

North

Landscape, Natural Character, and Visual Assessment

Version 1.0

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Note: All figures illustrating designation information based on Rev C design, sourced from Te Tupu Ngātahi GIS viewer, unless otherwise specified.

Glossary of Defined Terms and Acronyms

Table 1 Glossary

| Acronym/Term | Description |
|-----------------------------|---|
| AEE | Assessment of Effects on the Environment report |
| AT | Auckland Transport |
| AUP: OP | Auckland Unitary Plan: Operative in Part |
| CEMP | Construction Environmental Management Plan |
| CIA | Cultural Impact Assessment |
| CMA | Coastal Marine Area |
| Construction Effects | Construction effects relate to the construction period, with effects generally being temporary in nature. They relate to the works required to build the Projects and generally involve machinery and activities required to enable the Projects to be built. |
| FUZ | Future Urban Zone |
| HNC | High Natural Character |
| LNCVA | Landscape, Natural Character and Visual Assessment |
| Natural Character | Natural character is an area's distinctive combination of natural characteristics and qualities, including degree of naturalness. |
| NPS: UD | National Policy Statement on Urban Development |
| North Projects | The combined term for all 13 NoRs covered in this assessment |
| NoR | Notice of Requirement |
| NoR 1 | New Rapid Transit Corridor (Albany to Milldale) |
| NoR 2 | New Milldale Station and associated facilities |
| NoR 3 | New Pine Valley East Station and associated facilities |
| NoR 4 | SH1 improvements |
| NoR 5 | New SH1 crossing near Huruheru (Dairy Stream) (including connections through to Top Road and East Coast Road) |
| NoR 6 | New Connection between Milldale and Grand Drive |
| NoR 7 | Pine Valley Road upgrade |
| NoR 8 | Dairy Flat Highway Upgrade between Silverdale and Dairy Flat |
| NoR 9 | Dairy Flat Highway Upgrade – Rural section (Durey Road – Albany) |
| NoR 10 | Wainui Road Upgrade |

| Acronym/Term | Description |
|----------------------------|--|
| NoR 11 | New connection from Dairy Flat Highway to Wilks Road |
| NoR 12 | Bawden Road upgrade and extension |
| NoR 13 | East Coast Road Upgrade |
| NZ | New Zealand |
| NZILA | New Zealand Institute of Landscape Architects |
| ONF | Outstanding Natural Features |
| Operational Effects | Operational effects relate to the permanent effects once construction is completed, and mitigation measures have been implemented. |
| ONFL | Outstanding Natural Features and Landscapes |
| ONL | Outstanding Natural Landscapes |
| RMA | Resource Management Act 1991 |
| RTC | Rapid Transit Corridor |
| RUB | Rural-Urban Boundary as defined in the AUPOP |
| SEA | Significant Ecological Area |
| SH1 | State Highway 1 |
| TTatM | Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines |
| Te Tupu Ngātahi | Te Tupu Ngātahi Supporting Growth Alliance |
| ULDMP | Urban Landscape and Design Management Plan |
| Waka Kotahi | Waka Kotahi New Zealand Transport Agency |

Executive Summary

Overview

This report is a Landscape and Natural Character and Visual Assessment (LNCVA), prepared by WSP New Zealand Ltd, for the Te Tupu Ngātahi Supporting Growth Alliance. The 'North Projects' are a network of planned transport infrastructure with the purpose of responding to planned future growth in the North Auckland growth areas. The proposed transport network is made of thirteen (13) NoRs including new corridors, existing road upgrades, and rapid transit corridor stations.

Assessment undertaken

The methodology that has been used to assess the landscape, natural character and visual effects follows best practice as set out in Te Tangi a te Manu, Aotearoa New Zealand Landscape Assessment Guidelines (TTatM) (Section 3 Assessment Methodology) and generally follows the process for an area-based assessment rather than a project-based assessment. This is consistent with the approach to the Warkworth and the North-West LNCVAs. Prior to undertaking the assessment, a desktop analysis was undertaken followed by site visits of the 13 Project areas and surrounding landscape context. Natural character is assessed in terms of its meaning under S6(a) RMA. Further site visits were undertaken to verify assessments around key landscape features, such as the Outstanding Natural Landscape (ONL) in Green Park.

Assessment of effects

The North NoRs are located in the area north of Albany Town Centre (old and new) and to the west and southwest of Ōrewa, between East Coast Road and Dairy Flat Highway (SH 31). The majority of the landscape is currently in rural land use, with pockets of residential, commercial and industrial land use at the urbanised edges. The existing landscape is a modified environment with future changes due to urbanisation anticipated as a result of the Auckland Unitary Plan, particularly within the Future Urban Zone (FUZ). It is assumed the North Projects will be considered for funding and implementation within 10-30+ years. This assessment takes account of the existing environment as well as the future anticipated receiving environment.

The assessment of effects for each NoR analyses the context and determines the landscape characteristics and values of each area and then assesses the construction and operational effects of the Project¹. Mitigation measures for construction and operation are considered at both a Project wide context and for each individual NoR. The primary means of mitigating the effects is through design responses to be illustrated in the proposed NoR condition for an Urban Landscape Design Management Plan² (ULDMP) and/or Construction Environmental Management Plan (CEMP).

Key features that contribute to the existing and anticipated future qualities of the landscape are described in Table 7, while Table 8 summarises the existing and anticipated future landscape and natural character values across the North Projects.

This assessment is provisional based on Concept Design drawings.

¹ Refer to Section 3.3.9 for explanation of construction and operational effects.

² Refer to main AEE proposed conditions of consent

Overall North Projects recommendations

A full summary of effects is provided for all the NoRs, where effects are common across all NoRs, followed by specific effects for each NoR. Consideration of cumulative effects has been given where NoRs intersect. Section 5.2.4 includes measures to avoid, remedy or mitigate adverse construction effects, while Section 5.3.4 identifies measures to avoid, remedy or mitigate adverse operational effects. The primary means of mitigating the effects is through design responses to be outlined in the ULDMP.

With the implementation of the recommended measures, potential adverse effects from the North Projects can be appropriately avoided, remedied and mitigated, with scope for some positive effects to be realised. Recommended measures include:

- Future revalidation of the LNCVA findings and recommendations in the contemporary landscape contextual environment as part of ULDMP preparation.
- Natural wetland areas and tributaries provide opportunities for enhanced natural character values.
- Land within the designation can be mass-planted to provide visual amenity within what is anticipated to be an urban zone, as well as provide an ecological function.
- Designation design can allow for aesthetically pleasant new stormwater detention areas which increase landscape amenity and value.
- The new designations allow space for active travel including paths for pedestrians and cyclists. Increased walkability and cycle connectivity along the network contributes to the enjoyment of landscape amenity, and pleasantness.
- Visually, planting within a designation provides both a pleasant outlook, and screening.
- The works can create a net increase in canopy cover associated with the Project areas resulting from the planting of fill batters, planting in berms, green stormwater infrastructure such as vegetated swales and planted stormwater wetlands.
- Enhancement of local place identity through integration of Manawhenua cultural values and narratives relating to Te Ao Māori.
- Incorporation of the Urban Ngahere strategies in the ULDMP, including an outcomes-based approach to mitigation rather than a quantitative approach

Overall, the nature and magnitude of effects following mitigation vary across the NoRs. The summary of construction effects and recommendations is provided in Section 5.2.5 for the overall Projects as well as each NoR. The summary of operational effects and recommendations is provided in as Section 5.3.5 overall Projects well as each NoR section.

Summary of Effects

Construction effects of the North Projects without mitigation are anticipated to be between **'Low'** and **'Moderate-High'** (Table 9). However, with implementation of the recommended measures through the ULDMP and/ or CEMP these are anticipated to reduce to **'Very Low'** to **'Moderate'** (Table 10).

Operational effects of the North Projects without mitigation are anticipated to be between **'Low'** and **'High'** (Table 11). However, with implementation of the recommended measures through the ULDMP these are anticipated to reduce to **'Very Low'** to **'Moderate'** (Table 12). Residual landscape, natural character and visual effects across the whole North Projects are anticipated to further reduce over time with the establishment and maturing of vegetation and other proposed mitigation implemented through the ULDMP.

1 Introduction

This Landscape and Natural Character and Visual Assessment (LNCVA), assessment has been prepared for the Te Tupu Ngātahi Supporting Growth Alliance, North Projects of Notices of Requirement (NoRs) for Auckland Transport (AT) and Waka Kotahi NZ Transport Agency (WK) as requiring authorities under the Resource Management Act 1991 (RMA). The notices are to designate land for future strategic transport corridors as part of Te Tupu Ngātahi Supporting Growth Alliance (Te Tupu Ngātahi) to enable the future construction, operation, and maintenance of transport infrastructure in the North area of Auckland. The North area extends from Albany to Ōrewa and via the growth areas of Dairy Flat, Silverdale West, Wainui East, and Redvale (refer Figure 1). The 'North Projects' relate to 13 NoRs that are combined in one assessment as summarised in Section 0 Project Description.

This report addresses the landscape, natural character and visual effects of the North Projects identified in Section 0 Project Description. While there are other route protection mechanisms available, route protection for the North Projects by way of NoR and then designation, under the RMA, provides a high level of corridor protection and longevity.

In the future, this NoR and designation process will be followed by a detailed design stage and the preparation of an Urban and Landscape Design Management Plan (ULDMP) and Construction Environmental Management Plan (CEMP) for each NoR as part of the proposed suite of management plans to be prepared as part of the Outline Plan. These plans are included as part of the proposed conditions framework. The ULDMP is the mechanism whereby recommendations from this effects assessment will be considered and addressed, along with specific measures to avoid, remedy or mitigate the finalised detail design.

The Te Tupu Ngātahi approach is to assume that the future urban zone (FUZ) will develop in full in the future, as demand for this land requires. Should the land not develop for any reason, it is assumed that development of associated transport corridors to service that urbanisation would not occur. The transport routes are a necessary part of the urbanisation process, and vice-versa. However, not everything will develop at the same rate. The construction effects assessment assumes that the development of the FUZ context may be occurring at the same time as any of the transport corridors and that the contextual landscape is one undergoing change from rural to urban. The operational effects assessment assumes the full urbanisation of FUZ, which may include higher density residential areas and industrial areas.

Where proposed designations interface with rural land, it is anticipated that the context will not be urbanised and the assessment of both construction and operational effects has taken this into consideration. This does not mean that change within rural environments is not anticipated in the future, as change is a feature of any landscape, whether that is due to natural, social or cultural forces. Refer to the main Assessment of Effects on the Environment (AEE) for a more detailed project description and Section 4 Existing and Likely Future Landscape Environment for a more detailed description of the approach to the existing and likely future environment.

1.1 Purpose and scope of this assessment

This LNCVA forms part of the suite of technical reports prepared to support the AEE for the North Projects. Its purpose is to inform the AEE that accompanies the North NoRs for AT and WK.

This report considers the actual and potential landscape effects associated with the construction, operation and maintenance of the North Projects on the existing or anticipated future environment³ as it relates to landscape, natural character and visual effects. It includes measures that may be implemented to avoid, remedy and / or mitigate these effects.

Information provided in this report includes:

- Identification and description of the landscape and natural character context of the North Projects' area;
- Identification and description of the actual and potential landscape, natural character and visual effects of each Project corridor;
- Recommended measures as appropriate to avoid, remedy or mitigate actual and potential landscape, natural character and visual effects (including any conditions / management plan requirements) for each Project corridor; and
- An overall conclusion of the level of actual and potential landscape, natural character and visual effects for each Project corridor after recommended measures are implemented.

This report should be read alongside the main AEE, which contains further details on the history and context of the North Projects. The main AEE also contains a detailed description of works to be authorised for the North Projects as a whole and each NoR, and the typical, indicative construction methodologies that are proposed to be used to implement this work. These have been reviewed by the authors of this report and have been considered as part of this assessment of landscape, natural character and visual effects. To avoid unnecessary repetition these descriptions have not been included in this report unless deemed necessary to clarify and understand the potential landscape effects. As part of the process, this report has been developed concurrently with the designation design. This included regular workshops allowing specialist input to ensure potential landscape effects are eliminated or minimised as part of the designation process.

1.2 Report structure

To provide a clear assessment of each NoR, this report follows the structure set out in the main AEE, as appropriate. That is, the overall network will be assessed, as well as the individual NoRs.

Clear identification of the landscape attributes (landscape values, landscape character and natural character) of the receiving environment is followed by an assessment of the sensitivity of that landscape to the anticipated change and potential adverse and positive effects. The assessment focused largely on the effects in the context of the anticipated future environment, rather than solely the receiving environment as it exists today, with consideration of a high degree of contextual change within future urban areas and little change in rural areas. Where appropriate, measures to avoid, remedy or mitigate effects are recommended.

³ Anticipated future environments such as those enabled as part of the AUP would be one example, including the FUZ (Future Urban Zone) areas that would likely change from the existing to a different land use at some point in the future.

The sections are arranged starting from the overall network, then sequentially by individual corridor for each NoR. Where there are commonalities between NoRs, items have been grouped to avoid repetition. Table 2 below describes the extent of each corridor, and where the description of effects can be found in this report.

Table 2 Report Structure

| Sections | Section number |
|---|----------------|
| Description of the Project | Section 2 |
| Overview of the methodology used to undertake the assessment and identification of the assessment criteria and any relevant standards or guidelines | Section 3 |
| Identification and description of the existing and anticipated receiving landscape environment; | Section 4 |
| Assessment of landscape, natural character, and visual and associative effects | Section 5 |
| Assessment of construction effects and recommendations | Section 5.2 |
| Assessment of operational effects and recommendations | Section 5.3 |
| Overall conclusion of landscape, natural character and visual and associative effects | Section 6 |

2 Project Description

The North Projects are a network of planned transport infrastructure with the purpose of responding to planned future growth in the area between Albany and Ōrewa in the north of Auckland. The transport network comprises thirteen NoRs including rapid transit corridor (RTC) interchanges, existing road upgrades, and new corridors.

This LNCVA is one of a number of technical assessments to support the AEE for the North Projects. An overview plan of the North Projects is provided in Figure 1 below, with a summary of the North Projects provided in Table 3.

Table 3 North Projects Summary

| NoR | Project | Description | Requiring Authority |
|-----|---|---|---------------------|
| 1 | New RTC between Albany and Milldale, including new walking and cycling path between Bawden Road and Dairy Flat Highway | <ul style="list-style-type: none"> • A 16km-long RTC corridor for public transport and active mode purposes • An 80km/hr operating speed (other than around stations) • Walking and cycling facilities along some of its length from Bawden Road to the point where the RTC crosses Dairy Flat Highway • Grade separated crossings at intersections with other key transport corridors. • The NoR will overlap with the existing motorway designation and SH1 improvements project over some of the length (between Albany and around Bawden Road) | WK |
| 2 | New Milldale Station and Associated Facilities | <ul style="list-style-type: none"> • A new rapid transit station and associated facilities, including: • Station building with associated station facilities. • Cycle and shared mobility device parking provision • Local bus layover and stop provision. • Taxi and ride share drop-off facilities | WK |
| 3 | New Pine Valley East Station and Associated Facilities | <ul style="list-style-type: none"> • A new rapid transit station and associated facilities, including: • Station building with associated station facilities on structure over New Pine Valley Road with associated stairs and lift towers. • Cycle and shared mobility device parking provision • Local bus layover and stop provision. • Layover facilities for bus based RTC mode • Taxi and ride share drop-off facilities. • Park and ride facility (up to 500 car parking spaces) • Upgrade to Old Pine Valley Road along station frontage | WK |
| 4 | SH1 Improvements (Alteration to designations 6761, 6760, 6759, 6751) | <ul style="list-style-type: none"> • Widening the SH1 carriageway from two lanes to three lanes in each direction from the Lonely Track Road overbridge to the Silverdale interchange • Upgraded Ō Mahurangi Penlink (Redvale) interchange (upgrading this interchange to add north facing ramps) • New Wilks Road interchange (south facing ramps only) • Silverdale interchange upgrade for east-west capacity • New walking and cycling path along SH1 - an approximately 16 km long active mode corridor along one side of SH1 from Albany to Grand Drive (starts on east of SH1 at Oteha Valley | WK |

| NoR | Project | Description | Requiring Authority |
|-----|--|---|---------------------|
| | | <p>Road, crosses to west of SH1 around Bawden Road and then back to east around Silverdale interchange.)</p> <ul style="list-style-type: none"> Silverdale to Highgate active mode connection - connection from the active mode corridor at Silverdale to Highgate Parkway Wainui interchange upgrade for active modes – new bridge for active modes across SH1 | |
| 5 | New SH1 crossing at Huruhuru (Dairy Stream) | <ul style="list-style-type: none"> A new two-lane urban arterial connection and SH1 motorway overbridge between Top Road and East Coast Road near Huruhuru (Dairy Stream) Active mode facilities on both sides of the carriageway The overbridge would cross six lanes of motorway, a two-lane link road to the motorway service centre and the new walking and cycling path on SH1 (refer to NoR 4 above) | AT |
| 6 | New Connection between Milldale and Grand Drive | <ul style="list-style-type: none"> A new two-lane urban arterial with separated walking and cycling facilities on both sides between Wainui Road (Milldale) and the western edge of the Ara Hills development in Ōrewa. This will connect through to Grand Drive at SH1 via a new 30m road corridor to be vested by the Ara Hills developer | AT |
| 7 | Upgrade to Pine Valley Road | <ul style="list-style-type: none"> An upgrade to Pine Valley Road (FUZ section) between Poynter Lane and Argent Lane to a two-lane urban arterial with separated walking and cycling facilities on both sides | AT |
| 8 | Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat | <ul style="list-style-type: none"> An upgrade to a 4-lane urban arterial on sections where FUZ land is located both sides of the road (between Silverdale interchange and Wilks Road and between Richards Road and Durey Road), with separated walking and cycling paths on both sides of the corridor. Upgrade to a 2-lane rural arterial between Wilks Road and Richards Road – with a swale on the west and separated walking and cycling on the east. Upgraded bridge over Dairy Stream | AT |
| 9 | Upgrade to Dairy Flat Highway between Dairy Flat and Albany | <ul style="list-style-type: none"> An upgrade to Dairy Flat Highway between Dairy Flat and Albany for active mode and safety improvements including a central wire rope barrier and wide barriers. The widened Road corridor will retain two lanes (one in each direction) and will also retain crawler lanes as currently located. Cycle path added on the western side of the carriageway between Durey Road and the Coatesville Riverhead Highway Roundabout and then on the eastern side between the Roundabout and Te Wharau (Albany Village) | AT |
| 10 | Upgrade to Wainui Road | <ul style="list-style-type: none"> Upgrade to Wainui Road to a 2-lane urban arterial between Lysnar Road and the new Argent Lane Separate, dedicated, walking, and cycling facilities on both sides of the carriageway. Upgraded bridge over Waterloo Creek (tributary to Ōrewa River) | AT |

| NoR | Project | Description | Requiring Authority |
|-----|--|---|---------------------|
| 11 | New connection between Dairy Flat Highway and Wilks Road | <ul style="list-style-type: none"> • Segment 1 (Kahikatea Flat Road to Postman Road Segment) will feature a 2-lane urban arterial (24 m wide corridor) with separated walking and cycling facilities on both sides. • Segment 2 (Postman Road to SH1) features a 4-lane urban arterial (30 m wide corridor) with separated cycling and walking facilities, two lanes of general traffic and two-lanes where priority is given to freight traffic | AT |
| 12 | Upgrade and Extension to Bawden Road | <ul style="list-style-type: none"> • Upgrade and extension to Bawden Road. This will include a 30m four-lane road corridor with walking and cycling facilities on both sides. Two lanes for general traffic and two lanes for a frequent transit network (likely bus lanes) • Road intersects with the RTC. The road is likely to go under the RTC (grade separated crossing) | AT |
| 13 | Upgrade to East Coast Road between Silverdale and Ō Mahurangi Penlink (Redvale) interchange | <ul style="list-style-type: none"> • Upgrade to the footpath on the west side and new footpath on east side between Hibiscus Coast Highway and Silverwater Drive. • Segment 1 (from Silverwater Drive to Newman Road) features a two-lane urban arterial upgrade (24 m) with separated walking and cycling facilities on both sides. • Segment 2 (from Newman Road to Jackson Way, where one or both sides is rural) has a shared path to the west only, with no works to the existing carriageway and no swales. • Segment 3 (from Jackson Way to the end of the FUZ) features a 24 m wide cross section with walking and cycling facilities on both sides | AT |

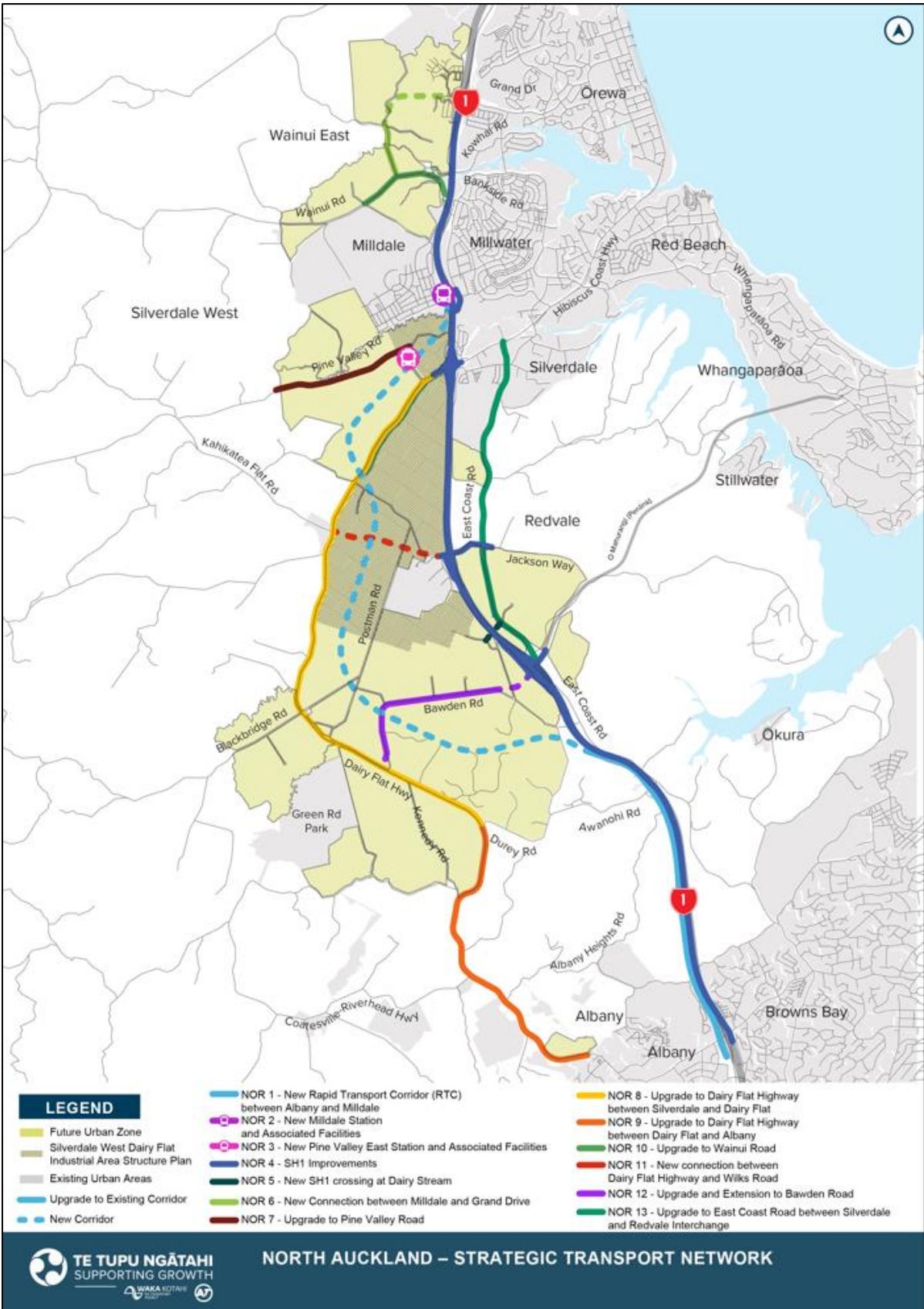


Figure 1 Plan of proposed NoRs within the North growth area (Source Te Tupu Ngātahi)

3 Assessment Methodology

3.1 Preparation for this assessment

This section provides an overview of the assessment methodology that has been used to consider the landscape, natural character and visual effects for the 13 NoRs that make up the Projects. In preparation for this report, work commenced in October 2022 and included:

- Review of the North Projects specialist briefing package, the North Indicative Business Case and draft indicative designs and designation boundaries.
- Information on Te Tupu Ngātahi GIS viewer relevant to the Projects was evaluated, including base map data such as contours and aerial photography.
- A preliminary site visit with the Project Team and landscape architects Heather Wilkins, Holly Stitt, Catherine Hamilton and Melinda Drysdale on 21 September 2022 to understand the scope of the Projects and share information with other specialists.
- A second more detailed site visit was undertaken by Heather Wilkins and Riyasp Bhandari on 25 January 2023, with a follow up site visit by Heather with Meg Back occurring on 17 February 2023. During these visits, the landscape character of the North Projects area and its surrounds were assessed in relation to the proposed designations. The nature of the receiving environment, its landscape and visual character and relationship to the surrounding environment were evaluated and recorded using written records and photography.
- A briefing workshop and subsequent meetings with The Project Team.
- Representative photographs were taken from along the route and within the visual catchment (**Appendix A Graphic Supplement Viewpoints**). A number of representative viewpoints were identified from publicly accessible locations to illustrate points of discussion in this assessment and for future reference. Photographs were taken to establish the existing landscape context and character and the likely effect of the North Projects on the landscape in relation to the transitory and fixed viewing audiences. It is assumed that future visual context is evaluated and not only the existing receiving environment. These photographs have been included in this report in the form of a photo essay for illustrative purposes within **Appendix A**.
- The desktop study information has been utilised to help describe the proposed designations, as well as the site and contextual landscape, and to evaluate the key issues and potential landscape and visual effects of the North Projects, including positive and negative effects.
- Analysis of the existing landscape and the change that will likely result from the North Projects was assessed based on all site and desktop information. An expert opinion has been formed in relation to the ability of the existing and likely future landscape to absorb changes likely to arise from the proposed designations, noting that while information on the indicative designs and the proposed location of the designations is available, detailed designs will not be prepared until closer to construction.
- Recommended measures to avoid, remedy and mitigate adverse effects are proposed.

The LNCVA was undertaken early in the design process. It is anticipated that detail design will occur at a much later date. Landscape and visual issues were also considered in previous project stages in the options assessment as part of the Multi Criteria Assessment⁴. This has allowed for potential adverse effects and opportunities for positive effects and enhancement, to be identified early on and recommendations made for future regional consenting stages of the North Projects and the proposed Urban and Landscape Design Management Plan (ULDMP) and / or Construction Environmental Management Plan (CEMP) as part of the conditions of the designations .

3.2 Assumptions and limitations

The proposed designations do not authorise effects on SEAs, wetlands, or removal of certain trees protected under the regional rules. Notwithstanding this, these features form part of the existing landscape and natural character values and so have been assessed within that context.

Site visits were conducted only in publicly accessible areas. Where possible private property has been inspected from publicly accessible areas. Where no access or inspection from a publicly accessible area was possible, assumptions of landscape features and attributes have been made based on desktop studies using GIS spatial tools and Google Earth.

In undertaking this assessment, the following assumptions have been made:

- This assessment is based on site visits to publicly accessible locations only. The assessment of the impacts within or adjoining these private properties rely upon our site visits to publicly accessible locations, and information from our own desktop reviews (such as aerial photography).
- Only potential viewing audiences outside of the proposed designation boundary have been considered within this report.
- It is assumed that all private properties within the proposed designation boundary will be acquired prior to construction. There may be some places where property is used for temporary occupation during construction and then returned to owners afterwards.
- This assessment does not provide an assessment of the impacts on Manawhenua cultural concepts or values as the authors have not been specifically designated to represent Manawhenua in this work. Manawhenua knowledge and associative values of the Project landscape is shared through the separate and parallel engagement between the Project team, Manawhenua and as described in the Cultural Impact Assessment undertaken as part of the AEE.
- This Report relies on the collective inputs and expertise of a range of disciplines which have informed the considerations and conclusions of this assessment. This includes urban design, heritage, arboricultural and ecological expertise.

This assessment considers both the existing environment and the likely future receiving environment to the extent it can be anticipated through planning provisions. There is an inherent level of uncertainty related to the fact that the future receiving environment is still relatively uncertain in some instances. It is acknowledged that while the precise use is still relatively uncertain, the land will be urbanised at some point in the long-term. It is recommended that further on-site inspection will be required closer to construction as part of the proposed ULDMP preparation to validate these assumptions.

⁴ Refer to main AEE for further discussion on options assessment process undertaken.

3.3 Methodology

3.3.1 Overview

This LNCVA has been undertaken using best practice guidance for landscape assessment as set out in 'Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines' (TTatM)⁵.

As defined by TTatM, landscape character is each landscape's distinctive combination of physical attributes (e.g., landform and ecological aspects), associative attributes (e.g., heritage and cultural values) and perceptual attributes (e.g., legibility of landcover patterns and aesthetic qualities). For clarity, visual effects are included in this assessment as a subset of landscape effects⁶.

Landscape assessment considers the existing or anticipated future character of a landscape and the extent to which a proposal may have adverse or positive effects on this character. Values that combine to determine the character include Physical (biotic and abiotic) resources of the land, Associative (memory and meaning) that is ascribed to the landscape through people's relationship with it, and Perceptual – the way in which a landscape is perceived including its visual qualities as well as other perceptual factors.

Landscape impacts result from natural or induced change in the components, character or quality of the landscape. Usually these are the result of landform or vegetation modification or the introduction of new structures, facilities or activities into the landscape.

Natural character, as defined by TTatM, is the distinct combination of an area's natural characteristics and qualities, including degree of naturalness. Natural character is the outcome of physical environment and perception. Within the RMA (Section 6(a)) natural character only relates to the coastal environment and to waterbodies and their margins, rather than the landscape in its entirety.

Natural character has specific meaning in relation to waterbodies, pursuant to S.6(a) RMA. Natural character impacts are in relation to natural or induced change to the coastal environment and any streams, wetlands and their margins. These are usually the result of landform, vegetation or hydrological modification or the introduction of structures into the landscape surrounding these water features. Descriptions of Natural Character can therefore cause confusion if applied to landscapes outside of this environment, and as such, alternative terms such as naturalness and natural qualities are used instead. However, it is noted that landscapes other than those defined by RMA s.6 possess natural character.

While comments around waterways and wetlands have been provided throughout the assessment, as appropriate, it is acknowledged that effects on waterbodies are largely a regional consenting matter and will be addressed in further detail in the future during the regional consenting stages of the North Projects and the proposed outline plan process and ULDMP.

Effects arise from change in the values associated with the landscape, not simply because of the change itself. Visual impacts are the result of change to the landscape and perceptions of that change as experienced by people are a consequence of that change.

The methodology used is best aligned with an area-based landscape assessment, which is typically a policy-driven assessment as opposed to a proposal-driven assessment. This methodology is

⁵ Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines, Tuia Pito Ora New Zealand Institute of Landscape Architects, July 2022

⁶ TTaTM page 135 refers to visual effects as a subset of landscape effects as current best practice.

consistent with the approach taken for the Warkworth and North West applications. Area-based assessments are typically carried out at a district or regional scale for a variety of resource management policy purposes. They are higher level assessments which assess the potential effects of generic activities, where specific project details are absent. In contrast, a proposal-driven assessment approach applies in a 'design – build' situation where the implementation of the 'project' is more imminent than what is planned in the case of this NoR process. The more detailed assessment will be undertaken later at a future consenting, implementation, or designation alteration stage as and when required.

According to TTaTM⁷, an area-driven landscape assessment would typically:

- Identify (describe) the landscape resource of an area (its character and values), including any Outstanding Natural Features and Landscapes (ONFLs) and other significant landscapes.
- Assess landscape character and values.
- Anticipate potential future effects on landscape values (for this report this includes assessing the current and likely future environment for the 'Projects').
- Recommend policy measures to manage landscape values.
- Make specific assessments of ONFLs.

As this assessment considers specific locations for corridors as proposed for each Notice of Requirement (NOR), the methodology includes a degree of proposal-based assessment with respect to those proposed locations. This includes, where appropriate, visual assessment.

A separate alternatives assessment⁸ considers landscape values in alternative routes that have been evaluated.

3.3.2 Nature of effects

The degree to which landscape and visual effects are generated by the Projects depends on several factors, these include:

- The degree to which the Project contrasts or is consistent with the qualities of the surrounding landscape.
- The proportion of the Project that is visible, determined by the observer's position relative to the objects viewed.
- The distance and foreground context within which the Project is viewed.
- The area or extent of visual catchment from which the Project is visible.
- The number of viewers, their location and situation (static or moving) in relation to the view.
- The backdrop and context within which the Project is viewed.
- The predictable and likely known future character of the locality; and
- The quality of the resultant landscape, its aesthetic values and contribution to the wider landscape character to the area.

A 'landscape effect' is an outcome for a landscape value as a consequence of physical changes to a setting which changes the landscape values of that setting⁹. Change in a landscape does not, of itself, necessarily constitute an adverse landscape or visual effect. Landscape is dynamic and is constantly

⁷ TTaTM, page 251

⁸ Refer to main AEE for further discussion on assessment of alternatives.

⁹ TTaTM, page 135

changing over time in both subtle and more dramatic transformational ways. These changes are both natural and human induced. Within the context of continual landscape change, it is important from a landscape perspective to manage human induced change so that significant adverse effects are avoided or sufficiently mitigated to reduce the effects of the change in land use. Landscape and visual effects can also be temporary or permanent, which must be considered when determining the magnitude and nature of such effects.

Landscape effects include positive effects¹⁰. Consideration is given to enhancing positive effects throughout the North Projects through alignment between mitigation and design, rather than merely minimising adverse effects, which is a low baseline.

The landscape and visual effects generated by any project can, therefore, be classified as

- Positive (beneficial), contributing to the visual character and quality of the environment.
- Negative (adverse), detracting from existing character and quality of environment; or
- Neutral (benign), with essentially no effect on existing character or quality of environment.

3.3.3 Scale of effects

TTatM recommends utilising a seven-point rating scale as a uniform scale to provide a qualitative measure for the level of effects as described below, rather than concluding the level of effects (less than minor, minor or more than minor) which rests with the planner. This scale (Table 4) has been used in determining the level of effects arising from the North Projects¹¹. The effects scale ranges between “Very Low” to ‘Low’ to ‘Low-Moderate’ to ‘Moderate’ to ‘Moderate-High’ to ‘High’ to ‘Very High’.¹²

Table 4 Effects rating table

| | | | | | | |
|-------------------|------------|---------------------------|-----------------|----------------------------|-------------|--------------------|
| Very Low (V-L) | Low (L) | Low- Moderate (L-M) | Moderate (M) | Moderate- High (M-H) | High (H) | Very High (V-H) |
|-------------------|------------|---------------------------|-----------------|----------------------------|-------------|--------------------|

3.3.4 Mitigation

For effects that are very low or low, mitigation is generally not required. Mitigation may be required for landscape effects of a low-moderate to moderate rating and are likely to be required for effects of moderate-high to high rating to reduce effects to a lower degree. For effects that are very high, mitigation is unlikely to reduce the level of effect to any discernible degree. This position is consistent with professional best practice and across the suite of Te Tupu Ngātahi project assessments for landscape, natural character and visual effects.

3.3.5 Landscape effects

Landscape effects are derived from changes in the physical landscape, which may give rise to changes in its character and how this is experienced over time. This may in turn affect the values

¹⁰ TTaTM, page 135

¹¹ TTaTM, page 140

¹² Refer to Appendix B for expanded definition on Seven Point Scale of Effects

ascribed to the landscape. Potential landscape effects in this assessment relate to the following landscape attributes:

- Landform and hydrology.
- Vegetation patterns and open space.
- Urban development and land use.
- Aesthetic qualities including views and visual coherence.
- Natural heritage.

3.3.6 Visual effects

Visual effects are effects on landscape values as experienced in views. ‘Visual amenity’ is shorthand for landscape values that contribute to amenity values that may be experienced visually¹³. Amenity values means those natural or physical qualities and characteristics of an area that contribute to people’s appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes. Assessing visual effects is a technique to help understand landscape effects and are a subset of landscape effects. Visual effects are considered for both temporary (construction effects) and permanent (operational effects) of the Projects. Potential effects considered in this assessment relate to the following visual amenity attributes:

- Visual quality and composition (legibility, coherence, setting, scenic quality).
- Visibility (extent of visibility to the project area/s); and
- Views (viewing audience and views afforded to, from and within the Project area/s).

There is a different extent of visibility across parts of the routes due to the surrounding topography, which will also change in future as landform is modified as part of the wider urbanisation process. The visibility will also depend on the finalised design levels of the transport routes and what type of construction is required to build the routes. Preliminary viewshed analysis of concept designs prepared during the preparation of this assessment had limitations as it was prepared on existing data and did not take into account intervening structures or vegetation. This also has obvious limitations for assessing visual effects in the likely future environment where development platform levels and building heights are not known.

In terms of the viewing audience, there will be a mix of fixed (e.g., residential dwellings), transient (e.g., users of the transport routes) and occupational (e.g., from a place of work or recreation) audiences across the routes. This also has limitations due to the inherent nature of anticipated change in the future urbanisation processes, including development of the transport routes themselves. Even in environments with less change anticipated such as rural areas, there is potential for intervening vegetation or structures to be implemented that would affect the visibility of any transport route.

As such, viewshed analysis has not been relied upon for this assessment. It is recommended that viewshed analysis be undertaken as part of the ULDMP to identify and address specific viewsheds and the confirmed receiving environment in relation to the detailed design.

¹³ TTaTM page 126

3.3.7 Natural character effects

Natural character is primarily concerned with the degree to which natural processes, natural patterns and natural elements have undergone human modification.

The RMA S6(a) identifies the preservation of the natural character of the coastal environment, wetlands, lakes and rivers and their margins from inappropriate use and development as a matter of national importance.

In accordance with TTatM, natural character has been interpreted as:

- The naturalness or degree of modification of an area.
- An area's distinct combination of natural characteristics and qualities.

Naturalness in this context is the extent to which natural processes, elements, and patterns occur and the relative absence of human elements such as structures and roads. It is a measure of the actual and apparent modification from a fully natural state.

3.3.8 Associative landscape effects

Associative landscape values relate to the memory and meaning of landscapes that people have relationships with. Understanding associative values requires engagement with Manawhenua and with people who have contemporary associations with the landscape.

TTatM is underpinned by Te Ao Māori and Te Ao Pākehā concepts of landscape. The Guidelines promote integration of Te Ao Māori – our unique indigenous worldview, as a keystone of Aotearoa landscape assessment practice. It is not the role of the Landscape Architect to determine these values on behalf of Manawhenua unless delegated to do so.

Accordingly, this LNCVA does not specifically address Manawhenua values which are being considered through a separate, parallel engagement process. Engagement is ongoing through the Te Tupu Ngātahi project team and relevant recommendations from the cultural impacts¹⁴ and archaeological and heritage assessments have been considered in the preparation of this LNCVA.

Relative to the cultural impact assessment the Project landscape is culturally significant to Manawhenua. Landscape aspects of particular note include stands of native vegetation which are identified in the report as contributing to amenity and the ecological and cultural values of the landscape¹⁵. Of further note include the large number of awa and tributaries, along with wetland areas which form part of the cultural landscape of the rohe¹⁶.

Relative to the archaeological and heritage assessment a number of recorded sites are identified within the designations, with the potential for unrecorded pre-European Māori sites, colonial sites, and post-1900 historic sites to be present in the landscape. The report recommends landscape mitigation planting in some instances where heritage features are impacted by the Project.

¹⁴ Refer to Ngāti Manuhiri and Te Kawerau ā Maki Cultural Impact Assessment for Te Tupu Ngātahi - North (Albany-Ōrewa) prepared for Te Tupu Ngātahi Supporting Growth Alliance, March 2023

¹⁵ *Ibid.* page 46

¹⁶ *Ibid.* page 32

3.3.9 Construction and operational effects

Effects are assessed in two phases, construction effects and operational effects. Construction effects relate to the construction period, with effects generally being temporary in nature. They relate to the works required to build the Projects and generally involve machinery and activities required to enable the Projects to be built. The emphasis on construction effects is on avoiding, mitigating, and remedying the effects that impact on landscape character, including those relating to the visual (perceptual) effects on viewing audiences.

Operational effects relate to the permanent effects once construction is completed, and mitigation measures have been implemented. Residual effects relating to the operational phase are generally whatever minimised adverse effects remain after mitigation and can also involve long term positive landscape effects arising from the Projects.

Generally, the construction footprint occupies a larger footprint to enable construction and associated activities. The operational footprint may be reduced, depending on the detail design and operational requirements which includes mitigation that would be confirmed in the UDLMP.

It is noted that the optioneering process and indicative designs have sought to avoid and minimise effects on waterbodies during the construction and operational phase as much as practicable, and the future detailed design and regional consenting will also address these matters in more detail to further mitigate potential effects (noting that regional consents will be required for works within waterbodies).

4 Existing and Likely Future Landscape Environment

The AEE outlines the key attributes of the existing and likely future environment of the Projects across each of the thirteen NoR areas. Each section is described in the AEE including key features relating to:

- Current land use.
- Community and recreation facilities.
- Watercourses and water bodies.
- Vegetation and recreational facilities.
- Historic heritage and archaeological values.
- Existing designations.
- Current zoning.
- Precincts.
- Other non-statutory features, and
- Likely future land use.

The existing and likely landscape environment is discussed further in Section 4.3.

4.1 Planning and Land Use Context

The assessment of effects needs to consider both the existing environment and the likely future receiving environment at the time at which effects will likely occur. It is anticipated the North Projects will be constructed between 10 – 30+ years from now, meaning there is a high likelihood the receiving environment will differ significantly from what is present today.

There are existing rural and urban zonings in the study area, as well as large areas of future urban zoning (FUZ) which will influence the likely receiving environment for assessment purposes. The majority of the North Projects will be constructed and will operate within (or immediately adjacent to) areas currently zoned as FUZ. The remainder will be constructed and operated within the existing urban environment or planned environment (i.e., what can be built under the existing AUP: OP live zones). However, greater intensification is assumed in the residential zones, centre zones (and future centres), and land adjacent to the proposed RTC stations, in line with the National Policy Statement on Urban Development (NPS: UD) and Medium Density Residential Standards (MDRS) -noting that the policy context may shift prior to construction.

The adopted Silverdale West - Dairy Flat Industrial Area Structure Plan anticipates the development of a large industrial area within an area of FUZ predominantly between Dairy Flat Highway and SH1.

The remaining areas of FUZ, including Upper Ōrewa, Pine Valley and Dairy Flat have not yet been structure planned by Auckland Council. Auckland Council has, however, released some high-level thinking on future land uses in a draft Spatial Land Use Strategy (Refer Figure 2), which broadly suggests:

- A metropolitan / town centre in Dairy Flat, located adjacent to the Rapid Transit Corridor alignment (Figure 2)
- The potential for Terrace Housing and Apartment (THAB) zoning for 800m surrounding this metropolitan / town centre.
- Two potential local centres in the Pine Valley area.

All areas of FUZ have a high likelihood of change in planning and land use context. It is assumed that the likelihood of change in the following areas / zones is low:

- Current residential areas/zones, including Single House, Mixed Housing Suburban, Mixed Housing Urban, Terrace and Apartment Buildings, and Large Lot zones.
- Current business areas/zones, including Light Industry, Mixed Use, General Business, Neighbourhood Centre, Local Centre, Town Centre, Heavy Industrial zones.
- Current open space areas/zones, including Informal Recreation, Community, Sport and Active Recreation, Conservation zones.
- Current rural areas which are not FUZ zoned, including Countryside Living zone.
- Other areas currently within the Special Purpose zone including Special Purpose – Cemetery, Special Purpose – School, and Special Purpose – North Shore Airport.

Some of these zones will be affected by the Resource Management (Enabling Housing Supply and Other Matters) Amendment Act and PC78 which provide for additional intensification. Please refer to the AEE for further information on the planning and land use context.

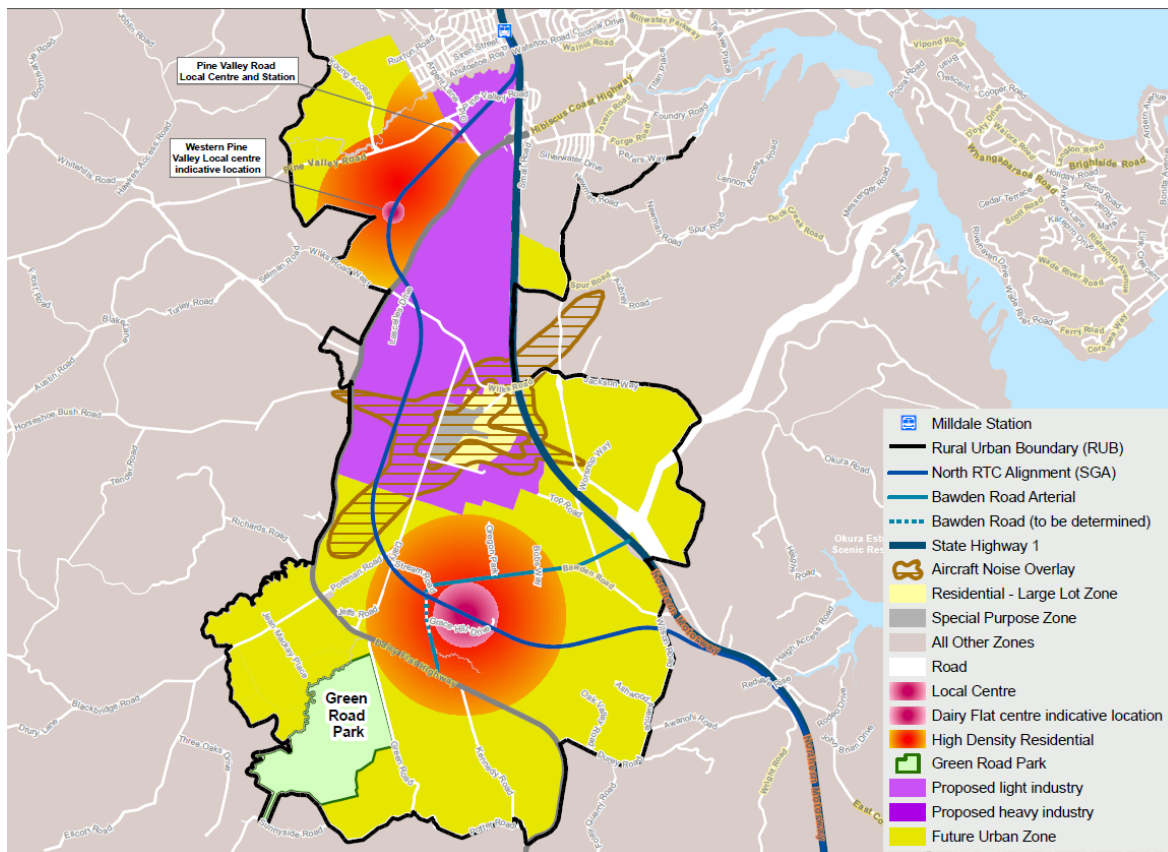


Figure 2 Spatial Land Use Strategy Silverdale Dairy Flat (Draft March 2023) – note this map is draft and not yet adopted by Council's Planning Committee

4.2 Statutory Considerations

4.2.1 Resource Management Act 1991

The preservation of natural character is a matter of national importance under the RMA per section 6(a).

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

One part of the North Projects area (NoR 4 SH1 Improvements) is located within the coastal marine area (CMA) environment, which includes part of the Ōrewa River on the seaward side of the Northern Motorway. However, because this is within the existing designation area for SH1 it is not considered as part of the natural character assessment and is anticipated to be developed as infrastructure. The eastern edge of NoR 10 (Wainui Road Upgrade) is located approximately 220m upstream of SH 1 and appears as part of the estuary from a landscape perspective but does not sit within the defined CMA.

There are wetlands, rivers and their tributaries identified within the Project areas, within the Waiokahukura (Lucas Creek), Ōrewa River, Rangitopuni River, Wēiti River and Ōkura River catchments. The natural character of these features is discussed in Section 4.3.3 and construction and operational effects on the natural character in Sections 5.2.2 and 5.3.2.

Section 6(b) requires the protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development as a matter of national importance.

“The protection of outstanding natural features and landscapes from inappropriate subdivision, use, and development”

No parts of the Project areas are identified as an Outstanding Natural Features (ONF) within the AUP: OP. There is one Outstanding Natural Landscape (ONL) within the proposed designation area for NoR 8 (Upgrade to Dairy Flat Highway, Silverdale to Dairy Flat). The natural character of this feature is discussed in Sections 5.2.2 and 5.3.2.

Section 7 of the RMA concerns ‘other matters’ relating to managing the use, development and protection of natural and physical resources. In terms of landscape and visual considerations, particular regard must be had to section 7I:

“The maintenance and enhancement of amenity values, as well as Section 7(f) the maintenance and enhancement of the quality of the environment

Section 7 matters are addressed in Section 5.2.3 and 5.3.3 of this assessment.

4.2.2 National Policy Statement on Urban Development 2020 (NPS: UD)

In addition to the purpose and principles set out in Part 2 of the RMA, national policy statements contain matters of national importance. Of relevance to the North Projects is the NPS: UD and the objectives and policies it sets out.

The NPS: UD is intended to set the direction for planning decisions to enable well-functioning urban environments, and in particular to provide for the changes in amenity values over time in response to the diverse and changing needs of people, communities, and future generations. The NPS: UD acknowledges that amenity values change over time, and that while planned urban built form may detract from amenity values appreciated by some to enable greater housing densities and types, these changes are not, of themselves, an adverse effect.

4.2.3 Auckland Unitary Plan: Operative in Part (AUP: OP)

While much of the North Project area is currently characterised by rural activity, as anticipated in the AUP: OP (refer **Appendix A Unitary Plan Zones Map**), urbanisation of the FUZ areas is planned. In particular:

- All of the proposed NoR corridors interface to an extent with the FUZ
- NoR 11 is within FUZ, but it is located entirely within the likely future industrial development of the Silverdale West / Dairy Flat Industrial Structure Plan area.
- NoRs 2, 3, 5, 6, 7, 10 and 12 fall almost entirely, if not fully within FUZ.
- NoRs 1, 4, 8, 9, and 13 traverse varied rural, existing residential and future urban environments.

The proposed scale and context of urban development for FUZ areas will likely vary in type and density. However, it is assumed that more intensive development will be concentrated around proposed urban community centres, which Council anticipates (in its draft Spatial Strategy) will be located at Dairy Flat and Pine Valley. The implementation timeframe for each Project will vary and correspond with future land release within the wider area.

For the purposes of this assessment, it is assumed that future planning of the FUZ (structure planning and plan changes) will apply the principles of the NPS:UD and MDRS, AUP:OP, and Silverdale West / Dairy Flat Industrial Structure Plan (this includes portions of NoRs 1, 3, 4, 7, 8 which cross or interface with the future industrial area and all of NoR 11) as well as be informed by the Auckland Code of Practice for Land Development and Subdivision, Auckland Transport Code of Practice, and Urban Street and Road Design Guide. This is the basis against which we have assessed effects.

This policy context will enable intensification of existing urban environments and future urban development. It is this anticipated future environment that has informed the effects assessed in the LNCVA. The purpose of the recommended measures in the LNCVA is to ensure the proposed transport corridors will integrate with the likely future environment enabled by the planning and land use context.

4.2.4 Other non-statutory context

There are several non- statutory documents that inform the anticipated future urban environment and likely future landscape context of the North Projects. These documents, amongst others referenced in the previous sections, have been used as a reference for assessing landscape, natural character and visual effects within the future environmental context of FUZ areas. The relationship and interaction of these documents is illustrated in **Appendix C – Diagram Illustrating NPS: UD, MDRS, PC78 and Silverdale West / Dairy Flat Industrial Structure Plan**.

4.2.4.1 Silverdale West / Dairy Flat Industrial Structure Plan Area

The proposed Silverdale West / Dairy Flat Industrial Structure Plan (Silverdale West Structure Plan) area is situated directly southwest of the Silverdale SH 1 interchange, extending from Pine Valley in the north, to south of the North Shore Airport and west to the Dairy Flat Highway.

A key natural feature of the Silverdale West Structure Plan is the integration of waterways, associated floodplains and likely wetland environment with riparian margins that contribute to green ways (Figure 3). Proposed landscape buffers further promote integration of natural landscape patterns and processes in future development.

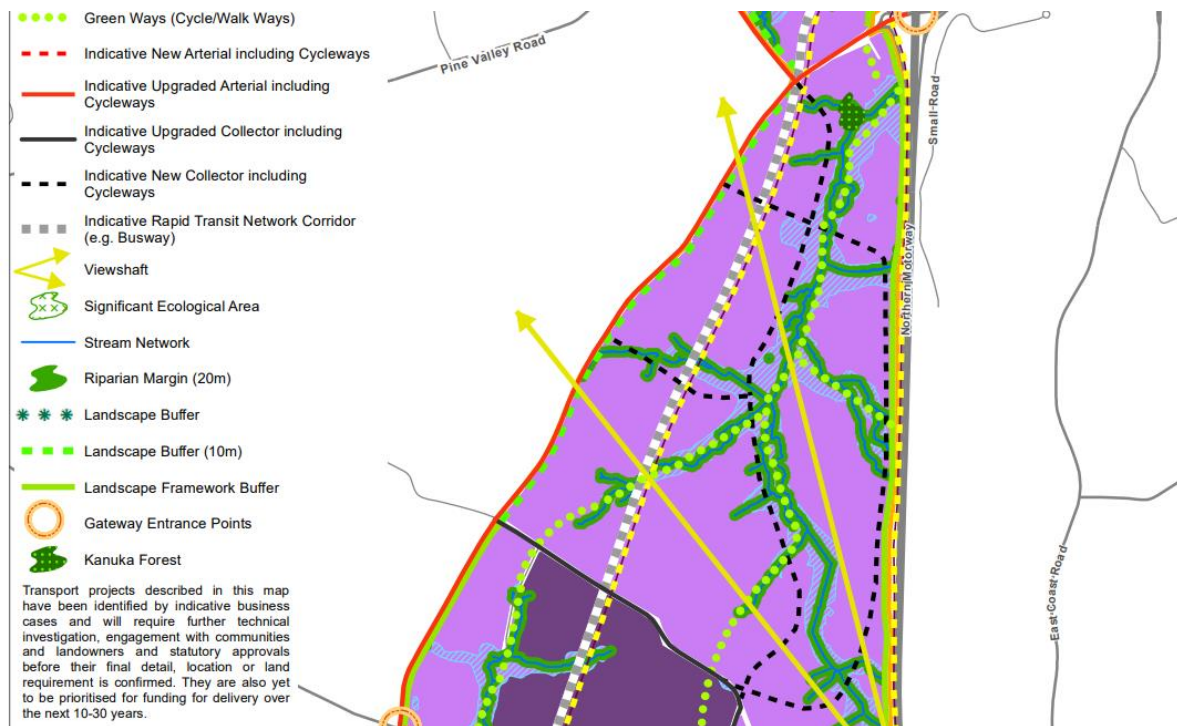


Figure 3 Excerpt of Silverdale West Structure Plan indicating integration of natural landscape features

The Silverdale West Structure Plan indicates that the future land use within this area will be significantly different from present rural land use with 600 ha of land identified for industrial development, which includes a mixture of light and heavy industry.¹⁷

A number of the NoR corridors border and / or traverse this area of proposed future industrial development.

- NoR 1 RTC will traverse through the proposed industrial area, terminating in stations located at NoR 2 Milldale Station and NoR 3 Pine Valley East Station on the border of the future industrial zone.
- NoR 7 Pine Valley Road upgrade will interface with the northern extent of the Silverdale West Structure Plan area and NoR 3 Pine Valley East Station.
- NoR 8 defines the western extent of the Silverdale West Structure Plan area and NoR 4 is along the eastern extent.
- NoR 11: The new connecting road between Dairy Flat Highway and Wilks Road will also traverse through the proposed industrial area.

4.2.4.2 Spatial Land Use Strategy

To ensure the North Projects network serves and integrates with future land uses a Spatial Land Use Strategy (SLUS) has been prepared by Auckland Council for the Dairy Flat and Silverdale Future Urban Zoned areas.¹⁸ This plan identifies approximately 3,500 ha¹⁹ of land for future urban use which will likely include business (including industrial development within the Silverdale West / Dairy Flat Industrial Structure Plan Area) and residential development (Figure 2). Except for overlay areas or

¹⁷ Auckland Council Draft Spatial Land Use Strategy, Dairy Flat and Silverdale Future Urban Zones, 6 July 2022

¹⁸ *Ibid.*

¹⁹ *Ibid.* Section 4

features identified in the AUP-OP for protection, these areas are assumed to be fully urbanised, representing the most significant anticipated change in the North Projects network area.

As part of this future development, a town centre is identified at Dairy Flat (Figure 4). More intensive terraced and apartment residential development is assumed to be concentrated around this centre, intersected by the proposed NoR 1: RTC.

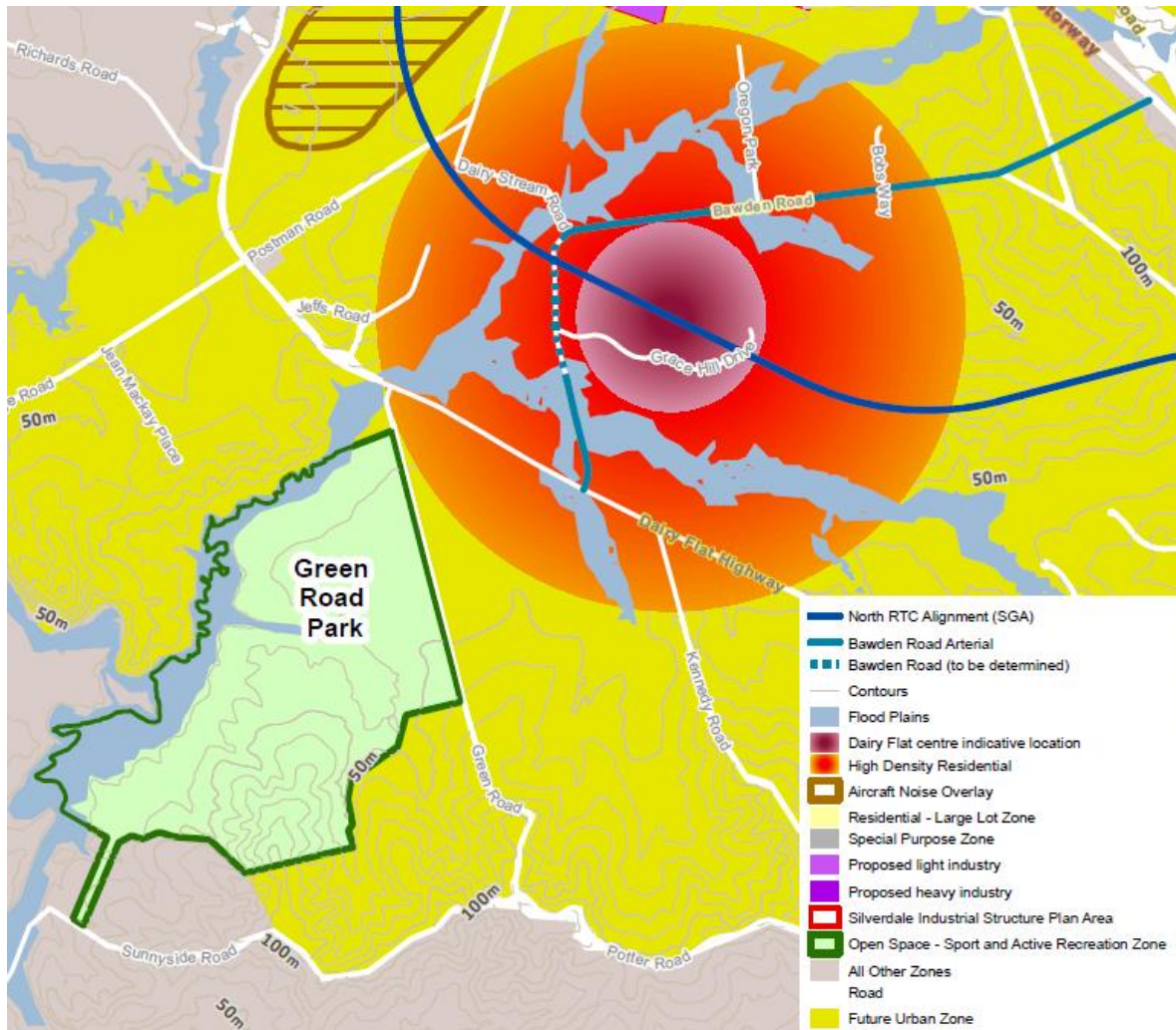


Figure 4 SLUS Proposed new Dairy Flat Town Centre location (Draft March 2023) from Council's Draft Spatial Land Use Strategy (draft and not yet adopted by Planning Committee)

Two smaller local urban centres are also proposed within the FUZ and northern extent of the network at Pine Valley (Figure 5). These centres connect with the NoR 1 RTC. One local centre is located beside NoR 3 Pine Valley East Station. The location of the other is mid-way between Pine Valley Road, Wilks Road West and Dairy Flat Highway. The location of other local and neighbourhood centres will be determined during future, separate structure planning processes.

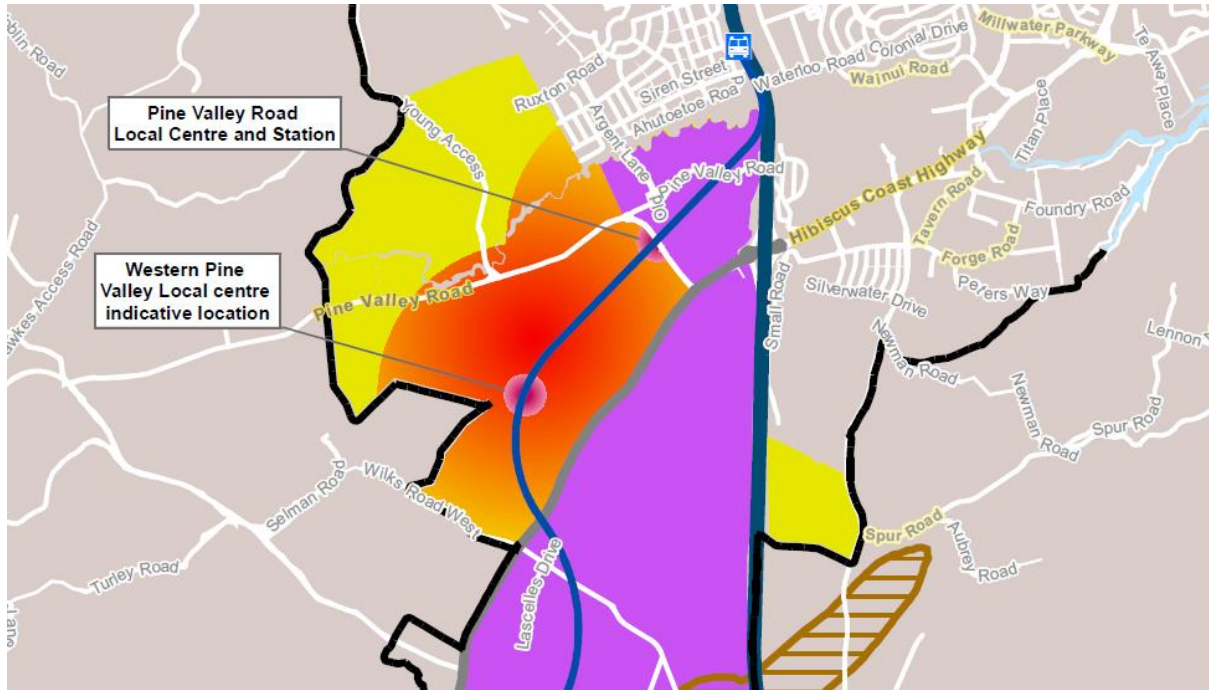


Figure 5 SLUS proposed Pine Valley Local Centres (Draft March 2023) from Council’s Draft Spatial Land Use Strategy (draft and not yet adopted by Planning Committee)

4.2.4.3 Precincts and subdivisions

There are a number of specific precinct areas and planned subdivision developments in the vicinity of the NoR corridors (refer to the main AEE). These precincts and developments provide insight to the future landscape context of the transport corridors, as described in the following sections.

North Shore Airport and Dairy Flat Precincts

The North Shore and Dairy Flat Precincts interface with the southern extent of NoR 11 and the western extent of NoR 4. This airport precinct provides for the continued operation of the airport, including aircraft operations, maintenance and repair of aircraft, and limited provision for commercial and industrial activities associated with aviation. The Dairy Flat precinct applies to 50 ha of land immediately adjoining the North Shore Airport at Dairy Flat and provides for a residential aero park.

Silverdale 2 and 3 Precincts

The Silverdale 2 Precinct applies to approximately 47 ha of land located between NoR 13 and NoR 4. The precinct is bounded by SH 1 to the west, East Coast Road to the east and the ‘Snowplanet’ site to the south. The purpose of the precinct is to facilitate the development of an entertainment and recreation cluster.

The Silverdale 3 Precinct is applied to approximately 41 ha of land located north of Precinct 2, also located between NoR 13 and NoR 4. The purpose of the precinct is to provide for business and residential development within a visually strong vegetated framework. This area is also known as the gateway to the Hibiscus Coast.

Wainui Precinct (Milldale)

The Wainui Precinct, also called Milldale, is located to the west of Millwater, Silverdale, Ōrewa between NoR 4 and NoR 10. A new township is proposed for this area, which is currently under

development. This local centre will be supported by access to the NoR 1 RTC via NoR 2 Milldale Station.

Tributaries of Waterloo Creek are a feature of the precinct which are to be retained as esplanade reserves. The precinct plan also includes an overbridge (Highgate Bridge) connecting to Highgate on the eastern side of NoR 4 SH1 Improvements. Highgate Bridge is already consented and assumed to be constructed for the design and operation of North Projects and considered to be part of the future environment.

Highgate Precinct

The Highgate Precinct is located north of the original town of Silverdale and east of Milldale and applies to approximately 15 ha of land bounded by Highgate Parkway to the west, Wainui Road and residential development to the east and the Highgate industrial area to the south. NoR 4 SH 1 Improvements is located to the west of this development. The precinct will provide for a neighbourhood centre, offices, hospitals, recreation facilities and tertiary education facilities. This area is currently under development.

Ōrewa 2 Precinct

The Ōrewa 2 Precinct is approximately 240ha of greenfield land bounded by Ōrewa River estuary to the south; Nukumea Stream to the north; SH 1 to the west; and the established Ōrewa urban area to the east. The purpose of the precinct is to develop a new residential community on greenfield land. NoR 4 bounds this development along the western extent. This area is currently under development.

Halls Farm Subdivision

Consent has been granted for 575 residential lots called Ara Hills (previously Halls Farm) in Ōrewa west - including 17 mixed use lots for the Halls Farm sub-division, located in the Upper Ōrewa FUZ area to the west of SH1 - NoR 4 and accessible from Grand Drive.

Other Major Non- Te Tupu Ngātahi Transport Projects

Aside from Highgate Bridge linking Milldale to Highgate over SH1, other major non- Te Tupu Ngātahi transport projects in the wider area include O Mahurangi (Penlink) and a new Argent Lane connection south of Milldale (New Pine Valley Road).

4.2.4.4 Local Board Local Paths (Greenways) Plans

Greenways Plans have been developed for Local Board areas. These plans are visionary and guiding documents to provide for cycling, bridle, and walking routes to improve access, connectivity, and ecology. The networks propose to link together areas of housing, employment, open spaces, town centres, recreational facilities, places of interest and transport hubs, in which landscape plays a role. It is anticipated that opportunities to connect the designations active travel paths for pedestrians and cyclists with the local path networks will be investigated as part of the detailed design and ULDMP process.²⁰

²⁰ Refer to the main AEE assessment for full statutory and non-statutory considerations.

4.3 Existing and Likely Future Landscape

Assessing the landscape and natural character and visual effects on the environment solely as it exists today (i.e., at the time of assessment) will not provide an accurate reflection of the environment in which some of the effects will be experienced. TtM notes that the 'existing environment' includes unimplemented resource consents that are likely to be implemented. This includes changes due to urbanisation anticipated as a result of the Auckland Unitary Plan, such as the Future Urban Zone (FUZ).

Accordingly, the assessment of effects considers both the existing environment, and the likely future receiving environment in which the potential effects will occur.

Existing environment

The existing environment for the majority of the North NoRs is rural-residential and typically rural in landscape character. Other main features of the existing environment include the local road and state highway transport network and protected landscape features such as reserves and waterways. However, there are localised areas of more urbanised development, or areas which are currently under development in the vicinity, as follows:

- **NOR2** is on the edge of the existing Milldale residential development area, which includes a new school and intensified neighbourhood centre focused on the restored Waterloo Stream riparian corridor.
- **NoR 4 SH 1 Improvements** – intensive residential and commercial development (including Silverdale 3 Precinct, Highgate Precinct, Millwater and Ōrewa 2 Precinct), is under development at the northern extent of NoR 4 along the eastern extent of SH 1 near Silverdale and Ōrewa. Lower density housing is currently under development south-east of Lonely Track Road. A recently constructed 6 km long section of shared walking and cycling path between Constellation Station and Oteha Valley Road marked the completion of the Northern Corridor Improvements project.
- **NoR 6 New Connection between Milldale and Grand Drive** – A residential subdivision marketed as Ara Hills is currently being developed to the west of SH 1, accessible from Grand Drive.
- **NoR 7 Upgrade to Pine Valley Road, NoR 10 Upgrade to Wainui Road** and the far northern extent of **NoR 1 New RTC** – more intensive residential development is currently occurring in the Milldale area between Old Pine Valley Road and Wainui Road as part of the Milldale Subdivision.
- **NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat** – the corridor includes a mix of industrial development, community facilities (including Dairy Flat School and Community Hall), and rural residential style land uses situated along either side of Dairy Flat Highway. Industrial development is located at the Dairy Flat Highway - Kahikatea Flat Road intersection.
- **NoR 11 New connection from Dairy Flat Highway to Wilks Road** – a residential aero park development (Dairy Flat Precinct) is situated to the south of Wilks Road and Postman Road. The North Shore Airport is also located in this vicinity.

Future environment

The majority of the North Projects will be constructed and implemented within or immediately adjacent to land identified for future growth (FUZ). These areas are anticipated to change and become urbanised with more intensive residential, commercial, and industrial land uses.

- **NoR 2 Milldale Station and NoR 3 Pine Valley East Station** - as discussed in Section 4.2.4, current strategic planning frameworks indicate greater intensification is assumed around future centres at Dairy Flat and Pine Valley and land adjacent to the proposed RTC stations²¹.
- **NoR 1 RTC, NoR 4 SH 1 Improvements, NoR 6 New Connection between Milldale and Grand Drive, NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat and NoR 9 Upgrade to Dairy Flat Highway between Dairy Flat and Albany** - proposed designation boundaries adjoin the Rural-Urban Boundary (RUB). These areas are currently within and will remain as Rural zoned land, and the anticipated change in those environments in the future is assumed to be minimal. The local road and state highway transport network and protected landscape features will also be an aspect of the future environment.

Please refer to the main AEE for further information on the planning and land use context²².

4.3.1 Wider landscape context

The landscape context of the wider North Projects area is highly modified, varied, and generally undergoing transition from rural to urban as Auckland grows. At the southern end the landscape contrasts from the urbanised Albany Town Centre located in the low-lying Waiokahukura (Lucas Creek) valley, to the elevated, heavily vegetated Albany Heights ridgeline. It transitions to rolling hills and a low-lying agrarian landscape through the Dairy Flat valley, which contrasts to the gently rising East Coast Road ridgeline to the east. Urban form reoccurs at Silverdale, with development of this urban node underway along Twin Coast Discovery Highway and the end of East Coast Road, in the John Creek – Wēiti River valley.

To the west, urban transformation has recently occurred and is still occurring at Milldale, and to the east, the previous Millwater residential development landscape is now well established. A local rural service centre is located at Dairy Flat, clustered around the intersection of Dairy Flat Highway and Kahikatea Flat Road. At the northern extent of the study area, more urban development is occurring at the eastern edge of Upper Ōrewa, on the slopes of the ridgeline that separates the Wainui Stream and Ōrewa River catchments.

Key features and attributes to note within this broader landscape include:

- The expressed landscape patterns and processes that prevail are the interplay of natural systems as defined through the surficial landscape features (e.g. vegetated waterways) and the pastureland of the agrarian landscape.
- Albany is a highly urbanised metropolitan centre, near the limit of the main RUB. A separate RUB includes Ōrewa Town Centre, Whāngaparāoa, Silverdale and Dairy Flat FUZ.
- Rural zoned land between Albany Heights and Redvale forms a green space between future and existing urban areas.

²¹ Draft Spatial Land Use Strategy – Dairy Flat and Silverdale Future Urban Zones, 6 July 2022, Auckland Council

²² Refer to the main AEE

- FUZ land is currently rural land use, used as pasture and small lifestyle blocks. Recent residential subdivisions around Milldale illustrate the transition happening to this landscape from rural to urban.
- Expansive views across the wider landscape are generally not possible due to the nature of the gently rolling topography and/ or relatively low-lying position of the Dairy Flat valley. Some more extensive views are possible from ridgelines, offering discrete glimpses to the wider landscape where elevated topography (uplands, ridgelines, knolls) allows expansive views and potentially panoramic views from specific locations.
- Numerous small waterways are scattered across Dairy Flat due to the low-lying and gently undulating topography at the head of the Rangitopuni River catchment.
- The coastal marine area extent reaches up to SH 1(NoR 4) Ōrewa River overbridge (Hauraki Gulf) and to the western edge of Dairy Flat Highway (Waitemata Harbour). The latter is to the south of the proposed Dairy Flat Highway – Rural (NoR 9) designation and is outside of the project extent.
- SH 1, East Coast Road and Dairy Flat Highway are the main transport corridors, with numerous rural roads criss-crossing the area between. The roading network is largely devoid of formal or extensive planting, such as street trees or stormwater treatment planting.
- North Shore Airport is a small regional airport located in the centre of the Dairy Flat within the FUZ, with airport approach overlays that limits the vertical height of elements on the ground surface (this includes trees).
- The north Auckland branch of the National Grid electricity transmission corridor runs north-south through the study area between sub-stations located in Albany and Silverdale.
- Public open space and recreational areas are limited and fragmented, with pockets of Open Space – Conservation Zone and Open Space – Informal Recreation distributed unevenly across the area.
- Vegetation patterns are fragmented and varied, with a mix of exotic shelter belts typical of rural vegetation and larger areas of regenerating native bush unevenly distributed across the study area.

The follow sections further describe biotic and abiotic landscape features and attributes that contribute to the landscape character in more detail.

4.3.2 Landform

The topography of the Northern Projects study area is characterised by a combination of gently rolling hills and plains, framed by steeper slopes, ridges and knolls. The terrain is generally low-lying, less than 100m above sea level, with the high point of around 140m above sea level located in Albany Heights (refer **Appendix A Topographical Map**).

At the northern extent of the study area, Upper Ōrewa Road follows higher ridges above Wainui Road valley formed by Ōrewa River. Dairy Flat Highway follows along the naturally low ridgeline northern extent of the John Creek catchment. Along Wilks Road and East Coast Road, a low ridgeline gently transitions into low lying pastoral land. The terrain to the southwest of Wilks Road forms part of the Rangitopuni Stream catchment and falls southwest to the upper Waitematā Harbour.

The Ōkura River catchment comprises low-lying rural land between north Albany and Wēiti Reserve. The terrain is generally rolling terrain with slopes ranging up to 20 degrees with many smaller tributaries of Ōkura River. To the south, the Waiokahukura (Lucas Creek) catchment transitions from prominent ridgelines of Albany Heights to flatter land, creating a visually distinctive urban landscape character change at Albany Town Centre.

Around the SH 1 road corridor and associated interchanges, topography is highly modified with cut and filled land formations along both sides of the corridor. Benching, terracing and retaining walls are common features of land in urbanised areas along the SH 1 corridor.

4.3.3 Natural Character and Natural Heritage

An Outstanding Natural Landscape (ONL)²³ is located to the southwest of Dairy Flat, between Dairy Flat Highway and Coatesville, covering approximately 700 hectares of cultivated and natural landscape. The ONL is located within an area zoned as FUZ, that interfaces with NoR 8 at Huruhuru (Dairy Stream). This notable landscape is characterised by a combination of native forest along ridges and hill crests and bush clad stream corridors. These natural patterns and features are in distinctive contrast to the surrounding pastoral and farming / rural residential land uses. The landscape exhibits Moderate High-High landscape values (Table 5).

Table 5 ONL 49 Values (Auckland Unitary Plan Chapter L, Schedule 7)

Schedule 7 Outstanding Natural Landscapes Overlay Schedule

| ONL Description | | | | | WESI Criteria | | | | | | |
|-----------------|-----------------------------|----------------|---|--|---|--|---------|---|--|---|------------------|
| ID | Name | Location | Landscape type, Nature and Description | Elements patterns, processes | Natural Science Factors | | | Aesthetic Values | | Expressiveness | Transient values |
| | | | | | Geological Topographical | Ecological | Dynamic | Memorability | Naturalness | | |
| 49 | Sunnyside Road, Coatesville | Central Rodney | Lowlands Wild nature/cultured nature (Lowlands Wild nature/cultured nature (Hill country)) Quite detailed/distinctive combination of native forest on ridge and hill crests combined with bush along stream corridors, contrasting with pasture and surrounding farming/ rural residential land uses. | Indigenous forest remnants reinforcing topography. Interplay with pasture. | High Fine grained sequence of stream corridors, escarpments and ridges. | Mod/ high Combination of stream corridors, including wetlands, linked with a sequence of remnant and re-emerging forest pockets. | | High Very strong interplay of natural features and patterns with the more open pasture of adjoining rural residential development around Coatesville, creating a distinctive, enclosed natural/ cultural landscape. | High/ mod Sequence of readily apparent forest around stream corridors extending up onto higher slopes and ridges to create a network of natural forest elements. | High Evident patterning of natural and cultural landscape components that imbues the landscape with a strong sense of structure and character. Strong sense of place. | |

The 106-metre-long northern boundary of the ONL overlaps with the proposed western extent of NoR 8 (Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat), by a total area of 2,200 m² at Green Park (Figure 6). The proposed designation has been developed to avoid permanent operational areas within the ONL where possible. The proposed designation encroaches into the ONL to enable construction of a bridge over the stream floodplain for flood resilience. The stream crossing provides an important threshold that in the future can be anticipated to provide viewshafts and

²³ ONL schedule number 49, Sunnyside Road, Coatesville, Central Rodney

express the underlying natural patterns and processes of the landscape as the wider landscape becomes increasingly urbanised.

However, the specific area of ONL within the proposed designation is highly modified, with landform influenced by the formation of Dairy Flat Highway and has a high degree of invasive weed species covering the landscape. The natural character of this specific area has been degraded due to these past activities and is not representative of the combination of high value landscape qualities associated with the rest of the ONL. However, within the context of FUZ it could be possible that the riparian corridor would be protected through the formation of an esplanade reserve, with potential enhancement of the natural features through weed and animal pest control and revegetation, or community restoration efforts as indicated in the Green Park masterplan. Over a longer time period, natural regeneration processes also come into consideration. Irrespective of the timing and staging of urban development compared to implementation of the proposed transport corridor, the natural features within the ONL have potential to improve from the current state.

No areas of Outstanding Natural Character, High Natural Character or Outstanding Natural Features are present within the study area. Other ONLs near Pine Valley and Wainui Road²⁴ are outside of the study area.

Figure 6 Proposed NoR 8 designation overlaps ONL 49

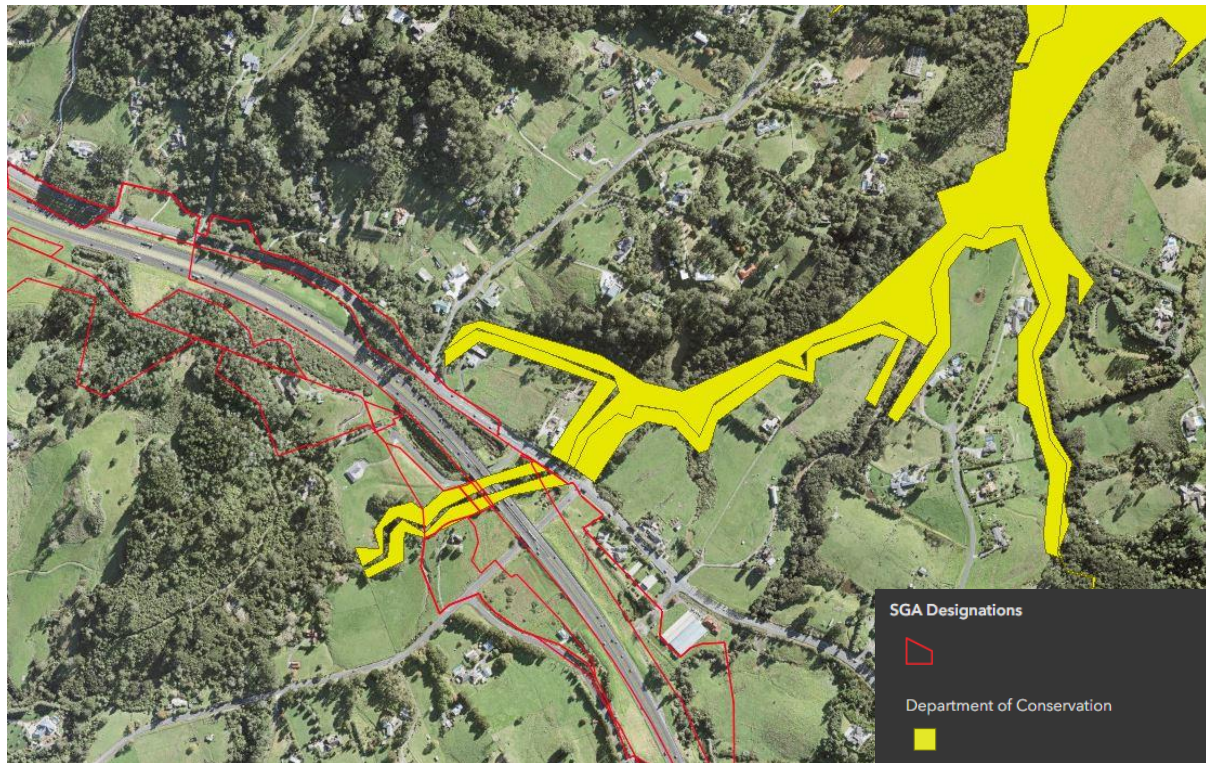


Larger areas of Department of Conservation (DoC) land in the vicinity (Coatesville Scenic Reserve, Albany Scenic Reserve) are well outside of the proposed designations. Closer to the proposed designations, more minor DoC areas are avoided (Wēiti Stream Conservation Area, Marginal Strip – Wēiti Stream, Marginal Strip – Ōrewa River, Upper Ōrewa Marginal Strip and Ōrewa River Conservation Area). The only DoC land affected is the Redvale Marginal Strip (Figure 7) a riparian

²⁴ ONL schedule numbers 47 and 48

esplanade reserve that is crossed by the proposed NoR 1 RTC and NoR 4 SH1 Improvements designations, noting that the existing designation for SH1 already traverses this area.

Figure 7 Redvale Marginal Strip (yellow areas) under NoR 1 and NoR 4



There are several other AUP: OP Natural Heritage and Natural Resource elements present within the wider North Projects area (refer **Appendix A Natural Heritage and Significant Ecological Overlays Map**) that contribute to the landscape character and will continue to in the future subject to ongoing protection through regional consenting processes. This includes Significant Ecological Areas – Terrestrial (SEAs)²⁵, Natural Stream Management Areas, Notable Trees and Groups of Notable Trees.

4.3.4 Waterways and Wetlands

Natural water bodies are a key feature that have shaped the North Projects' landscape, with natural waterways forming distinctive landscape patterns across the area. This includes numerous streams, tributaries, floodplains and modified wetland areas that comprise the Waiokahukura (Lucas Creek), Ōkura River, Ōrewa River, Rangitopuni River and Wēiti River catchments. Associated with these water bodies are fragments of native vegetation, including kauri podocarp and broadleaf forest, along with areas of kanuka scrub are mostly constrained to SEAs and along gullies.²⁶

However, the natural values of these have been degraded by the modification of stream channels, removal of vegetation and canopy cover, stock incursion and reticulation in urbanised areas. Modification of natural hydrological patterns is evident, where farming practices and urbanisation has altered the natural watercourses for drainage. The area contains major floodplains with the Silverdale

²⁵ AUP:OP Chapter D9 Significant Ecological Areas – Terrestrial Overlay (SEA)

²⁶ Refer to technical specialist report Ecology Assessment for ecological effects assessment.

South, Pine Valley and Huruhuru (Dairy Stream) Catchments which act as important areas of impervious surface (refer **Appendix A Water Catchment and Hydrology Map**).

John Creek located in Silverdale West drains to the Wēiti Stream which flows into Wēiti River and ultimately Long Bay Ōkura Marine Reserve, identified as SEA – Marine 1 areas in the AUP: OP. The Pine Valley Road area also drains to the main tributary of the Wēiti Stream.

The area south of Wilks Road drains to the upper catchment tributaries of the Rangitopuni Stream, ultimately discharging to the upper Waitematā.

4.3.5 Vegetation

The vegetative cover of the North Projects area is characterised by the interplay between areas of vegetation with a high degree of naturalness and cultivated vegetation patterns of the rural landscape. An unevenly distributed, fragmented and varied native-exotic vegetation pattern is a defining attribute of the landscape character. Extensive areas of native regenerating vegetation cover the Oteha escarpment and contribute greatly to the landscape character as a ‘green belt’ at the transition from urban to rural. Across the Dairy Flat – Silverdale plains, overlaying natural vegetation patterns associated with natural watercourses interact with linear and grouped agrarian vegetation grounded in grass cover. Natural vegetation patterns become more dominant around the Milldale-Ōrewa area, where revegetation and stormwater management planting intersect with native vegetation patterns associated with natural watercourses.

Where areas of valued or protected native forest occur, it is assumed that these will continue to characterise the landscape in the future as the area becomes urbanised. This aligns with the nine principles of Auckland’s Urban Ngahere (Forest) Strategy²⁷. In the future, it is anticipated that the quality of regenerating native vegetation would improve as the forest structure matures and shades out competition from pest plants, or through community environmental restoration efforts.

There are several SEAs within the North Projects Area (refer **Appendix A Natural Heritage and Significant Ecological Overlays Map**). In some places, small sections of the proposed designations cut across the edges of these SEAs. There are also other bush areas outside of SEAs which could be potentially affected by the proposed designations, including riparian vegetation. Where riparian vegetation is affected, this will likely have effects on natural character. Edge effects are typically referred to in terms of ecosystem services but could also result in visual effects as weed intrusion occurs at the forest edges and diminish landscape values.

The North Projects area and surrounding landscape have highly modified vegetative landcover due to previous urban and agricultural development. The majority of vegetative cover is pastoral farmland, with shelterbelts, amenity plantings associated with rural lifestyle activities and fragmented patches of regenerating native podocarp-broadleaf forest. Very little landscape connection exists between the forest fragments (Refer **Appendix A Land Cover Map**).

Very little indigenous native forest cover remains as a percentage of the overall North Projects area. As discussed in Section 4.3.3 Natural Character and Natural Heritage, most significant areas of native forest are concentrated around Albany Heights into the Ōkura River valley to the northeast and

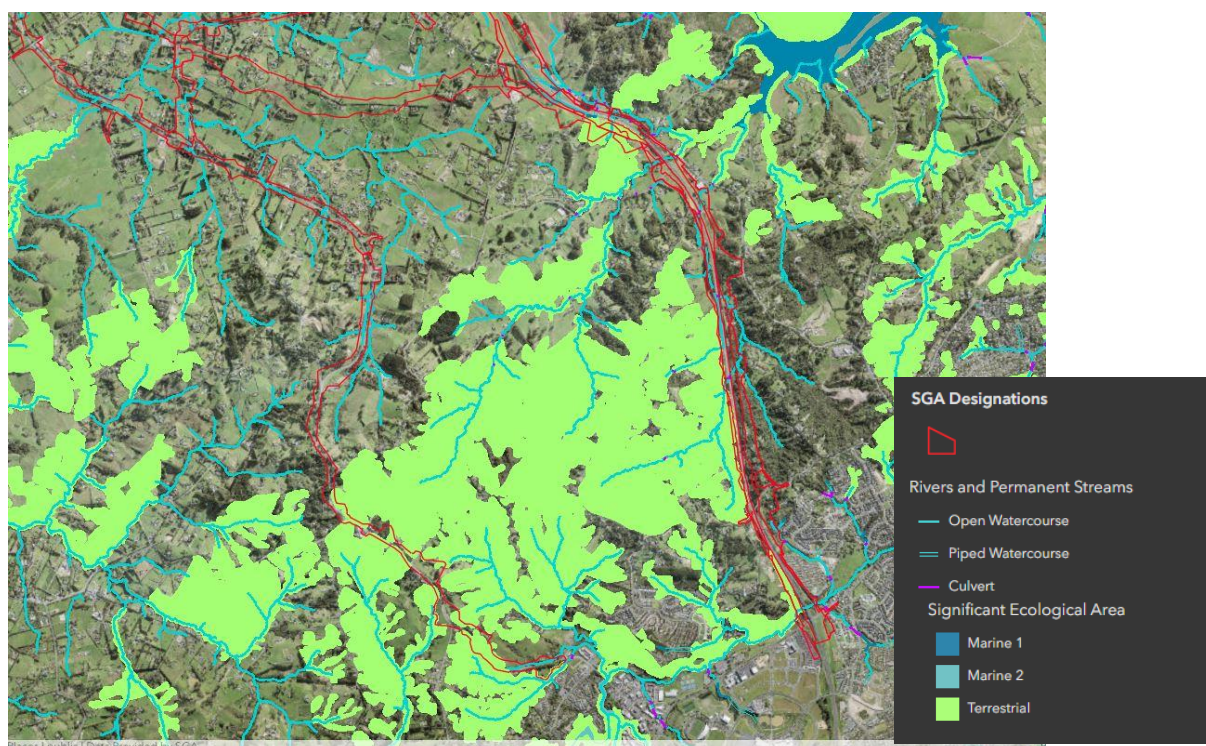
²⁷ Auckland Council (2019). *Auckland’s Urban Ngahere (Forest) Strategy* Strategies include Right tree in the right place, Preference for native species. Ensure urban forest diversity, Protect mature, healthy trees. Create ecological corridors and connections. Access for all residents. Manage urban forest on public and private land. Deploy regulatory and non-regulatory tools. Manage the whole lifecycle of urban trees.

Waiokahukura (Lucas Creek) to the southwest. Around Dairy Flat and Silverdale there are isolated pockets of bush adjacent to the Wēiti and Ōrewa streams²⁸.

The SEA – Terrestrial Overlay²⁹ or QEII covenants protects some of these areas of regenerating native forest (refer **Appendix A Natural Heritage and Significant Ecological Overlays Map and QEII Covenants Map**). This provides not only a level of protection to natural character but is also an important landscape connectivity feature. Where SEAs are connected to public recreational space, this also provides public access to experience the natural environment near an urban situation and enhances the experience of multi-modal connectivity by creating a visually attractive and safe route. An example of this is the recently constructed shared user path adjacent to Hooton Reserve in Albany.

Albany Heights is the largest area of native regenerating forest in the vicinity of the North Projects (Figure 8), protected by a SEA overlay, scattered Open Space – Conservation Zones and also an area of QEII covenant³⁰ within Three Streams Reserve adjacent to Dairy Flat Highway north of the Albany urban extent adjacent to NoR 9 (Upgrade Dairy Flat Highway – Durey Road to Te Wharau (Albany village). NOR 9 does not directly encroach on this QEII covenant area.

Figure 8 Albany Heights SEA extends to Okura River valley, North of Albany Town Centre



Kathy's Thicket Reserve (Figure 9) is a remnant of mature native forest established on the true left of Wēiti Stream, perpendicular to the SH1 corridor adjacent to NoR2 and NoR4. It is zoned as Open Space Conservation with both terrestrial SEA overlay and QEII Covenant protection status³¹. It consists of mature kahikatea and kauri trees which are remnant areas of native bush that once

²⁸ Refer to technical specialist report Ecology Assessment for ecological effects assessment.

²⁹ AUP: OP Chapter D9 Significant Ecological Areas – Terrestrial Overlay (SEA)

³⁰ QEII Covenant ID: 5-02-623

³¹ QEII Covenant ID: 5-02-517

spanned across to Silverdale prior to development of SH1. It was observed that this stand of native bush has recently declined in health, with edge effects affecting the quality of vegetation (tree death, decline in tree health, invasion of pest plants) potentially due to the alteration of ground water conditions by recent development nearby.

Figure 9 Kathy's Thicket Reserve (left of SH 1), Milldale



On the opposite side of SH 1, two smaller fragments of the same forest remnant are located near the proposed multi-modal connection to Highgate from SH 1 (NoR 4). While not protected as an SEA or covenant and located within Residential - Mixed Housing and Urban Zone Business - Light Industry Zone, this tall vegetation (Figure 10) contributes to the natural gateway or threshold when transitioning through this environment. This is a fragment of the original Wēiti Stream native forest that existed prior to SH 1.

Figure 10 Fragments of unprotected native vegetation near Highgate (highlighted lime green)



Further to the west near the intersection of Young Access and Pine Valley Road (NoR 7) is an SEA along the Wēiti Stream which contains a DOC marginal strip and smaller area of QEII Covenant status³² native forest (Figure 11). However, only the SEA forest fragment is affected by the proposed designation. A larger area of ONL and SEA within rural land to the northwest lies outside of the North Projects extent.

³² QEII Covenant ID: 5-02-548

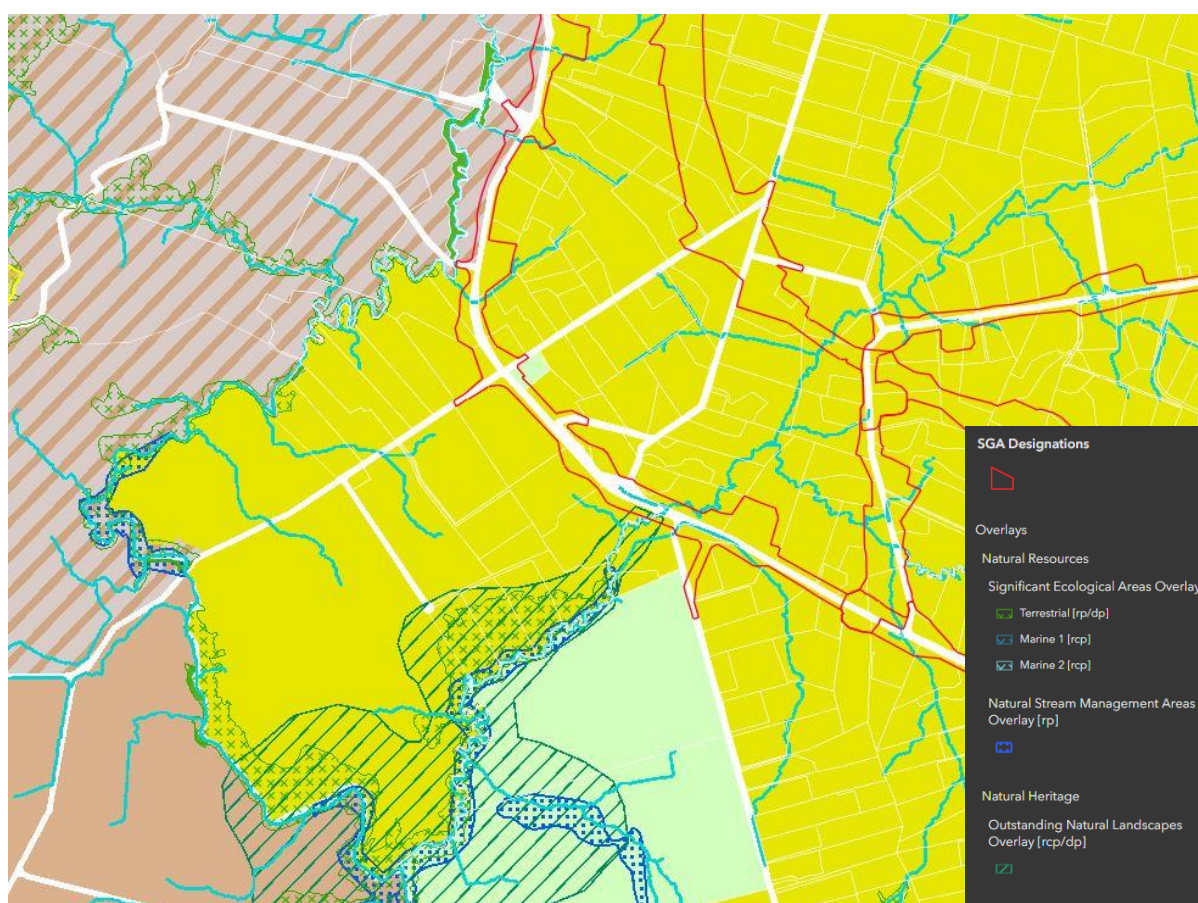
Figure 11 QEII Covenant (yellow area) near NoR 7 Young Access and Pine Valley Road



As discussed in Section 4.3.3 Natural Character and Natural Heritage, part of an ONL³³ which also contains an SEA overlay within Green Park (Figure 12) is located within the designation boundary of NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat (refer also to **Appendix A Natural Heritage and Significant Ecological Overlays Map**). The FUZ zone underlies the area to the north, with Open Space reserve to the south. A narrow SEA sits to the west of Dairy Flat Highway outside of the proposed designation boundary.

³³ ONL Area 49, Sunnyside Road, Coatesville.

Figure 12 Green Park, Coatesville ONL/ SEA (lower centre) with AUP: OP Zones underneath



Smaller areas of regenerating native bush within private properties occur throughout the North Projects extent. Revegetation of several waterways was observed, but the majority of stream banks within the broader rural area appear to have grass or be dominated by invasive pest plants with some naturally regenerating understorey.

The existing vegetated buffer along the northern motorway consists largely of grass with few areas of fragmented native revegetation planting associated with SH1 infrastructure (i.e., screening or stormwater treatment), some exotic specimen tree groups and weed species.

Throughout the rural areas, large mature exotic trees provide shading for stock and shelterbelts for horticultural and agricultural purposes. In the absence of significant native vegetation, this vegetation serves an important function as refuges for native fauna, while providing ecosystem services and habitat provision which contribute to landscape values.³⁴

The existing fragmented vegetation pattern presents a significant opportunity to strengthen and enhance wider landscape restoration efforts through the non-statutory Northwest Wildlife Link³⁵ strategy which crosses through the North Projects area (Figure 13). For example, State Highways 16 and 18 have provided unlikely habitats along the Northwest Wildlife Link, with extensive road-side plantings that link natural spaces and restored waterways³⁶. These plantings help to create a

³⁴ Auckland Council Biodiversity Topic Report - Silverdale West Dairy Flat Business Area Structure Plan (2017)

³⁵ Northwest Wildlink is formerly a partnership between DoC, QEII Trust and various Auckland Council organisations. It is now coordinated by Forest and Bird <https://www.forestandbird.org.nz/projects/north-west-wildlink>

³⁶Margaret Stanley, School of Biological Sciences, University of Auckland presentation, retrieved from <https://www.sanctuariesnz.org/meetings/documents/Stanley-2018.pdf>.

continuous habitat for wildlife, as well as providing amenity to users of the transport corridors and potentially off-setting carbon emissions.



Figure 13 Northwest Wildlife Link diagram (Source: Forest and Bird website³⁷)

4.3.6 Land Use

The dominant land use of the North Projects area is 3,500ha FUZ area that is currently rural, which will become progressively urbanised.³⁸ The Wainui East area consists of residential developments currently under construction (adjacent NoR 6 and 10) near the recently developed Milldale. Multi-storey housing is also currently under construction near Silverdale town centre. Around Albany, residential development occurs in limited nodes around Pukeatua (Albany Heights) and Fairview Heights, limited by topography, natural features and the RUB.

Built form dominates these typically medium density housing developments, with multi-storey dwellings typically maximising building platforms, leaving limited private outdoor landscape areas. Vegetation in the public realm, including street trees, stormwater management areas and public open space, plays an important role to provide relief to the built environment. As the FUZ is constructed in the future, the built form could be anticipated to be similar to these recent housing developments, with terraced building platforms separated by vegetated battered slopes.

Beyond the urban settlement, the land use transitions to peri-urban lifestyle blocks between Dairy Flat Highway and East Coast Road. There are few elements of social infrastructure (e.g., schools, community centres) present, typical of rural Auckland communities. It is assumed that as the new Dairy Flat town centre emerges in the future, more community facilities would be provided.

The indicative future land use zones adjoining or in close proximity to the Northern Projects are as follows in Table 6 based on information referred in Section 4.2 (full description is contained in the main AEE Part A, Section 7.1):

³⁷ Sourced from <https://www.forestandbird.org.nz/projects/north-west-wildlink>

³⁸ Auckland Council Silverdale West Dairy Flat Industrial Area Structure Plan (2020)

Table 6 Future land use zones

| NoR | Future Land Use |
|---|--|
| NoR 1 – RTC | Strategic Transport Corridor Zone, Residential - Single House Zone, Rural – Countryside Living, Open Space - Conservation Zone, Open Space - Informal Recreation Zone and FUZ areas which are likely to be a mix of town centre, urban residential and industrial zones, |
| NoR 2 - New Milldale Station | Residential – Single house, Residential – Mixed Housing Suburban, Open Space – Conservation, Strategic Transport Corridor Zone. Business – Light industry across the SH 1 corridor, but not adjoining NoR 2 |
| NoR 3 - New Pine Valley East Station | FUZ areas which are likely to be a mix of high-density urban residential and light industrial zones (as per the Dairy Flat SLUS) |
| NoR 4 - SH1 Improvements | Strategic Transport Corridor Zone; Business - General Business Zone, Business - Light Industry Zone, Residential - Single House Zone, Residential - Mixed Housing Suburban Zone, Residential - Mixed Housing Urban Zone, Rural – Mixed Rural Zone, Rural – Countryside Living, Open Space - Conservation Zone, Open Space - Informal Recreation Zone and FUZ areas which are likely to be a mix of urban residential and industrial zones. |
| NoR 5 - New SH1 crossing at Huruhuru (Dairy Stream) | Strategic Transport Corridor Zone and FUZ areas which are likely to be a mix of urban residential and industrial zones. |
| NoR 6 - New Connection between Milldale and Grand Drive | Rural - Rural Production Zone and FUZ areas which are likely to be a mix of residential zones. |
| NoR 7 - Pine Valley Road | Rural - Mixed Rural Zone, Open Space - Conservation Zone and FUZ areas which are likely to be a mix of residential zones. |
| NoR 8 - Dairy Flat Highway between Silverdale and Dairy Flat | Rural – Mixed Rural Zone, Business – Light industry, Open Space - Sport and Active Recreation Zone and FUZ areas which are likely to be a mix of urban town centre, residential and industrial zones. |
| NoR 9 - Dairy Flat Highway between Dairy Flat and Albany | Rural – Countryside Living, Open Space - Informal Recreation Zone, Open Space - Conservation Zone, Residential - Mixed Housing Suburban Zone and a FUZ area which is likely to be a mix of urban residential zones. |
| NoR 10 - Wainui Road | Strategic Transport Corridor Zone, Special Purpose Zone (school), Residential – Single house, Residential - Mixed Housing Suburban Zone and FUZ areas which are likely to be a mix of urban residential zones. |
| NoR 11 - New connection between Dairy Flat Highway and Wilks Road | Business – Light industry, Residential – Large Lot and FUZ areas which are likely to be a mix of light industry and heavy industry zones as per the Silverdale West structure plan. |
| NoR 12 - Bawden Road | Strategic Transport Corridor Zone, and FUZ areas which are likely to be a mix of urban residential and industrial zones. |
| NoR 13 - East Coast Road | Business – General Business, Business – Light industry, Residential - Mixed Housing Urban Zone, Rural – Countryside Living, Special Purpose Zone (cemetery) and, FUZ areas which are likely to be a mix of urban residential and industrial zones. |

4.3.7 Parks and Open Space

Public open space and recreational areas are limited and fragmented, with pockets of Open Space – Conservation Zone and Open Space – Informal Recreation distributed unevenly across the North Projects study area. However, they still form part of a network which Council is working towards connecting as part of the open space strategy. The currently existing largest open space is Green Park, a 154-hectare green space in Auckland Council ownership located on the western edge of the future Dairy Flat town centre, southwest of NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat. Green Park is characterised by its open space and rural outlook with several waterways, areas of exotic bush and native forest. It is a significant open space in this area with aspirations to be developed as a future destination park in stages aligned to serve the surrounding community as it grows.³⁹ This includes a multi-use hub featuring sporting facilities, active recreation, passive recreation and community facilities as well as restoration of natural systems.

Currently there is interest from the local community to increase access to the land for recreational purposes, and the Rodney Local Board has planned a staged approach to developing the park masterplan to leave as much flexibility as possible for future local boards to determine the mix of activities which will best meet the needs of the community, whilst respecting existing Manawhenua and community needs. The local board has also considered the importance of retaining and protecting the park's open space for current and future communities to enjoy especially as residential living nearby intensifies.⁴⁰

Smaller Reserves and community recreational facilities that adjoin or marginally sit within the proposed designation areas include:

- The Avenue Esplanade Reserve (Lucas Esplanade)
- Serenity Reserve
- Three Streams Reserve
- Pukeatua (Albany Heights) West Reserve
- Hosking Reserve
- O'Brien Reserve North
- Dairy Flat Reserve
- Baker St Reserve
- Travis View Reserve
- Hooton Reserve.

4.3.8 Rural Character

A diversity of rural character exists across the North Projects area. Due to the underlying topography and hydrological patterns, and relatively smaller rural lot size, a finer grained rural character emerges. The scale of rural character is fine-grained and varies from the steeper bush clad hills of Pukeatua (Albany Heights) through to smaller lifestyle blocks and productive lots, overlaid with waterway and vegetation patterns across the Dairy Flat plains. This creates localised areas of rural character in contrast to broad, expansive farmland further from the urban areas. This peri-urban character contributes to the experiential aspects of entering and leaving Auckland, particularly the 'green belt' of Pukeatua (Albany Heights) for the high number of users of SH1.

³⁹ Auckland Council Draft Spatial Land Use Strategy, Dairy Flat and Silverdale Future Urban Zones, 6 July 2022

⁴⁰ Rodney Local Board (October 2020) *Te Pārae o Te Rori o Green Mahere Matua Green Road Park Masterplan*

Elements which contribute to the rural character of Pukeatua (Albany Heights), Dairy Flat, Pine Valley, Wainui and Redvale include areas of pastoral land and lifestyle block communities within the FUZ and outside the RUB. These areas are typified by rural roads, farm buildings and yards, fence lines, exotic trees (either in lines or scattered in paddocks), stock, water tanks, and minimal structures. Low areas of traffic, rural smells (such as from animals, grass and soil), dominance of natural sounds over humanmade noises, and open vistas also contribute to the rural character of the setting.

While development of land within the FUZ will change this character in the future, it is assumed that some rural landscape characteristics will still contribute to the landscape character of the area on the peripheries. Associated with rural character is the presence of native bush, often near waterways, particularly where bridge crossings may allow views to the wider rural landscape beyond, such as NoRs 1, 4, 6 8, 9 and 13 or which border rural and FUZ in part. Other rural landscape characteristics anticipated to be retained and enhanced in the future include:

- rural views such as rural views out from the FUZ into the wider landscape
- rural uses in the surrounding area outside of and separated from Auckland's main urban area.
- vegetated riparian corridors, for example John Creek in the Silverdale Structure Plan (refer Section 4.2.4 Figure 3).

4.3.9 Cultural Significance

Ten Manawhenua groups are engaged as Te Tupu Ngātahi partners in the development of the North Projects, through the IBC and DBC stages, and will continue to be as the NOR stage progresses. The Manawhenua entities include Te Ākitai Waiohua, Ngāti Whanaunga, Te Rūnanga o Ngāti Whātua, Ngāti Maru, Te Patukirikiri, Ngāti Whātua o Kaipara, Ngāti Manuhiri, Te Kawerau a Maki, Ngāti Tamaterā and Ngai Tai ki Tāmaki. As part of the AEE, a Cultural Impact Assessment (CIA) is being prepared, and landscape elements of cultural significance will be determined by Manawhenua through ongoing hui and cultural strategies. This is reflected in the processes set out in the proposed conditions.

4.3.10 Historical Sites

Only portions of the area have been surveyed for archaeological sites, with the potential for further archaeological sites or other historic heritage places to be identified through additional research or survey as the area is further planned and urbanised (refer to **Appendix A Cultural and Historic Heritage Map**). From a cultural landscape perspective, the general area has few remaining legible features.

Ngāti Kahu, a tribal group who occupied the district, maintained a strategically located settlement known as Waiparaheka at the head of the Wēiti River where modern-day Silverdale is located. This settlement and the entire coastline between the Waitematā Harbour and Whangarei became depopulated during the musket wars of the 1820s and early 1830s. When Europeans began to settle in the area, Māori were again using the Wēiti area for seasonal fishing and shellfish gathering, and to gather flax to trade, although the principal settlements were located elsewhere.⁴¹

⁴¹ Auckland Council Historic Heritage Topic Report, Silverdale West Dairy Flat Business Area Structure Plan, December 2017, Updated October 2018

Māori occupation was primarily focused on coastal areas between Ōrewa and Ōkura including the Whāngaparāoa peninsula. Inland areas including the banks of the Wēiti River remained substantially in mature forest until the historic era.⁴²

In the 19th Century, European settlers founded Silverdale on the banks of the then-navigable Wēiti River. The development of the motorway in the late 1990s created a physical and visual divide between two sections of the Silverdale and Dairy Flat areas.⁴³

The Historic Heritage Topic Report for the Silverdale West Dairy Flat Business Area Structure Plan has identified potential historic heritage sites of significance in and around the Silverdale town centre. These include the Wade Hotel, Silverdale Hall, Holy Trinity Church, and nearby Pioneer Village. Only one residence within the wider Silverdale area is included in the schedule of historic heritage – Stoney Homestead. It is now nestled amongst the recent Millwater housing development and has recently been restored.

A small number of local examples of early 20th century dwellings have been identified within the area of the Silverdale West Dairy Flat Industrial Area Structure Plan, reflecting the limited number of owners and occupiers in the settlement's formative years. Such buildings are of some local interest as examples of rural housing from this era. No known pre-1900 extant buildings and structures have been identified directly within the structure plan area.⁴⁴

Pastoral farming is the dominant rural land use in the North Projects area today. The early history of farming within the study area is poorly documented, but conversion of land to pasture for subsistence farming is likely to have commenced soon after the land was settled by the Kelly family (c1850).

By the 20th century, as gum digging declined and eventually ceased in the area, the growing population of the district increasingly relied on farming. Dairy Flat, like most other areas, was developed into productive farmland as either dairy or sheep and beef units but is best known for the history of dairy production that has inspired the name. Into the later part of the 20th century there has been a dramatic change away from farming.⁴⁵

A small number of natural heritage features (individual Notable Trees Overlay and a Notable Group of Trees Overlay) exist to the north of Albany, alongside the Dairy Flat Highway but outside the vicinity of NoR 9. (Figure 14) One notable tree (Schedule number 1379), a kauri located to the west of Dairy Flat Highway within the property boundary of 19 Hobson Road is affected (Refer to Arborist Assessment for verification of tree position and effects assessment)

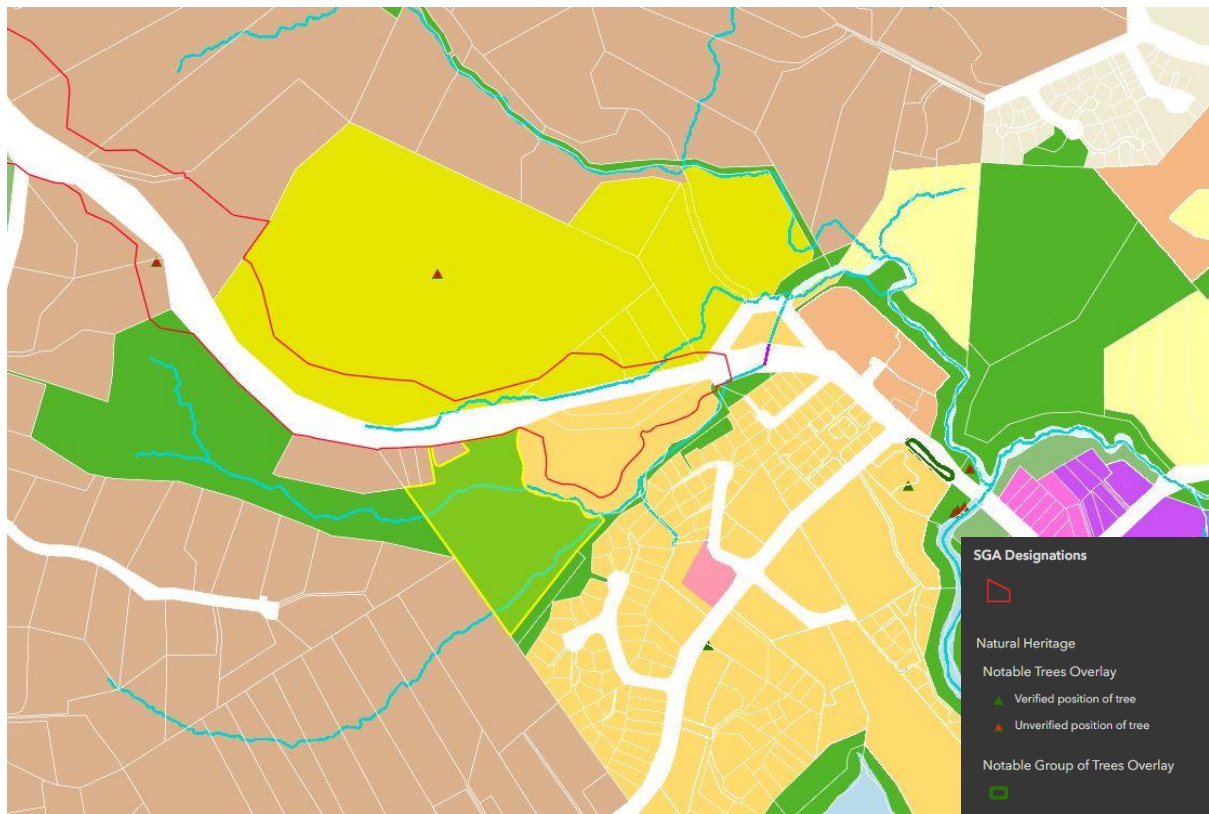
⁴² Auckland Council Historic Heritage Topic Report, Silverdale West Dairy Flat Business Area Structure Plan, December 2017, Updated October 2018

⁴³ *Ibid.*

⁴⁴ *Ibid.*

⁴⁵ *Ibid.*

Figure 14 Notable Trees Overlay and a Notable Group of Trees Overlay



4.3.11 Existing and Likely Future Landscape and Natural Character Ratings

The landscape character and natural character of the existing and likely future environment has been assessed based on the description and analysis provided in the previous subsections and summarised in Table 8 below. Existing character ratings were considered at a range of scales, including at the broader landscape scale of the overall Projects, the localised scale of the development areas, and the site scale of the individual designations. It is reiterated that this broader landscape is one undergoing change as urbanisation occurs and influences the surrounding context.

Landscape character ratings have been particularly influenced by the presence / absence of distinctive landforms and features, areas of vegetation, quality of waterways, existing and anticipated modifications in the likely future, heritage and cultural values associated with the area, and the proximity of overlay features and areas.

Natural character ratings have been predominantly influenced by levels of modification to waterway channels, the quality and extent of riparian vegetation, the surrounding landscape context of the existing and likely future environment, and proximity to areas of ONL and natural waterways. The natural character assessment focused on the waterways themselves, with more importance placed on the immediate context of the waterways.

Table 7 below summarises key landscape and natural character features that contribute to the evaluation rating (Table 8) of existing landscape and natural character, along with consideration of the future land use context as described in Table 6.

Table 7 Summary of key landscape and natural character features that contribute to evaluation rating

| NoR | Feature |
|--------------------------------------|---|
| NoR 1 – RTC | <ul style="list-style-type: none"> - Presence of Wēiti Stream, Ōkura River, Huruhuru Dairy Stream, Waiokahukura Lucas Creek and associated tributaries and floodplain wetlands - Kathy’s Thicket SEA located at the northern extent, with Wēiti Stream running through the southern edge of the SEA. - Large SEA located to the west of Wilks Road West is outside of the proposed designation corridor. - A cluster of several large SEA areas at the southern extent of the proposed corridor, mostly on the western extent of the existing SH 1 corridor. Affected areas include SEAs located at Awano Reserve Redvale, Albany Heights and Hooton Reserve, Albany (refer Appendix A Graphic Supplement Photo Essay Viewpoint 1). - Passes through rural land at Pukeatua Albany Heights-Redvale, which forms a strong, legible break in the urban environment between the main Auckland urban area and the north urban area. - Existing pockets of residential and rural lifestyle neighbourhoods along the route, contrasting with presence of SH 1 - The heritage and archaeological report identify four sites that may potentially be affected during construction, these include the wider landscape extents and site of the Kelly Homestead (R10/737), two house sites (90 Old Pine Valley Road and 1603 Dairy Flat Highway) and a Catholic cemetery (R10/1472). - Partially includes existing transport corridor (SH 1) and includes realignment and replacement of Lonely Track Road bridge (refer Appendix A Graphic Supplement Photo Essay Viewpoint 2). |
| NoR 2 – New Milldale Station | <ul style="list-style-type: none"> - Kathy’s Thicket SEA is located immediately adjacent to the south of the proposed Milldale Station. - Existing residential neighbourhood context, contrasting with presence of SH 1 (refer Appendix A Graphic Supplement Photo Essay Viewpoint 7). |
| NoR 3 – New Pine Valley East Station | <ul style="list-style-type: none"> - South, but not within, of the proposed designation is a tributary to the Wēiti Stream, with associated floodplain and potential wetland environment. |
| NoR 4 – SH1 Improvements | <ul style="list-style-type: none"> - Presence of Ōrewa River, Wēiti Stream, Ōkura River, Huruhuru Dairy Stream, Waiokahukura Lucas Creek and associated tributaries and floodplain wetlands (refer Appendix A Graphic Supplement Photo Essay Viewpoint 3). - Predominately within existing designations for state highway, with dominate presence of SH 1 road features. - Several SEAs at the northern most extent associated with Ōrewa Stream, including Goodson Scenic Reserve and the Ōrewa River Stewardship Area. - Kathy’s Thicket SEA is adjacent to Wēiti Stream, which is conveyed underneath the existing SH1 via a culvert. A native forest fragment, a remanent of the same forest, is located partially with the designation between SH 1 and Highgate. (refer Appendix A Graphic Supplement Photo Essay Viewpoint 6). - Several SEAs at the southern extent of the corridor, mostly located along the western extent of the existing SH 1 corridor (as for NoR 1). - A pocket of indigenous vegetation is identified to the northeast of the intersection of East Coast Road and Jackson Way. - Passes through rural land at Pukeatua Albany Heights-Redvale, which forms a strong, legible break in the urban environment between the main Auckland urban area and the north urban area. |

| NoR | Feature |
|--|--|
| | <ul style="list-style-type: none"> - Existing pockets of residential and rural lifestyle neighbourhoods along the route, contrasting with presence of SH 1 (refer Appendix A Graphic Supplement Photo Essay Viewpoint 4). - The heritage and archaeological report identifies three sites that may potentially be affected during construction, this includes the wider landscape extents and site of the Small Homestead (22215). |
| NoR 5 – New SH1 crossing at Huruhuru (Dairy Stream) | <ul style="list-style-type: none"> - A floodplain is located to the south of the proposed designation with potential wetland areas to the north and south. - Presence of SH 1 crossing of Huruhuru (Dairy Stream). - Presence of Huruhuru Dairy Stream, and associated tributaries and floodplain wetlands |
| NoR 6 – New Connection between Milldale and Grand Drive | <ul style="list-style-type: none"> - The presence of Ōrewa River and other waterbodies including potential wetland areas characterise this area. - Indigenous vegetation cover present, associated with waterway gullies including relatively recent revegetation. - Passes through a portion of rural land which forms part of the edge to the RUB (refer Appendix A Graphic Supplement Photo Essay Viewpoint 8). - Partially along existing rural road corridor, presence of existing rural roads |
| NoR 7 – Pine Valley Road | <ul style="list-style-type: none"> - Presence of Wēiti Stream and associated tributaries and floodplain wetlands - Potential wetland areas, particularly along the southern extent of the proposed designation. - SEA associated with the Wēiti Stream located immediately to the north of Pine Valley Road, west of Young Access Road. - Other pockets of non-SEA indigenous vegetation are also present in the wider landscape. - Rural land at the western extent of the NoR, signifying the RUB threshold. - The heritage and archaeological report identifies two sites that may potentially be affected during construction these include the wider landscape extents and site of the Kelly Homestead (R10/737) and a house at 158 Pine Valley Road. - Presence of existing rural roads |
| NoR 8 – Dairy Flat Highway between Silverdale and Dairy Flat | <ul style="list-style-type: none"> - Presence of Rangitopuni Stream, Huruhuru Dairy Stream, and associated tributaries and floodplain wetlands - Outstanding Natural Landscape (ONL) located partially within Green Park where Dairy Flat Highway crosses Huruhuru (Dairy Stream), and the part where it crossed indigenous vegetation is degraded in this vicinity (refer Appendix A Graphic Supplement Photo Essay Viewpoint 9). - Potential wetland areas and flood plains associated with stream are also a feature of this landscape. - Dairy Flat Highway forms the western edge of the RUB, generally with rural land to the west and FUZ to the east. - The heritage and archaeological report identifies six sites that may potentially be affected during construction these include the wider landscape extents and site of the Kelly Homestead (R10/737), Wade Junction Hotel (R10/1450), the site of two houses (16094 and 16095), the Small Homestead (22215) and a former farmstead (1032 Dairy Flat Highway). - Presence of existing main rural road and numerous intersections with rural side roads |

| NoR | Feature |
|---|---|
| NoR 9 – Dairy Flat Highway between Dairy Flat and Albany | <ul style="list-style-type: none"> - Presence of Huruhuru Dairy Stream, Mahoenui Stream, Paremoremo Creek, Waiokahukura Lucas Creek and associated tributaries and floodplain wetlands - Potential wetland areas are also present along the length of the proposed designation, characteristic of the low-lying topography. - Native vegetation, much of which is SEAs is a dominant feature of this NoR, with SEAs to both the west and east of the corridor, including an area of indigenous vegetation near Coatesville-Riverhead Highway through to Three Streams Scenic Reserve. - Individual kauri and stands of kauri are present along the alignment. - QEII Trust Covenant areas, Notable Trees Overlay and Groups of Notable Trees are present at the southern end around Albany-Albany Heights. Passes through rural land at Pukeatua Albany Heights-Redvale, which forms a strong, legible break in the urban environment between the main Auckland urban area and the north urban area (refer Appendix A Graphic Supplement Photo Essay Viewpoint 10) - Presence of existing main rural road and numerous intersections with rural side roads - Existing rural-residential context |
| NoR 10 – Wainui Road | <ul style="list-style-type: none"> - Features are largely concentrated at the eastern extent of the corridor around Waterloo Creek, and includes areas of indigenous vegetation, a SEA northeast of the proposed designation and fragmented DoC land between Wainui Road and SH 1. - Floodplains associated with the Creek are also an element of this landscape. - Presence of existing rural roads |
| NoR 11 – New connection between Dairy Flat Highway and Wilks Road | <ul style="list-style-type: none"> - No SEA overlay areas identified in the vicinity of this NoR. - Potential wetland area identified at the western extent of the proposed designation boundary. - Existing residential neighbourhood at aeropark beside North Shore Airport |
| NoR 12 – Bawden Road | <ul style="list-style-type: none"> - There are no SEA overlay areas identified in the vicinity of this NoR. - Floodplains associated with Huruhuru (Dairy Stream), and potential wetland areas are features of the lower-lying areas of the proposed designation. - Prominent knoll and ridge at eastern end of proposed NoR - Presence of existing rural roads and SH 1 at eastern end of proposed NoR |
| NoR 13 – East Coast Road | <ul style="list-style-type: none"> - Huruhuru (Dairy Stream) and associated floodplains with potential wetland areas are features of the lower-lying areas of the proposed designation. - Road follows ridgeline which is distinctive in the local environment and forms edge to RUB. - Pocket of rural land between SH 1 and East Coast Road - Presence of existing main rural road along ridgeline and numerous intersections with side rural roads (refer Appendix A Graphic Supplement Photo Essay Viewpoint 5). |

Based on the above, the following Table 8 provides the assessed landscape and natural character ratings of the existing and likely future environment:

Table 8 Landscape and Natural Character Evaluation⁴⁶

| NoR | 1 (RTC) | | | 2 | 3 | 4 (SHE Improvements) | | | | 5 (SHE crossing) | 6 (New connection Middle-Grand Drive) | | 7 (Pine Valley Road) |
|---|--------------------------------------|------------------------|--------------------|-----|-----|----------------------|---------------------|--|--------------------------|------------------|---------------------------------------|--------------------------------|----------------------|
| | South – within RUB already developed | Outside of RUB – Rural | North – within FUZ | | | Middle station | Pine Valley station | A South – within RUB already developed | B Outside of RUB – Rural | | C North – within FUZ | D North – multi-mode path only | |
| Existing environment | | | | | | | | | | | | | |
| Landscape character | M | M-H | L-M | L-M | L | M | M-H | L-M | M | L-M | M-H | M-H | M |
| Natural character | M-H | M-H | M | L | L | M-H | M-H | M | M-H | L-M | M-H | M-H | M-H |
| Likely future environment (including anticipated FUZ development) | | | | | | | | | | | | | |
| Landscape character | M | M-H | L | L | V-L | M | M-H | L | M | L | L-M | M-H | L-M |
| Natural character | M-H | M-H | L-M | V-L | V-L | M-H | H | L-M | M-H | L | M | H | M |
| Key: V-L ('Very Low'), L ('Low'), L-M ('Low Moderate'), M ('Moderate'), M-H ('Moderate High'), H ('High') and V-H ('Very High') | | | | | | | | | | | | | |

| NoR | 8 (Dairy Flat Highway – FUZ) | | | | 9 (Dairy Flat Highway-rural) | | | 10 (Wainui Road) | 11 (New connection Dairy Flat Highway-Wilks) | 12 (Bawden Road) | 13 (East Coast Road) | | |
|---|------------------------------|--------------------------|------------------|------------------|------------------------------|----------------|------------------------|------------------|--|------------------|----------------------|------------------------|--------------------------------------|
| | A FUZ residential | B FUZ industrial / rural | C FUZ industrial | ONL / Green Park | Outside of RUB - Rural | South - In FUZ | Outside of RUB - Rural | | | | South - within FUZ | Outside of RUB - Rural | North - within RUB already developed |
| Existing environment | | | | | | | | | | | | | |
| Landscape character | M | M | M | M | M | H | V-H | M | M | M-H | M-H | H | L-M |
| Natural character | M | M | M | M-H | M | H | V-H | M-H | M | M | M | M | L-M |
| Likely future environment (including anticipated FUZ development) | | | | | | | | | | | | | |
| Landscape character | L-M | L-M | V-L | M | M | L-M | V-H | L-M | L | M | M | H | L-M |
| Natural character | L-M | L-M | V-L | M-H | M | M | V-H | M | L-M | M | L-M | M | L |
| Key: V-L ('Very Low'), L ('Low'), L-M ('Low Moderate'), M ('Moderate'), M-H ('Moderate High'), H ('High') and V-H ('Very High') | | | | | | | | | | | | | |

⁴⁶ Refer Appendix B for full explanation of NZILA Seven Point Scale of Effects

5 Landscape, natural character and visual effects assessment

5.1 Overview

This section assesses landscape and natural character effects common to the overall North Projects NoRs, followed by NoR-specific effects, both during construction and during operation of the transport corridors/stations. The following sections anticipate the potential effects of the North Projects on existing and likely future landscape values common across the study area. This section also recommends measures to avoid, remedy, or mitigate potential adverse landscape effects for the Projects and potential positive landscape effects. The residual magnitude of effects is then assessed once the recommended measures have been implemented or established.

Route protection such as that created by an NoR can create more certainty around infrastructure location and can allow for it to be implemented at the appropriate time in the future. The process can also allow opportunities for infrastructure to be appropriately integrated into the contextual landscape through conditions on the designations. Where North Projects interface to some degree with FUZ land, there is potential for construction of routes to occur before, during or after urbanisation of the surrounding landscape. It is assumed that construction is undertaken in a mixed rural or urban landscape undergoing transition from one state to another, from rural to urban as indicated in the SLUS. Within this transitional state, there is capacity for the already modified landscape to absorb further change as a result of North Projects' construction, given the temporary nature of construction.

Specifically, proposed conditions require the preparation of an ULDMP and a CEMP for each of the NoRs, as part of the suite of management plans in the future Outline Plan(s). This will allow for management of the effects on specific landscape values, including the maintenance and enhancement of visual amenity values and the quality of the environment respectively. However, within existing urban areas and FUZ, this is to be balanced in the context of anticipated changing amenity values in urban areas under the NPS: UD.

The North Projects will introduce an extensive transport network to support planned urban growth and development in the North, with potential landscape and natural character and visual effects resulting from earthworks, vegetation removal, waterbody modification, potential modification to heritage and cultural sites and construction of new structures relating to transport infrastructure. However, the proposed designations also provide the opportunity to improve connectivity between existing roads, improve road user safety, enhance active and public transport modes, enhance recreational and ecological linkages, increase the extent and quality of indigenous vegetation, and highlight heritage and cultural narratives in the landscape.

As the proposed designations being sought are anticipated to provide longer-term protection of transport corridors, there is potential for landscape outcomes to be made more certain and integrate with surrounding development, as design details are refined in the future. This assessment assumes that the transport corridors will be constructed following a similar layout as that shown in the indicative design drawings and designation boundaries.

5.2 Assessment of construction effects

The Projects are unlikely to be built until the surrounding areas are developing. However, both the existing and future environments are relevant. As discussed in Chapter 4, the relevant baseline that

construction effects are assessed against is both the likely future environment (i.e., FUZ where broad scale contextual change will occur) and the existing environment where widespread contextual change is not anticipated (e.g., rural zones).

Effects assessment ratings are given as overall ratings for the whole designation, unless specifically broken down into sub-sections of longer routes where the nature of the surrounding land use context changes markedly along the length. There may be limited areas within a route which may be higher (or lower) that may require more specific treatment. However, it is assumed that this level of detailed response will be addressed in detailed design stage and through the CEMP or ULDMP.

5.2.1 Landscape effects during construction

The following section discusses the temporary potential landscape and natural character and visual effects which could arise during construction across the whole North Projects area and in specific locations relative to individual NoRs.

5.2.1.1 Common to all NoRs

The following potential effects apply generally to NoRs across the North Projects to a greater or lesser extent. These effects are considered as part of each individual NoR effects assessment.

Earthworks

Within the proposed designations, large areas of cut and fill will be required during construction, including associated stockpiling during bulk earthworks which changes landforms. This generates effects on landscape character in areas where natural landforms and landscape patterns are present, with less effect on already highly modified landscapes or those in transition to urban land use.

Larger construction footprint

The proposed designation areas are larger than the operational footprints, as construction activity requires a greater extent of works than the finished transport corridors. This includes vertical clearances for vertical build elements such as scaffolding and formwork for structures. Space is also required temporarily for construction services, such as site offices, staff car parks, stockpiling and storage areas. Construction machinery is typically large, heavy and will likely require temporary access tracks in addition to the laydown and construction service areas. This affects landscape values as it potentially requires vegetation clearance or pruning and temporary landform modification outside of the operational footprint of the proposed transport corridors.

Compaction of soil profile

Formation of hard stand, storage of construction materials and machinery in construction yards and stockpile locations result in compaction of the soil profile, which potentially alters natural drainage and ground water movement. This compaction potentially adversely effects the long-term success of any reinstated landscape post-construction.

Vegetation

The additional width of works required during construction may affect vegetation outside of the designation boundary due to work occurring within the drip line of existing trees. This may include protected vegetation, planting on boundaries to private property, roadside vegetation, street trees and/ or stormwater treatment planting for proposed upgrades to existing road corridors. In rural zones,

this may also include shelter belts and stock shade trees. Any impacts on riparian vegetation will likely have adverse effects on both landscape character and natural character. Several of the proposed designations also cross over SEAs (NoR 1,7,9). The effect of vegetation removal contributes to a reduction or loss of landscape character, temperature regulation in public spaces, landscape connectivity and soil stabilisation/ nutrient uptake. Ecological effects of vegetation removal are discussed in detailed in the 'Assessment of Ecological Effects' and arboricultural effects are in the 'Assessment of Arboricultural Effects'.

Rural character

The proposed designations will cross or run alongside areas that possess varied and unique rural landscape characteristics. Construction activity relating to the proposed transport corridors has potential to change rural landscape character through the removal of areas of pasture, shelter belts and stock shade trees, demolition of agricultural related infrastructure, presence of large machinery, lighting, traffic management and noise. This has the potential to affect rural landscape characteristics which contribute to the broader landscape character of areas outside of the RUB. However, the interface between rural and urban landscape is typically a transition, with the influence of urban development on the character of rural fringes. Within the context of future urbanisation inside the RUB, the rural character effects of the proposed designations with that urban backdrop will be less in those locations.

Protected landscape features

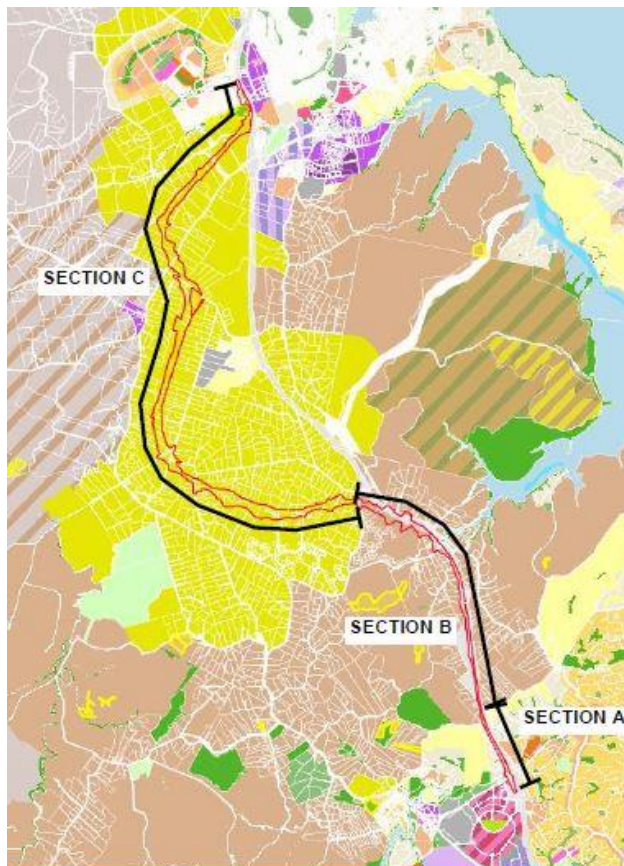
There are no ONFs within the North Projects area. Other protected landscape features include QEII covenants, heritage trees, and street trees in limited areas which are NoR specific. Construction activities may affect landscape character values with respect to matters of national importance under RMA s6(b) as there is one ONL located at Green Park. This is specific to NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat and discussed further in Section 5.2.1.2.

5.2.1.2 Specific NoRs

NoR 1 New Rapid Transit Corridor (Albany to Milldale)

Due to the length of the proposed corridor and change in landscape context along that length, the effects assessment is broken into three sections (Figure 15) based on the underlying AUP: OP zone and subsequently the likely receiving environment (existing urban, rural or future urban).

Figure 15 RTC Landscape assessment areas



NoR 1 (New Rapid Transit Corridor Albany to Milldale) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. In terms of this specific NoR, particular landscape effects during construction relate to the following:

- The RTC commences in Albany where there are effects on existing residential areas. This includes incursion into the SEA during bridging of Waiokahukura (Lucas Creek) and then near Paikea St and Kewa Road with landscape effects for adjacent residents.
- The RTC sits within the west side of the existing SH1 designation from Albany to Awanohi Road (and west of NOR 4 – SH1 improvements), and cuts into SEA, some of which overlays the existing SH1 designation. In some instances, the SEA overlay stops short of the designation, but on the ground, the indigenous vegetation continues into the proposed designation area.
- Rural character of the landscape between Pukeatua (Albany Heights) to Redvale is also adversely affected. An area of Rural Countryside Living zone forms the ‘green belt’ between the urban areas. Landscape effects will be more considerable through this area, albeit within the context of an existing major road feature.
- South of the (existing) Bawden Road intersection with SH1, the RTC moves away to the west from SH1 which adds further large cuts into the SEA, causing a cumulative effect of a large area of earthworks and vegetation removal in the area, which will otherwise retain a rural character up to the edge of the FUZ. This area up to the start of the FUZ has potential for impact on rural landscape values, especially for existing residents.
- This pattern of extensive cut and fill continues as the RTC continues west to intersect with NoR 12 (Upgrade and Extension to Bawden Road). The RTC then turns northward to continue under

NoR 11 and under existing Wilks Road and then under NoR 8 (Upgrade to Dairy Flat Highway), again involving a considerable amount of cut and some fill to create the proposed formation as it travels through the rolling topography typical of the Dairy Flat area. This area is zoned FUZ so will already be subject to landform modification and will be in the context of an area undergoing high levels of change including future industrial development, reducing the landscape effects in this future environment.

- North of Dairy Flat Highway the RTC crosses where the RTC turns northeast to climb via a series of fill areas to NoR 3 (Pine Valley East Station). The RTC continues northwards through FUZ areas of Silverdale West/Pine Valley to Pine Valley East Station (NoR 3), then climbs to Milldale (and proposed NoR 2 Milldale Station).
- At Milldale the proposed designation meets the edge of QEII covenant / SEA area of Kathy's Thicket. This will necessitate earthworks and vegetation removal, creating landscape character effects to users of SH1. Due to the edge effects already observed, it is reasonable to anticipate further landscape effects may occur over time due to the proximity of urban development.
- Cumulative effects will occur where NoR 1 is adjacent to or intersects with other NoRs. This will be most marked at where the RTC diverts away from SH1, and at the station areas (NoR 2, NoR 3).

Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects in Section 5.2.4, construction effects on landscape character in NoR 1 are considered to be:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: **'Moderate'** adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: **'Moderate-High'** adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: **'Moderate'** adverse level of effect.

NoR 2 New Milldale Station and associated facilities

NoR 2 (New Milldale Station and associated facilities) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. In terms of this specific NoR, particular attention should be paid to:

- Kathy's Thicket SEA (part of Wēiti Stream QEII covenanted area) is located immediately adjacent to the south of the proposed Milldale Station. Although the NoR avoids directly encroaching into these protected areas, potential landscape effects could result from changes in surrounding overland flow paths and groundwater affecting vegetation health. Exacerbating edge effects will erode the quality of the vegetation stand as the narrow, attenuated shape of the forest patch means that edge effects are more pronounced.
- There may be a loss of vegetation and associated landscape values due to the potential removal of street trees and rain gardens along Ahutoetoe Road, and established planting between that road and SH 1 to enable construction.
- Wēiti Stream (QEII covenanted area) is within the reserve area to the south of the proposed designation. Although the NoR avoids directly encroaching on the waterway, there are the

potential landscape effects resulting from sediment entering the waterway during construction works and adversely affecting the health of the riparian environment.

Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character in NoR 2 (New Milldale Station and associated facilities) are considered to have a '**Moderate-High**' adverse level of effect.

NoR 3 New Pine Valley East Station and associated facilities

NoR 3 (Pine Valley East Station and associated facilities) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. In terms of this specific NoR, particular attention should be paid to:

- There may be a loss of vegetation and associated landscape values due to the removal of established planting within paddocks along Old Pine Valley Road and mixed exotic trees associated with 36 Old Pine Valley Road. However, this vegetation is not protected under the AUP and can be removed as of right, so in the context of a future urban environment this vegetation may already be affected due to separate development processes.

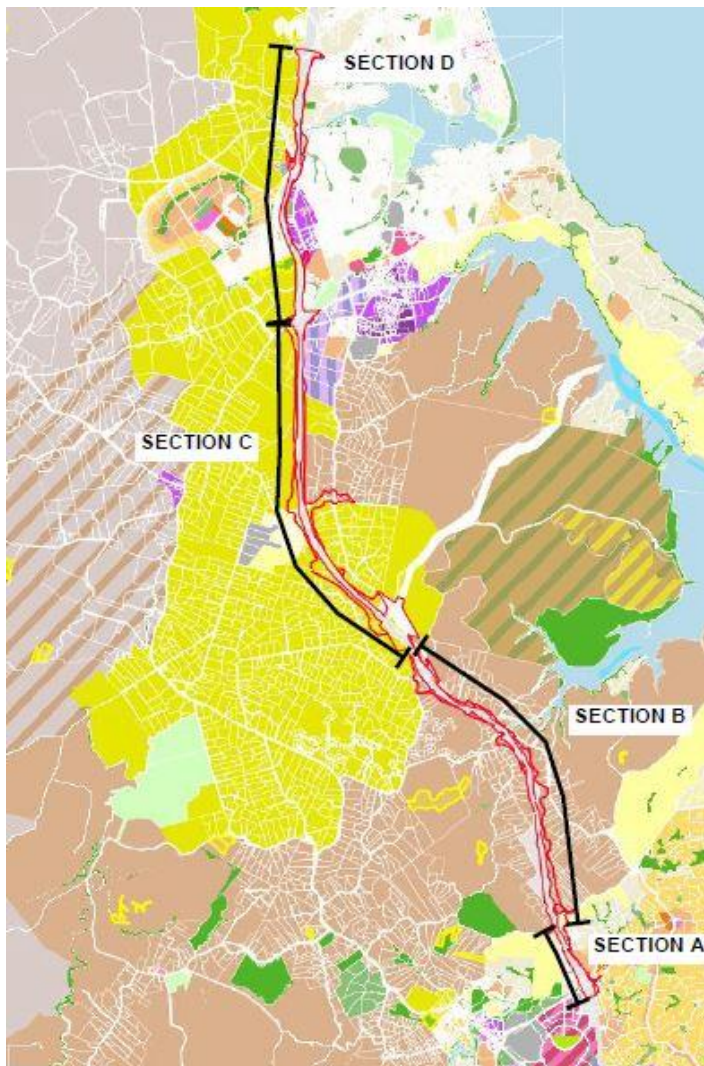
Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character in NoR 3 (Pine Valley East Station and associated facilities) are considered to have a '**Low**' adverse level of effect.

NoR 4 SH1 Improvements

Due to the length of the proposed corridor and change in landscape context along that length, the effects assessment is broken into three sections (Figure 16) based on the underlying AUP: OP zone and subsequently likely receiving environment (existing urban, rural or future urban). A fourth section is considered north of Silverdale, where the road corridor reduces back to the current two lanes in each direction and the only proposed upgrade is to extend the walking and cycling path on the eastern side.

Figure 16 NoR 4 assessment sections



NoR 4 (SH1 improvements) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. In terms of this specific NoR, particular attention should be paid to:

- NoR 4 traverses varied rural and future urban environments, including forming the eastern extent of the Silverdale West Structure Plan area. It is noted that construction effects are assessed within the proposed areas outside of the existing SH1 designations.
- FUZ will change the nature of the surrounding receiving environment in the north half of NoR 4. However, an area of rural living countryside zone Pukeatua (Albany Heights) to Redvale forms the green separation between the urban areas. Landscape effects will be more considerable through this area, albeit within the context of an existing major road feature.
- The urban character of the SH 1 corridor south of Albany has considerable areas of concrete retaining, cuttings and a four plus lane footprint. However north of Albany, the highway is interspersed with considerable areas of maturing native forest regeneration which form the edge of the 'green belt'. Some of this may be modified via future zoning as noted below. Landscape effects due to the proposed designation increase will be limited in this area.

- The proposed work includes realignment of Lonely Track Road which currently passes over SH1 and replacement of the existing bridge with a new one. This increases the landscape effects to allow for the road realignment and new bridge abutment construction, as well as enabling demolition of the old bridge structures.
- The effects of the NoR 4 SH1 improvements projects are magnified through the cumulative effect of adjacent and linking designations including adjacency of or intersections with NoR 1, NoR 5, NoR 6, NoR 8, NoR 10, NoR 11, NoR 12 and NoR 13 (most requiring intersections, bridges, stormwater devices with associated landscape effects).
- On the east side of NoR4 from Albany to Awanohi Road, there is no SEA identified within the designation, however the Rural Countryside Living zone here has considerable areas of indigenous vegetation identified. The extension proposed to SH1 as part of NoR4 on this east side includes large cuts, in one case, all the way up to East Coast Road. This will cause considerable loss of vegetation and visible exposed earthworks.
- From Awanohi Road to Bawden Road on the east side of NoR4, the area remains in Rural Countryside living zone. Within this section, the designation avoids SEAs associated with Ōkura River to the east of SH 1. However, north of Redvale Rise the adjacent NoR 1 RTC moves away to the west requiring large cuts into the opposite Redvale SEA, causing a cumulative effect of a large area of earthworks and vegetation removal in the area, which will otherwise retain a rural character. A small section of area on the east from Wilks Road to Spur Road (on East Coast Road) remains in Rural countryside living zone. The areas remaining in Rural countryside living zone will be perceived as having greater rural character landscape values when in the context of adjacent modified land (including medium density housing).
- At the tie in with East Coast Road and Bawden Road extension (NoR11) the addition of a number of intersections will include a large amount of cut and fill.
- The FUZ zone starts again just north of Bawden Road (current) on the west of NoR4 and south of Ara Wēiti Road on the east. On the east side it extends up to the northern end of NoR 4 with the exception of several smaller already developed areas. On the west side the FUZ extends up to the business zone just south of Silverdale (as in the Silverdale structure plan). Construction effects will occur in this urbanised environment.
- South of Highgate, to enable the multi-modal connection to the local network, the extension to the existing SH 1 designation will intrude into the area of native vegetation opposite QEII covenant / Kathy's Thicket SEA (Figure 9). The quality of this vegetation area is already reduced due to edge effects and is not protected, so is likely to be further degraded as it is within Highgate industrial zone. Additional effects due to construction effects may include the loss of further vegetation, exacerbating the edge effects on remaining native forest and reducing landscape connectivity.
- The proposed designation does not extend any further into the CMA at Ōrewa River than the existing designation. The existing designation authorises land use activities for state highway purposes but not for active modes, which requires an alteration to the designation. It is acknowledged that any construction effects of coastal works/structures, any SEA vegetation removal, earthworks and water would be addressed at a future regional consenting phase.

Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects

recommended in Section 5.2.4, construction effects on landscape character in NoR 4 (SH1 improvements) are considered to be:

- Section A: Albany to Lonely Track Road to be '**Moderate**' adverse level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be '**Moderate – High**' adverse level of effect.
- Section C: From the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale to be '**Moderate**' adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be '**Moderate**' adverse level of effect.

NoR 5 New SH1 crossing at Huruhuru (Dairy Stream)

NoR 5 (New SH1 crossing at Huruhuru (Dairy Stream)) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. In terms of this specific NoR, particular attention should be paid to:

- There may be a loss of vegetation and associated landscape character and rural character values due to the potential removal of established exotic shelterbelts and tree groups within paddocks along Top Road, planting associated with a residential property at number 132 Top Road and vegetation alongside a Huruhuru (Dairy Stream) tributary. However, this will be in the context of a future urban environment, so this vegetation may already be affected due to separate development processes. The landscape character is already highly influenced by the presence of SH 1 in this area.
- The existing fine grain rural character created by lifestyle blocks is anticipated to transition to an urban environment.
- A tributary to Huruhuru (Dairy Stream) is crossed by the NoR corridor north of Top Road. This tributary is highly modified due to farming. There are several potential wetland areas in the wider vicinity, with the NoR potentially extending into one small area at the northeastern extent of the corridor (Figure 17). There is the potential for landscape character effects resulting from changes in hydrology impacting any riparian and wetland vegetation.

Figure 17 Natural Wetland areas near NoR 5



Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character NoR 5 (Huruheru (Dairy Stream) Motorway Crossing) are considered to have a **'Low-Moderate'** adverse level of effect.

NoR 6 New Connection between Milldale and Grand Drive

NoR 6 (New Connection between Milldale and Grand Drive) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. In terms of this specific NoR, particular attention should be paid to:

- The proposed designation traverses an undulating landform created by natural valley and ridge sequences which contributes greatly to the landscape character, along with the associated waterways (Figure 18). Earthworks during construction will affect this rolling topography.
- The existing road corridor and associated infrastructure influences the landscape character within that portion of the proposed designation, with battered slopes, structures, signage, above-head services and lighting present.
- Although there are no SEAs identified in the NoR 6 corridor, the Assessment of Ecological Effects has identified a number of areas of indigenous vegetation within the corridor which may require removal. There is also the potential for a loss of vegetation associated with the rural landscape such as shelterbelts and riparian planting within the designation. This includes vegetation associated with the Upper Ōrewa Stream, which will also have adverse natural character effects.
- There may be a loss of vegetation and associated landscape character values due to the potential removal of established planting within farmland north of Russell Road. This will be in the context of a future urban environment, so vegetation outside of the designation may already be affected due

to separate development processes. However, it is assumed that riparian vegetation surrounding waterways would remain present in this context.

- Existing riparian vegetation is present on the slopes of the Ōrewa River tributaries, both north and south branches. This includes mature native species and recent revegetation which will mature in the future. The vegetated gullies associated with the waterways contributes greatly to the landscape character of this area. This includes revegetation within 85 Upper Ōrewa Road.
- The berm of Upper Ōrewa Road is highly vegetated on the east side with linear rows of trees and shelter belts on the eastern side which contribute to the rural character of adjacent rural zones by screening effects of SH1 and future development from properties in the Upper Ōrewa foothills.
- The mixed native and exotic planting associated with a rural property at number 85 Upper Ōrewa Road would require removal within the proposed designation to enable construction. This vegetation contributes to the rural character by screening effects of SH 1 and future development from rural properties in the upper Ōrewa foothills to the west.

Figure 18 NoR 6 crosses over natural wetlands and permanent waterways



Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character NoR 6 New Connection between Milldale and Grand Drive are considered to have a **'Moderate-High'** adverse level of effect in rural areas and **'Moderate'** adverse level of effect in FUZ.

NoR 7 Upgrade to Pine Valley Road

NoR 7 (Upgrade to Pine Valley Road) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. With respect to this specific NoR, particular attention should be paid to:

- The existing road corridor and associated infrastructure influences the landscape character within that portion of the proposed designation, with battered slopes, structures, signage, above-head services and lighting present.
- There may be a loss of vegetation and associated landscape character values due to the potential removal of established planting within the road berm and adjacent properties within the NoR. This will be in the context of a future urban environment (except for the western-most end of the proposed designation), so vegetation outside of the designation may already be affected due to separate development processes. However, it is assumed that riparian vegetation surrounding waterways would remain present in this context.
- Existing riparian vegetation with a high degree of naturalness is present on the slopes of the Wēiti Stream and its tributaries (Figure 19). This includes mature native species and natural regeneration which will mature in the future. The vegetated gullies associated with the waterways contributes greatly to the landscape character of this area.
- The proposed designation avoids the QEII covenanted area near Young Access Road, and construction effects are not anticipated to affect this.
- The proposed designation largely avoids the SEA (part of Wēiti Stream) at corner of Young Access Road and Pine Valley Road. However, a small portion alongside the existing road corridor may require removal within the proposed designation to enable construction of an enlarged intersection. Potential landscape effects could also result from changes in surrounding overland flow paths and groundwater affecting vegetation health.
- There are several wetland areas in the wider vicinity, with the NoR potentially extending into one area near the SEA. There is the potential for landscape character effects resulting from changes in hydrology impacting any riparian and wetland vegetation.
- Some mixed native and exotic planting associated with rural properties at 346 and 357 Pine Valley Road may require removal within the proposed designation to enable construction. This vegetation contributes to the rural character as a buffer at the transition from rural to urban.

Figure 19 NoR 7 proximity to Wēiti Stream tributaries



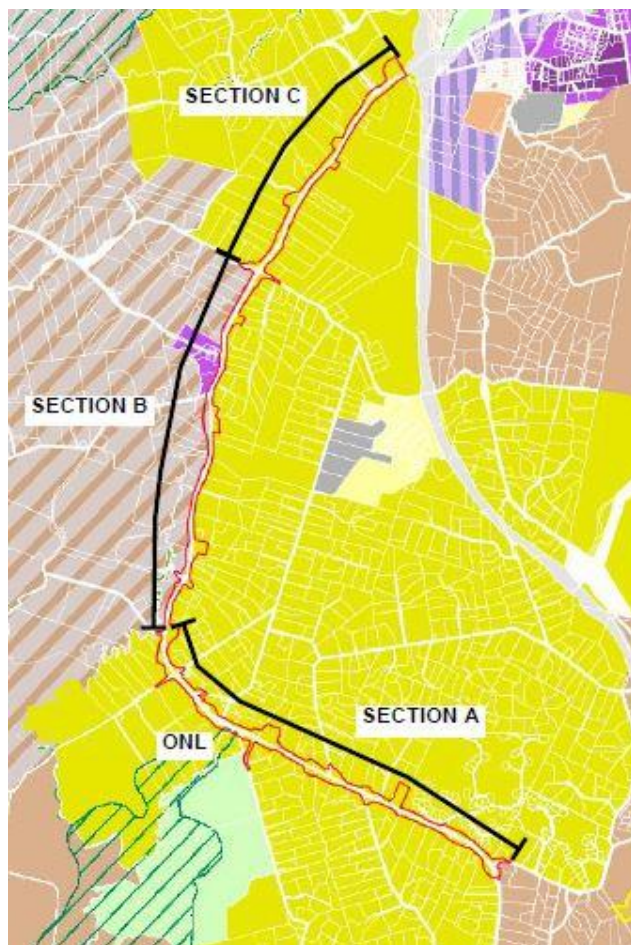
Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character NoR 7 (Pine Valley Road upgrade) are considered to have a **'Moderate-High'** adverse level of effect.

NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat

NoR 8 (Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. Due to the length of the proposed corridor and change in landscape context along that length, the effects assessment is broken into three sections (Figure 20) as well as the ONL/ Green Park public open space. The sections relate to the underlying AUP:OP zone and subsequently likely receiving environment on either side of the route: Section A - FUZ residential as per the Dairy Flat SLUS; Section B - FUZ industrial as per Silverdale West Structure Plan to the east and rural to the west; and Section C – FUZ industrial to the east as per Silverdale West Structure Plan and likely future urban residential to the west.

Figure 20 NoR 8 Landscape assessment areas



With respect to this specific NoR, particular attention should be paid to:

- The existing road corridor and associated infrastructure influences the landscape character within that portion of the proposed designation, with battered slopes, structures, signage, above-head services and lighting present.
- Vegetation removal and construction activity will occur within the eastern end of an outstanding Natural landscape (ONL)⁴⁷ located immediately west of the current Dairy Flat Highway partially within Green Park.
- This ONL is characterised by a combination of native forest on ridge and hill crests, and bush along stream corridors, and natural wetlands which contrasts with pasture and surrounding farming / rural residential land uses. This contrast will be increased with the development of adjacent FUZ, along with associated values. This area is also in close proximity to an SEA and the development of Green Park to the west. Construction effects may be caused by construction operations (e.g., machinery noise and appearance), exposed earthworks, vegetation removal, sediment into waterways including the stream which is part of this ONL (Figure 21) and a tributary of Huruhuru (Dairy Stream). This area is additionally part of a flood plain and identified as having areas of indigenous vegetation. Under s6(b) of the RMA protection of outstanding natural landscapes from

⁴⁷ ONL schedule number 49, Sunnyside Road, Coatesville, Central Rodney

inappropriate subdivision, use, and development is a matter of national importance. However, the specific area of ONL within the proposed designation is highly modified, with landform influenced by the formation of Dairy Flat Highway and has a high degree of invasive weed species covering the landscape. The natural character of this specific area has been degraded due to these past activities and is not representative of the combination of high value landscape qualities associated with the rest of the ONL.

Figure 21 Extent of ONL and natural wetland (light blue areas) within proposed designation



- The intersection with Durey Road borders Countryside Living Zone to the east of Dairy Flat Highway and the south of Durey Road. This large intersection with associated large cutting indicated on the section heading southward down Dairy Flat Highway has the potential for considerable construction effects through earthworks, exposed earth, vegetation loss and construction activity. Similar effects may be experienced at the intersection with Blackbridge Road and Wilks Road, and at Landfill Access Road where the proposal also includes a large intersection adjacent to Mixed Rural Zone and to a lesser extent, the smaller in scale intersection with Richards Road in an area which will remain rural. These effects will be in the context of adjacency to an area which is remaining rural in character, increasing the sensitivity of those area’s environments to change (in comparison to works within FUZ). The other proposed intersection upgrades occur in the context of FUZ so will have construction effects which are less pronounced.
- Land to the west of Dairy Flat Highway will remain in Mixed Rural zone, from Richards Road to Wilks Road West, with the exception of the built-up area including shops at Dairy Flat (by Kahikatea Road). These areas are typified by rural roads, farm buildings and yards, fence lines, exotic trees (either in lines or scattered in paddocks), stock, water tanks, and minimal structures. Construction of the upgraded road corridor may lead to adverse effects on the landscape character values of this area for both rural lifestyle residents and residents of the adjacent FUZ who look across to that area, through earthworks, construction activity, and loss of roadside vegetation.

- Around the built-up Dairy Flat area near the Kahikatea Drive intersection, effects of the NoR will occur in the context of considerable anticipated urban development. However, the landscape character of the area will be affected by the scale of the new connection from NoR 8 to Wilks Road (NoR11) which will require vegetation removal and altered traffic movements in the area during construction.
- While much of the landscape context to the north, south and east of the proposed designation will be urbanised, including a large section planned for development as part of the Dairy Flat structure plan; this will amplify the rural character values and sensitivity of the areas remaining in Mixed Rural zone which will have greater landscape value by comparison.
- The proposed designation adjacent to the intersection with Blackbridge Road and Postman Road impedes on an Open Space sport and active recreation zone associated with the Dairy Flat Community Hall. Construction works may impact on the value of this landscape as associated with recreational and community gathering purposes. This NoR includes new sections of road which join into Dairy Flat Highway due to rerouting or new links (via other designations). These include NoR 12 Bawden Road Extension which includes the re-direction of Bawden Road to meet Dairy Flat Highway further north (than currently), the redirection of Green Road to meet Dairy Flat Highway further south (than currently) and NoR 11- the extension of Wilks Road to meet Dairy Flat Highway at Dairy Flat joining Kahikatea Flat Road. These new sections of road will all be built in FUZ. In the cases where the road has been re-routed, there will be additional works to remove the defunct areas of road, causing additional construction effects.
- A planned stormwater attenuation device immediately adjacent (north) to the Dairy Flat School at 4563 Dairy Flat Road may result in effects for the school population (visual, loss of rural character, noise) from earthworks and vegetation removal.

Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character NoR 8 (Dairy Flat Highway upgrade – Silverdale to Dairy Flat) are considered to have:

- Section A - FUZ residential - '**Moderate**' adverse level of effect.
- Section B - FUZ industrial to the east /and rural to the west - '**Moderate**' adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west- '**Low**' adverse level of effect.
- ONL / Green Park public open space '**Moderate-High**' adverse level of effect.

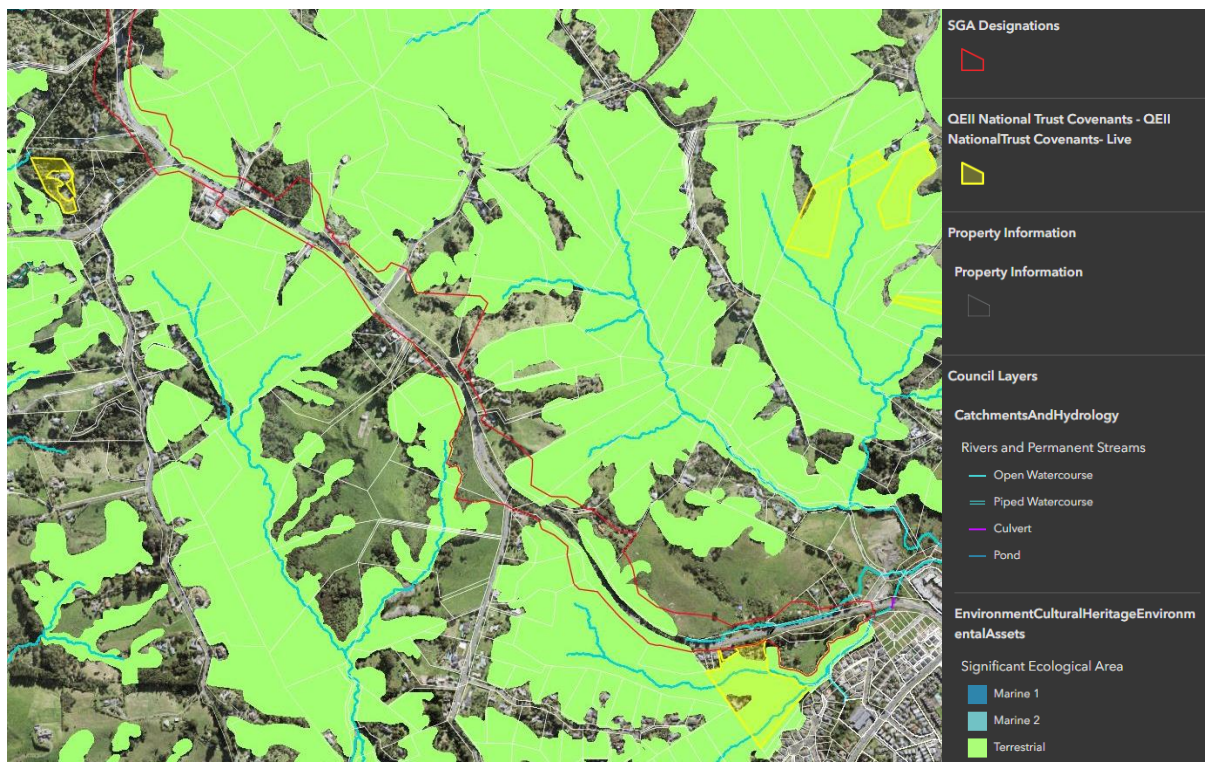
NoR 9 Upgrade to Dairy Flat Highway between Dairy Flat and Albany

NoR 9 (Upgrade to Dairy Flat Highway between Dairy Flat and Albany) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. With respect to this specific NoR, particular attention should be paid to:

- The existing road corridor and associated infrastructure influences the landscape character within that portion of the proposed designation, with battered slopes, structures, signage, above-head services and lighting present.

- This section of designation has limited anticipated development with FUZ occurring as a pocket on the east side of Dairy Flat from Stevensons Road to terminate opposite Pukeatua (Albany Heights) West reserve, essentially extending Albany northward in this direction before the topography rises steeply limiting further development. The area remains rural in character until after Potter Road where FUZ starts on the west side of Dairy Flat Highway through to the end of the designation. The east side of Dairy Flat Highway remains rural. The rural character will be affected by the presence of construction activity.
- Rural countryside living zone predominates, with FUZ limited to the areas as described above. As such it is adjacent to this designation from where the road leaves Albany, until it descends into Dairy Flat. While these works are an extension to an existing road, retention of the landscape values of this rural zone can be affected by construction throughout this corridor including vegetation loss and earthworks.
- Regenerating native forest is a defining feature of the southern extent of this NoR, contributing greatly to the coherence and vividness of the landscape character. SEAs lie to both the west and east of the corridor, including area of indigenous vegetation near Coatesville-Riverhead Highway through to Three Streams Scenic Reserve. The QEII covenant located in this reserve is avoided by the proposed designation, sitting immediately adjacent to the boundary (Figure 22). This creates a receiving environment highly sensitive to effects of construction, including construction footprint, earthworks and loss of vegetation.

Figure 22 Proposed designation NoR 9 within the context of extensive SEAs and QEII covenants



- Figure 22 shows the designation commencing in the south outside of Albany (bottom right of frame) and steep ridgelines with SEA (green hatch) and identified significant areas of indigenous vegetation (maroon hatch).
- Individual kauri and stands of kauri are present along the alignment, with the designation crossing into SEA or identified areas of indigenous vegetation multiple times. This creates potential for

visually significant vegetation loss, which may also occur through other construction effects such as poor hygiene causing kauri die back. This may be exacerbated by the marginal shape of remaining SEA areas, with the attenuated shape increasing the edge effects on the patch of forest.

- On the west side of Dairy Flat Highway, the designation extends into Hosking Reserve, O'Brien Reserve and O'Brien Reserve North.
- The existing road corridor and associated infrastructure influences the landscape character, with cut slopes, retaining, signage and lighting present. A large, recently installed intersection with the Coatesville-Riverhead Highway is located on Dairy Flat Highway adjacent to Obrien Reserve North. This has introduced a more urban element into the highly naturalised landscape context.

Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character NoR 9 (Upgrade to Dairy Flat Highway between Dairy Flat and Albany) are considered to have a **'High'** adverse level of effect within the rural areas and a **'Moderate'** adverse level of effect within FUZ.

NoR 10 Wainui Road Upgrade

NoR 10 (Wainui Road Upgrade) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. With respect to this specific NoR, particular attention should be paid to:

- The existing road corridor and associated infrastructure influences the landscape character within that portion of the proposed designation, with battered slopes, structures, signage, above-head services and lighting present.
- The construction works will remove established vegetation along Wainui Rd and within residential properties (particularly the portion of the NoR corridor east of Upper Ōrewa Rd), and also indigenous estuarine vegetation along Waterloo Creek, with an associated loss in landscape character values.
- An upgraded bridge crossing is proposed over Waterloo Creek (tributary to Ōrewa River), potentially requiring removal of areas of indigenous riparian vegetation.

Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character NoR 10 Wainui Road upgrade are considered to have a **'Moderate'** adverse level of effect.

NoR 11 New connection from Dairy Flat Highway to Wilks Road

NoR 11 (Dairy Flat Highway to Wilks Road) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. With respect to this specific NoR, particular attention should be paid to:

- The construction works may remove established vegetation along Dairy Flat Highway, Lascelles Dr and within residential properties, with an associated loss in landscape values. However, this will

be in the context of anticipated future urbanisation and industrialisation of the areas through the Silverdale West structure plan.

Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character for NoR 11 (Dairy Flat Highway to Wilks Road) are considered to have a ‘**Low**’ adverse level of effect.

NoR 12 Upgrade and Extension to Bawden Road

NoR 12 Upgrade and Extension to Bawden Road will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. With respect to this specific NoR, particular attention should be paid to:

- The existing road corridor and associated infrastructure influences the landscape character within that portion of the proposed designation, with battered slopes, structures, signage, above-head services and lighting present.
- At its eastern extent the proposed designation traverses an area of undulating landform and ridge sequence which contributes greatly to the local landscape character. Earthworks during construction will affect this rolling topography, with an area of large-scale cut proposed at the intersection of Bawden Rd with Top Rd and Follies Way. There is the potential for considerable adverse landscape effects from exposed earthworks, vegetation loss, incursion into a potential wetland area to the east of the intersection, and construction activity.
- Numerous exotic shelter belt plantings associated with rural pastoral land use, residential plantings and scattered exotic tree planting within paddocks currently contribute to a high landscape character. While this rural character is not anticipated to remain, it is assumed that the retention of some established vegetation where located alongside riparian areas will be integrated as part of future urbanisation. The proposed construction works may remove established vegetation along Bawden Rd, waterways and within residential properties, with an associated loss in landscape values.

Figure 23 NoR 12 with wetlands and streams



- There are numerous potential wetland areas and several streams which are tributaries of Huruuru (Dairy Stream) in the wider vicinity, with the NoR corridor potentially extending into or crossing these at a number of locations as indicated in Figure 23. There is the potential for landscape character effects resulting from changes in hydrology impacting any riparian and wetland vegetation.

Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character for NoR 12 (Bawden Road) are considered to have a **'Moderate-High'** adverse level of effect.

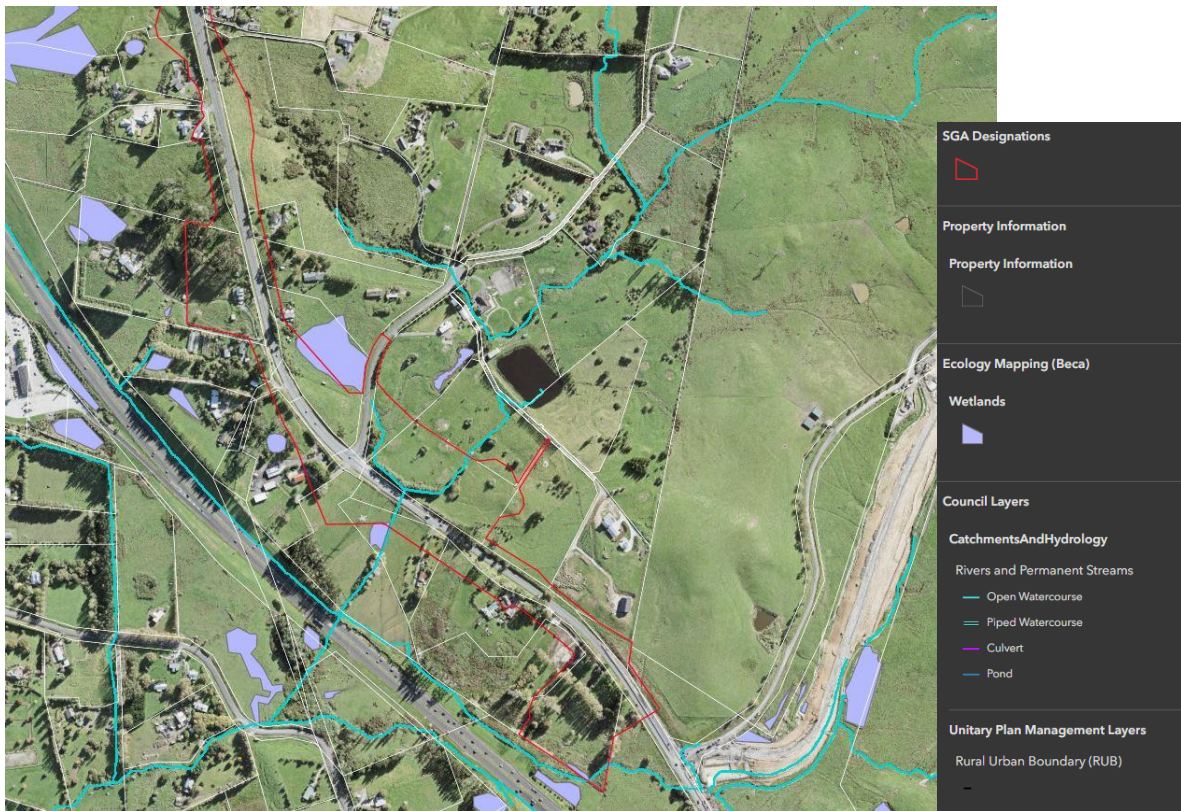
NoR 13 Upgrade to East Coast Road between Silverdale and Ō Mahurangi Penlink (Redvale) Interchange

NoR 13 (East Coast Road Upgrade) will be subject to the landscape effects during construction common to all the North Projects NoR as outlined in Section 5.2.1.1. With respect to this specific NoR, particular attention should be paid to:

- The existing road corridor and associated infrastructure influences the landscape character within that portion of the proposed designation, with battered slopes, structures, signage, above-head services and lighting present.
- The construction effects will be most significant on the northern end of the designation, where a combination of topography and adjacent zoning (business (general), business (light industry), mixed housing urban zone, and nearby business (heavy industry) zone means construction effects such as dust, noise, and visual effects such as exposed earth works, construction machinery and others as outlined in 4.2.1.1 will be experienced by a large number of people working or travelling to and from that area, in addition to nearby residents.

- Work near waterways and wetlands (Figure 24), including potentially the construction of bridge piers, which could cause waterway and wetland bed disturbance, as well as planned fill within waterways will cause landscape effects during construction immediately south of the tie-in with Worsnop Way.

Figure 24 Proposed designation in proximity to waterway



- Loss of indigenous vegetation is anticipated at the tie in between East Coast Road, Jackson's Way and Wilks Road, however this effect is mostly within the adjacent NoR 11 (new connection from Dairy Flat Highway to Wilks Road).
- A significant area of cut batter on the west side of East Coast Road, north of Spur Road will cause exposed earthworks will cause landscape effects during construction from East Coast Road. This will occur in the context of FUZ, so there may be considerable other earth works in the area at the time from the landform modifications associated with residential development, which will lessen the magnitude of the effect.
- The east side of East Coast Road in this area remains a rural countryside living zone and while mostly downhill of the road at this point, works will be partially visible. They are likely however to be in context with other works associated with the FUZ.

Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on landscape character for NoR 13 (East Coast Road Upgrade) are considered to have

- **'Moderate'** adverse level of effect within FUZ at the south,

- **'Low-Moderate'** adverse level of effect within more densely urban area at the north
- **'Moderate-High'** adverse level of effect in rural areas.

5.2.2 Natural Character effects during construction

5.2.2.1 Common to all NORs

The following effects apply generally to NoRs across the North Projects to a greater or lesser extent. These effects are considered as part of each individual NoR effects assessment. It is noted that the proposed designations do not authorise any loss of wetland or stream modification. If any water body is to be impacted, then it will be subject to a future regional consenting process. Works within waterbodies will be the subject of future regional consenting.

Protected landscape features

Construction activities may affect natural character values with respect to matters of national importance under s6(a) of the RMA due to proximity of the proposed designations to waterways and wetlands. There is one proposed NoR (NoR 4) that traverses the CMA; however the proposed works (a new active mode bridge) is within the existing SH1 designation area, not a new extended area. Works in the CMA would also be subject to a future regional consenting process.

Exposed earthworks near or within waterways

Areas of cut and fill within natural wetlands and watercourses are illustrated in the currently proposed Project drawings within some proposed designation areas. While the designation routes have sought to avoid waterways as much as practicable, due to the extensive network of waterways and wetlands within the North Projects area, construction effects on of some waterbodies is unavoidable, which will affect natural character. These effects on natural character are most likely to occur due to earth works near overland flow paths, fill / culverts over streams and wetlands, and the removal of riparian vegetation. It is assumed the future design will look at construction measures to avoid, minimise or mitigate effects on waterways and wetlands which will also be subject to future regional consenting processes.

As discussed in Section 3.3.7 Natural Character, effects on natural character are the extent to which natural processes, elements, and patterns are modified from a fully natural state, including relative absence of built elements such as structures and roads. There is the risk of sediment entering waterways where earthworks are exposed and from accidental sediment discharge from within construction areas (including from stockpiles). These works would be subject to a future regional consenting process.

Work within waterbodies

Potential effects on waterbodies are applicable to landscape character but relate predominately to natural character. The currently proposed Project drawings indicate numerous transport route crossings over waterways and wetlands. Due to the context of the existing landscape and its hydrological nature, it is difficult to completely avoid corridor locations in, or near waterways and wetlands, which could cause waterway and wetland disturbance, and potentially significant effects.

The optioneering process and indicative designs have sought to avoid and minimise effects on these features as much as practicable, and the future detailed design and regional consenting will also address these matters in more detail to further mitigate potential effects (noting that regional consents will be required for works within waterbodies).

Where there are already bridges or culverts in place, these structures will require widening and potentially raising to increase flood resilience. Construction work including temporary stream diversion, may be required in some waterways which would have potential effects on natural character. Effects on these waterbodies from a freshwater and terrestrial ecological perspective are further discussed in the 'Assessment of Ecological Effects'.

Removal of riparian, wetland and coastal vegetation

Removal of vegetation near waterbodies may affect water quality, for example slope destabilisation, reduced nutrient uptake by vegetation, and reduction of shading to cool water. This results in an adverse effect on the natural character of the waterways. These works would be subject to a future regional consenting process.

5.2.2.2 Specific NoRs

NoR 1 New Rapid Transit Corridor (Albany to Milldale)

NoR 1 (New Rapid Transit Corridor) will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- The RTC commences at the existing Albany bus station then crosses Waiokahukura (Lucas Creek) and the adjacent SEA by bridge. It is noted that the proposed NoR 1 RTC designation overlaps the existing SH 1 designation for much of this area, encroaching on the riparian environment near the open grass area of Hooton Reserve (Figure 25). The construction area required for this additional crossing will affect the high natural character of this area.

Figure 25 Proposed RTC crossing over Waiokahukura (Lucas Creek) SEA



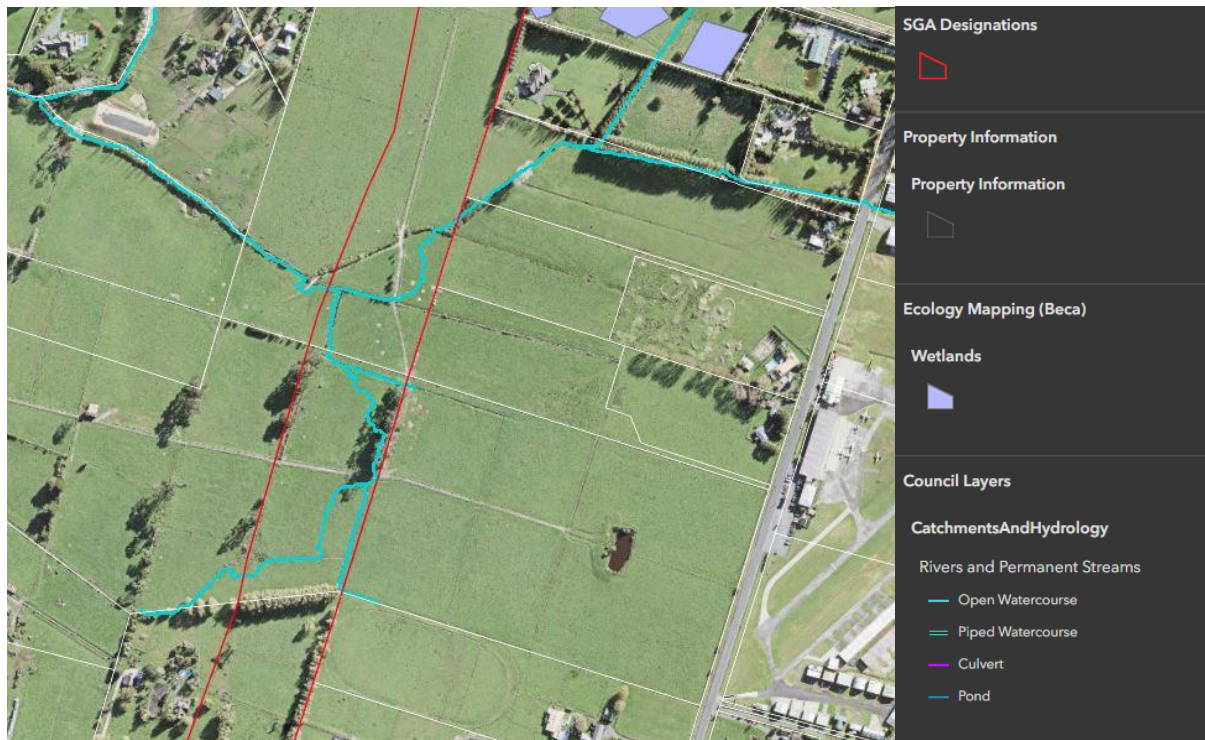
- Through Pukeatua (Albany Heights), NoR 1 runs west of the existing SH1 corridor, largely within the existing SH 1 designation, which crosses SEAs and waterways. Areas of fill / retaining over waterways are indicated in the current proposed drawings at CH 2500, 2800, 3000, 3250, 3650, and 3900. This will have adverse natural character effects, further reducing the natural characteristics associated with these waterways that are already affected by the presence of SH 1.
- A new crossing is indicated over Ōkura Creek (Figure 25) which would require construction activity and potential removal of vegetation in the riparian area. This adverse effect on natural character would be intensified by the construction of the additional multi-mode crossing as part of NoR 4 (SH 1 Improvements), depending on construction staging. This section of NoR 1 sits within the existing SH 1 designation.
- Between CH 4200- CH 5300 areas of cut and fill are indicated in the currently proposed drawings around Ōkura Creek and its tributaries (Figure 26). This includes incursion into an area of SEA associated with a tributary, which would require vegetation removal, having adverse effects on natural character.

Figure 26 Proposed Ōkura Creek and SEA associated with Ōkura Creek.



- Large areas of earthworks in the proposed designation route through the FUZ largely avoid watercourses and flood plains. In the section between Bawden Road and Dairy Flat Highway, the proposed RTC designation crosses a tributary of the Rangitopuni Stream via a bridge (Figure 27). Earthworks in this area may require stream realignment, fill in existing waterways and disruption of the associated floodplain. However, the natural character of this waterway is already low due to modification associated with farming practices.

Figure 27 Proposed NoR 1 crossing of Rangitopuni Stream



- In the approach to Milldale Station (NoR 2), the proposed NoR RTC designation crosses a small portion of Natural Stream Management Area overlay area to allow construction of stormwater management areas and a viaduct over Wēiti Stream. This will adversely affect the natural character of the stream during construction, combined with the potential landscape effects on the edges of Kathy's Thicket SEA/ QEII native bush area. Although the NoR avoids directly encroaching on the waterway, there is the potential risk for natural character effects resulting from sediment entering the waterway during construction works and adversely affecting the health of the stream environment.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 1 (New Rapid Transit Corridor) will be:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: **'Moderate'** adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: **'Moderate-High'** adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: **'Moderate'** adverse level of effect.

NoR 2 New Milldale Station and associated facilities

NoR 2 (New Milldale Station and associated facilities) will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- Wēiti Stream (QEII covenanted area) is within the reserve area to the south of the proposed designation. Although the NoR avoids directly encroaching on the waterway, there is the potential for adverse natural character effects resulting from sediment entering the waterway during construction works and adversely affecting the health of the stream environment.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 2 (New Milldale Station and associated facilities) are considered to have an adverse **'Moderate'** level of effect.

NoR 3 New Pine Valley East Station and associated facilities

NoR 3 will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- A tributary of the Wēiti Stream is located to the north of the NoR station and a potential wetland immediately to the south. These water bodies have been highly modified due to agricultural practices. Although the NoR avoids the waterbodies, there is the potential for adverse natural character effects from potential indirect effects on the freshwater environment resulting from construction of the Project (although this will subject to a future regional consenting process).

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 3 (New Pine Valley East Station and associated facilities) are considered to be a **'Low'** adverse level of effect.

NoR 4 SH1 Improvements

NoR 4 will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR specific natural character effects during construction include:

- The existing SH 1 designation is proposed to be increased to enable construction of the active mode crossing over Waiokahukura (Lucas Creek) and the Open Space conservation zone adjacent to the creek. There is the potential for adverse natural character effects resulting from vegetation removal, sediment entering waterways, and construction activity in and around the riparian environment.
- North of Travis View Reserve there are instances within the proposed designation extension areas where fill is proposed in waterways or existing wetlands which would adversely affect natural character due to vegetation removal and sediment entering waterways. At the proposed intersection of NoR 4 with East Coast Road and Bawden Road extension (NoR11) works will intrude into both wetlands and streams. Works within waterbodies will be the subject of future regional consenting which will include appropriate measures to address these effects.
- A new crossing is indicated over Ōkura Creek (Figure 26) which would require construction activity and potential removal of vegetation in the riparian area. This adverse effect on natural

character would be intensified by the construction of the additional crossing as part of NoR 1 (RTC), depending on construction staging. This section of NoR 4 sits largely within the existing SH 1 designation, with areas of proposed designation extension adjacent to the stream located to the west.

- The proposed walking and cycling path along SH1 (part of NoR 4) crosses over Wēiti Stream at CH 550 before rising to connect to Highgate Parkway over a tributary. This will require riparian vegetation removal, including a fragment of mature native forest that was once part of the same remnant as Kathy's Thicket, as well as construction activity in and around the stream.
- The designation crosses the Ōrewa River adjacent to Kowhai Road to include a proposed walking and cycling path on a viaduct. This section of NoR 4 sits within the existing SH 1 designation/ state highway environment and works / structures within the CMA will be the subject of a future regional consenting process.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. As previously discussed, due to the length of the proposed corridor and change in landscape context along that length, the effects assessment for NoR 4 is broken into four sections. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 4 (SH1 improvements) are considered to be:

- Section A: Albany to Lonely Track Road to be '**Moderate**' adverse level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be '**Moderate – High**' adverse level of effect.
- Section C: North from the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale to be '**Moderate**' adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be '**Moderate**' adverse level of effect.

NoR 5 New SH1 crossing at Huruhuru (Dairy Stream)

NoR 5 will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- A tributary to Huruhuru (Dairy Stream) is crossed by the proposed NoR corridor north of Top Road. There are several potential wetland areas in the wider vicinity, with the NoR potentially extending into one of these areas at the northeastern extent of the corridor. The natural character of these waterways is already degraded due to modification from farming practices. There is the potential for natural character effects to be further adversely affected resulting from earthworks around wetland environments and further modification of Huruhuru (Dairy Stream) tributaries.
- There is the potential for adverse natural character effects resulting from vegetation removal along Huruhuru (Dairy Stream) within the riparian buffer.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in

Section 5.2.4, construction effects on natural character for NoR 5 (Huruhuru (Dairy Stream) Crossing) are considered to have an **'Low-Moderate'** adverse level of effect.

NoR 6 New Connection between Milldale and Grand Drive

NoR 6 will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- Existing riparian vegetation is present on the slopes of the Ōrewa River tributaries, both north and south branches. This includes mature native species and recent revegetation which will mature in the future. The vegetated gullies associated with the waterways contribute greatly to the natural character of this area. This includes revegetation within 85 Upper Ōrewa Road. Removal of this vegetation to enable construction will adversely affect the natural character of these waterways during construction.
- There will be reduction of natural character values due to the potential removal of established riparian planting within farmland north of Russell Road. This will be in the context of a future urban environment, so vegetation outside of the designation may already be affected due to separate development processes. However, it is assumed that riparian vegetation surrounding waterways would remain present in that context.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 6 (New Connection between Milldale and Grand Drive) are considered to have a **'Moderate-High'** adverse level of effect in the adjacent rural area and **'Moderate'** adverse level of effect in FUZ.

NoR 7 Upgrade to Pine Valley Road

NoR 7 will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- There will likely be adverse effects on natural character values due to the potential removal of established vegetation along waterways within the NoR. This will be in the context of a future urban environment (except for the western-most end of the proposed designation). However, it is assumed that riparian vegetation surrounding waterways, and the associated natural character, would remain present in this context.
- Existing riparian vegetation with a high degree of naturalness is present on the slopes of the Wēiti Stream and its tributaries. This includes mature native species and natural regeneration which will continue to mature in the future. The vegetated gullies associated with the waterways contribute greatly to the natural character of this area.
- The proposed designation largely avoids the SEA (part of Wēiti Stream) at corner of Young Access Road and Pine Valley Road. However, a small portion alongside the existing road corridor may require removal within the proposed designation to enable construction of an enlarged intersection. There is the potential risk of natural character effects resulting from construction affecting the health of the stream / wetland environments including riparian vegetation.

- There are several wetland areas in the wider vicinity, with the NoR potentially extending into one area near the SEA. There is the potential risk of natural character effects resulting from construction affecting the health of the stream / wetland environments including riparian vegetation. Works within waterbodies will be the subject of future regional consenting.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 7 (Pine Valley Road upgrade) are considered to have a **'Moderate-High'** adverse level of effect.

NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat

NoR 8 will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- Numerous tributaries are crossed along the length of the NoR, although these will likely be upgrades to existing stream crossings for the construction works to enable widening of the existing road. In four instances, new bridge crossings are proposed to replace existing culverts. The majority of these waterways are highly modified through channelisation and vegetation removal due to the existing Dairy Flat Highway and farming practices which has reduced the natural character of these water bodies.
- In two instances the construction of a replacement bridge is proposed. With respect to all these crossings, there is the potential risk for natural character effects resulting from sediment entering the waterways during construction works and adversely affecting the health of the stream / wetland environments, and vegetation loss.
- Vegetation removal and construction activity will occur within the eastern end of the ONL⁴⁸ which is underlain contains Huruhuru (Dairy Stream) and natural wetlands which discharge to Rangitopuni River. Adverse natural character effects may be caused by vegetation removal, construction operations, exposed earthworks and accidental discharge of sediment into waterways.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 8 Dairy Flat Highway Upgrade are considered to have:

- Section A - FUZ residential - **'Moderate'** adverse level of effect.
- Section B - FUZ industrial to the east /and rural to the west - **'Moderate'** adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west- **'Low'** adverse level of effect.
- ONL /Green Park public open space - **'Moderate-High'** adverse level of effect

⁴⁸ ONL schedule number 49, Sunnyside Road, Coatesville, Central Rodney

NoR 9 Upgrade to Dairy Flat Highway between Dairy Flat and Albany

NoR 9 will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- There will likely be adverse effects on natural character values due to the potential removal of established vegetation, including SEAs along waterways within the NoR.
- Potential wetland areas are present along significant lengths of the proposed designation, characteristic of the lower lying topography as the road descends from Pukeatua (Albany Heights) into Dairy Flat. A large section adjacent to and on the eastern edge of the designation extends from opposite the Potter Road turnoff to just south of Durey Road. This wetland is present on both sides of the road in the vicinity of 759 Dairy Flat Highway. Streams in this area also run adjacent to and occasionally within the proposed designation. There will likely be adverse effects on natural character values due to the potential removal of established vegetation, earthworks and potential sediment accidentally entering the waterways.
- Regenerating native forest associated with tributaries to the Waiokahukura (Lucas Creek) catchment is a defining feature of the southern extent of this NoR in the Pukeatua (Albany Heights) area, contributing greatly to the natural character. SEAs lie to both the west and east of the corridor, including areas of indigenous vegetation near Coatesville-Riverhead Highway through to Three Streams Scenic Reserve. This intact natural system of high natural character creates a receiving environment highly sensitive to effects of construction, including construction footprint, earthworks and loss of vegetation.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 9 Dairy Flat Highway Upgrade are considered to have a **'High'** adverse level of effect and in areas of FUZ **'Moderate'** adverse level of effect.

NoR 10 Wainui Road Upgrade

NoR 10 will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- Waterloo Creek and an associated area of indigenous vegetation is crossed by the NoR corridor. The natural character of Waterloo Creek is relatively intact, with little modification to the waterway despite the existing bridge crossing. Open water and native riparian-estuarine vegetation sequences are present, typical of brackish landscapes. There is the potential for adverse effects on natural character from the loss of indigenous vegetation associated with Waterloo Creek, works in and around the waterways, potential for accidental sediment discharge, and earthworks. There is the potential risk of natural character effects resulting from construction affecting the health of the stream / wetland environments. Works within waterbodies will be the subject of future regional consenting.
- Ōrewa River and its associated SEA are located immediately to the north and are avoided, but immediately outside of the NoR.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 10 Wainui Road Upgrade are considered to have a **'Moderate-High'** adverse level of effect.

NoR 11 New connections from Dairy Flat Highway to Wilks Road

NoR11 will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- Waterways with this NoR have been highly modified due to agricultural practices removing vegetation and channelising waterways. There may be loss of a potential wetland area located between Dairy Flat Highway and Lascelles Drive. Natural character effects could also result from changes in modification of a wetland and a waterway located west of Postman Road. The designation does not authorise any loss of wetland, and if it is to be impacted then it will be subject to a future regional consenting process. Works within waterbodies will be the subject of future regional consenting.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 11 New connection from Dairy Flat Highway to Wilks Road are considered to have a **'Low'** adverse level of effect.

NoR 12 Upgrade and Extension to Bawden Road

NoR 12 will be subject to the natural character effects during construction common to all the North Project NoRs as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- There are several potential wetland areas and streams (tributaries of Huruhuru (Dairy Stream)) with the NoR corridor potentially extending into or crossing these at a number of locations. Most of these water bodies have been highly modified due to the presence of Bawden Road and agricultural practices removing vegetation and channelising the water courses. There is the potential for further reduction of natural character resulting from the removal of mixed exotic and native riparian vegetation, earthworks adversely impacting any riparian and wetland vegetation and water levels during construction.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 12 Bawden Road are considered to have a **'Moderate'** adverse level of effect.

NoR 13 Upgrade to East Coast Road between Silverdale and Ō Mahurangi Penlink (Redvale) Interchange

NoR 13 will be subject to the natural character effects during construction common to all the North Projects NoR as outlined in Section 5.2.2.1. With respect to this specific NoR, specific natural character effects during construction include:

- As East Coast Road runs along a natural ridgeline, waterways and wetlands are directly avoided within the proposed designation.
- The exception to this is at the southern end of the proposed designation, at the intersection with Worsnop Way and NoR 5 New SH1 crossing at Dairy Stream. Existing modified waterways and wetlands which form the headwaters of Huruhuru (Dairy Stream) are located in this area. Natural character of these water bodies is low due to the lack of vegetative cover and channelisation of water courses due to the presence of East Coast Road and farming practices. There is the potential for further reduction of natural character resulting from the removal of mixed exotic and native riparian vegetation, earthworks adversely impacting any riparian and wetland vegetation and water levels during construction.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, construction effects on natural character for NoR 13 East Coast Road upgrade are considered to have:

- **'Low-Moderate'** adverse level of effect within FUZ at the south
- **'Low-Moderate'** adverse level of effect within more densely urban areas at the north
- **'Moderate'** adverse level of effect in rural areas.

5.2.3 Visual and associative effects during construction

5.2.3.1 Common to all NORs

The following effects apply generally to NoRs across the North Projects to a greater or lesser extent. These effects are considered as part of each individual NoR effects assessment.

Reduced visual amenity for urban residents.

During the construction phase of the proposed transport corridors, local residents are likely to experience reduced visual amenity. The reduction may be caused by a combination of (amongst other effects) noise, dust, and increased heavy traffic movements, as well as from visual effects caused by the presence of bright lighting for works at night, construction machinery such as cranes, construction yard buildings, material stockpiles, the erection of temporary vertical build structures such as scaffolding and formwork, and temporary traffic control measures. Cumulative effects will occur where the proposed NoRs are adjacent to or cross over with other NoRs. However, depending on the context of urban development occurring in the wider area, the reduction in visual amenity due to some or all of these factors is likely to be lessened relative to the scale of the surrounding landscape change, or indeed an already highly urbanised or industrialised environment.

There may also be a loss of established vegetation cover in the landscape which contributes to reduced visual amenity during construction, such as indigenous vegetation, roadside vegetation, amenity planting within residential properties and vegetation associated with rural usage.

Several large areas of cut and fill are also depicted in the currently proposed Project drawings adjacent to existing residential properties. Depending on staging of works and timing of adjacent land development, dwellings affected within the FUZ may be either on existing larger properties yet to be developed, properties that have recently been intensified and urbanised, or properties that will be developed between now and the implementation of the proposed transport corridors. With urbanisation it is assumed that an increase in the fixed residential viewers, occupational viewers and transient viewers would occur due to densification/ intensification.

While earthworks are exposed, construction areas have the potential to create unsightly views for neighbouring residents. This may be exacerbated by the combined presence of construction yard compounds, material stockpiles, security fencing and hoarding, heavy machinery, formwork and scaffolding, traffic management elements, cut and fill, as well as the removal of planting.

Reduced visual amenity for rural residents

Several large areas of cut and fill are also identified in the current indicative Project drawings adjacent to existing rural properties. Depending on staging of works and timing of adjacent land development, affected properties may be within or outside of the RUB, depending on topography. Cumulative effects will occur where the proposed NoRs are adjacent to or cross over with other NoRs. However, these views would generally be localised due to the rolling topography which forms sub-catchments that foreground more distant views.

While earthworks are exposed, construction areas have the potential to create unsightly views for neighbouring residents. This may be caused by the combined presence of construction yard compounds, material stockpiles, security fencing and hoarding, heavy machinery, formwork and scaffolding, traffic management elements, cut and fill, as well as the removal of planting.

Reduced visual amenity for transport users

Where the proposed designation is for an existing transport route upgrade, rather than a new route, an effect on visual amenity for transient users of the existing road corridors may be experienced. This may be caused by the combined presence of earthworks, construction yard compounds, security fencing and hoarding, heavy machinery, formwork and scaffolding, traffic management elements, cut and fill, as well as the removal of vegetation. Depending on construction staging of the proposed NoRs, visual effects may occur for users of new transport routes, (e.g., NoR 1 RTC and NoR 5 New Connection between Milldale and Dairy Flat Highway) where they are adjacent to or cross over other NoRs.

Private outdoor landscape space

In existing residential areas adjacent to the proposed designations, construction effects may impact the physical quality of, appreciation of or perception of people to use their private outdoor landscape areas. This may be caused by loss of vegetation, landform modification and the proximity of construction activity including construction yards and material stockpiles, as well as visual changes. Depending on the staging of work for the transport corridor and surrounding land development, residential areas may exist in already urbanised areas, properties yet to be developed or rural properties that are unlikely to develop.

Public access to and use of parks and reserves, including access along waterways.

Under s6(d) maintenance and enhancement of public access along the CMA and rivers is considered a matter of national importance, as well as s7(c) the maintenance and enhancement of amenity values. Depending on staging, construction activities may affect public access to and use of Open Space and recreational networks for the duration of works in limited areas which are NoR specific – refer specific sections.

Duration of effects

Adverse landscape visual effects from construction are common to infrastructure projects and can in some instances be difficult to mitigate depending on their magnitude and / or the evolving nature of the works being undertaken. The construction period for the proposed transport corridors will vary between 1-6 years⁴⁹. Construction of the longer corridors (e.g., NoR 1 and NoR 4) will progress in stages and so construction effects at any one location would be much shorter than the whole construction period for an entire route.

5.2.3.2 Specific NoRs

NoR 1 New Rapid Transit Corridor (Albany to Milldale)

NoR 1 will create the anticipated visual effects during construction common to all the NoR as summarised in Section 5.2.3.1. In addition to this it is noted:

- The RTC commences in Albany where visual effects may be experienced from existing residential areas near Paikea St and Kawa Road, where removal of vegetation may cause visual effects for adjacent residents.

⁴⁹ Refer to Te Tupu Ngātahi Supporting Growth Alliance - Programme Wide Construction Method Statement 6/05/2022, Section 2.12 2.12 Indicative Construction Programme

- South of (existing) Bawden road intersection with SH1, the RTC moves away to the west from SH1 which adds further large cuts into the SEA, causing a cumulative effect of a large area of earthworks and vegetation removal in the area. These cuts and associated vegetation loss and earthworks will create visual effects that will be viewed by transient users of SH1 and surrounding rural residents.
- Extensive cut and fill continue west along the proposed route to intersect with NoR 12 Bawden Road. This lessens as the RTC crosses the rolling lower country of Dairy Flat and passes through the proposed industrial area, with some larger cut and fill areas as the RTC moves northeast towards the proposed NoR 2 and NoR 3 station approaches. This area is zoned FUZ so will already be subject to modification, likely including landform modification including benching and terraces, which will lessen the visual effect of the RTC to that caused primarily by vegetation removal.
- At Milldale the designation adjoins the edge of QEII covenant / SEA area of Kathy's Thicket. This will necessitate earth works and vegetation removal, causing visual effects to transient users of SH1, occupational users of Highgate businesses opposite, existing Milldale residents and other residents anticipated as part of FUZ development. Due the edge effects already observed, it is reasonable to anticipate further adverse visual effects may occur over time as a result.
- Specific properties that will likely experience adverse visual and associative effects during construction include existing urban and rural residents immediately adjacent or in close proximity to the designation area include: Kawa Road, Paikea St, Lonely Track Road, Wright Road, Awanohi Road, Redvale Rise, Wilson Road, Ashwood Ave, Autometer and Pampas Drive. The property located at 39 Wright Road is specifically impacted by the very close proximity of both NoR 1 and NoR 4 along the rear of the dwelling. The likely vegetation removal required within the designation will allow new views to the existing SH1 corridor (unless replacement planting is proposed).

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual and associative construction effects for NoR 1 New Rapid Transit Corridor are considered to be:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: adverse **'Moderate'** level of effect.
- Section B: Rural with SEA overlay to Bawden Road: **'Moderate-High'** adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: **'Moderate'** adverse level of effect.

NoR 2 New Milldale Station and associated facilities

NoR 2 will experience the anticipated visual effects during construction common to all the NoR as summarised in Section 5.2.3.1. In addition to this it is noted:

- There will potentially be a loss in visual amenity from the removal of vegetation which provides a green buffer and screening between residential development and the SH 1 corridor. Adjacent residents (particularly along Ahutoetoe Rd, John Fair Dr, Siren St, Pampas Dr and Snowden Rd) are likely to experience adverse visual effects due to the loss of landscape buffer to SH 1 and introduction of construction yard buildings, machinery and site works in close proximity to

suburban dwellings and outdoor living spaces, due to the associated noise, dust, vibration, lighting and increased heavy traffic movements (amongst other effects).

- Depending on the screening provided by intervening vegetation and topography there may potentially be distant visual effects for existing residential properties to the southeast of the Station, at Silverhill Lane. Although effects from these more distant viewpoints will likely be moderated by the scale and bulk of future planned urbanisation in the wider landscape, such as that associated with the Silverdale West Dairy Flat Industrial Area and SH 1 roading infrastructure.
- Transient views of construction activities may also be visible from users of local roads and footpaths within Milldale, and from SH 1.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual and associative construction effects for NoR 2 New Milldale Station and associated facilities are considered to have a **'Moderate'** adverse level of effect.

NoR 3 New Pine Valley East Station and associated facilities

NoR 3 will experience the anticipated visual effects during construction common to all the NoRs as summarised in Section 5.2.3.1. In addition to this it is noted:

- There will be a loss in visual amenity from the removal of established rural vegetation within paddocks south of Old Pine Valley Road and east of Pine Valley Road, and rural vegetation associated with number 36 Old Pine Valley Road.
- Views of construction activities will also likely be visible from businesses and local roads within the Silverdale West Structure Plan area, although will not be out of keeping with the scale and form of proposed industrial development.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual construction effects for NoR 3 New Pine Valley Station and associated facilities are considered to have a **'Low'** adverse level of effect.

NoR 4 SH1 Improvements

NoR 4 will experience the anticipated visual effects during construction common to all the NoRs as summarised in Section 5.2.3.1. In addition to this it is noted:

- The visual and associative effects of the SH1 improvements are magnified through the cumulative effect of adjacent and linking designations including adjacency to or intersections with NoR 1, NoR 5, NoR 6, NoR 8, NoR 10, NoR 11, NoR 12, and NoR 13. This may also cause visually complex construction within or over NoR 4, amplifying adverse visual effects for both transient users of SH 1 and nearby residents.

- In addition to adjacent housing, business and other areas which have views to the existing SH1 corridor, traffic may include tens of thousands⁵⁰ vehicles per day creating a large transient viewing audience for any visual effects.
- FUZ will change the nature of the surrounding receiving environment and visual context in some areas, however some sections of rural Countryside Living zone will remain. Within the FUZ, there is potential for an increase in the residential viewing audience in the future due to the anticipated density of future development.
- As noted in Section 5.2.1.2 there are potential cumulative effects of NoR 4 and NoR 1, with earthworks within rural landscapes and identified areas of indigenous vegetation, causing adverse visual effects. For most of the west side of NoR1 from Albany to Awanohi Road, the increased designation area encroaches into SEA and other areas of indigenous vegetation which may be removed.
- The proposed work includes realignment of Lonely Track Road which currently passes over SH1 and replacement of the existing bridge with a new one. This increases the landscape effects to allow for the road realignment and new bridge abutment construction, as well as enabling demolition of the old bridge structures.
- On the west of NoR 4 the FUZ zone starts just north of Bawden Road (current alignment) and extends up to the northern end of NoR 4. Indicated by the Silverdale Structure Plan, the FUZ section between Top Road and Millwater sits alongside a Light Industrial area, resulting in an anticipated highly modified environment that the proposed transport corridor construction will occur in. The exception is several smaller residential areas already developed around North Shore Aeropark and Millwater.
- On the east side of NoR 4 the FUZ extends from south of Ara Wēiti Road to Wilks Road, bound by East Coast Road (NoR 13). North of Wilks Road to Spur Road sits a section of Rural - Countryside Living. FUZ then joins to the business zone south of Silverdale. North of Silverdale, Highgate industrial area is flanked north and south by existing residential areas. While the east side of NoR 4 is anticipated to be a partially modified environment, there is an existing residential population and an assumed increase in the transient viewing audience associated with this FUZ development, increasing the population who may be exposed to noise, dust and other adverse construction effects. However, this is in the context of a large area of the future industrial development to the west of NoR 4, creating an environment which has lower sensitivity to visual effects.
- The areas remaining in Rural Countryside Living zone will be perceived as having greater landscape values when in the context of adjacent modified land (including medium density housing).
- At Highgate the designation adjoins the edge of existing mature native vegetation to construct the Silverdale-Highgate Active Mode Path. This will necessitate earth works and potentially some vegetation removal, causing visual effects to transient users of SH1, occupational users of Highgate industrial area, and potentially a small number of existing Milldale and Millwater residents. The underlying zoning of this portion of the designation area is industrial.
- Specific properties that will likely experience adverse visual and associative effects during construction include existing urban and rural residents immediately adjacent or in close proximity

⁵⁰ Waka Kotahi State highway traffic monitoring – annual average daily traffic Annual Average Daily Traffic (AADT). As of 9 May, more than 23,000 vehicles per day counted at Oteha Valley Road. Sourced from <https://maphub.nzta.govt.nz/portal/home/signin.html?returnUrl=https%3A//maphub.nzta.govt.nz/home/>

to the designation area: Fairview Retirement Village, McMenamin Place, Stubbs Place, Baker Street, Pepe Lane, Lonely Track Road, 1154-1627 East Coast Road (rural section), Rodeo Drive, Haigh Access Road, Redvale Rise, 211-251 Wilks Road (north side), 1910- 1976 East Coast Road (rural section), Jack Hawken Lane, Ahorangi Road, 2-58 Harris Road and 7-9 Tendril Court. The property located at 39 Wright Road is specifically impacted by the very close proximity of construction works for both NoR 1 and NoR 4 along the rear of the dwelling. The likely vegetation removal required within the designation will allow new views to the existing SH1 corridor, unless appropriate replacement planting/screening is provided.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual and associative construction effects for NoR 4 SH1 improvements are considered to be:

- Section A: Albany to Lonely Track Road **'Moderate'** adverse level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) **'Moderate – High'** adverse level of effect.
- Section C: North from the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale **'Moderate'** adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be **'Moderate'** adverse level of effect.

NoR 5 New SH1 crossing at Dairy Stream

NoR 5 will experience the anticipated visual effects during construction common to all the NoR as summarised in Section 5.2.3.1. In addition to this it is noted:

- There will be a loss in visual amenity from the removal of established planting within paddocks along Top Road, amenity planting associated with a residential property at number 132 Top Road and vegetation along Huruhuru (Dairy Stream). However, this is in the context of anticipated future urbanisation and a high degree of change in visual complexity.
- Given the elevation of the active mode crossings over SH 1, visual effects from construction activities will likely be visually prominent within the surrounding landscape including from FUZs, local roads (Top Rd, East Coast Rd and Worsnop Way) and SH 1.
- The proposed crossing over SH1 introduces a new element over the road corridor, potentially affecting the visual and experiential of transient SH1 users. However, this will be in the context of an urban environment, so will be consistent with this character.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual construction effects for NoR 5 Dairy Stream crossing are considered to have a **'Low-Moderate'** adverse level of effect.

NoR 6 New Connection between Milldale and Grand Drive

NoR 6 will experience the anticipated visual effects during construction common to all the NoRs as summarised in Section 5.2.3.1. In addition to this it is noted:

- Extensive cut and fill earthworks are proposed along the extent of the NoR with associated visual effects due to landform changes, vegetation removal, exposed soil and construction activities likely be visually prominent within the surrounding landscape.
- There may be a loss in visual amenity from the potential removal of established planting within farmland north of Russell Road, within number 85 Upper Ōrewa Road, and riparian vegetation on the slopes of the Ōrewa River tributaries, both north and south branches. This includes mature native species and recent revegetation.
- The removal of vegetation along the east side of the berm of Upper Ōrewa Road will potentially open views to SH 1 and reduce the screening effect this provides for future development from properties in the Upper Ōrewa foothills.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual construction effects for NoR 6 New Connection between Milldale and Grand Drive are considered to have a **'Moderate-High'** adverse level of effect in rural areas and **'Moderate'** adverse effect in FUZ.

NoR 7 Upgrade to Pine Valley Road

NoR 7 will experience the anticipated visual effects during construction common to all the NoR as summarised in Section 5.2.3.1. In addition to this it is noted:

- Existing riparian vegetation with a high degree of naturalness is present on the slopes of the Wēiti Stream and its tributaries. These vegetated gullies, including a SEA located immediately north west of the intersection of Pine Valley Rd and Young Access Rd contribute to the scenic qualities of this landscape. There may be a loss in visual amenity due to the potential removal of riparian vegetation associated with these areas.
- Widening and alignment activities may also remove established planting within the road berm and adjacent properties which currently provide screening of Pine Valley Rd, opening up views and increasing the proximity of dwellings to construction activities.
- Mixed native and exotic planting associated with rural properties at 346 and 357 Pine Valley Road may require removal during construction. This vegetation contributes to rural amenity signalling the transition from rural to urban environments.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual construction effects for NoR 7 Pine Valley Road upgrade are considered to have a **'Moderate'** adverse level of effect.

NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat

NoR 8 will experience the anticipated visual effects during construction common to all the NoR as summarised in Section 5.2.3.1. In addition to this it is noted:

- Green Park will, in the future, provide a very large area of public open space for the high number of new residents in the surrounding FUZ and beyond. As indicated in the Green Park masterplan, the intention for this open space is to be “a key recreation destination for Rodney residents and the wider Auckland community”⁵¹.
- As noted in Section 5.2.1.2, NoR 8 is adjacent to several sections of countryside which will remain Mixed Rural Zone to the west of Dairy Flat Highway. These areas are valued for their rural appearance including rural roads, farm buildings and yards, fence lines, exotic trees (either in lines or scattered in paddocks), stock, water tanks, and minimal structures. While the works comprise an upgrade to an existing road, all of the works will have visual effects when placed in the context of a rural receiving environment.
- Within the Dairy Flat commercial area around the turnoff with Kahikatea Flat Road, effects of construction for residents and businesses may occur due to the introduction of lighting, construction machinery, yard buildings, material stockpiles, traffic movements, and temporary traffic control measures into the area. Dairy Flat School is located on the south-eastern side of Dairy Flat Highway and Landfill Access Road intersection.
- The Dairy Flat area this NoR travels through is relatively flat with low rolling contours. This geography combined with shelter belts and other combinations of exotic and occasional indigenous planting screens much of the highway. This topography also lessens the need for extensive cut or fill for road formation within the designation, however the exception to this occurs between Green Road and Postman Road where a smaller ridge formation necessitates greater cut and fill including where the upgraded highway ties in with Jeffs Road. This increased construction footprint will amplify the visual effects of construction including from exposed earthworks as well as from removal of vegetation.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual construction effects for NoR 8 Dairy Flat Highway Upgrade are considered to have:

- Section A - FUZ residential - ‘**Moderate**’ adverse level of effect.
- Section B - FUZ industrial to the east /and rural to the west - ‘**Moderate**’ adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west- ‘**Low**’ adverse level of effect.
- Green Park public open space - ‘**Moderate-High**’ adverse level of effect

⁵¹ Rodney Local Board (October 2020) *Te Pārae o Te Rori o Green Mahere Matua Green Road Park Masterplan*

NoR 9 Upgrade to Dairy Flat Highway between Dairy Flat and Albany

NoR 9 will experience the anticipated visual effects during construction common to all the NoRs as summarised in Section 5.2.3.1. In addition to this it is noted:

- This section of designation has limited anticipated development with FUZ occurring as a pocket on the north/east side of Dairy Flat Highway from Stevensons Road. The area remaining in rural character will be highly sensitive to visual effects during construction.
- While this is a proposed widening to an existing road, visual aspects that contribute to the rural character will be affected by construction throughout this corridor including vegetation loss and earthworks.
- SEAs are a feature of the southern extent of this NoR, with SEAs to both the west and east of the corridor, including an area of indigenous vegetation near Coatesville-Riverhead Highway through to Three Streams Scenic Reserve. The designation has the potential for adverse visual effects through vegetation loss.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual construction effects for NoR 9 Dairy Flat Highway Upgrade are considered to have a **'High'** adverse level of effect in the rural zone and **'Moderate'** adverse effect in the FUZ.

NoR 10 Wainui Road Upgrade

NoR 10 will experience the anticipated visual effects during construction common to all the NoRs as summarised in Section 5.2.3.1. In addition to this it is noted:

- The construction works may remove established vegetation along Wainui Rd and also indigenous vegetation along Waterloo Creek, with an associated loss in visual amenity.
- Existing residents, particularly rural properties east of Upper Ōrewa Rd (including, but not limited to, numbers 315 and 362, 379 and 411) may experience adverse visual effects due to the potential loss of vegetation enabling views to construction activities.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual construction effects for NoR 10 Wainui Road Upgrade are considered to have a **'Moderate'** adverse level of effect.

NoR 11 New connection from Dairy Flat Highway to Wilks Road

NoR 11 will experience the anticipated visual effects during construction common to all the NoR as summarised in Section 5.2.3.1. In addition to this it is noted:

- The construction works may remove established vegetation along Dairy Flat Highway, Lascelles Dr and within residential properties, with an associated loss in visual amenity values. However,

this will be in the context of anticipated future urbanisation and industrialisation of the areas through the Silverdale West structure plan.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual construction effects for NoR 11 New connection from Dairy Flat Highway to Wilks Road are considered to have a '**Low**' adverse level of effect.

NoR 12 Upgrade and Extension to Bawden Road

NoR 12 will experience the anticipated visual effects during construction common to all the NoRs as summarised in Section 5.2.3.1. In addition to this it is noted:

- The large area of cut at the intersection of Bawden Rd / Top Rd and Follies Way at the eastern extent of the NoR corridor will be a visible change in the local topography. While effects will be localised due to rolling topography and the set down of the intersection into the landform, there will likely be noticeable adverse visual effects from surrounding areas due to the large scale of exposed earthworks and associated construction activities.
- Numerous existing residents including along Bawden Rd and Top Rd may experience adverse landscape effects due to the potential loss of vegetation and / or views to construction activities. However, this will be in the context of anticipated future urbanisation of this whole area.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.2.4, visual construction effects for NoR 12 Bawden Road are considered to have a '**Moderate-High**' adverse level of effect.

NoR 13 Upgrade to East Coast Road between Silverdale and Ō Mahurangi Penlink (Redvale) Interchange

NoR 13 will experience the anticipated visual effects during construction common to all the NoR as summarised in Section 5.2.3.1. In addition to this it is noted:

- At the south end of NoR 13 (north of Ara Wēiti Road) the topography slopes gently east as East Coast Road begins the ascent of the ridgeline that continues through to Silverdale. As a result, views to construction areas south of Worsnop Way intersection will be prominent from transient users of SH 1.
- At the northern extent of NoR 13 the topography slopes to Silverdale along a prominent ridgeline. Due to the density and mix of uses in this area (business general, residential mixed housing, business light industry) and high number of users of both East Coast Road and Hibiscus Coast Highway, adverse visual effects of construction will be experienced by fixed residential, occupational users and transient transport users.

Nature and magnitude of effects

The proposed designation has the potential to create adverse visual and associative effects on the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate

effects recommended in Section 5.2.4, visual construction effects for NoR 13 East Coast Road Upgrade are considered to have a **'Moderate'** adverse level of effect. within FUZ, **'Moderate'** adverse effect within the more densely urbanised north and **'Moderate-High'** adverse effect in rural areas.

5.2.4 Recommended measures to avoid, remedy or mitigate construction effects

To address the construction effects of the North Projects the following measures are recommended to be addressed in combination with specific measures recommended for individual NoRs in Section 5.2.4.2.

5.2.4.1 Common to all NORs

To address the construction effects of the North Projects the following measures are recommended to be included in the ULDMP and/ or CEMP to be prepared prior to the start of construction:

- Avoid valuable landscape features (e.g. through construction yard location) wherever practicable. Remedy landscape features after construction, where applicable (e.g. make good open grass areas used for construction yards). Where avoidance or remediation is not practicable, qualitatively mitigate construction effects on landscape features (e.g., replace and enhance vegetation removed for construction through mass-planting of native vegetation).
- Prior to the Start of Construction for a Stage of Work, revalidate the landscape, natural character, and visual effects of construction within the contemporary landscape context for each NoR. The ULDMP shall clearly state which effects identified in this assessment are still valid and how they will be addressed in the proposed ULDMP.
- It is recommended that viewshed analysis be undertaken as part of the ULDMP to identify and address specific views in relation to the detail design specific construction methodology.
- Consider opportunities for early (prior to construction commencing) and regular communication with the community on the finalised construction programme and duration of works to assist with providing a degree of certainty over timing of construction aspects, giving residents the opportunity to have input into landscape treatments to minimise adverse visual and perceptual effects.
- Consider opportunities to minimise adverse visual and associative effects on adjacent residents in the contemporary context during construction through use of landscape elements (such as fast-growing native screening planting or structural screening) to provide screening of construction activities, including stockpile areas and construction yards. Where appropriate mitigation screen planting can be retained and integrated with permanent operational planting. Where this is not practicable, consider the use of aesthetic structural screening. Consider the staging of construction works to assist with avoiding adverse landscape and visual effects on neighbouring residents, for example staged removal of vegetation where required.
- Consider timing of construction activities in relation to adjacent NoR works to minimise visual and associative effects for the transient viewing audiences. Consider retention and protection of existing vegetation within the designation that provides screening or acts as a buffer between adjoining businesses, public open spaces or transport corridors and construction areas, where practicable.

- Consider the use of landscape elements to provide temporary mitigation during construction, to assist with minimising adverse visual effects; for example, the use of fast-growing screening vegetation around construction yards and grassing of exposed soil where appropriate. Where this is not practicable, consider the use of aesthetic structural screening.
- Consider the potential visual impacts of temporary structures and adopt landscape treatment to manage these effects, appropriate to the construction duration. This may include providing temporary screening, such as hoardings, during construction for adversely affected residential areas.
- Consider forward planting of vegetation to establish screening prior to construction, which can be retained and integrated as part of the operational works or as part of long-term visual mitigation.
- Consider the maintenance requirements of landscape elements required for landscape or visual mitigation across construction stages e.g., re-use of temporary screens, barriers, or hard landscape materials in the detail design, and mulching or sowing low-mow native grasses to stabilise formed slopes to eliminate the need for mowing grass during the construction period.⁵²
- Protect landscape areas associated with heritage or archaeological sites identified in the heritage or cultural impact assessments (for example Kelly's Homestead and Small Homestead) from potential adverse visual and associative construction effects, for example screening planting.
- Identify opportunities for the survey, collection, and propagation of indigenous plants and heritage amenity plants in private gardens that will be demolished within the designation; these may be re-established as part of the planting programme during finishing works as an opportunity to retain elements of landscape character.
- Facilitate Manawhenua partnership and community and stakeholder engagement throughout the construction phase to provide opportunities for involvement, for example seed collection prior to indigenous vegetation removal and forward programming for 'growing on' of eco-sourced plants.
- To assist with re-establishing rural character, at completion of construction phases, consider return of surplus land not required for operation of corridors to allow owners to re-establish productive use in rural zones, where applicable and subject to other legal processes.
- To assist with re-establishing threshold of rural -urban boundary character, consider fast-growing native mitigation planting screen and buffer planting for interfacing rural residences along the proposed NoR corridor is implemented early in the construction stage, to enable establishment prior to operation. Where this is not practicable, consider the use of aesthetic structural screening.
- Reinstate construction yards in a manner appropriate for the anticipated future use of the land, including consideration of soil profile remediation (e.g., ripping of the subgrade and drainage layers placed prior to topsoil placement) as required to ensure successful ground preparation and establishment of any mitigation planting required post-construction.

Further to the above, it is recommended that the following be considered during future detailed design and regional consenting phases, as required and where practicable:

Earthworks

⁵² An example would be *Poa imbecilla*

- Minimise earthworks and retaining walls by following the natural topography of the land as far as practicable. Where earthworks are required integrate cut and fill by merging smoothly with surrounding contours.

Consider opportunities for topsoil stripping and stockpiling for re-use, ensuring that topsoil is suitable for landscape purposes through testing by a suitably qualified laboratory.

Water

- Minimise sedimentation of waterbodies using appropriate erosion controls, by limiting the extent of exposed earthworks at any one time and prompting revegetation of earth-worked areas, as appropriate. It is noted that detailed responses to waterway and natural wetland treatment will be detailed in the future regional resource consenting stages of the North Projects.
- Consider further refinement of stormwater treatment wetland design to appear 'natural' with a variety of habitats, e.g., irregular shape with curved boundaries, varying depths and islands.
- Consider water sensitive urban design principles. Recommendation to prioritise the use of soft engineering strategies for stormwater management.
- Retain existing natural watercourses as far as practicable. Design stream diversions and stormwater treatment wetlands to appear 'natural' with a variety of habitats, e.g., irregular shape with curved boundaries, varying depths and islands. Use site-won salvaged materials (such as rocks and woody debris) to create complementary freshwater habitat where appropriate.

Vegetation Removal

- Consider retaining logs and stumps from indigenous vegetation that is removed to replace lost riparian habitat and enable collection of native seed material prior to vegetation removal where appropriate and practicable.
- Salvage and reuse plants (non-weedy species) that are removed where practicable. For example, re-use of native slash in-situ as a seed source, using woody material for habitat creation and consider opportunities for suitable felled tree species for re-use as landscape features.
- Minimise vegetation loss by restricting the construction footprint as far as practicable by avoiding works in the driplines of SEAs, indigenous vegetation and heritage trees and other vegetation identified for retention in the ULDMP or Tree Management Plan and protecting this vegetation from works in accordance with the Tree Management Plan.
- Ensure that any native vegetation required for removal within any SEA is mitigated in accordance with the ecological recommendations, including timing of operations and eco-sourcing of replacement vegetation.
- Promote the retention of landscape character by avoiding areas of indigenous vegetation removal in detail design stages. Where avoidance is not possible minimise the operational footprint of the corridor as far as practicable.

5.2.4.2 Specific NoRs

NoR 1 New Rapid Transit Corridor (Albany to Milldale)

To address the specific construction effects within NoR 1 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Minimise footprint of construction areas where practicable to avoid intrusion into the driplines of SEAs and open space reserve areas, including but not limited to, Awanohi Reserve Redvale, Pukeatua (Albany Heights) and Hooton Reserve in Albany, and Kathy's Thicket, Milldale.
- Retention and protection of existing vegetation within the designation that provides screening or acts as a buffer between adjoining residential development and construction areas, where practicable.
- Any native vegetation required for removal within any SEA should be mitigated in accordance with the ecological recommendations, including timing of operations and eco-sourcing of replacement vegetation.
- Adverse visual and associative effects on adjacent residents in the contemporary context should be minimised during construction through use of landscape elements (such as fast-growing native screening planting) to provide screening of construction activities where practicable and appropriate, including stockpile areas and construction yards. Where this is not practicable, consider the use of aesthetic structural screening.
- Particular consideration of screening to minimise adverse visual and associative construction effects shall be given to existing urban and rural residents immediately adjacent to the designation in areas including but not limited to: Kewa Road, Paikea St, Lonely Track Road, Wright Road, Awanohi Road, Redvale Rise, Wilson Road, Ashwood Ave, Ahutoetoe and Pampas Drive. Specific consideration should be paid to the location of construction fencing and activities in relation to the outdoor area at the rear of the dwelling located at 39 Wright Road. For example, screening views from living spaces into construction areas with physical or vegetated screens.

With the implementation of these NoR-specific and the North Projects-wide recommended measures, the construction effects of NoR 1 New Rapid Transit Corridor are considered to be:

Landscape character:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: '**Low**' adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: '**Low-Moderate**' adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: '**Low**' adverse level of effect.

Natural character:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: '**Low**' adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: '**Low- Moderate**' adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: '**Low**' adverse level of effect.

Visual effects:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: ‘**Low**’ adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: ‘**Low-Moderate**’ adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: ‘**Low**’ adverse level of effect.

NoR 2 New Milldale Station and associated facilities

To address the specific construction effects within NoR 2 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Prior to construction works commencing, early establishment of indigenous buffer planting along the boundary of the designation to Kathy’s Thicket SEA / Wēiti Stream QEII covenanted area to minimise potential edge effects on existing vegetation.
- Minimise adverse visual and associative effects during construction for adjacent residential properties, particularly along Ahutoetoe Rd (numbers 64, 71 – 108) and Pampas Dr (number 36), by using landscape elements for screening such as fast-growing screening planting. Where this is not practicable, consider the use of aesthetic structural screening.
- Select visually discrete locations for the placement of construction yard offices and material storage, away from existing residential areas to reduce potential visual effects including light spill into surrounding residential properties.
- Maximise retention of the vegetation alongside SH 1 where practicable, to minimise adverse visual effects for transient users of SH 1. If vegetation removal is required, consider opportunities for salvage and reuse of appropriate native plants where practicable, for example the use of native slash as a seed source for natural regeneration.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 2 New Milldale Station and associated facilities are considered to be:

- Landscape character to be ‘**low**’ adverse level of effect.
- Natural character to be ‘**low**’ adverse level of effect.
- Visual effects to be ‘**low**’ adverse level of effect.

NoR 3 New Pine Valley East Station and associated facilities

To address the specific construction effects within NoR 3 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Retention of established rural and amenity plantings within the designation along Old Pine Valley Road to provide screening of construction activities to minimise adverse visual and associative effects on contemporary residential areas.

With the implementation of these NoR-specific and the North Projects-wide recommended measures, the construction effects of NoR 3 New Pine Valley East Station and associated facilities are considered to be:

- **Landscape character** to be ‘**very-low**’ adverse level of effect.
- **Natural character** to be ‘**very-low**’ adverse level of effect.

- **Visual effects** to be **'very-low'** adverse level of effect.

NoR 4 SH1 Improvements

To address the specific construction effects within NoR 4 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Minimise footprint of construction areas to avoid intrusion into the driplines of SEAs and areas of native vegetation and open space reserve areas, including but not limited to, Baker St Reserve, Travis View Reserve and areas of native vegetation within rural zones.
- Prior to removing any vegetation around the Motorway Service Centre (MSC) site, confirm the existing resource consent requirements for screening of the MSC site and ensure that adverse visual and associative effects associated with the MSC site are mitigated in addition to the adverse effects of the proposed construction works.
- Particular consideration of screening to minimise adverse visual and associative construction effects shall be given to existing urban and rural residents immediately adjacent to the designation area: Fairview Retirement Village, McMenamin Place, Stubbs Place, Baker Street, Pepe Lane, Lonely Track Road, 1154-1627 East Coast Road (rural section), Rodeo Drive, Haigh Access Road, Redvale Rise, 211-251 Wilks Road (north side), 1910- 1976 East Coast Road (rural section), Jack Hawken Lane, Ahorangi Road, 2-58 Harris Road and 7-9 Tendril Court. Specific consideration should be paid to the location of construction fencing and activities in relation to the outdoor area at the rear of the dwelling located at 39 Wright Road. For example, screening views from living spaces into construction areas with physical or vegetated screens.
- Minimise the construction footprint where the designation is adjacent to streams or wetlands, at the headwaters of Huruhuru (Dairy Stream) where NoR4 meets NoR12 Bawden Road and NoR13 East Coast Road upgrades.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 4 SH1 improvements are considered to be:

Landscape character:

- Section A: Albany to Lonely Track Road to be **'Low'** adverse level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be **'Low-Moderate'** adverse level of effect.
- Section C: From the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale to Grand Drive to be **'Low'** adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be **'Low'** adverse level of effect.

Natural character:

- Section A: Albany to Lonely Track Road to be adverse **'Low'** level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be **'Low-Moderate'** adverse level of effect.
- Section C: From the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale to be **'Low'** adverse level of effect.

- Section D: From the Silverdale intersection to Grand Drive to be '**Low**' adverse level of effect.

Visual effects:

- Section A: Albany to Lonely Track Road to be '**Low**' adverse level of effect.
- and B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be '**Low-Moderate**' adverse level of effect.
- Section C: From the intersection with NoR 12 (the proposed Bawden Road Extension) to Grand Drive to be '**Low**' adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be '**Low**' adverse level of effect.

NoR 5 New SH1 crossing at Dairy Stream

To address the specific construction effects within NoR 5 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Minimise construction footprint avoid intrusion into the Huruhuru (Dairy Stream) tributary and other waterbodies including potential wetland areas, where practicable. Retain and protect indigenous vegetation cover associated with these waterways wherever practicable.
- Retention of established rural and amenity plantings within the designation along Top Road and East Coast Road to provide screening of construction activities to minimise adverse visual and associative effects on contemporary residential areas, wherever practicable.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 5 Huruhuru (Dairy Stream) Crossing are considered to be:

- Landscape character to be '**very-low**' adverse level of effect.
- Natural character to be '**very-low**' adverse level of effect.
- Visual effects to be '**very-low**' adverse level of effect.

NoR 6 New Connection between Milldale and Grand Drive

To address the specific construction effects within NoR 6 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Minimise construction footprint avoid intrusion into the Ōrewa River tributaries and other waterbodies including potential wetland areas. Retain and protect indigenous vegetation cover associated with these waterways wherever practicable.
- Minimise removal of existing native revegetation within the rural zone (85 Upper Ōrewa Road) to create a visual buffer to construction activities for rural properties to the east.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 6 New Connection between Milldale and Grand Drive are considered to be:

Within the rural area:

- Landscape character to be '**low-moderate**' adverse level of effect.

- Natural character to be '**low-moderate**' adverse level of effect.
- Visual effects to be '**low-moderate**' adverse level of effect.

Within FUZ:

- Landscape character to be '**low**' adverse level of effect.
- Natural character to be '**low**' adverse level of effect.
- Visual effects to be '**low**' adverse level of effect.

NoR 7 Upgrade to Pine Valley Road

To address the specific construction effects within NoR 7 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Minimise footprint of construction footprint to avoid landscape and natural character effects SEA associated with the Wēiti Stream located immediately to the north of Pine Valley Road, west of Young Access Road, and potential wetland areas, particularly along the southern extent of the proposed designation.
- Retain and protect indigenous vegetation cover associated with these waterways wherever practicable.
- Retention of established rural and amenity plantings within the designation along Pine Valley Road to provide screening of construction activities to minimise adverse visual and associative effects on contemporary residential areas, where practicable.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 7 Pine Valley Road Upgrade are considered to be:

- Landscape character to be '**low**' adverse level of effect.
- Natural character to be '**low**' adverse level of effect.
- Visual effects to be '**low**' adverse level of effect.

NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat

To address the specific construction effects within NoR 8 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Minimise intrusion into the Outstanding Natural Landscape (ONL) located to the immediate south of the existing road boundary where Dairy Flat highway crosses Huruhuru (Dairy Stream).
- Minimise footprint of corridor to avoid intrusion into wetland areas and flood plains associated with Huruhuru (Dairy Stream).
- In the existing Dairy Flat business centre, provide temporary screening during construction to manage adverse visual and associative effects on neighbouring rural-residential and business users. For example, manage programme (duration of effects) construction times (hours of effects) to minimise time and subsequent loss of visual associative amenity.

- Retain and protect established vegetation within the designation where practicable, to provide screening and minimise adverse visual and associative construction effects to adjoining rural residential dwellings, particularly Dairy Flat Highway between Richards Rd and Horseshoe Bush Rd, and north of Kahikatea Flat Rd and Wilks Rd West, and Dairy Flat School.
- Retention of established rural and amenity plantings within the designation along Dairy Flat Highway Road to provide screening of construction activities to minimise adverse visual and associative effects on contemporary residential areas.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 8 Dairy Flat Highway Upgrade are considered to be:

Landscape character:

- Section A - FUZ residential - **'Low'** adverse level of effect.
- Section B - FUZ industrial to the east /and rural to the west - **'Low'** adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west- **'Very Low'** adverse level of effect.
- ONL / Green Park public open space - **'Low'** adverse level of effect

Natural character:

- Section A – FUZ residential – **'Low'** adverse level of effect.
- Section B – FUZ industrial to the east /and rural to the west – **'Low'** adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west– **'Very Low'** adverse level of effect.
- ONL / Green Park public open space - **'Low-Moderate'** adverse level of effect

Visual and associative:

- Section A - FUZ residential - **'Low'** adverse level of effect.
- Section B - FUZ industrial to the east /and rural to the west - **'Low'** adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west - **'Very Low'** adverse level of effect.
- ONL / Green Park public open space - **'Low'** adverse level of effect

NoR 9 Upgrade to Dairy Flat Highway between Dairy Flat and Albany

To address the specific construction effects within NoR 9 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Minimise footprint of construction areas to avoid intrusion into the driplines of SEAs and areas of native vegetation and open space reserve areas, including but not limited to Obrien Reserve North, Hosking Reserve, Three Streams Scenic Reserve, Pukeatua (Albany Heights) West Reserve, Lucas Esplanade Reserve and areas of native vegetation within rural zones.
- Ensure that kauri dieback protocols are implemented during construction to minimise movement of soils in and out of the site, site hygiene practices are undertaken and staff education programme to prevent the spread of kauri dieback. Individual kauri and stands of kauri are

present along the alignment, which should be protected and retained unless otherwise instructed by the arborist.

- Retain and project QEII Trust Covenant areas, Notable Trees Overlay and Groups of Notable Trees that are present at the southern end around Albany-Pukeatua (Albany Heights).
- To retain the values associated with the high rural character of this area, consider early planting of vegetation to establish screening prior to construction, which can be retained and integrated as part of the operational works or as part of long-term visual mitigation, in addition to propagation of local (ecosourced) indigenous plants as appropriate so these may be re-established as part of the planting programme during finishing works.
- Retention of established rural and roadside plantings within the designation along Dairy Flat Highway to provide screening of construction activities to minimise adverse visual and associative effects on rural-residential areas.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 9 Dairy Flat Highway Upgrade are considered to be:

Within FUZ:

- Landscape character to be '**low-moderate**' adverse level of effect.
- Natural character to be '**low-moderate**' adverse level of effect.
- Visual effects to be '**low-moderate**' adverse level of effect.

Within rural areas:

- Landscape character to be '**moderate**' adverse level of effect.
- Natural character to be '**moderate**' adverse level of effect.
- Visual effects to be '**moderate**' adverse level of effect.

NoR 10 Wainui Road Upgrade

To address the construction effects within NoR 10 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Minimise construction footprint avoid intrusion into the Waterloo Creek, Ōrewa River tributaries and other waterbodies including potential wetland areas. Retain and protect indigenous vegetation cover associated with these waterways wherever practicable, including estuarine vegetation.
- Minimise removal of existing native revegetation within the road corridor next to the Montessori school (293 Wainui Road) to maintain a visual buffer to construction activities.
- Retention of established rural and amenity plantings within the designation along Wainui Road to provide screening of construction activities to minimise adverse visual and associative effects on contemporary residential areas.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 10 Wainui Road Upgrade are considered to be:

- Landscape character to be '**low**' adverse level of effect.

- Natural character to be '**low-moderate**' adverse level of effect.
- Visual effects to be '**low**' adverse level of effect.

NoR 11 New connection from Dairy Flat Highway to Wilks Road

To address the specific construction effects within NoR 11 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Ensure that adverse visual effects on transient users of SH1 are minimised during construction through use of landscape to provide screening of construction activities, including stockpile areas and construction yards, where appropriate.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 11 New connection from Dairy Flat Highway to Wilks Road are considered to be:

- Landscape character to be '**very-low**' adverse level of effect.
- Natural character to be '**very-low**' adverse level of effect.
- Visual effects to be '**very-low**' adverse level of effect.

NoR 12 Upgrade and Extension to Bawden Road

To address the specific construction effects within NoR 12 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- Retention of established rural and amenity plantings within the designation along Bawden Road to provide screening of construction activities to minimise adverse visual and associative effects on contemporary residential areas.
- Minimise construction footprint to avoid intrusion into the Huruhuru (Dairy Stream) tributaries and other waterbodies including potential wetland areas. Retain and protect indigenous vegetation cover associated with these waterways wherever practicable.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 12 Bawden Road upgrade are considered to be:

- Landscape character to be '**low-moderate**' adverse level of effect.
- Natural character to be '**low**' adverse level of effect.
- Visual effects to be '**low-moderate**' adverse level of effect.

NoR 13 Upgrade to East Coast Road between Silverdale and Ō Mahurangi Penlink (Redvale) Interchange

To address the specific construction effects within NoR 13 the measures outlined in Section 5.2.4.1 are applicable. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- At the area south of the Worsnop Way intersection, minimise the construction footprint to avoid intrusion into the Huruhuru (Dairy Stream) headwater tributaries and other waterbodies including potential wetland areas. Retain and protect indigenous vegetation cover associated with these waterways wherever practicable.
- In the already urbanised Silverdale area, provide temporary screening during construction to manage adverse visual and associative effects on neighbouring rural-residential and business users. For example, manage programme (duration of effects) construction times (hours of effects) to minimise time and subsequent loss of visual associative amenity.
- Retention of established rural and amenity plantings within the designation along East Coast Road to provide screening of construction activities to minimise adverse visual and associative effects on contemporary residential and rural-residential areas.
- Ensure that adverse visual and associative effects on adjacent residents in the contemporary context are minimised during construction through use of landscape elements (such as fast-growing native screening planting) to provide screening of construction activities, including stockpile areas and construction yards. Where this is not practicable, consider the use of aesthetic structural screening. Particular consideration shall be given to screening of construction activities on prominent sections of ridgeline or knolls where visual and associative effects may be experienced by a wider visual catchment due to the dominance of the East Coast Road ridgeline on the horizon across a wide area.

With the implementation of these NoR-specific and the North Projects-wide recommended measures the construction effects of NoR 13 East Coast Road upgrade are considered to be:

Southern end FUZ:

- Landscape character to be '**low**' adverse level of effect.
- Natural character to be '**low**' adverse level of effect.
- Visual effects to be '**low**' adverse level of effect.

Rural zone:

- Landscape character to be '**low-moderate**' adverse level of effect.
- Natural character to be '**low-moderate**' adverse level of effect.
- Visual effects to be '**low-moderate**' adverse level of effect.

Northern end urbanised:

- Landscape character to be '**low**' adverse level of effect.
- Natural character to be '**low**' adverse level of effect.
- Visual effects to be '**low**' adverse level of effect.

5.2.5 Summary of construction effects and recommendations

The proposed designations have the potential to affect the landscape character, natural values and amenity of the North Projects environment adversely and positively. The scale⁵³ of these effects vary across the various NoRs depending on the nature and scale of construction, operational infrastructure proposed and the surrounding landscape context and receiving environment.

Without recommended measures to avoid, remedy or mitigate effects, the effects during construction in the likely future environment are considered to be as per Table 9 summary below:

Table 9 Construction effects summary – without mitigation

| NoR | 1 (RTC) | | | 2 | 3 | 4 (SH1 improvements) | | | | 5 (SH1 crossing) | 6 (New connection Milldale-Grand Drive) | | 7 (Pine Valley Road) |
|---|----------------------------|--------------------------|------------------|------------------|------------------------------|----------------------|---------------------|---|------------------|----------------------|---|--------------------------------|----------------------|
| | A South - in RUB | B Out of RUB | C North - in RUB | | | Milldale Station | Pine Valley Station | A South - in RUB | B Out of RUB | | C North - in RUB | D North - multi-mode path only | |
| Likely future environment | | | | | | | | | | | | | |
| Landscape character | M | M-H | M | M-H | L | M | M-H | M | M | L-M | M | M-H | M-H |
| Natural character | M | M-H | M | M | L | M | M-H | M | M | L-M | M | M-H | M-H |
| Visual and associative | M | M-H | M | M | L | M | M-H | M | M | L-M | M | M-H | M |
| Key: V-L ('Very Low'), L ('Low'), L-M ('Low Moderate'), M ('Moderate'), M-H ('Moderate High'), H ('High') and V-H ('Very High') | | | | | | | | | | | | | |
| NoR | 8 (Dairy Flat Highway FUZ) | | | | 9 (Dairy Flat Highway rural) | | 10 (Wainui Road) | 11 (New Connection Dairy Flat Highway – Wilks Rd) | 12 (Bawdon Road) | 13 (East Coast Road) | | | |
| | A FUZ residential | B FUZ industrial / rural | C FUZ industrial | ONL / Green Park | In RUB | Out of RUB | | | | In RUB - South | Out of RUB | In RUB - North | |
| Likely future environment | | | | | | | | | | | | | |
| Landscape character | M | M | L | M-H | M | H | M | L | M-H | M | M-H | L-M | |
| Natural character | M | M | L | M-H | M | H | M-H | L | M | L-M | M | L-M | |
| Visual and associative | M | M | L | M-H | M | H | M | L | M-H | M | M-H | M | |
| Key: V-L ('Very Low'), L ('Low'), L-M ('Low Moderate'), M ('Moderate'), M-H ('Moderate High'), H ('High') and V-H ('Very High') | | | | | | | | | | | | | |

⁵³ TTaTM 7-point scale of effects - refer Appendix B

With implementation of recommended measures to avoid, remedy or mitigate effects, the effects during construction in the likely future environment are considered to be as per Table 10 summary below:

Table 10 Construction effects summary – with implementation of recommended mitigation

| NoR | 1 (RTC) | | | 2 | 3 | 4 (SHE improvements) | | | | 5 (SHE Crossing) | 6 (New connection Milldale-Grand Drive) | | 7 (Pine Valley Road) |
|---|------------------|--------------|------------------|------------------|---------------------|-------------------------|--------------|------------------|--------------------------------|---------------------|--|------------|-------------------------|
| | A South - In RUB | B Out of RUB | C North - In RUB | Milldale station | Pine Valley Station | A South - In RUB | B Out of RUB | C North - In RUB | D North - multi-mode path only | | In RUB | Out of RUB | |
| Likely future environment | | | | | | | | | | | | | |
| Landscape character | L | L-M | L | L | V-L | L | L-M | L | L | V-L | L-M | L | L |
| Natural character | L | L-M | L | L | V-L | L | L-M | L | L | V-L | L-M | L | L |
| Visual and associative | L | L-M | L | L | V-L | L | L-M | L | L | V-L | L-M | L | L |
| Key: V-L ('Very Low'), L ('Low'), L-M ('Low Moderate'), M ('Moderate'), M-H ('Moderate High'), H ('High') and V-H (Very High) | | | | | | | | | | | | | |

| NoR | 8 (Dairy Flat Highway - FUZ) | | | | 9 (Dairy Flat Highway - rural) | | 10 (Wainui Road) | 11 (New connection Dairy Flat Highway - Wilks) | 12 (Bawden Road) | 13 (East Coast Road) | | |
|---|---------------------------------|------------------------|------------------|------------------|-----------------------------------|------------|---------------------|---|---------------------|-------------------------|------------|----------------|
| | A FUZ residential | B FUZ industrial/rural | C FUZ industrial | ONL / Green Park | In RUB | Out of RUB | | | | In RUB - South | Out of RUB | In RUB - North |
| Likely future environment | | | | | | | | | | | | |
| Landscape character | L | L | V-L | L | L-M | M | L | V-L | L-M | L | L-M | L |
| Natural character | L | L | V-L | L-M | L-M | M | L-M | V-L | L | L | L-M | L |
| Visual and associative | L | L | V-L | L | L-M | M | L | V-L | L-M | L | L-M | L |
| Key: V-L ('Very Low'), L ('Low'), L-M ('Low Moderate'), M ('Moderate'), M-H ('Moderate High'), H ('High') and V-H (Very High) | | | | | | | | | | | | |

5.3 Assessment of operational effects

The following section discusses the permanent potential landscape and natural character and visual effects which could arise during the operation of the proposed transport corridors / stations across the whole North Projects area and in specific locations relative to individual NoRs.

Effects assessment ratings are given as overall ratings for the whole designation, unless specifically broken down into sub-sections of longer routes where the nature of the surrounding land use context changes markedly along the length. There may be limited areas within a route which may be higher (or lower) that may require more specific treatment. However, it is assumed that this level of detailed response will be addressed in detailed design stage and through the ULDMP.

5.3.1 Landscape effects during operation

5.3.1.1 Common to all NORs

The following effects apply generally to NoRs across the North Projects to a greater or lesser extent. These effects are considered to be included as part of each individual NoR effects assessment. Where the designation involves the upgrade of an existing road, rather than an entire new corridor / station, effects are minimised. The context in which these Projects will happen (an urbanised landscape), along with the recommended landscape mitigation, lowers the scale of the effects. In essence, the Projects will not be out of keeping with the context they will be built in, but indeed may also contribute positively to the area with improved pedestrian and cycling environments, reduced speeds and provision of valuable green space.

Landform

The rolling sequence of hills and valleys strongly defines and divides the landscape of the North Projects area into discrete sub-catchment areas contained by larger surrounding landforms. It is anticipated that future urbanisation will be sensitive to the topography of this broader landscape, although it is recognised that earthworks will occur at a finer scale to form development platforms as part of this process. Topography around the transport corridors, intersections and urbanised areas is already highly modified with cut and fill, benching, terracing, drainage swales and retaining walls a common aspect of the existing environment.

The integration of the proposed transport corridors with future landform and development is anticipated through the proposed North Projects' conditions, particularly the ULDMP condition. There is the potential for the transport corridors to be integrated into adjacent land through naturalised contouring of cut and fill areas. However, while the proposed transport corridors will likely become incorporated into the surrounding landform as part of the urbanisation process, there is still the potential for cumulative landscape character effects to occur due to landform modifications and removal of established vegetation. This effect will be greatest at the junctions of NoRs and in rural environments.

While the majority of the proposed designations avoid highly prominent spurs and ridgelines, portions of some proposed designations follow locally distinctive ridgelines, for example NoR 12 Bawden Road Upgrade and NoR 13 East Coast Road Upgrade. Some designations also cross elevated landforms, particularly NoR 1 RTC, NoR 4 SH 1 Improvements, NoR 6 New Connection from Milldale-Grand Drive, NoR 12 Bawden Road Upgrade and NoR 13 East Coast Road upgrade.

Where proposed designations are for upgrades to existing road corridors, or sit within rural landscapes, natural topography has already been altered to construct the road and improve productive land. Further landform modification is assumed to occur as part of future urbanisation within FUZ areas. It is within this context that the detailed design of the proposed transport corridors within the designations will need to tie in to ensure that the finished contours and land modifications are integrated with the contemporary receiving environment.

In instances where the designations cross elevated landforms, substantial areas of cut and fill are likely to be required, for example the knoll of Bawden Road at the Top Road intersection. Large scale retaining structures may also be required, particularly where the corridors come into proximity to protected features such as SEAs. Modification of landforms has a direct effect on ground and surface water movement patterns, thus impacting moisture levels in the soil. Areas of mature native bush have specific natural tolerance to ground water conditions. Landscape effects of Projects could result within areas of vegetation immediately outside the designation. It is recommended that the ULDMP considers the proximity of protected vegetation in the final detailed design, with particular regard to this potential effect.

The nature of the proposed transport corridor earthworks will result in changes to the landform, particularly where parts of the North Projects are located across elevated sections of the landscape, through areas with weak ground conditions or where valleys are crossed. These landform changes will occur cumulatively with any landform modifications undertaken as part of the urbanisation process. Views of the proposed transport corridors will vary throughout the North Projects area, depending on localised topography (refer **Appendix A Topographical Map**).

Vegetation

Indigenous vegetation is an attribute of the North Projects landscape which contributes to the landscape, natural and rural character of the area. The association of water bodies and established vegetation gives a coherence to the landscape and contributes to the visual amenity of the natural landscape. The proposed transport corridors will result in the permanent occupation of existing vegetated areas, including mature indigenous species. It is anticipated that the proposed designations will also cross several sections of SEA. Where riparian vegetation is affected, it is likely that there will also be effects on natural character values which are outlined in Section 4.3.3 Natural Character and Natural Heritage.

However, the alignment of the proposed designations has sought to avoid (where practicable) and then minimise effects on these areas, as well as avoiding intrusion into QEII covenant areas. Several SEAs and QEII areas are located within or adjacent to the North Projects and are assumed to remain as part of FUZ. Any potential effects on these vegetation areas, either directly or because of wider changes need to be carefully considered, noting that option selection and designation routes have sought to avoid and minimise effects so that no QEII areas are directly affected, and most SEAs are avoided. It is also anticipated that some indigenous vegetation outside of identified SEAs will be removed as part of the proposed works. Ecological effects are discussed in detail in the Assessment of Ecological Effects.

The interplay of natural and cultured landscape patterns is another defining feature of the North Projects area. Mature exotic vegetation including roadside vegetation, hedge rows and shelter belts, stock shade trees and garden planting within private properties contributes to the rural character of the area. Within FUZ areas and subsequent transition to an urban state, it is anticipated that these vegetation patterns in the area will change significantly.

Within some designations areas there is opportunity to retain mature vegetation to integrate with new planting to provide scale to the new infrastructure, assist with landscape connectivity and integration with the surrounding context, provide ecosystem services and maintain landscape character, particularly in those designations which will act as the defining edge between rural and urban⁵⁴, or portions which are wholly within rural land⁵⁵.

The presence of invasive pest plants and weed species are an existing issue throughout the North Projects area, which create a risk to the successful establishment and long-term health of any future mitigation planting associated with the Projects. There is significant opportunity to undertake ongoing weed and animal pest control within the designation areas through operational maintenance regimes. This would have a positive effect on quality and health of vegetation and native biodiversity across the transport network and the wider environment.

Through the proposed ULDMP process (as provided in the proposed conditions), the North Projects provide the opportunity to develop a coordinated landscape approach across the full extent of the NoR corridors, which promotes a context responsive design approach that confers an array of positive effects. There is potential through the proposed ULDMP condition to develop a context-responsive vegetation network at a broad landscape scale, which is integrated with active mode transport and restores landscape connectivity across green-blue networks for enhanced recreational and ecological benefits. There is significant opportunity within the proposed designations to link to the restoration of broader natural systems and processes in line with wider objectives of future urbanisation⁵⁶ and to create a high-quality built environment, where landscape values are maintained and enhanced.

Rural Character

Areas of the North Projects will remain rural, and as such, will retain rural landscape characteristics. These areas are predominantly at the southern extent of the North Projects area, as well as smaller interfacing areas west of Dairy Flat Highway and Upper Ōrewa Road, and east of SH 1 and East Coast Road.

In some localised instances the proposed designations interface with rural areas which may result in rural lots sizes being reduced, diminishing the buffer between rural-residential dwellings and the transport corridor. There may also be a loss in established planting, shelterbelts and trees which contribute to the rural character of these landscapes, along with a potential associated loss in visual screening.

The potential for loss in rural character can be minimised through the retention and integration of established rural and riparian vegetation, optimising views out over the wider rural landscape (particularly to landscape features such as waterbodies and areas of indigenous vegetation) and the revocation of surplus designation areas outside of the operational footprint back to productive land.

Where the North Projects are implemented within rural areas or FUZ near the RUB, there is opportunity for some rural landscape characteristics to be retained to reinforce the edge of urban development, as discussed in the 'Vegetation' paragraph above. There is also potential to retain broader views from transport corridors to the surrounding rural environment and associated quality of spaciousness, along with the retention of the natural features (including waterbodies and riparian vegetation), to provide visual amenity and ecological benefits. It is anticipated that areas of native

⁵⁴ NoR 6 Milldale-Grand NoR 8 Dairy Flat Highway Silverdale-Dairy Flat, NoR 13 East Coast Road,

⁵⁵ NoR 1 RTC, NoR 4 SH 1 Improvements, NoR 9 Dairy Flat Highway Dairy Flat-Silverdale

⁵⁶ Refer also to Appendix C Diagram Illustrating NPS: UD, MDRS, PC78 and Silverdale West / Dairy Flat Industrial Structure Plan

vegetation which provide ecological benefits, around waterways and connect to the cultural heritage extent of place will also be retained, maintaining a rural character to the peri-urban landscape.

There is also the potential for positive effects through the protection and framing of views which connect with the wider rural landscape beyond the FUZ, integrated with lookout areas which contribute to enhanced amenity and experience for corridor users. In the detailed design of the transport corridors, there is opportunity to reflect and reinforce rural character through hard landscape material selection and fencing, for example post and rail or post and wire fencing.

Protected landscape features

There is opportunity for enhancement and further protection of SEAs, heritage landscape features and an ONL identified within the proposed North Project corridors. While the operational footprint of the proposed designations may impact on these features, there is also opportunity to improve the ongoing maintenance and enhancement of these areas by bringing them into public ownership. For example, areas of private land currently alongside SH 1 that is currently too steep to access and covered in weeds will become part of the proposed designation, where there is opportunity to undertake weed control and revegetate with native plant species. The operational effects on these landscape features are discussed in Section 5.3.1.2 Specific NoR sections below.

5.3.1.2 Specific NoRs

NoR 1 New Rapid Transit Corridor

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 1 operational landscape effects include:

- The operational effects on landscape character from Oteha Valley Rd to Bawden Road will be cumulative with NoR 4 SH 1 Improvements. The presence of the current SH 1 corridor already reduces the quality of rural landscape character, which will be further reduced with the introduction of new urban features in the RTC.
- Considerable areas of landform modification in SEA or rural areas will be initially prominent in the early operational phase due to construction earthworks and vegetation removal, receding over time as groundcover re-establishes.
- At future regional consenting stages, consider opportunities for consolidation of fragmented areas of native vegetation through mass planting of ecologically appropriate native plant species within the designation where the proposed designation interfaces with SEAs.
- In the FUZ areas, the operational effects will be in the context of an urbanised landscape, so is anticipated to be integrated in this environment. There is opportunity for the RTC to reflect the landscape character of the emergent contemporary environment through the future detailed design stages and preparation of the proposed ULDMP.
- The rural property at 1 Wilson Road will experience high adverse visual and associative effects, as the proposed designation will sever this rural property from the main rural zone to the south. Combined with significant reduction in property size as a result of NoR 4 SH 1 Improvements, there will also be a significant adverse effect on the rural character of this property. However, it is acknowledged that the rural character of this property is already low due to the presence of SH 1.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 1 (New Rapid Transit Corridor) are considered to be:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: **'Moderate'** adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: **'Moderate-High'** adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: **'Moderate'** adverse level of effect.

NoR 2 New Milldale Station and associated facilities

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 2 operational landscape effects include:

- The operational effects will be in the context of the Milldale residential area, Kathy's Thicket, SH 1 and Highgate industrial area opposite, which are all existing features. While the proposed station will be consistent with the urban landscape character of SH 1, Highgate and proposed Milldale-Highgate bridge, there is potential for the proposed station to adversely influence the residential landscape character due to scale and nature of the infrastructure. There is opportunity to reflect the landscape character to integrate the facility into this environment. through the future detailed design stages and preparation of the proposed ULDMP.
- There is the potential for adverse effects on the landscape character of Kathy's Thicket SEA and associated QEII covenanted area due to the close proximity of the proposed station influencing natural processes.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 2 (New Milldale Station) are considered to have a **'Moderate'** adverse level of effect.

NoR 3 New Pine Valley East Station and associated facilities

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 3 operational landscape effects include:

- The operational effects will be in the context of an urbanised (high density residential and industrial⁵⁷) landscape, so the proposed station is anticipated to be integrated in this environment. There is opportunity to reflect the landscape character of the emergent contemporary environment through the future detailed design stages and preparation of the proposed ULDMP.
- Due to the loss of vegetation, associated landscape and rural character values will reduce when the proposed station is operational. However, the operational effects will be in the context of an urbanised landscape, so is anticipated to be integrated in this environment. There is opportunity

⁵⁷ as indicated in Draft Dairy Flat Strategy Spatial Land Use Strategy, 2023

for the proposed station to reflect the landscape character of the emergent contemporary environment through the detailed design stages and preparation of the proposed ULDMP.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character NoR 3 New Pine Valley East Station are considered to have a '**Low**' adverse level of effect.

NoR 4 SH1 Improvements

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 4 operational landscape effects include:

- Benching, terracing and retaining walls are common features of land in urbanised areas along the existing SH 1 corridor. Several active mode bridges across SH1 are proposed within this NoR, most which are located within the existing designation. In the context of FUZ the proposed designation extension will be less prominent in anticipation of a more complex receiving environment.
- Considerable areas of landform modification in SEA or rural areas will be initially prominent in the early operational phase due to construction earthworks and vegetation removal, receding over time as groundcover re-establishes.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 4 SH1 Improvements are considered to be:

- Section A: Albany to Lonely Track Road to be '**Moderate**' adverse level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be '**Moderate – High**' adverse level of effect.
- Section C: North from the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale to be '**Moderate**' adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be '**Moderate**' adverse level of effect.

NoR 5 New SH1 crossing at Dairy Stream

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 5 operational landscape effects include:

- Modification of the landform to enable the bridge crossing over SH 1, with potential fill embankments at the bridge approaches. This includes potential placement of fill formations crossing over Huruhuru (Dairy Stream) and piping of the stream.
- Placement of vertical roading structures and bridge infrastructure such as lighting, signage and structural elements associated with the crossing such as bridge abutments will likely be noticeable elements in the landscape.

- The operational effects will be in the context of an urbanised landscape, so is anticipated to be integrated in this environment. There is opportunity for the proposed bridge to reflect the landscape character of the emergent contemporary environment through the detail design stages of the proposed ULDMP.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 5 Dairy Stream Crossing are considered to have a **'Low-Moderate'** adverse level of effect.

NoR 6 New Connection between Milldale and Grand Drive

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 6 operational landscape effects include:

- The proposed designation will result in the upgrading, widening and extension of an existing road in Milldale, which is anticipated to result in landform and waterway modification and vegetation removal in FUZ and a small section of rural edge.
- As the designation partially involves the upgrade of an existing road, rather than an entire new road, effects are minimised. A transport corridor is an existing feature element, including two intersections at Wainui Road and Russell Road. The proposed designation is also anticipated to interface with residential land use in the future as the FUZ becomes urbanised. The proposed NoR 6 corridor will be consistent with this anticipated urban character.
- While the proposed designation corridor avoids prominent spurs and ridgelines, some elevated landforms and valleys are traversed, and large areas of cut and fill are anticipated due to the undulating topography of the NoR 6 landscape. There is the potential for this to result in rural character effects in the rural zone to the west of the corridor due the presence of a new transport corridor on elevated landforms, and changes in the topography.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 6 New Connection between Milldale and Grand Drive are considered to have a **'Moderate-High'** adverse level of effect in the small section of rural edge and **'Moderate'** adverse effect in FUZ.

NoR 7 Upgrade to Pine Valley Road

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 7 operational landscape effects include:

- The proposed designation will result in the upgrading, widening and extension of an existing road, which is anticipated to result in landform and waterway modification and vegetation removal. This section is entirely in FUZ, apart from the western-most end where it meets the RUB.
- While the landscape character will be more urban at the time of implementation of the project, this NoR may adversely affect rural landscape character where it adjoins rural properties, including

346, 299, and 158 Pine Valley Road, where removal of roadside vegetation and formalised roading features will change the landscape character.

- At Young Access Road intersection, adverse landscape effects on the SEA are anticipated due to the proximity of operational infrastructure to the native vegetation. The SEA will remain protected, however there may be edge effects from the change in adjacent environment.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 7 Upgrade to Pine Valley Road are considered to have a '**Moderate-High**' adverse level of effect.

NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 8 operational landscape effects include:

- There is potential for adverse effects on the landscape character within the ONL at Green Park due to the presence of new operational transport features. While the landscape character of this portion of the ONL is already modified and sits within FUZ land, there is potential for further reduction of landscape character values due to the roading elements coming closer to the higher value ONL features. This is also in the context of potential future development of surrounding FUZ land.
- NoR 8 is adjacent to several sections of countryside which will remain rural zoned, so the proposed transport corridor will function as the defining boundary between rural and urban. These areas are valued for their rural character including rural roads, farm buildings and yards, fence lines, exotic trees (either in lines or scattered in paddocks), stock, water tanks, and minimal structures. Within rural zones, it is assumed that rural vegetation patterns will remain and will be typified by shelter belts and combinations of exotic and indigenous planting.
- While the works are an upgrade to an existing road and low modification to the existing landform is likely, the operational transport corridor will have landscape character effects when placed in the context of a rural receiving environment. The transport corridor itself will become the defining edge to rural and urban land uses.
- In the built up Dairy Flat village area at the turnoff with Kahikatea Flat Road, the upgrade to Dairy Flat Highway will coincide with NoR11 (New connection from Dairy Flat Highway to Wilks Road). This will occur in the context of Business - Light Industrial zone (on the west side of Dairy Flat Highway) and FUZ (indicated in the structure plan also as Business - Light Industrial on the east side of Dairy Flat Highway). The proposed intersection is anticipated to be consistent with the urban landscape character of the future environment.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual construction effects for NoR 8 Dairy Flat Highway Upgrade are considered to be NoR 8 (Dairy Flat Highway upgrade – Silverdale to Dairy Flat) are considered to have:

- Section A - FUZ residential - '**Moderate**' adverse level of effect.

- Section B - FUZ industrial to the east /and rural to the west - '**Moderate**' adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west- '**Low**' adverse level of effect.
- ONL / Green Park public open space '**Moderate-High**' adverse level of effect.

NoR 9 Upgrade to Dairy Flat Highway between Dairy Flat and Albany

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 9 operational landscape effects include:

- While the proposed designation is an upgrade to an existing road, for the most part the surrounding area will remain in rural countryside living zone, with considerable areas of wetland, SEA and reserve land adjacent, as well as identified native vegetation. As such, it will be highly sensitive to landscape character effects from operational road features (for example, structures, lighting and signage) and activity especially due to permanent landform modification and removal of mature vegetation.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 9 (Dairy Flat Highway Upgrade) are considered have a '**High**' adverse level of effect in rural areas and '**Moderate**' adverse effect in FUZ.

NoR 10 Upgrade to Wainui Road

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 10 operational landscape effects include:

- As the designation involves the upgrade of an existing road, rather than an entire new road, landscape character effects are minimised. A transport corridor is an existing feature element, including two intersections at Upper Ōrewa Road and Lysnar Road. The proposed designation is also anticipated to interface with residential land use in the future as the FUZ becomes urbanised. The operational transport corridor will be consistent with this anticipated urban character.
- Two stormwater constructed wetlands are proposed near the crossing, along the southern extent of the corridor. This has potential to adversely affect the landscape character and natural character of the Ōrewa River due to the increased dominance of built infrastructure in the natural environment.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 10 (Wainui Road Upgrade) are considered to have a '**Moderate**' adverse level of effect.

NoR 11 New connection from Dairy Flat Highway to Wilks Road

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 11 operational landscape effects include:

- The proposed designation sits wholly within FUZ, within the proposed Silverdale West Industrial area. The anticipated landscape character will be dominated by the adjacent light and heavy industrial land use. Combined with the presence of North Shore Airport, the anticipated operational landscape effects of the proposed transport route will be consistent with this receiving environment.
- Natural features in the landscape include a tributary of the Rangitopuni Stream. The stream is located west of Postman Rd and crossed by the corridor, with a potential loss in landscape and natural character values resulting from the removal of vegetation, alteration of the natural stream alignment and / or profile where it is modified by road features. There may also be a loss in area of a modified wetland located between Dairy Flat Highway and Lascelles Drive.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 11 (New connection from Dairy Flat Highway to Wilks Road) are considered to have a **‘Low’** adverse level of effect.

NoR 12 Upgrade and Extension to Bawden Road

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 12 operational landscape effects include:

- As the designation involves the upgrade of an existing road, rather than an entire new road, operational landscape character effects are minimised. A transport corridor is an existing feature element, including intersections at Huruhuru (Dairy Stream) Road, Grace Hill Drive, Oregon Park, Top Rod, and Wilson Road.
- The proposed designation is also anticipated to interface with residential land use in the future as the FUZ becomes urbanised, including the proposed new location for Dairy Flat Town Centre. Between the intersection with Dairy Flat Highway (NoR 8), and southwest to Green Road Park (NoR 12), higher density residential development is anticipated to be concentrated around this new town centre. Bawden Road intersects with the RTC (NoR 1) west of Huruhuru (Dairy Stream) Road, where it is likely the road will go under the RTC (in the form of a grade separated crossing) near this area.⁵⁸ The operational transport corridor will be consistent with this anticipated urban character.
- Effects to vegetative cover include the localised removal of established roadside plantings along Bawden Rd, Oregon Park, Bobs Way, Top Rd and Follies Way, which contribute to landscape character and ecological values. Exotic shelter belt plantings associated with rural pastoral land

⁵⁸ This Design is subject to change for section of corridor past the RTC station near Bawden Road. The carriageway may drop to two lanes west of the station if buses are diverted through the station and town centre.

use, residential plantings and scattered exotic tree planting within paddocks currently contribute to the rural landscape character. While the rural character of the landscape will change as part of FUZ, it is possible that some healthy established vegetation may be retained where possible, in line with urban design principles for the development of high-quality urban environments. Further to this there is potential to extend existing areas of riparian vegetation associated with the waterways to enhance wetland biodiversity and extend vegetation into floodplain areas.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 12 (Bawden Road) are considered have a **'Moderate'** adverse level of effect.

NoR 13 Upgrade to East Coast Road between Silverdale and Ō Mahurangi Penlink (Redvale) Interchange

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. In addition to the effects summarised in Section 5.3.1.1, specific to NoR 13 operational landscape effects include:

- As the designation involves the upgrade of an existing road, rather than an entire new road, landscape character effects are minimised. A transport corridor is an existing feature element, including multiple intersections to rural roads. Parts of the proposed designation are also anticipated to interface with residential land use in the future as the FUZ becomes urbanised. The operational transport corridor will be consistent with this anticipated urban character.
- In the northern end of NoR 13 at Silverdale, the presence of existing urban development and dominant road corridor are anticipated to lessen the magnitude of adverse landscape character effects within this complex receiving environment.
- Rural character will be maintained in several areas of this NoR with the retention of the Rural Countryside Living zone. Loss of roadside vegetation along this section of NoR will lead to a loss in rural character.
- The most significant area of landform modification identified is located north of Spur Road to the west side of East Coast Road. While this will occur within the context of the FUZ where considerable landform modification may already have occurred as part of residential development, as it is on a spur, this change in topography may be significant if residential development has not occurred.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on landscape character for NoR 13 (East Coast Road upgrade) are considered to have a **'Moderate'** adverse level of effect in the southern end FUZ, **'Moderate-High'** adverse level of effect in the rural areas and **'Moderate'** adverse level of effect in the urbanised north end.

5.3.2 Natural Character effects during operation

5.3.2.1 Common to all NORs

The following effects apply generally to NoRs across the North Projects to a greater or lesser extent. These effects are considered included as part of each individual NoR effects assessment. It is noted that the proposed designations do not authorise any loss of wetland or stream modification. If any water body is to be impacted, then it will be subject to a future regional consenting process. Works within waterbodies will be the subject of future regional consenting.

Potential effects on natural character associated with waterbodies and riparian/ wetland vegetation

While the designation routes have sought to avoid waterways as much as practicable, due to the extensive network of waterways and wetlands within the North Projects area, permanent modification of some waterbodies is unavoidable, which will affect natural character. These effects are most likely to occur due to modification of natural overland flow paths, fill / culverts over streams and wetlands, bridge piers (if these are in waterways or wetland beds), and the removal of riparian vegetation. Loss of natural character may occur through loss of vegetation, re-direction via culverts changing appearance and impacting negatively on ecological value. Conversely, there is also potential within the designations for restoration of river, stream or wetland areas that will lead to improved natural character of those areas. It is assumed the piers will avoid waterways and future design will look at design measures to avoid, minimise or mitigate effects on waterways and wetlands which will be subject to a future consenting process.

Effects on natural character are also tied to stormwater management. An increase in impervious surfaces has the potential to create contaminated road run-off, as well as reduce water infiltration and aquifer recharge. In turn, this potentially alters ground water movement and levels which affects the health of vegetation. The proposed designation boundaries have allowed space for stormwater treatment wetlands and swales to address issues of run-off treatment and management. As proposed in the indicative designs, the location of proposed stormwater wetlands near natural wetlands has been minimised.

There is potential for positive effects to be achieved where stormwater wetlands become attractive focal points through considered planting and wetland construction. Restoration planting and pest management along rivers and waterways can provide remediation for the potential loss in natural character areas. There is also scope for riparian areas and stormwater wetlands to be integrated with proposed active transport routes and to connect with wildlife corridors in the wider landscape.

The waterbodies within the North Projects area have considerable cultural association as well as contributing to landscape character and visual amenity values. The health of these features is directly affected by the health of the tributaries spread throughout the wider landscape. Additionally, they have an important hydrological function and provide ecosystem services which can potentially be disrupted by operational transport corridor features.

A key feature of this landscape is the relationship between vegetation patterns and fluvial systems characterising this landscape, including streams, wetland and floodplain areas, which contribute to the natural values of this landscape. This network of vegetated waterways and valleys make legible the fluvial patterns and processes in the landscape and provide a natural counterpoint to the built environment. The retention and protection of the natural character and ecological values of

waterbodies is anticipated as part of FUZ development. Of note are potential effects on the natural character values associated with the river valleys, including those of the Ōrewa and Wēiti Rivers. Significant adverse effects have been largely avoided through route optioneering and design, and the active mode bridge along SH1 that crosses the CMA at Ōrewa River will be subject to separate regional consents. The presence of native vegetation often found in association with these waterways (along with other streams, floodplain and wetland areas), contributes to the natural attributes of these fluvial landscapes.

Other areas of native vegetation which contribute to natural character within the North Projects area are predominately concentrated around Pukeatua (Albany Heights) into the Ōkura River valley and Waiokahukura (Lucas Creek) catchments. These networks of vegetated waterways and valleys make legible the fluvial patterns and processes in the landscape, providing a natural counterpoint to urbanisation, including roading infrastructure. Within the operational footprints of the designations, there will potentially be instances where there will be a further reduction natural character due to the transport corridors further extending into these environments.

Despite the fact that natural character values have already been degraded due to prior modification, it is anticipated that within FUZ areas there will be a level of protection around high value hydrological systems and associated vegetation in accordance with the ecological and cultural values, as well as flood resilience. This is evident in the Silverdale West Structure Plan where built and natural systems are integrated, allowing opportunity for enhanced natural character despite a highly urbanised context.

5.3.2.2 Specific NoRs

NoR 1 New Rapid Transit Corridor (Albany to Milldale)

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 1:

- The RTC commences at Albany bus station then crosses Waiokahukura (Lucas Creek) and the adjacent SEA by bridge. It is noted that while the proposed NoR 1 RTC designation overlaps the existing SH 1 designation for much of this area it encroaches on identified riparian environments, potentially creating operational effects on natural character due to closer proximity to the natural environment.
- Through Pukeatua (Albany Heights), NoR 1 runs west of the existing SH1 corridor, largely within the existing SH 1 designation, which crosses SEAs and waterways. Areas of fill / retaining over waterways are indicated in the current proposed drawings at CH 2500, 2800, 3000, 3250, 3650, and 3900. This will have adverse natural character effects.
- A new crossing is indicated over Ōkura Creek which reduces vegetation in the riparian area compared to the pre-project situation. This adverse effect on natural character would be intensified by the presence of the additional multi-mode crossing as part of NoR 4 (SH 1 Improvements). Loss of vegetation cover is a regional consenting matter that will be addressed at future consenting stages, if required.
- Between CH 4200- CH 5300 land modification is indicated in the currently proposed drawings around Ōkura Creek and its tributaries. This includes incursion into an area of SEA associated with a tributary, which would require vegetation removal, having adverse effects on natural character.

- In the section between Bawden Road and Dairy Flat Highway, the proposed RTC designation crosses a tributary of the Rangitopuni Stream via a bridge. This may require stream realignment, fill in existing waterways and disruption of the associated floodplain. However, the natural character of this waterway is already low due to modification associated with farming practices.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 1 (New Rapid Transit Corridor) are considered to be:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: **'Moderate'** adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: **'Moderate-High'** adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: **'Moderate'** adverse level of effect.

NoR 2 New Milldale Station and associated facilities

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 2:

- The Kathy's Thicket and Wēiti Stream QEII covenanted area is located immediately adjacent to the south of the proposed Milldale Station. Although the NoR avoids directly encroaching on the waterway, there is the potential for natural character effects resulting from permanent changes in overland flow paths and ground water adversely affecting the health of vegetation within the stream environment.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 2 (New Rapid Transit Corridor) are considered to have a **'Moderate'** adverse level of effect.

NoR 3 New Pine Valley East Station and associated facilities

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 3:

- A tributary of the Wēiti Stream is located to the north of the NoR station and a potential wetland area immediately to south. Although the NoR directly avoids the waterbodies, there is the potential risk for natural character effects resulting from permanent changes in overland flow paths and ground water adversely affecting the health of vegetation within the stream environment.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character NoR 3 New Pine Valley East Station are considered to have a **'Low'** adverse level of effect.

NoR 4 SH1 Improvements

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 4:

- It is acknowledged that there are existing SH1 designations and much of the proposed design falls within that footprint. The proposed operational footprint commences at Albany then crosses Waiokahukura (Lucas Creek) with an active mode bridge. It is noted that while the transport corridor is within existing SH 1 designation for much of this area, it is in combination with the effects of NoR 1 RTC and the potential adverse effects on natural character due to greater urbanisation of the natural riparian environment.
- Through Pukeatua (Albany Heights), the SH1 improvements for NoR 4 run east of the existing SH1 corridor. Areas of fill / retaining over waterways are indicated in the current proposed drawings which will further reduce already degraded natural character of waterways.
- A new crossing is indicated over Ōkura Creek which reduces vegetation in the riparian area compared to the pre-project situation. This adverse effect on natural character would be intensified by the presence of the additional crossing as part of NoR 1 (RTC). Loss of vegetation cover is a regional consenting matter that will be addressed at future consenting stages, if required.
- In the areas where other NoRs are adjacent or intersect with NoR 4, natural character effects to a series of tributaries of the same waterway may cause cumulative effects across a sub-catchment.
- Development around the Ōrewa River (for the SH1 walking and cycling path) may cause natural character effects through fill over water features, diversions, or specific structures such as bridges. The proposed bridge structure is for the purpose of active mode transport, located next to the existing motorway bridge. Works in this area are within the existing SH1 designation, and it is anticipated that future regional consenting processes will address effects on the waterway as part of a separate process.
- The rural character of the property at 1 Wilson Road will be further diminished, as the proposed designation will sever this rural property from the main rural zone to the south. Combined with significant reduction in property size as a result of NoR 4 SH 1 Improvements, there will also be a significant adverse effect on the rural character of this property. It is acknowledged that the rural character of this property is already low due to the influential presence of SH 1 to the east.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 4 SH1 Improvements are considered to be:

- Section A: Albany to Lonely Track Road to be **'Moderate'** adverse level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be **'Moderate – High'** adverse level of effect.
- Section C: North from the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale to be **'Moderate'** adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be **'Moderate'** adverse level of effect.

NoR 5 New SH1 crossing at Dairy Stream

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 5:

- Huruhuru (Dairy Stream) is crossed by the NoR corridor north of Top Road. There are several potential wetland areas in the wider vicinity, with the NoR potentially extending into one of these areas at the northeastern extent of the corridor. The water bodies within this area are already modified due to the presence of SH 1 and farming practices, which has reduced the natural character. There is the potential for adverse effects resulting from a further loss in natural character from the piping of waterways, potential permanent changes in water level of the wetland environments and vegetation removal.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 5 New SH1 Crossing at Dairy Stream are considered to have a **'Low-Moderate'** adverse level of effect.

NoR 6 New Connection between Milldale and Grand Drive

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 6:

- It is anticipated that natural character will be adversely affected by the modification of waterways and wetlands which includes a potential crossing of the Upper Ōrewa River tributaries, with the potential permanent diversion and culverting of streams through areas of fill, and the removal of riparian vegetation.
- In the current design proposal, there are currently two bridge crossings proposed along the NoR 6 corridor, one over the Upper Ōrewa River and another of an unnamed tributary. The transport corridor also crosses several other waterways and potential wetland areas identified in the 'Assessment of Ecological Effects'. In future design stages it is possible that retaining structures may also potentially be used in this vicinity to reduce the corridor footprint into waterbodies. This may have adverse natural character effects by introducing permanent built structures within the riparian environment.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 6 (New Connection between Milldale and Grand Drive) are considered to have a **'Moderate-High'** adverse level of effect. In the short rural section along Upper Ōrewa Road and **'Moderate'** adverse level of effect in the remaining FUZ sections.

NoR 7 Upgrade to Pine Valley Road

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 7:

- While the landscape is already and is anticipated to be further modified with future urbanisation, the NoR features an existing environment based around Wēiti Stream, with associated vegetation and floodplain and wetland areas. The combinations of these hydrological systems present in this landscape contribute to a high level of natural character, particularly around the Young Access Road SEA. Potential adverse natural character effects could result from permanent changes in surrounding overland flow paths and groundwater levels affecting vegetation health.
- Modification of other natural hydrological patterns is evident, where farming practices have shaped the natural watercourses for drainage. The majority of these riparian corridors are either vegetated with grass or weedy, or in places vegetated with exotic bank stabilising species (many weedy themselves) though some retain native riparian vegetation. There is potential for improvement and enhancement of the natural character values thorough ongoing weed removal and pest animal control.
- There will likely be adverse effects on natural character values due to the removal of established vegetation along waterways within the NoR. This will be in the context of a future urban environment (except for the western-most end of the proposed designation). However, it is anticipated that riparian vegetation surrounding waterways, and the associated natural character, would remain present in this context.
- There are several wetland areas in the wider vicinity, with the NoR potentially extending into one area near the SEA. There is the potential for natural character effects resulting in permanent reduction in the wetland area and long-term changes in hydrology impacting the health of riparian and wetland vegetation.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 7 Upgrade to Pine Valley Road are considered to have a ‘**Moderate-High**’ adverse level of effect.

NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR8:

- There is potential for adverse effects on the natural character within the ONL at Green Park due to the presence of new operational transport features within the wetland and riparian environment. While the natural character of this portion of the ONL is already highly modified with the presence of roading features including a bridge, and the ONL is within FUZ land so urban development is anticipated in the area, there is potential for further reduction of natural character values due to the proposed transport route features further modifying the natural water course. It is acknowledged that the waterway crossing here is proposed to be bridged, which is anticipated to minimise modification of the water course.
- Multiple crossings of tributaries of Huruhuru (Dairy Stream) are proposed, which may have associated natural character effects. It is noted in four of these proposed crossings the existing culvert will be upgraded to a bridge to improve flood resilience. This also provides an opportunity to restore a natural stream profile and stream bed, with associated riparian restoration.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 8 (Dairy Flat Highway Upgrade) are considered to have:

- Section A - FUZ residential - **'Moderate-High'** adverse level of effect.
- Section B - FUZ industrial to the east /and rural to the west - **'Moderate-High'** adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west- **'Low-Moderate'** adverse level of effect.
- ONL / Green Park public open space - **'High'** adverse level of effect.

NoR 9 Upgrade to Dairy Flat Highway between Dairy Flat and Albany

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 9:

- There is the potential for adverse natural character effects resulting in the permanent reduction of small areas of some natural wetland and long-term changes in hydrology impacting the health of riparian and wetland vegetation. In the currently proposed design, large areas of vegetation removal and land modification is indicated within SEAs, all of which are associated with waterways.
- Due to the rural land use context and extensive SEAs, large scale modification of surrounding natural waterways and wetlands is not anticipated as it would be in FUZ areas. Wetlands areas have largely been avoided in the proposed designation alignment.

Nature and magnitude of effects

The proposed designation has the potential to affect the landscape character of the adjacent area during operation. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 9 (Dairy Flat Highway Upgrade) are considered to have a **'High'** adverse level of effect in the rural area and **'Moderate'** adverse level of effect in the FUZ section.

NoR 10 Upgrade to Wainui Road

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 10:

- While this is an existing road corridor, the wider landscape of NoR 10 features an existing environment based around the Ōrewa River valley and Waterloo Creek (a tributary of the Ōrewa River) with associated vegetation, floodplain and wetland areas. This combination of hydrological systems contributes to a high level of natural character. Mangrove forest and indigenous estuarine vegetation are associated with riparian areas in this landscape, with the potential for the removal of indigenous riparian vegetation associated with the upgraded crossing of Waterloo Creek and a reduction in natural character values. Changes in surrounding overland flow paths and groundwater could also potentially effect vegetation health surrounding waterways.

Nature and magnitude of effects

The proposed designation has the potential to affect the natural character of the adjacent area during operation. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 10 (Wainui Road Upgrade) are considered to have a **'Moderate'** adverse level of effect.

NoR 11 New connection from Dairy Flat Highway to Wilks Road

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 11:

- Due to the permanent operational footprint of the proposed transport corridor, there may be a reduction in size of a potential wetland area located between Dairy Flat Highway and Lascelles Dr, along with changes in surrounding overland flow paths and groundwater affecting the health of natural wetland vegetation. A watercourse located to the west of Postman Road and crossed by the corridor on fill may also potentially be affected. There is potential for adverse natural character effects to result from the further changes to the natural alignment and / or channelling of the watercourse.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 11 (New connection from Dairy Flat Highway to Wilks Road) are considered to have a **'Low'** adverse level of effect.

NoR 12 Upgrade and Extension to Bawden Road

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 12:

- There are several potential wetland areas and streams (tributaries of Huruhuru (Dairy Stream)) in the wider vicinity, with the operational footprint of the proposed NoR corridor extending into or crossing these at a number of locations. There is the potential for natural character effects resulting from a reduction in the size of potential wetland areas, removal of any riparian vegetation present, changes to the natural alignment and / or channelling of waterways, and changes in hydrology impacting any riparian and wetland vegetation.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 12 (Bawden Road) are considered to have a **'Moderate'** adverse level of effect.

NoR 13 Upgrade to East Coast Road between Silverdale and Ō Mahurangi Penlink (Redvale) Interchange

As outlined in Section 5.3.2.1, a series of operational natural character effects will be common to all NoRs. With respect to NoR 13:

- At the proposed intersection with Worsnop Way, the proposed operational footprint within a riparian and flood plain area will have adverse natural character effects on already modified water

bodies. The waterway to the south of proposed Worsnop Way intersection is proposed to be bridged in the current design. This provides an opportunity to improve the natural character of this water way, as it currently passes under East Coast Road in a culvert.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, operational effects on natural character for NoR 13 (East Coast Road upgrade) are considered to have a '**Low-Moderate**' adverse level of effect in the southern end FUZ, '**Moderate**' adverse level of effect in the rural areas and '**Low-Moderate**' adverse level of effect in the urbanised north end.

5.3.3 Visual and associative effects during operation

5.3.3.1 Common to all NORs

The following effects apply generally to NoRs across the North Projects to a greater or lesser extent. These effects are considered included as part of each individual NoR effects assessment.

Visual Amenity

Given the undulating landscape formation of the North Projects area, with numerous sub-catchment valleys contained by hills and ridges, the perceptual effects of individual designations or portions of individual designations will likely be contained within a relatively localised area. However, there will likely be segmented, distant views of the NoRs from surrounding rural areas and elevated vantage points in the wider landscape. This will largely be dependent on the nature and scale of land modification required to create development platforms within the FUZ, which will change the intervening foreground or backdrop to these views.

A number of proposed designations are implemented in, or interface with rural areas (including portions of NoR 7, NoR 8, NoR 10 and NoR 13) and in some instances will pass through rural areas with existing SEAs (NoR 1, NoR 4 and NoR 9). In these locations this will enable transport corridor users to have direct views of these natural and rural environments, contributing to a visually enhanced experience for transport corridor users. Many of the existing wetland areas and waterways within FUZ areas are modified, with potential for visual and associative enhancement through restoration of natural character values.

There is the potential for permanent change to the visual effects for the community due to modification of landforms and loss of vegetation, potentially creating new views to the proposed transport corridors and associated elevated infrastructure such as bridges, light poles and signage gantries.

Public Parks and Reserves and Recreational amenity

The designation footprint also allows for the creation of aesthetically pleasant storm water treatment areas which contribute to visual amenity, and potentially associative values through the integration of informal pathways connecting to wider recreational networks. The new designations allow space for active travel modes including separated paths for pedestrians and cyclists, creating valuable recreational amenity for surrounding communities, which is addressed in the Planning and Social Impacts Assessments and Urban Design Evaluation.

The North Projects create potential to enhance connectivity to the wider open space and recreational network with the width of the proposed designations allowing for active modes of transport including for cyclists and pedestrians. There is potential for further positive effects to be achieved by integrating active mode travel routes with recreational paths in the contemporary landscape context, for example greenways not yet planned or developed as part of future structure planning/plan change processes.

Private outdoor living space

Where transport corridors are planned through FUZ, it is assumed that any future developers would be cognisant of the designations and private outdoor living spaces within those developments would be implemented appropriately to integrate with the corridor. There is also potential for intensification in existing residential zones to occur, compared to what presently exists. It is anticipated that, with time,

existing housing areas will be infilled with additional residential dwellings in line with the MDRS. However, the built outcomes of the proposed transport corridors will be in character with the planned urban intensification, with roads being an essential element of urban areas. As such, adverse effects on future planned residential areas and dwellings will be limited.

The proposed designations will have effects on some existing residential areas and rural properties. Where existing dwellings are directly adjacent the proposed designation boundaries, it is possible that there will be adverse effects on the ability for people to use private outdoor living space, including loss of privacy, compromised views due to road features, reduced landscape buffers between dwellings and transport corridors, reduced section size, and increased light disturbance (e.g., from car headlights and streetlights).

The proposed ULDMP (to be prepared closer to construction as directed in the proposed conditions) directs the integration of the proposed transport corridors with the emergent contemporary landscape context. The proposed designation widths can accommodate a good level of visual amenity planting, for instance visual enhancement planting, street trees, raingardens, swale plantings, buffer planting between active modes and the road carriageway, screening planting and boundary planting (where required, such as to minimise the visual dominance of transport corridors from adjoining sites). Visual amenity planting has the potential to create attractive environments, which can enhance the built character of their surroundings and positively contribute to the visual quality of the streets and the area's sense of place. These aspects are captured in the proposed North Projects conditions as part of the ULDMP.

Light

Where the NoR corridors interface with rural areas, consideration should be given to the placement of lighting and reducing light spill into adjacent rural environments. Light pollution can adversely affect associative values of rural amenity, such as a sense of remoteness and dark night time skies. The placement and direction of lighting should also be considered to reduce light spill and potential amenity effects on residential environments, and potential effects on cultural values.

Crime Prevention Through Environmental Design (CPTED) and safety in relation to lighting should be integrated as part of the detailed design for all transport modes, particularly where active mode routes intersect with vehicle routes or traverse long sections with limited secondary escape routes. The Urban Design Evaluation provides further recommendations on CPTED.

Lighting around the proposed RTC stations may have potentially adverse visual effects on the surrounding residential environments, given the need for long hours of operation to service the wider community and close proximity.

Structures

Across the proposed designation routes, there is an array of structures and built features associated with existing roads. As the transport network is developed, it is anticipated that the quantity of these features would increase, with new intersections, bridges, retaining walls, barriers, gantries and signage required for efficient movement through the transport network. These features add to the visual complexity of the landscape and can further reduce visual amenity over and above the presence of a road surface in a landscape.

Through the proposed ULDMP process, the proposed North Projects provide the opportunity to develop a co-ordinated approach to infrastructure associated with the transport network, across the

full extent of the NoR corridors. This includes taking a consistent and co-ordinated approach to structural components to create a cohesive family of materials, finishes and forms to reduce visual clutter and adverse visual effects in the landscape.

Subject to operational and safety requirements, structural components should be of a scale and form which complements the surrounding landscape context and land use, integrates with the topography, enhances and celebrates sense of landscape character, creates opportunity for association to place, and assists with wayfinding for all modes of users.

Cultural landscape values

Along with heritage values, cultural values strongly reinforce connection to and value of place. While some areas have been identified, this does not assume lesser or greater importance of those than other areas of importance that might not yet have been evaluated. The Cultural Impact Assessment⁵⁹ further elucidates where the Projects may create adverse effects that require management or mitigation, noting that Manawhenua are involved as Te Tupu Ngātahi partners in the option development and assessment process.

Heritage landscape values

There are limited heritage sites identified within the North Projects area. In places where the proposed designations will be located adjacent to heritage sites, landscape values can be strongly related to people's connection to heritage of place. There is opportunity through the proposed ULDM condition to recognise and reinforce associative cultural/heritage values through interpretive signage and wayfinding across the transport routes. Heritage effects are discussed in detail in the Assessment of Archaeological and Heritage Effects.

5.3.3.2 Specific NoRs

NoR 1 New Rapid Transit Corridor (Albany to Milldale)

During operation, NoR 1 (New Rapid Transit Corridor – Albany to Milldale) will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- Adverse visual and associative effects will be experienced in rural areas, albeit in the context of an already modified landscape due to the presence of the existing SH 1 corridor. Formation of the corridor will result in the removal of some significant areas of vegetation through Pukeatua (Albany Heights), including native vegetation. This will adversely affect visual and associative amenity for existing residential and rural dwellings immediately adjacent.
- Visual amenity will be adversely affected for a large transient viewing audience of SH 1 users, in the approximately 5km long section from Albany to (current) Bawden Road. Currently there are views to regenerating native forest and rural landscape immediately to either side of SH1 that provides contrasting relief to the urban experience when travelling north, signalling a gateway or threshold when leaving Auckland (and conversely arrival when travelling south). The RTC will further separate and intervene the viewing audience from this view.

⁵⁹ Refer to main AEE

- Cumulative adverse visual effects are likely where the NoR overlaps with the NoR 4 SH1 improvements project between Albany and around Bawden Road as well as intersections with NoR 2, NoR 3 and NoR 8.
- Due to loss of screening vegetation to SH 1 and the presence of the new active mode path close to the boundary, residents of Fairview Lifestyle Village may experience loss of visual amenity and privacy to outdoor living areas due to the reduced landscape buffer and visual screening.
- The rural property at 1 Wilson Road will experience high adverse visual and associative effects, as the proposed designation will sever this rural property from the main rural zone to the south. Combined with significant reduction in property size as a result of NoR 4 SH 1 Improvements, there will also be a significant adverse effect on the rural character of this property.
- The rural property at 39 Wright Road will experience high adverse visual and associative effects, as the proposed designation will reduce the large rural property to a small outdoor landscape area. Combined with effects of NoR 4 SH 1 Improvements, there is potential for adverse effects on the rural characteristics of this property (without appropriate mitigation).

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 1 New Rapid Transit Corridor are considered to be:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: **'Moderate'** adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: **'Moderate-High'** adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: **'Moderate'** adverse level of effect.

NoR 2 New Milldale Station and associated facilities

During operation, NoR 2 (New Milldale Station and associated facilities) will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- Adjacent residents (particularly along Ahutoetoe Rd and Pampas Dr) may potentially experience adverse visual and associative effects due to the loss of existing buffer to the SH 1 corridor and presence of transport infrastructure, buildings, lighting and increased traffic movements associated with the proposed station.
- Potential adverse visual amenity effects may occur due to the required scale and form of the proposed RTC station strongly contrasting with the existing medium density residential neighbourhood character along Ahutoetoe Road and Pampas Drive. It is acknowledged that the proposed station is located halfway down the embankment between Ahutoetoe Road and SH1. While the drop off/ pick up and bus layover areas will be located at street level with Ahutoetoe Road, the station itself will be at a lower level and more obscure from residential sites. It is assumed that these visual effects would diminish over time as further surrounding urban development occurs. There is also potential for the residential area to become denser over time through provisions of the MDRS and NPS: UD (Plan Change 78).
- Potential visual effects may occur due to the cumulative effects of lighting of both the station, the associated access ways and pick up / drop off areas, street lighting and operational and maintenance vehicle activity associated with the station.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 2 New Milldale Station and associated facilities are considered to have a **'Moderate'** adverse level of effect.

NoR 3 New Pine Valley East Station and associated facilities

During operation, NoR 3 (New Pine Valley East Station and associated facilities) will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- It is anticipated that future development of high density residential / local centre areas west of the proposed station would take into consideration the likely visual and associative impacts of the station, reducing the likelihood of potential reverse sensitivity issues. It is noted that the eastern side of Pine Valley Road is proposed future industrial under the Industrial Structure Plan, reducing the visual amenity effects of the proposed station facilities in that context.
- Potential visual effects may occur due to the cumulative effects of lighting of both the station, the associated access ways and pick up / drop off areas, street lighting and operational and maintenance vehicles associated with the station, although are likely to be in keeping with surrounding industrial development (to the east).
- Due to enhanced public accessibility to multi modal transport routes provided by the Station connections to NoR 1, there is the potential for improved recreational opportunities to the wider strategic cycle connection proposed as part of the Silverdale West Structure Plan. This is addressed in the Social Impacts Assessment and Urban Design Evaluation.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 3 New Pine Valley Station and associated facilities are considered to have a **'Low'** adverse level of effect.

NoR 4 SH1 Improvements

During operation, NoR 4 (SH1 improvements) will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- It is acknowledged that the proposed NoR 4 works require widening of existing major State Highway designation(s). Visual effects are in the context of this existing motorway environment. Regarding the new active mode bridges proposed across SH1, most are within the existing designation, but some footings/connections likely extend beyond.
- Adverse visual effects will occur as a result of the reduction of vegetative cover, especially within SEA or rural areas through Pukeatua (Albany Heights), including native vegetation. The proposed widening works and extension will potentially reduce existing rural property section sizes, bringing the roading corridor into closer proximity to dwellings. Additionally, there will be a reduced buffer between the transport corridor and adjoining properties. This will adversely affect visual and associative amenity for existing residential and rural dwellings immediately adjacent.
- Visual amenity will be adversely affected for a large transient viewing audience of SH 1 users, especially in the section from Albany to Awanoni Road where removal of large areas of vegetation is required. There will be a large audience for the Project in terms of both increased surrounding

residential viewing audience within the FUZ and those viewing as traffic, RTC or active mode users. Currently there are views to regenerating native forest and rural landscape immediately to either side of SH1 that provides contrasting relief to the urban experience when travelling north, signalling a gateway or threshold when leaving Auckland (and conversely arrival when travelling south). The NoR will further separate the viewing audience from this view.

- Adverse visual and associative effects of the SH 1 Improvements are magnified through the cumulative effect of adjacent and linking designations including NoR 1, NoR 5, NoR 6, NoR 8, NoR 10 NoR 11, NoR 12, and NoR 13 during operation. This may also cause visually complex construction within or over NoR 4 amplifying adverse visual effects for both transient users of SH 1 and nearby residents.
- The rural property at 1 Wilson Road will experience high adverse visual and associative effects, as the proposed designation will sever this rural property from the main rural zone to the south. Combined with a significant reduction in property size as a result of NoR 4 SH 1 Improvements, there will be adverse effects on the rural character of this property which is already influenced by the presence of SH 1.
- The rural property at 39 Wright Road will experience high adverse visual and associative effects, as the proposed designation will reduce the large rural property to a small outdoor landscape area. Combined with effects of NoR 1 RTC, there is potential for adverse effects on the rural characteristics of this property (without appropriate mitigation).

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 4 SH1 improvements are considered to be:

- Section A: Albany to Lonely Track Road to be **'Moderate'** adverse level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be **'Moderate – High'** adverse level of effect.
- Section C: North from the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale to be **'Moderate'** adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be **'Moderate'** adverse level of effect.

NoR 5 New SH1 crossing at Dairy Stream

During operation, NoR 5 New SH1 crossing at Huruheru Dairy Stream will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- The NoR crossing will introduce additional roading infrastructure including lighting, signage and elements associated with the crossing such as bridge abutments, potentially increasing the visual prominence of roading elements in the contextual landscape. However, roading features would be anticipated as part of the future urban environment, so would not be a mis-placed feature to the emergent contemporary landscape context.
- Due to the anticipated elevation required to cross over the SH 1 corridor, the proposed crossing will be a prominent visual structure in the landscape, but not out of keeping with roading infrastructure associated with the SH 1 corridor and FUZ development in the wider landscape.

- Adverse visual effects will potentially be visible from surrounding FUZ and users of Top Road, East Coast Road, Worsnop Way and SH 1. However, it is assumed that future development of residential areas would take into consideration the likely visual and associative impacts of the bridge, reducing the likelihood of potential reverse sensitivity issues.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 5 Dairy Stream crossing are considered to have a **'Low'** adverse level of effect.

NoR 6 New Connection between Milldale and Grand Drive

During operation, NoR 6 will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- Given the proposed surrounding land use for these areas includes proposed FUZ development, along with a portion of existing rural interface, the potential effects on visual and associative amenity will vary.
- The undulating topography of the NoR 6 landscape ensures perceptual effects of the proposed designation will be constrained, likely resulting in relatively localised effects. While the proposed designation corridor avoids prominent spurs and ridgelines, some elevated landforms and valleys are traversed, and large areas of cut and fill are anticipated. There is the potential for this to result in adverse visual effects for rural properties located to the west of the corridor due the visibility of a new transport corridor on elevated landforms, and changes in the topography due to earthworks.
- Of specific note is a residential property 105 Upper Ōrewa Road west of the intersection of Upper Ōrewa and Russell Road and properties further west along Upper Ōrewa Road which are located within the rural zone. There is also the potential visibility of the corridor from elevated vantage points within this undulating landscape, which orients views down towards the proposed NoR 6 corridor.
- Given the undulating topography and potential requirement for landform modification around Upper Ōrewa River and other waterbodies there will likely be a reduction of visual amenity resulting from loss of vegetative cover. A further potential adverse visual amenity effect may result from the perceived visual or physical severance caused by potential fill embankments across the valleys or the requirement for large scale retaining structures leading up to bridge abutments.

Nature and magnitude of effects

The proposed designation has the potential to affect the visual and associative values of the adjacent area during construction. Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual operational effects for NoR 6 New Connection between Milldale and Grand Drive are considered to have a **'Moderate-High'** adverse level of effect in rural areas and **'Moderate'** adverse level of effect in FUZ.

NoR 7 Upgrade to Pine Valley Road

During operation, NoR 7 (Pine Valley Road Upgrade) will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- Visual and associative effects will be limited as this proposed designation is wholly within an existing road environment. This section is entirely in FUZ, apart from the western-most end where it meets the RUB.
- While it will likely be within an urban context at the time of implementation of the Project, this NoR may create adverse visual and associative effects where it adjoins rural properties, including 346, 299, and 158 Pine Valley Road, where removal of roadside vegetation and formalised roading features will appear as more urban landscape features. There is also the potential visibility of the operational corridor from elevated rural vantage points which orientate down towards the proposed designation area. However, these will be distant views.
- There is potential for visual amenity effects to result from vegetation removal, the reduction in wetland areas and changes to the natural alignment and daylighting of waterways, as well as visual amenity effects resulting from proposed earthworks along waterways, and through wetland areas and indigenous vegetation.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 7 Pine Valley Road upgrade are considered to have a **‘Moderate’** adverse level of effect.

NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat

During operation, NoR 8 (Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat) will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- Green Park will, in the future, provide a very large area of public open space for the high number of new residents in the surrounding FUZ and beyond. It is acknowledged that Green Park (and NoR 8) will be developed in this future urban context. There is potential for adverse visual and associative effects on the landscape character within Green Park due to the presence of new operational transport features. While the landscape character of this portion of the ONL is already modified, there is potential for further reduction of visual and associative values due to the introduction of larger roading elements in closer proximity to the higher value ONL features beyond.
- NoR 8 is adjacent to several sections of countryside which will remain rural zoned. These areas are valued for their rural appearance including rural roads, farm buildings and yards, fence lines, exotic trees (either in lines or scattered in paddocks), stock, water tanks, and minimal structures. While the proposed transport routes are upgrades to an existing road, operational requirements of the corridor will have visual effects when placed in the context of a rural receiving environment. The transport corridor itself will become the defining visual boundary between rural and urban in these situations.
- In the built up Dairy Flat village area at the turnoff with Kahikatea Flat Road, the upgrade to Dairy Flat Highway will coincide with NoR11 (New connection from Dairy Flat Highway to Wilks Road). This will occur in the context of Business-Light Industrial zone (on the west side of Dairy Flat Highway) and FUZ (on the east side of Dairy Flat Highway). The proposed intersection is anticipated to be consistent with the urban landscape character of the future environment.
- Dairy Flat School is located on the south-eastern side of Dairy Flat Highway and Landfill Access Road intersection.

- There is also the potential for positive visual effects through the protection and framing of views which connect with the wider rural landscape beyond the FUZ, integrated with lookout areas which contribute to enhanced amenity and experience for corridor users.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 8 Dairy Flat Highway Upgrade are considered to have:

- Section A - FUZ residential - '**Moderate**' adverse level of effect.
- Section B - FUZ industrial to the east /and rural to the west - '**Moderate**' adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west- '**Low**' adverse level of effect.
- ONL / Green Park public open space - '**Moderate-High**' adverse level of effect.

NoR 9 Upgrade to Dairy Flat Highway between Dairy Flat and Albany

During operation, NoR 9 (Dairy Flat Highway Upgrade Rural Section) will be subject to all of the visual amenity effects outlined in Section 5.3.3.1. In particular:

- For the most part the area will remain in rural countryside living zone, with considerable areas of, SEA and reserve land adjacent, as well as identified native vegetation and some smaller portions of wetland. As such, it will be highly sensitive to adverse visual effects from operational road features and activity especially due to permanent landform modification and removal of mature vegetation.
- Visual amenity will be adversely affected for a large transient viewing audience of Dairy Flat Highway users, especially in the section from Albany to Potter Road where removal of large areas of native vegetation is required. There will be a large viewing audience for these works in terms of both rural- residential dwellings and transient road users.
- Some rural properties may also experience adverse associative effects, as the proposed operational footprint will reduce the lot size of numerous rural properties and reduce the distance from dwellings to the road corridor.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 9 Dairy Flat Highway Upgrade are considered to have a '**High**' adverse level of effect in the rural area and '**Moderate**' adverse level of effect in the FUZ section.

NoR 10 Upgrade to Wainui Road

During operation, NoR 10 (Wainui Road Upgrade) will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- Key attributes within the existing landscape which contribute to landscape amenity include the natural values associated with Waterloo Creek and the wider estuarine landscape. There is the potential for a loss in amenity from the removal of indigenous riparian vegetation along Waterloo

Creek and also established vegetation along Wainui Road, including the Meraki Montessori Primary School.

- Existing rural residents east of Upper Ōrewa Rd may experience adverse visual effects due to the potential loss of vegetation opening up of views to the NoR corridor. However, given that the NoR is a modification to an existing roading corridor and these views would be from some distance, and the surrounding context of anticipated urbanisation, these effects will likely be moderated by and in keeping with the future landscape context.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual operational effects for NoR 10 Wainui Road Upgrade are considered to have a **‘Moderate’** adverse level of effect.

NoR 11 New connection from Dairy Flat Highway to Wilks Road

During operation, NoR 11 (New connection from Dairy Flat Highway to Wilks Road) will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- The proposed designation sits wholly within FUZ, within the future Silverdale West Industrial area. The anticipated landscape character will be dominated by the adjacent light and heavy industrial land use. Combined with the presence of North Shore Airport, the anticipated operational visual and associative effects of the proposed transport route will be consistent with this receiving environment.
- Adverse visual and associative effects may arise from reduction in landscape and natural character values resulting from the removal of vegetation, alteration of the natural stream alignment and / or profile where it is modified by road features.
- There is significant opportunity to enhance wider recreational and open space network connectivity through the integration of the proposed pedestrian/ cyclist routes with the greenways indicated in the Silverdale West Structure plan.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 11 New connection from Dairy Flat Highway to Wilks Road are considered to have a **‘Low’** adverse level of effect.

NoR 12 Upgrade and Extension to Bawden Road

During operation, NoR 12 (Bawden Road upgrade and extension) will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- As the designation mostly involves the upgrade of an existing road, rather than an entire new road, operational visual and associative effects are minimised.
- The proposed designation is also anticipated to visually integrate with contemporary land use in the future as the FUZ becomes urbanised, including the proposed new location for Dairy Flat Town Centre. Between the intersection with Dairy Flat Highway (NoR 8), and southwest to Green Road Park (NoR 12), higher density residential development is anticipated to be concentrated around this new town centre. Bawden Road intersects with the RTC (NoR 1) west of Huruhuru (Dairy

Stream) Road, where it is likely the road will go under the RTC (in the form of a grade separated crossing) near this area.⁶⁰ The operational transport corridor will be consistent with this anticipated urban character.

- Visual and associative effects may be experienced from a distant, elevated viewing audience from rural properties in the Awanohi - Durey Road foothills. The undulating topography and intervening rural vegetation limits the magnitude of these effects.
- There is potential for visual amenity effects to result from vegetation removal and permanent landform modification, particularly near the Top Road knoll at the eastern extent of the NoR corridor where it adjoins SH 1 where it will be observed by a high number of transient users.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 12 Bawden Road are considered to have a **'Moderate'** adverse level of effect.

NoR 13 Upgrade to East Coast Road between Silverdale and Ō Mahurangi Penlink (Redvale) Interchange

During operation, NoR 13 (East Coast Road upgrade) will be subject to all of the visual amenity and associative effects outlined in Section 5.3.3.1. In particular:

- Within the Project, areas remaining as rural countryside living zone are likely to experience a high magnitude of visual effects due to the rural character of the receiving environment. However, this will be in the context of urbanisation of the wider peri urban area. The section of Rural Countryside living zone with views to the west likely already have an outlook to the existing SH 1 corridor. This will be backgrounded by future development within the Silverdale West industrial area beyond.
- Due to the rolling nature of the topography unless the complete removal of a knoll results in a change to the ridgeline (which would be seen as horizon from a wider area) these visual effects are localised. Rolling country with valleys contained by hills and ridges limits visibility of the proposed widening of the existing corridor. The exception to this is the relatively flat and open area from the southern end of the designation to the intersection at Worsnop Way, and the northern section of NoR 13 which passes through Silverdale.
- In the current design, the most significant landform modification proposed occurs in a FUZ zone where it is anticipated other landform modification such as terracing may already have occurred with the housing forming a more complex receiving environment, lessening the visual effect.
- Any vegetation removal associated with the designation will increase the adverse visual effect and may reduce visual amenity. There is no significant indigenous vegetation identified within this NoR.

⁶⁰ This Design is subject to change for section of corridor past the RTC station near Bawden Road. The carriageway may drop to two lanes west of the station if buses are diverted through the station and town centre.

Nature and magnitude of effects

Without recommended measures to avoid, remedy or mitigate effects recommended in Section 5.3.4, visual and associative operational effects for NoR 13 East Coast Road Upgrade are considered to have a **'Moderate'** adverse level of effect in the southern end FUZ, a **'Moderate-High'** adverse level of effect in the rural areas and **'Moderate'** adverse level of effect in the urbanised north end.

5.3.4 Recommended measures to avoid, remedy or mitigate operational effects

To address the operational effects of the North Projects the following measures are recommended to be addressed in combination with specific measures recommended for individual NoRs in Section 5.3.4.2.

5.3.4.1 Common to all NORs

To address the operational effects of the North Projects the following measures are recommended to be addressed in the ULDMP to be prepared as a condition of the designations:

- Avoid valuable landscape features (e.g., through finalised route design) wherever practicable. Remedy landscape features once transport routes are operational, where applicable (e.g., undertake ongoing landscape maintenance). Where avoidance or remediation is not practicable, qualitatively mitigate operational effects on landscape features (e.g., replace and enhance permanent loss of land cover through mass-planting of native vegetation)
- Prior to the Start of Construction for a Stage of Work, revalidate the landscape, natural character, and visual effects of operation within the contemporary landscape context for each NoR. The ULDMP shall clearly state which effects identified in this assessment are still valid and how they will be addressed.
- Consider the opportunity to develop a coordinated landscape strategy across the full extent of the NoR corridors, which promotes a context responsive design approach. Well-designed infrastructure can confer an array of positive effects across a broad region, including habitat connectivity, biodiversity enhancement and restoration of natural systems and processes. Whole of life values should be considered as a core element in the strategy and a successional planting programme applied that is self-sustaining when established.
- It is recommended that viewshed analysis be undertaken as part of the ULDMP to identify and address specific views in relation to the finalised detail design.
- There is a large transient viewing audience as people move out of the city through into the rural landscape context. With users of this major transport route on a linear journey there is opportunity to consider changes to landscape at bigger contextual network scale. It is recommended that the ULDMP takes a network approach to design of the landscape and urban design features to ensure that there is legibility and coherence of built and natural elements across the routes.
- Consider in the landscape design the integration of localised tracts of established rural vegetation as part of the planting design approach. Retention of established vegetation will assist with integrating the corridors in the landscape and mitigate potential operational effects by providing established screening and a 'green' buffer to adjoining development, contributing to visual amenity.
- Consider the ongoing maintenance requirements in the detailed design of landscape elements required for landscape or visual mitigation of operational effects e.g., mass-planting slopes using a successional native planting strategy to eliminate the need for mowing grassed areas and ensuring canopy coverage in the long term to shade out weeds. Consider using mass-planting of native plant species where possible and appropriate, in preference to grass turf.

- Promote integration of project structures with the surrounding landscape context (including bridges and roadside infrastructure such as lighting, signage, noise walls, retaining structures) through appropriate landscape and architectural treatment of these elements.
- Consider including in the detailed landscape design the inclusion of heritage plants in publicly accessible areas, e.g., heritage fruit trees which have been propagated from plants earlier removed for construction.
- Address adverse visual and associative effects on adjacent residents in the contemporary emergent landscape context for each NoR, including consideration of cumulative effects where operational corridors intersect.
- Consider utilising fast-growing native screening vegetation, in combination with structural screens where required, to create a visual buffer to adjacent rural and residential properties.
- Consider disestablishment of the redundant portions of road from the former alignment(s) along with remediation planting which ties in landscape with surrounding area.
- Consider providing stopping areas along the corridor for recreational purposes that feature views to the surrounding landscape and, where applicable feature local heritage and history. Detail design should also promote inclusive access that maximises multi-modal connectivity with adjacent land uses and public transport.
- Celebrate historical and culturally significant areas and features, for example investigate opportunities to emphasise 'sense of place' through artistic expression.
- Consider the integration of built structures within the proposed transport routes with surrounding landscape context (bridges, overpasses, underpasses, retaining walls, noise walls, signage and gantries) and design in accordance with best practice design guidance, as set out in the proposed ULDMP.
- To mitigate effects on rural character where a transport corridor is aligned to the RUB, ensure that detail design of the transport corridors responds to the role of the defining edge of rural and urban land uses and responds to interplay between natural vegetation patterns overlaid with cultivated patterns, providing screening and buffer to the rural – urban landscape transition. Where the transport corridor passes perpendicular to the RUB, ensure that the transition from rural to urban is treated as a graduation rather than a hard delineation between urban and rural landscape elements.
- Consider a network wide approach to the bridge crossing design over SH1 and the RTC, to create a clear hierarchy of gateway treatments and wayfinding across the North Projects.

Further to the above, it is recommended that the following be considered during future regional consenting phases, as required and where practicable:

Water

- Minimise the transport corridor footprint over existing waterways and wetlands and maintain and / or enhance ecological and hydrological connectivity between waterbodies (including fish passage where appropriate). Bridge waterbodies where road crossings are unavoidable. Where bridges are used, avoid piers within the bed of the waterbody and minimise the number of piers on the immediate banks of waterways and wetlands.
- Minimise modification to natural waterbodies present within any designation, and areas of indigenous vegetation and established plantings where practicable. This includes development

and restoration of wetland areas, and planting of surrounds to confer valuable green space in an urbanised area. There is the potential for positive landscape effects, where green and blue networks are linked with the wider landscape and amenity and recreation values are enhanced.

- Locating piers within the bed of the waterbody is already avoided in the proposed indicative designs. Consider through the detailed design stages, minimising the number of piers on the immediate banks of waterways and wetlands, retaining existing natural watercourses as far as practicable, designing stream diversions to appear 'natural' with a variety of habitats, and using salvaged materials (such as rocks and woody debris) to create complementary freshwater habitat where appropriate.
- Prioritise the use of soft engineering strategies for stormwater management, including the use of stormwater treatment wetlands, raingardens, vegetated swales, tree pits, and detention basins.
- Consider further refinement of stormwater treatment wetland design to appear 'natural' with a variety of habitats, e.g., irregular shape with curved boundaries, varying depths and islands.
- Consider water sensitive urban design principles. Recommendation to prioritise the use of soft engineering strategies for stormwater management.

Vegetation

- Consider in detailed design planting to mitigate the loss of vegetation cover due to operational footprint intrusion into native vegetation areas. There is significant opportunity for habitat connectivity, biodiversity enhancement and restoration of natural systems and processes.
- Consider impacts on vegetation due to modification of groundwater levels/ flow due to increase in impervious surface by utilising permeable surfaces wherever practicable.
- Loss of vegetation along water courses and loss of wetland areas within the operational footprint will have adverse effects on natural character. There is space within the proposed designations to mitigate potential natural character effects through extensive riparian revegetation. It is reiterated that detailed responses to waterway and natural wetland treatment will be detailed in the future regional resource consenting stages of the North Projects.

5.3.4.2 Specific NoRs

NoR 1 New Rapid Transit Corridor (Albany to Milldale)

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 1: New Rapid Transit Corridor (Albany to Milldale) will be subject to the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDM and / or CEMP or future regional consents (if required):

- Mitigation screen planting to minimise operational visual effects of the proposed NoR 1 on existing residential dwellings, including but not limited to along Paikea St and Kewa Rd (number 25 Kewa Rd in particular will have high visual effects), Lonely Track Rd, Wright Rd, Awanohi Rd, Redvale Rise, Rautahi Terrace and Wilson Rd.
- Specific consideration should be paid to the location of permanent fencing and structures in relation to the outdoor living areas to the rear of the dwelling located at 39 Wright Road. The operational footprint should be minimised as much as practicable to allow as much outdoor space around the dwelling as possible. This includes consideration of occupants' views from living areas (inside and outside) and screening views from these living spaces into the operational areas. This

could be achieved, for example, by replacing existing vegetation or by implementing permanent physical screens depending on available space once construction is complete.

- There is potential to implement mass-planting throughout the NoR 1 corridor to mitigate the areas of vegetation loss and rehabilitate areas subject to earthworks. It is recommended that particular consideration is paid to affected residential properties listed in the bullet point above, wetlands or stream corridors, and the larger cut and fill areas indicated. This will mitigate landscape, natural character, and visual effects over time.
- Restore landscape character, by replacing loss of canopy cover in SEA areas including at Awano Reserve Redvale, Pukeatua (Albany Heights) and Hooton Reserve in Albany, and Kathy's Thicket SEA located at the northern extent of the corridor.
- Provide adequate space within the NoR to allow for a buffer of mitigation planting adjacent to reserves, waterbodies and SEAs to enable mature vegetation to establish between the RTC and the receiving environment. It is recommended that a holistic approach to landscape mitigation is undertaken, linking blue and green networks within the entire extent of the NoR corridor.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

Landscape character:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: **'Low'** adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: **'Low-Moderate'** adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: **'Low'** adverse level of effect.

Natural character:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: **'Low'** adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: **'Low- Moderate'** adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: **'Low'** adverse level of effect.

Visual effects:

- Section A: Albany over Waiokahukura (Lucas Creek) through existing urban area: adverse **'Low'** adverse level of effect.
- Section B: Rural with SEA overlay to Bawden Road: adverse **'Low-Moderate'** adverse level of effect.
- Section C: FUZ Bawden Road to Milldale Station: Adverse **'Low'** adverse level of effect.

These effects will lessen over time to a **'Low'** adverse level of effect or **'Very Low'** adverse effect as vegetation establishes (5-10 years) and **'Very Low'** adverse effect as planting matures (20 years +).

NoR 2 New Milldale Station and associated facilities

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 2: New Milldale Station and associated facilities will be subject to the recommendations stated in Section 5.3.4.1. In

addition, specific consideration should be given to the following through the ULDMP and / or CEMP or future regional consents (if required):

- Mitigation screening and buffer planting within the designation where immediately adjoining residential properties, particularly along Ahutoetoe Rd, John Fair Dr, Siren St and Snowden Rd, to assist with minimising adverse landscape and visual effects. This could also include street tree planting along the local roads.
- Mitigation planting of large-scale specimen trees to visually break up the form and bulk of the station in the landscape.
- In the general arrangement plan at detailed design stage, consider the placement of station facilities as far away from existing residential dwellings and private outdoor areas as possible. Consider opportunities to reduce potential visual effects including light spill into surrounding residential dwellings and loss in privacy.
- Consider locating new vegetation between Haul Road (Truck Bypass) and SH 1 to provide screening vegetation of scale relative to the station infrastructure
- Consider establishment of indigenous buffer planting along Wēiti Stream (QEII covenanted area) and Kathy's Thicket SEA to minimise potential edge effects on vegetation and better integrate the transition from natural to build environment and visually soften this boundary edge of the station.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

- Landscape character: '**Low**' adverse level of effect.
- Natural character: '**Low- Moderate**' adverse level of effect.
- Visual effects: '**Low-Moderate**' adverse level of effect.

These effects will lessen over time to a '**Low**' adverse level of effect or '**Very Low**' adverse effect as vegetation establishes (5-10 years) and '**Very Low**' adverse effect overall as planting matures (20 years +).

NoR 3 New Pine Valley East Station and associated facilities

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 3: New Pine Valley East Station and associated facilities will be subject to the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDMP and / or CEMP or future regional consents (if required):

- Mitigation screening and buffer planting for immediately adjoining residential properties, to assist with minimising any potential adverse landscape and visual effects. This could also include street tree planting along the local roads.
- Mitigation planting of large-scale specimen trees to visually break up the form and bulk of the station in the wider landscape context.
- Considered design and placement of facilities, away from future residential areas to reduce potential visual effects including light spill into nearby residential properties and loss in privacy.

- Consider use of native plant species appropriate to Wēiti Stream QEII covenanted area and Kathy's Thicket SEA to enhance the landscape character.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

- Landscape character: **'Very Low'** adverse level of effect.
- Natural character: **'Very Low'** adverse level of effect.
- Visual effects: **'Very Low'** adverse level of effect.

These effects will lessen over time to a **'Neutral'** level of effect as vegetation establishes (5-10 years) and remain a **'Neutral'** effect overall as planting matures (20 years +).

NoR 4 SH1 Improvements Projects

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 4: SH 1 Improvements will be subject to the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDMP and / or CEMP or future regional consents (if required):

- Consider screening planting alongside Fairview Lifestyle Village, within the designation, to provide remediation for the reduced landscape buffer and visual screening between the roading corridor. Mitigation screen planting to minimise visual effects of the proposed NoR on existing rural dwellings, including but not limited to along Lonely Track Rd and East Coast Rd.
- Specific consideration should be paid to the location of permanent fencing and structures in relation to the outdoor living areas to the rear of the dwelling located at 39 Wright Road. The operational footprint should be minimised as much as practicable to allow as much outdoor space around the dwelling as possible. This includes consideration of occupants' views from living areas (inside and outside) and screening views from these living spaces into the operational areas. This could be achieved, for example, by replacing existing vegetation or by implementing permanent physical screens depending on available space once construction is complete.
- There is potential to implement mass-planting throughout the NoR 4 corridor to mitigate the areas of vegetation loss and rehabilitate areas subject to earthworks. It is recommended that particular consideration is paid to affected residential properties listed in the bullet point above, wetlands or stream corridors, and the larger cut and fill areas indicated. This will mitigate landscape, natural character, and visual effects over time.
- There is opportunity through the proposed multi-modal path in this location to improve the landscape and natural character at the crossing of the CMA at Ōrewa River. It is recommended that detail design ULDMP reflects the coastal character and aligns with typology of other nearby coastal walkways through form and materiality.
- Provide adequate space within the NoR to allow for a buffer of mitigation planting adjacent to reserves, waterbodies and SEAs to enable mature vegetation to establish between the road and the receiving environment. It is recommended that a holistic approach to landscape mitigation is undertaken, linking blue and green networks within the entire extent of the NoR corridor.

- It is recommended that fast-growing native mitigation planting screen and buffer planting for interfacing rural residences along the proposed NoR corridor is implemented early in the construction stage, to enable establishment prior to operation. Where this is not practicable, consider the use of aesthetic structural screening.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

Landscape character:

- Section A: Albany to Lonely Track Road to be '**Low**' adverse level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be '**Low-Moderate**' adverse level of effect.
- Section C: From the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale to be '**Low**' adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be '**Low**' adverse level of effect.

Natural character:

- Section A: Albany to Lonely Track Road to be adverse '**Low**' level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be '**Low-Moderate**' adverse level of effect.
- Section C: From the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale to be '**Low**' adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be '**Low**' adverse level of effect.

Visual effects:

- Section A: Albany to Lonely Track Road to be adverse '**Low**' level of effect.
- Section B: Lonely Track Road to the intersection with NoR 12 (the proposed Bawden Road Extension) to be '**Low-Moderate**' adverse level of effect.
- Section C: From the intersection with NoR 12 (the proposed Bawden Road Extension) to Silverdale to be '**Low**' adverse level of effect.
- Section D: From the Silverdale intersection to Grand Drive to be '**Low**' adverse level of effect.

These effects will lessen over time to a '**Low**' adverse level of effect or '**Very Low**' adverse effect as vegetation establishes (5-10 years) and '**Very Low**' adverse effect overall as planting matures (20 years +).

NoR 5 New SH1 crossing at Dairy Stream

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 5: New SH1 crossing at Dairy Stream (all modes) will be subject to the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDMP and / or CEMP or future regional consents (if required):

- Consider in the detailed design of the Huruhuru (Dairy Stream) bridge crossing design, landscape design and wayfinding over SH1 as secondary gateway treatment, with Bawden Road being the primary gateway to the Dairy Flat / Silverdale urban area.
- Within the proposed designation, incorporation of the potential wetland area at the north-eastern extent of the NoR, and the waterway along Huruhuru (Dairy Stream) adjacent to the constructed stormwater pond \ to integrate wetland and riparian planting areas with the objective of creating a contiguous, naturalised landscape outcome.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

- Landscape character: '**Low**' adverse level of effect.
- Natural character: '**Low**' adverse level of effect.
- Visual effects: '**Low**' adverse level of effect.

These effects will lessen over time to '**Very Low**' adverse level of effect as vegetation establishes (5-10 years) and remain '**Very Low**' adverse level of effect overall as planting matures (20 years +).

NoR 6 New Connection between Milldale and Grand Drive

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 6: New Connection between Milldale and Grand Drive will be subject to the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDMP and / or CEMP or future regional consents (if required):

- Given the vegetated landscape of NoR 6 there is potential to enhance the planted corridor linking existing fragments of indigenous vegetation with proposed riparian planting. Consider the opportunity these networks also provide as an informal recreational asset for the community.
- There are also opportunities to retain aspects of existing rural character, including through retention of vegetation such as shelterbelts and tree planting and ensuring transport corridor users have views towards surrounding vegetation and vegetated stormwater ponds. This may include consideration to provide screening planting for rural residences which interface with the NoR corridor such as along Upper Ōrewa Road.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

Within FUZ:

- Landscape character: '**Low**' adverse level of effect.
- Natural character: '**Low**' adverse level of effect.
- Visual effects: '**Low**' adverse level of effect.

Within the rural area:

- Landscape character: '**Low-Moderate**' adverse level of effect.

- Natural character: '**Low-Moderate**' adverse level of effect.
- Visual effects: '**Low-Moderate**' adverse level of effect.

These effects will lessen over time to a '**Low**' adverse level of effect or '**Very Low**' adverse level of effect as vegetation establishes (5-10 years) and '**Very Low**' adverse level of effect overall as planting matures (20 years +).

NoR 7 Upgrade to Pine Valley Road

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 7: Pine Valley Road Upgrade will be subject to the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDMP and / or CEMP or future regional consents (if required):

- Where the transport corridor joins the RUB, ensure that the transition from rural to urban is treated as a graduation rather than a hard delineation between urban and rural landscape elements.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

- Landscape character: '**Low-Moderate**' adverse level of effect.
- Natural character: '**Low-Moderate**' adverse level of effect.
- Visual effects: '**Low-Moderate**' adverse level of effect.

These effects will lessen over time to a '**Low**' adverse level of effect or '**Very Low**' adverse level of effect as vegetation establishes (5-10 years) and '**Very Low**' adverse level of effect overall as planting matures (20 years +).

NoR 8 Upgrade to Dairy Flat Highway between Silverdale and Dairy Flat

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 8: Dairy Flat Highway Upgrade (between Silverdale and Dairy Flat) will be subject to the recommendations stated in Section 5.3.4.1 . In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- It is recommended that the operational footprint within the proposed designation shall be minimised within the ONL at Green Park. The remediation of the ONL should take a holistic approach to improving the natural qualities and provide a high-quality outcome consistent with the values of the ONL.
- Minimise potential intrusion into waterways, particularly where Dairy Flat Highway crosses Huruuru (Dairy Stream), and indigenous wetlands are identified in the vicinity of the ONL. The current proposed design includes a replacement bridge, which will be subject to all of the recommendations around waterbodies as outlined in Section 5.3.4.1 (and below).
- Consider the detail design of proposed bridge structures which replace culverted tributaries of Dairy Flat stream, to improve landscape connectivity.

- Mitigation screen buffer planting for interfacing rural residences to mitigate for loss of roadside vegetation and to reinforce the rural-urban boundary landscape character along the proposed NoR corridor including but not limited to rural zone between Richards Rd and Horseshoe Bush Rd, and Wilks Road. Consider, where practicable, fast-growing native mitigation planting screen and buffer planting, for interfacing rural residences along the proposed NoR corridor is implemented early in the construction stage, to enable establishment prior to operation. Where this is not practicable, consider the use of structural screening.
- Consider potential remedial landscape enhancement of Dairy Flat Village streetscape in the detail design stage.
- Ensure significant earthworks between Green Road and Blackbridge Road are re-vegetated to lessen their visual dominance.
- Undertake extensive planting around all stormwater devices to integrate with the wider landscape, in particular the one proposed adjacent to Dairy Flat School.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

Landscape character:

- Section A - FUZ residential - **'Low'** adverse level of effect.
- Section B - FUZ industrial to the east /and rural to the west - **'Low'** adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west- **'Very Low'** adverse level of effect.

Natural character:

- Section A – FUZ residential – **'Low'** adverse level of effect.
- Section B – FUZ industrial to the east /and rural to the west – **'Low'** adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west– **'Very Low'** adverse level of effect.

Visual and associative:

- Section A - FUZ residential - **'Low'** adverse level of effect.
- Section B - FUZ industrial to the east /and rural to the west - **'Low'** adverse level of effect.
- Section C – FUZ industrial to the east and likely future urban residential to the west - **'Very Low'** adverse level of effect.

Specific to the ONL, the AUPOP has a policy direction to " *Protect the physical and visual integrity of outstanding natural landscapes*". With the implementation of the above measures, there is opportunity for some positive effects in the ONL to be gained and the policy direction to be achieved, in the context of the surrounding FUZ. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

- Landscape character: **'Low-Moderate'** adverse level of effect.
- Natural character: **'Low-Moderate'** adverse level of effect.

- Visual effects: **'Low-Moderate'** adverse level of effect.

These effects for the whole NoR, including the ONL, will lessen over time to a **'Low'** adverse level of effect as vegetation establishes (5-10 years) and **'Very Low'** adverse level of effect overall as planting matures (20 years +).

NoR 9 Upgrade to Dairy Flat Highway between Dairy Flat and Albany

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 9: Dairy Flat Highway Upgrade (Dairy Flat to Albany) will be subject to all of the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDMP and/ or CEMP or future regional consents (if required):

- There are numerous SEAs and areas of indigenous vegetation in the vicinity of the NoR, along with individual trees and stands of kauri and Notable Trees. Consider minimising intrusion / effects into these areas in the operational footprint and consider allowing for mitigation buffer planting within the corridor footprint to protect these areas of vegetation.
- It is recommended that, as part of future regional consenting, mitigation planting for loss of landscape character aligned to the ecological value of the SEA is qualitative outcomes based rather than quantitative (e.g., area or ratio based) as it will take a long time to replace the existing forest canopy stratification.
- It is recommended that fast-growing native mitigation planting screen and buffer planting is provided for interfacing rural residences along the proposed NoR corridor to mitigate for loss of roadside vegetation and to reinforce the rural-urban boundary landscape character . Where this is not practicable, consider the use of aesthetic structural screening.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

Within the FUZ sections:

- Landscape character: **'Low-Moderate'** adverse level of effect.
- Natural character: **'Low-Moderate'** adverse level of effect.
- Visual effects: **'Low-Moderate'** adverse level of effect.

Within the rural section:

- Landscape character: **'Moderate'** adverse level of effect.
- Natural character: **'Moderate'** adverse level of effect.
- Visual effects: **'Moderate'** adverse level of effect.

These effects will lessen over time to a **'Low-Moderate'** adverse level of effect as vegetation establishes (5-10 years), and a **'Low'** adverse level of effect overall as planting matures (20 years +) reaching a **'Very-Low'** adverse level of effect at equivalent forest maturity (40 years +).

NoR 10 Upgrade to Wainui Road

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 10: Wainui Road Upgrade will be subject to the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDMP and / or CEMP or future regional consents (if required):

- Landscape features are largely concentrated at the eastern extent of the corridor around Waterloo Creek, and includes areas of indigenous vegetation, a SEA northeast of the proposed designation and fragmented DoC land between Wainui Road and SH 1. To mitigate effects on landscape and natural character values, planting should seek to link areas of indigenous vegetation to enhance natural character and landscape values in these areas.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

- Landscape character: '**Low-Moderate**' adverse level of effect.
- Natural character: '**Low-Moderate**' adverse level of effect.
- Visual effects: '**Low-Moderate**' adverse level of effect.

These effects will lessen over time to a '**Low**' adverse level of effect as vegetation establishes (5-10 years) and '**Very Low**' adverse level of effect overall as planting matures (20 years +).

NoR 11 New connection from Dairy Flat Highway to Wilks Road

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 11: New connection from Dairy Flat Highway to Wilks Road will be subject to the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDMP and / or CEMP or future regional consents (if required):

- Consider opportunities to integrate proposed landscape planting with vegetation proposed as part of the Silverdale West / Dairy Flat Industrial Structure Plan Area to link blue and green networks with the wider landscape.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

- Landscape character: '**Low**' adverse level of effect.
- Natural character: '**Low**' adverse level of effect.
- Visual effects: '**Low**' adverse level of effect.

These effects will lessen over time to a '**Very-Low**' adverse level of effect as vegetation establishes (5-10 years) and remain '**Very Low**' adverse level of effect overall as planting matures (20 years +).

NoR 12 Upgrade and Extension to Bawden Road

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 12: Bawden Road upgrade and extension will be subject to all of the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDMP and / or CEMP or future regional consents (if required):

- Consider in the detailed design of the Bawden Road bridge crossing design, landscape design and wayfinding over SH1 as the primary gateway treatments, Huruhuru (Dairy Stream) being the secondary to the Dairy Flat / Silverdale urban area.
- Consider additional planting at the eastern extent of the NoR corridor associated with the areas of indigenous vegetation along Bawden Road and to integrate the extensive earthworks proposed at this location.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained. With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

- Landscape character: '**Low-Moderate**' adverse level of effect.
- Natural character: '**Low-Moderate**' adverse level of effect.
- Visual effects: '**Low-Moderate**' adverse level of effect.

These effects will lessen over time to a '**Low**' adverse level of effect as vegetation establishes (5-10 years) and reduce to a '**Very Low**' adverse level of effect overall as planting matures (20 years +).

NoR 13 Upgrade to East Coast Road between Silverdale and Ō Mahurangi Penlink (Redvale) Interchange

Recommended Measures to Avoid, Remedy or Mitigate Operational Effects of NoR 13: Upgrade to East Coast Road will be subject to all of the recommendations stated in Section 5.3.4.1. In addition, specific consideration should be given to the following through the ULDMP and / or CEMP or future regional consents (if required):

- There is opportunity to introduce considerable areas of native planting within the designation. This will help screen the designation and retain the rural characteristics of those areas remaining in rural countryside living zone. It will also provide valuable amenity and green space in the areas modified for housing as part of FUZ or those areas developed as part of business zones.
- Within the proposed designation, the riparian area to the south of the tie in with Worsnop Way will benefit from protection of waterways, riparian replanting and replacement of riparian habitat (for example using logs from any removed native vegetation). Indigenous planting of the area can enhance these waterways to provide visual amenity as well as enhance landscape character.
- Associated enhancement of this river environment along with the associated wetland and floodplain areas and the re-routed waterway within the designation (as above), will contribute to the natural values of this landscape. This could include habitat creation, native planting.

With the implementation of the recommended measures, potential adverse effects from operation of the proposed transport corridors will be minimised, with scope for some positive effects to be gained.

With the implementation and establishment of the recommended measures, the operational effects at 'day one' are considered to be:

Within the southern end FUZ:

- Landscape character: '**Low**' adverse level of effect.
- Natural character: '**Low**' adverse level of effect.
- Visual effects: '**Low**' adverse level of effect.

Within the rural area:

- Landscape character: '**Low-Moderate**' adverse level of effect.
- Natural character: '**Low-Moderate**' adverse level of effect.
- Visual effects: '**Low-Moderate**' adverse level of effect.

Within the southern end FUZ:

- Landscape character: '**Low**' adverse level of effect.
- Natural character: '**Low**' adverse level of effect.

Visual effects: '**Low**' adverse level of effect. These effects will lessen over time to '**Low**' adverse level of effect as vegetation establishes (5-10 years) and '**Very Low**' adverse level of effect as planting matures (20 years +).

5.3.5 Summary of operational effects and recommendations

The North Projects will introduce an extensive transport network into the landscape, which is anticipated to result in modifications to existing rural areas, earthworks, vegetation removal, waterbody modification and potential modification to heritage and cultural sites. However, this will largely be in the context of an emergent urban landscape context. The proposed designations also provide the opportunity to improve landscape connectivity, better connect people and fauna with existing bush and riparian margins, increase the extent and quality of indigenous vegetation, and highlight heritage and cultural narratives in the landscape.

It is anticipated that natural values will be specifically affected by modification of waterways and wetlands, including due to cut and fill, diversions, potential structures within waterbodies, and the removal of riparian vegetation. It is likely that these effects can be reduced through avoidance of waterbodies, the use of bridges, avoiding piers in the beds of waterways and wetlands and minimising piers on the banks of waterbodies, and revegetating riparian margins. These issues will be addressed during the future detailed design and regional consenting stages of the North Projects. Without recommended measures to avoid, remedy or mitigate effects, the effects during operation are considered to be as per Table 11 summary below:

Table 11 Operational effects summary – without mitigation

| NoR | 1 (RRC) | | | 2 | 3 | 4 (SH 1 improvements) | | | | 5 (SH1 Crossing) | 6 (New connection Mildale-Grand drive) | | 7 (Pine Valley Road) |
|---|------------------------|--------------------|------------------------|--------------------|------------------------|--------------------------|--------------------|--------------------|--------------------------------------|---------------------|---|---------------|-------------------------------|
| | A South – in RUB | B Out of RUB | C North - in RUB | Mildale station | Pine valley station | A South – in RUB | B Out of RUB | C North -in RUB | D North – multi-mode path only | | In RUB | Out of RUB | |
| Likely future environment | | | | | | | | | | | | | |
| Landscape character | M | M-H | M | M | L-M | M | M-H | M | M | L-M | M | M-H | M-H |
| Natural character | M | M-H | M | M | L | M | M-H | M | M | L-M | M | M-H | M-H |
| Visual and associative | M | M-H | M | M | L | M | M-H | M | M | L | M | M-H | M |
| Key: V-L [Very Low], L [Low], L-M [Low Moderate], M [Moderate], M-H [Moderate High], H [High] and V-H [Very High] | | | | | | | | | | | | | |

| NoR | 8 (Dairy Flat Highway – FUZ) | | | | 9 (Dairy Flat Highway rural) | | 10 (Wainui Road) | 11 (New connection Dairy Flat Highway –Wilks) | 12 (Bawden Road) | 13 (East Coast Road) | | |
|---|---------------------------------|----------------------------------|------------------------|---------------------|---------------------------------|------------|---------------------|--|---------------------|-------------------------|---------------|-------------------|
| | A FUZ residential | B FUZ industrial/ rural | C FUZ industrial | ONL / Green Park | In RUB | Out of RUB | | | | In RUB - South | Out of RUB | In RUB - North |
| Likely future environment | | | | | | | | | | | | |
| Landscape character | M | M | L | M-H | M | H | M | L | M | M | M-H | M |
| Natural character | M-H | M-H | L-M | H | M | H | M | L | M | L-M | M | L-M |
| Visual and associative | M | M | L | M-H | M | H | M | L | M | M | M-H | M |
| Key: V-L ('Very Low'), L ('Low'), L-M ('Low Moderate'), M ('Moderate'), M-H ('Moderate High'), H ('High') and V-H (Very High) | | | | | | | | | | | | |

With implementation of recommended measures to avoid, remedy or mitigate effects, the effects during operation are considered to be at day one, as per Table 12 summary below:

Table 12 Operational effects summary – with implementation of recommended mitigation

| NoR | 1 (RTC) | | | 2 | 3 | 4 (SH 1 improvements) | | | | 5 (SH1 Crossing) | 6 (New connection Middle-Grand drive) | | 7 (Pine Valley Road) |
|---|-----------------------|--------------------|-----------------------|-------------------|------------------------|--------------------------|--------------------|-----------------------|---|---------------------|--|------------------|-------------------------|
| | A South –in RUB | B Out of RUB | C North -in RUB | Middle station | Pine Valley Station | A South –in RUB | B Out of RUB | C North -in RUB | D North – multi-mode path only | | In RUB | Out of RUB | |
| Likely future environment | | | | | | | | | | | | | |
| Landscape character | L | L-M | L | L | V-L | L | L-M | L | L | L | L-M | L | L-M |
| Natural character | L | L-M | L | L-M | V-L | L | L-M | L | L | L | L-M | L | L-M |
| Visual and associative | L | L-M | L | L-M | V-L | L | L-M | L | L | L | L-M | L | L-M |
| Key: V-L ('Very Low'), L ('Low'), L-M ('Low Moderate'), M ('Moderate'), M-H ('Moderate High'), H ('High') and V-H (Very High) | | | | | | | | | | | | | |

| NoR | 8 (Dairy Flat Highway – FUZ) | | | | 9 (Dairy Flat Highway rural) | | 10 (Wainui Road) | 11 (New connection Dairy Flat Highway – Wilks) | 12 (Bawden Road) | 13 (East Coast Road) | | |
|---|---------------------------------|----------------------------------|------------------------|-----------------------|---------------------------------|---------------|---------------------|---|---------------------|-------------------------|---------------|-------------------|
| | A FUZ residential | B FUZ industrial/ rural | C FUZ industrial | ONL/ Green Park | In RUB | Out of RUB | | | | In RUB - South | Out of RUB | In RUB - North |
| Likely future environment | | | | | | | | | | | | |
| Landscape character | L | L | V-L | L-M | L-M | M | L-M | L | L-M | L | L-M | L |
| Natural character | L | L | V-L | L-M | L-M | M | L-M | L | L-M | L | L-M | L |
| Visual and associative | L | L | V-L | L-M | L-M | M | L-M | L | L-M | L | L-M | L |
| Key: V-L ('Very Low'), L ('Low'), L-M ('Low Moderate'), M ('Moderate'), M-H ('Moderate High'), H ('High') and V-H (Very High) | | | | | | | | | | | | |

It is assumed that as landscaping matures any residual effects are anticipated to further reduce over time, and as the surrounding urban environment develops fully. The influence of future urban development on the surrounding rural and natural landscape will likely be greater than the proposed transport corridors.

6 Conclusions

The existing environment of the North Projects is highly varied, with modified and fragmented landscape patterns and landforms as a result of interventions and development at this northern extent of the Auckland urban area. However, there are landscape features that demonstrate a high degree of naturalness despite the proximity to urbanisation. Pukeatua Albany Heights is a relatively intact, cohesive natural landform with regenerating native forest, zoned as rural residential, ensuring that this natural feature remains intact while future urban zones are developed. Natural water bodies are assumed to be protected and enhanced through separate regional consenting processes. This includes through the development of FUZ areas separately, where it is anticipated that natural patterns and processes, such as riparian corridors, will be evident in the urban environment.

The rural character of land outside of the RUB is already influenced by the proximity to the urban environment and presence of roading features, including SH 1. Rural character will likely change in the future due to the influence of urbanisation in the adjacent FUZ areas and potential intensification of existing urban environments. Key features that contribute to the existing and anticipated future qualities of the landscape are described in Table 7, while Table 9 summarises the existing and anticipated future landscape and natural character values across the North Projects.

The proposed designations will upgrade and introduce new transport corridors and stations into the area between Albany and Ōrewa, which has the potential to result in large areas of fill, disruption to waterways and natural wetlands (as depicted in the currently proposed Project drawings), and vegetation removal. However, the proposed designations also provide the opportunity to extend areas of indigenous vegetation and provide new views over the natural environment, as well as views over the rural landscape within the wider area beyond the RUB. Where the transport corridor forms the boundary of the RUB, they play an important role in the landscape to define the rural-urban transition. There is significant opportunity for the North Projects to enhance this through landscape in the detail design of the ULDMP.

It is anticipated that natural character will be specifically affected by the construction of new crossings and areas of fill over waterways and natural wetlands. It is likely that these effects can be reduced through avoiding works in riverbeds and riverbanks and revegetating existing wetlands. These issues will be addressed during the future regional resource consenting stages of the North Projects' Proposed conditions at the future regional resource consent stage, which will provide specific mitigation for the future transport projects within each designation.

Construction effects of the North Projects without mitigation are described in Table 10 and are anticipated to be between a '**Low**' and '**Moderate-High**' level of effect. However, with implementation of the recommended measures described in Section 5.2.4 through the ULDMP and/ or CEMP these are anticipated to reduce to between a '**Very Low**' and '**Moderate**' level of effect. (Table 11).

Operational effects of the North Projects without mitigation are described in Table 12 and are anticipated to be between a '**Low**' and '**High**' level of effect. However, with implementation of the recommended measures described in Section 5.3.4 through the ULDMP these are anticipated to reduce to between a '**Very Low**' and '**Moderate**' level of effect. (Table 13). Residual landscape, natural character and visual effects across the whole North Projects are anticipated to further reduce over time with the establishment and maturing of vegetation and other proposed mitigation implemented through the ULDMP.

7 References

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