase the risk of flooding, erosion or scour. • All materials will be removed from the bed of the river upon completion.

E.3 HBRC REGIONAL COASTAL ENVIRONMENT PLAN RULES ASSESSMENT

Rules	Conditions, Standards, Terms	Comments
27.1 Use and Development of Land in Coastal Margin		
Rule 7 Vegetation Clearance and Soil disturbance	Vegetation clearance and soil disturbance activities are <u>permitted</u> subject to the following conditions: a. *All cleared vegetation, disturbed soil or debris shall be deposited or contained to reasonably prevent the transportation or deposition of disturbed matter into any water body.* b. *Vegetation clearance or soil disturbance shall not give rise to any significant change in the colour or clarity of any adjacent water body, after reasonable mixing.* c. *any vegetation clearance within a Vegetation Clearance Management Area identified in this Plan's maps shall not occur within:* *i) 5m of any permanently flowing river or:* *ii) any other river with a bed width in excess of 2m or* *iii) any other lake or wetland.* d. *Vegetation clearance shall not occur within 20m of the coastal marine area.* e. *Deposition of soil or soil particles across a property boundary shall not be objectionable or offensive, cause property damage or exceed 10 kg/m².* f. *Where the clearance of vegetation or the disturbance of soil increases the risk of soil loss the land shall be:* i. *re-vegetated as soon as practicable after completion of the activity, but in any event no later than 18 months with species providing equivalent or better land stabilisation; or* ii. *retained in a manner which inhibits soil loss.*	**Complies** The works for the two sites located in the Costal Environment Area will comply with the permitted conditions for the following reasons; • Erosion and sediment control measures will be implemented for each site. • No vegetation will be cleared within a Vegetation Clearance Management Area or within 20m of the CMA. • Soil deposition across a property boundary is unlikely but if required will met standard e. • Re-vegetation planting will be undertaken on exposed areas following the completion of works.
27.2 Discharges to air / land / water in the Coastal Margin		
Rule 17 Discharge of contaminants to surface water	*Except as provided for in any other rules in this Plan the discharge of contaminants into surface water in the Coastal Margin* is <u>permitted</u> subject to the following conditions:	**Complies** The proposed repair and remediation works will be undertaken in and around

	a. The rate of discharge at any particular point shall be no greater than 50 m^3/d. *b. There shall be no adverse flooding effects on any property owned or occupied by another person, as a result of the discharge activity.* *c. There shall be no scouring or erosion of any land or any water course beyond the point of discharge.* *d. The discharge shall not cause the natural temperature of any receiving water to be changed by more than 3°C from normal seasonal water temperature fluctuations, after reasonable mixing.* *e. The discharge shall not cause the pH to change by more than 0.2 units, or to extend outside the range 6.5 to 9.0 units, after reasonable mixing.* *f. There shall be no production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials, or any emission of objectionable odour, in any receiving water after reasonable mixing.* *g. There shall be no conspicuous change in the colour or visual clarity of any receiving water after reasonable mixing.* *h. The discharge shall not cause the biochemical oxygen demand to increase by more than 2 g/m^3 in any receiving water body after reasonable mixing.* *i. The discharge shall not cause any increase in the concentration of pathogenic organisms in any receiving water.* *j. The discharge shall not cause the concentration of dissolved oxygen in any river or lake to drop below 80% after reasonable mixing.* *k. The discharge shall not cause the concentration of ammoniacal nitrogen (NH4+) in any river or lake to exceed 0.1 mg/l after reasonable mixing.* *l. The discharge shall not cause the concentration of soluble reactive phosphorus in any river or lake to exceed 0.015 mg/l after reasonable mixing.* *m. The discharge shall not cause the concentration of any other contaminant (including other nutrients, heavy metals, hazardous substances and indicator bacteria), after reasonable mixing, to:*	waterways. The works may result in a discharge of contaminants to water that may not be covered by other rules in the RCEP. Where this rule applies, any discharge of contaminants to water will be undertaken in a manner that complies with these permitted standards.

	i. Increase by more than 5% in any natural or modified receiving water body or 10% in any artificial receiving water body; *ii. Exceed the following standards:* *1. The contact recreation guidelines contained in 'Microbiological Guidelines for Marine and Freshwater Recreational Areas' (Ministry of Health and Ministry for the Environment, June 2003).* *2. The guidelines for the protection of freshwater aquatic ecosystems contained in the 'Guidelines for Fresh and Marine Water Quality 2000' (ANZECC, 2000).*	
Rule 18 Discharges of solid contaminants (including cleanfill) to land that will not enter water	*Except as provided for by any other rules in this Plan, the discharge of solid contaminants, (including cleanfill), onto or into land in the Coastal Margin in circumstances that will not result in any contaminant entering water*, is permitted subject to the following conditions: *a) The discharge shall not increase land instability or the risk of erosion.* *b) The discharge shall not cross the boundary of the subject property onto any other property, unless written approval is obtained from the affected property owner.* *c) The discharge shall not cause any increase in the concentration of any hazardous substances or pathogenic organisms on or in any land.* *d) The discharge shall not cause any increase in the risk of human or animal disease.* *e) The discharge shall not have any acid producing potential.* *f) Upon request by the HBRC, information shall be provided by the resource user setting out how the conditions above will be met.* *g) There shall be no discharge within 20m of the coastal marine area or any surface water body, except for material extracted from a surface water body associated with the maintenance of legally established structures.* *h) Where the volume of solid contaminants on the subject property is greater than 100m³ the person responsible for the discharge shall notify the Hawke's Bay Regional*	Complies Any works undertaken on the two sites located within the coastal environment will comply with the standards for the following reasons; • The discharges will be designed to improve stability. • Where work is required on private property landowner approval will be obtained. • The discharge will consist of cleanfill and reuse of onsite soils and will not contain any risky contaminants. • There will be no discharge within 20m of the CMA. • If the volume exceeds 100m³ then HBRC will be notified.

	Council within 7 days of that volume being reached or exceeded.	
Rule 19 – Discharges to land that may enter water	Except as provided for by any other rules in this Plan, the discharge of contaminants onto or into land in the Coastal Margin, in circumstances which may result in those contaminants (or any other contaminant emanating as a result of natural processes from those contaminants) entering water, is permitted subject to the following conditions: a. *The rate of discharge shall be no greater than 50 m^3 /d.* b. *The discharge shall not result in a breach of any of the conditions set out in Rule 17.* c. *The discharge shall not result in a breach of any of the conditions set out in Rule 18.* d. *The point of discharge shall be able to infiltrate through at least 600mm of unsaturated soil.* e. *There shall be no surface ponding in the area of discharge, or runoff of any contaminant into a surface water body.* f. *The discharge shall not result in any airborne liquid contaminant being carried beyond the boundary of the subject property.* g. *There shall be no discharge within 20m of the coastal marine area or any surface water body, except for material extracted from a surface water body associated with the maintenance of lawfully established structures.* h. *There shall be no discharge within 30m of any bore drawing groundwater from an unconfined aquifer into which any contaminant may enter as a result of the discharge.* i. *The discharge shall not cause any degradation of existing ground water quality in confined aquifers in the Heretaunga Plains aquifer systems.* j. *For other aquifers, the discharge shall not cause or contribute to a breach of the following guidelines after reasonable mixing:* i. *The 'Drinking Water Quality Standards for New Zealand 2000' (Ministry of Health, 2000).*	Complies Any works undertaken on the two sites located within the coastal environment will comply with the standards for the following reasons; • Any repair and remediation works on these two sites will be less than $50m^3$/d. • The proposal complies with rules 17 and 18. • The discharge is a solid contaminant and there is no point of discharge and will not create any ponding. • The discharge will not be located within 20m of the coastal marine area or 30m of a bore. • The sites are not located over an aquifer.

	ii. The guideline for irrigation contained in the 'Guidelines for Fresh and Marine Water Quality 2000' (ANZECC, 2000). *k. Where the quality of ground water in any aquifer encompassed by condition (j) breaches the standards specified in that condition prior to the discharge occurring, the discharge shall not cause any further degradation of the quality of ground water in any such aquifer after reasonable mixing.*	
Rule 25 Diversion and discharge of stormwater	The diversion and discharge of stormwater from any constructed open drainage system or piped stormwater drainage system in the Coastal Margin that: 1. Does not convey stormwater from any industrial or trade premises; or 2. Conveys stormwater from any industrial or trade premises (excluding premises used for the storage of any hazardous substance) covering an area of less than 2ha. Is a permitted activity subject to the following conditions; *a) The activity shall not cause any permanent:* *i) reduction of the ability of the receiving channel to convey flood flows or* *ii) bed scouring or bank erosion of the receiving channel.* *b) The discharge shall not cause the production of conspicuous oil or grease films, scums or foams, or floatable or suspended materials in any receiving water after reasonable mixing.*	Complies Any works undertaken on the two sites located within the coastal environment may include stormwater upgrades to the roadside drains. This will only drain stormwater from the surrounding residential area and will comply with these standards.
27.3 Take, diversion and transfer of water in Coastal Margin		
Rule 40 Minor diversions	Except as expressly provided for by other rules in this Plan, the diversion of water in the Coastal Margin, is permitted subject to the following conditions: *a. Either:* *i. The catchment area above the diversion shall not exceed 50 hectares, or* *ii. The diversion shall remain within the bed of the affected water body, or* *iii. The diversion shall divert no more than 10% of the flow of the affected water body, and the diverted water shall be returned to the affected water body no*	Complies Any diversion required at either of the two sites located in the coastal margin will comply with the permitted conditions for the following reasons; • Minor diversions will only be for bank related works that will not divert more than 10% of the flow in the water body. • They will not affect any wetland. • They will not mix waters between catchments.

	more than 100 m downstream of the point at which the water is diverted. *b. The activity shall not adversely affect any wetland.* *c. The diversion shall not be from one catchment to another.* *d. The diversion shall not cause any scouring or erosion of any land or any water course beyond the point of discharge.* *e. The diversion shall not adversely affect any lawfully established take, which existed at the time that the diversion commenced.* *f. The diversion shall not prevent the passage of fish within the water body.* *g. There shall be no adverse flooding effects on any property owned or occupied by another person, as a result of the diversion activity*	• There will be scour or erosion created by the diversion. • Will not affect any known water takes. • Will be undertaken in a manner to provide for the existing passage of fish. • Will not create any flooding.
27.4 River and lake beds in Coastal Margin		
Rule 46 River & lake bed activities not regulated by, or not complying with, other rules	Any activity in, on, or under the bed of any river or lake in the Coastal Margin that: 1. Is not specifically classified by any other rule in this Plan as a discretionary, non-complying or prohibited activity; or 2. Does not comply with all relevant conditions on a permitted activity rule; or 3. Does not comply with all relevant standards and terms on a controlled activity rule or restricted discretionary rule.	Triggered Does not meet all permitted standards under Rules 47 and 53.
Rule 47 Disturbances of river and lake beds not regulated by other rules	*Except as provided for by any other rules in this Plan, the disturbance of the bed of a river or lake in the Coastal Margin including, but not limited to any disturbance caused by:* 1. *Tunnelling or* 2. *drilling or* 3. *excavation.* Is permitted subject to the following conditions: *a) The maximum area of disturbance shall be no greater than 5 m^2.* *b) The disturbance shall not change the natural course of any river or lake.* *c) Any release of sediment shall not cause any conspicuous change in the colour or visual clarity of water after reasonable mixing.* *d) There shall be no discharge of contaminants, other than sediment, into the river or lake.*	Does not Comply Permitted standard a. g & j. may not be complied with for the following reasons; • Other river bed disturbance activities may be undertaken in association with the proposed works. These may require disturbing more than 5m^2 of the river bed. • A diversion of water to undertake the activity within a dry bed may be required for more than 5 consecutive days. • Works within fish spawning season will be avoided but may not always be possible and conditions have been suggested to mitigate these effects.

	e) The activity shall be undertaken in a manner that continues to provide for the existing passage of fish past the structure. *f) The disturbance shall not cause any increase in the risk of flooding or damage to any property during flood events, including the risk resulting from trapped debris.* *g) Any diversion of water for the purposes of carrying out the activity shall be for a period of no more than five consecutive days.* *h) The activity or structure shall not cause any erosion, scour or deposition beyond the area of disturbance or adversely affect any other lawfully established structure.* *i) All excess materials shall be removed from the bed by completion of the activity.* *j) There shall be no disturbance of any part of the bed covered by water from 1 May and 30 September (fish spawning season).*	All other standards can be met as any diversion; • Any excavation works will not change the natural course of the stream. • Erosion and sediment controls will be undertaken to prevent unreasonable sedimentation of the water body. • Spill management plan and procedures will be implemented during works to prevent contamination of the waterbody. • Existing passage of fish will continue. • The works will not increase the risk of flooding, erosion or scour. • All materials will be removed from the bed of the river upon completion.
Rule 53 Erection and placement of other structures, including bridges, culverts & other access structures.	*Except as provided for by other rules in this Plan the erection or placement of any structure in, on, under, or over the bed of a river or lake in the Coastal Margin and* 1. *any associated disturbance of the river or lake bed, and* 2. *any associated discharge of sediment, and* 3. *any associated damming or diversion of water.* Is permitted subject to the following conditions; *a. The scale of the structure shall comply with the following:* *i. Access structures in or on the bed of a river or lake, including bridges, culverts, and fords, shall be located in a catchment that is no greater than 150 ha.* *iii. other structures in or on the bed of a river or lake shall occupy an area of bed no greater than 10 m².* *b. The structure shall not change the natural course of any river or lake.* *c. Any release of sediment shall not cause any conspicuous change in the colour or visual clarity of water after reasonable mixing.* *d. There shall be no discharge of contaminants, other than sediment, into the river or lake.*	Does not Comply Permitted standard i. & l. may not be complied with for the following reasons; • A diversion of water to undertake the activity within a dry bed may be required for more than 5 consecutive days. • Works within fish spawning season will be avoided but may not always be possible and conditions have been suggested to mitigate these effects. All other standards can be met as any diversion; • No access structures will be required on the two sites located within the Coastal Margin. • Any new structures on the bed of the river will not exceed 10m². • The natural course of the streams will remain unchanged • Erosion and sediment controls will be undertaken to prevent unreasonable sedimentation of the water body. • Spill management plan and procedures will be implemented

	e. *All materials used shall not be toxic to aquatic ecosystems.* f. *The activity shall be undertaken in a manner that continues to provide for the existing passage of fish past the structure.* g. *The structure shall not cause any increase in the risk of flooding to any property during flood events, including the risk resulting from trapped debris.* h. *The structure shall not cause any increase in the risk of damage to any property during flood events, including the risk resulting from trapped debris.* i. *Any diversion of water for the purposes of carrying out the activity shall be for a period of no more than five consecutive days.* j. *The activity or structure shall not cause any erosion, scour or deposition beyond the area of the activity or structure or adversely affect any other lawfully established structure.* k. *All excess materials shall be removed from the bed by completion of the activity.* l. *In areas of fish spawning there shall be no disturbance of any part of the bed covered by water from 1 May to 30 September (fish spawning season) except in relation to the erection of whitebait stands, maimai, and necessary access structures to these, or where emergency works are required.* m. *Any whitebait structure shall be removed within 14 days of the end of any whitebait season.*	during works to prevent contamination of the waterbody. • Materials used will be non-toxic to aquatic ecosystems. • Existing passage of fish will continue. • Any new structures will be designed to provide the same or in most cases an improved level of flow to cope with future flood events and trapped debris. • Any structures will be designed to avoid erosion and scour beyond the area of works nor affect other structures. • All materials will be removed from the bed of the river upon completion. • No whitebait structures are proposed.

APPENDIX F
MITIGATION TABLE

MITIGATION TABLE

Bridge Remediation Works			
Activity Description	Potential Environmental Effects	Mitigation Measures Proposed	Proposed Conditions
Bridge repair and remediation works include: ▪ Structural repair and strengthening works, repairing cracks, patch repairs, ▪ Replacement and/or upgrading of bridge components. ▪ Installation of reinforcement structures. ▪ Installation of temporary structures (e.g. scaffolding and access platforms) for access and to carry out repairs. ▪ Wingwall works.	The activity may result in the following potential adverse effects: - Structures in the waterbody both temporary and long term can affect flood capacity of the stream and fish passage. - Discharge of contaminants and sediment to water can affect water quality, ecology and cultural values of the stream; - Disturbance of the riverbed and surrounding land can affect water quality, instream biota and fish, cultural values and cause scour. - Construction works and the completed structures can affect the character and amenity of the area. - Works undertaken within the wet bed of the stream during fish spawning season can affect the habitat and ecology of the stream.	The bridge related repair and remediation works use the following measures to mitigate effects on the environment: • The design and methodology will be prepared by a suitably qualified engineering professional. • The structural repair and strengthening works can include works to the piers, piles and abutments such as concrete repairs, wrapping and reinforcements that may increase the size and area of the structure in the bed of the stream. These works will be limited to existing structures only, so no new piers, and have a small footprint, which will retain fish passage and flood capacity. • The materials used for the works will be non-toxic to aquatic life. • Where practical, work will occur from the bank of the stream and outside of the wet bed. • If the work is required within the wet bed of a stream, a water diversion will be established creating a dry work area to reduce contaminants and sediment entering the water. • All works will be undertaken to provide for the passage of fish. • Works will be undertaken to avoid fish spawning season, but where this is unavoidable a Fish Management Plan will be prepared and	General Conditions 1, 2, 3, 4 Scope of works 5 & 6 Consultation and informing 7 - 12 Archaeological discovery 13 Water Quality 14 - 20 Ecology, fish passage and spawning 21 - 26

		approved by the Regional Council prior to works commencing. • The works will follow a spill management plan, requiring refuelling of vehicles and storage of hazardous substances to be over 20m away from the stream along with other measures to prevent contaminants entering the stream. • Where soil disturbance is required for works around abutments and wingwalls, sediment control measures will be installed to restrict the amount of sediment entering the waterbody. These generally include the installation of silt screens, runoff diversion, and earth bunds. • All exposed areas of soil will be re-grassed upon completion of the work. • There will be no reduction in the flood carrying capacity of the river as a result of the works. • All material will be removed from the site upon completion of the works. • An accidental discovery protocol will be in place for all works.	
Culvert Remediation Works			
Activity Description	Potential Environmental Effects	Mitigation Measures Proposed	Proposed Conditions
Culvert repair and remediation works include: ▪ Maintenance, repair and minor upgrades of existing culverts. ▪ Demolition and removal of existing culverts.	The activities that may result in the following potential adverse effects: - The materials used for the repair, upgrade and replacement of culverts can contaminate the water. - Demolition and removal of culverts and associated	The culvert related repair and remediation works use the following measures to mitigate effects on the environment: • The materials used for the repair, upgrading and replacement of culverts will be non-toxic to aquatic life. • The design and methodology will be prepared by a suitably qualified engineering professional.	General Conditions 1, 2, 3, 4 Scope of works 5 & 6 Consultation and informing 7 - 12

▪ Replacement and construction of new culverts that have the same or greater capacity as what previously existed pre-cyclone. ▪ Multiple culverts at a site which could include a mixture of old and new. ▪ Headwall works.	structures can cause contaminants and sediment to enter the stream affecting water quality, ecology and cultural values. - Disturbance of the stream bed and surrounding land can affect water quality, instream biota and fish, cultural values and cause scour. - Culverts need to be an appropriate size and installed so they are effective at conveying water, maintaining fish passage and prevent scour. - Environmental constraints at a site may lead to culverts being perched or similar which affects the passage of fish. - Works undertaken within the wet bed of the stream during fish spawning season can affect the habitat and ecology of the stream. - Construction works and the completed structures can affect the character and amenity of the area.	• Culverts will be the same size or larger to retain or improve the flood capacity and resilience of the culvert and road infrastructure. • If the work is required within the wet bed of a stream, a water diversion will be established creating a dry work area to reduce contaminants and sediment entering the water. • The majority of culverts covered under this consent were constructed prior to 2020 and would be exempt from the fish passage requirements under Regulation 60 of the NES-FW. Where new or replacement culverts are proposed the culvert conditions in regulation 70 will be complied with where possible and fish passage will be provided. • Works will be undertaken to avoid fish spawning season, but where this is unavoidable a Fish Management Plan will be prepared and approved by the Regional Council prior to works commencing. • Where practical, work will occur from the bank of the stream and outside of the wet bed. • The works will follow a spill management plan, requiring refuelling of vehicles and storage of hazardous substances to be over 20m away from the stream along with other measures to prevent contaminants entering the stream. • Where soil disturbance is required for works around headwalls, sediment control measures will be installed to restrict the amount of sediment entering the waterbody. • All exposed areas of soil will be re-grassed upon completion of the work.	Archaeological discovery 13 Water Quality 14 - 20 Ecology, fish passage and spawning 21 - 26

		• There will be no reduction in the flood carrying capacity of the stream as a result of the works. • All material will be removed from the site upon completion of the works. • An accidental discovery protocol will be in place for all works.	
Bank Protection and Stabilisation			
Activity Description	Potential Environmental Effects	Mitigation Measures Proposed	Proposed Conditions
Bank protection and stabilisation works include; ▪ Retaining wall structures including timber retaining walls, block walls, gabions, and sheet pile walls. ▪ Scour protection structures like rock rip rap structures, gabions and shotcrete. ▪ Bank stabilisation structures like engineered soil slopes, reno mattresses and shotcrete.	These activities may result in the following potential adverse effects: - Works directly in the stream can impact on fish passage and fish breeding during the spawning season. - Works on the banks and soil disturbance can lead to sediment discharge into the stream and affecting water quality and ecological habitat. - Machinery working near and within the stream has the potential to leach or spill oil onto land or into water bodies and can create the potential for contamination of the water. - The placement of structures within the waterway, if designed inadequately, may reduce flood capacity and create scour and erosion	The mitigation measures for undertaking the scour protection works and the measures to mitigate the adverse effects on the environment are as follows: • Scour protection structures will be limited to no more than 50 metres upstream or downstream of the bridge or culvert. • The design of bank protection structures and their construction methodology will be prepared by a suitably qualified engineering professional. • If the work is required within the wet bed of a stream, a water diversion will be established creating a dry work area to reduce contaminants and sediment entering the water. • Works will be undertaken to avoid fish spawning season, but where this is unavoidable a Fish Management Plan will be prepared and approved by the Regional Council prior to works commencing. • Where soil disturbances will occur, erosion and sediment control measures will be installed, such as silt fencing, to prevent sediment discharge.	General Conditions 1, 2, 3, 4 Scope of works 5 & 6 Consultation and informing 7 - 12 Archaeological discovery 13 Water Quality 14 - 20 Ecology, fish passage and spawning 21 - 26

	problems along the stream bank; - Structures can be visually obtrusive;	• Erosion and sediment protection will be put in place and maintained to avoid the discharge of sediment in to the stream. • Flood carrying capacity of the river will not be decreased as a result of the bank protection and stabilisation works and they will be designed so there is no increase in flood levels on private property. • All exposed areas of soil will be re-grassed upon completion of the work. • An accidental discovery protocol will be in place for all works.	
Works Associated with the Remediation of the Bridges and Culverts			
Activity Description	Potential Environmental Effects	Mitigation Measures Proposed	Proposed Conditions
Other works associated with the repair and remediation works proposed include; ▪ Temporary diversion of the waterbody; ▪ Vegetation clearance and soil disturbance within 5m of a waterbody; ▪ Discharge to land within 20m of a waterbody; ▪ Discharge to water; ▪ Stormwater management works such as drains and swales. ▪ Alter the channel back to its pre-cyclone location.	These activities may result in the following potential adverse effects: - The potential to reduce water quality through increased sediment loading into the stream affecting water quality, aquatic habitats and the mauri of the river. - Diversion of the water and altering the stream channel can affect habitats and instream ecology. - The removal of vegetation or trees and their root bed can cause destabilisation and bank erosion of the river bank, potentially escalating the rate	The following measures are proposed to mitigate effects of these works on the environment: • Vegetation will only be removed within 5m of the stream where it is necessary to undertake the works and obtain access for the appropriate machinery. • A water diversion will be used if the work is required within the wet bed of a stream, to create a dry work area for construction and reduce contaminants and sediment entering the water. • Where soil disturbances and discharge to land are undertaken, erosion and sediment control measures will be installed, such as silt fencing, to prevent sediment discharge. • Machinery will be selected at a scale that is appropriate for the required work and mitigation measures will be adhered in terms of best practice such as washing down machinery	General Conditions 1, 2, 3, 4 Limits and scope of works 5 & 6 Consultation and informing 7 - 12 Archaeological discovery 13 Water Quality 14 - 20 Ecology, fish passage and spawning 21 - 26

	of scour and sediment loads entering the water body. - The removal of vegetation and discharges to land can increase sediment runoff into the stream affecting water quality - Machinery working near to and within the river has the potential to leach or spill oil onto land or into water bodies and can create the potential for sediment discharge. - Heavy machinery may damage stream beds or the surrounding river banks when entering or exiting the river. - Soil disturbance works could potentially uncover unknown archaeological material.	before it enters the river bed or water body and limiting access points. • To obtain access to the bed of the stream or bridge abutments, tracks may be required. This may involve the installation/ excavation of temporary or permanent accessways, and the associated removal of riparian vegetation. In instances where there will be soil disturbance, sediment controls will be installed before commencement of works. • Any surplus soil will be deposited at least 20m from any waterbody or contained in a manner to reasonably prevent the transportation or deposition of soil into the stream. • All exposed areas of soil will be re-grassed upon completion of the work. • An accidental discovery protocol will be in place for all works.	

APPENDIX G

SUGGESTED CONDITIONS OF CONSENT

SUGGESTED CONDITIONS

General

1. The consent holder shall ensure that all works and structures relating to this resource consent shall be designed and constructed to conform to the best engineering practices and at all times maintained to a safe and serviceable standard.
2. The consent holder shall exercise this consent in accordance with the application, lodged with Hawke's Bay Regional Council August 2024. If a conflict arises between any conditions of this consent and the application, the conditions of this consent will prevail.

   The consent does not apply to the following:

   - The construction of new bridges
   - The construction of additional piers in the waterbody
   - Work located within any wāhi taonga sites.
   - Any bridge or culvert that is privately owned.
   - Work on bridge or culvert structures that are located within 100m of a wetland and cannot meet the permitted standards of the NES-FW and RRMP relating to wetlands.
3. The consent holder shall ensure that any contractors engaged to undertake work authorised by this consent abide by the conditions of this consent. The person responsible for the work on site shall be familiar with the consent conditions and a copy of this consent shall be on site at all times while the work is being undertaken.
4. The design and installation of the culverts, bridge works and associated structures shall be such that it does not cause any long-term erosion of the bed or banks of the waterbody.

Scope of Works

5. The location of works is limited to the list of Hastings District Council controlled bridge and culvert sites contained in Appendix A of the application.
6. Scour protection structures proposed within this global consent shall not extend more than 50m upstream or downstream of the bridge or culvert structure.

Consulting and Informing

7. Prior to works commencing the consent holder shall give the Council (Manager Compliance) at least two working days' notice of the intention to commence works at each site.
8. Upon completion of works the consent holder shall advise the Council of having finished the works at each site within two working days following their completion.
9. Prior to works commencing the consent holder shall invite the Council Manager Compliance to attend a prestart meeting prior to any stream works to demonstrate awareness of the consent conditions and show how each will be complied with.
10. Prior to works commencing in the wet bed of the stream, the consent holder shall notify the appropriate representative of the relevant iwi or hapū of the proposed stream works provide the contact details of a liaison person and confirm (or otherwise) whether iwi or hapū wish to participate in fish salvage and relocation. Should iwi or hapū confirm their desire to participate in fish salvage and relocation, the consent holder must ensure they are given the

opportunity to do so during the relevant stage(s) of the remediation works.

11. Prior to works commencing the consent holder shall notify all lawful water abstracters located within 250 metres downstream of any worksite not less than 48 hours prior to commencement of work authorised by this consent (excluding emergency works).

12. If an event occurs on-site that may lead to the contamination of a registered drinking water supply downstream of the site, the Consent Holder shall notify the water supplier and the Hawke's Bay Regional Council (Manager Compliance) of the event as soon as reasonably practicable after the event occurs.

    Advice note: Such an event might include for example a hydrocarbon spill. The water supply contact details are available through the public register of supplies on the Taumata Arowai website. The Regional Council 24 hour Pollution Hotline should also be contacted on 0800 108 838.

Accidental Discovery

13. The Consent Holder shall ensure that, should any human remains or archaeological items be exposed while undertaking works to give effect to conditions of this consent, works in that area will cease immediately. The Police, Heritage New Zealand, Kaumatua representing the local Tangata Whenua, and the Consent Authority shall be contacted and work shall not recommence in the affected area until any necessary statutory authorisations or consents have been obtained.

Water Quality

14. Prior to commencing works the consent holder shall submit an Environmental Management Plan (EMP) to the Council (Manager Compliance) for the works at each site. The EMP must be prepared by a suitably qualified and experienced expert and in consultation with the contractor undertaking the works. It shall be prepared to a standard suitable for the scale of the works.

    The purpose of the EMP is to manage the remediation works to minimise the effects of the works on the environment and where appropriate shall include:

    a) The final design of any structures;

    b) Construction Methodology describing how the construction works will be undertaken on the site.

    c) An Erosion and Sediment Control Plan (ESCP).

    d) A Spill Management Plan (SMP).

    e) Methods for separating the construction activities from the flowing water at all times (diversion methodology) and only undertaking works during low flows. This should include contingency measures for dealing with greater volumes of water should heavy rain occur during the works period and measures to facilitate fish passage upstream and downstream during the construction period;

    f) Methods for finding and removing fish from the affected reaches prior to any diversion of water, where they will be transported to and who will be responsible for doing this;

15. To ensure that sediment and erosion control is managed appropriately, the consent holder shall produce an Erosion and Sediment Control Plan (ESCP) for each site and include;

    a) A map showing the location of temporary and permanent sediment controls for each site;

    b) The contact details of the person responsible for inspecting and maintaining sediment controls;

c) A maintenance and inspection regime for temporary and permanent sediment controls,

d) Procedures that will be in place to limit sediment from entering waterbodies during the construction works, taking into account the Hawke's Bay Regional Council Waterway Guidelines: Erosion and Sediment Control (April 2009). Works-in-Waterways-20090406.pdf (hbrc.govt.nz).

16. To ensure worksite spills are managed appropriately, the consent holder shall produce a Spill Management Plan (SMP) appropriate for the activities being undertaken on each site. The SMP shall include;

a) the activities, materials and chemicals in use at the site.

b) include procedures for preventing contaminants such as hydrocarbons or chemicals entering any waterbody in the event of a spill;

c) be prepared by a suitably qualified person;

d) be provided to the Council (Manager Compliance) prior to commencement of the works.

The consent holder and any contractors engaged to undertake work on their behalf shall abide by the SMP and a copy of this SMP must be present on site at all times while the work is being undertaken and shall be provided to the Council (Manager Compliance) upon request.

17. During construction works the consent holder shall take all practical measures to limit the amount of sediment and prevent contaminants from entering a waterbody. Such measures include, but are not limited to:

a) Any surplus soil, cleared vegetation or debris, shall be deposited at least 20m from any waterbody or deposited or contained in a manner to reasonably prevent the transportation or deposition of disturbed matter into any waterbody.

b) The wash water from containers and tools shall not be discharged into any waterbody and the washing of equipment shall not occur in any waterbody.

c) As far as practicable, all machinery work shall be undertaken from the banks of the waterbody rather than in the waterbody.

d) Refuelling and carrying out machinery maintenance away from waterbody.

e) The consent holder shall check and clean machinery used in the bed of the waterbody to limit the spread of aquatic pests.

f) The works shall be undertaken in accordance with the approved ESCP and SMP.

18. Any wet concrete cast on site shall be fully contained during casting and cast in a dry work area.

19. No concrete shall be dumped into bed of any waterbody.

20. Upon completion of works the consent holder shall ensure that any newly established surfaces and any grassed slopes or vegetated areas that were cleared or damaged as a result of the activity, are revegetated in order to prevent sediment from entering the waterbody.

Ecology

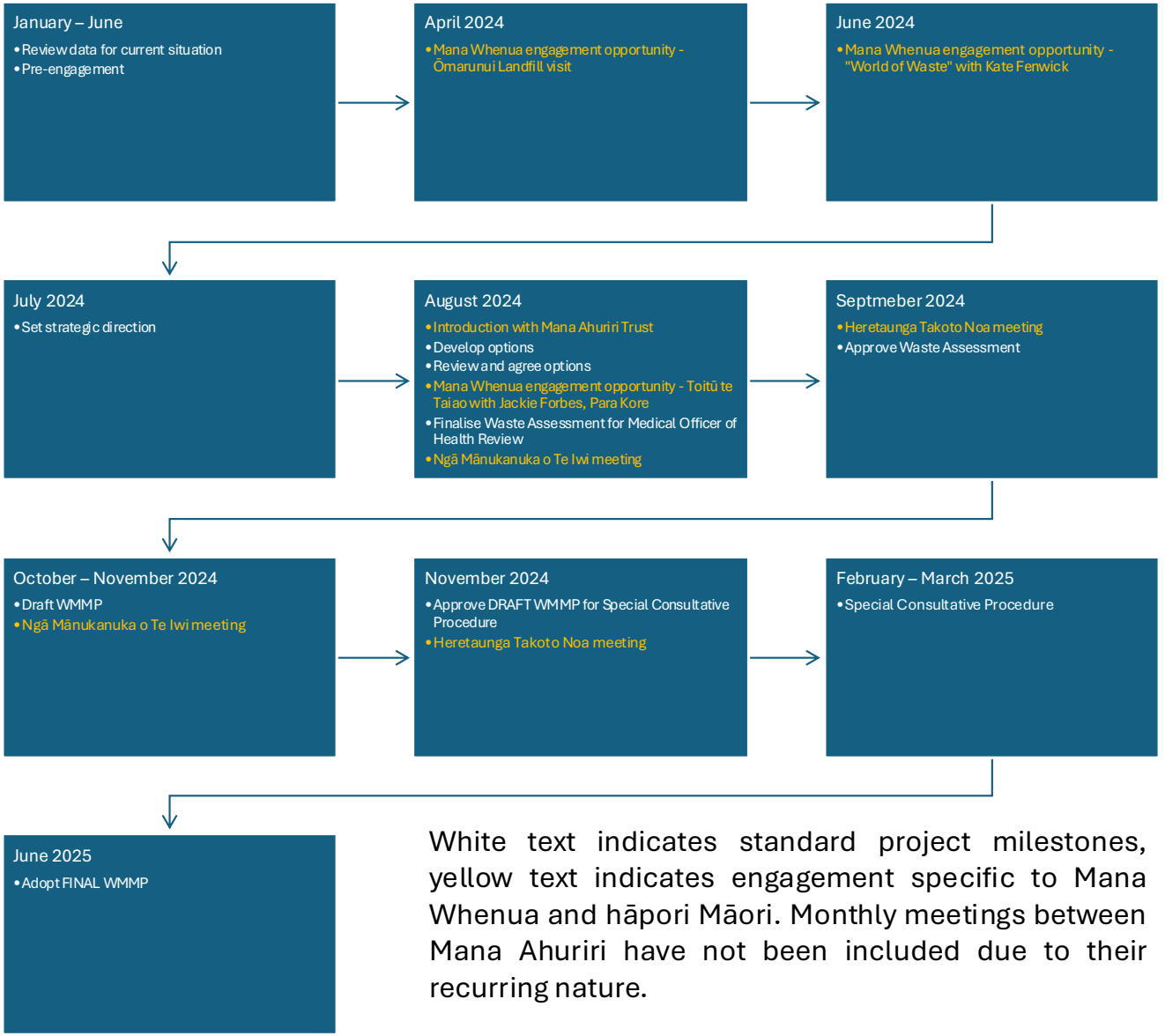
21. Work (excluding emergency works) shall be avoided within the wet bed of a waterbody during Fish Spawning season from 1 May to 30 September. Where work is required during fish spawning season a Fish Management Plan shall be prepared by a suitable qualified person and approved by HBRC Ecologists prior to works being undertaken within the wet bed of the stream.
22. The design and installation of the culverts shall be undertaken in a manner that provides for the ongoing passage of fish.
23. The consent holder shall construct the structures using methods and materials non-toxic to aquatic life.
24. The consent holder must ensure that any fish found stranded as a result of the remediation works are immediately placed into a clear flowing section of the stream/river, upstream of the works.
25. On completion of the works, the bed of the waterbody shall be restored to no lesser state than it was before the works commenced.
26. Where culvert works on a site are unable to meet the permitted conditions of regulation 70(2)(d) and (e) of the National Environmental Standards for Freshwater the following information shall be provided within 20 working days of the of the works being completed under regulations 62, 63 and 69.

Review

27. The conditions of this consent may be reviewed by Council during the month of August of any year pursuant to sections 128, 129, 130, 131 and 132 of the RMA. The actual and reasonable costs of any review undertaken will be charged to the consent holder, in accordance with section 36 of the RMA. The consent(s) may be reviewed for any of the following purposes:
    a) To deal with any adverse effect on the environment which may arise from the exercise of this consent, which it is appropriate to deal with at that time, or which became evident after the date of issue.
    b) To require the adoption of the best practicable option to remove or reduce any adverse effects on the environment.
    c) To modify any monitoring programme, or to require additional monitoring if there is evidence that current monitoring requirements are inappropriate or inadequate.

Advice Notes

i. Prior to works commencing for each site, the consent holder shall invite the appropriate representative of the relevant iwi or hapū to participate in a site inspection and confirm (or otherwise) whether iwi or hapū wish to monitor the remediation works. Should iwi or hapū confirm their desire to undertake remediation works monitoring, the consent holder must ensure they are given the opportunity to do so during the remediation works.



White text indicates standard project milestones, yellow text indicates engagement specific to Mana Whenua and hāpori Māori. Monthly meetings between Mana Ahuriri have not been included due to their recurring nature.


NAPIER
CITY COUNCIL
Te Kaunihera o Ahuriri
TOI TŪ TE MARAE A TANE,
TOI TŪ TE MARAE A TANGAROA,
TOI TŪ TE IWI
If you preserve the integrity of the land (the realm of Tane),
and the sea (the realm of Tangaroa),
you will preserve the people as well.
JOINT
WASTE MANAGEMENT
and
MINIMISATION PLAN
2018 - 2024
STATEMENT OF PROPOSAL
HASTINGS
DISTRICT COUNCIL

EXECUTIVE SUMMARY

As required every six years by the Waste Minimisation Act (WMA) 2008, Hastings District and Napier City Council have reviewed their 2012 Waste Management and Minimisation Plan (WMMP).

It is in the communities best interest to encourage residents to be more resourceful, diverting as much unnecessary waste as possible to prolong Omarunui Landfill's life.

The vision, goals and actions stated in this plan have been updated to reflect the outcome of the consultative process.

TO DELIVER WASTE MINIMISATION AND RESOURCE RECOVERY ACROSS HASTINGS DISTRICT AND NAPIER CITY WORKING TOWARDS ZERO WASTE.

OUR TARGETS TO MEET THE GOALS OF THE VISION ARE:

20% **TOTAL TONNAGE INCREASE** IN COMMON RECYCLABLES DIVERTED FROM OMARUNUI LANDFILL.

30% **TOTAL TONNAGE DECREASE** IN ORGANICS TO OMARUNUI LANDFILL

Highlighted key waste issues for Hastings District and Napier City include:

- Close to 50% of the material going to Omarunui Landfill can be composted or recycled.
- The other 50% contains more divertible items such as TV's, batteries, plaster board and other electronic waste, etc.
- Undesirable kitchen and garden waste makes up approximately a third of all waste entering Omarunui Landfill.
- Close to 80% of rubbish coming from householders can be diverted elsewhere.
- Bagged rubbish collection services pose greater safety risks to collectors compared to bins.
- Some residents and businesses are unaware of their waste options as educational/informative campaigns have had limited reach.
- Litter, and illegal dumping continue to occur despite fines, enforcement and education.
- A large number of rural residents have little to no access to proper waste disposal.

Key background work for this plan includes:

- The Joint Waste Futures Project, Jacobs Consulting Ltd. (2014–16) (Appendix 5).
- Survey of Solid Waste in Hawke's Bay (SWAP) 2016, Waste Not Consulting (Appendix 6).
- The Joint Waste Assessment – a series of documents highlighting waste movements in Hastings District and Napier City:
  - Jacobs Consulting Ltd., HDC and NCC Waste Assessment (2017) (Appendix 2).
  - Morrison Low and Associates, Key Issues and Options Table (2017) (Appendix 3).
  - Napier City Council, Supplementary Waste Assessment Paper (2017) (Appendix 4).

Further initiatives that make up the Joint WMMP include:

- Engage closely with iwi to embed the principles of kaitiakitanga throughout the waste plan.
- Forming one combined Napier and Hastings waste team.
- Working with commercial, industrial and retail businesses to encourage waste minimisation.
- Consideration of a local waste levy to help pay for initiatives.
- Improve data collection and provide results to the public.
- Establishing a contestable fund to seed-fund waste reducing initiatives.
- Supporting successful community-run waste reducing initiatives.
- Investigate methods for better dealing with problem products.
- Continue to lobby central Government on the need to manage waste from the source (e.g. packaging and tyres).
- Review each Councils bylaws to align with this Joint WMMP.
- Enhance the Council kerbside collections.
- Use available technology to collect data and investigate the introduction of a pay -as-you-throw service in the future.

CONTENTS

HASTINGS DISTRICT COUNCIL
NAPIER CITY COUNCIL Te Kaunihera o Ahuriri


PART A THE STRATEGY
HASTINGS DISTRICT COUNCIL / NAPIER CITY COUNCIL JOINT WASTE MANAGEMENT AND MINIMISATION PLAN 2018-2024

INTRODUCTION

OMARUNUI LANDFILL HAS A FINITE LIFESPAN, DEPENDANT ON THE QUANTITY OF WASTE GOING IN. IF THERE IS OPPORTUNITY TO DIVERT MATERIAL FROM OMARUNUI LANDFILL THAT CAN BE BETTER UTILIZED ELSEWHERE, THE LIFE SPAN WILL BE MAXIMISED.

Hastings District and Napier City cover a combined land area of 510,600 hectares and are comprised of the main urban centres of Clive, Flaxmere, Hastings, Havelock North, Napier and Taradale as well as numerous rural and coastal settlements. The Pacific Ocean laps the east coast of the combined area; while the Hastings District surrounds Napier, sharing its boundaries with Central Hawke's Bay, Rangitikei, Taupo and Wairoa.

The combined population of Hastings and Napier is 130,500, containing 3% of the resident population of New Zealand. Approximately 77% of residents live across the urban settlements with the remaining population in the rural area[1].

Hastings District and Napier City Council jointly own the Omarunui Landfill, which received just over 84,000 tonnes of waste from the combined area in 2016/17[2]. This waste included a significant amount of material that could have been recovered for better use.

Of the waste currently going to Omarunui Landfill 49.1% is commonly recyclable and/or compostable material[3]. The remaining 50.9% includes a significant amount of potentially divertible material such as electronic waste, wood waste, plaster board, scrap metal and so on. In other words, we can cut our waste in half.

On a smaller scale, waste picked up at the kerbside from households has a high percentage of material which could be re-used, recycled or composted elsewhere.

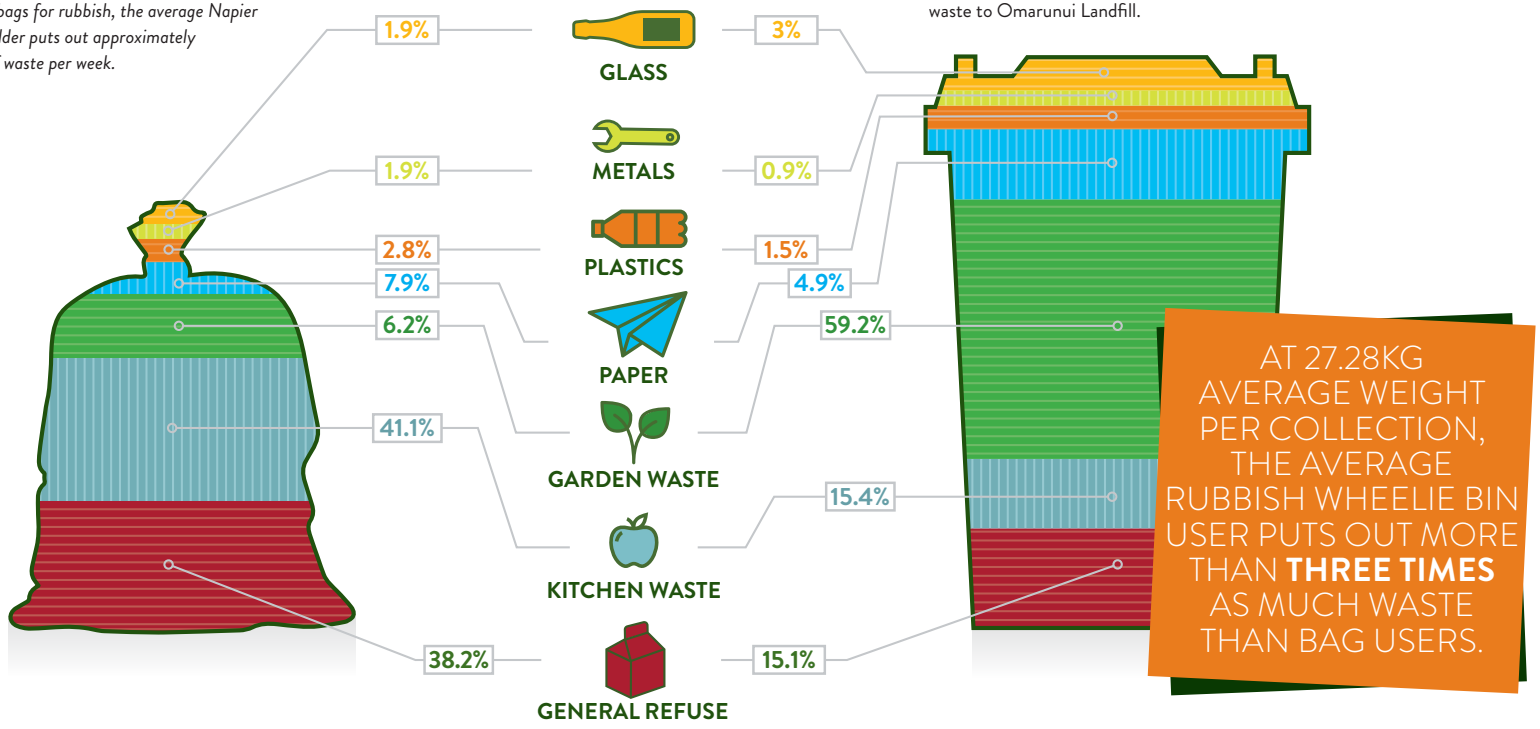
[1] New Zealand Census 2013.
[2] July 2016 to June 2017.
[3] Waste Not Consulting: Survey of Solid Waste in Hawke's Bay, 2016.

62% of material in Hastings District and Napier City's kerbside bags is recyclable or compostable and **does not need** to go to Omarunui Landfill.

If using bags for rubbish, the average Napier householder puts out approximately 8.6kg of waste per week.

85% of waste in rubbish wheelie bins is recyclable or compostable and **does not need** to go to Omarunui Landfill.

The waste from wheelie bins accounts for a quarter of all waste to Omarunui Landfill.



Every six years, Hastings District and Napier City Councils' are required to review their Waste Management & Minimisation Plan (WMMP) under the Waste Minimisation Act 2008 (WMA).

The Joint Waste Assessment (Appendix 2–4) is the first stage in this Joint WMMP process. The Waste Assessment assesses solid waste movements in the Hastings District and Napier City in as much detail as reasonably obtainable.

This Joint WMMP must meet requirements outlined in the WMA, including to:

- Ensure waste does not create a nuisance
- Have regard to the New Zealand Waste Strategy (NZWS) and other key government policies, which emphasise reducing harm and improving the efficiency of resource use
- Consider the outcomes of the Waste Assessment
- Follow the special consultative procedure set out in the Local Government Act (LGA) (2002).

Current Status of the Plan

The Joint WMMP was publicly consulted upon in March 2018 across the entire Hastings and Napier regions. As a result 6,165 submissions were received and considered by the Joint Waste Futures Project Steering Committee prior to amending and formalising the Joint WMMP document.

The Hawke's Bay District Health Board Medical Officer of Health has been consulted with in the drafting of this Joint WMMP. Their submission is included in the Waste Assessment documentation (Appendix 5).

This Joint WMMP replaces the 2012-2018 document.

Structure of the Plan

This document is in three main parts.

PART A: **STRATEGY**

The detail of the strategy, outlining what we are trying to achieve, containing our vision, goals, objectives, policies, and targets.

PART B: **ACTION PLAN**

The itinerary, explaining steps the Councils propose to take to achieve the vision, goals and objectives from Part A.

PART C: **BACKGROUND INFORMATION**

Supplementary information that assisted in writing this Joint WMMP. The Waste Assessment is provided in this section.

WHAT IS WASTE?

Most of the things we do, buy and consume generate some form of waste. If not managed properly, it can have a negative impact on people's well-being and the health of the environment.

In this Joint WMMP, terms like 'rubbish', 'recycling', and 'waste' will be used that may not be familiar to you or may mean something different to the way they are used here. Definitions are provided at the end of this Joint WMMP in Section C – Appendix 1.

The WMA defines 'waste' as: *"anything disposed of or discarded".*

The Act also describes 'waste minimisation' as the reduction of waste and the reuse, recycling, and recovery of waste and diverted material. 'Diverted material' is anything that is no longer required for its original purpose, but for commercial or other waste minimisation activities, would be disposed of or discarded. For example – your empty aluminium drink can may be waste to you, but is worth money to metal recycling companies and therefore becomes 'diverted material' if it is re-directed from a landfill.

In this Joint WMMP, the term 'waste' refers to solid waste only and includes biosolids (organic matter recovered from sewage).

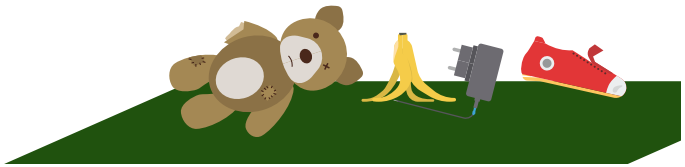
The New Zealand Waste Strategy

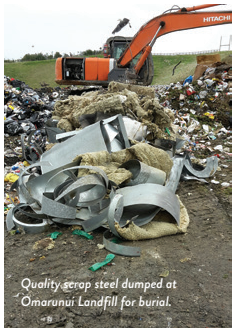
The New Zealand Waste Strategy (NZWS) has two overall goals:

1. TO REDUCE HARMFUL EFFECTS
2. TO IMPROVE EFFICIENCY

The WMA contains the waste hierarchy, which explains the idea of reducing waste by thinking more critically about the waste you create in your lifestyle. Reuse, recycling and waste recovery are the next preferable options for waste diversion from landfill. Finally, waste treatment rather than disposal should only be relied upon as a last resort.

For this Joint WMMP, we are adding an extra first step before waste reduction. Rejecting purchases which will create unnecessary waste is a behaviour that needs to be encouraged. Dealing with that waste is the next stage.





Quality scrap steel dumped at Omarunui Landfill for burial.

WHERE DOES OUR WASTE GO?

Hastings District and Napier City councils' completed a Joint Waste Assessment in 2017 detailing waste movements across the Hastings District and Napier City (Appendix 2-6). Most of our waste from Hastings and Napier ends up at Omarunui Landfill, south-west of Taradale. This waste primarily comes from:

- Three refuse transfer stations - Henderson Road Redclyffe, and Blackbridge
- Kerbside waste
- Commercial and Industrial (C&I) waste.

There was just over 84,000 tonnes of waste received at Omarunui Landfill from the Hastings District and Napier City areas in 2016/17. This is an increase in total tonnage of 11% over one year. Therefore, the importance of this Joint WMMP review cannot be understated. At the point of finalising this Joint WMMP, the 2017/18 financial year had just ended and 86,042 tonnes were received at Omarunui Landfill over this period.

Additional to the 2017 figure 9,800 tonnes of recycling was collected from the kerbside collections and the multiple recycling centres around Hastings and Napier for local as well as international processing.

Close to 6,000 tonnes of organic waste was collected at the three transfer stations and composted at BioRich or sent to PanPac for use as boiler fuel.

Hastings District and Napier City Councils' monitor 12 closed landfills and one open Class A landfill - Omarunui. There are a further three operational landfills in the area. The Supplementary Waste Assessment in Appendix 5 details this further.

Regarding hazardous waste, Hastings District and Napier City Councils' have historically run a hazardous waste collection day where householders can drop off their unwanted chemicals, oils, paints, and more. The Jacobs Consulting Waste Assessment in Appendix 2 details this further.

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Other (private) infrastructure

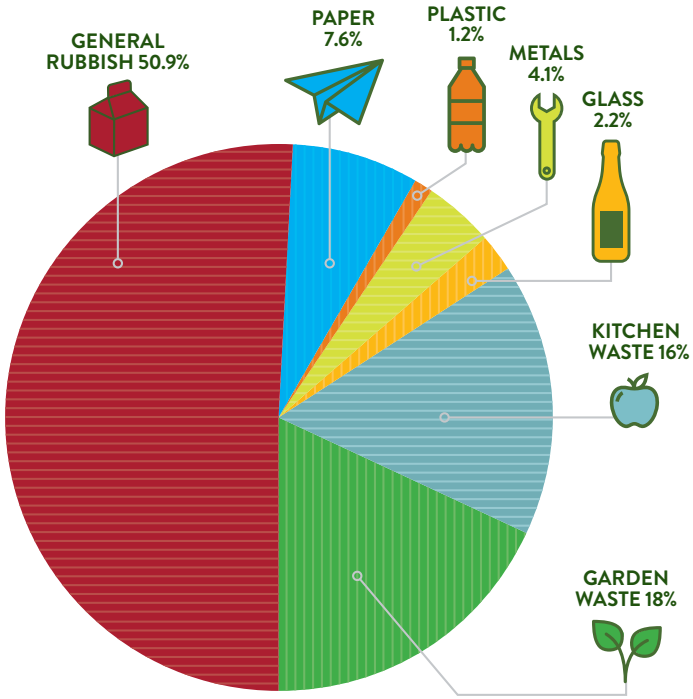
Private waste infrastructure in Hastings District and Napier City includes kerbside and commercial collections undertaken by private waste collectors, as well as material processors such as Hawk Packaging, BioRich and PanPac. Further details can be found in the Waste Assessment Jacobs Consulting Waste Assessment Paper in Appendix 2.

How do we compare?

In 2016, the Councils commissioned a survey on the quantity and type of waste collected from households in Napier and Hastings, as well as all waste entering Omarunui Landfill. Around New Zealand in the last five years, the amount of waste to landfill per person has ranged from 330kg to 800kg. The 2016 Solid Waste Analysis Protocol (SWAP) Appendix 7 survey showed that households in Hastings District and Napier City are fairly average with close to 500kg of waste sent to Omarunui Landfill per person per year.

The survey recorded waste composition, showing that close to 50% of this waste to Omarunui Landfill could have been recovered, recycled and/or composted.

The remaining waste contains other items such as TVs, batteries, plaster board, electronic waste, untreated timber and more that could be easily diverted elsewhere in the region.



THIS MEANS THAT **AT LEAST HALF** OF WHAT'S GOING INTO OMARUNUI LANDFILL DOESN'T NEED TO BE.

WHY SHOULD WE CHANGE OUR BEHAVIOUR?

More than being holes in the ground, landfills produce leachate, damaging greenhouse gases and toxins.

Due to organic waste's high water content, leachate and greenhouse gases from landfill are formed when food waste and green waste break down. Burying organic waste in Omarunui with minimal oxygen slows the natural break-down process. This means like most landfills, Omarunui is constantly producing leachate and greenhouse gases which require management long after closure.

In addition to by-products from organic waste, some materials that end up in Omarunui Landfill contain toxic substances which can leach over time. For example, household batteries can burst and leak corrosive powder. Add liquid from rotting food and leaves and a toxic leachate is produced.

Omarunui Landfill has a highly engineered and successful system to capture these liquids and gases produced by the waste. However, Hastings District and Napier City Councils' believe it is better to divert these materials from Omarunui in the first place rather than managing (and paying for) them at the landfill.


Leachate Collection Pond


A wheelie bin collector's load tipped at the Omarunui Landfill tip face.


Omarunui Landfill's Gas Flare

Current facilities and services

Hastings District and Napier City Councils' provide and/or manage the following services and facilities across the region:

SERVICE	CONTRACTOR /MANAGER
AUSTIN STREET RECYCLING CENTRE	Waste Management
BLACKBRIDGE, MARTIN PLACE, WAIMARAMA, MARAEKAKAHO, PUKEHAMOAMOA, POUKAWA, AND TUTIRA RECYCLING CENTRES	Hastings District Council
BLACKBRIDGE REFUSE TRANSFER STATION	Phoenix Contracting Ltd.
HENDERSON ROAD REFUSE TRANSFER STATION	Hastings District Council
ILLEGAL DUMPING AND LITTER REMOVAL	Various contractors on behalf of HDC and NCC
KERBSIDE RECYCLING COLLECTION	GreenSky Waste Solutions Ltd.
KERBSIDE RUBBISH BAG COLLECTION	Waste Management Ltd.
OMARUNUI LANDFILL	Hastings District Council on behalf of both Councils
REDCLYFFE REFUSE TRANSFER STATION AND RECYCLING CENTRE	Napier City Council

Alongside the Council-provided kerbside rubbish bag collection, there are a number of local operators offering a private wheelie bin service for rubbish and/or green waste. The cost for these are at the discretion of the independent waste operator and vary on the type of service, collection frequency and volume of bin used.

Private operators also provide refuse, green waste and recycling services directly to businesses in the region.

Green Bin Recycling Centre, Poukawa, Hastings District.

More reasons to divert and recover

Omarunui Landfill is similar to other landfills around New Zealand in that it is a very expensive facility to run. Long-term site management planning, running pumps and wells that capture leachate and greenhouse gas, as well as government taxes and levies mean that every tonne of waste costs money.

The New Zealand Emissions Trading Scheme (ETS) is the primary method for the New Zealand Government to achieve its long-term commitment to reduce our greenhouse gas emissions. 'Emissions Trading' is a market-based approach for reducing emissions of greenhouse gases. The ETS puts a price on emissions, by charging certain sectors of the economy for the greenhouse gases they emit. On an annual basis these sectors must calculate their emissions by submitting an emissions return to Government. Since 2013, disposal facility operators have had an obligation to report their emissions and surrender New Zealand Units (NZUs) under the ETS. As of 1 July 2018, $18 is surrendered for every tonne of waste disposed of to Omarunui Landfill which supports global efforts to reduce greenhouse gas emissions.

Under the WMA, a $10 Waste Disposal Levy is also collected from each tonne of waste entering Omarunui Landfill. This money is paid into the central government's Waste Minimisation Fund (WMF). A portion of this is then returned to Hastings District and Napier City Councils' to fund Waste Minimisation initiatives. This local fund has so far helped Hastings District Council establish multiple 'Green Bin' rural Recycling Depots around the district. It has also allowed Napier City Council to partly fund their kerbside recycling collection. Under the WMA, a local levy can be imposed on facilities to fund further initiatives at the discretion of Napier City and/or Hastings District Council.

Both the national ETS and the Waste Disposal Levy charges per tonne at Omarunui Landfill are expected to increase over the coming years.

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Future waste projections

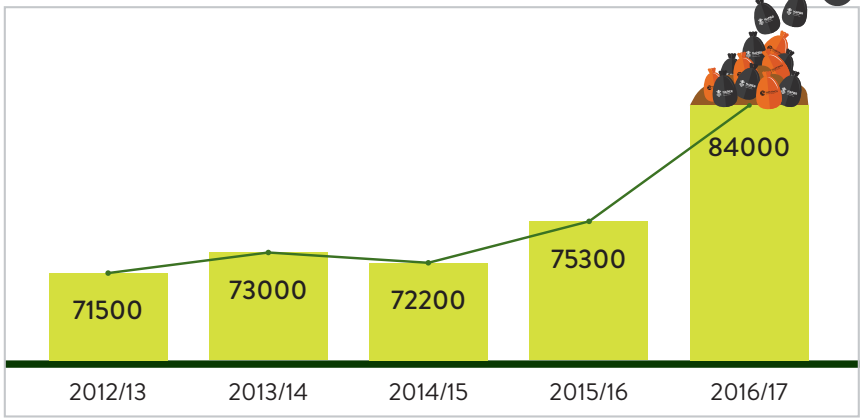
Population and economic growth trends directly influence the amount of waste generated and disposed of.

Another influence can be changes in legislation and policy to govern where certain types of waste should be correctly disposed of.

Future demand for waste and recycling services in the Hastings/Napier region is likely to be driven by:

- Population growth in Hastings and Napier
- Changes in commercial and industrial activity
- Economic fluctuations
- Regulations on waste disposal
- National policy changes regarding waste disposal
- Waste Minimisation and Education Programmes
- Land use changes
- Changes in technology
- Community expectations for waste disposal.

OMARUNUI LANDFILL - TOTAL WASTE BY YEAR




"WE CAN CUT OUR WASTE IN HALF."
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NAPIER CITY COUNCIL
Te Kaunihera o Ahuriri
JOINT WASTE MANAGEMENT AND MINIMISATION PLAN 2018-2024 HASTINGS DISTRICT COUNCIL/NAPIER CITY COUNCIL // 13

OUR RECYCLING JOURNEY

The common recyclables collected at the recycling depots and from the kerbside have different journeys.

Plastics 1-7 are collected and shipped offshore for processing in Asia. They are sorted into their respective materials, for example 1 High Density Polyethylene (HDPE), 2 Polyethylene (PET), 5 Polypropylene (PP) and so on. From sorting, different grades of plastics have the potential to be remade into other polymer/oil-based products such as polar fleeces, sleeping bags and plastic bottles.

Glass bottles and jars are collected and transported for processing in Auckland. Once the cleaning, melting and re-shaping is done, the glass is then ready to be re-sold. Glass bottles and jars are fully recyclable, making them the most sustainably re-usable product. With a major glass processor in New Zealand, glass recycling is a relatively straightforward system and does not require substantial international transportation, where associated emissions would make it less of a 'green' process.

Paper and cardboard collected in the region is sent to multiple sources. There are a number of local and international processors who pulp and reproduce paper and cardboard for re-use.

Steel and aluminium cans are sorted and on-sold locally or internationally, and melted for remanufacturing into almost anything metal-based.

FACTORS AFFECTING NEW ZEALAND'S WASTE SYSTEM

At the time of writing this plan, there were a number of external factors affecting the recycling system in New Zealand and consequently our Hawke's Bay region. Topical in 2017 was soft plastics with an emphasis on plastic bags. Four major retail chains have announced their intention to phase-out single-use plastic bags in order to reduce the amount of bags being disposed of improperly. Though the weight of plastic bags being landfilled per year is comparatively small, it is the litter aspect and risk they pose to waterways and ocean life, when transported by the wind, that we are responsible for as a community.

Plastic bag reductions are likely to affect Hastings and Napier's current recycling collection as many households rely on supermarket bags to present their recycling on the kerb.

Exports of recyclable plastic are also under question with China and parts of South-East Asia restricting the import of unsorted plastic recycling and plastic with minor contamination. Without this market for New Zealand plastic exports and with no large-scale facilities to process them locally, nationwide collaboration will be required to find a long-term solution.

The commodity price of recycled plastic tends to imitate the worldwide price of oil. When oil price is low, recycled plastic tends to be worth little. As a lower grade product compared to virgin oil, it can then be difficult to sell. NB: The price for recyclable steel, tin and aluminium has also fallen dramatically in the last two years.

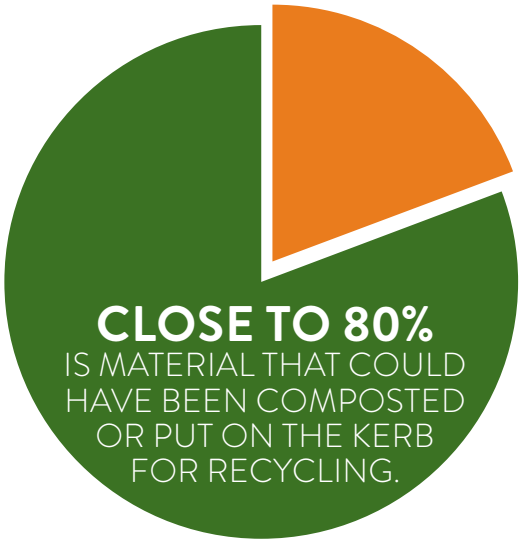
Aside from factors affecting the recycling system, there is potential for the ETS and the New Zealand Waste Disposal Levy to significantly increase, putting financial pressure on landfill disposal and consequently driving up the price of waste services to match, affecting everyone from industry to the householder.

SUMMARY OF KEY ISSUES

Key waste issues for Hastings District and Napier City as highlighted through the Waste Assessment process are as follows:

- Close to 50% of material going to Omarunui Landfill can be composted or recycled.
- The other 50% contains more divertible items such as TVs, batteries, plaster board, other electronic waste, etc.
- Undesirable kitchen and garden waste makes up approximately a third of all waste entering Omarunui Landfill.
- Close to 80% of 'rubbish' coming from householders can be diverted elsewhere.
- Bagged rubbish collection services pose greater safety risks to collectors compared to bins.
- Some residents and businesses are unaware of their waste options as educational and informative campaigns have limited reach.
- Litter, and illegal dumping continue to occur despite fines, enforcement and education.
- A large number of rural residents have little to no access to proper waste disposal.

Of all household kerbside waste going to Omarunui Landfill...



HOW WE WILL ADDRESS ISSUES

Hastings District and Napier City Councils' have agreed on joint goals and objectives as well as an overarching vision for waste in the region. We believe there are improvements to be made to the way waste is managed. Our proposed vision for this Joint WMMP 2018-2024 is:

TO DELIVER WASTE MINIMISATION AND RESOURCE RECOVERY ACROSS HASTINGS DISTRICT AND NAPIER CITY WORKING TOWARDS ZERO WASTE.

This vision seeks to oversee the appropriate management of waste in Hastings District and Napier City, reducing public health risks and promoting a safe and sustainable environment to live in. This vision is supported by the following goals and objectives that will aid local and national waste minimisation, working towards zero waste.

GOAL ONE

REDUCE, RECOVER AND RECYCLE MORE WASTE IN ORDER TO CONTRIBUTE TO THE NEW ZEALAND WASTE STRATEGY GOAL: "REDUCING THE HARMFUL EFFECTS OF WASTE".

Objective 1: To reduce total amount of waste to landfill per person in Napier and Hastings, particularly with regard to organic waste e.g. green waste and food waste.

Objective 2: To increase recovery (identification and removal of items) destined for landfill that can be reused, recovered or recycled.

GOAL TWO

IMPROVE INFORMATION ON WASTE GENERATION AND MOVEMENTS IN NAPIER AND HASTINGS.

Objective 1: To improve the quality of information being collected on waste and recovered materials in Napier and Hastings from both council-contracted and private sector activities

Objective 2: To work towards ensuring the collection and recording of information is consistent in Hastings and Napier, and in line with national information gathering and reporting.

Objective 3: To work towards the collection of business-specific waste and recovery information, in order to collaborate with industry to improve waste minimisation

Objective 4: To share that information with the public in a format that allows residents to measure the success of the waste minimisation and management actions within this plan

GOAL THREE

IMPROVE COMMUNITY AWARENESS ON WASTE AND RECOVERY TRENDS AND KNOWLEDGE AROUND RESOURCE RECOVERY AND DIVERSION POTENTIAL.

Objective 1: To develop a programme which sets out types of waste, the impact of those different types of waste in landfill, and educate people on the reuse and recycling of waste.

Objective 2: To educate and improve community awareness on all products that can be reused or recycled, the ways that can be done, including trends and all opportunities to minimise waste.

Objective 3: To work with businesses – manufacturing/ industrial/retail – on options for recovering, reusing and recycling commercial waste

GOAL FOUR

UTILISE INNOVATIVE AND COST EFFECTIVE WASTE MANAGEMENT AND MINIMISATION APPROACHES.

Objective 1: To continue investigating new alternative waste disposal technologies using cost-benefit analyses, and apply these outcomes where appropriate.

Objective 2: To use the Councils influence to advocate nationally, as described in the WMA, for examples on the responsibilities of importers, manufacturers and retailers for their packaging (Product Stewardship and Priority Products) for waste prevention.

Objective 3: To manage domestic household rubbish collection using technology in a way that encourages waste minimisation and takes into account that there needs to be a fair cost for the user.

Objective 4: To remove barriers to recycling and consider subsidies and/or incentives, recognising that such moves encourage behavioural change.

Objective 5: To engage with iwi on Maori-based initiatives, recognising that this approach may broaden options for encouraging changes in community behaviour.

Objective 6: To investigate forming partnerships with community and industry groups involved in waste recovery, to assist with information gathering and education programmes.

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Relevant strategies and plans

Under legislation, this Joint WMMP must align with Hastings District and Napier City Councils' Long Term Plans (LTPs). The framework for waste management and minimisation in New Zealand is influenced by the following legislation and strategic policy documents:

- Health and Safety at Work Act 2015
- Waste Minimisation Act 2008
- Local Government Act 2002
- The New Zealand Waste Strategy 2010
- Resource Management Act 1991
- New Zealand Emissions Trading Scheme (under the Climate Change Response Act 2002)
- Litter Act 1974
- Health Act 1956
- International agreements and other legislation
- Napier City Council Solid Waste Bylaw 2012
- Hastings District Council Consolidated Bylaw 2016: 10.3 Refuse
- Hawke's Bay Regional Council Regional Resource Management Plan 2006.

Our targets

To measure progress toward achieving our vision to **'deliver waste minimisation and resource recovery across Hastings District and Napier City, working towards zero waste'** the Councils have identified possible targets.

The following targets are to encourage waste diversion from Omarunui Landfill. Being the only Municipal Solid Waste landfill servicing Hastings and Napier, it is the most feasible for local disposal. Therefore we can be reasonably confident that at this stage 'diverted' will not necessarily mean landfilled elsewhere. Tracking diverted material as a percentage of the total waste landfilled gives us the best overall picture of how much material is being diverted for better use. This also removes emphasis on total waste to Omarunui Landfill which has been directly linked to uncontrollable economic trends and population growth.

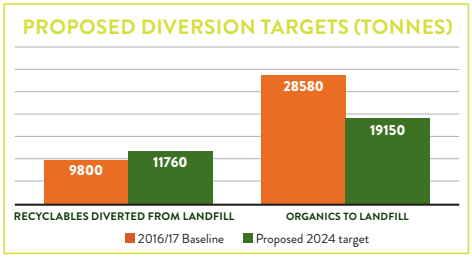
A 2016 study commissioned by Hastings District and Napier City Councils and undertaken by Jacobs Consulting Ltd[4] outlined basic targets for improving diversion across the region:

*"An improvement of **20%** for recycled materials..."*

*"...a reduction by **30%** of kerbside collected landfill material for the inclusion of an organics kerbside collection"*

Based on the 2016 SWAP Survey as well as the tonnage landfilled and recycled for the 2016/17 year, the proposed targets are:

	16/17 BASELINE	PROPOSED 2024 TARGET
20% increase – recyclables diverted	9,800 tonnes	≥ 11,760 tonnes per annum
30% decrease – organics to landfill[5]	28,580 tonnes	≤ 19,150 tonnes per annum



FOR THIS JOINT WMMP, THE COUNCILS HAVE FURTHER DEVELOPED THESE TARGETS AS FOLLOWS:

20% **TOTAL TONNAGE INCREASE** IN COMMON RECYCLABLES DIVERTED FROM OMARUNUI LANDFILL.

30% **TOTAL TONNAGE DECREASE** IN ORGANICS TO OMARUNUI LANDFILL.

[4] Waste Futures: Economic Case, Jacobs Consulting Ltd. (2016)

[5] Overseen by the Councils. Currently, Council-controlled organic waste diversion is only via green waste through transfer stations.

THE ROLE OF THE COUNCILS

As owners of Omarunui Landfill and the three transfer stations, and managers of the kerbside bagged rubbish and recycling collection services, Hastings District and Napier City Councils' believe we can make an effective impact on waste reduction through targeted initiatives. With kerbside waste (bags and wheelie bins) comprising a third of all waste to Omarunui Landfill and half of that being organic waste, this is an area where we can make a difference.

Since the Councils introduced kerbside rubbish collection, various types of bags have been used. At the time of implementation and for many years, this system was economically and environmentally feasible. Since implementation of the first Joint WMMP (2012–2018), the Council-provided kerbside bag system has seen a decrease in popularity as householders make the move to wheelie bins. Bags are also becoming less popular for waste collection as contractors prefer a mechanic pick up for health and safety reasons. Smaller wheelie bins (<240L) encourage waste minimisation and these have been linked with lower waste outputs when the overall collection capacity is reduced, as experienced by Auckland City in 2002. Wheelie bins also provide flexibility in collection contracts and remove single use plastic receptacles for the disposal of waste.

The Councils also provide a kerbside recycling collection with the current contract allowing freedom to present recycling in any chosen container. The impact that the plastic bag phase-out could have on Hastings District and Napier City under this current methodology also indicates that a review is timely.

A primary reason for Council interest in overseeing waste movements is to protect public health where possible. We believe that proposed actions in this Joint WMMP can do this effectively. Waste can contain a vast number of health and safety issues and it is in everyones best interests to manage it appropriately.

EVEN IF CHANGES ARE MADE, COUNCIL CANNOT ACHIEVE THE GOALS AND TARGETS SET IN THIS JOINT WMMP ALONE. SUCCESS WILL COME FROM THE COUNCILS AND COMMUNITY WORKING TOGETHER AND TAKING RESPONSIBILITY TO BETTER MANAGE WASTE.

The Councils' proposed roles in this change are explained in the following Part B – Action Plan.

PART B THE ACTION PLAN

This Action Plan outlines a six-year programme to achieve the vision and targets presented in Part A.

This Joint WMMP will be reviewed at least every six years with a required supplementary Waste Assessment. This includes the funding structure, aspects of which may be updated as part of the Councils annual and long-term plans following the public consultation required by the LGA 2002.

This Action Plan has been written to meet the requirements of the WMA and the LGA 2002 by including all practicable options to achieve the Councils waste minimisation objectives. The original action points have been amended based on the 6,165 submissions received during the public consultation of the draft version of the plan. These points have been assessed in terms of their future social, economic, environmental and cultural impacts on the well-being of the region and its residents.

The actions on the following pages are proposed to address the key issues listed in Part A as effectively as possible, whilst adhering to appropriate legislation and prioritising the Waste Hierarchy. These steps will improve the sustainability of Hastings and Napier through reducing the harmful effects of waste and improving resource-use efficiency.

Though a single plan is unlikely to provide a total solution to the effective management of solid waste, this Joint WMMP aims to lay the guidelines for residents of Napier and Hastings to become more resourceful and aware of the implications of unnecessary landfilling.

The Councils believe that the issues highlighted in the submissions can be suitably addressed with them taking a more active role in waste management, starting at the kerbside.

Since implementation of the previous Joint WMMP, a significant portion of households across Napier and Hastings have made the move to using kerbside wheelie bins. Under the current system, large bins for rubbish allow for flexibility with collection type and frequency. However they provide little opportunity to encourage greater waste diversion.

Furthermore, while there are ways to address this such as stricter regulation on accepted materials in bins, Hastings District and Napier City Councils' believe it is first necessary to explore other solutions, particularly considering that the waste received at the kerbside is responsible for about 36% of Omarunui Landfill's annual total.

WE BELIEVE THAT THE **75% ORGANIC AND RECYCLABLE** MATERIAL IN WHEELIE BINS **SHOULD NOT GO TO OMARUNUI LANDFILL**

THE IDEA IS TO DIVERT AS MUCH WASTE AS POSSIBLE FROM OMARUNUI. THE COUNCILS ALSO BELIEVE THAT LOCAL BUSINESSES AND INDUSTRIES HAVE AN OPPORTUNITY AND RESPONSIBILITY TO MANAGE WASTE APPROPRIATELY. WE PROPOSE TO BETTER COMMUNICATE THE SERVICES AVAILABLE TO LOCAL ORGANISATIONS, PROVIDING MORE EDUCATION AROUND IMPROVED WASTE PRACTICES.

FUNDING

There are various options available to the Hastings District and Napier City Councils to fund the waste management and minimisation activities identified in this action plan. This section details the funding options for the initiatives proposed.

At the time of writing, a Waste Disposal Levy of $10 per tonne (excluding GST) was applied to all waste sent to landfill as introduced under the WMA. Landfill operators must pay the levy based on the weight of material disposed of. However they may choose to pass this cost on to the waste producer such as households and businesses.

The levy encourages New Zealanders to start taking responsibility for the waste they produce and to find more effective and efficient ways to reduce, reuse, recycle or reprocess waste. It also creates funding opportunities for waste minimisation initiatives

Half of the levy money goes to territorial authorities (city and district councils) to spend on promoting or achieving the waste minimisation activities set out in their WMMPs. The remaining levy money (minus administration costs) is put into the WMF. The fund is for waste minimisation activities in New Zealand.

Possible Funding Options for proposed actions

SERVICE	CONTRACTOR /MANAGER
WASTE DISPOSAL LEVY FUNDS	These are the funds paid to Hastings District and Napier City Council under the WMA to spend on promoting and achieving waste minimisation activities as required in the Joint WMMP.
LOCAL WASTE LEVY (POSSIBLE NEW FUND)	Revenue raised from a locally-applied levy at Council owned facilities to fund further waste diversion initiatives, as prescribed under Section 46 of WMA.
USER PAYS	The user pays for the cost of the service directly, e.g. refuse transfer station charges.
RATES	The general rate funds the majority of the Councils' expenditure. It is based upon the land value of property and is calculated based on a system of differential rating. A targeted rate set on each separately used or inhabited part of a rating unit based on the provision or availability to the land of the service, i.e. kerbside rubbish and recycling collections.
INTERNAL OPERATIONAL BUDGET	The operational budgets that Hastings District and Napier City Council fund some existing services and operations with.
WASTE MINIMISATION FUND	A national fund to which organisations can apply for funding for waste minimisation activities in New Zealand.
OMARUNUI DEVELOPMENT BUDGET	The budget used to fund future expansion and development at Omarunui Landfill.

The current waste services (such as the Hastings rural recycling depots and the Hastings and Napier illegal dumping clean-ups), are funded by a combination of rates and user pays (Redclyffe and Henderson Road refuse transfer stations), and the New Zealand Waste Disposal Levy which provides funding for various educational and infrastructure services.

There is also the opportunity for Hastings District and Napier City Councils' to apply for the contestable WMF to assist with specific projects which encourage waste minimisation.

THE FOLLOWING PAGES OUTLINE KEY ACTIONS WHICH THE COUNCILS BELIEVE WILL CONTRIBUTE APPROPRIATELY TO ACHIEVING THE VISION.

ACTION PLAN

Hastings District and Napier City Council believe the following waste practices align appropriately with the vision to "*deliver waste minimisation and resource recovery across Hastings District and Napier City, working towards zero waste*" while promoting sustainable public health and environmental protection.

The following table covers the actions we propose to take to do so.

	ACTION	EXISTING, ENHANCED OR NEW	IMPLEMENTATION/ TIMEFRAME: YEARS	RELATION TO THE WASTE HIERARCHY	PROPOSED FUNDING SOURCE	GOAL OBJECTIVE REFERENCE
1. KERBSIDE RUBBISH COLLECTION						
A	Enhance existing Council-provided kerbside rubbish service by: Providing urban households with a weekly-collected 80L wheelie bin for rubbish and ability to collect property specific data.	ENHANCED	Implemented with tendering of new kerbside collections.	DISPOSAL: Reducing harmful effects of waste	RATES	Goal One Objective 1 Goal Two Objective 1 Goal Four Objective 3
B	Expand Council kerbside rubbish collection to incorporate new developments and possibly include semi-urban properties.	ENHANCED	Implemented with tendering of new kerbside collections.	DISPOSAL: Reducing harmful effects of waste	RATES	Goal Four Objective 3
C	Consider the appetite for enhancing kerbside rubbish services in the non-residential areas and investigate options in zones where appropriate.	NEW	Implemented with tendering of new kerbside collections contracts.	DISPOSAL: Reducing harmful effects of waste	RATES/USER PAYS	Goal One Objective 2 Goal Three Objective 3
D	Implement through service collection agreements and existing contracts an alternative collection system in zones where appropriate.	EXISTING	Implemented with tendering of new kerbside collections.	DISPOSAL: Reducing harmful effects of waste	RATES	Goal Four Objective 3
E	Investigate rubbish collection options for multi-unit dwellings and differences in services e.g. on property service.	NEW	2018-2024	DISPOSAL: Reducing harmful effects of waste	TO BE INVESTIGATED	Goal Four Objective 3
F	Investigate options for other funding methods e.g. pay per lift, user pays.	NEW	2018-2024	DISPOSAL: Reducing harmful effects of waste	TO BE INVESTIGATED	Goal Four Objective 3
G	Investigate options to allow for properties not serviced, to utilise a local drop off facility for waste.	NEW	2018-2024	DISPOSAL: Reducing harmful effects of waste	TO BE INVESTIGATED	Goal One Objective 2

	ACTION	EXISTING, ENHANCED OR NEW	IMPLEMENTATION/ TIMEFRAME: YEARS	RELATION TO THE WASTE HIERARCHY	PROPOSED FUNDING SOURCE	GOAL OBJECTIVE REFERENCE
2. KERBSIDE RECYCLING COLLECTION						
A	Enhance the existing council provided recycling kerbside collection by providing all households a receptacle(s) that is collected weekly that meets resident needs and flexibility while maintaining integrity of product.	ENHANCED	Implemented with tendering of new kerbside collections.	RECYCLING: Improving efficiency of resource use	RATES	Goal One Objective 2 Goal Four Objective 4
B	Expand Council kerbside recycling collection to incorporate new developments and semi-urban households.	NEW	Implemented with tendering of new kerbside collections.	RECYCLING: Improving efficiency of resource use	RATES	Goal One Objective 2 Goal Four Objective 4
C	Consider the desire for enhancing kerbside recycling services in non-residential areas via specific consultation.	NEW	Implemented with tendering of new kerbside collections.	RECYCLING: Improving efficiency of resource use	RATES	Goal One Objective 2 Goal Three Objective 3
D	Investigate recycling options for multi-unit dwellings.	NEW	2018-2024	RECYCLING: Improving efficiency of resource use	TO BE INVESTIGATED	Goal One Objective 2
E	Use regulation to control excess producers of recycling.	NEW	2018-2024	RECYCLING: Improving efficiency of resource use.	TO BE INVESTIGATED	Goal Three Objective 2
3. ORGANIC WASTE						
A	Investigate funding existing organic waste collection/processing models.	NEW	2018-2024	REDUCTION: Improving efficiency of resource use	TO BE INVESTIGATED	Goal Three Objective 2
B	Continue to provide green waste disposal at transfer stations and investigate pricing model opportunities.	EXISTING	On-going	REDUCTION: Improving efficiency of resource use	USER PAYS	Goal One Objective 2
C	Investigate organic waste disposal options for multi-unit dwellings.	NEW	2018-2024	REDUCTION: Improving efficiency of resource use	TO BE INVESTIGATED	Goal One Objective 2
D	Investigate and monitor behavioural change in processing green waste at household level.	NEW	On-going	REDUCTION: Improving efficiency of resource use.	USER PAYS	Goal Two Objective 4
E	Facilitate a conversation with private operators/contractors to coordinate establishment of a working group with the aim to increase the diversion of green waste from the general waste stream	NEW	2018-2024	REDUCTION: Improving efficiency of resource use.	TO BE INVESTIGATED	Goal Four Objective 6

	ACTION	EXISTING, ENHANCED OR NEW	IMPLEMENTATION/ TIMEFRAME: YEARS	RELATION TO THE WASTE HIERARCHY	PROPOSED FUNDING SOURCE	GOAL OBJECTIVE REFERENCE
4. FACILITIES						
A	Review price structure at refuse transfer stations. Investigate imposing a local waste minimisation levy at facilities (Waste Minimisation Act 2008; Section 46[2]).	NEW	2018-2020	REUSE: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	Goal One Objective 1
B	Continue to provide access to Henderson Road refuse transfer station resource recovery shop and investigate opportunities to enhance and develop resource recovery site.	EXISTING	On-going	REUSE: Improving efficiency of resource use	USER PAYS/ LOCAL WASTE LEVY	Goal One Objective 1 & 2
C	Investigate the location and operation of the refuse transfer stations. Optimise and enhance diversion and expand recycling/ compost facilities.	EXISTING	2018-2020	REDUCTION: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	Goal One Objective 1 & 2
D	Investigate communal green waste compost drop off dedicated areas in the community.	NEW	2019-2020	REDUCTION: Improving efficiency of resource use.	INTERNAL OPERATIONAL BUDGET	Goal One Objective 2
E	Expand recycling drop off stations to communities where feasible.	EXISTING/NEW	2018-2024	RECYCLING: Improving efficiency of resource use.	WASTE DISPOSAL LEVY FUNDS	Goal One Objective 2
5. PLANNING CONTROLS						
A	Review and align Hastings District and Napier City Councils' bylaws and planning controls to enact the Joint WMMP.	NEW	Completed prior to tendering & implementation of new kerbside collections.	REDUCTION: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	Goal One Objective 1 Goal Two Objective 3
6. DIVERSION INITIATIVES (OF RESIDUAL WASTE FROM LANDFILL)						
A	Continue to support local and national Product Stewardship campaigns.	EXISTING	On-going	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Four Objective 2
B	Continue to lobby central government for problematic materials.	EXISTING	On-going	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Four Objective 2
C	Establish (and manage) a joint contestable fund to provide seeding grants for new local waste minimisation initiatives.	NEW	2018-2019	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Four Objective 4
D	Provide grants for local individual and/or joint waste minimisation initiatives where there is measurable diversion from landfill.	EXISTING	On-going	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Four Objective 4

	ACTION	EXISTING, ENHANCED OR NEW	IMPLEMENTATION/ TIMEFRAME: YEARS	RELATION TO THE WASTE HIERARCHY	PROPOSED FUNDING SOURCE	GOAL OBJECTIVE REFERENCE
E	Provide guidance to business and industry so they may: a) Prioritise and achieve waste reduction and resource efficiency of waste. b) Implement planning controls and/or mechanisms that align with the Joint WMMP vision.	NEW	On-going	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Three Objective 3
F	Continue to research emerging opportunities and innovation for reduction, treatment and disposal of residual waste.	EXISTING	On-going	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Four Objective 1
G	Review and where appropriate enhance existing public recycling and litter bin services.	EXISTING	2018-2020	RECYCLING: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal One Objective 2
H	Support Hawke's Bay healthcare establishments in practical waste management in line with NZ standard, A304:2002 – Management of Healthcare Waste.	NEW	On-going	RECYCLING: Improving efficiency of resource use	LOCAL WASTE LEVY	Goal Four Objective 6 Goal Three Objective 3
I	Collaborate with Hawke's Bay Regional Council and local industry to support hazardous chemical management initiatives.	NEW	On-going	RECYCLING: Improving efficiency of resource use	USER PAYS/ WASTE DISPOSAL LEVY FUNDS	Goal One Objective 2
J	Introduce user-pays electronic waste (E-waste) drop-off and recycling services at refuse transfer stations to cover shipping and dismantling costs.	NEW/ EXISTING	2018-2020	RECYCLING: Improving efficiency of resource use	USER PAYS/ WASTE DISPOSAL LEVY FUNDS	Goal One Objective 2
K	Continue to investigate local, national and international market options for difficult-to-recycle materials.	EXISTING	On-going	RECYCLING: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	Goal One Objective 2 Goal Four Objective 1
L	Advocate, enable and support zero waste events	NEW	2018-2020	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal One Objective 1 & 2
M	Acknowledge, recognise and reward to incentivise waste minimisation positive behaviour across the community.	NEW	2018-2020	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Four Objective 4
N	Support and facilitate local community driven initiatives including trials and pilots.	NEW	2018-2020	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Four Objective 4

	ACTION	EXISTING, ENHANCED OR NEW	IMPLEMENTATION/ TIMEFRAME: YEARS	RELATION TO THE WASTE HIERARCHY	PROPOSED FUNDING SOURCE	GOAL OBJECTIVE REFERENCE
7. EDUCATION						
A	Empower residents, service users and communities to prioritise (and increase) efforts regarding waste reduction, resource recovery and work towards zero waste via a consistent education programme across Napier City and Hastings District. Expand further across Hawke's Bay where practicable.	NEW	On-going	REDUCTION: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	Goal Three Objective 1-3
B	Partner and build relationships to enable stakeholders. Collaboration and innovation with reference to the Joint WMMP submission process.	NEW	On-going	REDUCTION: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	Goal Four Objective 6
C	Foster and grow coordinated leadership in the waste minimisation movement across the region.	NEW	2018 - 2020	REDUCTION: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	Goal Four Objective 6
D	Continue to support programmes like Para Kore (zero waste).	NEW	2018 - 2020	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Four Objective 5
8. LANDFILL						
A	Investigate the introduction of material-specific pricing at Omarunui Landfill.	NEW	2018-2019	REDUCTION: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	Goal One Objective 1
B	Review Construction and Demolition (C&D) waste area at Omarunui Landfill with a view to encourage sorting and/or diversion.	EXISTING	2018	TREATMENT: Reducing harmful effects of waste	INTERNAL OPERATIONAL BUDGET	Goal One Objective 1
C	Investigate imposing a local waste minimisation levy at facilities (Waste Minimisation Act 2008; Section 46[2]).	NEW	2018-2019	TREATMENT: Reducing harmful effects of waste	INTERNAL OPERATIONAL BUDGET	Goal One Objective 1
D	Continue to monitor, manage, maintain and report on closed landfills to ensure that consent conditions are met. Ensure that up to date business continuity plans are in place.	EXISTING	On-going	TREATMENT: Reducing harmful effects of waste	INTERNAL OPERATIONAL BUDGET	Goal One Objective 1
E	Develop and maintain a business continuity plan where mass disposal of material at Omarunui Landfill may be required following a significant event.	NEW	2018-2019	DISPOSAL: Reducing harmful effects of waste	INTERNAL OPERATIONAL BUDGET	Goal One Objective 1
F	Develop Omarunui Landfill for future residual waste disposal.	NEW	On-going	DISPOSAL: Reducing harmful effects of waste	OMARUNUI DEVELOPMENT BUDGET	Goal One Objective 1

	ACTION	EXISTING, ENHANCED OR NEW	IMPLEMENTATION/ TIMEFRAME: YEARS	RELATION TO THE WASTE HIERARCHY	PROPOSED FUNDING SOURCE	GOAL OBJECTIVE REFERENCE
9. JOINT SERVICES						
A	Increase consistency of waste services and key messaging across Hastings and Napier areas via development of a joint waste team and brand with a supplementary interactive website in line with LGA (2002), section 17A review.	NEW	2018-1019	REDUCTION: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	Goal One Objective 1 & 2 Goal Four Objective 4
B	Continue to participate in regional and further afield meetings with solid waste experts from other Councils, taking the opportunity for project collaboration where feasible.	EXISTING	On-going	REDUCTION: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	Goal Four Objective 1
10. MONITORING, REPORTING AND EVALUATION						
A	Investigate methods to increase relevant data capture in line with the national Waste Data Framework. This could include waste from areas such as commercial waste composition, cleanfill, C&D waste movements etc.	NEW	On-going	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Two Objective 2
B	Undertake regular evaluation of the waste-reduction performance of all initiatives that comprise the adopted Joint WMMP and take appropriate action.	NEW	On-going	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Two Objective 4
C	Evaluate changes in social behaviour that may arise from initiatives in this Joint WMMP and recommend taking action accordingly.	NEW	On-going	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Two Objective 1-4
D	Prepare for the next Joint WMMP by gathering data through waste surveys and weighbridge software at Council-owned sites, and preparing a new waste assessment as deemed appropriate.	NEW	2022-24	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS	Goal Two Objective 1-3
E	Continue to undertake a solid waste survey of waste in Hastings District and Napier City at least every three years.	EXISTING	On-going	REDUCTION: Improving efficiency of resource use	WASTE DISPOSAL LEVY FUNDS INTERNAL OPERATIONAL BUDGET	Goal Two Objective 1-2
11. RESOURCING						
A	Appropriate resourcing is provided to meet/deliver the objectives of the Joint WMMP and community expectations.	NEW	On-going	REDUCTION: Improving efficiency of resource use	INTERNAL OPERATIONAL BUDGET	All Goals and Objectives


PART C BACKGROUND INFORMATION
HASTINGS DISTRICT COUNCIL
NAPIER CITY COUNCIL
Te Kaunihera o Ahuriri
JOINT WASTE MANAGEMENT AND MINIMISATION PLAN 2018-2024 HASTINGS DISTRICT COUNCIL/NAPIER CITY COUNCIL // 29

APPENDIX 1

Definitions and Abbreviations

BIOSOLIDS	The semi liquid residue from sewage treatment plants, septic tanks and the processing of organic materials.
CBD	Central Business District.
CLASS A LANDFILL	A landfill engineered to contain leachate and capture gases.
CLEANFILL	A cleanfill accepts only material that will have no adverse environmental effect on people or the environment when buried.
COMMERCIAL WASTE	Waste collected from commercial businesses/operations. Excludes industrial and agricultural waste.
COMMERCIAL AND INDUSTRIAL WASTE (C&I)	Waste from commercial businesses/ operations including factories and industrial plants.
COMMODITY PRICE	The price associated with the purchase or sale of a material/product.
COMPOSTABLE	Material that can be decomposed by microbes in the composting process.
CONSTRUCTION AND DEMOLITION WASTE (C&D)	Waste arising from the construction and/or demolition of buildings.
COST BENEFIT ANALYSIS	A systematic approach to estimate the strengths and weaknesses of alternatives, when determining options that provide the best approach to achieve benefits when compared to costs.
DIVERTED	Any material which is intended for landfill but is taken elsewhere to be used more resourcefully.
DIVERTIBLE	Any material destined to be landfilled but that has a potential to be used as a resource elsewhere.
ELECTRONIC WASTE (E-WASTE)	End-of-life electronic appliances. The majority of e-waste can be diverted and dismantled to retrieve precious metals inside.
ETS	Emissions Trading Scheme.
FOOD WASTE	Kitchen waste that can be decomposed biologically, including everything from fruit and vegetable scraps to meat bones.
GREEN WASTE/ GARDEN WASTE	Biodegradable plant waste. Includes lawn clippings, tree trimmings, and green plant matter. Does not include tree stumps or big logs.
HDC	Hastings District Council.
HDPE	High Density Polyethylene.
HAZARDOUS WASTE	Liquid or solid chemical-based products which pose potential threat to people or the environment. Very broad and ranges from batteries to paint to waste oil.
ILLEGAL DUMPING	Waste disposed of intentionally where it does not belong, where it is unsightly and can cause environmental damage.
LANDFILL GAS (METHANE)	Gas generated as a result of the decomposition processes on biodegradable materials deposited in a landfill. It consists principally of methane and carbon dioxide, but includes minor amounts of other components.
LEACHATE	Liquid that, in passing through waste, extracts solutes, suspended solids or any other component of the waste material through which it has passed. This includes liquid included in the waste as received and that drains as a result of waste compression, or the ongoing breakdown of organic matter.
LGA	Local Government Act 2002. The defining Act stating the purpose of local government in New Zealand.
LTP	Long Term Plan. Every Council is required to produce an LTP every three years stating its purpose and focus for long term planning.
MSW	Municipal Solid Waste.
NCC	Napier City Council.
NEW ZEALAND WASTE DISPOSAL LEVY	A levy of $10 per tonne (excluding GST) on all waste sent to landfill. The levy was introduced under the Waste Minimisation Act 2008. The levy encourages New Zealanders to start taking responsibility for the waste they produce and to find more effective and efficient ways to reduce, reuse, recycle or reprocess waste.

NZWS	New Zealand Waste Strategy.
ORGANIC WASTE	A combination of green waste and food waste. Organic waste comprises anything that is straightforward to compost/has a high organic content.
PET	Polyethylene.
PP	Polypropylene.
PRIORITY PRODUCTS	Under the Waste Minimisation Act (WMA), a product may be declared a priority product by the Minister for the Environment. This means that a product stewardship scheme for the defined product must be developed and accredited as soon as practicable after declaration.
PRIVATE WASTE COLLECTOR	Privately owned commercial business that collects and transports waste, recycling and/or organic waste to various facilities. Most Hawke's Bay private waste collectors also offer wheelie bins to households.

PRODUCT STEWARDSHIP	An Environmental Management strategy which requires manufacturers/ sellers of a product to take financial responsibility for end of life management, for example, recycling, dismantling or disposing of said product.
RECYCLING	The process of taking most or all of a material and converting into a re-useable product.
RECYCLABLES	Products which are commonly recycled including glass bottles and jars, tin and aluminium cans, paper, cardboard, and some plastic containers.
REFUSE	Another name for rubbish.
RESIDUAL WASTE	Material left over after treatment (such as removing the recyclables or compostables).
SOFT PLASTICS	Thin plastic packaging materials that can be scrunched into a ball in your hand. Often single-use before needing to be disposed of.
SWAP	Solid Waste Analysis Protocol. The process of auditing waste from households and/or businesses.

USER PAYS	Consumer pays for the cost of the service. For example, Transfer Station charges – amount charged depends on weight.
WA	Waste Assessment.
WASTE HIERARCHY	The philosophy that prioritizes waste reduction, reuse, recycling, recovering, and treatment in that order before disposal of waste in Omarunui Landfill as a last resort.
WMA	Waste Minimisation Act 2008.
WMF	Waste Minimisation Fund.
WMMP	Waste Management and Minimisation Plan.

APPENDIX 2
Waste Assessment Jacobs Consulting Ltd.

APPENDIX 3
Waste Assessment Morrison Low, Napier & Hastings

APPENDIX 4
Waste Assessment Supplementary Waste Assessment Paper, Napier City Council

APPENDIX 5
Medical Officer of Health Submission

APPENDIX 6
Waste Futures, Jacobs Consulting Ltd.

APPENDIX 7
Survey of Solid Waste in Hawke's Bay (SWAP) 2016, Waste Not Consulting

Due to the size of these documents, electronic copies are available on Hastings District and Napier City Councils' websites, or via request.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JOINT WASTE MANAGEMENT AND MINIMISATION PLAN 2018-2024 HASTINGS DISTRICT COUNCIL/NAPIER CITY COUNCIL // 35


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Local Area Plans Programme Overview (Parent Document)

1.0 Introduction

The Local Area Plans programme (LAPP) forms an integral part of the comprehensive work programme for growth management, which has been established by Council in response to the significant population growth within the Hastings District over the last decade. This growth is predicted to continue into the foreseeable future, with Statistics New Zealand projecting that the population of the Hastings District will increase by over 21,500 people by 2048[1].

This document introduces the LAPP, being an extension to the existing Medium Density Housing Strategy 2014 (MDHS). Specifically, this document defines the vision, purpose, and structure of the programme. It details what a Local Area Plan is, what these plans seek to achieve within the context of Hastings District; and situates this programme amongst the other future growth work programmes that are currently occurring.

1.1 The vision and objectives of the Local Area Plans Programme

The programme itself was identified in the 2022 Addendum to the MDHS as '*critical to delivery of an effective place-based delivery of medium density housing*'. As such, it was subsequently recommended as a key action to be progressed, with work commencing on the design of the LAPP in early 2023.

As an extension to the MDHS, the vision of the LAPP is:

> *To create vibrant, well-functioning urban environments that meet community aspirations, through adopting a centres-based approach to implementing medium-density residential development, ensuring alignment of above and below ground infrastructure to support sustainable population growth.*

The above vision is supported by the following four objectives that will guide the delivery of the LAPP across the two phases:

Objective 1

To determine an appropriate methodology for identifying areas that are 'most appropriate' to accommodate residential intensification in the first instance, along with their extents.

Objective 2

Within each of the defined areas, provide a 'snapshot' of the existing above and below ground infrastructure networks relevant to each area. This will comprise the basis of a community engagement draft, detailing how these may impact the uptake rate and development of medium density housing, along with identification of opportunities for improvement.

Objective 3

To meaningfully inform and engage with the communities within each of the defined local areas, to understand their aspirations regarding growth through intensification, and to understand opportunities for betterment within each community – such as improved connectivity or accessibility.

Objective 4

To actively encourage uptake of residential intensification in conjunction with implementing betterment opportunities that are identified from community engagement and development of each Local Area Plan.

[1] Future Development Strategy Draft, Section 5.2, pg. 16

1.2 What is a Local Area Plan?

A Local Area Plan (LAP) is a place-based plan that provides an integrated overview of the various planning, infrastructure, amenity, and community inputs within a defined area and how this supports implementation of residential intensification. These plans serve a similar purpose for brownfield development areas as structure plans do in greenfield areas - ensuring infrastructure, amenity and land-use planning are integrated, to ensure that establishment of medium density housing is suitably supported. The intended result is that overtime, the intensification of residential development results in a well-functioning urban environment that people and communities enjoy living in.

LAP's acknowledge that increasing populations within existing urban environments requires strategic planning along with improvements to the existing infrastructure over time, to ensure that people will still be able to move around efficiently and have access to necessary amenities within their communities.

Specifically, LAP's will be prepared through engagement with the community and will provide a place-based plan to guide future development, urban design, and investment. Each LAP will consider matters such as existing transport and accessibility, land uses and zoning, character and amenity, sites of significance, open space and environment, infrastructure, and natural hazards.

The LAPs are to be applied in areas that have been identified as the 'most appropriate' to support intensification of residential development. This identification process is the initial stage of the LAP Programme, with the formulation of a methodology drawing on the previous design and strategic work that has previously been undertaken to identify the 'most appropriate' areas.

Where possible, proposed Plan Change 5 – *Right Homes, Right Place* to the District Plan has been aligned within these identified medium-density neighbourhoods, however subsequent changes to existing land zonings will occur over time, in response to identified demand and/or needs.

Where are we applying Local Area Plans?

2.0 Identification of 'Local Areas' within the existing Hastings Urban Environment

The initial workstream of the LAPP has been to build on previous design work, to identify where to apply Local Area Plans, essentially determining where the 'most appropriate' areas to accommodate medium density housing are within the existing Hastings urban environments – being Hastings Central, Flaxmere and Havelock North.

The first stage of this workstream involved a review of the previous design work undertaken as part existing/ foundational strategy documents from 2007 - 2014. These documents are:

- *Heretaunga Plains Urban Development Strategy 2010 and 2017*
- *Hastings Urban Issues and Urban Design Framework 2010*
- *Hastings Medium Density Housing Strategy – Stages 1 (2013) & 2 (2014).*
- *Flaxmere Town Centre Urban Design Framework 2007*
- *Havelock North Village Centre: Framework for Future Development 2008.*

Specifically, the 2010 Urban Issues and Design Framework identified '*targeted areas with strong existing or future potential amenity and liveability*' as suitable to support increased residential intensification, and included:

Priority 1:	Priority 2:
(1) Hastings CBD; (2) Mahora; (3) Along Heretaunga Street East;	(1) Mayfair; (2) Raureka; (3) Frimley.

The 2010 design work was followed by the preparation of the Hastings Medium Density Housing Strategy – Stage 1 (2013), and Stage 2 (2014) which sought to '*promote housing intensification that is appropriate in size, scale, and character for Hastings'*.

As part of the actions already undertaken to implement the above strategies, a plan change in 2015 to establish the City Living Zone across the 'priority 1' areas of Heretaunga Street East and Mahora was completed. This plan change also sought to define the activity of Comprehensive Residential Development and was supported by the preparation of the *Hastings Residential Intensification Design Guide.* However, in the 10 years that have subsequently elapsed, uptake of the intensification opportunity has been modest and generally not located within the extents of the identified City Living zone. In particular the 2022 Medium Density Housing Review noted[2]:

> *The City Living Zone and CRD provisions largely stand alone as a delivery tool and are not clearly supported by broader spatial planning of the neighbourhood in terms of location, infrastructure, and connectivity.*

And as such, recommended that LAPs be prepared to ensure that the required above and below ground infrastructure inputs were aligned, and that the local communities were informed regarding implementation of medium density housing.

3.0 Methodology for application of the Local Area Plan Areas

The methodology for determining LAP areas has built on the existing design work, particularly the 'host neighbourhoods' detailed within Stage 2 of the Medium Density Housing Strategy. Using these existing areas as a starting point and then applying the latest criteria detailed under the National Policy Statement on Urban Development (NPS: UD) sought to determine the answers to two main questions:

- Whether these local areas remain the most appropriate to accommodate medium density housing in light of new criteria specified under new national policy statements; and
- How much residential intensification are we seeking to achieve/ provide for.

3.1 A Centre's Approach

The NPS: UD introduced taking a centre's approach to the introduction of residential intensification, to ensure that regional policy statements and district plans enable more people to live in, and more businesses and community services to be located in, areas of an urban environment which are within or near a centre zone (being areas with many employment opportunities).

In terms of Hastings, there are two main centre/s, the first being the Central Business District comprising the (circa) 60ha bounded by Nelson, St Aubyn, Hastings, and Southampton Streets; and has included the extensions afforded by Commercial Service zone along Heretaunga Street West and the Large Format Retail and Commercial Service zones along Karamu Road North. The Mahora Local Shops have also been included as part of this 'centre', as this group of local shops currently provides a

[2] Medium Density Housing Strategy 2022 Addendum pg. 48

higher level of service than other suburban commercial locales within Hastings Central.

A further 'employment hub of significance' has been identified as the Hawke's Bay Fallen Soldier's Memorial Hospital, combined with the adjacent site that is occupied by the (private) Kaweka Health Hospital. Therefore, these sites in combination have also been identified as a centre for the purposes of anchoring a fourth Local Area Plan. The extent of the center's as applicable within Hastings Central is provided below (and shown at scale in **Appendix 1**):

Identified Centre/s within Hastings.

The initial phase of the LAPP does not yet include Havelock North and Flaxmere, however it is envisaged that the Havelock North Village Centre and the Flaxmere Town Centre would form the centre for the purposes of applying a Local Area Plan to each of these satellite areas once the Local Area Plans applicable to Hastings Central have been adopted by Council.

3.2 Geographic Extent/ Scale of Local Area Plans.

From the identified centre/s, the next step is to define an appropriate geographical extent for each of the individual LAPs. This is a critical step, as the geographic extent of a LAP will also determine the community for engagement when seeking to identify their aspirations for growth across the short, medium, and long-term.

Acknowledging the first objective of the NPS: UD, that *New Zealand has well-functioning urban environments that enable all people and communities to provide for their social, economic, and cultural*

wellbeing, and for their health and safety, now and into the future. Two key components of a well-functioning urban environment include:

- there is good accessibility for all people between housing, jobs, community services, natural spaces, and open spaces, ***including by way of public or active transport***; and
- that the location of housing ***supports reductions in greenhouse gas emissions***.

[emphasis added]

The Ministry for the Environment (MfE) has provided guidance for implementing the intensification provisions of the NPS: UD, and how to measure accessibility[3]. Specifically, *accessibility defines people's ability to reach desired services and activities……assessment typically examines the time, cost, and amenity of accessing services and activities.*

The intent and rationale of intensification policies seek to modify the existing, low density urban forms as *'enabling higher-density development in locations with good access and amenity means people can live close to where they work, learn, shop, or connect with friends and family. Such options let residents avoid congestion and long commute times. Business can also access more potential workers, customers, and other businesses"[4].*

The intensification of residential development has a role in climate change mitigation, particularly through reducing vehicle trips/ emissions where intensification is concentrated within a 'walkable catchment' of the centre. The 'walkable catchment' approach to intensification introduces a realistic option for people to choose to opt for active transport modes in lieu of private vehicles when accessing employment and services, some of the time.

Waka Kotahi NZ Transport Agency provides guidance for 'walkable catchments' in terms of distances, with the general guide being:

Walking Distance (metres)	Walking Time (minutes)
400	5
800	10
1200	15

With 2km (25 minutes) being the maximum defined distance for a trip where it is a realistic expectation for a person to adopt walking as their mode of transport[5]. The limitation of this measure is that it does not include an assessment of the 'walkability' of the catchment (being the ease by which pedestrians can move around). With the 'walkability' of a catchment improving, so too does the distances able to be travelled, therefore 'walkable catchments' do not have fixed boundaries.

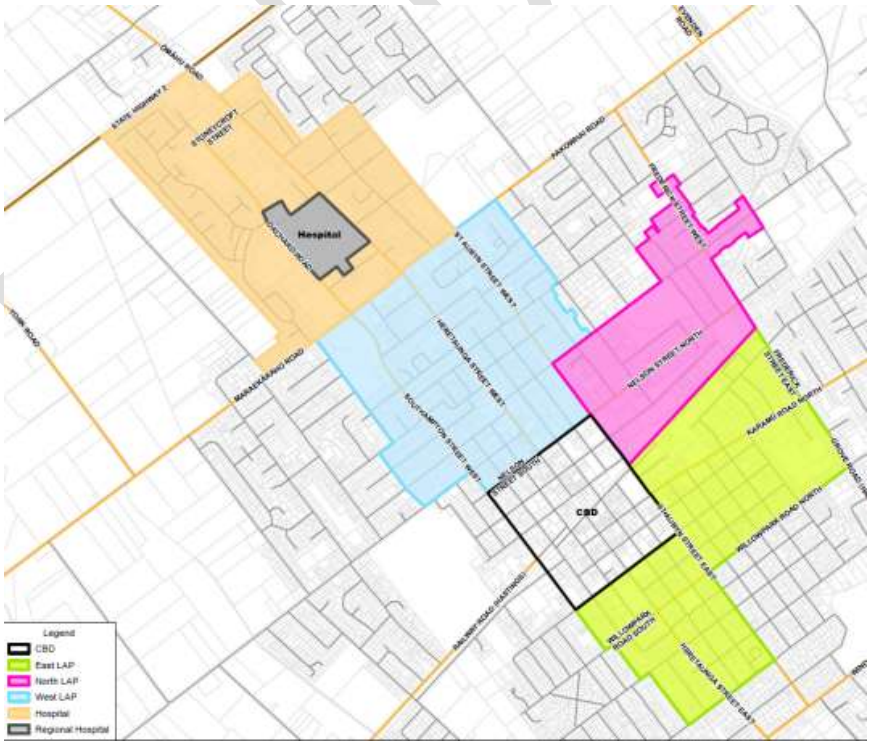
In the Hastings context, the extent of the existing urban area surrounding the CBD comprises a general area of 5km x 3km. In terms of defining an appropriate geographic extent for a Local Area Plan, which then influences the extent of the Medium Density Residential zone within the District Plan, the **400m/5-minute walkable catchment** is optimal, up to a maximum extent of 600m/8-minute walkable catchment where necessary to align with natural or road boundaries.

[3] Ministry for Environment *Understanding and implementing intensification provisions for the NPS on urban development accessibility reference* – Chapter 5.4 Measuring Accessibility.
[4] Ibid
[5] 90% of all walking trips are less than 2km Waka Kotahi '*Walking activity and trends in New Zealand*' https://nzta.govt.nz/walking-cycling-and-public-transport/walking/walking-standards-and-guidelines/pedestrian-network-guidance/walking-in-new-zealand/walking-activity-and-trends-in-new-zealand/

3.3 Local Area Plans vs Host Neighbourhoods

As an extension to the existing MDHS, the LAPP takes a broader look at the various inputs required to facilitate uptake of the opportunities for medium density housing. These include the proximity of a particular area to a range of services and employment opportunities, the existing land uses within the area, as well as the current availability of amenities. A key point of difference for the LAPs is the introduction of contiguous land areas/ extents of zoning, rather than identification of specific re-development sites. This approach provides a greater degree of efficiency for infrastructure delivery, as well as concentration of medium density housing typologies. This provides a greater signal for both residents and development community in terms of where it is 'most appropriate' to locate residential intensification and provides areas of focus for maintenance of and improvements to above and below ground infrastructure inputs.

The above 400m/5-minute walkable catchment from the centre includes the former 'priority 1' host neighbourhoods (Mahora and Heretaunga Street East), noting that the CBD (as the remaining 'priority 1 area) itself 'anchors' the areas covered by the LAPs rather than comprising a LAP area. Two additional areas have also been identified, comprising the western LAP extent which includes Stortford Lodge/ St Leonards, and a 'Hospital LAP' which is centred on the regional employment hub comprised of the Hawke's Bay Fallen Soldiers Memorial Hospital in conjunction with the Kaweka Heath private hospital. The extent of the four, initial Local Plan areas is shown below (refer to **Appendix 2).**



Extent of Local Area Plan Area's

The CBD itself has been excluded from the Local Area Plan extents, as it is already subject to the Hastings City Centre Strategy (developed in 2012 and currently subject to review). The current review will provide an updated *Action Plan* of projects for the city centre for the next 10 years and will be predominantly given effect to by the Hastings Public Spaces Revitalisation Plan along with the District Plan.

The above approach has resulted in the initial exclusion of Raureka and Mayfair from introduction of residential intensification, being identified 'priority 2' host neighbourhoods in 2014. This is a result of the prioritisation of those areas that have the best **existing** levels of accessibility and amenity, rather than the potential within each of these areas to achieve the same, but at an undetermined time in the future.

3.4 Access to existing Amenity Open Spaces

The introduction of residential intensification within existing neighbourhoods means that access to high-quality open spaces becomes a key priority to ensure maintenance of amenity levels within communities. When adopting the proposed centre's approach with the 400m/ 5-min walkable catchment it is necessary to identify the location of existing amenity open spaces within this catchment, along with the functionality, size, and calibre of each of these open spaces.

The identified LAP catchments within 400m of the centre are generally well serviced in terms of existing amenity open space, with the following Council-owned open spaces being situated within the 400m walkable catchment from the CBD/commercial centre:

- St Leonards Park
- Cornwall Park
- William Nelson Park
- Queens Square
- St Aubyn Street Reserve
- Duke Street Reserve
- 308 Nelson Street
- Civic Square and Waiaroha

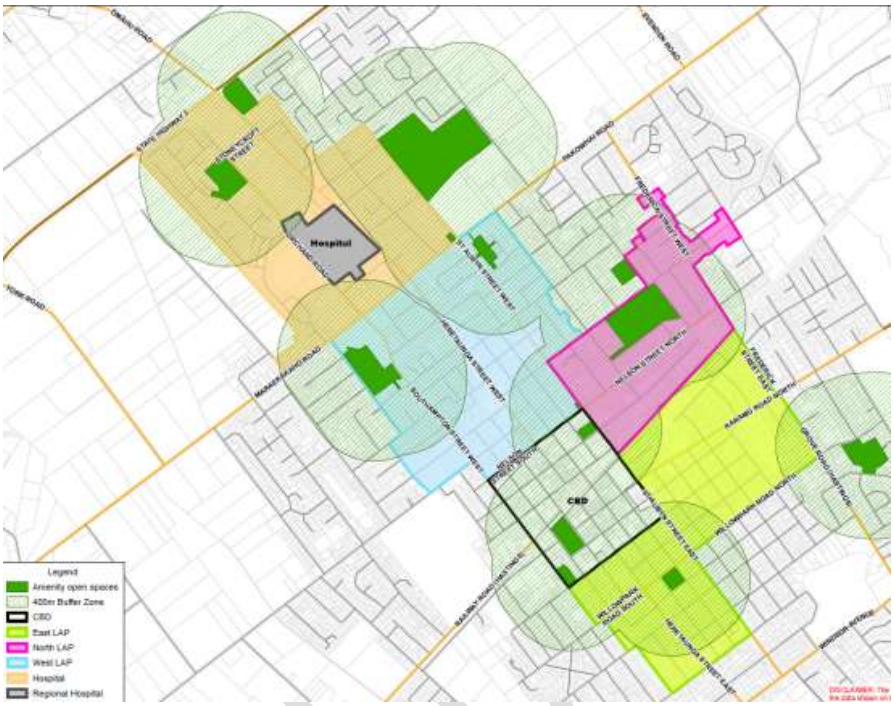
While Bill Mathewson Park falls outside of 400m from the identified commercial centre, it does provide a small degree of coverage to the northern extent of the Eastern LAP.

From the identified 'Hospital' centre the following open spaces are within 400 metres:

- Frimley Park
- 310 Pakowhai Road
- Kirkpatrick Park.

Noting that the extents of Frimley Park itself sit outside of the defined boundary of the Local Area Plan extents. The Stoneycroft Reserve falls outside the 400m of the centre, however also provides coverage for the western extent of the Hospital LAP.

As shown below (refer **Appendix 3** for scaled plan**).**



400m buffer from existing Amenity Open Spaces

As evident from the above map, there is generally one area within each identified LAP extent that is not currently within 400m of an amenity open space. To ensure coverage of these areas, further planning for/ exploration of opportunities within either Council's existing land holdings/ road reserve, or in conjunction with a private development proposal (dependant on scale) to provide coverage of amenity open spaces will be the initial focus. Secondary to this, will be understanding and identifying opportunities for improvement within each of these open spaces where a need to do so is identified.

3.5 Accessibility and use of transportation networks

Hawkes Bay Regional Land Transport Plan 2024 – 2034

The Hawke's Bay Regional Land Transport Plan 2024–2034 was recently submitted a to the NZ Transport Agency Waka Kotahi from the Regional Transport Committee, and is the primary document for guiding integrated land transport planning and investment across Hawke's Bay. The strategic objectives within this plan that are particularly relevant to the LAP programme include:

- *Add and enhance resilience across the transport system.*
- *Strengthening community connections.*

The detailed proposed investment for low cost/low risk (LCLR) active travel projects across the Hawke's Bay region is $27 million over the next three years to "*invest in walking and cycling as genuine transport alternatives on our local roads*"[6]. The urban network has the potential to support and enable multiple modes to use the same corridor at any one time, creating transport choice for users, driving

[6] Hawke's Bay Regional Land Transport Plan 2024 – 2034 pg 6.

system efficiency, reducing congestion, and supporting economic productivity. Enabling different transport options to use the same corridors, where this can be safely achieved, can make better use of the transport network that we have, whilst providing meaningful choices within local communities to use active travel modes for some of their local trips.

In addition to the focus on providing for a better experience when choosing to utilise active transport modes within the Local Area Plans areas, it will also be necessary to ensure integration in terms of public transportation provision and the continued efficient use of private vehicles. This includes consideration of both the existing and proposed public transport availability, as well as preparation of an updated the Parking Strategy that plans for provision of car-parking either within the road environment or nominated sites.

The existing transport network is one of the key areas of opportunity in terms of above ground improvements to accessibility and amenity when combined with co-benefits associated with introduction of blue-green stormwater infrastructure across the identified Local Area Plan environments.

Are we providing for enough intensification under the identified Local Area Plans?

4.0 How much residential intensification is sought within Hastings?

The LAP programme is being prepared as an extension to the existing MDHS, and as such looks to focus initial efforts on those areas that are 'best able' to accommodate residential intensification. In terms of providing 'enough' land area/ capacity for intensification, the foundational documents comprise the Heretaunga Plains Urban Development Strategy (soon to be replaced by the Future Development Strategy which is currently in development) and the Housing Capacity Assessment which provides the relevant population and housing demand forecasting.

4.1 Heretaunga Plains Urban Development Strategy 2010 & 2017

The Heretaunga Plains Urban Development Strategy (HPUDS) was prepared as a joint initiative between Hastings District Council, Napier City Council, and the Hawke's Bay Regional Council. It was adopted in 2010, subject to review in 2017 and provides the current blueprint for long-term urban growth on the Heretaunga Plains.

The strategy plans across the thirty-year time period of 2015 – 2045 and is based on achieving *'a compact design settlement pattern which limits encroachment onto the versatile land of the Heretaunga Plains'*. To achieve the required compact settlement pattern, a transitional pattern of development allocation over the 30-year time period (i.e., by year 2045) was established, with the proposed allocation from now (2024) to 2045 being:

Year	2025 - 2035	2035 - 2045
Intensification	51%	60%
Greenfields	42%	35%
Rural-Residential	7%	5%

This allocation applies across the entirety of the urban environments of Hastings and Napier, however when looking at Hastings specifically, the development allocation is to be applied across Hastings central, Havelock North and Flaxmere.

4.2 Housing Capacity Assessment 2021

The Housing Capacity Assessment 2021 was prepared by Market Economics at the request of the partner Councils (HDC, NCC and HBRC) to set the required 'housing bottom lines' both for Hastings and Napier across the short, medium, and long-term time horizons. The 'housing bottom lines' are the measure of development capacity that is sufficient to meet expected housing demand based on a medium-high growth scenario (as informed by the StatsNZ population predictions / consistent with the approach of HPUDS) and covers the thirty-year timeframe of 2020 – 2050.

The stated bottom lines[7] (including a competitiveness margin of 20% over the short and medium-term, and 15% over the long term) to meet expected demand specific to the Hastings District is:

Timeframe	Year	No. of additional dwellings
Short-term (3 yrs)	2020 – 2023	**1,920**
Medium-Term (3 – 10 yrs)	2023 – 2030	**3,270**
Long-Term (10-20 yrs)	2030 - 2050	**7,640**
Total (incl. competitiveness margins)		***12,830***

These figures have been subject to review as the foundational work has progressed for the Future Development Strategy. Utilising the most recent, available StatsNZ population data (December 2022) – which includes the impact of Covid-19, along with updated birth and mortality rates, the growth projections have been updated and subsequently have impacted upon the housing demand figures[8]. The revised figures that have been utilised to inform "*how much housing does the FDS need to plan for*"[9] (urban demand) are detailed as:

Timeframe	Year	No. of additional dwellings
Short-term (3 yrs)	2022 – 2025	**1,510**
Medium-Term (3 – 10 yrs)	2025 – 2032	**2,500**
Long-Term (10-20 yrs)	2032 - 2052	**5,610**
Total (incl. competitiveness margins)		***9,620***

4.3 Overall Growth through Residential Intensification

Applying the anticipated development allocation from HPUDS of up to 60% of the required housing being delivered through intensification provides guidance regarding the number of additional dwellings that we should be providing for within intensification areas. Using a 'range' approach from

[7] M.E. Consulting - Housing Development Capacity Assessment August 2021 pg 10.
[8] M.E Consulting – Future Development Strategy, Residential Capacity Assessment – Intensification Options Supporting Analysis, Updated Housing Demand pg 14.
[9] Ibid pg 17 – Figure 3-1

the official HCA figures, along with the latest, revised housing bottom line figures for urban demand, gives the following target range for delivery of dwellings through intensification:

Timeframe	Year	No. of additional dwellings
Short-term (3 yrs)	2022 – 2025	**906 - 1,152**
Medium-Term (3 – 10 yrs)	2025 – 2032	**1,500 - 1,962**
Long-Term (10-20 yrs)	2032 - 2052	**3,366 - 4,584**

Therefore, in the first instance the LAP programme is targeting provision of capacity for up to 1962 additional dwellings – i.e. the medium-term figures over a time period of 10 years. Over the long-term, the walkable catchment is able to be expanded out from the initial 400 metres, should uptake of the opportunity for medium density development and/or population growth exceed projections, or alternatively, re-zoning of existing sites within the walkable catchment of the Hospital employment centre could be initiated. This is considered to provide a balanced approach, reflecting that change in housing typologies/ the anticipated move towards intensification will be gradual and over time, but that adequate capacity for meaningful change needs to be proactive rather than reactive.

4.4 The extents of the Local Area Plan areas and the Proposed Medium Density Residential zone.

Section 3.2(2) of the NPS: UD states that *in order to be sufficient to meet expected demand for housing, the development capacity must be:*

a) Plan enabled;
b) Infrastructure ready;
c) Feasible and reasonably expected to be realised;
d) Meet the expected demand plus the appropriate competitiveness margin.

And with specific reference to how these requirements have informed the application of the extents of the initial Local Area Plan areas from the identified centres, the following comments are made:

4.4.1 Plan Enabled

The NPS:UD details that development capacity is plan-enabled for housing if the land is zoned for housing in an Operative District Plan. The LAP methodology has guided the extents of the proposed Medium Density Residential zone proposed to be introduced into the Hastings District Plan under Plan Change 5 – *Right Homes, Right Place.* Therefore, the land areas where the Medium Density Residential zone is adopted at the decision phase of the Plan Change is considered to be 'plan enabled' for the purposes of the NPS: UD.

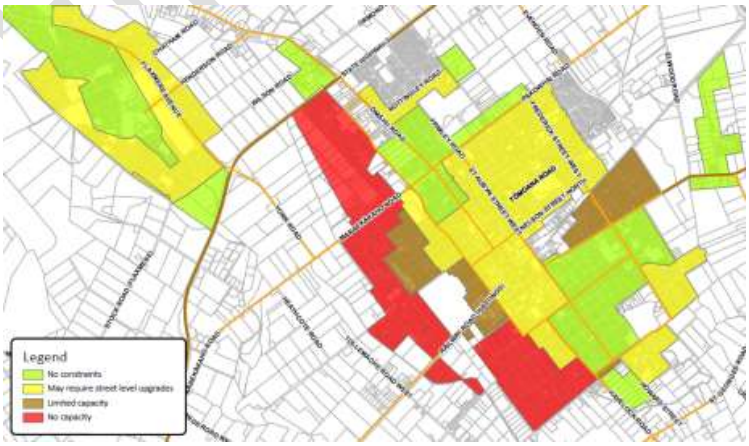
4.4.2 Infrastructure Ready

The NPS:UD distinguishes between what '*infrastructure-ready'* means across the short, medium, and long-term, as follows:

Short Term	*There is:* - *adequate existing development infrastructure to support the development of the land*
Medium-Term	*There is either:* - *adequate existing development infrastructure to support the development of the land; or* - *Funding for adequate development infrastructure is identified in the LTP*
Long Term	*There is either:* - *adequate existing development infrastructure to support the development of the land; or* - *Funding for adequate development infrastructure is identified in the LTP; or* - *Development infrastructure to support the development capacity is identified in the LA's infrastructure strategy.*

The *Infrastructure Constraints Report* April 2023 (ICR) provides the most up-to-date information regarding the physical capacity of infrastructure (assets and services) that support the Hastings urban area, including Havelock North and Flaxmere.

As detailed within the ICR, the existing wastewater network capacity is a known, key constraint. The modelling that has been undertaken as part of the planning for intensification shows that there is adequate existing wastewater infrastructure available within the defined west, east, northern LAP extents, along with the northern half of the proposed Hospital LAP area to support residential intensification of these sites. Specifically, there are either no constraints, or street level upgrades may be required (i.e., up-sizing of local pipes). Where street-level upgrades are required, these works are able to be triggered by development proposals, street upgrade works or undertaken through Council's renewals programme. Therefore, these areas can be considered 'infrastructure-ready'. The wastewater capacity infrastructure map is shown below (and available at scale in **Appendix 4)**.



Wastewater Infrastructure Constraints

4.4.3 Feasible and Realistically Expected to be Realised.

As part of the work programme for Plan Change 5 – *Right Homes, Right Place* to the Hastings Operative District Plan, Market Economics were commissioned to undertake scenario modelling across the western, eastern, and northern identified LAP extents, along with the 400m catchments from the centres of Flaxmere and Havelock North that are proposed to be the re-zoned to the Medium Density Residential zone. This modelling was undertaken across three capacity measures – *Plan Enabled Capacity, Feasible Capacity and Potential Development Capacity (*RER equivalent*)* and demonstrated that the extents of the proposed Medium Density Residential Zone within each of these Local Area Plan extents provided satisfactory potential development capacity over the medium term, without compromising efficiencies in terms of infrastructure provision.

The scenario modelling completed by Market Economics has demonstrated that development scenario 2B (i.e., the indicative MDRZ which is generally reflective of the west, east and north LAP extents in conjunction with a 400m walkable catchment being applied to the centres of Havelock North and Flaxmere) provides feasible capacity of 6880 dwellings, and Potential Development Capacity (Realistically Expected to be Realised RER-equivalent) of **3,300 dwellings** (being 2,410 detached dwellings and 890 attached dwellings), this capacity will apply upon application of the zoning/ i.e., immediately upon adoption of the decisions of the Hearings Panel by Council.

This demonstrates that the RER-equivalent capacity in the medium-term exceeds the housing bottom lines from intensification alone, with no consideration of the greenfield component of growth over the same time period.

Over the long term (i.e., 2030 – 2050), a shortfall of 1284 dwellings becomes apparent when solely relying on the RER-equivalent figures. Notwithstanding this, it is noted that the RER-equivalent *is informed by demand for housing*, and as such, represents the (current) low demand for attached dwellings in Hastings. This is likely to shift as supply of quality, attached typologies become available/ are developed. Further, the modelling under Plan Change 5 has not considered additional rezoning within the Hospital LAP and over the long term, the geographic extent of the LAP area are readily able to be expanded beyond the 400m walkable catchment should the need and/or demand arise.

How are we going to deliver the LAP Programme?

5.0 Programme Design

The LAPP has been designed across two key phases, the first being the preparation of each Local Area Plan specific to each identified area; and the second detailing how the implementation of these plans will be encouraged and supported by Hastings District Council.

5.1 Phase 1 – Preparation of the Local Area Plans

Phase 1 of the Local Area Plan Programme is about detailing the 'blueprint' for residential intensification within each identified area. This involves getting all the relevant information 'down on paper' and includes:

- A comprehensive review of all relevant growth and intensification strategies;
- Drafting an appropriate methodology in terms of overall approach to identification of suitable areas, along with detailing the existing issues and constraints relative to each of these areas;
- Preparation of the engagement drafts for each of the identified Local Area Plan locations, including a 'snapshot' of the existing above and below ground infrastructure inputs relevant

to each area along with detail of existing land uses, demographic information, areas of opportunity and improvement and initial detail regarding medium density typologies. This 'spatial plan' at the neighbourhood/ local area level addresses one of the key findings of the 2022 Medium Density Housing Review, which found that re-zoning under the District Plan is not sufficient as a stand-alone tool to effect neighbourhood-scale change.

A key focus of Phase 1 of the programme is engagement with the local communities. The intention of this engagement is threefold:

- To communicate what a local area plan is and the overall approach to introduction of residential intensification. To explain the overall methodology, centres, and walkable catchments approach.
- To understand what is 'unique' about each LAP area and identification of history, key natural or cultural features and the existing sense of community within each area.
- To understand opportunities for improvements in terms of accessibility and connectivity, along with aspirations for the overall amenity experienced within a locale.

It is relevant to note that the LAPP is initially focussed within Hastings Central, however it is anticipated that Local Area plans will subsequently be prepared for Havelock North and Flaxmere once the first four plans are adopted in Hastings Central.

5.2 Phase 2 – Implementation of the Local Area Plans

Phase 2 of the LAPP is about detailing the delivery of the newly adopted Local Area Plans. As detailed above, these plans represent a neighbourhood spatial plan for each of the Local Areas, to facilitate a well-functioning urban environment when residential intensification/ medium density housing is implemented. This Phase of the LAPP may also include facilitation of the delivery of medium density housing developments, although this is yet to be confirmed.

As a non-regulatory, place-based document, it is anticipated that the direction specified within the Local Area Plans will direct and inform funding decisions within the Long-Term Plan and Annual Plans; along with infrastructure upgrades.

The main regulatory implementation mechanism for introduction of medium density housing is the Hastings District Plan. The LAPs are anticipated to direct changes to the District Plan where necessary, to provide for either a greater extent of Medium Density Residential zoning and/or commercial zonings where a need is identified.

Plan Change 5 – Right Homes, Right Place

It is noted that Plan Change 5 – *Right Homes, Right Place* has been prepared as a 'first step' in the process of aligning the District Plan with Policy 5 of the NPS: UD. This Plan Change expressly seeks to amend existing plan provisions to provide for a more enabling rule framework for residential intensification, in locations already identified as suitable for greater housing density and anticipated significant change to the existing urban form, to provide for a greater diversity of housing typologies.

As such, this Plan Change represents the regulatory mechanism by which development of medium density housing can occur, with a site-specific focus. The methodology for the Local Area Plans has informed the proposed extent of the Medium Density Residential zone proposed under PC 5, to ensure that these documents are aligned and consistent in terms of overall messaging.

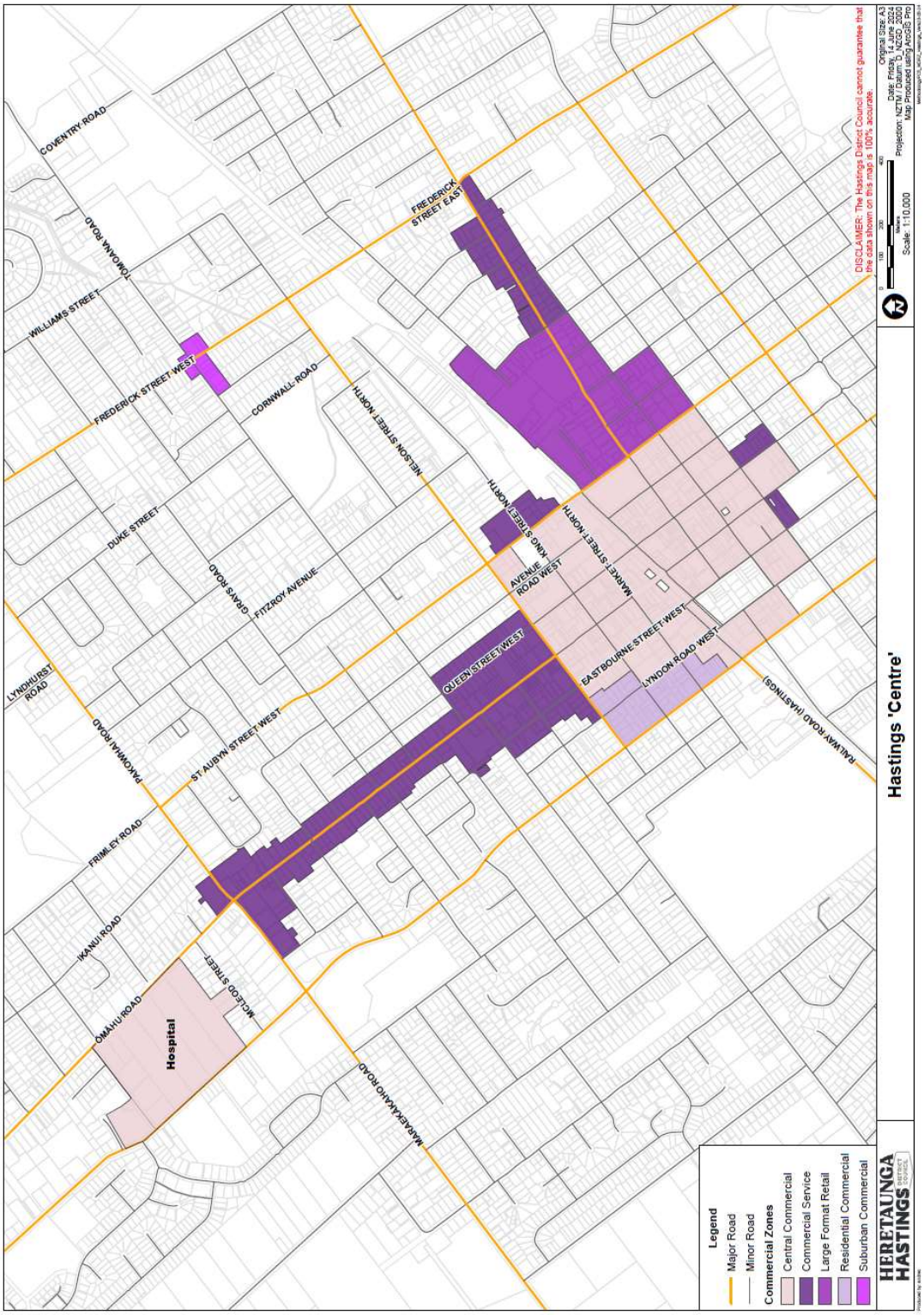
This Plan Change is well advanced through the Schedule 1 process of the Resource Management Act, with the Hearings of Submissions completed on the 11 April 2024 and final decisions with regard to zone extents and relevant performance standards anticipated in September 2024.

Further work is needed in terms of development of Phase 2 of the LAPP, with a number of key decisions and/or considerations needing to be made. A non-exhaustive list of the additional considerations that will be relevant in the detailed planning of Phase 2 of the programme includes:

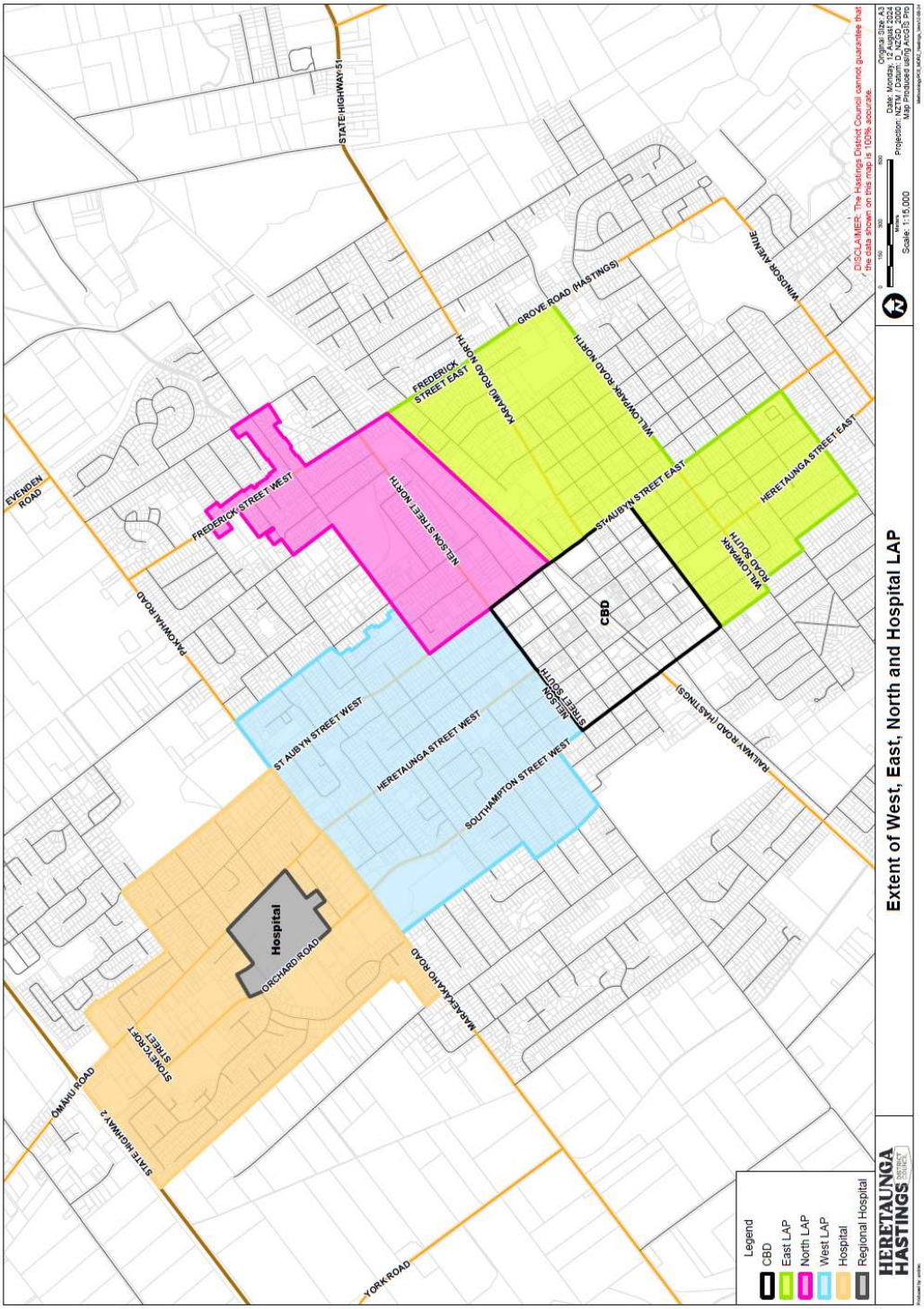
- The threshold analysis within each LAP area, being how much uptake of residential intensification (if any) is required to trigger the identified improvements or betterment within local areas;
- The proposed timing of future Plan Changes to the District Plan that are identified as necessary within the Local Area Plan preparation. This will be linked with monitoring of the uptake of intensification opportunities and population growth measures to ensure that Housing Bottom Lines under the NPS: UD continue to be met.
- Alignment with and input to the proposed Development Contributions Policy review to ensure fair and equitable cost recovery from the implementation of growth, acknowledging the inherent benefits associated with providing for growth through intensification. This again ties into the threshold considerations, and the funding of improvements/ betterments identified within each of the LAP areas.
- Determine whether Council has a role to play in the aggregation of land to facilitate uptake of Medium Density Housing opportunities.

6.0 Appendices

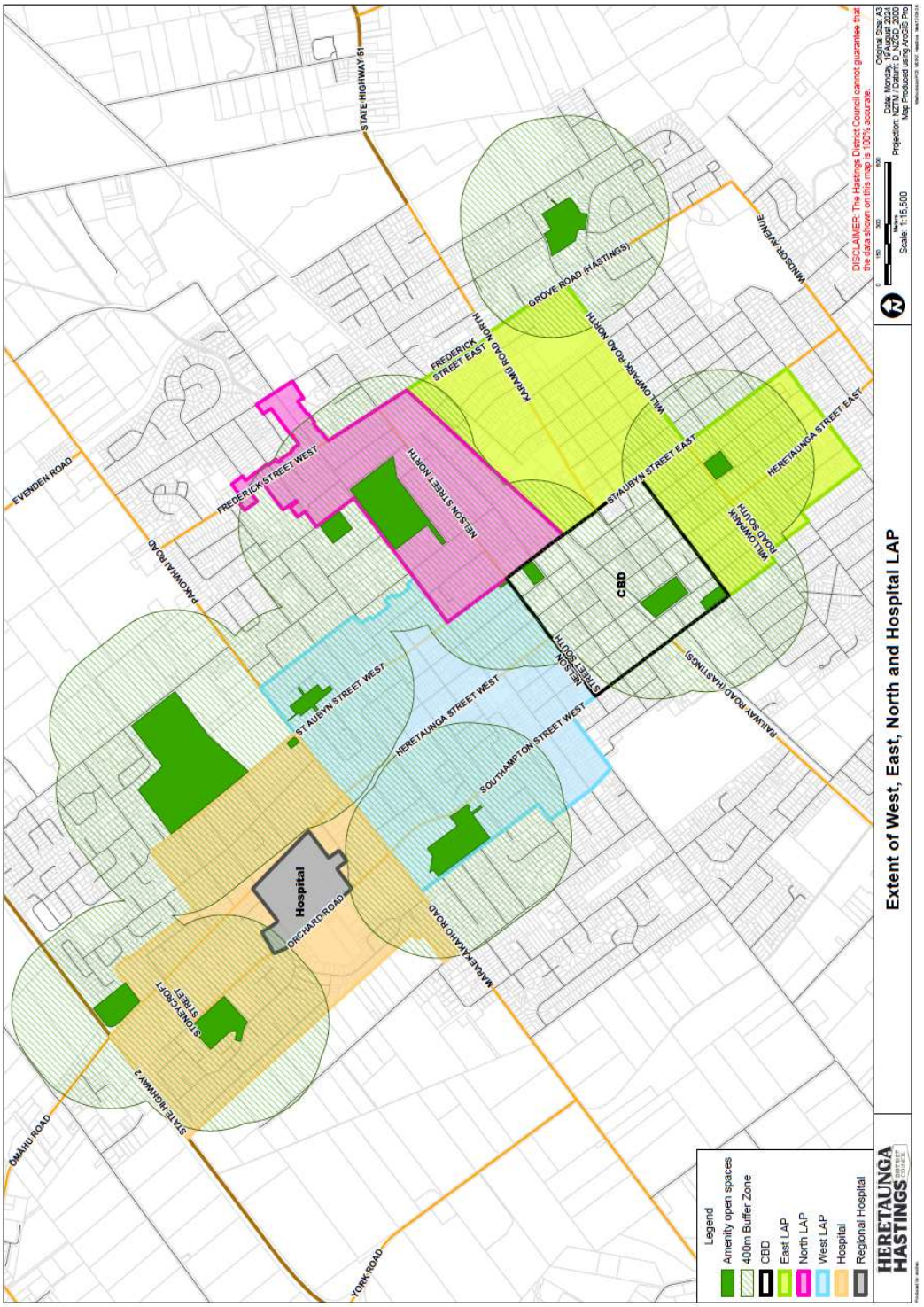
Appendix 1 - Centre's Map, Hastings Central


Hastings 'Centre'
HERETAUNGA HASTINGS DISTRICT COUNCIL
DISCLAIMER: The Hastings District Council cannot guarantee that the data shown on this map is 100% accurate.
Original Size: A3
Date: Friday, 14 June 2024
Projection: NZTM / Datum: D_NZGD_2000
Map Produced using ArcGIS Pro
Scale: 1:10,000
Legend
Major Road
Minor Road
Commercial Zones
Central Commercial
Commercial Service
Large Format Retail
Residential Commercial
Suburban Commercial
Hospital
COVENTRY ROAD
TOMOANA ROAD
WILLIAMS STREET
FREDERICK STREET WEST
FREDERICK STREET EAST
CORNWALL ROAD
NELSON STREET NORTH
DUKE STREET
OAKS ROAD
FITZROY AVENUE
KING STREET NORTH
MARKET STREET NORTH
AVENUE ROAD WEST
EASTBOURNE STREET WEST
LYNDON ROAD WEST
RAILWAY ROAD (HASTINGS)
QUEEN STREET WEST
LYNDHURST ROAD
PAKOWHAI ROAD
ST AUBYN STREET WEST
FRIMLEY ROAD
IKANUI ROAD
OMAHU ROAD
MCLEOD STREET
MARAEKAKAHO ROAD

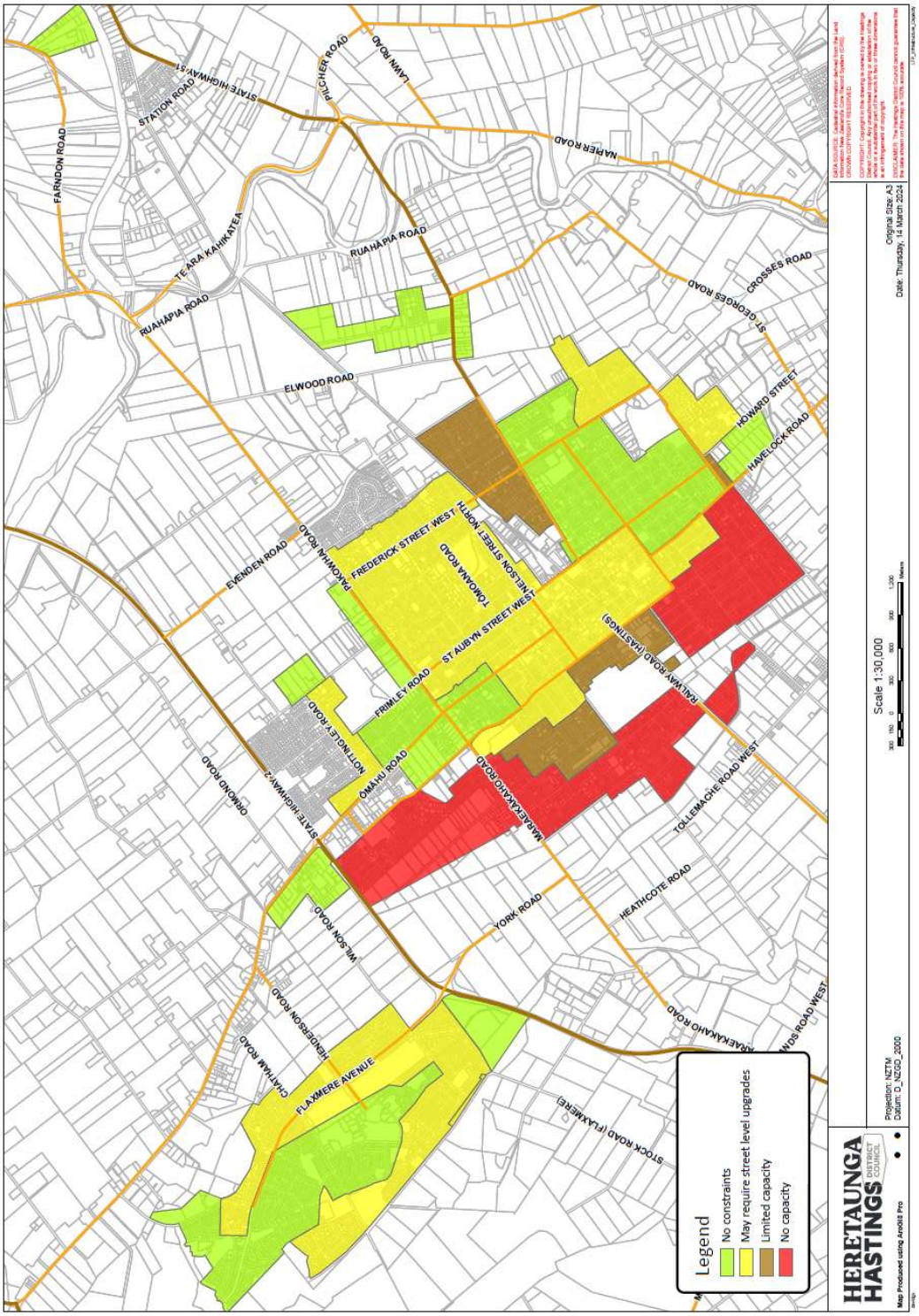
Appendix 2 – Extent of West, East, North and Hospital LAP


Extent of West, East, North and Hospital LAP
HERETAUNGA HASTINGS
Legend
CBD
East LAP
North LAP
West LAP
Hospital
Regional Hospital
STATE HIGHWAY 51
GROVE ROAD (HASTINGS)
WINDSOR AVENUE
KARAMU ROAD NORTH
FREDERICK STREET EAST
WILLOWPARK ROAD NORTH
HERETAUNGA STREET EAST
ST AUBYN STREET EAST
WILLOWPARK ROAD SOUTH
EVENDEN ROAD
FREDERICK STREET WEST
NELSON STREET NORTH
CBD
PAKOWHAI ROAD
NELSON STREET SOUTH
RAILWAY ROAD (HASTINGS)
ST AUBYN STREET WEST
HERETAUNGA STREET WEST
SOUTHAMPTON STREET WEST
Hospital
ORCHARD ROAD
MARACHAKAHO ROAD
STONEYCROFT STREET
OMAHU ROAD
STATE HIGHWAY 2
YORK ROAD

Appendix 3 – Existing Amenity Open Space within 400m walkable catchment


Extent of West, East, North and Hospital LAP
HERETAUNGA HASTINGS
Legend
Amenity open spaces
400m Buffer Zone
CBD
East LAP
North LAP
West LAP
Hospital
Regional Hospital
Hospital
CBD
STATE HIGHWAY 51
GROVE ROAD (HASTINGS)
WINDSOR AVENUE
KARAKIA ROAD NORTH
WILLOWPARK ROAD NORTH
FREDERICK STREET EAST
FREDERICK STREET WEST
NELSON STREET NORTH
EVENDEN ROAD
PAKOWHAI ROAD
ST AUBYN STREET EAST
HERETAUNGA STREET EAST
WILLOWPARK ROAD SOUTH
NELSON STREET SOUTH
RAILWAY ROAD (HASTINGS)
ST AUBYN STREET WEST
HERETAUNGA STREET WEST
SOUTHAMPTON STREET WEST
MARAEKAKAHO ROAD
ORCHARD ROAD
STONECROFT STREET
STATE HIGHWAY 2
OMAHU ROAD
YORK ROAD

Appendix 4 – Wastewater Constraints Infrastructure Map


Legend
No constraints
May require street level upgrades
Limited capacity
No capacity
HERETAUNGA HASTINGS DISTRICT COUNCIL
Scale 1:30,000
Original Size: A3
Date: Thursday, 14 March 2024
Projection: NZTM
Datum: D_NZGD_2000
Map Produced using ArcGIS Pro
STATION ROAD
STATE HIGHWAY 51
FARNDON ROAD
PUCKETY ROAD
LAWN ROAD
NAPIER ROAD
TE ARA KAHIKATEA
RUAHAPIA ROAD
CROSSES ROAD
ST GEORGES ROAD
ELWOOD ROAD
HOWARD STREET
HAVELOCK ROAD
EVENDEN ROAD
PAKOWHAI ROAD
FREDERICK STREET WEST
TOMOANA ROAD
NELSON STREET NORTH
ST AUBYN STREET WEST
RAILWAY ROAD (HASTINGS)
FRIMLEY ROAD
NORTHOLME ROAD
OMAHU ROAD
OSBORNE ROAD
STATE HIGHWAY 2
MARAEKAKAHO ROAD
TOLLEMACHE ROAD WEST
HEATHCOTE ROAD
YORK ROAD
WILSON ROAD
HENDERSON ROAD
CHATHAM ROAD
FLAXMERE AVENUE
STOCK ROAD (FLAXMERE)