

Pūhoi to Warkworth



ARA TŪHONO : Pūhoi to Warkworth Section

Urban and Landscape Design Framework



| No. | Issue | Date |
|-------|-------------------------|----------|
| Rev 0 | Consultation Draft | 20.07.15 |
| Rev 1 | Final for Certification | 10.08.15 |

Author: **Gavin Lister**, Landscape Architect + Urban Designer, Isthmus
Iwi Advisor: **Gena Moses-Te Kani**, Kaiwhakahaere (Manager), Hōkai Nuku
Production & Graphics: **Mark Radford**, Landscape Architect, Isthmus

Pūhoi to Warkworth



01 Introduction

| | | |
|-----|-----------------------------------|----|
| 1.1 | Purpose | 01 |
| 1.2 | Statutory Requirements | 01 |
| 1.3 | Consultation and Certification | 01 |
| 1.4 | Design and Implementation Process | 01 |
| 1.5 | Background Documents | 02 |
| 1.6 | Designation Conditions | 03 |

02 Context

| | | |
|-----|-----------------|----|
| 2.1 | Natural History | 05 |
| 2.2 | Human History | 05 |
| 2.3 | Circulation | 07 |
| 2.4 | Land Use | 07 |
| 2.5 | Character Areas | 08 |

03 Overall Outcomes

| | | |
|-----|--|----|
| 3.1 | A clean, uncluttered highway | 11 |
| 3.2 | A Stitched-together Landscape | 11 |
| 3.3 | Celebration of Mana Whenua Values and Cultural Footprint | 12 |

04 Highway Outcomes

| | | |
|-----|----------------------|----|
| 4.1 | Naming | 15 |
| 4.2 | Viaducts and Bridges | 15 |
| 4.3 | Barriers | 16 |
| 4.4 | Medians | 16 |
| 4.5 | Noise Mitigation | 17 |
| 4.6 | Poles and Gantries | 17 |

01

| | | |
|------|-------------------------------------|----|
| 4.7 | Lights | 17 |
| 4.8 | Cut and Fill Batters | 18 |
| 4.9 | Cut Batters | 18 |
| 4.10 | Low Cut Batters in Rolling Terrain | 18 |
| 4.11 | High Fill Batters | 18 |
| 4.12 | Low Fill Batters in Rolling Terrain | 18 |
| 4.13 | Roadside Margins and Drainage | 18 |
| 4.14 | Roadside Weed Management | 19 |

05 Landscape Outcomes

| | | |
|------|---------------------------------|----|
| 5.1 | Human Landmarks | 22 |
| 5.2 | Natural Features | 22 |
| 5.3 | Local Connectivity | 22 |
| 5.4 | Local Bridges over the Motorway | 22 |
| 5.5 | Streams | 23 |
| 5.6 | Culverts | 23 |
| 5.7 | Stormwater Wetlands | 23 |
| 5.8 | Spoil Disposal | 24 |
| 5.9 | Planting | 24 |
| 5.10 | Construction Yards | 25 |

06 Sector Specific Outcomes

| | | |
|-----|------------------------------------|----|
| 6.1 | Pūhoi Sector | 28 |
| 6.2 | Moir Hill and Hikauae Creek Sector | 32 |
| 6.3 | Warkworth Sector | 36 |



01

01 Introduction

1.1 Purpose

The purpose of this Urban and Landscape Design Framework ('**ULDF**') is to describe the urban and landscape design outcomes for the Pūhoi to Warkworth section of the Ara Tūhono: Pūhoi to Wellsford Road of National Significance (RoNS).

The over-riding outcomes required are:

- A clean, uncluttered highway.
- A stitched-together landscape.
- Celebration of the cultural footprint of mana whenua.

These over-riding outcomes are described in further detail with regards to highway and landscape elements, sectors of the corridor, and aspects of the cultural footprint.

The ULDF is an essential tool that demonstrates the NZ Transport Agency's expectations for a high quality highway integrated with the landscape. The ULDF is to inform input across **all design disciplines** during the design process, and will provide a benchmark for appraising the project as a whole.

The Pūhoi to Warkworth section will be an 18.5km extension of the existing Northern Motorway. It will be on a 'greenfields' alignment parallel to, and west of, the existing SH1. It is one of the 'Roads of National Significance' ('RoNS') that the Government has prioritised investment in as New Zealand's most important routes. Ara Tūhono is prioritised because it is the main economic and social lifeline for Northland.

¹ Numbers in square brackets as follows [D...] and [RC...] refer to designation and resource consent conditions respectively.

◀ View over Pūhoi River and Valley

1.2 Statutory Requirements

While a designation is in place for the Pūhoi to Warkworth section of Ara Tūhono, the designation conditions do not restrict the highway to a specific design or alignment. The **ULDF** will be used to appraise the design and alignment, and to help ensure compliance with conditions.

The ULDF has also been prepared in response to the designation conditions. The most relevant are conditions D26-D32 which set out the requirements of the ULDF, and conditions D33-D41 which set out the requirements for subsequent Urban and Landscape Design Sector Plans ('**ULDSP**'). Such ULDSP will contain the **details of urban and landscape design works**. The ULDF was prepared by a qualified landscape architect and urban designer [D29]¹ in collaboration with Hōkai Nuku, a collective of the iwi and hapu who hold mana whenua over the area [D29]. Consultation was undertaken with the following disciplines within the wider project team [D29]:

- Urban Design.
- Landscape Architecture.
- Civil and Structural Engineering.
- Planning.
- Ecology.
- Archaeology.

1.3 Consultation and Certification

The ULDF was prepared in collaboration with Hōkai Nuku.

The draft ULDF was supplied to the following residents and stakeholders for comment [D30]:

- Owners/occupiers of properties listed in condition D30 (a).
- Manager Built Environment Unit, Auckland Council.
- Pūhoi Landcare Group Incorporated.
- Mahurangi Action Incorporated.
- Slowwater Lane and Pūhoi Close Residents Association.
- Pūhoi Close Residents: households numbers 12-16 and 24.

The draft ULDF was updated in response to stakeholder feedback.

The updated ULDF was peer reviewed by the Transport Agency by Rebecca Skidmore, in a process managed by the Transport Agency National Environmental Urban Design Team.

The ULDF (Final for Certification) will be provided to the residents and stakeholders listed above. It will be forwarded at the same time to Auckland Council (Manager Major Infrastructure Works) for certification that the ULDF is consistent with condition D27. Auckland Council is to provide certification or feedback within 40 working days [D32].

1.4 Design and Implementation Process

The detailed design will be contained in the Urban and Landscape Design Sector Plans ('**ULDSP**') which are to be prepared in compliance with the ULDF [D33]. The ULDSP are to be prepared by a suitably qualified urban designer and landscape architect in collaboration with the Iwi Advisor and a suitably qualified ecologist [D38A]. The content and specific requirements for ULDSP are set out in conditions [D33-D41]. The requirement to consult with stakeholders and gain certification from Auckland Council is set out in conditions [38B and 38C]. The successful consortium will be required to implement the ULDSP [D41] and maintain the works [D76].

ULDSP will be appraised (amongst other benchmarks) against the ULDF. During the design and procurement process, the Pūhoi to Warkworth Procurement Alliance will provide advice guidance on urban and landscape design matters with the consortia designers.

1.5 Background Documents

The following documents underpin and are to be used to interpret the ULDF:

- **Land Transport Management Act 2003:** requires the NZ Transport Agency to ‘exhibit a sense of social and environmental responsibility’ in meeting the statutory objective of operating a state highway network.
- **NZ Transport Agency Environmental Plan (2008):** specifies how the Transport Agency’s staff and suppliers are expected to address key social and environmental effects. Relevant objectives include:
 - **Social responsibility:** To enhance and contribute to community cohesion.
 - **Culture and heritage:** To proactively limit the disturbance of significant cultural and heritage features along state highways. To show respect for historic buildings we own to maintain their integrity.
 - **Visual quality:** To incorporate multi-purpose landscaping as an integral part of all new state highway construction projects. To improve the visual quality of the existing state highway network.
- **NZ Transport Agency Environmental and Social Management Standard (Z/19) (2010):** requires consultants engaged on highway projects to consider social and environmental factors identified in legislation and the Transport Agency’s policies and guidelines. www.nzta.govt.nz/technical-information/environmental-and-social/environments-and-social-responsibility-standard
- **Bridging the Gap: NZ Transport Agency Urban Design Guidelines (2013):** The Guidelines set out 10 over-arching urban design principles, and guidance on specific elements of highways including bridges, retaining walls, earthworks, noise barriers, highway furniture, stormwater management devices, signalised junctions, roundabouts,

tunnels, stopping places, landscape planting and public art. [D27(b)]

www.nzta.govt.nz/resources/bridging-the-gap/

- **NZ Transport Agency Landscape Guidelines (Final Draft) (2014):** The Guidelines similarly set out 10 over-arching principles, and guidance on (1) design considerations (including safety and extent of landscaping), (2) landscape treatments (including topsoil, planting, and storm water) and (3) maintenance requirements. www.nzta.govt.nz/resources/nzta-landscape-guidelines/
- **NZ Transport Agency P39: The Standard Specification for Highway Landscape Treatments:** which sets out minimum standards, covering such matters as site preparation; quality control, inspections and reporting; plant and animal pest control; plant propagation; topsoil supply; planting; grass; hydroseeding and specialist treatments; irrigation; maintenance. [D27(c)] www.nzta.govt.nz/resources/landscape-treatments/
- **Other Standards:** (such the ‘Safe System’² approach to highway design which forms part of the Transport Agency’s commitment to the ‘Safer Journeys Strategy’) and other specific requirements will also apply to the Pūhoi to Warkworth section of Ara Tūhono. ULDSP are to be designed so that they are consistent with such standards and requirements.



Bridging the gap: NZTA urban design guidelines 2013



NZTA Landscape Guidelines (Final Draft) September 2014

² www.saferjourneys.govt.nz/about-safer-journeys/the-safe-system-approach/

1.6 Designation Conditions

The Board of Inquiry decision on Pūhoi to Warkworth is accompanied by the conditions relevant to urban design and landscape matters, including (but not limited to) conditions D26-D33. By way of summary, the conditions can be paraphrased as follows:

- D26 requires that the project **integrates into the surrounding landscape** and topography, having regard to local landscape character and contexts along the highway route.
- D27 requires a ULDF to identify how D26 will be met. The ULDF is also to be consistent with the themes of the Northern Gateway Toll Road, **Bridging the Gap**, NZ Transport Agency **P39 Standard** Specification of Highway Landscape Treatments, and mitigation required by other conditions.
- D28 requires the **cultural footprint** of mana whenua be acknowledged, including maintenance of the connections between Te Koroto³ and Ngā Pā o Te Hēmara Tauhia⁴.
- D29 requires the ULDF be prepared by an urban design and landscape architect in collaboration with the Iwi Advisor and consultation with the wider design team.
- D30-D32 sets out **consultation** and **procedural requirements** for preparation of the ULDF.
- D33 requires that ULDSP be prepared in compliance with the ULDF.
- D34 describes the purpose of ULDSP which is to implement the ULDF by incorporating its requirements into the permanent works.
- D36 describes matters to be included in ULDSP including:
 - Bridge form, articulation and finishes (including the underside).
 - Pedestrian and cycle connections on local roads.
 - Highway furniture.
 - Retaining and noise walls.
 - Cut and fill batters.
 - Entry features to Pūhoi and Warkworth.
 - Rehabilitation of work areas.
 - Weed removal and management.

- Planting and revegetation (including programme).
- Riparian planting.
- Wildlife corridors.
- Spoil disposal.
- Views to and from bridges and highway.

- D36A-D42 describe a range of specific considerations for the ULDSP.

The paraphrasing above does not substitute for referring directly to all the conditions. Of particular importance are those that relate to the ULDSP which will be the detailed urban and landscape design plans for the project.

In addition to the specific conditions listed above, urban and landscape design overlaps with matters (such as ecology, noise, and stormwater) that are addressed by other conditions which will need to be taken into account.

In addition to the **designation conditions**, the resource consent conditions are also relevant to urban and landscape design matters. These include conditions covering such matters as earthworks, works in a watercourse, freshwater ecology, stormwater discharges and flooding.

³An island of spiritual significance located in the Waiwera River.

⁴Two pā located near Pūhoi River

Northern Gateway Themes

The following themes were identified from the Northern Gateway Toll Road:

1. **Open rural and natural landscape.**
2. **Unlit (lights restricted to interchanges, toll gantries and tunnel).**
3. **Bold-scale revegetation with indigenous species.**
4. **Vegetation patterns continued across both sides of highway.**
5. **Rocky monoslope (mostly) cut batters.**
6. **Elegant viaduct.**
7. **Uncluttered highway furniture; and**
8. **Occasional site specific landmarks ('Pukeko Bridge')**

The ULDF is designed to be consistent with the themes of the Northern Gateway Toll Road [D27a]. The intent is that the highway experience will be seamless between the Northern Gateway and the Pūhoi to Warkworth section, allowing the landscapes to unfold without distraction.



Warkworth

Woodcocks Road

Wyllie Road

Mahurangi River

SH1

Mahurangi Harbour

Moir Hill Road

Schedewys Hills

Hikauae Creek

Pūhoi

Okahu Inlet

Pūhoi River

02

02 Context

The designation extends approximately 18.5km from the Johnstone's Hill tunnels to rejoin the existing SH1 just north of Warkworth. It is parallel to, but west of, the existing SH1. It traverses mainly hilly, rural country, and bypasses the western outskirts of Warkworth.

2.1 Natural History⁵

At a broad scale (1:250,000 Q-Map Geological Maps) the route traverses hill country formed either of sandstone/siltstone ('Pakiri Formation') or more weathered material ('Northland Allochthon'), and alluvial valley floors. The southern and central part is steep hill country. The northern part comprises rolling country and flood plains.

The area falls into two catchments: North of Moir Hill Road the land drains toward the Mahurangi River. South of Moir Hill Road it drains toward the Pūhoi River.

- The Mahurangi River has two main branches. The 'Right Branch' flows north, meandering across a flood plain and with its tributary headwaters on Moir Hill. The 'Left Branch' flows south, likewise meandering across a flood plain and with its headwaters on Dome Hill. The two branches join near Falls Road, west of Warkworth.
- The Pūhoi River is a tidal estuary with a sinuous course between mangrove forest mudflats, extending inland on a NW-SE valley.
- Hikauae Creek is a major tributary of the Pūhoi River which is followed by the designation. The creek is confined within a gorge for 3km upstream of the confluence with the Pūhoi River, but the middle reaches above the gorge comprise a more open valley in the shadow of Schedewys Hill. The headwaters rise on the southern side of Moir Hill.

The area is within the Rodney Ecological District. It would naturally have comprised extensive northern kauri-podocarp-broadleaf forests, dominated by totara forest, with areas of kauri on the ridges, and taraire on the lower slopes and better soils.

⁵ www.nzta.govt.nz/projects/Pūhoi-to-warkworth-application/assessment-reports.html

However, the area was extensively cleared, and is now dominated by pasture and (on less fertile broken hill country) pine plantation. There are frequent small wetlands, although they are mostly unfenced and have been modified. There is a mosaic of stands of regenerating kanuka/manuka and secondary bush throughout the area. The most notable areas of indigenous forest are on Wyllie Road, along the Mahurangi River (Right Branch) and within the Pohuehue Reserve.

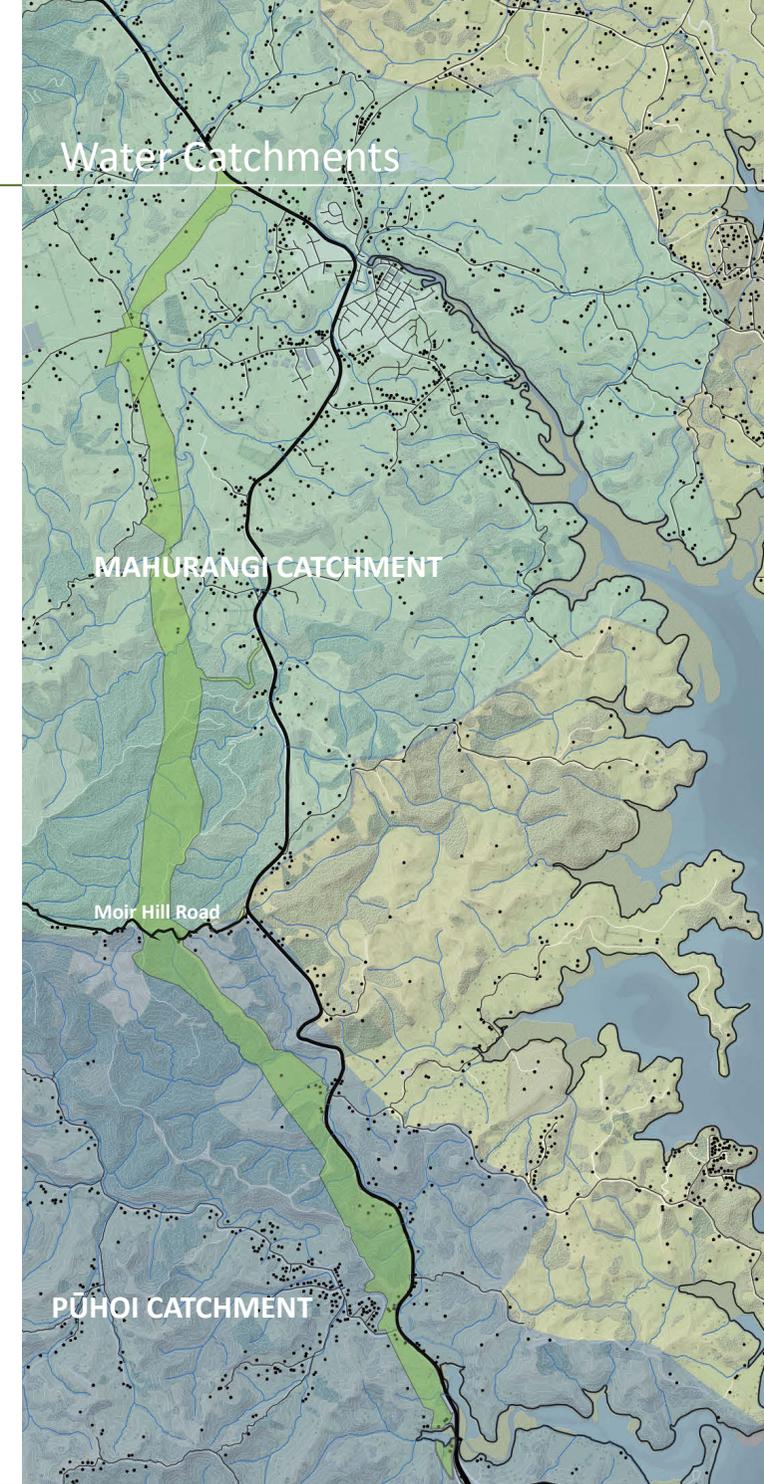
Further detail is contained in the Terrestrial Ecology Assessment Report including evaluation of particular sites within the designation. Particular attention is drawn to:

- A stand of totara forest containing the 'regionally critical' mistletoe opposite Mahurangi West Road.
- An area of secondary forest containing a rare native orchid in the Moir Hill Section.
- The kauri bush at Wyllie Road mentioned above.

2.2 Human History

- The designation traverses an area collectively known as Mahurangi which is the waka of Ngāti Whātua. It is book-ended by Mahurangi River in the north and Mahurangi Island in the south.
- The only coastal section of the designation is the Pūhoi valley, which is the area of greatest focus for tangata whenua. Important landmarks at the mouth of the Pūhoi valley include Maungatauhoro headland (an important pā and urupa), the adjacent flat land (Te Akeake sandspit, Te Rapa kainga) and Mahurangi Island. There were also kainga at Te Muri to the north. Settlement at the mouth of the Pūhoi River gave access north-south along the coast, and to the Kaipara by way of the east-west Pūhoi valley. Pertinent to the designation are the twin pā (Ngā Pā o Te Hēmara Tauhia) near the junction of the Pūhoi River and Okahu Creek estuary.
- Early people in the area included Tūrehu and Tini o Maruiwi – descendants of Toi te Huatahi.

Water Catchments



The two catchments along the designation ►

- Te Kawerau (of Tainui descent) moved into the area from the south, and Ngāti Rongo (of Ngāti Whātua o Kaipara descent) moved into the area from the north. A marriage alliance was formed between Te Kawerau and Ngāti Rongo, with Ngāti Rongo settling at Pūhoi.
- There was a subsequent period of conflict between Te Kawerau and Hauraki tribes. Hikauae commemorates a Te Kawerau victory, but other battles went the way of Hauraki tribes. A peace settlement was reached at Pūhoi, (commemorated in the name Mihirau), but was subsequently annulled and conflict continued.
- The area was decimated during the musket wars and subsequently abandoned for a time. During this period the Hauraki tribes sold the land in the 'Mahurangi Purchase'.
- Ngāti Rongo had moved back into the area, based in the lower Pūhoi valley at Te Muri and Te Rapa. Land was set aside from the 'Mahurangi Purchase' for Ngāti Rongo.
- Robert Graham bought land at Waiwera and the lower Pūhoi valley from Te Hēmara. He built a thermal spa at Waiwera, and a holiday home at Wenderholm ('winter home').
- Wenderholm, later sold to the Couldrey family, became Auckland's first regional park.

Warkworth and Pūhoi are the two settlements at the north and south ends of the area respectively.

Warkworth serves a rural area and is increasingly used by people for recreation or who choose the area for its lifestyle. It is growing quickly, and is envisaged to expand further.

Warkworth was founded where the Puhinui Falls terminated navigation on the tidal Mahurangi River (the falls being the junction between the 'Waitemata Sandstone' and a localised area of limestone). The town was subdivided by settler John Brown in 1853 and named after his Northumberland birthplace. Its early development was based around timber felling, a flour mill (driven by the head of water at the falls), cement making (based on the limestone), boat building, farming and orcharding.

There were a number of US Military camps in the vicinity of Warkworth during WW2, including three in the Wyllie Road area within the designation (see Heritage Assessment Report, Further North Alliance, August 2013).

The town climbs up the north-facing hills on the southern side of the Mahurangi River. The main natural feature is the bush clad scarp backdrop on the opposite (north) river bank. The bush comprises totara, kauri rickers, tanekaha, kanuka and, notably, is peppered with kowhai which Warkworth uses as a symbol for the area.

The designation skirts to the west of Warkworth and is separated from the town centre by rolling hills. The western outskirts in the vicinity of the designation include rural and lifestyle properties scattered along the local roads (Wyllie Road, Carran Road, Woodcocks Road, Valerie Close). It is also overlooked by part of a large-lot residential subdivision on Viv Davie-Martin Drive.

Ara Tūhono will create a new entrance to Warkworth for both northbound and southbound travelers, located on the north-west outskirts of the town.



Portland cement works, Warkworth, 1880



Warkworth town centre.

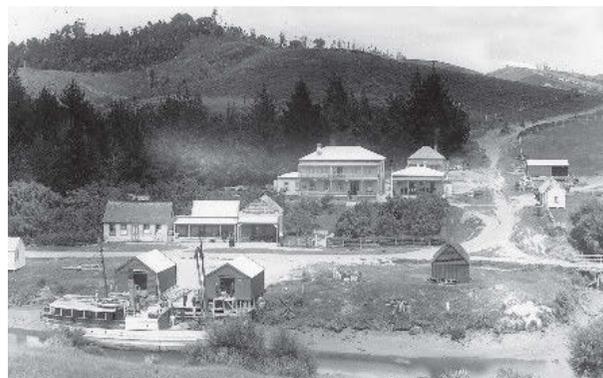


Warkworth River in the town centre.

Pūhoi is a historic village in a picturesque valley just off SH1. It was settled in the 1860s by people from Bohemia as one of New Zealand's 'Special Settlement Schemes'. Pūhoi was owned by Te Kawerau/Ngāti Rongo. Te Hēmara sold the land to the Crown for the establishment of the community. The new immigrants were supported (housed and fed) by Te Kawerau/Ngāti Rongo when they arrived.

The village's early livelihood revolved around timber felling and subsequent pastoral farming. The village was dependent on shipping along the tidal river until the 1920s. Pūhoi is translated as 'slow moving river' (i.e. tidal) and the settlement itself has an unhurried character.

Pūhoi is a popular day-trip destination from Auckland because of its accessibility, picturesque setting, historic character (there are several historic buildings including pub, church, library, school and a number of villas), and such draw cards as the Pūhoi Valley Cheese factory and the characterful Pūhoi pub. Importantly, although readily accessible, an important part of Pūhoi's character is its seclusion in a quiet valley away from the main highway.



Pūhoi in 1903, showing the Pūhoi River and Pūhoi Pub.



Church of St Peter and Paul (left) and Public hall (right) in Pūhoi.



Pūhoi River in the village centre.

2.3 Circulation

There are two patterns to the local road network in the area traversed by the designation:

- In the south, circulation is dominated by the north-south spine along SH1. Local roads branch off SH1 and are typically no-exit roads following NW-SE ridges; while
- In the north, roads radiate from Warkworth along the valleys and rolling country, and create more of a network.

Three other pertinent routes are:

- Moirs Hill Walkway. This track is mostly through pine plantation and accessed from Moir Hill Road. It does not have particularly high amenity and does not appear to be heavily used. It is an extension from the more popular walking tracks in the Pohuehue Scenic Reserve [D70AA and D70BB].
- Pūhoi River. This is a heavily used and well-loved recreational kayaking route between Pūhoi village and Wenderholm Regional Park. The kayaking route forms a distinctive section of Te Araroa – New Zealand's national long distance walking trail.
- Te Araroa – New Zealand's Trail. In addition to the kayak section mentioned above, the trail climbs the hill north of Pūhoi and follows the unformed Cook Road along the ridge adjacent to, and west of the designation.

2.4 Land Use

Land use falls into three main patterns:

- The steepest hill country (Moir Hill and the hills beside Hikauae Creek) is used for extensive pine plantations.
- The moderate hills and valleys in the south (Pūhoi Valley, middle section of the Hikauae Creek valley) is pastoral farming with a mosaic of native bush stands.
- The rolling country in the north is a patchwork of pastoral farming, orchards, vineyards, glasshouses, a fish farm, and lifestyle properties. While the lower lying land contains fewer bush remnants, this area contains the notable kauri forest on Wyllie Road and the totara forest tracing the course of the Mahurangi River.

2.5 Character Areas

Taking the above aspects together, the area traversed by the designation falls into three main character areas which form the basis for the three main Urban and Landscape Design Sector Plans ('ULDSP').

Pūhoi Valley

- Only 'coastal' section, traversing hills at the west end of the Pūhoi River estuary.
- Steep enclosing hills, with strong mosaic bush stands and pasture.
- Sinuous tidal river through mangrove forest mudflats.
- Hills and valley (but not including the designation) classified as an 'outstanding natural landscape' in Change 8 to the Auckland Regional Policy Statement.
- Particularly significant to mana whenua, with a focus on the river mouth area including Maungatauhoro headland, Te Akeake sandspit, and Mahurangi Island.
- Two pā and their settlement areas (Ngā Pā o Te Hēmara Tauhia) in and adjacent to the designation in the vicinity of Okahu Creek.
- Wenderholm Regional Park at the mouth of the Pūhoi valley (Auckland's first regional park).
- Pūhoi village upstream of designation. An historic and picturesque village. Originally a 'special settlement' by settlers from Bohemia. A popular out-of-city destination.
- Popular recreational kayaking route between Pūhoi village and Wenderholm, which also forms part of Te Araroa, New Zealand's trail.
- Overall the most sensitive part of the route. It is coastal, picturesque, significant to tangata whenua, historical, and is a popular out-of-town retreat.



Overlooking SH1 and Pūhoi Valley.



Looking along Pūhoi River.

Moir Hill and Hikauae Valley

- Steep hill country. Moir Hill (to the west of the designation) is 360m high with radiating high ridges and steep valleys.
- Mostly plantation forest, with sparse settlement and low visibility.
- Fewer remnant areas of indigenous bush, with notable exception of nearby Pohuehue Scenic Reserve.
- Te Araroa skirts the designation just north of Pūhoi (Cook Road). Moirs Hill Walkway crosses the designation (within pine plantation).
- Moir Hill Road defines the main watershed ridge (north to Mahurangi River, south to Pūhoi River).
- Moir Hill Road ridge is approximately 220m high where intercepted by the designation.
- While it is steep and has a close pattern of streams, Moir Hill is sparsely settled, has low visibility, and comprises land modified by plantation forestry.
- Hikauae Creek shares a similar character because most of the designation traverses steep slopes, most of which are in pine plantation. However, it has some distinctive aspects:
 - 3km forested deep narrow valley (between the Pūhoi River and Mahurangi West Road).
 - Open farmed valley in the shadow of Schedewys Hill.
 - Scattered rural dwellings.
 - Somewhat more visible compared to the Moir Hill section.



View from Moir Hill Road.



SH1 running past Pohuehue Scenic Reserve.

Warkworth Outskirts

- Rolling country and flood plains on the western outskirts of Warkworth.
- Relatively close pattern of rural subdivision, and mixed land use of pasture, orchards, vineyard, glasshouses, and a fish farm, with exotic shelter belts.
- Some remnant stands of indigenous bush, notably the kauri forest on Wyllie Road and the totara forest tracing the course of the Mahurangi River (Right Branch).
- Main natural feature is Mahurangi River meandering across floodplains.
- Backdrop of higher hills (Moir Hill, Dome Hill) north and south.
- Pockets of lifestyle properties scattered along rural roads.
- Large-lot residential subdivision (Viv Davie-Martin Drive) overlooking designation.
- Overall moderately sensitive. On the one hand it comprises easy terrain, an extensively modified landscape, and less picturesque aesthetics. On the other hand, it is closely settled and the designation is more visible from properties and public places.



Open farmland southeast of Warkworth.



View from Viv Davie-Martin Drive.



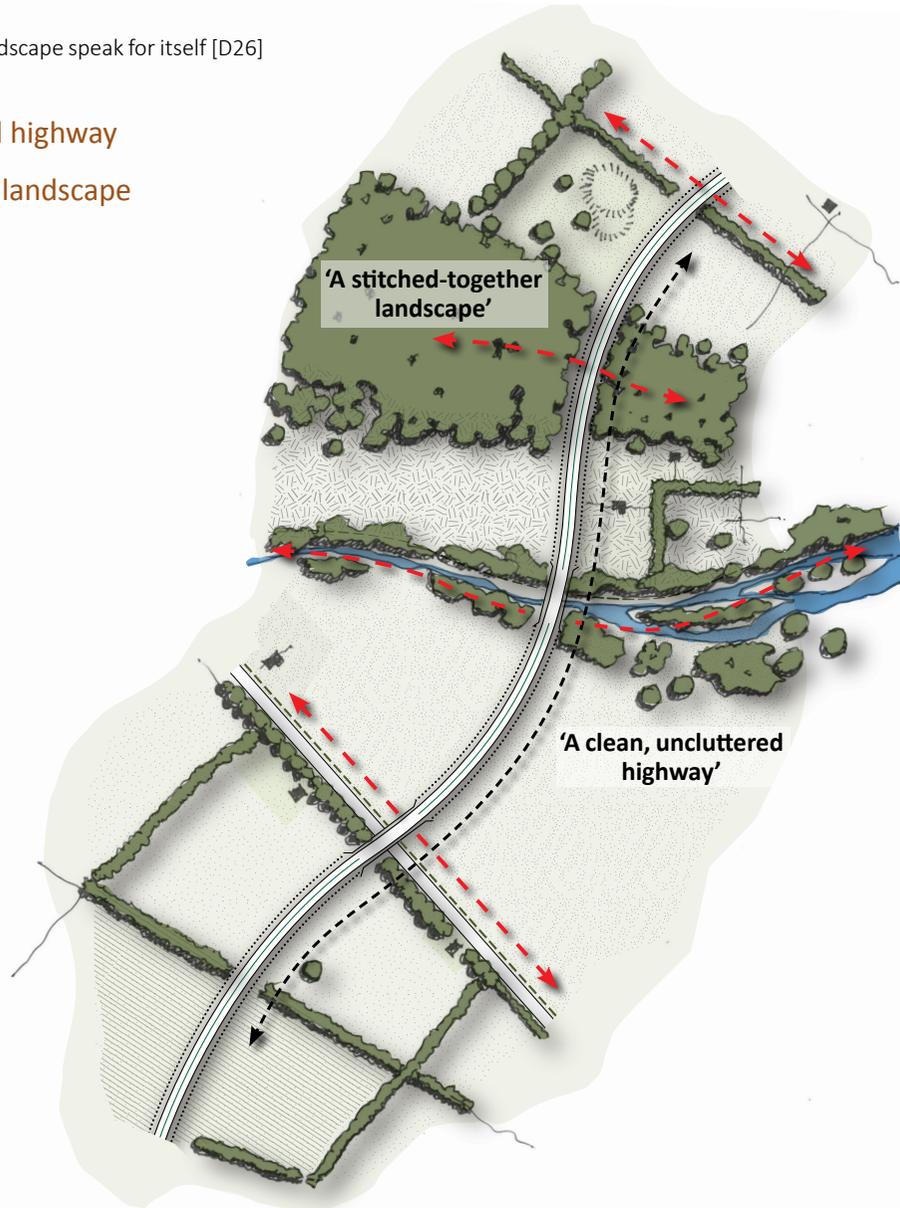
03

03 Overall Outcomes

‘let the landscape speak’

The overall outcome is to let the landscape speak for itself [D26] by means of:

- 3.1 A clean, uncluttered highway
- 3.2 A stitched-together landscape



◀ View over Hikauae Creek from SH1.

By way of explanation, the outcomes are designed to;

- Maintain amenity for people near the highway.
- Enhance the highway experience of traveling through the landscape.
- Maintain natural processes and human connectivity across the highway.

The outcomes are described in three tiers:

- The **overall outcomes** are described here in section three.
 - A clean, uncluttered highway.
 - A stitched together landscape.
 - Celebration of the cultural footprint and values of mana whenua in the landscape.
- Outcomes for **highway** and **landscape elements** are described in sections 4 and 5.
- **Sector specific outcomes** for each of the sectors are described in section 6.

‘let the landscape speak’

3.3 The cultural footprint and values of mana whenua are celebrated in the landscape

The overall outcome is to let the landscape speak by also celebrating the cultural footprint and values of mana whenua.

The ULDF was developed in collaboration with Hōkai Nuku, the alliance of mana whenua of the Project area, namely Ngāti Manuhiri, Ngāti Rango, Ngāti Mauku/Ngāti Kauae and Ngāti Whātua.

Hōkai Nuku has developed the **Cultural Footprint Framework** to express mana whenua connections to their ancestors (Mana Tangata), highlight iconic identity markers that provide reference points in the environment (Mana Whenua), and then note specific associations through historical events and activities (Pūtaka).⁶

The following **cultural values** also provide guidance as to how mana whenua view the world:

- Mauri (life force): The interconnectedness of all things means that the wellbeing of any part of the environment will directly impact on the wellbeing of the people.
- Kaitiakitanga (guardianship rights and responsibilities): The obligation to protect and enhance the mauri of all natural resources, for the benefit of ourselves, other people living in our homeland and for future generations.
- Ki uta, ki tai (from inland to the sea): The mauri of waterways is also viewed holistically and includes from the source of the waterway to the sea and reinforces the view that activities upstream also impact on the well-being of the river downstream.

⁶ Te Aranga Design Principles also provide background (available at www.aucklanddesignmanual.co.nz).

⁷ An island of spiritual significance associated with Te Hēmara Tauhia and located in the Waiwera River.

⁸ Two Pā sites and associated occupation areas located near the Pūhoi River.

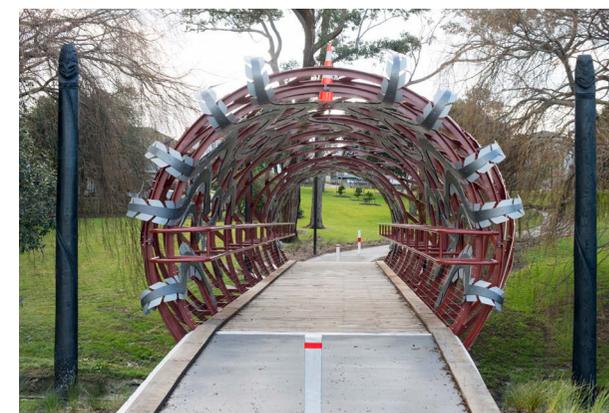
Hōkai Nuku Design Principles

1. **Rangatiratanga**
 - Affirming the self determination of iwi and hapū and the Treaty partnership between Hōkai Nuku and the Transport Agency is honoured by active engagement throughout the Project development.
2. **Mana Tangata**
 - Tūpuna are celebrated in the naming of structures - i.e: Te Hēmara Tauhia, Te Koroto⁷, Kahumatamoemoe, Pohuehue.
 - The use of macrons and bilingual signage.
3. **Mana Whenua**
 - Cultural reference points are acknowledged with pou whenua, pou paenga and other designs - i.e: Ngā Pā o Te Hēmara Tauhia⁸; Te Huarahi o Kahumatamoemoe, Te Awa Pūhoi, Waihe.
 - Enduring cultural artworks.
4. **Kaitiakitanga**
 - Guardianship rights and responsibilities are actualised with enhanced indigenous planting which supports the ecosystem and cultural practices.
 - Protecting and enhancing waterways.
 - Utilising sustainable design and practices.
 - Ability to access appropriate planting for cultural harvest (subject to appropriate safety constraints).

Examples of Cultural Footprint Art



Pou Whenua Carvings - Mt Eden Park, Auckland



Hinaki (eel trap) Bridge, Oakley Creek, Mount Roskill, Auckland.

'Bridging the Gap' and 'Landscape Guidelines'

'Bridging the Gap' and the 'Landscape Guidelines' are to be adopted by those responsible for the design and implementation of NZTA projects. Both documents require projects to be delivered utilising best practice to achieve positive urban design and landscape outcomes. This ULDF draws on both guidelines, and is to be interpreted in light of those documents, to which regard will be had in assessing ULDSP [D26]. References in the format [BtG 2.1] and [LG 2.1] refer to 'Bridging the Gap' and the 'Landscape Guidelines' respectively.

'Bridging the Gap' 10 Urban Design Principles

1. **Designing for the context**
2. **Integrating transport and land use**
3. **Contributing to good urban form**
4. **Integrating all modes of movement**
5. **Supporting community cohesion**
6. **Maintaining local connectivity**
7. **Respecting cultural heritage values**
8. **Designing with nature**
9. **Creating a positive road users experience**
10. **Achieving a low maintenance design**

'Landscape Guidelines' 10 Design Principles

1. **Context sensitive and place based approach**
2. **Facilitate green infrastructure and landscape integration**
3. **Understand the physical conditions**
4. **The right plant in the right place**
5. **Promote biodiversity and build in resilience**
6. **Champion low impact design**
7. **Deliver a quality user experience**
8. **Low maintenance and whole of life value**
9. **Safety in design**
10. **Facilitate community engagement and a collaborative approach**



Bronze Pou Whenua- Vector Arena, Auckland



Palisade - Te Hana



Sculpture, Auckland.



Precast Concrete Panel



04

04 Highway Outcomes

A clean, uncluttered highway

This section of the ULDF addresses highway elements that are to contribute to a clean, uncluttered highway. These elements are to be designed in tandem with the 'Safe System' approach.

The highway should be **understated**. It should neither draw attention to itself, nor be an unattractive foreground. While Ara Tūhono passes through different landscapes, it is a continuation of the one project and should provide a seamless experience in terms of the highway itself (see 'Northern Gateway Themes page 3). Rather, the differences in character should unfold in the landscape itself, free of distraction.

The highway should convey a **refined and minimalist aesthetic** with carefully designed details. It should include the following:

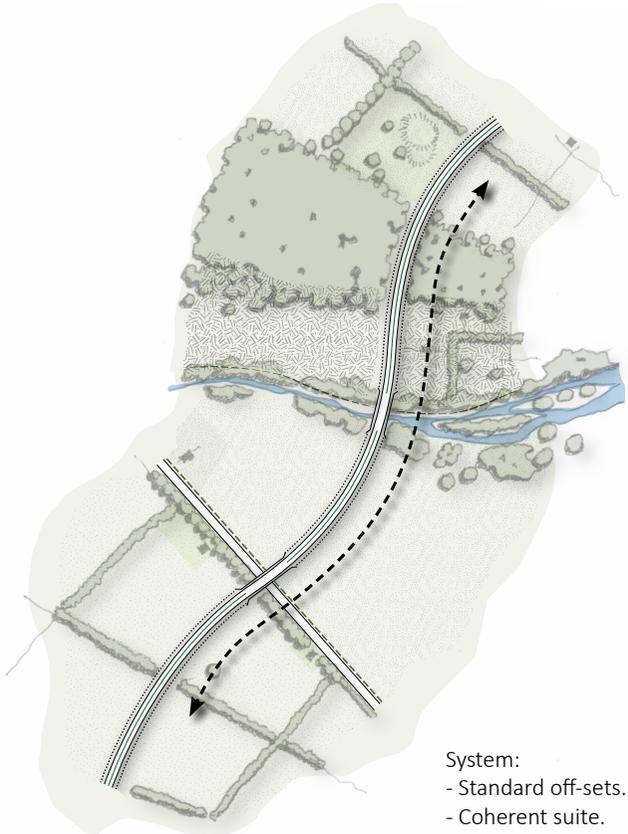
- Cohesive suite of highway elements.
- Standardised spatial layout of highway elements.
- Aesthetically clean highway margins.
- Green margins, minimising herbicide maintenance.
- Clean lines, and minimalist detailing; and
- Minimal variety of materials and colours.

ULDSP shall include a **design statement** explaining how the highway will achieve the outcomes listed above with reference to the following highway elements [D36]:

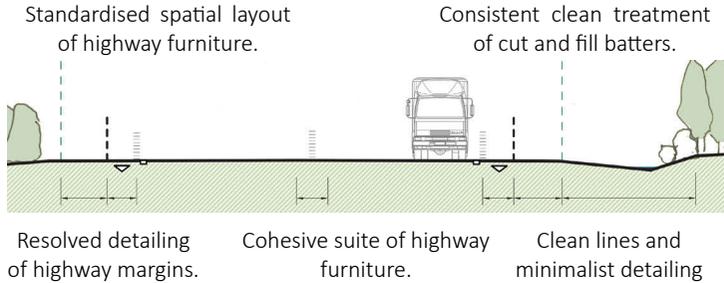
- Viaducts and other bridges.
- Highway furniture.
 - Barriers.
 - Gantries and poles.
 - Light standards.
- Noise and retaining walls.
- Cut and fill batters.
- Roadside stormwater treatment.
- Highway margins.
- Roadside weed management.

⁹ With the exception of the unattractive stormwater pipes beneath the soffit

◀ Waiwera River Viaduct



System:
 - Standard off-sets.
 - Coherent suite.
 - Resolved Detail's



Resolved detailing of highway margins. Cohesive suite of highway furniture. Clean lines and minimalist detailing

Diagrammatic section illustrating principles.

Elements such as pou whenua or other landmarks are conceptually part of the landscape outcomes addressed in the following section. With regards to highway elements, the cultural footprint of Hōkai Nuku includes naming features such as viaducts. While art may be incorporated into highway structures in special circumstances, the preference is for art to be stand-alone and relate to the landscape, while the highway elements are to be unadorned.

4.1 Naming

The Transport Agency and Hōkai Nuku, in collaboration, will name the highway features (e.g. viaducts and bridges). Suggestions are welcomed from other parties on the naming of such features.

4.2 Viaducts and Bridges

The project anticipates several viaducts and bridges. These will be dominant structures. Particularly sensitive locations include the Okahu Estuary and the Pūhoi River and the 'eco-viaduct' opposite Perry Road.

The viaducts over Okahu Estuary and the Pūhoi River should have a similar form and appearance. They are to have an elegant appearance, and with large spans and few piers. The existing Waiwera Viaduct is considered an elegant structure⁹ and a benchmark against which the Okahu and Pūhoi viaducts will be measured. The preference is for a similar haunched box girder construction, thin cantilevered deck and parapets, and light colour. Alternative forms and materials (such as steel) may be acceptable so long as the design achieves an equally elegant appearance. [D37(a), D38(e)] [RC69A, RC69AA].

The 'eco viaduct' through the forest opposite Perry Road may utilise more slender cylindrical piers (this viaduct will be viewed less from below, the more important factor is minimising footprint). This viaduct should have a dark colour on its outside surfaces to make it visually recessive against the bush backdrop as viewed from Perry Road. For example, a dark colour may be achieved by oxide coloured concrete (or weathered steel), exposed or textured surfaces, and patterned parapet faces.

Other viaducts and bridges on the highway alignment may use alternative forms (e.g. steel or concrete box girder or super T beams, square or cylindrical piers).

The required outcomes are that all viaducts and bridges:

- Have aesthetically clean lines and refined details.
- Achieve a complementary and uncluttered appearance by limiting the number of bridge types and using consistent treatments¹⁰ (such as parapets, abutment slopes) as far as practical between different bridge types.
- Allow the landscape to be stitched together beneath viaducts and bridges.
- Allow streams and local roads to pass unhindered, preferably on existing alignment.
- Use open (spill-through) abutments to maximise openness and views beneath bridges.¹¹
- Use permanent materials to armour abutment slopes so as to avoid scruffy areas beneath bridges.
- Create a clean aesthetic to the underside (soffits). Conceal unsightly services. Resolve shedding of rainwater to avoid unsightly weeping and staining.
- Create an aesthetically clean junction between parapet, decks and beams. (One approach is deep parapets that hang below beams to create a clean edge. Another is for the deck to be cantilevered with sufficient width to create a visually thinner edge).
- Provide for safe inspection and maintenance access.
- Maintain attractive long-term appearance, having regard to such matters as colour fastness and weathering (especially rainwater staining). The preference is to rely on integral material colour rather than painting. Refer also to [LG 4.8], [BtG 4.9] and [BtG 4.12].

ULDSP **design statements** shall include a separate section demonstrating how the viaduct and bridge designs satisfy these outcomes.

¹⁰Consistent bridge types, proportions, materials, elements, the way the elements are put together.

¹¹Spill-through abutments are not necessary for private access ways.



Clean junction with a concrete barrier and asphalt



Point Resolution Bridge, Auckland.



Waiwera River viaduct.

4.3 Barriers

- Maximise openness on the **outside edge** of the highway by using, in order of preference, (1) wire rope, (2) W-section steel with steel posts. Concrete barriers are least favoured on the outside edge except in special circumstances, such as bridges or at the top of steep banks.
- The order of preference for **median barriers** is (1) wire rope in a wide planted median and (2) concrete. The least favoured option is wire rope in an asphalt median.
- Ensure barriers have **clean, continuous lines** that follow the highway. Adopt a consistent highway cross section. Barriers look clumsy where the vertical or horizontal alignment is at odds with that of the highway. Slip form concrete barriers would only be acceptable if clean continuous lines could be assured.
- Pay particular attention to aligning barriers with the edge of paved shoulders so as to create a **clean edge** that reduces bare ground and the need for herbicide maintenance.
- Configure signs and other fixtures to **avoid individual barriers** for separate pieces of such 'furniture'.
- Use **minimalist details**. For example, W-section steel barriers look cleaner when installed on steel uprights rather than wooden posts.
- Minimise the need for **transitions** between barrier types and pay particular attention to such transitions.
- Extend concrete barriers beyond the ends of bridges to visually anchor the bridge and locate the transition in a less prominent location clear of the bridge.

4.4 Medians

- Medians and barriers are to be designed in conjunction with each other.
- The order of preference in order to achieve a 'clean uncluttered highway' is (1) wide vegetated medians and split level carriageways (2) narrow medians in conjunction with well-constructed concrete median barriers and clean junctions between barrier and pavement. Least preferred are narrow medians in conjunction with W-section steel or wire rope barriers where the ground is asphalted, too narrow to support healthy vegetation, or is unsightly because of reliance on herbicide use for maintenance.

4.5 Noise Mitigation

- **Avoid noise walls** in preference to ‘Open Graded Porous Asphalt’ (‘OGPA’) or equivalent as specified in Condition [D71].
- Contoured **earth bunds** are preferable to noise walls where additional noise attenuation is required.
- In situations where noise walls cannot be avoided:
 - Adopt a recessive colour and a rough surface texture to reduce prominence.
 - Apply a continuous top edge to walls / fences. (Avoid steps in the top edge).
 - Install short returns to avoid end-on views at the end of noise walls.
 - Plant vegetation both sides of noise walls to soften appearance and prevent graffiti. Address amenity on both sides of noise walls.
 - The noise walls on the Greenhithe section of SH18 (depicted) are a benchmark against which any noise walls will be measured.
- Refer also to [BtG 4.15] and [LG 4.8]



Greenhithe Noise Wall on SH18, Auckland.

4.6 Poles and Gantries

- Design as **part of a coherent suite** of highway furniture with a clean aesthetic.
- **Minimise variety** of poles and posts (i.e. material, cross section, colour) to reduce clutter.
- Use a **consistent spatial arrangement**. For instance, standardising pole off-sets from the carriageway and barriers will reduce clutter, and may also help standardise maintenance operation.
- Design **mowing pads or block footings** to reduce herbicide maintenance. Mowing pads should be properly boxed, and troweled, and finished flush with the ground to avoid adding to clutter.
- Design gantries and similar structures to prevent unauthorised access without the need for **clumsy fittings** such as barbed wire or spike collars.
- Refer also to [BtG 4.16] and [LG 4.8].

4.7 Lights

- A **dark night sky** is preferred. Limit lights to only those locations where they are essential for safety and operational requirements, and comply with AS/NZ 1158:2005 [D75].
- Design light standards as **part of a coherent suite** of highway furniture (materials, colour).
- Use **consistent height** within each group of lights to reduce clutter.
- Use a **consistent spatial arrangement**. For instance, standard off-sets from the carriageway and barriers will reduce clutter, and may help standardise maintenance operations.
- Use sustainable LED lighting systems.
- Sharp angles, or fittings attached direct to pole, are typically more aesthetically pleasing than curved poles.
- A weathered galvanised steel or metallic grey colour is likely to be unobtrusive.
- Refer also to [BtG 4.10] and [LG 4.8].

4.8 Cut and Fill Batters

Conceptually the cut and fill batters ‘slice’ the landscape. They are arguably the most prominent element of the highway with the potential to detract from the surroundings and the user experience. They therefore warrant **particular attention**. ULDSP Design Statements should explain how the strategy for cut and fill batters will achieve the outcomes of an ‘uncluttered, clean highway’ and ‘stitched together landscape’. Refer also to [BtG 4.14] and [LG 4.13].

4.9 High Cut Batters

- Where the ground is stable and competent ‘Pakiri Formation’ rock, the cut face should be steep and left as **exposed rock**.
- Where the rock is unstable (weathered rock and/or ‘Northland Allochthon’ material), the batter slope should be as steep as prudent (i.e. less steep than exposed rock face) and **revegetated** by scarifying and hydroseeding (or similar).
- Feather the top edge of cut batters to reduce and/or replant around the top of the cut where it will visually soften the edge profile.
- Use **monoslopes** in preference to benched cuts.
- Adopt a strategy of leaving large cuts as either bare rock or ground-cover vegetation (moss, ferns, grasses, herbs) and focus on replanting the fill batters and natural ground, where such planting is likely to thrive.

4.10 Low Cut Batters in Rolling Terrain

- ‘Cut batters in rolling terrain should be **graded-out** to a slope that marries with the surrounding topography. In particular, this should include the transition between a cut face and the natural ground.
- Scarify the cut ground, re-spread topsoil, and replant to match adjacent land.



Clean lines on SH18 in Auckland.



Exposed Pakiri Formation rock, SH1, Pohuehue.



Simple but clean detail.

4.11 High Fill Batters

- **Minimise encroachment** into streams, other water bodies or indigenous vegetation by maximising batter slopes as steep as feasible.
- Replant all fill batters that coincide with **stream courses** (ie. at culverts).
- Replant or re-grass other fill batters to **match adjacent land use** where appropriate.
- Use **monoslopes** in preference to benches, except in instances where batter slopes are to be re-planted.
- Ensure that any retaining walls or other measures used to stabilise cut batters have an attractive appearance in keeping with the outcome of ‘a clean, uncluttered highway’. The order of preference for such retaining walls is (1) gabions using sharp-edged baskets and hand placed rocks (2) concrete walls that tie in with the aesthetic used for bridges and abutments (3) timber post walls. Spray-concrete is the least favoured option.

4.12 Low Fill Batters in Rolling Terrain

- Grade to gentle slopes so as to blend with surrounding contours.
- Re-topsoil.
- Re-grass or re-plant to match adjacent land use.

4.13 Roadside Margins and Drainage

Stormwater treatment systems include sumps, sediment traps, swales and wetlands/ponds. The roadside sumps, swales and sediment traps should be considered part of the ‘highway’ aesthetics, while the wetlands should be considered part of the ‘landscape’ aesthetics (see below). The former should contribute to the outcome of an ‘uncluttered, clean highway’.

- Design sumps, swales and sediment traps as part of a **coherent suite** of highway elements. [D37(d)].
- Apply a **consistent spatial arrangement** for such swales, kerbs, sumps and sediment traps with respect to other elements such as barriers, edge of carriageway and planting.

- Design for **clean lines** and **green appearance** (not strips maintained by herbicide).
- Refer also to [BtG 4.17] and [LG 4.7].
- Provide for safe inspection and maintenance access.

4.14 Roadside Weed Management

Minimise the need for **herbicide spraying**, in order to achieve the outcome of an ‘uncluttered, clean highway’. The extent of sprayed vegetation (bare ground, yellowing grass, dead plants) is an unsightly foreground feature of highways, and distracts from the experience of a seamless landscape. ULDSP design statements are to demonstrate how the margin and median designs will minimise the need for such herbicide spraying. This may include such practices such as:

- Kerbs or **concrete edge strips**.
- A spatial configuration that **avoids bare ground** beyond the shoulders (e.g. side barriers adjacent to kerbs).
- Low, frangible **vegetation immediately behind barriers** (for example drainage swales with wetland vegetation).
- A spatial configuration that simplifies grass mowing and reduces left-over patches.
- **Mowing strips** around the base of structures.
- Hard surface finishes in narrow corners where planting is unlikely to thrive.



Unsuccessful batter treatment.



Vegetation struggling on cut batter.



Unattractive benched batter and vegetated median strip with wire rope.



05

05 Landscape Outcomes

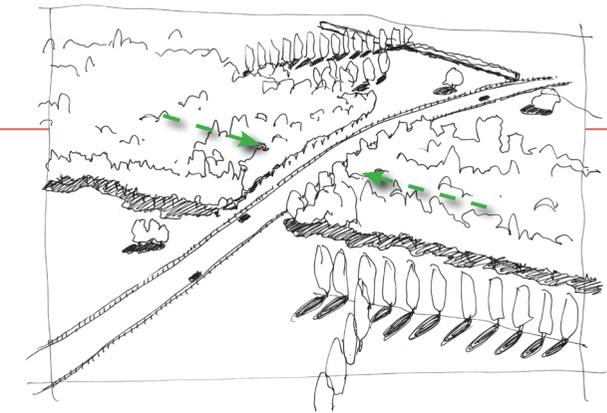
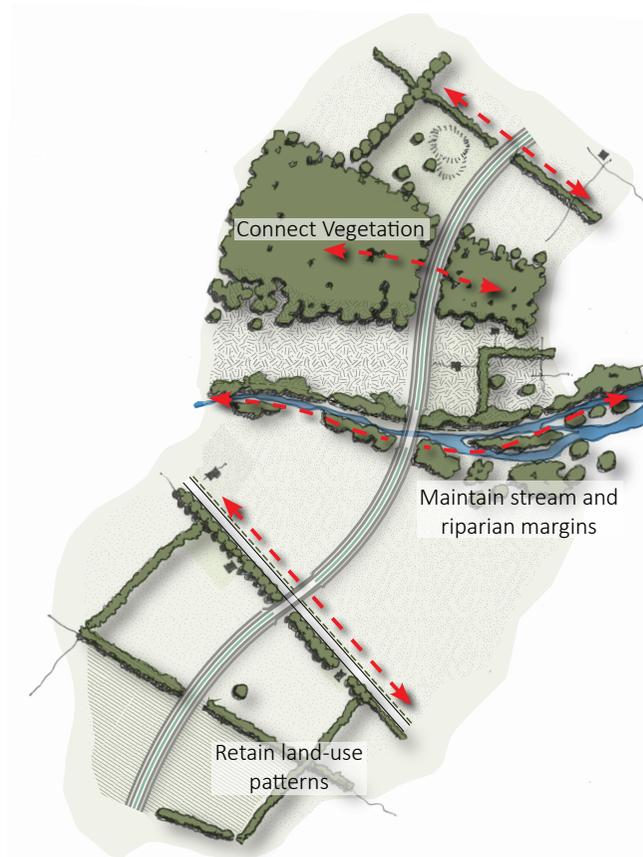
This section of the ULDF addresses elements that are to contribute to the **required outcome of a 'stitched-together landscape'**. Conceptually the highway is to allow the landscape patterns and processes to continue uninterrupted.¹²

The highway should, therefore, minimise and **repair any interruptions** to the natural and human landscape, and **highlight landmark features**. The experience is to be one of traveling through the landscape rather than along a highway corridor.

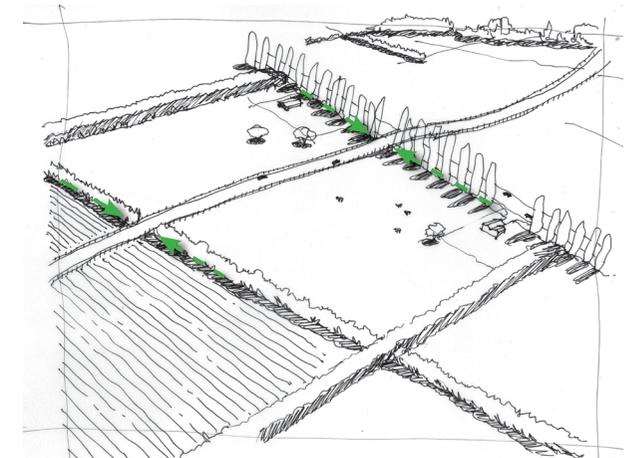
- Stitch together **streams** and **riparian margins** either side of highway.
- Stitch together **ecological corridors**.
- Restore adjacent vegetation and **land-use patterns**.
- Plant in a bold manner in scale with the landscape beyond the highway.
- Plant consistent with existing **natural vegetation patterns**.
- Connect **roads** and **footpaths**.
- Protect distinctive natural features.
- Recognise and highlight human landmarks including indigenous cultural footprints.

ULDSP shall include a **design statement** explaining how these outcomes will be achieved including reference to the following **landscape elements**:

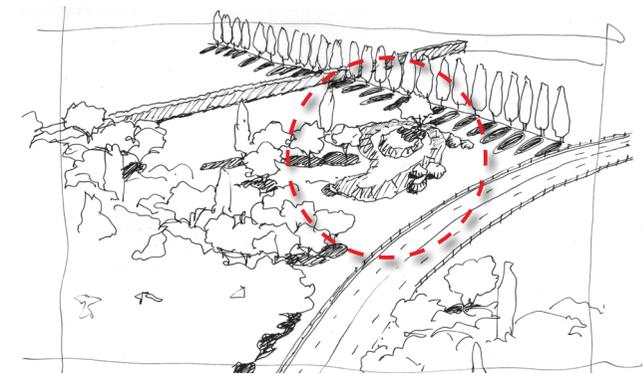
- Natural features.
- Human landmarks including indigenous cultural footprint.
- Connectivity.
- Streams and culverts.
- Stormwater wetlands.
- Planting.
- Spoil disposal.
- Rehabilitation following construction.
- Wildlife habitats and natural ecology.



Stitch together vegetation and land-use.



Stitch together vegetation and land-use.



Highlight significant features in the landscape.

¹² In rare instances where the highway forms an edge between different activities, the landscape design on either side of the highway should reflect the different characters of the adjacent activities.

5.1 Human Landmarks

Recognise, protect and (where appropriate) highlight **human features** in the vicinity of the highway, including:

- The two **pā** and wider settlement area at Okahu estuary (Ngā Pā o Te Hēmara Tauhia).
- Traditional **routes** (i.e. the east-west connection along the Pūhoi River, Kahumatamoemoe).
- Traditional **food gathering areas** (Pūhoi estuary).
- **Pūhoi** historic village.
- **Warkworth** town (the northern entrance).

5.2 Natural Features

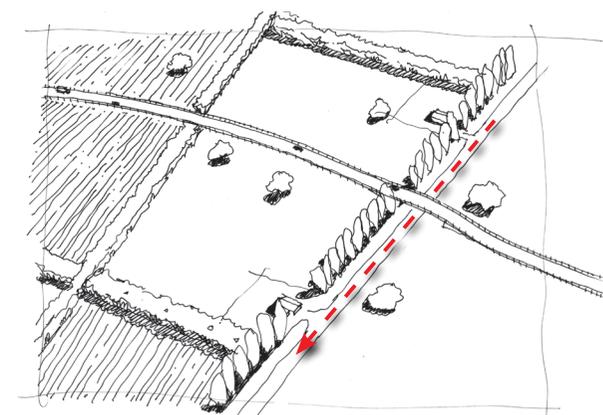
- Fine-tune the highway design to retain **local natural features** (e.g. rock outcrops, ridge skylines, knolls, trees, waterbodies).
- Enhance and extend nearby **areas of bush**, and incorporate them into the landscape concept.
- Enhance adjacent **natural wetlands**, and incorporate them into the landscape concept.

5.3 Local Connectivity

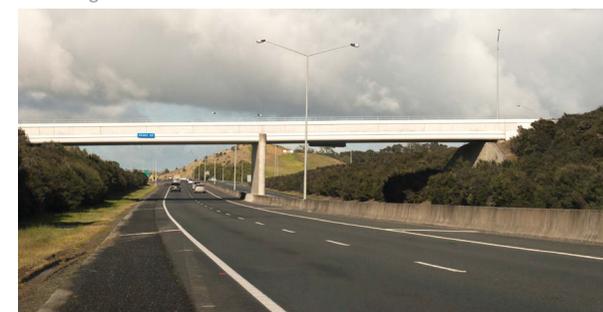
- Maintain **local connections** across highway:
 - Local roads: Pūhoi Road, Moir Hill Road, Wyllie Road, Woodcocks Road.
 - Walking tracks: Moirs Hill Walkway [D70AA], Te Araroa National Trail (kayak section).
- Local connections are to have high amenity.
- Connections should preferably be at **natural grade** (for instance on over-bridge where highway is in cut, or in underpass where highway is on embankment).
- Incorporate **pedestrian paths** as part of local road crossings.
- Avoid subways in preference to bridge underpasses.
- Bridge underpasses should have end-to-end visibility, generous proportions, good amenity and be well drained. Pay particular attention to 'Crime Prevention through Environmental Design' ('CPTED') matters.¹³
- Include **ecological linkages** in conjunction with local road connections.
- Consult with the Department of Conservation with regards the Moirs Hill Walkway. There may be preferable alternative alignments (such as along the ridge to Moir Hill Road) or methods [D70AA, D70AB].
- Refer also to [BtG 4.9] and [BtG 4.12].

5.4 Local Bridges over the Motorway

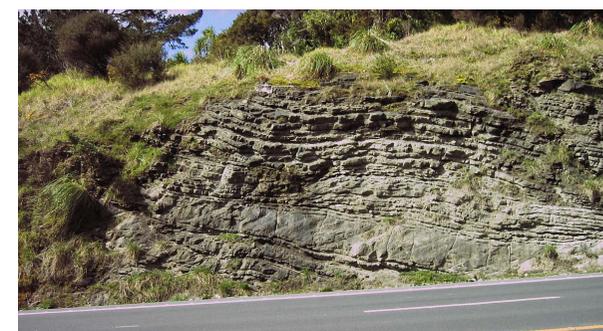
Bridges over the highway conceptually fall within the 'landscape outcomes' and therefore may be different from the bridges on the highway alignment itself (which are required to achieve the outcome of an 'uncluttered, clean highway'). Bridges over the highway may have distinctive designs to highlight landscape features and help 'stitch-together' the landscape. Potential bridges over the highway are at Moir Hill Road and Wyllie Road. The former is a particular opportunity to achieve landscape outcomes because it is at the watershed ridge (highest point of the route) and is on a traditional trail between the east and west coast (Kohumatamoemoe).



Stitch together local road connections.



Local Road Connection- Grand Drive overpass on SH1



Exposed Pakiri Formation rock, SH1, Pohuehue.

¹³ <http://www.justice.govt.nz/policy/crime-prevention/environmental-design>

5.5 Streams

- **Re-vegetate stream margins** either side of highway to:
 - Enhance habitat and ecological connectivity.
 - Visually accentuate the streams as landscape features; and
 - Soften the appearance of culverts.
- Use riparian and margin **species indigenous to the area**.
- Bridges are preferable to culverts for wildlife and landscape connections.
- Merge the **riparian planting** required by specific conditions into the overall landscape concept [D36(c)iv].

5.6 Culverts

- While bridges are preferable, the following outcomes apply where any culverts are to be used.
- Minimise **culvert length** [RC49]
- Construct culverts to incorporate **fish passage** [RC50-51] across the highway in accordance with Auckland Council and NZ Transport Agency 'Fish passage guidance for state highways' August 2013' including:
 - Appropriate culvert gradient.
 - Culvert invert below natural stream bed to enable natural material to build up on culvert base.
 - Baffles fixed inside culvert base to promote natural material on culvert base; and
 - Armoured ramps on downstream side to prevent scour.
- Plant indigenous shrub vegetation on fill embankments to **soften the appearance** of culverts and access tracks.
- Extend riparian planting onto the fill embankments at culvert crossings. Use low species near the top of fill embankments where views are to be maintained from the highway, grading to taller species toward the base of the embankment.
- **Replant stream margins upstream and downstream** of culverts for biophysical and visual reasons (see above).



Stitch together stream and riparian margins.



Highway batter and culvert.



Stormwater wetland with riparian planting - Waikato Expressway.

5.7 Stormwater Wetlands

While the sediment traps and swales should be considered part of the 'highway aesthetics' (as discussed above), the wetlands required for stormwater treatment [RC61-67] are part of the 'landscape aesthetics'.

- Configure wetlands and ponds to a **natural appearance**, conforming to landform setting (not geometric).
- Optimise the natural appearance by **riparian and margin vegetation** and by manipulating the edge profile.
- **Shallow and vegetated wetland** edges generally appear more natural, and can obviate the need for fences to prevent accidental access. Wetlands are also usually safer and provide better treatment than deep ponds.
- Design to minimise maintenance requirements.
- New wetlands are also required to mitigate any loss of existing natural wetlands [D60].
- Refer also to [BtG 4.17], [LG 4.7] and [LG 4.17].

5.8 Spoil Disposal

- **Consult Hōkai Nuku** with respects to earth transported away from an area (e.g. moving earth between catchments).
- Prevent spreading 'kauri die-back disease' pathogens, in accordance with a 'kauri dieback biosecurity plan' ('KDBP') [D63, D63A (i)] (refer to NZ Transport Agency 'standard operating procedures' for Waipoua Forest).
- Avoid spreading **weeds**.
- Select **spoil disposal sites** to minimise disruption of natural watercourses or areas of indigenous vegetation. Place spoil preferably in such locations as broad spurs and natural terraces.
- **Contour** the spoil so that it merges with natural landforms. [D37(d)iii]
- Re-spread stripped **topsoil** over spoil and **revegetate** to merge with adjacent land-use.
- **Over-filling** fill batters may be an appropriate technique to lose spoil (with benefits of softening the appearance of the highway) so long as it does not encroach into waterways.

5.9 Planting

- Establish and maintain planting [D76].
- Refer specifically to the Transport Agency's '**Landscape Guidelines** (Final Draft) 2014 and [BtG 4.22].
- Select robust plants and adopt planting and maintenance methods to ensure successful establishment and **long term vigour** of plants.
- Match planting design with **ground conditions**, and provide for sufficient ground preparation, topsoil management, and drainage to ensure successful plant growth. Refer also to [LG 4.12, 4.14, 4.15 and 4.16].
- Design planting to minimise whole-of-life cost and to reduce the need for on-going maintenance. Refer also to [LG 4.20].
- Design planting and implementation methods to minimise **on-going maintenance** beyond the initial establishment years.
- Marry planting with **adjacent vegetation**. For instance, extend existing bush areas with similar species, while sowing grass adjacent to pasture [D37(e)].
- Seek opportunities to continue vegetation patterns on **both sides of the highway**. The highway should not become a boundary but should pass through the landscape.
- Seek opportunities to bring adjacent land use **close to the highway**. For instance it may be appropriate to fence land within the designation and lease it for grazing by adjacent properties (all fencing to be consistent with the Transport Agency's fencing requirements¹⁴).
- Plant boldly **in scale with the landscape**. Use broad patterns and a restricted palette of visually dominant species (avoid 'fruit salad' planting with random mixes of species, and smaller areas of planting).
- Tailor species mix to **reflect natural distribution** (e.g. kauri, tanekaha, kanuka on drier ridges and hillslopes; podocarp-broadleaf in sheltered gullies and valleys).
- Use a **dominant mix of pioneer species** indigenous to the area. Note that totara is a dominant species in the area.
- In addition, include a strategy for subsequent **natural succession** to **canopy species**. ULDSP design statements should include details of the successional strategy (which will be specific to situation) [D36(c)iii] [D59].
- Plant replacement canopy trees required by condition D59 in the immediate vicinity. [D37(f)]. (Sites for replacement kauri will need to be suitable in terms of 'kauri dieback' protocols).
- Plant in a manner that **accentuates the topography**.
- Configure planting to **soften views** of the highway from those residences in proximity. (Refer to sector specific outcomes).
- Reinstatate (and enhance) **wildlife corridors** that might be interrupted by the highway, for instance by culvert design and re-vegetating stream approaches. Investigate corridors parallel with the highway. [D36(v)].
- **Repair edges** of any vegetation clearance with dense planting to minimise edge effects.
- Undertake vegetation clearance outside bird breeding season (Sept-Dec inclusive). [D42D]
- Be consistent with **NZTA P39 Specification** for Highway Landscape Treatments 2013 (or any subsequent updates) [D27(c)].
- Identify **vegetation to be retained** and take measures to secure its protection [D36(c)ii]. See also conditions D52A, D53, D55, D58].
- Identify **pests and weeds** that pose a threat to successful planting and take measures to remove them. [D36(c)ii]
- Be aware of the need of the requirement for a '**Kauri Dieback Biosecurity Plan**' ('KDBP') [D63, D63A-D].
- Consider using the open-ground forestry method for planting [D36A] but only where there is sufficient certainty of adequate survival and growth.
- Pay particular attention to coordinating planting as an integral part of the **highway cross section design** (including barriers, shoulders, roadside drainage, highway furniture) to minimise the need for maintenance through the use of herbicides.
- Design the planting with regard for **safe access** for maintenance and cultural harvest.

¹⁴ www.nzta.govt.nz/resources/fence-const/

5.10 Construction Yards

- A specific ULDSP is required for any construction yard within 200m of a residential dwelling with a focus on establishing appropriate screening [D38(c)]. The required outcome, to be demonstrated in the ULDSP, is **effective screening** by way of **early establishment, fast growth**, and sufficient **density** and **depth of vegetation**. This will apply, in particular, to the construction yard provided near the intersection of Woodcocks Road and Carran Road.
- Remove all construction areas and rehabilitate the ground so that it merges with the adjacent land. Construction areas left over adjacent to bridges and roads usually create a tatty appearance. This may entail removing any hardstand, ripping, re-topsoiling and replanting. [D36(c) i] [D70].



06

06 Sector Specific Outcomes

This section of the ULDF identifies additional outcomes specific to each sector. The designation is divided into three main sectors as follows:

- Pūhoi.
- Moir Hill and Hikauae Creek; and
- Warkworth.

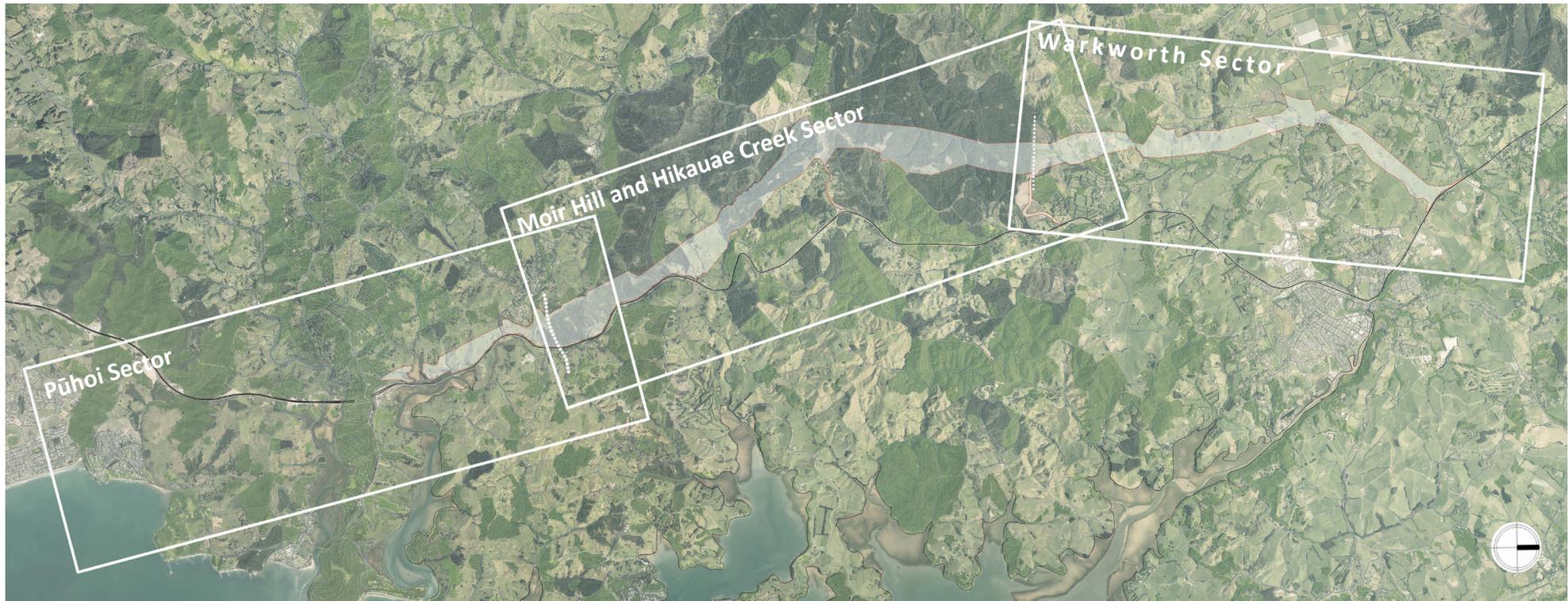
The following pages describe relevant characteristics of the landscape and designation, and the outcomes specific to each sector.

Condition D33 requires an **Urban and Landscape Design Sector Plan** ('ULDSP') for each sector. Conditions D34-D42 specify the content of the ULDSP. Condition D33 requires each ULDSP to comply with the ULDF.

In addition, condition D38 requires **'specific' ULDSP** for five instances. These may be integrated with the three main ULDSP so long as they specifically address the concerns and requirements of condition D38.

Comparison of AEE character areas and sectors:
The character areas identified in the AEE correspond to the following sectors.

| AEE Character Areas | Sectors |
|---------------------|-----------------------------|
| 1. Pūhoi | Pūhoi |
| 2. Hungry Creek | |
| 3. Schedewys Hill | Moir Hill and Hikauae Creek |
| 4. Moir Hill North | |
| 5. Perry Road | |
| 6. Wyllie/Woodcocks | Warkworth |
| 7. SH1 Link | |



◀ View over Pūhoi River

6.1 Pūhoi

Characteristics

The area is the most sensitive part of the designation and includes the following characteristics:

- This is the only ‘coastal’ section, in that the designation is at the western end of the Pūhoi River tidal estuary.
- The landscape has high aesthetic qualities: The tidal river winding between the mangrove forest mudflats is the main feature, leading the eye down the estuary toward the coast. The valley is enclosed by bold hills with a strong mosaic of bush stands and pasture.
- The whole valley is significant to Māori, including Maungatauhoro at the mouth of the valley, the estuary, and the east-west connection with the Kaipara along the valley. In particular there are two pā (Ngā Pā o Te Hēmara Tauhia) at the Okahu Inlet immediately adjacent to the alignment of the Okahu Viaduct.
- The Okahu Viaduct and Pūhoi Viaduct are in prominent locations.
- Pūhoi valley is important for recreation. The two main attractions are Wenderholm Regional Park (2km downstream of the designation) and Pūhoi village (1km upstream). Pūhoi River is a well-known kayaking route.
- Pūhoi village is significant because of its historic character and picturesque valley setting separated from the highway in a secluded and quiet valley.
- Where the designation crosses Pūhoi River is particularly sensitive as it is the gateway to Pūhoi village.
- Cuts and fill embankments will be required parallel to the Pūhoi River, with potential effects on wetlands, water quality and amenity for people using the river and the existing road.
- There are stands of secondary bush at Okahu Estuary, on the ridge west of SH1, and on the north bank of the Pūhoi River near the intersection with Pūhoi Road.

Specific Outcomes

In conjunction with the overall outcomes of an ‘uncluttered, aesthetically clean highway’, and a ‘stitched-together landscape’, the Pūhoi Sector has following specific outcomes:

- Recognition and highlighting of the two pā (**Ngā Pā o Te Hēmara Tauhia**) and their associated settlement areas on opposite banks of the Okahu Inlet [D28]. Matters to consider include:
 - The **horizontal** and **vertical alignment** of the viaduct, and location of **abutments** in relation to the pā.
 - Compliance with the ‘Cultural Heritage and Archaeology Management Plan’ (‘CHAMP’), ‘Cultural Indicators’ prepared by Hōkai Nuku and the ‘Pā Management Plan’. [D65-66 and D77-78]
 - Earthworks design to **minimise encroachments** beyond the highway footprint.
 - Incorporation of the **site-specific ULDSP** for the Okahu area within the Pūhoi ULDSP.
 - Maintaining the visual and physical **relationship** between the two pā and with the estuary.
 - **Artworks** (such as pou whenua) to mark the pā.
 - **Naming** of the viaduct by Hōkai Nuku.
 - Aesthetic **design** and **finishes** of the viaduct.
- An **elegant Okahu Viaduct**, particularly when viewed from the Pūhoi River and wider landscape [D37(a)] [RC69A, RC69AA].
- An **elegant Pūhoi viaduct**, particularly when viewed from the Pūhoi River and the intersection of Pūhoi Road and the existing SH1.
- **Consistent designs** for the structures across the Okahu Inlet and Pūhoi Rivers.
- **Views** of the Pūhoi River for highway travelers. (The viaduct design will need to address the pā themselves, the relationship of the pā to the estuary and to each other, and amenity effects from the Pūhoi Creek and Okahu Estuary. The viaduct is also the best opportunity for views of the Pūhoi River).
- Minimisation of physical intrusion into, and maximisation

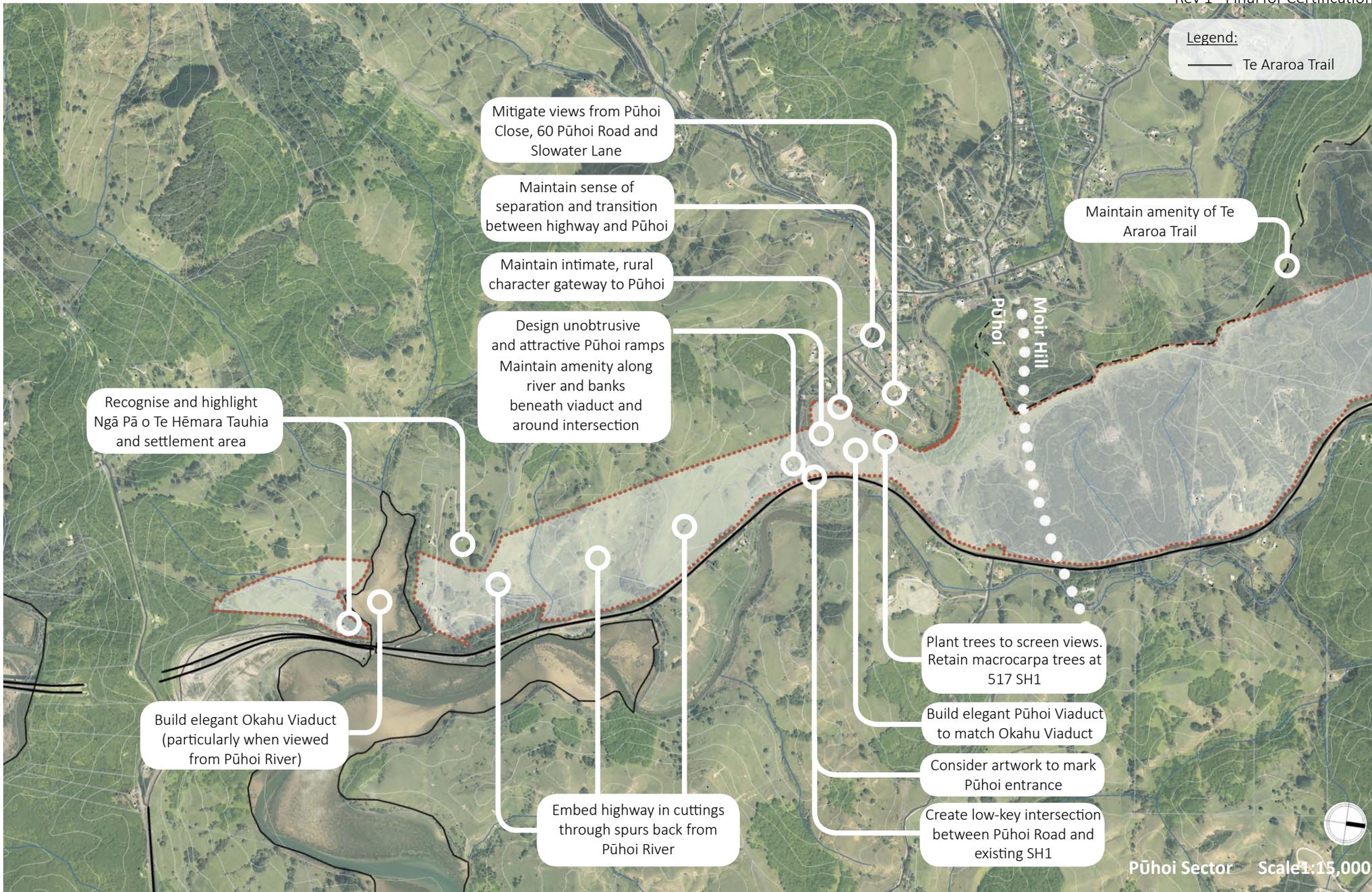
of visual openness along, the Pūhoi River and Okahu Inlet. Matters to consider include:

- No **abutment embankments** on the floodplains and lower terraces (i.e. avoidance of embankment on the terrace below the existing Schollum house on the north bank of the Pūhoi River).
- Minimise **piers** in river or estuary. Note: [RC69AA] limits the Okahu Viaduct to 4 piers. See also [RC74].
- The requirement for a specific ULDSP for the viaducts spanning the Okahu Inlet [D38(e)].
- Minimisation of the **intrusion** of the highway **on the Pūhoi River** between the Okahu and Pūhoi Viaducts. Matters to consider include:
 - Aligning the highway to provide separation from the river.
 - Embedding the highway in cuts through spurs back from the river.
 - Incorporating low bunds on the outside edge of embankments.
 - Re-vegetating fill batters (similar to ‘Northern Gateway’).
- A **gateway to Pūhoi village** in keeping with the special character of this area. The gateway is to comprise of a comprehensive design paying attention to the ramps, intersections, Pūhoi Road itself, and adjacent landscape design. Outcomes required include:
 - Maintaining the **tree-lined, rural character** of Pūhoi Road (avoiding such urban elements as kerb and channel).
 - Maintaining the **relatively narrow, winding alignment** and enclosed intimate scale of Pūhoi Road (so that there is a sense of transition and separation between the highway and Pūhoi village).
 - Providing **simple, low-key intersections** between Pūhoi Road, the existing SH1 and the new ramps (avoiding unnecessarily over-scaled or complex intersections, and unnecessary lanes and traffic islands).

- **Rehabilitation of construction areas** so as to avoid any left-over gravelled areas and any unnecessary shoulders or pull-off areas.
- Planting of land within the gateway area so as to enclose Pūhoi Road (including exotic trees where appropriate to continue existing patterns).
- **Minimising the obtrusiveness (especially from Pūhoi Road and Pūhoi River) of the ramps** from Pūhoi Road (and Pūhoi River) having regard to their location and design. For example:
 - The north-bound off-ramp might be confined to a narrow cut through the spur immediately west of the highway. Special attention should be paid to the cut faces either side of such a ramp. Artfully designed gabion walls might be used (for instance) to create an intimate scale and low key character and to avoid unsightly earthworks.
 - The south-bound on-ramp might be located on the existing SH1 south of the intersection with Pūhoi Road, making use of a small valley at that location to reduce prominence.
- A **sense of separation** between the highway and Pūhoi village. Matters to consider include:
 - Visual screening.
 - Maintaining a slow speed, curving alignment, and intimate scale along Pūhoi Road.
- Appropriate **naming** of structures and landscape features.
- A **context sensitive feature** to mark the entrance to Pūhoi [D36 (b)]. Such a feature should complement the more important outcome of a low-key, intimate rural landscape setting at the gateway to Pūhoi. The feature is to be designed in conjunction with the Iwi Advisor and in consultation with Auckland Council and Auckland Transport. Refer also to [BtG 4.23].
- Physical and visual **connectivity** of the following local routes:
 - Pūhoi Road and the coastal road between Pūhoi, Wenderholm and Orewa.
 - Pūhoi River as a high amenity kayak route (incorporating Te Araroa Trail).
 - Cook Road section of Te Araroa Trail
 - Billing Road.
- Enhancement and extension of **existing areas of bush** adjacent to highway, and their incorporation into the landscape concept.
- **Screen planting** between the highway and Pūhoi Close area, subject to any floodplain constraints (to be determined by stormwater engineer).[D38(a)] A **specific ULDSP** is required for this matter.
- **Specific ULDSP** required by condition D42(a) (retention of the macrocarpa trees at 517 SH1).
- Mitigation of the highway on the following **properties** [D30-31]:
 - Properties of Slowater Lane, Pūhoi.
 - Properties of Pūhoi Close.
 - 60 Pūhoi Road, Pūhoi.



Northern Gateway Toll Road



6.2 Moir Hill and Hikauae Creek

Characteristics

Moir Hill is steep hill country clad in pine plantation. There are frequent streams. The area is sparsely settled and has low visibility. Relevant characteristics include:

- The steep topography and the high number of streams traversed which necessitate particular attention to stream ecology and water quality (i.e. earthworks and culvert design, stream rehabilitation).
- The dominant land use of exotic plantation forestry.
- The potential for future changes to land use (for example to lifestyle properties)
- The small number of houses - all of which are on Moir Hill Road or the existing SH1.
- The interception of only two local routes:
 - Moir Hill Road which is narrow and winding, follows a sharp skyline ridge, and affords some panoramic views.
 - Moirs Hill Walkway, which is a low use track mostly through pine plantation extending from the popular Pohuehue Scenic Reserve.
- The watershed between the Pūhoi and Mahurangi catchments at Moir Hill Road.
- Some areas of high value bush.

Hikauae Creek is similar in most respects to Moir Hill: It is also steep, mostly in pine plantation, and likewise contains frequent streams. However, it also has the following distinctive features:

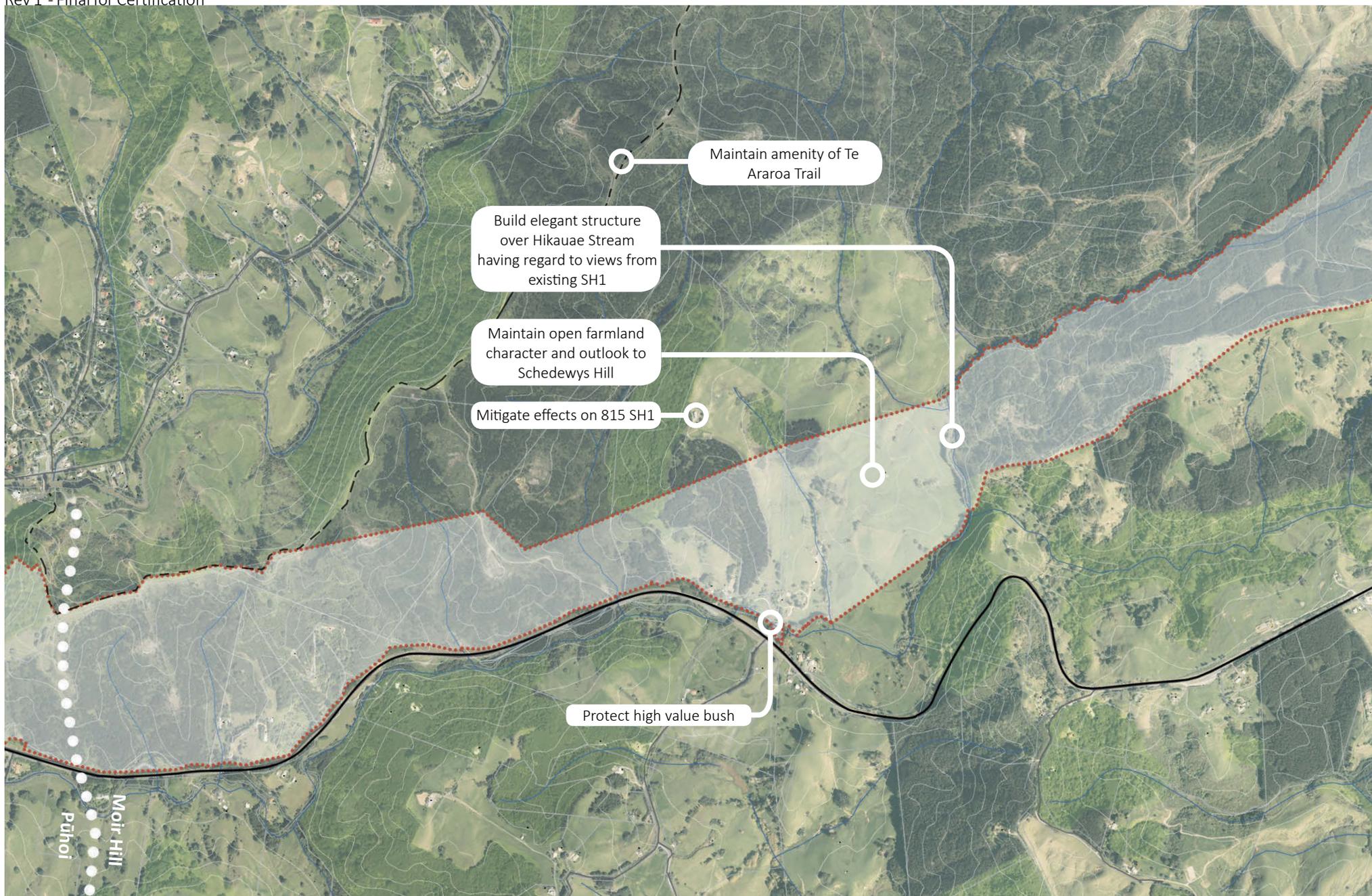
- A 3km forested gorge, which is traced by the existing SH1 ('Hungry Creek' gorge).
- An open farmed valley (Fernbrook Farm) in the shadow of Schedewys Hill.
- Higher visibility from the existing SH1 road, especially from Schedewys Hill which overlooks the section of designation traversing open farmland. The bridge over the Hikauae Creek at this location will be prominent.
- The greater number of rural and lifestyle properties scattered along SH1, and the 'Hungry Creek Arts and Crafts School'.
- An area of high value bush opposite Mahurangi West Road.
- The proximity of Te Araroa (the New Zealand trail) which is adjacent to the west of the designation at the unformed Cook Road.

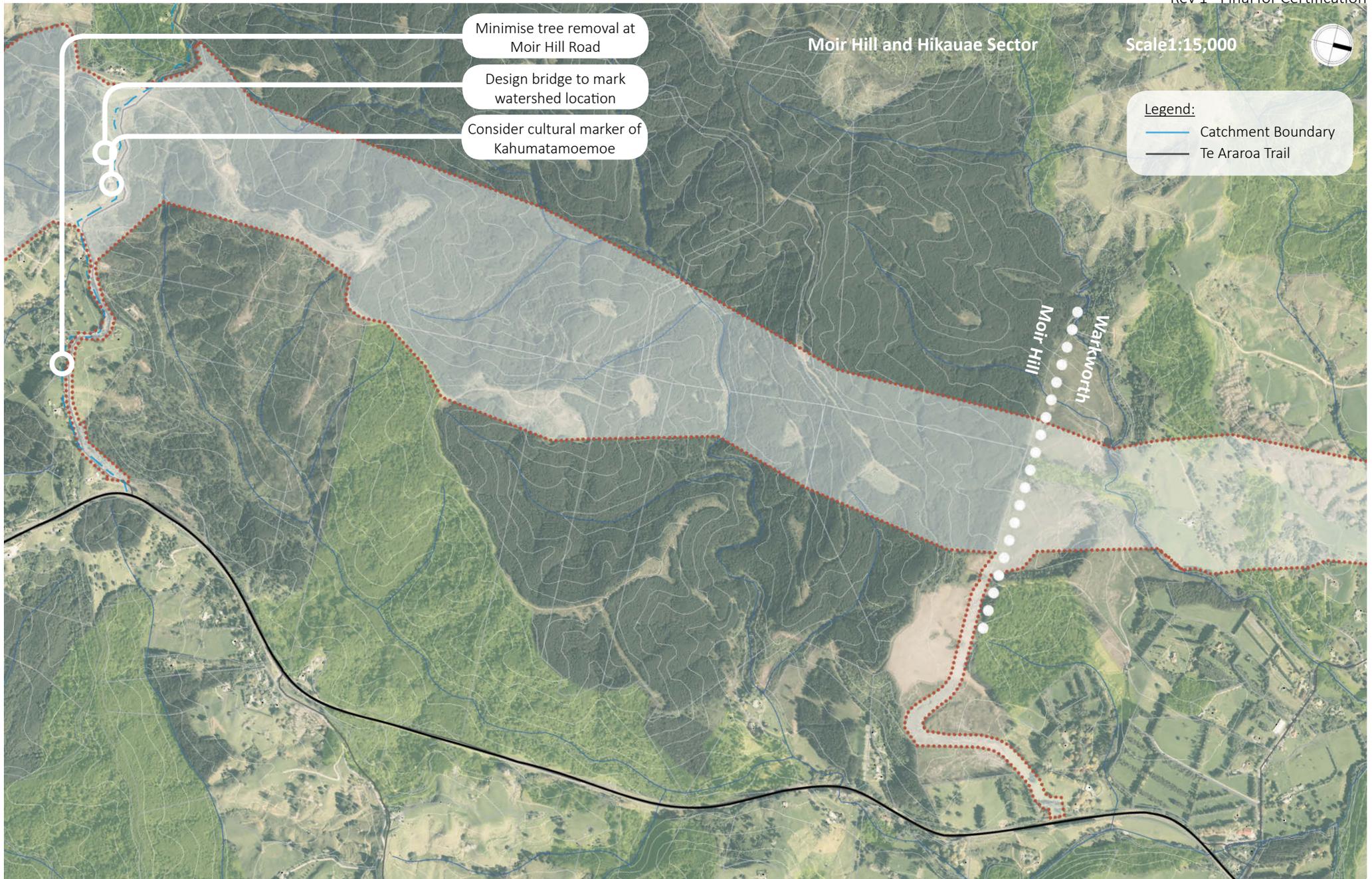
Specific Outcomes

To contribute to the overall outcomes of an 'uncluttered, aesthetically clean highway', and a 'stitched-together landscape', the Moir Hill and Hikauae Creek Sector requires the following specific outcomes:

- Maintenance of **stream integrity**. Matters to take into account:
 - Configuration of earthworks.
 - Culvert and bridge design.
 - Location of spoil disposal areas.
 - Rehabilitation of streams and riparian margins.
- Use of low **flammability species** for rehabilitation adjacent to plantations. See <http://www.wrfd.org.nz/sites/default/files/Lowflammablespeciesbrochure.pdf>
- Physical and visual **connectivity** of the following local routes:
 - Moir Hill Road.
 - Moirs Hill Walkway [D70AA] (Note: consult regarding options for the walkway with the Department of Conservation [D70AB]).
- Engagement with the **topography** for highway users. Matters to consider:
 - Sinuous highway alignment that accentuates form of Hikauae Creek gorge.
 - Open northbound views to Schedewys Hill from vicinity of Fernbrook Farms.
 - Rocky cut batters through Moir Hill.
 - A distinctive design for the Moir Hill Road overbridge that highlights the watershed between the Pūhoi and Mahurangi catchments.
 - Accentuation of streams.
 - Engage with local artist(s)
- Appropriate **naming** of structures and landscape features.
- Avoidance of **high value bush** opposite Mahurangi West Road.

-
- Enhancement and extension of existing areas of bush adjacent to highway and their incorporation into the landscape concept.
 - Minimisation of **tree removal** along Moir Hill Road in accordance with Condition D42B.
 - Mitigation of the highway on the following property [D30-31]
 - 815 SH1, Pūhoi [D79]





6.3 Warkworth

Characteristics

On the one hand, this area comprises easy terrain, an extensively modified landscape, and less picturesque aesthetics (compared to the Pūhoi area for instance). On the other hand, it is closely settled and has high visibility. Relevant characteristics include:

- Rolling topography.
- Meandering low-land courses of the rivers and streams, most notably the Mahurangi River (both branches).
- Closer pattern of subdivision, mixed rural land uses, and shelterbelts.
- The number of rural and life-style properties distributed along local roads. In particular, the designation is overlooked by properties on Perry Road, Wyllie Road, Viv Davie-Martin Drive and Valerie Close.
- Stand of kauri forest on Wyllie Road (west of the Perry Road) where a viaduct (indicatively 200m, 20m high) is required to minimise impact on the bush. While it will be visible to only a small audience, the design and treatment needs to address amenity from a small number of houses at the end of Perry Road.
- Corridor of totara forest along Mahurangi River.
- Network of rural roads radiating from Warkworth and therefore connectivity issues.
- Presence of Warkworth (which is bypassed by the designation).
- Flood-prone nature of the low-lying land at the northern end of the designation.
- Historical location of WW2 US army camps near Wyllie Road.
- Consider acknowledging sites of former WW2 military camps from Wyllie Road.

Specific Outcomes

In conjunction with the overall outcomes of an ‘uncluttered, aesthetically clean highway’, and a ‘stitched together landscape’ (specified in earlier sections of the ULDF), the Warkworth Sector requires the following specific outcomes:

- A **viaduct** (including its approaches) opposite Perry Road designed to **minimise effects on kauri forest and stream**, and to **reduce obtrusiveness** from nearby houses on Perry Road [D63A(e)]. Matters to consider include:
 - Detailed alignment, viaduct design and construction methods to minimise the extent of kauri removal.
 - Construction methods that minimise ground level impacts, and enable understory plants to be retained and enriched beneath the viaduct [D52].
 - Protection and enhancement of vegetation in the surrounding bush (consider including additional clematis and flowering rata for planting in this area).
 - Revegetation to compensate for cleared canopy species [D59] and to repair cleared edges (to avoid edge effects) [D52].
 - Detailed alignment, viaduct design and construction methods to minimise impact on stream [RC52A].
 - A dark and recessive viaduct colour (as seen from Perry Road) achieved through such techniques as addition of oxide to concrete mix, exposed surface texture or finely patterned surface that creates surface shadows.
 - Revegetating the hillslope north east of the viaduct and above the Mahurangi River (as part of replacement planting), in order to stitch the kauri bush across the highway, and soften the appearance of the highway from the Perry Road area.
 - Retaining as much of the existing row of poplars, and planting additional poplars in the vicinity, to soften views of the viaduct from the Perry Road area.
- Maintenance of **stream integrity**. Matters to take into account:
 - Culvert and bridge design.
 - Location of spoil disposal areas.
- Rehabilitation of streams and riparian margins.
- Planting and or earthworks to **soften the appearance** of those sections of highway elevated on **fill embankments**. Matters to consider include:
 - Low bunds on top of fill batters (by ‘over-filling’) to provide partial visual and aural screening.
 - Replanting on fill batters, either with indigenous re-vegetation or groups of trees typical of the rural landscape.
- Minimisation of clearance of regenerating kanuka at the southern end of the sector and its enhancement and incorporation into the landscape concept.
- **Connectivity** of the following local routes:
 - Wyllie Road.
 - Woodcock Road.
 - Carran Road.
- Appropriate **naming** of structures and landscape features.
- A **distinctive landmark** that evokes Warkworth at the northern tie-in with SH1 that evokes Warkworth. [D36(b)]. The landmark is to be designed in conjunction with the Iwi Advisor, and in conjunction with Auckland Council and Auckland Transport. Consideration should be given to engaging a local artist(s). Elements to consider include:
 - The overall **form of the road** tie-in itself.
 - Using surplus spoil to create sculptural **‘earth-art’** or naturalistic landmark.
 - **Art-work** of a sufficient scale for the landscape and intersection.
 - Extensive **wetlands** in recognition of the natural history context.
 - **Bold planting**, such as use of kowhai (a symbol of Warkworth) or revegetation of the wetland forest previously occupying the low-lying ground.
 - Refer also to [BtG 4.23].
- Extension of existing areas of **bush** in the vicinity of crossing Mahurangi River (Left Branch) and its incorporation into the landscape concept.
- Rehabilitation of land between the highway and Mahurangi River (Right Branch) opposite Wyllie Road, including

extending **totara bush** and removal of any construction access track [D38(d)]. Note: A **specific ULDSP** is required for this matter.

- Management of **potential flooding** at northern end [RC67A and RC68A].
- Screen planting between the highway and **Viv Davie-Martin Drive** [D38(b)]. Note the conditions require a **specific ULDSP** to address this matter. This may include planting the fill batters on the east side of the highway (including the approaches to the Carran Road Flood Relief Bridge and the Woodcocks Road viaduct), and strategic planting of exotic or indigenous trees within the designation to further soften views of the highway. Consider planting on rolling land to the north so as to screen oblique views of the northern interchange with existing SH1.
- Mitigation of elevated views to the south-west over the highway from properties on Viv Davie-Martin Drive, including planting on the fill embankments and the intervening in-designation land, so as to soften the highway and integrate it within the landscape.
- Mitigation of the highway from properties on rural roads, in particular the properties listed in condition [D30].
- Maintenance of access across the highway between the divided parts of the Civil Family Farm [D80]. Such access to be designed in consultation with the property owners. It is envisaged such access would comprise an underpass beneath the Carran Road Flood Relief Bridge, of sufficient width and clearance to accommodate farm vehicles and practical stock movement, and designed to take account of potential flooding.

