Project Number: 2-S5416.01

SH2 Waikare Gorge Realignment

Waka Kotahi NZ Transport Agency

Landscape and Visual Assessment

6 March 2023

wsp

150 YEARS IN AOTEAROA

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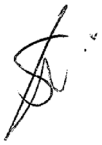

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Disclaimers and Limitations

In preparing the Report, WSP has relied upon data, surveys, analyses, designs, plans and other information ('**Client Data'**) provided by or on behalf of the Client. Except as otherwise stated in the Report, WSP has not verified the accuracy or completeness of the Client Data. To the extent that the statements, opinions, facts, information, conclusions and/or recommendations in this Report are based in whole or part on the Client Data, those conclusions are contingent upon the accuracy and completeness of the Client Data. WSP will not be liable in relation to incorrect conclusions or findings in the Report should any Client Data be incorrect or have been concealed, withheld, misrepresented or otherwise not fully disclosed to WSP.

1 Introduction

Waka Kotahi are currently progressing the Pre-Implementation phase (the Project) for the State Highway 2 (SH2) Waikare Gorge Realignment. The Project is being developed under the Provincial Growth Fund and seeks to address existing resilience, access and safety issues associated with this section of the state highway corridor. The Waikare Gorge Realignment is part of a wider programme of works under the Tairawhiti Roading Package programme. The Waikare Gorge is located directly to the north west of Putorino, a small rural community located mid-way between Wairoa and Napier within the northern extent of the Hawke's Bay region.

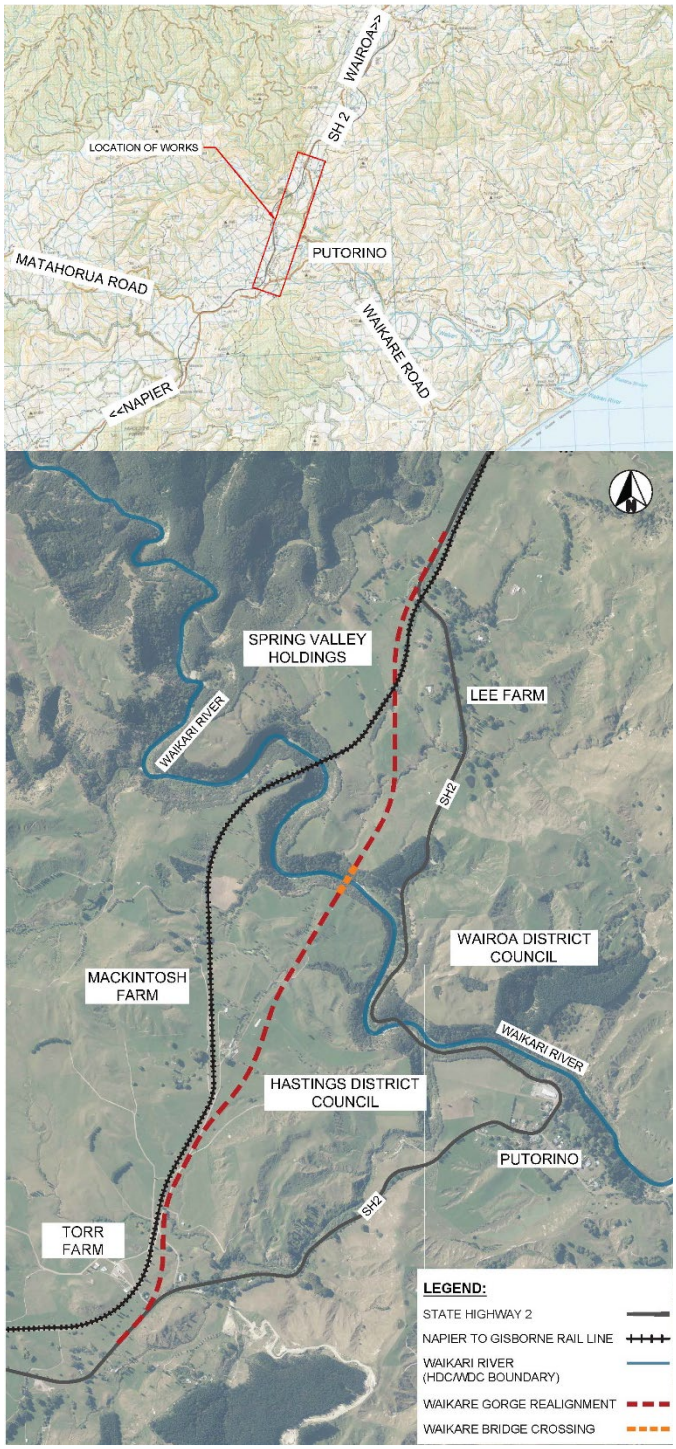


Figure 1.1 Location plan

This Landscape and Visual Assessment (LVA) is part of Waka Kotahi Notice of Requirement application and will be used to assess the potential landscape and visual effects of the proposed highway realignment on the rural character of the area (See **Figure 1.1**).

This report assesses the landscape and visual effects of the proposed SH2 Waikare Gorge Realignment, bridge crossing and associated works (Project), including the proposed landscape mitigation that has been incorporated. The LVA also evaluates the potential effects on landscape character and visual amenity of the wider rural landscape.

The assessment will be used to help guide and inform the preparation of the Waka Kotahi Notice of Requirement application for the proposal. In doing so, it recommends landscape design and mitigation measures to ensure landscape and visual effects are minimised, so that the proposed realignment is integrated with its surroundings.

2 Methodology

2.1 General

A site visit was conducted on Friday 29 October 2021 and Tuesday 14 December 2021 by Stefan Steyn, Registered Landscape Architect from WSP. Digital photographs were taken during this site visit to support the LVA.

2.2 Landscape and Visual Assessment

The landscape methodology used for this Landscape and Visual Assessment follows the concepts and principles outlined in the New Zealand Institute of Landscape Architects (NZILA) Guidelines[1].

The below seven-point scale is used to describe effects (**Table 1**). The conversion to RMA terminology is shown in brackets. Further details on the LVA's methodology are included as **Appendix B** of this report.

- **Very High**: Total loss to the key attributes of the receiving environment and/or visual context amounting to a complete change of landscape character
- **High**: Major change to the characteristics or key attributes of the receiving environment and/or visual context within which it is seen; and/or a major effect on the perceived amenity derived from it.
- **Moderate-High**: A moderate to high level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate-high level of effect on the perceived amenity derived from it.
- **Moderate**: A moderate level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate level of effect on the perceived amenity derived from it. (Oxford English Dictionary Definition: Moderate: adjective-average in amount, intensity or degree).
- **Moderate-Low**: A moderate to low level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate to low level of effect on the perceived amenity derived from it.
- **Low**: A low level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a low level of effect on the perceived amenity derived from it. (Oxford English Dictionary Definition: Low: adjective-below average in amount, extent, or intensity).
- **Very Low**: Very low or no modification to key elements/features/characteristics of the baseline or available views, i.e. approximating a 'no-change' situation. It is generally understood that 'Very Low' and 'Low' are equivalent to the 'Less than minor' threshold.

[1] Te Tangi a Te Manu: Aotearoa New Zealand Landscape Assessment Guidelines (April 2021).

Very Low	Low	Moderate-Low	Moderate	Moderate-High	High	Very High
(Less than minor effects)	(Minor to less than minor effects)	(Minor effects)	(More than minor effects)	(More than minor effects)	(Significant effects)	(Significant effects)

Table 1: Effects rating table

Preparation for this LVA has also included the collection of baseline information through desktop studies and collation of planning information (refer to **Section: 4: Relevant Statutory and Non-Statutory Provisions**).

3 Proposal

The project involves a greenfields 3.9 km long, 2 lane highway realignment by-passing the current 6km section of SH2 that approaches and goes through the Waikare Gorge. The realignment will include a new 160 m+ long bridge carrying vehicles across the gorge 800m upstream of the current SH2 gorge route.

3.1 Key Corridor Features

The key scope features of the realignment corridor consist of the following, (running south to north):

1 Southern Tie in works to provide a homogenous convergence between the realignment and the existing section of highway.
2 Typical road cross sections consisting of minimum 1.5 m sealed shoulders, 3.5 m traffic lanes and provision for a physical median barrier within a 2-3 m wide median.
3 Stock Underpass structures are proposed along the length of the proposed alignment.
4 A large culvert to allow the realignment to cross Kings Creek.
5 A 700 m long southbound passing lane commencing just after the southern abutment of the proposed gorge bridge.
6 A proposed 130m span network arch with 20m land spans each side (See **Appendix A**). The current recommended bridge does not contain piers within the gorge. This also supports the key consideration identified by Iwi to minimise impact within the gorge. At 130m long, this would be the largest network arch on a highway in New Zealand.
7 A 500 m long northbound uphill slow vehicle bay commencing just after the northern abutment of the proposed gorge bridge.
8 Earthworks cutting of up to 16 m on the northern approach to the Waikare Gorge.
9 A large culvert approximately 45 m southwest of the Lee farm residential dwelling to allow the realignment to cross the existing gully that bisects the Lee property.
10 A rail overbridge crossing the Napier – Wairoa line. The project design philosophy statement to date have identified having the railway in an Armco culvert as the most feasible solution.
11 Northern tie-in works to create a smooth transition between the existing SH2 corridor and the preferred greenfields realignment.

3.2 Design Approach

Recognising the potential for landscape and visual effects, a mitigation based landscape concept design was developed early in the development of the project. A high degree of multi-disciplinary collaboration within the project design team occurred during the concept development phase. This included a number of workshops with Engineers, Planners and Stakeholders. This enabled landscape and visual mitigation, along with various landscape

enhancements to be incorporated into the design as it was developed, optimising the effectiveness of the proposed mitigation.

From the outset the landscape concept design has deliberately sought to ensure that the degree of change resulting from the construction of the proposed realignment reduce the level of effects on landscape and visual amenity to a point where they can be considered to be '**Less than Minor**'. The design and this assessment has also taken specific account of the intent and outcomes sought by the Hastings District Plan and Wairoa District Plan for this environment, insofar as these reflect the existing and anticipated future uses of the study area (refer **Section 5.1** and **Figure 5.1**: The Study Area) and it surrounds, and the aspirations and values of the community.

A summary of the components of landscape and visual mitigation as built into the proposed improvement works can be found in **Section 3.3** below.

3.3 Specific Outcomes for a Rural Corridor

The proposed realignment has been designed around the main design measures identified in the Urban Landscape Design Framework (ULDF)[2], so as to minimise potential for adverse landscape and visual effects from locations where it can be viewed from. Further detail can be sourced in the Landscape Mitigation Plans (See **Appendix A**) and ULDF report. These measures are as follows:

- An overall design theme and design narratives were developed that is consistent with the vision, objectives and principles of the corridor. The vision promotes a light touch on the landscape and a memorable place to pass through. Apart from screen planting to mitigate visual effects, the theme is deliberately structured around views out towards the landscape, and the use of larger elements of built form.
- Concrete bridge barriers and enhancement planting will be used as a significant opportunity to improve the identity of the route and a strongly defined transition node at the Waikare Gorge crossing. The visual appearance of the barriers will be improved with culturally inspired artwork treatments that will make up a proportion of the inside surface. The theme will be reflective of the natural character of the area, using relief detailing to reference local vegetation of the gorge.
- Stock proof fencing will be installed along the length of the new route to define property boundaries, control access and prevent livestock from wondering onto the highway. The fences will be visually consistent with existing fences throughout the wider landscape and therefore blend into the wider environment.
- A new safe stopping place is proposed in this section of the SH2 corridor that would represent a desirable place to 'take a break' along a relatively isolated and winding section of highway corridor. For reasons of convenience and safety, it may be desirable to locate or provide for facilities such as 'coffee carts', rubbish bins and toilets in this location. This may require making provision for secure utilities such as water and/or power.
- Landscape planting of all the construction earthworks will become expensive to install and maintain. Consequently, the ULDF focus on providing high quality revegetation outcomes in key strategic locations where landscape planting will reduce visual effects and provide environmental benefits and cost-effectiveness. The remainder of the disturbed areas along the route will be treated with grass to maintain the rural pastoral character.
- Stormwater runoff from the realignment will be managed to minimise the stormwater runoff volume on the surrounding environment. This will be achieved through minor contouring and earth shaping of the highway corridor slopes and drainage network. This will be supported by the use of appropriate indigenous plant material that will improve water quality and to reflect the surrounding landscape character.

[2] Urban Landscape Design Framework prepared by WSP, November 2022

- Except for the new bridge structure it is the intention that the materials and physical elements are simple in design and minimise the use of unnecessary embellishments. All the materials will be selected for longevity and robustness whilst giving a quality finish.
- Planting position and size at maturity will maintain a line of clear sight at intersections and driveways.

4 Relevant Statutory and Non-Statutory Provisions

4.1 Hastings District Plan

The Hastings District Plan states; [the] *'landscape is the cumulative expression of natural and cultural features, patterns and processes in a geographical area, including human perceptions and associations'*.

Within a rural context, the District Plan states that the values that define the District's Rural Landscape character are identified and maintained. The LVA has regard to these rural values and appropriately defines them in the context of this alignment project.

4.2 Wairoa District Plan

The Wairoa District Plan recognises the importance of natural and phycial resources in relation to, amongst other things;

- natural features and landforms;
- significant indigenous vegetation and significant habitats of indigenous fauna; and
- intrinsic values and amenity values.

The RMA section 7 (Other Matters) are addressed with relevance to this alignment. The LVA has particular regard to these matters.

4.3 Maungaharuru-Tangatū Hapū Claims Settlement Act 2014

The Waikari River flows south-east from its origin at Maungaharuru out to Tangitū (the sea). The statutory area as scheduled under this Act includes 'Waikairi River and its tributaries'. As further stated under the Maungaharuru_Tangitū statement of association, amongst other things; '... hapū have cultural, spiritual, traditional and historic associations with ngā awa, their waters, associated flora and fauna and have a responsibility as kaitiaki (guardians) in accordance with kawa (rules) and tikanga (customs) to restore, protect and manage all those natural and historic resources ...'

These elements will be further expressed throughout the Maungaharuru-Tangitū hapū Cultural Impact Assessment, an important document to sit alongside this LVA.

4.4 Resource Management Act 1991

This LVA responds to the RMA, which provides a framework for managing the effects of activities on the environment, and therefore is a critical component to any development. This LVA has considered effects on:

- The physical landscape in relation to section 7 (c) *the maintenance and enhancement of amenity values* and section 7*(f) maintenance and enhancement of the quality of the environment*. These matters are referred to as 'landscape effects' within this report, which take into account:
    - Landform (earthworks including cut and fill)
    - Loss of vegetation and existing structures; and
    - Effects on land use.

- Levels of amenity in relation to section 7 (c) *the maintenance and enhancement of amenity values* and section 7 (f) *maintenance and enhancement of the quality of the environment*. These matters are referred to as 'visual effects' within this report, which take into account:
    - The 'fit' within existing landscape character and patterns
    - The visual amenity in relation to the appearance of structures such as buildings; and
    - Visual effects as seen from dwellings and private property.

4.5 Other Relevant Background Documentation

Other policy documents that are relevant to the Project and the study area that have been considered are:

Reference	Source
Guide to Road Design (2009) – Parts 6, 6A and 6B	Austroads
Environmental and Social Responsibility Policy (2011)	Waka Kotahi
Urban Design Guidelines: Bridging the Gap (2013)	Waka Kotahi
P39 Standard Specification for Highway Landscape Treatment, 2013	Waka Kotahi

5 Existing Landscape

5.1 The Study Area

In order to determine the extent of the study area, desktop mapping and two site visits were undertaken. The study area covers the surrounding area from which the proposed realignment and bridge crossing will be visible. Definition of the study area will assist in the assessment of the potential and likely effects that the Project will have on the natural landscape and visual environment.

The study area is shown in **Figure 5-1** below.

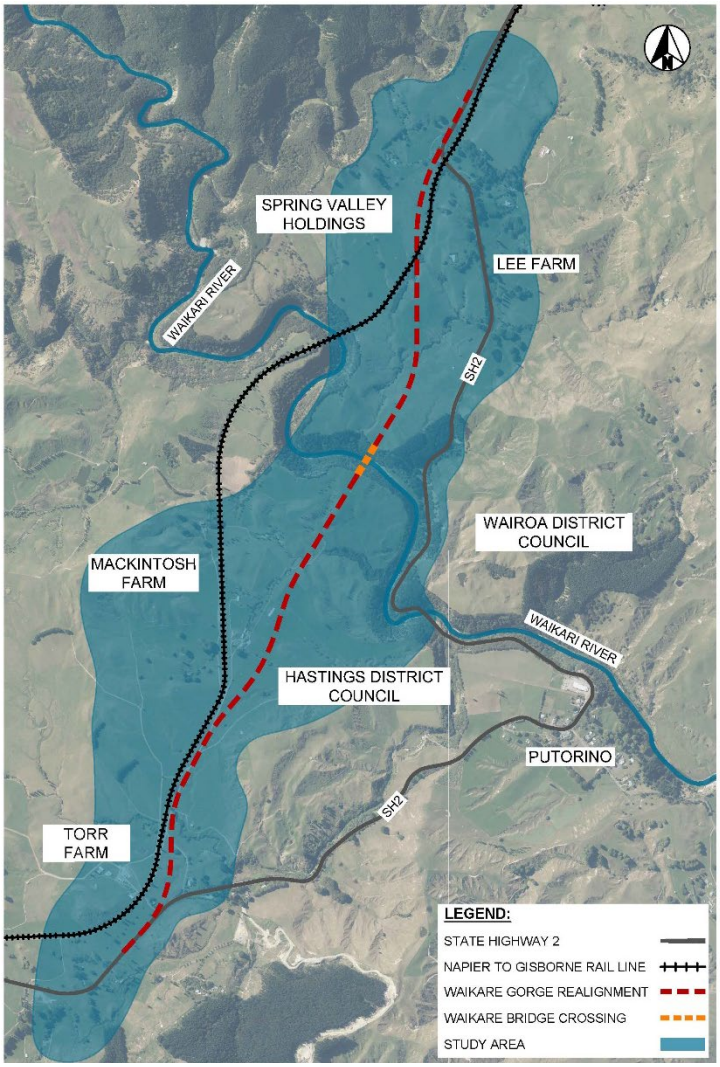


Figure 5.1 The study area

5.2 The Landscape Context and Visual Catchment

The immediate landscape context of the Project is set within the low lying, rolling to steep hill country. The steeply incised landform both further to the east and west contrast with the relatively flat terrain of the Project area. A small number of farm dwellings, milking sheds, shear's quarters and other ancillary buildings are dispersed throughout the area. The only 'urban centre' is the small farming settlement of Putorino which is located at the southern entrance to the Waikare Gorge. Putorino currently has a resident population of approximately 100 people and operates as a local service centre for the surrounding rural communities.

The Waikari River and its gorge form the primary natural feature within the study area and wider landscape. The river flows in an eastbound direction through the gorge, commencing its 35 km journey from its sources within the Maungaharuru Ranges to the river mouth in Hawke Bay. A number of tributaries, gullies and stream incisions define the surrounding hill slopes.

The mainly pastoral landscape is highly modified with very little indigenous cover remaining. Small stands of exotic trees are scattered throughout the landscape. The elements within the gorge that contribute to its inherent natural character include the steeply incised escarpment, mix of native and exotic vegetation patterns and riverbed. Due to its natural cohesion these features are more sensitive to change and is therefore particularly vulnerable to disturbance and alteration. Therefore, changes to these elements will have potentially negative adverse effects on natural character values and should be avoided.

The Napier to Gisborne Rail Line (railway line) is located to the west of the existing SH2 alignment, extending from Putorino Station Road to the existing McKenzie's Rail Overbridge. Whilst the alignment of SH2 largely follows the route of the Napier to Gisborne Rail Line between Gisborne and Napier, within the study area the highway diverts away from the more direct route of the railway line and instead meanders along the foothills through Putorino township and across the gorge.

Apart from farming and existing infrastructure this rural area is characterised by minimal built development.

5.2.1 Visual Character

The visual catchment, as outlined in **Section 5.1** above, is broadly defined by localised mounds and the surrounding hill slopes and ridges. The factors that define the visual catchment include:

- Rolling to steep pastoral hill country.
- Gorge with deeply incised, bush clad sides.
- Variance in colour and texture between the dark native vegetation within the gorge and hill country further to the north and light pasture grass of the surrounding rolling topography.
- Small overland flow paths, streams and gullies.
- SH2 following the base of eastern foothills, winding its way up the gorge sides.
- Railway line traversing the narrow valley floor.
- Small number of rural farm dwellings, sheds, barns and other ancillary buildings dispersed throughout the landscape.
- Small network of metal farm tracks.

5.3 The Viewing Audience

The potential viewing audience and related representative viewpoints were identified from a desktop study and confirmed following field work and include:

- Users of Putorino Station Road and SH2 – these users will have varying views of the Project due to their orientation, intervening vegetation, landform and distance from the Project.
- Occupiers of rural residential properties and farms spread throughout the area - their views towards the Project site are likely to be open or partially screened by intervening landform, vegetation or distance from the Project. As such, only representative viewpoints where there are clear views to the Project and proximate to the Project site were selected.
- Farm workers within the wider rural landscape – their views towards the Project are likely to be partially or fully screened by intervening landform, vegetation or distance from the area. As such, only representative viewpoints in proximity to the site were selected.
- Residents of Putorino – views from this area will be fully screened by intervening landform, and vegetation or diminished by distance from the Project.

6 Issues

The actual or potential landscape and visual effects associated with the proposed realignment are:

- Visible earthworks associated with the construction of the new highway corridor;
- Visibility of the new road formation and moving vehicles; and
- Effects on the natural character values of the gorge.

7 Assessment of Landscape and Visual Effects

7.1 Effects on Biophysical Dimensions (Landscape Effects)

The overall landscape effect arises from the physical changes brought about by the proposed realignment on the rural landscape. Physical changes may give rise to changes to an area's natural character and its appearance. This may in turn affect the perceived value ascribed to the landscape, with the magnitude of change described below.

7.2 Landscape Effects

7.2.1 Landform

The landscape effects will result in changes to landform due to the construction of cut and fill embankments, swales and stormwater treatment ponds that will result in contrasting colour and texture of the surrounding pasture.

The largest of the proposed cut and fill embankments will be up to 16 m in height and approximately 300 m long at the northern bridge approach abutment (northern side of the gorge). Although the proposed earthworks will not result in changes to significant landform features that are of local importance or modification to ridgelines, the proposed new realignment will result in discernible changes to the topography as it will contrast with the rolling landform.

The landform effects of the swales and stormwater treatment ponds will be low as the ponds will use the low points and hollows within the landscape. This will result in very small landform modifications and will be in context with the rolling landscape.

Overall, the effect on landform is considered to be '**Moderate-Low**' as the proposed earthworks will alter the landscape character. However, mitigation works such as rounding of the earthworks and planting will reduce the uniformity of the earthworks and reduce the over engineered appearance of the cut embankments. This will help to minimise the adverse effects to the extent that the effect is reduced to '**Low**'.

The Waikare Gorge (riverbed, margins and steep, vegetated escarpment) is an important landscape feature that defines the landscape character at a local level. The proposed bridge will require localised modification of the edge of the gorge to construct the piers which minimise the overall footprint of earthworks and subsequent landform modifications.

7.2.2 Landcover

Vegetation cover throughout the wider area is modified, of low ecological value and contains little indigenous content. By traversing existing farmland, the proposed realignment will be restricted to the removal of mainly pasture, rough grass and exotic trees. This means that indigenous vegetation clearance is not a significant issue and for this reason the effects on vegetation patterns are considered to be '**Very Low**'.

The small amount of vegetation and pasture that will be removed on the upper shoulders to construct the proposed bridge is not considered to be of significant value and make up a small portion of the overall vegetation pattern along the river corridor. For this reason, the effects on vegetation patterns within the gorge are considered to be '**Very Low**'.

7.2.3 Land Use

Apart from the bridge crossings over the gorge, the majority of the project will be located within rural zoned land. In terms of wider landuse patterns, the proposed realignment will not significantly alter these patterns or introduce new types of landuse in the area. As the land taken is small compared to the wider pastoral land, its effect on the overall productivity and viability of

the land will be minimal. The position of the proposed realignment extending across this rural landscape will result in some severance effect on productive pastoral farmland.

The new bridge will not in itself result in any change in landuse, but rather the occupation of airspace.

Overall, the proposed realignment will be introduced into a pastoral landscape already changed by the small settlement of Putorino and fragmented by the existing SH2 corridor and the Gisborne Napier Railway. Because of its close proximity to the existing railway line and SH2 the overall landscape effect of the proposed realignment on the rural landscape is considered to be 'Low'.

7.3 Effects on Associative and Perceptual Dimensions

Early discussions between Waka Kotahi and tangata whenua - Ngāti Pahāuwera and Maungaharuru Tangitu Trust - had raised no specific concerns over the short-listed options apart from the cultural significance of the gorge. In principle, tangata whenua are in support of a realignment of the existing SH2 corridor, which they perceive to have a poor level of safety and is a barrier for the local region to connect to surrounding regions.

Following further engagement, a Cultural Walkover was undertaken with Ngāti Pahāuwera along the preferred option which identified that there are no cultural impacts that could not be mitigated in a responsive manner. There are specific cultural items raised that will need to be considered and incorporated into the detailed design including:

- Identification of the southern bridge abutment location and assessment of the potential impact this has on the rock identified at the southern edge of the gorge. The rock was identified to have strong mauri. The rock can remain in place if protection during construction is feasible. If protection is not feasible the rock can be relocated a short distance away, offset to the recommended alignment.
- Planting of a living of a Pou (Ti kouka/cabbage tree) in memory of a spiritual essence identified along the recommended option realignment on the southern side of the gorge. The pou will be offset to the carriageway in an area the landowner is proposing to fence and plant in native species.
- Site cleansing prior to the commencement of construction

Heritage and historic associations include the Putorino Railway station that relate to European occupation and use of land. In the early 1900's the railway station was moved from Putorino to Putorino Station Road. Even though the station activities fell into disuse over time, the following years have seen the railway building itself utilised as a school room, golf club house and kindergarten. The former railway building now serves as shearers quarters and is still in use today. The Project will skirt the historic railway site and will not have any direct effects on the historic railway building. As such, the proposal will have a 'Low' landscape effect on cultural, heritage and historic associative factors.

The overriding perception of the study area is that of a rural landscape dominated by intensive pastoral farming practices. Apart from the natural character values of the gorge, these physical elements combine to establish a highly modified landscape that is associated with rural land use.

Apart from the gorge the wider landscape exhibits low natural character values, is in a less sensitive part of the rural landscape and the realignment occupies a relatively thin ribbon of land within the wider rural landscape. The proposed mitigation planting will not only strengthen the natural vegetation patterns of the landscape but will also blend the Project into the wider landscape including those of the gorge. The gorge will retain a relatively high level of natural character due to the bridge crossing being confined to the shoulders of the gorge and the narrow strip of air space above the riverbed. As such, the realignment will result in an insignificant perceptual change on the rural, pastoral farming character and the effects on these factors will be 'Low'.

Overall, the Project will be of a relatively small scale when compared to the wider landscape and it will not affect the associations and perceptions of a rural landscape dominated by pastoral farming and will align itself with the open rural character. Furthermore, the landscape design and mitigation measures will further minimise adverse effects of the proposed development. For these reasons, the potential adverse landscape effects of the proposed realignment on associative and perceived dimensions will be '**Low**'.

7.4 Effects on Views and Visual Amenity

Six viewpoint locations have been identified as being representative within the surrounding landscape. Photographs were taken from locations accessible to the public. The viewpoints were chosen according to the following:

- Location and context of a specific viewpoint (how the proposed changes will conflict or contrast with its context);
- Number of potential viewers (for example, the rural hinterland will have a small number of sensitive viewpoints spread throughout a large area);
- Degree of visibility (whether there are screening effects or not);
- Distance from the Project site (for viewpoints over 1 km from the Project site the perceived visual changes will diminish rapidly); and
- Where most change is anticipated as well as the sensitivity of the viewpoint.

These representative public viewpoints were chosen based on where the Project is assessed to be most visible by people from roads, recreation spaces or near private places on public roads where the views/effects would be similar. These viewpoints have been used as the basis for analysing the extent of any potential visual effects of the proposal.

Viewpoints are limited primarily to locations proximate to the proposal such as near farm properties and from roads along the periphery or close to the proposal. Therefore, where the proposal would not be visible from, or where the visual effects were considered to be '**Low**' to negligible at the time of the site visit, the potential effects from these viewpoint locations were not assessed further.

The location of the representative viewpoints is illustrated in **Figure 7-1**.

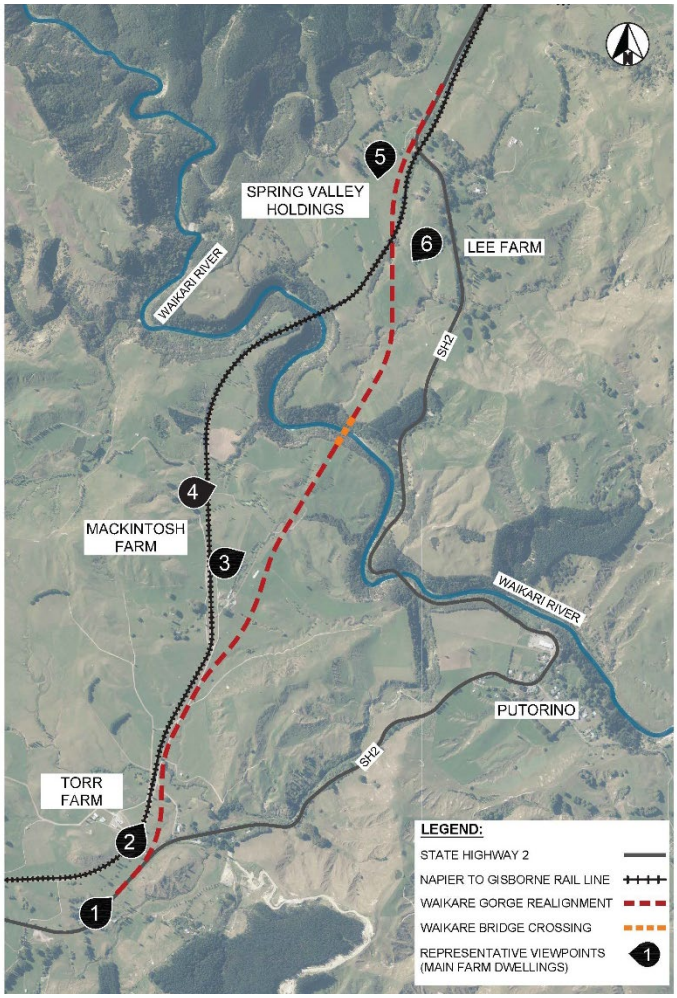


Figure 7.1 Photo viewpoint location

In terms of the analysis of the visual effects and the assessment of the change to views from the selected viewpoints, this section of the LVA provides the following:

- A description of the visual audience and existing view;
- An assessment of the sensitivity of each viewpoint;
- A description of the changes that will occur to each view; and,
- An assessment of the level of effect (magnitude of change) on each of the representative viewpoints.

7.5 Rural Viewpoints

Although most viewers will find the landscape pleasant to look at there are no clear views of valued landmarks or significant landscape features other than the Waikare Gorge. The visual catchment is characterised by a relatively simple landscape pattern largely contained by rolling to steep landform, ephemeral streams, gullies and exotic trees. The pattern of intensive pastoral farming and its activity are a dominant feature of the landscape. As such the visual catchment is considered to have a moderate visual quality.

7.5.1 Viewpoint 1

Figure 7.2 Viewpoint 1: Representative view looking north east from the southern extent of the new alignment. (Photograph by S. Steyn 29 October 2021, stitched to form panorama).

The preferred realignment will commence just south of the existing Putorino Station Road and will an upgrade of the exiting SH2 corridor.

The viewing audience proximate to the realignment comprises a small number of residential properties, farm workers and users of local roads that will have open, partially open or fully screened views of the realignment. Views of the proposed alignment will generally be interrupted by intervening landform and vegetation. These views are characterised by SH2 and the wider, undulating pastoral landscape.

From these views, the potential visual changes include removal of pasture and mature exotic trees, placement of sections of new road surface to replace the existing highway formation, newly constructed section of highway where it leaves the existing alignment and new native tree and shrub planting to rehabilitate the construction earthworks.

In its southern extent, the majority of the realignment will sit within the existing highway footprint, which will be able to absorb the visual changes. Where the newly constructed section of the realignment is visible within the greenfields section, the viewers will experience a very small change to their rural outlook. The visual exposure to these relatively small changes will reduce the viewers' overall sensitivity to changes on site to '**Low**'. The use of native vegetation as part of the landscape mitigation that reflects the character of the area will result in a positive visual effect. As such, the overall effect on visual amenity is considered to be '**Very Low**'.

7.5.2 Viewpoint 2

Figure 7.3 Viewpoint 2: Representative view looking north from the Torr Farm dairy yard access track and farm accommodation along the proposed alignment. (Photograph by S. Steyn 29 October 2021).

The realignment will cross Putorino Station Road and continue northwards, traversing gently undulating pastoral country, a farm track and Kings Creek. From this point the realignment follows the Napier-Gisborne railway for approximately 900 m, replacing an existing farm track on the eastern side of the railway corridor. This section of highway will include a proposed 700m long southbound passing lane.

The viewing audience comprise a single residential dwelling, farm accommodation and dairy shed immediately to the west of the realignment. These dwellings and work areas will have open or partially open views of the realignment. Views of the realignment to the west will generally be interrupted by intervening landform. These views are dominated by the undulating pastoral landscape.

Potential changes to this view include the removal of pasture and exotic trees, cut and fill embankments up to 6 m in height, placement of sections of new road surface, installation of culverts, signs, lighting columns, guard rails wire rope barriers, movement created by vehicles, and new native tree and shrub planting to rehabilitate the construction earthworks. The bridge crossing which is located approximately 2 km north of this location will not be visible from this viewpoint

The main farm dwelling and common work areas will be sensitive to development of the realignment. The increase in construction earthworks, small cluster of lighting columns at the intersection with SH2 and vehicle movement will be discernible to properties immediately adjacent to the new alignment. For these residential viewpoints the change will be obvious, resulting in a '**Moderate-Low**' localised effect on the viewing audience.

The recommended landscape mitigation measures have been developed to mitigate adverse visual effects for sensitive viewpoints in proximity to the Project. These measures will minimise

adverse effects on the visual environment and reduce the overall effect on motorist and the visual audience to '**Low**'.

7.5.3 Viewpoint 3

Figure 7.4 Viewpoint 3: Representative view looking east from the Mackintosh farm accommodation towards the proposed alignment in the mid distance and bridge crossing in the far distance. (Photograph by S. Steyn 29 October 2021, stitched to form panorama).

The realignment including a proposed 700m long southbound passing lane continues northwards across undulating pastoral farmland on a gentle downhill grade towards the gorge. It traverses two east-west trending ephemeral swales along this section of the alignment.

The viewing audience comprise two residential dwellings, farm accommodation and a dairy shed to the west of the realignment. The views are generally directed towards the realignment and will therefore have clear, open views of the new section of highway. These views are dominated by the gently undulating pastoral landscape, localised farm activities and small glimpses of the gorge. Views from Putorino and other farm dwellings to the west will be screened from the realignment by intervening landform.

Potential changes to Viewpoint 3 include removal of pasture and exotic trees, cut and fill embankments up to 10 m in height, placement of sections of new road surface, installation of culverts, signs, guard rails, wire rope barriers, a bridge crossing, new native tree and shrub planting to rehabilitate the construction earthworks and movement created by vehicles.

Viewer sensitivity from Viewpoint 3 will be high because the dwelling is in close proximity and at the same elevation as the realignment. The proposed earthworks, road surface and vehicle movement will be a noticeable element within this view and the viewer will experience noticeable changes to the middle-distance views. As such, the visual effect of the realignment on viewpoint is '**Moderate-Low**' and will require mitigation planting to minimise the change in visual outlook.

The Waikare Gorge and bridge crossing are located approximately 0.8 km to the north of Viewpoint 3. The visual effects of the network arch bridge will be in relation to its mass, scale and bulk. From this distance and viewing angle, which is directed slightly east from the bridge crossing, viewer sensitivity of the new bridge crossing will be moderate. The new bridge will become a noticeable feature due to its height that will contrast with the rural, undeveloped landscape and gorge backdrop. The structure will stand up in the landscape, adding focus to the locality. The architectural design form of the arch bridge will overcome the potential 'sterile' and 'engineered' form of a traditional propped bridge design.

Over time the proposed mitigation planting will reduce the visual prominence of the structure, softening the visual effect of the bridge and its abutments. This will help to blend the structure into the vegetative pattern of the gorge and rural hinterland. By association the bridge will

become a significant visual feature of the gorge, SH2 and the overall Project. The slender and elegant bridge design complements its setting and the gorge environment. The combination of native planting and bridge art as identified in the ULDF reinforces the rich history and culture of the gorge and its place in the Puterino locality. Furthermore, as a landmark feature it assists in developing and enhancing the crossing point as a milestone on the journey. It is therefore considered the degree of change in visual amenity will be '**Low**'.

The recommended landscape mitigation measures have been developed to mitigate adverse visual effects for sensitive viewpoints in close proximity to the proposal. The new planting will screen the properties immediately adjacent to the proposed alignment and will help to integrate the construction earthworks into the wider landscape to minimise the visual effects to '**Low**'.

7.5.4 Viewpoint 4

Figure 7.5 Viewpoint 4: Representative view looking north east from the Mackintosh farm residential dwelling towards the Waikare Gorge and proposed bridge crossing in the mid distance. (Photograph by S. Steyn 29 October 2021).

Figure 7.6 Viewpoint 4: Representative view looking west from the Mackintosh farm residential dwelling towards the proposed alignment in the mid distance. (Photograph by S. Steyn 29 October 2021).

This section of the realignment is located immediately to the south of the Waikare Gorge. It comprises a fill embankment and culvert to allow the realignment to cross a localised overland flow path and construction of a smaller cut and fill embankment on the southern approach to the bridge abutment. The 160 m+ bridge will be approximately 70 m above the Waikari River.

The viewing audience comprise a residential dwelling located approximately 0.7 km to the north-east of the gorge and motorists on the southern approach to the proposed bridge crossing. The views are generally directed towards the realignment with the gorge in the mid distance. SH2 and moving vehicles will be seen beyond the gorge. The rising hill slopes and a small ephemeral waterfall in the background form a pastoral, scenic backdrop to this view. Although the view includes transient values the wider rural landscape remains dominant.

Potential changes to these views include removal of pasture and exotic trees, cut and fill embankments up to 16 m in height, placement of sections of new road surface, installation of culverts, signs, guard rails, wire rope barriers bridge structure, new native tree and shrub planting to rehabilitate the construction earthworks and movement created by vehicles. The visual effects on the gorge will result from the placement of new earthworks on the approaches to the bridge crossing, abutments, the network arch bridge, and movement created by vehicles.

Large sections of the realignment will be screened from Viewpoint 4 by localised mounds and intervening vegetation. However, viewer sensitivity to the realignment and bridge crossing will be **moderate to low** due to proximity, views being orientated towards these proposed elements and the scenic quality of this relatively undeveloped rural backdrop.

The visual effects of the network arch bridge will be in relation to its mass, scale and bulk. From this distance and viewing angle, which is directed slightly east from the bridge crossing, viewer sensitivity of the new bridge crossing will be moderate. The new bridge will become a noticeable feature due to its height that will contrast with the rural, undeveloped landscape and gorge backdrop. The structure will stand up in the landscape, adding focus to the locality. The architectural design form of the arch bridge will overcome the potential 'sterile' and 'engineered' form of a traditional propped bridge design.

For these viewpoints the change will be obvious, resulting in a '**Moderate-Low**' localised effect. As mentioned earlier in the LVA, those effects that do occur will be reduced by the proposed mitigation measures previously discussed in the Proposal section of this report (**Section 3**). It is anticipated that the visual effects will diminish over time, reducing any potentially adverse visual effects to '**Low**'.

7.5.5 Viewpoint 5 and Viewpoint 6

Figure 7.8 Viewpoint 5: Representative view looking west from the Spring Valley Holdings residential dwelling towards the proposed alignment in the mind distance and bridge crossing in the far distance. (Photograph by S. Steyn 29 October 2021, stitched to form panorama).

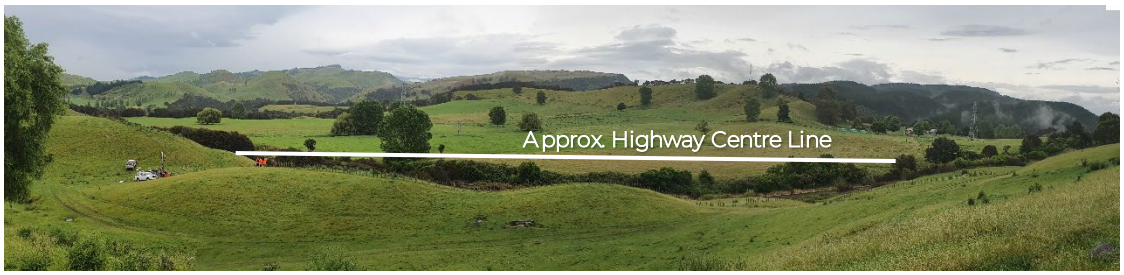


Figure 7.9 Viewpoint 6: Representative view looking south from the Lee farm residential dwelling towards the proposed alignment in the mind distance and bridge crossing in the far distance. (Photograph by S. Steyn 14 December 2021, stitched to form panorama).

From the Waikare Gorge and bridge crossing the realignment enters a large cut that will be up to 16m high. A slow vehicle lane is proposed in the northbound / uphill direction. Following the large cut, the realignment traverses rolling farmland before crossing a proposed culvert within an existing gully and railway crossing 400 m further to the north. From this point the alignment will run parallel with the Napier to Gisborne railway before it ties in with the existing SH2 alignment and McKenzie's Rail Overbridge.

The viewing audience comprise two residential dwellings. Viewpoint 5 is located approximately 150 m to the east of the realignment and the proposed McKenzie's Rail Overbridge. It is elevated approximately 12 m above the new road formation and orientated westwards towards SH2 which is located approximately 100 m to the west. It is noted that the back of the dwelling including its garage faces the realignment although this part of the property is partially screened from the realignment by intervening vegetation planted along the boundary. The front lawn, main door and main living areas are orientated away from the realignment and are therefore less sensitive to change.

Viewpoint 6 is located approximately 150 m to the west of the realignment, and approximately 1.2 km to the north of the gorge. The views are generally north-eastwards towards the realignment and existing SH2, however, small sections of the realignment to the southeast will be visible from the side and back of the dwelling.

Viewpoint 5 (Lee Farm)

Potential changes to the view from Viewpoint 5 include cut and fill embankments up to 10 m in height, removal of pasture and exotic trees, placement of sections of new road surface, culverts, stormwater treatment ponds, signs, lighting columns, guard rails, wire rope barriers, new network arch bridge, rail overbridge, new native tree and shrub planting to rehabilitate the construction earthworks and movement created by vehicles.

The realignment which is located below the Lee dwelling will pass through this part of the landscape within a series of cut and fill formations. Views of the realignment immediately to the north and south will be screened, in part, by the cut embankments, breaking the linear form of the alignment. However, much of the realignment immediately to the west will be in fill (raised up to 10 m above existing ground) and the back of the dwelling will be exposed to dominant views (approximately 250 m in length) of the realignment and its construction earthworks. In addition, the proposed rail overbridge will be visible from this elevated position.

The network arch bridge is located approx. 900 m to the south and will be visible from the back and side of the property. When viewed from this location the upper part of the structure will be visible in the distance. Given the front of the house and main deck is not facing the bridge, and most of the structure is screened from view by intervening vegetation the sensitivity and visual effect of the bridge on this view will be 'Low'.

Cumulatively, the new alignment, network arch bridge and rail overbridge will bring about noticeable visual changes to the existing viewpoint. For this reason, the visual effect on the viewpoint is 'Moderate' and will require mitigation planting to minimise the change in visual outlook.

Viewpoint 6 (Spring Valley Holdings)

Potential changes to the view from Viewpoint 6 include cut and fill embankments up to 10 m in height, removal of pasture and exotic trees, placement of sections of new road surface, culverts, stormwater treatment ponds, signs, guard rails, wire rope barriers, upper part of the network arch bridge, lighting columns, new native tree and shrub planting to rehabilitate the construction earthworks and movement created by vehicles.

The northern extent of the proposed alignment will replace the existing SH2 footprint. Views to the north are already affected by existing traffic movement, and when viewed in this context the realignment will appear to be an extension of the existing highway environment. Views immediately to the east of the realignment will mostly be screened by localised mounds and intervening vegetation which will help to reduce the scale of the highway corridor and minimise the visual change. The most visible and intrusive changes to this outlook will be the construction earthworks, movement created by vehicles and a small cluster of lighting columns located at the intersection with SH2. The viewers sensitivity will be moderate to low due to the proximity and visibility of these elements in between existing landform and vegetation. Views to the south will be less sensitive to the changes seeing that the majority of the realignment and bridge crossing will be screened from this viewpoint by intervening topography. It is considered that the degree of change in visual outlook and amenity for this viewpoint will be 'Moderate to Low'. Those effects that do occur will be reduced by the proposed mitigation planting measures which will help to screen the highway and blend the proposed alignment with the wider landscape.

Overall, the realignment will have a visible effect on Viewpoint 5 and Viewpoint 6. However, the proposed mitigation measures will integrate the alignment into the landscape and minimise the adverse visual effects. Over time the realignment will become less noticeable as mitigation planting matures and reduces the effect to 'Low'.

8 Conclusion

The SH2 realignment will be a noticeable new linear element within the rural landscape through which it passes. Apart from the Waikare Gorge that is characterised by steeply incised sides covered in native vegetation, the surrounding landscape character along the length of the proposed alignment includes rolling to steep undulating topography, small streams and a gully. The vegetation cover typically consists of pasture, small forestry blocks and scattered exotic trees.

The landscape effects will result in changes to the landform, landcover and landuse through cut and fill formations, removal of vegetation, construction of a new road alignment and the new bridge structure. As the land taken is relatively small compared to the wider pastoral land, the overall magnitude of change is minimal. Overall, intensive pastoral farming will continue to dominate the character of the area and this change will have a '**Moderate to low**' localised landscape effect.

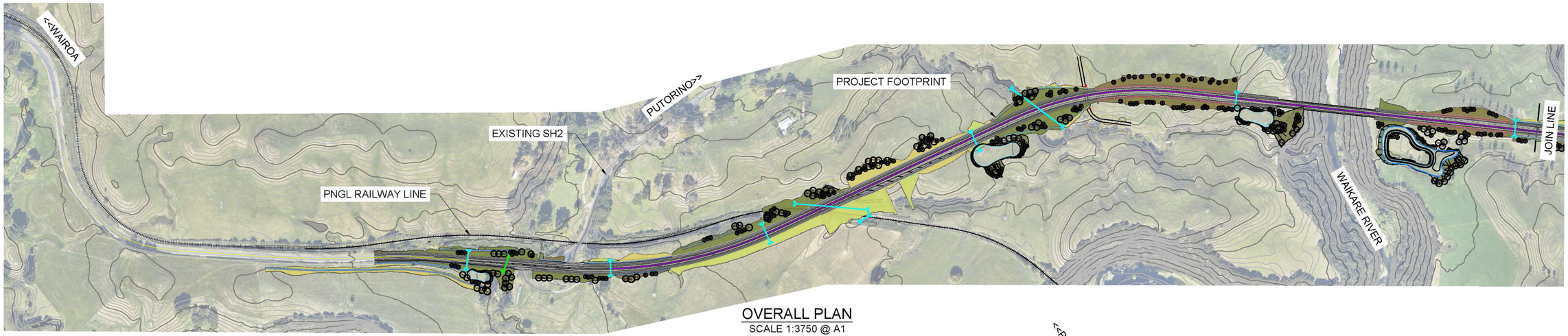
Visual changes associated with the realignment relate to the placement and construction of highway elements (i.e. road surface, bridge, culverts, signage, and lighting), earthworks, mitigation planting and the associated removal of pasture and trees along the corridor. Overall, there will be a noticeable change in outlook for a small number of viewpoints in proximity to the proposed alignment, in particular where views are near the Waikare Gorge and bridge crossing. For these views, construction of the realignment will have noticeable adverse effects on their visual outlook and visual amenity of the rural landscape and the effect is considered to be '**Moderate**'.

An opportunity to provide added value as part of the project means that the network arch bridge design will integrate art and culturally inspired patterns to create a new landmark feature along the route. This, combined with the extensive framework of landscape planting will enable the effects to be mitigated and add to the identity and character of the area. The landscape and urban design opportunities provided by the Project has been integral to the design of the highway improvements from the project outset to achieve positive visual amenity that will soften and integrate the realignment and its structures into the landscape.

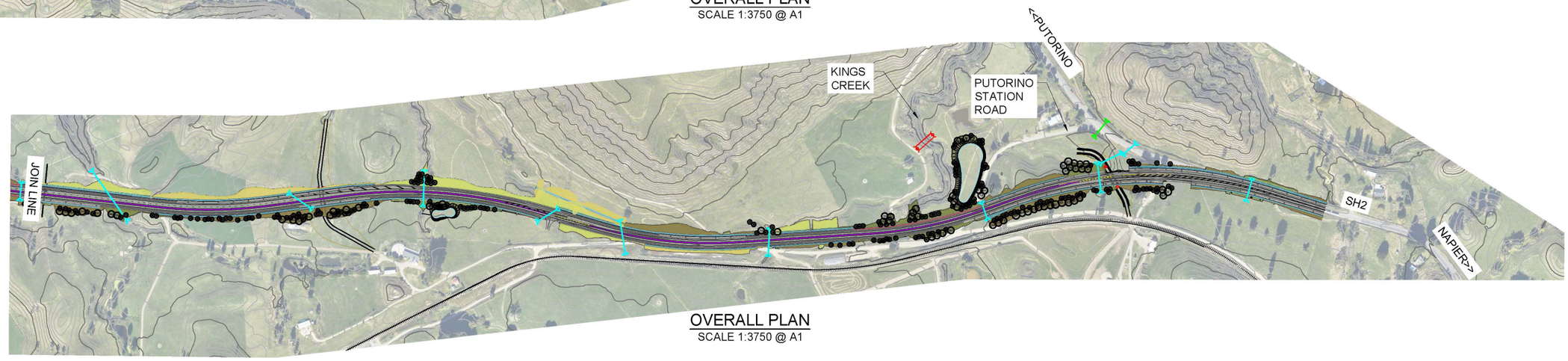
It is assessed that the overall effects resulting from the realignment can be adequately mitigated through the landscape and urban design measures proposed for the project. Over time, the landscape and visual effects will be reduced to an acceptable level. When considered overall, the Project will result in '**Low**' landscape and visual effects.

Appendix A
Plans

Scheme Plans



OVERALL PLAN
SCALE 1:3750 @ A1



OVERALL PLAN
SCALE 1:3750 @ A1

SHEET INDEX

0001 - OVERALL PLAN, LOCALITY AND SHEET INDEX

0002 - 0015 - LANDSCAPE PLANTING PLANS

LEGEND:

GENERAL	VEGETATION (300mm TOPSOIL)	SPECIMEN NATIVE TREES	SPECIMEN EXOTIC TREES
EXISTING VEGETATION TO BE RETAINED	GRASS	CORDYLINE AUSTRALIS	QUERCUS ILEX
	TREATMENT (SWALES & WETLANDS)	DACRYDIUM CUPRESSINUM	QUERCUS ROBUR
	LOW TO MEDIUM NATIVE SHRUB PLANTING	DACRYCARPUS DACRYDIOIDES	PLATANUS X ACERFOLIA
	MEDIUM TO LARGE NATIVE SHRUB PLANTING	PLAGIANTHUS REGIUS	
		PODOCARPUS TOTARA	
		SOPHORA MICROPHYLLA	

NOTES:

1. FINAL FENCE POSITION TO BE DETERMINED BY ENGINEER DURING CONSTRUCTION.
2. ALL NOTES SHALL BE READ IN CONJUNCTION WITH NZ TRANSPORT AGENCY P39 LANDSCAPE SPECIFICATIONS AND PLANT SCHEDULE 2/1/54/7204_9600-9621.
3. CONTRACTORS TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO COMMENCING WORK.
4. FIGURED DIMENSIONS TO BE TAKEN IN PREFERENCE TO SCALED DIMENSIONS.
5. REFER TO TYPICAL CROSS SECTIONS FOR PLANTING LAYOUT AND PLANTING OFFSETS.
6. PLANTING LAYOUT TO BE CONFIRMED ON SITE PRIOR TO PLANTING BY PROJECT LANDSCAPE ARCHITECT.
7. WHERE GROUPS OF SHRUBS ARE SPECIFIED IN THE SCHEDULE THE GROUPS SHALL BE PLACED IN A RANDOM PATTERN ACROSS THE PLANT BED, UNLESS OTHERWISE SPECIFIED ON THE DRAWING SCHEDULE. PLANTING TO BE STAGGERED AND NOT PLANTED IN ROWS.
8. CONTRACTORS TO LIAISE AND GAIN AUTHORITY FOR WORKS WITH ALL SERVICE AUTHORITIES.
9. ON SLOPES GREATER THAN 1:2.5 ALL PLANTING AREAS TO BE TREATED WITH A BIODEGRADABLE EROSION CONTROL BLANKET.
10. ALL OTHER PLANTING AREAS (APART FROM SWALES, WETLANDS AND STREAM BED PLANTING) TO BE MULCHED WITH 100 mm DEPTH OF WOOD CHIP MULCH ON COMPLETION OF PLANTING.

REVISION	AMENDMENT	DRAWN	CHECKED	APPROVED	DATE

WAKA KOTAHI NZ TRANSPORT AGENCY

WSP Stantec GHD

SCALES		ORIGINAL SIZE
1:3750		A1
DRAWN	DESIGNED	APPROVED
P. BIRSE	S. STEYN	-
DRAWING VERIFIED	DESIGN VERIFIED	APPROVED DATE
-	-	-

PRELIMINARY DESIGN

PROJECT
WAKA KOTAHI NZ TRANSPORT AGENCY
SH2 R.P. 577/11.600-592/2.500 WAIKARE GORGE REALIGNMENT

TITLE
LANDSCAPE PLANTING PLANS (DRAFT FOR PRICING)
SHEET 01 OF 15

DOCUMENT NO.	SHEET NO.	REVISION
WGR - DES - LVA - 00 - DRG	0001	A

Original sheet size A1 (841x594) C:\12dS\data\WSPSYN\WGR - SH2 Waikare Gorge_26\04_Documentation\01_Drafting\02_Drawings\WGR-DES-LVA-00-DRG-0000_0015.dwg L001(A)

ORGANISATION JOB CODE: 2-S5416.01 ORIGINATING ORGANISATION: WSP

300 mm
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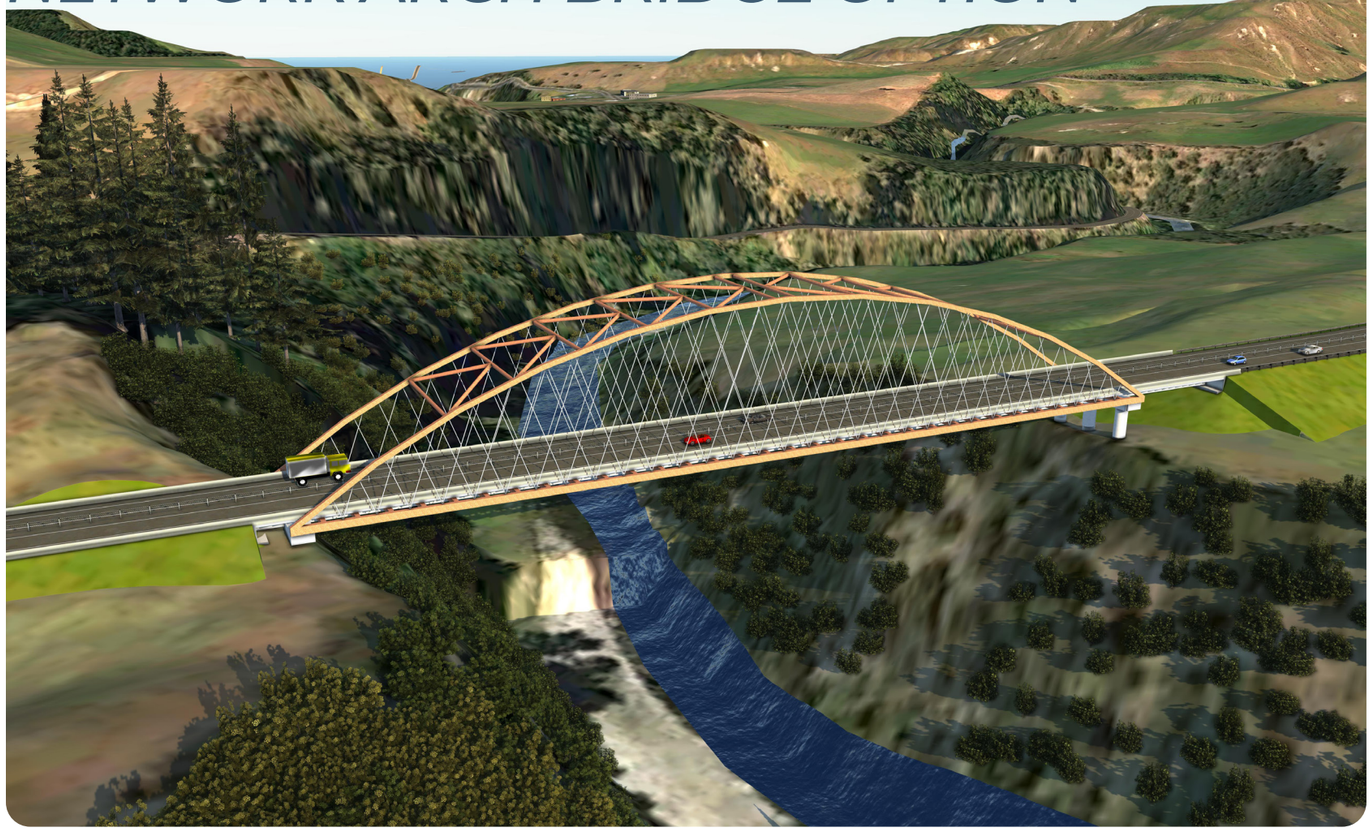
SH2 WAIKARE GORGE REALIGNMENT

NETWORK ARCH BRIDGE OPTION



OBLIQUE VIEW LOOKING EAST TOWARDS THE PROPOSED NETWORK ARCH BRIDGE AND PUTORINO IN THE DISTANCE

PERSPECTIVE LOOKING NORTH ALONG THE PROPOSED ARCH BRIDGE

PERSPECTIVE LOOKING SOUTH ALONG THE PROPOSED ARCH BRIDGE

DESCRIPTION

A Network Arch bridge solution has a single main span of approximately 130m and is made from a steel and reinforced concrete deck slab suspended from steel arch chords using narrow hangers. The carriageway passes through the arches. There is short 20m approach spans at each end which is made of conventional precast concrete beams. The main span is piled close to the edge of the gorge to minimise the span length.

WAKA KOTAHI
NZ TRANSPORT AGENCY

Appendix B
Methodology

A seven-point scale of effects was used. This scale of effects is based on the Aotearoa New Zealand Landscape Guidelines; Prepared by New Zealand Institute of Landscape Architects (NZILA) 8 April 2021 (currently in draft form). The definitions come from NZILA national workshop discussions prior to the publication of the guidelines and are based on the Boffa Miskell effects descriptions.

The below seven-point scale is used to describe effects. This assessment also includes an interpretation of this assessment in terms of the accepted RMA terminology relating to effects. This is to better inform any subsequent AEE.

- **Very High**: Total loss to the key attributes of the receiving environment and/or visual context amounting to a complete change of landscape character
- **High**: Major change to the characteristics or key attributes of the receiving environment and/or visual context within which it is seen; and/or a major effect on the perceived amenity derived from it.
- **Moderate-High**: A moderate to high level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate-high level of effect on the perceived amenity derived from it.
- **Moderate**: A moderate level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate level of effect on the perceived amenity derived from it. (Oxford English Dictionary Definition: Moderate: adjective-average in amount, intensity or degree).
- **Moderate-Low**: A moderate to low level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a moderate to low level of effect on the perceived amenity derived from it.
- **Low**: A low level of effect on the character or key attributes of the receiving environment and/or the visual context within which it is seen; and/or have a low level of effect on the perceived amenity derived from it. (Oxford English Dictionary Definition: Low: adjective-below average in amount, extent, or intensity).
- **Very Low**: Very low or no modification to key elements/features/characteristics of the baseline or available views, i.e. approximating a 'no-change' situation.

It is generally understood that '**Very Low**' and '**Low**' are broadly equivalent with 'Less than Minor' effects.

This LVA includes an interpretation of the accepted RMA terminology relating to effects and is used to better inform the AEE lodged in support with the Notice of Requirement applications.

Sensitivity

The sensitivity of the visual amenity is based upon a sliding scale of importance, ranging from "Very High/International" to "Low/Local". The sensitivity of these depends upon the level of modification (pristine natural versus modified engineered) and how sensitive the environment is to change. The factors that contribute to the sensitivity of the viewing audience are:

- *Level of modification (pristine or highly modified);*
- *Quality and condition (coherence/variability);*
- *Number of viewers and frequency; and*
- *Distance from the Project.*

Viewing audience	Definition
High	Viewed within internationally and nationally designated landscape, the setting of historic buildings and their setting. Viewed using:

	Public walkways/tracks, reserve walkways, national parks and botanical gardens. Viewed within residential settings.
Moderate	Viewed within: Locally important landscapes, outdoor sports and recreation, passengers travelling on trains, people within cars on local roads.
Low	People using motorways and major roads, workers within business premises.
Negligible	Viewed within non-designated landscapes, workers within industrial premises.

Distance

The distance from the Project influences the visual sensitivity of the viewing audience:

Viewing audience	**Distance**
Foreground views (High)	Views within 500 metres of the viewer (high level of detail will be visible).
Mid-distance views (Moderate)	Views between 500 metres and 800 metres of the viewer (medium level of detail will be visible).
Background views (long distance views - Low)	Views 800 metres and further (viewers will see the object but will find it difficult to distinguish detail.

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