VISION CONSULTING ENGINEERS

Project Overview

Taumārere Catchment
Nature-Based Solutions Feasibility Study

Prepared For:
Northland Regional Council

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Taumārere Catchment Nature-Based Solutions Feasibility Study
Project Overview

First Edition

This report has been prepared by Vision Consulting Engineers Limited (VISION) based on the agreed scope of our engagement for this Taumārere Catchment

Nature-Based Solutions Feasibility Study. It is intended for the use of our Client, Northland Regional Council, and for broader dissemination to inform wider stakeholders and the public on the findings related to the Taumārere Hydrological Catchment and Nature-Based Solutions.

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1 Executive Summary

The **Taumārere Catchment Nature-Based Solutions (NbS) Feasibility Project** was commissioned to explore how catchment-scale restoration and climate resilience could be achieved through locally grounded, culturally aligned, and scientifically robust action. The project was supported by funding from the **Ministry for the Environment's (MfE) NbS for Flood Mitigation Programme**. Focused on flood mitigation, water quality, biodiversity enhancement, and community wellbeing, the project spans **three integrated phases**—engagement and hydrological analysis, financial feasibility and monitoring, and spatial prioritisation of NbS.

Through a collaborative process between **Northland Regional Council (NRC), Vision Consulting Engineers (VISION)**, and key partners including **Ngāti Hine and community stakeholders**, the project blends mātauranga Māori (Māori knowledge) with Western technical expertise. The outcome is a suite of reports, maps, and frameworks that identify where opportunities for implementing NbS and delivering **long-term environmental and social benefit**.

Together, these outputs provide a framework and pathway for funding applications, restoring ecological health, enhancing flood resilience, and informing communities through **place-based solutions**. **The accompanying StoryMap platform developed for the project offers an accessible, interactive way for stakeholders to explore findings, risk and NbS spatial layers**.

2 Introduction and Project Structure

The **Taumārere Hydrological Catchment**, encompassing the Upper Kawakawa River area, faces significant environmental challenges, including persistent flooding impacting communities and infrastructure, along with degraded water quality, erosion, and biodiversity loss. This feasibility study was initiated to understand the opportunities and constraints for implementing **NbS** and restoration to address these issues. This project was supported by funding from the **Ministry for the Environment (MfE) NbS for Flood Mitigation Programme**.

The project's overarching ambition is to provide a foundational guidance for future restoration, with its process and outcomes having the potential for replication across Northland and wider Aotearoa New Zealand. This study employs a multi-faceted and integrated approach, **combining advanced scientific analysis with community and cultural engagement** split across three phases. It has systematically moved through phases involving extensive consultation with iwi, notably **Ngāti Hine**, and utilised **high-resolution GIS mapping** and **hydrological analysis** to identify and prioritise suitable NbS sites, alongside assessing **financial viability** and developing **monitoring frameworks**. This collaborative and data-driven methodology supports solutions are culturally aligned, **ecologically considered**, and **financially assessed**, ultimately aiming to reduce flood risk, improve water quality, enhance ecological health, and strengthen community resilience and cultural well-being.

The three phases are:

- **Phase 1:** Engagement and Hydrological Analysis
- **Phase 2:** Monitoring Framework, Financial Feasibility and Funding Pathways
- **Phase 3:** GIS Mapping and NbS Prioritisation

This Overview Report is intended to highlight the project's main themes and conclusions and help the reader navigate through the individual - and interconnected - reports that form the body of this work.

This body of work provides NRC and community partners with:

- **A shared foundation** for restoration planning
- **Transparent mapping** of suitable NbS locations
- **Realistic pathways** to attract funding and landowner support
- **Monitoring and evaluation tools** aligned with emerging funding models

3 Scope and Phasing

The Taumārere Catchment NbS Feasibility Project was delivered in **three interconnected phases**. While originally scoped as sequential steps, the **project evolved into an iterative, feedback-driven process** with cross-phase integration between technical analysis, cultural engagement, and strategic framing. Each phase delivered **outputs tailored to inform long-term restoration planning, investment readiness, and community-led implementation**.

The three phases are as follows:

Phase 1 – Community Engagement & Hydrological Understanding

This foundational phase established relationships with iwi, landowners, and community groups, while also consolidating hydrological and ecological knowledge to guide future NbS selection.

Key Activities:

- Hui (meetings) and wānanga (workshops) with Ngāti Hine, Te Papa Pā Orooro, Nga Tangariki, and the Ngāti Hine Forestry Trust
- Broader engagement with community and landowners
- Review of rainfall, recession, sediment mobilisation, and ecological flow triggers
- Alignment of mātauranga Māori with hydrological insights

Primary Outputs:

- Phase 1 Consultation Summary
- Phase 1 Hydrological Data Summary

Phase 2 – Financial Feasibility & Funding Strategy

Phase 2 assessed the economic viability of NbS implementation, explored innovative funding pathways, and aligned monitoring frameworks with funder expectations. This provided a bridge between spatial analysis and on-the-ground delivery mechanisms.

Key Activities:

- Literature review of funding models and catchment-scale restoration strategies
- Development of funding pathway options (e.g. ETS, biodiversity credits)
- Revenue modelling for local economic opportunities (nurseries, paludiculture, eco-tourism)
- Drafting a monitoring framework linked to funder criteria

Primary Outputs:

- NbS Literature Review
- Feasibility Framework & Funding Opportunities
- Monitoring Framework

Phase 3 – Spatial Analysis & NbS Prioritisation

Building on the outcomes of Phases 1 and 2, this phase delivered high-resolution GIS outputs to identify and prioritise areas for NbS implementation across the catchment. This spatial layer underpins investment planning and risk-based targeting.

Key Activities:

- Development of a GIS-based Multi-Criteria Analysis (MCA) tailored to relative environmental risk and the suitability of eight NbS types
- Site selection and phasing of intertidal wetland restoration
- Integration of final spatial outputs into an online interactive StoryMap

Primary Output:

- Phase 3 NbS Prioritisation & Mapping Report

4 Key Themes and Findings

The following key themes and findings have been discussed throughout the body of work and considered interchangeably between reporting and analysis.

Community and Iwi Partnership

- Support was expressed for restoring taonga (sacred) species habitats and improving awa (river) health, with emphasis on mātauranga Māori and whānau (local community) wellbeing.
- Wānanga and hui guided restoration priorities and helped ground the project in local values and lived experience.

Catchment Pressures and On-the-Ground Realities

- Invasive species, land use and access, flooding, funding uncertainty, and long-term maintenance emerged as shared concerns.
- Communities highlighted the need for training pathways, employment opportunities, and long-term support for implementation

Hydrology, Flooding, and Seasonal Extremes

- Rainfall thresholds, recession patterns, and erosion risk influence flood hazard, water quality, and species movement. These dynamics guided the suitability of NbS interventions.

Water Quality and Habitat Recovery

- Sediment, E. coli, and nutrient loads remain key catchment risks, linked to steep slopes, lack of vegetation cover, stock access, bank erosion, and land use. These dynamics guided the suitability of NbS interventions.

Mapping and Spatial Prioritisation

- GIS-based MCA was used to assess relative risks and NbS opportunities.
- Map outputs provide clear spatial guidance for site selection, investment planning, and collaborative decision-making.

$ Funding, Monitoring, and Long-Term Viability

- A financial feasibility framework links NbS actions to funding streams, alternative revenue models, and monitoring expectations.
- Aligning implementation with funder requirements and catchment priorities can improve project readiness and outcomes.

5 Strategic Alignment and Opportunity

The project outputs were designed to be positioned to deliver multiple outcomes that align with national environmental directives, local iwi aspirations, and future investment pathways.

National Policy Alignment

This work supports the intent and direction of several key national policies and programmes, including:

- The **National Policy Statement for Freshwater Management (NPS-FM 2020)** through its commitment to **Te Mana o te Wai** and the **prioritisation** of ecosystem health and cultural use.
- The **Emissions Reduction Plan**, by identifying nature-based land use transitions that contribute to carbon sequestration and climate resilience.

Local Alignment with Ngāti Hine and Community Aspirations

The project reflects long-standing local values by embedding **kaitiakitanga** (guardianship), **intergenerational wellbeing**, and **place-based design** throughout all phases. Engagement with **Ngāti Hine**, **Te Papa Pā Orooro**, and other community partners helps ensure that recommendations are not only technically grounded but culturally appropriate and locally endorsed.

Positioning for Future Investment

By integrating **hydrological analysis**, **financial feasibility**, **monitoring,** and **GIS-based prioritisation** into a single, co-designed framework, the project builds a case for implementation. This positions the catchment to attract targeted investment, trial innovative NbS infrastructure, and demonstrate how Indigenous-led restoration can support ecological uplift and climate resilience across rural New Zealand. The work is also aimed to connect with the Business Case currently in draft for the catchment which could kick-start catchment-wide funding and application of NbS projects.

6 Document Navigation Guide

This report is accompanied by the **detailed documents and interactive StoryMap** as listed in produced across the three project phases. **This navigation guide helps readers locate specific findings, analyses, and outputs by interest area.** Each document contributes to a catchment-wide strategy for implementing NbS in the Taumārere catchment.

Table 1: Project Navigation and Key Content Summary

Appendix & Document Title	Focus Area	Key Content Summary
A - Phase 1: Consultation Summary	Community & iwi engagement	Summary of wānanga, hui, and key themes raised by Ngāti Hine, local groups, and landowners. Informs site suitability and values-led design.
B - Phase 1: Hydrological Data Summary	Hydrological baseline	Analysis of rainfall patterns, flow behaviour, sediment triggers, and eco-flow considerations for flooding and species movement.
C - Phase 2: NbS Literature Review	Local/ national/ international alignment	Case studies and design principles for effective NbS planning across catchments.
D - Phase 2: Financial Feasibility & Funding Opportunities	Economic viability	High-level costing considerations, potential revenue streams (e.g. rongoā (medicine), nurseries, carbon credits), and implementation models and includes a case study site.
E - Phase 2: Monitoring Framework	Funder-linked and NbS efficacy indicators	Recommendations for ecological, hydrological, and social indicators aligned with national funder expectations.
F - Phase 3: Map Analysis Report	MCA development, spatial analysis of relative environmental risk & NbS suitability.	MCA methodology development, spatial outputs for four relative environmental risks and eight NbS types. Maps identify priority sub-catchment areas for NbS implementation and includes a case study site.
Taumārere NbS Project StoryMap	Interactive visualisation, transparency, and storytelling	Online, interactive platform that presents project context, consultation narratives, and key spatial outputs. Includes interactive risk and NbS maps for public and stakeholder use.

Appendixes

The following reports are included:

Appendix A: Phase 1 – Public Consultation

Appendix B: Phase 1 – Hydrological Summary

Appendix C: Phase 2 – Literature Review

Appendix D: Phase 2 - Financial Feasibility Study and Funding Streams

Appendix E: Phase 2 - Monitoring Framework

Appendix F: Phase 3 - Map Analysis Report