





Redhills Arterial Transport Network

Addendum to the 2020 Landscape and Visual Effects Assessment

March 2023

Version 0.3

Document Status

Responsibility	Name	Signature
Author	Riyasp Bhandari, NZILA Landscape Architect / WSP New Zealand Ltd	
Reviewer	Catherine Hamilton, NZILA Fellow / WSP New Zealand Ltd	
Approver	Joao Machado, New Zealand Planning Institute (Associate) / WSP New Zealand Ltd Bridget O'Leary, Planning Lead, Te Tupu Ngātahi Supporting Growth Alliance	 

Revision Status

Version	Date	Reason for Issue
0.1	24/02/2023	Draft
0.2	01/03/2023	Final Draft
0.3	21/03/2023	Final

Disclaimer

This is a draft document for review by specified persons at Auckland Transport and the New Zealand Transport Agency. This draft will subsequently be updated following consideration of the comments from the persons at Auckland Transport and the New Zealand Transport Agency. This document is therefore still in a draft form and is subject to change. The document should not be disclosed in response to requests under the Official Information Act 1982 or Local Government Official Information and Meetings Act 1987 without seeking legal advice.

Table of Contents

No table of contents entries found.

Tables

Table 1: Likelihood and Magnitude of Land Use Change	7
Table 2: Properties and/or dwellings within or close to the altered alignment	9
Table 3: Summary of Assessment of effects on Existing Landscape during Construction	15
Table 4: Summary of Assessment of Operational Effects on Landscape	18

Figures

Figure 1: 7-point Scale Rating to Describe Magnitude of Qualitative Assessments. Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines	4
Figure 2: AUP:OP Zones and NoR Alignment – Redhills Precinct	7
Figure 3: NoR 1 Before Design change (Original north-south arterial corridor alignment) between chainage 0-540 (Don Buck Road/Royal Road intersection to proposed stream crossing). Refer Appendix 2 of original LVA.....	8
Figure 4: NoR 1 After Design Change (Proposed North-south Arterial Corridor Alignment) Between Chainage 0-540 (Don Buck Road/Royal Road intersection) to Proposed Stream Crossing.....	8
Figure 5: Properties Proximate to the Design Change	10

Glossary of Defined Terms and Acronyms

Acronym/Term	Description
AEE	Assessment of Effects on the Environment report
AT	Auckland Transport
AUP:OP	Auckland Unitary Plan: Operative in Part
CPTED	Crime Prevention through Environmental Design
CTMP	Construction Traffic Management Plan
MHU	Mixed Housing Urban Zone
LVA	Landscape and Visual Assessment
NPS:UD	National Policy Statement on Urban Development
NoR	Notice of Requirement
NoR 1	North-south arterial transport corridor
NZILA	New Zealand Institute of Landscape Architects
NZCPS	New Zealand Coastal Policy Statement
PC78	Plan Change 78
RMA	Resource Management Act 1991
SEA	Significant Ecological Area
Te Tangi a te Manu	Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines
Te Tupu Ngātahi	Te Tupu Ngātahi Supporting Growth Alliance
TDM	AT's Transport Design Manual: AT Engineering Design Codes – Transport Design Manual
ULDMP	Urban Landscape and Design Management Plan
Watercare	Watercare Services Limited
Waka Kotahi	Waka Kotahi New Zealand Transport Agency
Dwelling	House within property boundaries
Property	Property defined by legal cadastral boundaries

Background

This report is an addendum to the existing draft Landscape and Visual Effects Assessment (LVA) for the Redhills Arterial Transport Network (RATN), dated July 2020. The existing LVA was prepared for Te Tupu Ngātahi Supporting Growth Alliance (Te Tupu Ngātahi), in support of Auckland Transport's (AT) Notice of Requirement (NoR) under the Resource Management Act 1991 (RMA) which seeks to designate land for the construction, operation and maintenance of the RATN.

The RATN consists of two new arterial corridors contained within four NoR's (NoR1, NoR2a, NoR2b and NoR2c), as detailed in the Assessment of Environmental Effects (AEE)¹. A portion of NoR1, which covers the 'Redhills North-South Arterial Transport Corridor' (N-S Project), is the subject of this addendum.

A design change to part of NoR1 was made following the preparation of the existing LVA. Consequently, it is necessary to review the existing LVA and assess whether there are any new landscape effects arising from the change. The design change involves shifting the north-south road alignment between the proposed Don Buck Road and Royal Road intersection to just before the proposed stream crossing (CH 0-540). (refer Figs 3 and 4). The alignment is shifted away from ephemeral tributaries and generally low-lying land to sit at a higher elevation adjacent to residential properties between 426 and 450A Don Buck Road, before tying back into the original designation boundary.

Purpose and Scope of this Report

The purpose of this addendum is to assess the landscape and visual effects resulting from the design change, which are described more fully in Section 6. The general premise of the existing LVA assessment still stands, with one amendment made to the alignment and associated design of the north-south corridor immediately west of Don Buck Road.

The landscape and visual effects of the design change on the future receiving environment, both during the construction and operational phases of the Project, are covered, as well as recommended measures to avoid, remedy and/or mitigate potential adverse effects.

This addendum forms part of a suite of technical reports prepared to support the AEE for the RATN and should be read in conjunction with the existing LVA and AEE, which contain further details on the history and context of the Project.

Catherine Hamilton has reviewed the original existing LVA and agrees with the methodology, conclusions, and recommendations of the report.

¹ Te Tupu Ngātahi North-West Assessment of Effects on the Environment (AEE) – Redhills Arterial Transport Network, 2022

The following statutory documents were assessed in relation to NoR1 design change. Any changes in these statutory documents since the existing LVA was prepared, are noted below:

- **Resource Management Act (RMA)**

No change recorded and current RMA is consistent with the existing LVA.

RMA matters of relevance to landscape have been reviewed in relation to the design change. The following considerations apply:

In relation to Matters of National Importance – (s.6 RMA):

- s.6(a): The site does not fall within the definition of a coastal landscape (including the coastal marine area), wetlands, and lakes and rivers and their margins, and as such s.6(a) does not apply.
- s.6(b): The site is not identified as an Outstanding Natural Landscape or Outstanding Natural Feature.

In relation to Other Matters (s.7 RMA):

- s.7(c): The maintenance and enhancement of amenity values is applicable.
- s.7 (f): Maintenance and enhancement of the quality of the environment is applicable.

- **Auckland Unitary Plan Operative in Part (AUP:OP)**

Plan Change 78 (PC78) in response to the National Policy Statement on Urban Development (NPS-UD) requirements will result in the up-zoning of tracts of land within Redhills. This includes the land within the design change area of the NoR1 designation boundary, from Residential – Mixed Housing Suburban zone to Residential – Mixed Housing Urban zone.

All overlays applicable to this addendum are consistent with those in the existing LVA.

- **Redhills Precinct Plan**

No change recorded. The design change conforms to the objectives outlined in the I610 Redhills Precinct Plan.

Non-statutory Guidance Documents:

No change recorded. The following non-statutory documents were referenced in the assessment in relation to the design change of NoR1, with no changes to guidance noted as part of this addendum:

- Te Tupu Ngātahi Design Framework – Version 1.0
- Transport Design Manual – Auckland Transport
- Bridging the Gap: Waka Kotahi NZ Transport Agency Urban Design Guidelines (2013)
- New Zealand Transport Agency Landscape Guidelines (Final Draft, 2014)

This assessment follows a similar methodology to that used for the existing LVA, but with a specific focus on the design change of NoR1 only. The approach further recognises the guidance provided in Te Tangi a te Manu, Landscape Assessment Guidelines (TTatM)² which was published after the preparation of the existing LVA (2020). The Guidelines are now widely accepted as the basis for best practice within a statutory planning context in Aotearoa New Zealand.

In accordance with TTatM, landscape is recognised as having overlapping dimensions of physical, associative, and perceptual values. Effects on landscape values consider not only the physical resources, but also associative values derived from peoples' relationship with the landscape and how it is perceived (including visual values).

TTatM guidelines go further to promote integration of Te Ao Māori – our unique indigenous worldview, as a keystone of Aotearoa landscape assessment practice. It is not however, the role of the Landscape Architect to determine these values unless designated to do so. Accordingly, this addendum does not specifically address Mana Whenua values which are being considered through a separate, parallel process. Refer to the AEE for details.

Natural character, as defined by Te Tangi a te Manu, 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.

The design change does not sit within the RMA (Section 6(a)) definition of Natural Character and as such is considered only in a more general sense of the natural characteristics and qualities of the landscape.

The steps taken to assess the landscape effects of the design change are set out below:

- A desktop analysis of relevant background information was undertaken to review information pertinent to the design change, including the existing LVA, relevant statutory and planning provisions, updated NoR1 design plans and technical assessments from relevant specialists.
- A site visit was undertaken on 20 February 2023 to evaluate the landscape values and character of the receiving environment and its wider landscape context. The visual catchment and viewing audience were identified, and photographs taken from representative viewpoints.
- Discussions with Te Tupu Ngātahi ecological and stormwater specialists on respective technical assessments pertaining to the design change were held.
- Engagement was undertaken with the Te Tupu Ngātahi Planning Lead and AEE Programme Wide Lead to understand the project context and details of the design change.
- The design change was evaluated to understand any implications for landscape values and character that depart from the existing LVA.
- An assessment of Landscape and Visual Effects pertaining the design change was prepared.

Effects Scale

The nature (qualitative) and magnitude (degree/level) of effects change both during construction and following construction once the landscape strategy including mitigation measures have been assessed. The landscape architecture profession promotes a seven-point scale as a universal scale

² [Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines](#), Tuia Pito Ora, 26th August 2022

to describe the level of effects as a qualitative measure as described below, rather than concluding the level of effects (less than minor, minor or more than minor) which rests with the planner.

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

Figure 1: 7-point scale rating to describe magnitude of landscape effects. Te Tangi a te Manu: Aotearoa New Zealand Landscape Assessment Guidelines

Change in a landscape does not, of itself, necessarily constitute an adverse landscape or visual effect. Landscape is dynamic and is constantly 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 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.

Effects include positive effects. Consideration is given to enhancing positive effects through alignment between mitigation and design, rather than merely minimising harm which is considered by the landscape profession to be a low baseline.

Physical Context

Redhills is a live-zoned urban greenfield area on the periphery of the existing urban environment of northwest Auckland, approximately 13km from the Auckland CBD. NoR1 is located in the eastern part of Redhills, near the intersection of Don Buck Road and Royal Road.³

The existing baseline landscape within which the design change is set is consistent with landscape values and character described in the existing LVA. Key qualities of relevance to the design change are:

- The surficial landscape character is distinguished by undulating topography, a north-facing amphitheatre landform and interlacing stream corridors with associated tributaries present in the lowlands.
- The setting is a peri-urban landscape characterised by an interplay of rural (pastoral) and urban land uses, including large areas of developing or recently developed urban land uses. Human land use patterns are expressed in the fine-grained lifestyle blocks which are demarcated by rural fences. Several lifestyle blocks and associated ancillary buildings are established in the southern uplands, adjacent to the urban settlement along Don Buck Road and Paretao Street. Power pylons are a dominant feature, contributing to the modified character of the landscape. Urban development on the fringes of the amphitheatre contribute to a sense of a landscape in transition to an urban environment.
- The natural qualities of the landscape have been diminished due to the loss of native vegetation cover to enable agrarian activities. Open grazed pasture is the dominant landcover, while exotic planting associated with farming activity includes hedgerows, individual specimen trees and amenity planting located around dwellings.
- Natural wetlands amongst the tributaries are highly modified and dominated by exotic wetland species.⁴ Small fragments of low value riparian planting and indigenous species are present including manuka scrub, established at the southern reaches of the Ngongetepara Stream. The stream habitat also serves as an ecological corridor for long-tailed bats.

Visual Context

The viewing context is largely consistent with that described in the existing LVA, with some changes that are described in more detail in section 6 below. Viewers mainly consists of private landowners within the Redhills Precinct, adjacent to the Project Area. The transient viewing audience (i.e. vehicles travelling at 50km/h) is comprised of those travelling along Red Hills Road, Don Buck Road and Fred Taylor Drive. Glimpsed views may also be afforded from intersecting roads such as Royal Road, Matakahe Road, Nelson Road, Nixon Road, Henwood Road.

³ Te Tupu Ngātahi North-West Assessment of Effects on the Environment (AEE) – Redhills Arterial Transport Network, 2022

⁴ Te Tupu Ngātahi Redhills Arterial Transport Network – Assessment of Ecological Effects, 2022

In the context of the RMA assessment process, the effects of the construction and operation of the design change are considered in terms of the future plan-enabled environment; that is, the anticipated environment at the time the project is likely to be constructed. The future receiving landscape for NoR1 is informed by the AUP:OP zone provisions and the Redhills Precinct Plan 1, which indicates a basic urban framework (arterial network and green infrastructure).

The land within which the design change area is located is zoned under the AUP:OP for Residential – Mixed Housing Suburban. The zone enables intensification, while retaining a suburban built character. Development within the zone will generally be two storey detached and attached housing in a variety of types and sizes to provide housing choice. The height of permitted buildings is the main difference between this zone and the Residential – Mixed Housing Urban Zone which generally provides for three storey predominately attached dwellings. Up to three dwellings are permitted as of right subject to compliance with the standards. This is to ensure a quality outcome for adjoining sites and the neighbourhood, as well as residents within the development site. Further, the land within the design change area is proposed to be up-zoned to Residential – Mixed Housing Urban under PC 78.

Intensification proximate to the design change is expected to occur more gradually than some other areas within the Redhills Precinct.⁵

The land immediately to the southeast of the design change area, along Don Buck Road, is zoned Business - Local Centre. This area will see a change in activity from the current low-density housing to a mixed-use centre with a focus on community and commerce. Therefore, the assessment of landscape effects on these adjacent residents needs to consider the future plan-enabled change to a Local Town Centre. (Refer to Fig 2 below).

The wider area of RATN, including NoR1, will experience considerable change to the landscape character as the land use transitions to an urban environment. The natural attributes of the landscape within NoR1 are mainly associated with the Ngongetepara Stream and its riparian vegetation. The Redhills Precinct Plan identifies these waterbodies as helping to shape and integrate urban development into the landscape and as such the natural landscape values are expected to remain and be enhanced as urban development progresses.

A green road circuit is a feature of the Redhills Precinct Plan and will provide a priority cycle and pedestrian route of high amenity, connecting recreational spaces within the precinct, including parks and stream corridors, and connections to commuter cycling routes. This green circuit is planned to intersect with the north-south transport corridor within the proposed design change extents.

The magnitude of effect of the land use change based on AUP:OP zoning/policy direction within the design change area (CH 0-540) has been identified in Table 1: below, which has been used to inform the assumptions made on the likely future environment.⁶

⁵ Te Tupu Ngātahi North-West Assessment of Effects on the Environment (AEE) – Redhills Arterial Transport Network, 2022

⁶ Te Tupu Ngātahi North-West Assessment of Effects on the Environment (AEE) – Redhills Arterial Transport Network, 2022

Table 1: Likelihood and Magnitude of Land Use Change

Existing environment	Current AUP:OP Zoning	Likelihood of Change for the environment ⁷	Likely Receiving Environment ⁸
Rural	Residential (Mixed Housing Suburban)	High ⁹	Residential (Mixed Housing Urban)

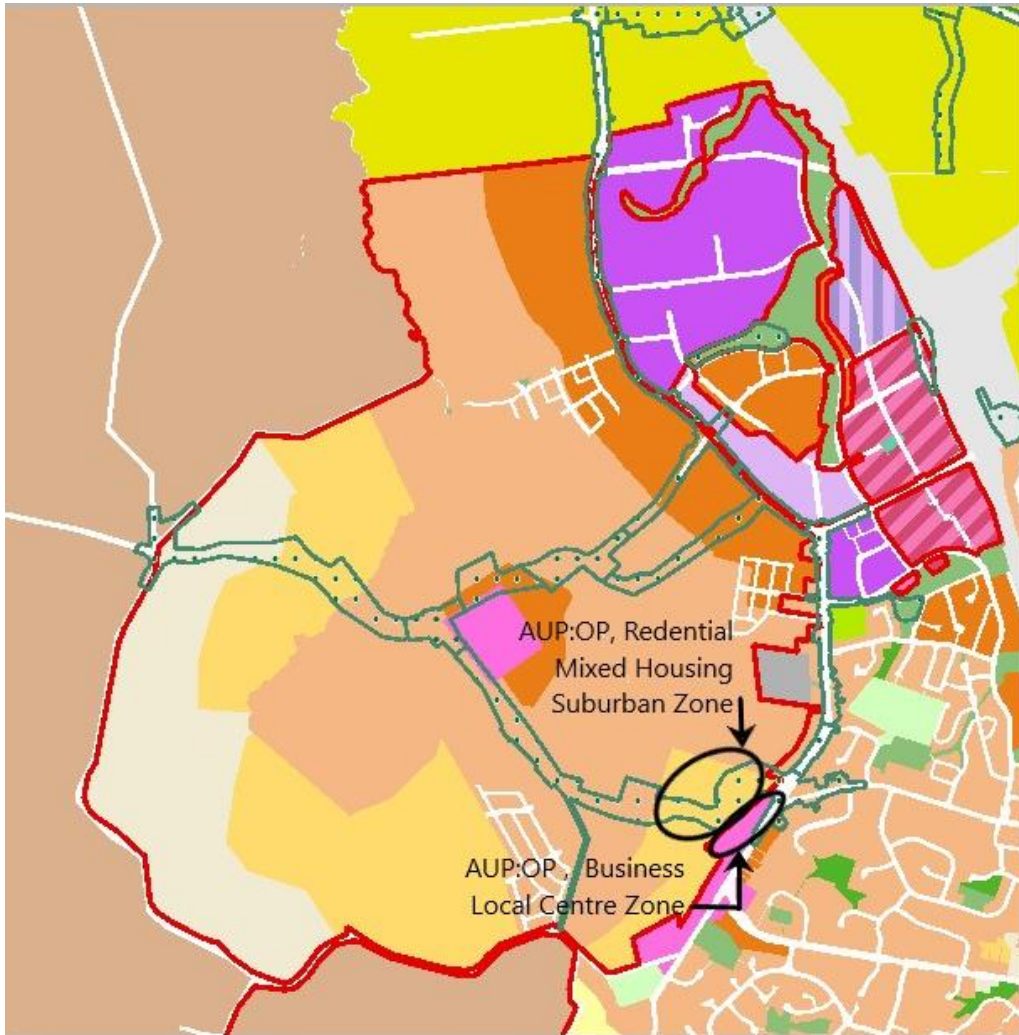


Figure 2: AUP:OP Zones and NoR Alignment – Redhills Precinct

⁷ Based on AUP:OP zoning/policy direction

⁸ Based on AUP:OP zoning/policy direction (PC 78)

⁹ There are areas of existing Residential Zone land that has recently been intensified (i.e. new build developments), as such is unlikely to change in the near future.

The original NoR1 designation boundary proposed a linear alignment of the north-south arterial corridor from Don Buck Road and Royal Road intersection to the proposed stream crossing at CH 0-560 (Map 15, Appendix 2 of the existing LVA). This alignment cuts across the landscape intersecting with fragments of terrestrial bush and ephemeral stream corridors before tying into the proposed stream crossing over the Ngongetepara Stream at CH 0-560. A significant extent of fill batter slopes on either side of the transport corridor are proposed, which overlap with the terrestrial vegetation and stream tributaries flowing into the Ngongetepara Stream (refer Fig 3).

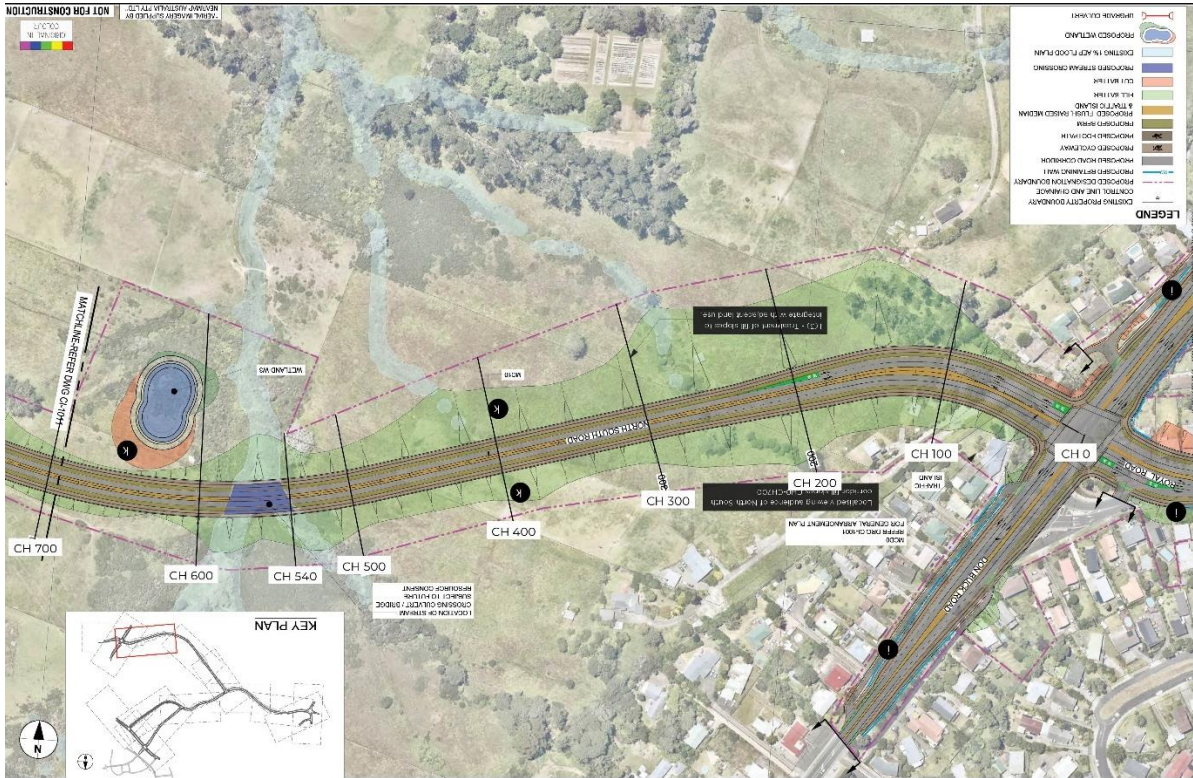


Figure 3: NoR 1 Before Design change (Original north-south arterial corridor alignment) between chainage 0-540 (Don Buck Road/Royal Road intersection to just before the proposed stream crossing). Refer Appendix 2 of existing LVA

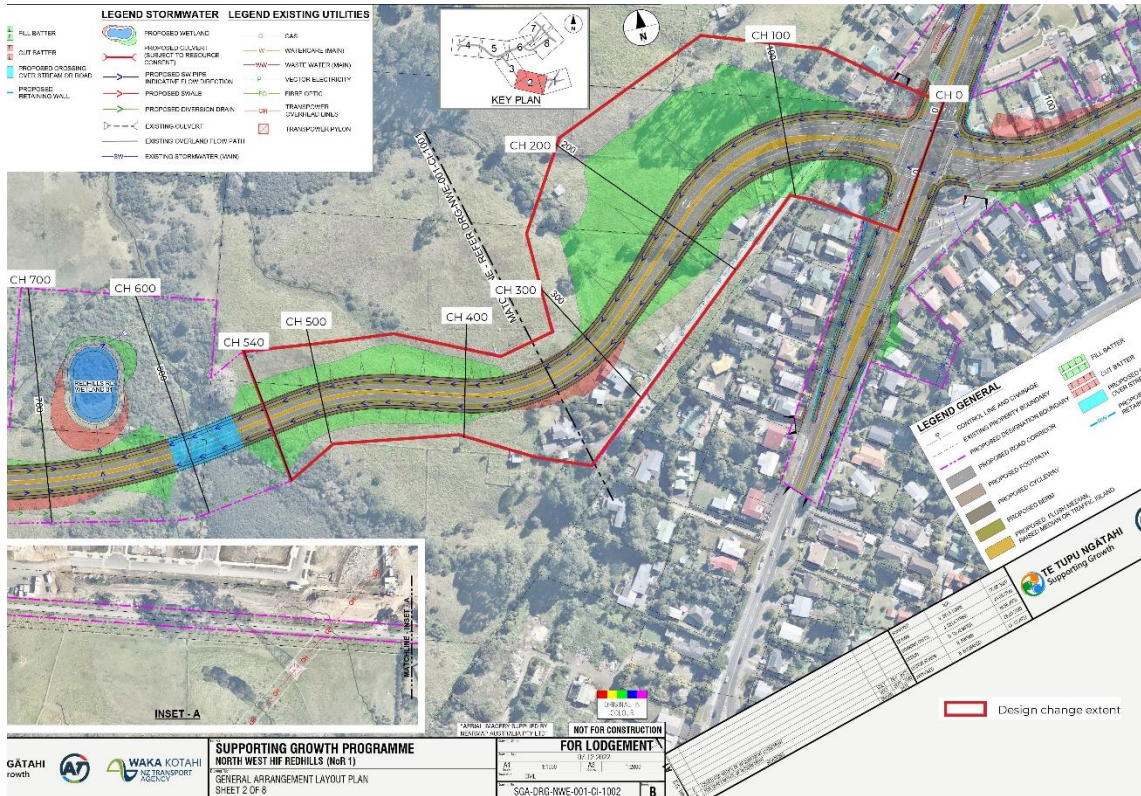


Figure 4: NoR 1 After Design Change (Proposed North-south Arterial Corridor Alignment) Between Chainage 0-540 (Don Buck Road/Royal Road intersection) to just before Proposed Stream Crossing

The design change alters the route between Don Buck Road/Royal Road intersection to just before the proposed stream crossing at CH 0-540. This change proposal is documented in the Redhills Resource Consent drawings SGA-DRG-NWE-001-CI-1001 and SGA-DRG-NWE-001-CI-1002 (refer Fig 4). Refer Appendix 1 for reference drawings relating to the RATN.

The alignment now bends southwest from CH 0-100 to run along the boundary with residential properties on Don Buck Road, before bending back to intersect with the original alignment at CH 0-540.

The route will be more elevated when compared with the original alignment and shifts further away from the tributaries of the Ngongetepara Stream. This achieves a key objective of minimising adverse effects on the biophysical values of the stream system, which contribute to the natural qualities of the landscape. It also means that this section of the RATN will sit closer to natural ground level thereby reducing earthworks volumes and helping to facilitate future local road connections. Overall, the new alignment will significantly reduce the amount of fill batter slopes and reduce modification to the natural landform.

The design change brings the designation closer to some residential properties on Don Buck Road when compared with the existing LVA extents. This will result in some dwellings being removed, while others will be in closer proximity to the new transport route alignment. The properties affected, and a description of the change is set out in Table 2 below.

Table 2: Properties and/or dwellings within or close to the altered alignment

Properties and Dwellings	Original alignment	Design Change	Description
456A, 458 Don Buck Road; large lifestyle blocks	Dwellings outside designation	Dwellings within designation	Change from existing LVA; Assumed dwellings will be removed
458a Don Buck Road; large lifestyle blocks	Dwelling within designation	Dwelling within designation	Consistent with existing LVA; Assumed dwelling will be removed
456 and 460 Don Buck Road; small lots	Properties entirely within designation	Properties entirely within designation	Consistent with existing LVA; Assumed dwellings will be removed
452 and 454 Don Buck Road; small lots	Properties outside designation	Properties outside designation	Consistent with existing LVA; Properties are adjacent to designation as per the original alignment
450a, 448a, 446, 444a, 438, 440, 436, 426 Don Buck Road; small lots	Properties outside designation	Properties outside designation	Change from existing LVA; Designation moves closer to properties when compared with original alignment
414, 424 Don Buck Road; small lots	Properties outside designation	Properties outside designation	Change from existing LVA; Designation moves closer (but not adjacent) to properties when compared with original alignment

Key:

- Dwellings within proposed design change designation (refer Figure 6)
- Properties entirely within proposed design change designation (refer Figure 6)
- Properties outside proposed design change designation (refer Figure 6)

7.1 Assessment of Construction Effects

This assessment of landscape and visual effects associated with the design change during construction agrees with the conclusions reached in the existing LVA, with the following minor departures:

- Adverse effects on biophysical landscape values resulting from garden planting removal around homesteads at 456a and 458 Don Buck, at approximately CH 0-400 of the greenfield site. Refer to Figure 4.
- Positive effects on biophysical landscape values resulting from the alignment shifting further away from tributaries of the Ngongetepara Stream and reduction in volume and extent of earthworks and batter slopes.
- Adverse visual effects resulting from construction works being in closer proximity to the fixed viewing audience located along the southeast boundary of the designation, including machinery, stored materials, structures, lighting and construction activity.
- Adverse landscape amenity effects resulting from construction works being in closer proximity to residents located along the southeast boundary of the designation, including machinery, stored materials, structures, and activity.

These landscape and visual effects are assessed in relation to the successive stages of site enabling works, project formation works and site finishing works below.

7.1.1 Site Enabling Works

7.1.1.1 Construction Areas

Site enabling works will be implemented to set up the construction areas, including site compound, laydown areas and access routes, and will include:

- Providing space for manoeuvring of heavy machinery
- Setup of temporary construction plant on site
- Install environmental controls, silt fences, and temporary sediment retention ponds
- Vegetation clearing and demolition / modification of existing properties

Enabling works will introduce machinery, stored materials, structures, and activity into a landscape that is already heavily modified from its natural state by rural land use activities. Some modification to surficial features involving earthworks to create suitable grades and surfaces will be required, however these activities are not discordant with a landscape that is already characterised by increasing urbanisation within its surrounding context. Furthermore, the future receiving environment is expected to be more strongly influenced by urbanisation by the time contract works begin.

Notwithstanding, the level of sensitivity for existing private landowners along the Don Buck Road boundary will be heightened due to their proximity to the Project Area. However, the Redhills Precinct Plan and current AUP:OP zoning provides for the land use transitioning to Business – Local Centre activities. At the time of construction, one of two scenarios is likely to be relevant – either the properties will be in transition to Business Use, or the Local Centre will be established. In either case, it can be expected that the existing residential land use will be in transition to business use which, in landscape terms, is coherent with transport infrastructure that supports such activity.

Overall, effects on landscape resulting from enabling works to establish construction are assessed as **Low adverse**, considering appropriate environmental management controls to mitigate impacts, as set out below.

7.1.1.2 Vegetation Clearance

Garden plantings within the design change area that will require removal are mostly exotic amenity species, (including weeds) associated with the dwellings at 456a and 458 Don Buck Drive, between CH 0-400. These plantings are generally not considered noteworthy from a landscape perspective. There is, however, the potential for plantings to have heritage significance and therefore be worthy of measures to reintroduce species, which could be determined by an appropriately qualified landscape heritage specialist.

All other plantings and naturally occurring indigenous vegetation within the boundaries of the design change area impacted by the Project works have been assessed within the existing LVA and the conclusions are supported. Notwithstanding the new alignment moving further away from the ecologically sensitive tributaries of Ngongetepara Stream, there are still two locations where it crosses over ephemeral streams. Mitigation measures should be implemented in accordance with the recommendations of the existing LVA, and further landscape enhancement measures designed and integrated into the Urban Landscape and Design Management Plan (**ULDMP**).

Overall, the physical landscape effects resulting from vegetation clearance are assessed as **very low adverse**, taking into account the already low presence of indigenous vegetation within the stream system – or anywhere else in the NOR1 extents. Mitigation and design strategies proposed to enhance the already degraded landscape values will result in positive landscape effects overall.

7.1.2 Project Formation Works

The proposed north-south arterial transport corridor ties into the Royal Road intersection between 452 and 462 Don Buck Road (refer Figure 4). The original design proposes a steep section (8% grade) from the intersection before tying into the natural ground level. The design change proposes moderate fill batter slopes that would reduce the amount of fill when compared with the original design. While this still incurs a modification of the landscape, a gentler slope profile is created that is more sympathetic to the natural landform and would retain a greater degree of the site's natural character.

In constructing the design change, there is a risk of sediment entering the wetland and stream channels while earthworks are exposed. Some cutting of landform would also be required along the south side of the bend at CH 300, which could potentially create an unsightly view for neighbouring residents along Don Buck Road, while earthworks are exposed. These effects will need to be managed by mitigation measures identified in the AEE.

The change in alignment of the north-south corridor will have adverse effects on the physical attributes of the landscape, however, the level of effect is greatly reduced through mitigation. Therefore, the overall construction effects are assessed as **very low adverse**.

7.1.3 Site Finishing Works

Site finishing works will be the same as previously identified in the existing LVA.

In addition, careful consideration should be given to the effect of lighting in proximity to vegetation cover, which is home to indigenous bat and bird habitat. It is recommended to implement appropriate mitigation measures to the design change area of NoR1, as documented in the AEE, to preserve and protect the ecological habitat.

The overall physical works nearing completion is expected to have minimal effects on the existing landscape and are assessed as **very low adverse**.

7.1.4 Impacts on Private Property

As described in 7.1.1.1, it is expected that the private properties likely to experience the greatest landscape effects during construction works are those located along Don Buck Road to the south of the designation. Notwithstanding that these properties are likely to be in transition to business use at the time of construction, as enabled through PC78, effects relating to construction will still need to be mitigated.

It is assumed all affected dwellings within the design change area of the designation, namely 456A, 458, 458A Don Buck Road, are to be removed, including any ancillary buildings, existing driveways, private gardens, mature trees and associated fencing.

Properties adjacent to the designation boundary, namely those along the slip-lane at 450a, 448a, 446, 444, 438, 440, 436, 426 Don Buck Road, and close to the new designation boundary at 414 and 424 Don Buck Road, will experience temporary construction effects. Such effects will result from establishment activities including construction of access roads, lay down areas and storage, the construction of a structural retaining wall, and the perception of activities associated with construction – including lighting, vehicle movement and noise.

It is likely that the implementation of the transport infrastructure will occur at a time when the adjacent land use is transitioning to greater urban density, including a shift to Business- Local Centre along the southern designation boundary. It can also be expected that construction work will generally be more prevalent in the surrounding landscape as the Precinct Plan takes effect. This will change the landscape amenity associated with lifestyle blocks in the existing environment, to a more urban setting.

Overall, construction effects on private properties are assessed as **low-moderate adverse**. Any adverse effects can be further reduced with appropriate mitigation measures as outlined in the existing LVA and AEE.

7.1.5 Visual Effects

A site visit was undertaken to evaluate the existing visual quality of the landscape and visibility in relation to the design change. This information, together with an evaluation of the future receiving environment, has been used to assess visual effects. The visual character of the existing receiving environment is captured in **LC #1** of the supplementary maps to this addendum. The visibility of the design change in relation to the adjoining fixed viewing audience is represented in **VP #1**, while visibility in relation to the wider viewing audience in the surrounding environment is captured in **VP's #2- #6** inclusive.

Visual effects associated with construction works will include site establishment, demolition, vegetation clearance, bulk earthworks, land formation and construction of site heavy infrastructure

including construction of a structural retaining wall to manage road level changes. Works are likely to endure in stages over 1.5-3 years.¹⁰

In terms of existing visual character, the landscape exhibits strong surficial qualities relating to undulating topography, and poor natural landscape qualities derived from the dominance of grazed pasture and scarce remnant indigenous vegetation located along streams and tributaries. Long views to the western hills and ridgeline locate the landscape in the wider visual context. The low-lying nature of the lifestyle blocks contributes to a 'big sky' landscape character. All this will change when the area becomes urbanised, as provided for by the current AUP:OIP zoning. Views will generally be constrained by intervening buildings while waterbodies will be enhanced which will contribute to improved visual amenity.

For the wider viewing audience (VP#2 to VP#6) the visual impacts are largely consistent with those identified within the existing LVA. The main change is that the construction will sit at a higher elevation than the previous alignment and as such will be more visually prominent. Measures to mitigate these increased visual effects are identified in section 7.2 below.

For properties adjoining the designation boundary (Representative VP #1) the roading infrastructure will be in closer proximity and therefore more prominent when compared with the original alignment assessed in the existing LVA. Affected properties are 450a, 448a, 446, 444, 438, 440, 436, 426 Don Buck Road, and those close to the boundary at 414 and 424 Don Buck Road. Some views from these properties are locally screened by intervening planting and landforms, whilst other views are expansive and take in the wider landscape to the distant ridgeline to the north.

The viewing audience from adjacent properties will in the future be those occupying the Business - Local Centre zoned properties as well as visitors to these businesses. The views afforded to this audience will be of construction works within a transitioning landscape that increasingly will not possess rural lifestyle qualities. Nonetheless, it will be important to mitigate adverse visual effects relating to construction activities. These mitigation measures are set out below.

For transient viewers, and those viewing the infrastructure from public locations, visual effects are consistent with those assessed in the existing LVA. The main difference is that construction works will be more prominent given the higher, elevated land. Visibility is expected to be locally constrained by intervening development which will occur in accordance with the Precinct Plan up-zoning.

Overall, visual effects during construction must be considered against the sensitivity of the future receiving environment which will be adjusted to frequent construction activities and new developments enabled by the current AUP:OIP zoning. As such, the existing environment is an unrealistic benchmark against which to assess landscape and visual impacts. Given the changing landscape setting and taking account of proposed measure to mitigate adverse effects, visual effects are assessed as being **low adverse**.

¹⁰ Te Tupu Ngātahi Redhills Arterial Transport Network – Assessment of Landscape and Visual Effects, 2020

Table 3: Summary of Assessment of effects on Existing Landscape during Construction

Stage	Assessment Summary	Nature of Effect	Magnitude of Effect	Recommendations
Construction	<p>Construction will occur within a landscape in transition from peri-urban to urban in keeping with the Redhills Precinct Plan. While the existing environment possesses moderate rural amenity values with poor natural landscape attributes, the future receiving environment will be adjusted to a medium to high density development within which natural landscape systems will be restored. The presence of high-quality vegetation cover within remnant patches should be protected from construction impacts and enhanced through revegetation of riparian margins.</p> <p>Visual effects from construction are greatest for the properties adjoining the designation along Don Buck Drive. These effects can be mitigated through screening as well as controls on hours of activity to reduce night-time disturbances such as light spillage.</p>	Adverse	Low	Refer to section 7.2

7.2 Recommended Measures to Avoid, Remedy or Mitigate Construction Effects

Physical work will be undertaken in, or near, waterways and wetlands which could cause waterway, riparian and wetland bed disturbance, and result in negative impacts on the biophysical values of the landscape. Large construction buffer areas are required to alleviate these effects.

Construction effects will to be mitigated through measures identified in the Construction Environmental Management Plan (CEMP) as set out in conditions. These mitigation measures have been identified in the existing LVA and are assessed as being appropriate to the construction of the NoR1 design change area. Mitigation proposals are:

- Provide large construction buffer areas to alleviate potential adverse effects in, or near, waterways and wetlands which could cause waterway, riparian and wetland bed disturbance, and result in negative effects on biophysical landscape values
- Site works areas are recommended to be reinstated at the completion of the construction phase
- Reinstatement site compounds and construction yards by removing any left-over fill and shaping ground to integrate with surrounding landform. Reinstatement with grass at the completion of works.

- Reinstatement of private fences and garden plantings for existing, remaining properties temporarily affected by Project works.
- Vegetation removal is proposed to retain noteworthy and high value trees and vegetation identified within the N-S Project area where possible.
- For affected private properties, where existing dwellings are assumed to be removed, it is recommended that, after completion of the works affecting the property, if the remnant land is maintained within the road corridor it be grassed to mitigate adverse visual amenity effects potentially arising from residual land.
- Existing fences and garden plantings (removed through the N-S Project works) are proposed to be reinstated (in consultation with the landowner).

In addition, further mitigation measures applicable to the design change area of NoR1 have been proposed below. It is recommended that these should be addressed through future outline plan or resource consent processes (as appropriate):

- Retain terrestrial vegetation where possible to preserve ecological habitat identified within the Project Area where practicable.
- Provide temporary screening during construction for adversely affected residential areas, as provided for in the CEMP condition.
- Identify opportunities for the survey, collection, and propagation of heritage amenity plants in private gardens that will be demolished to enable construction to occur (subject to the agreement with the landowners), so that as appropriate these may be re-established as part of the planting programme during finishing works.

7.3 Assessment of Operational Effects on Landscape

Operational effects have been assessed in the existing LVA and this addendum agrees with the conclusions reached therein. The design change area of NoR1 will introduce major roading infrastructure into a future, heavily built receiving environment. The main difference when compared with the design assessed in the existing LVA is that the permanent infrastructure will now sit closer to the adjoining properties along Don Buck Drive and will occupy land at a higher elevation.

7.3.1 Landscape Effects

Major roading infrastructure forms an integral structuring element within urban settings. The key consideration for operational effects is the way in which, through aligning conditions and design, it is possible to create high amenity landscape outcomes for the infrastructure, the receiving environment, and for those experiencing it.

Shifting the road alignment to a higher elevation and away from the low-lying wetlands, tributaries and associated terrestrial vegetation of Ngongetepara Stream will reduce adverse effects on biophysical landscape values. Furthermore, the new alignment will create opportunities to reinstate the natural patterns and processes of the landscape, which are currently degraded. This is in keeping with the Redhills Precinct Plan which anticipates the enhancement of stream corridors and open spaces as a structuring element within the new urban form.

The road corridor can be conceived of as a green (ecological) corridor that contributes to the biophysical and amenity values of the future urban setting and connects the site to the Northwest Wildlink. To this effect, it is recommended that contiguous swathes of vegetation along the margins of road are established, where practicable.

The undulating topography contributes strongly to the existing landscape character and expression of the surficial (geological) processes. This landform in the surrounding area will be significantly modified and reshaped to accommodate future urban development. Within this context, the road corridor will become a coherent part of the future urban landscape typology and will help to express the underlying landform as it generally hugs and 'renders' the contour of the ground. Where modification of landform will occur through the introduction of fill slopes and cut embankments on either side of the transport route, it is recommended to plant these slopes with native species where practicable.

Adverse effects of dominance may arise in relation to the scale and appearance of infrastructure; however, this is expected to be lessened due to the alignment sitting closer to natural ground level.

Overall, the operational stage of the Project provides opportunities to create enhanced physical landscape outcomes when compared with the existing landscape baseline and in consideration of the future receiving environment. Landscape effects are assessed as **moderate positive** following mitigation.

7.3.2 Visual Effects

There is potential for adverse visual effects associated with the design change area of NoR1 to be greater than that of the original alignment. This is due to bringing the road closer to the houses along the adjoining boundary with Don Buck Road. However, given the future urbanisation of the Redhills Precinct and the changes in land use proximate to the designation, the visual quality of the transport route will be coherent with the urban setting.

Attention will still need to be given to the appearance of the roading infrastructure so that it contributes an attractive element in the landscape and is not visually dominant. This will be achieved through suitable landscape enhancement measures designed and integrated into the Urban Landscape and Design Management Plan (**ULDMP**).

Measures that will contribute to visual amenity include:

- vegetated embankments to create a green visual buffer from the overlooking properties along Don Buck Road
- planting of fill batter slopes to minimise the visual prominence of the new road alignment which sits at a higher elevation than the original alignment
- design of hard infrastructure to visually integrate into the surrounding built form, and
- design of any bridges as art bridges that contribute to the attractiveness of the landscape setting.

While temporary residual adverse visual effects are expected from properties and from a transient audience, it is anticipated that the overall development of Redhills will absorb any adverse visual amenity effects and offer enhanced streetscape appeal, mature trees and quality infrastructure within the Residential – Mixed Housing Suburban zoning.

Overall effects on visual amenity associated with design change are considered **low adverse**, taking into account mitigation measures.

Table 4: Summary of Assessment of Operational Effects on Landscape

Stage	Assessment Summary	Nature of Effect	Magnitude of Effect	Recommendations
Operational	<p>Permanent landscape effects relate to the introduction of roading infrastructure into an environment that will in the future be heavily urbanised. Major roads are an expected part of the urban landscape typology and as such are not discordant with the landscape setting.</p> <p>The appearance of the infrastructure can contribute a positive amenity to the landscape through careful design of the hard infrastructure to integrate with the surrounding urban setting. Any bridges can be designed as 'art bridges' in the tradition of West Auckland's art strategy and will contribute to landscape aesthetic qualities and associative aspects of landscape.</p> <p>Extensive planting on batter slopes and between the road corridor and adjacent land uses will contribute to the visual quality of the route as a green corridor and its function as a link in the Northwest Wildlink.</p>	Neutral	Very Low	Refer to Section 7.4

7.4 Recommended Measures to Avoid, Remedy or Mitigate Operational Effects

This addendum considers the measures to avoid remedy or mitigate operational effects described in the existing LVA and AEE are appropriate to the proposed design change area of NoR1. Some minor amendments take account of the closer proximity to properties along Don Buck Road and the higher elevation of the infrastructure. The measures from the existing LVA include the following:

- Roading infrastructure is to be designed, constructed, and managed in keeping with the Urban & Landscape Design Management Plan (ULDMP).
- All cut and fill slopes will be shaped to a natural profile to integrate into the surrounding natural landform. Where there are large-scale fill slopes (that are retained within the road reserve) it is recommended these are reinstated with grass, where practicable.
- Noise mitigation walls shall be designed to integrate with private boundary fencing and avoid double layering. It is also recommended to incorporate amenity planting in a way to improve streetscape character and visual amenity within the wider open space development.
- A planting plan to be implemented during detailed design phase under the ULDMP for the open spaces (fill batter slopes)

- Implement further riparian and wetland planting measures to reinstated areas where proposed stream crossings are identified to enrich natural character values.
- Bat and bird habitat – it is recommended to provide appropriate landscape measures i.e., mature native buffer planting along the existing riparian corridor and implementation of a Bat Management Plan (BMP) as per the recommendations in the Assessment of Ecological Effects. Careful consideration of measures to maintain bat connectivity, e.g. street lighting placement and noise management, is required under the EMP, refer to the (Assessment of Ecological Effects).
- Where practicable incorporate reinstatement planting to private properties that have resulted in vegetation loss during construction.
- Investigate walking and cycling connectivity opportunities to integrate with existing and future open space (as indicated the Redhills Precinct Plan).

In addition, further mitigation measures are applicable to the design change area of NoR1 have been proposed below. It is recommended that these should be addressed through future outline plan or resource consent processes (as appropriate):

- Introduction of any heritage plant species collected from the site during construction phase, to retain landscape memory.
- Consideration of mitigation buffer planting between residential properties along Don Buck Road and the proposed road alignment
- Minimise Crime Prevention through Environmental Design (CPTED) issues by giving effect to CPTED principles across the NoR1 works, as required by the ULDMP condition.

This addendum generally agrees with the overall conclusion of the existing LVA in relation to the magnitude and nature of landscape and visual effects. Overall, the effects resulting from the design change are assessed as being **low adverse**. This is primarily because the transport route will be set within a future landscape that has transitioned from the existing peri-urban landscape character to a future heavily urbanised landscape setting in terms of the Redhills Precinct Plan and PC78. Roading infrastructure of the type proposed is a coherent part of the urban landscape typology and as such is not discordant with the anticipated landscape setting.

Consideration needs to be given to the appearance of the infrastructure to ensure that it integrates in scale and visual quality with its surrounding context and contributes overall to positive landscape and urban amenity. This will be achieved through conditions requiring the implementation of quality design as set out in the Urban & Landscape Design Management Plan (ULDMP).

Positive landscape effects will be achieved through shifting the alignment away from the low-lying, higher-valued stream tributaries and restoring these natural systems. This is consistent with the intentions of the Redhills Precinct Plan. Furthermore, the transport corridor can be designed to integrate within the landscape of the Red Hills Precinct.

Visual effects resulting from shifting the alignment closer to the properties along Don Buck Drive will need to be mitigated through buffer planting. Consideration of effects takes account of the likelihood that the proximate viewing audience will in the future be those occupying the Business- Local Centre zoned properties and not the residents who constitute the viewers within the existing environment.

The following effects of relevance to the design change area of NoR1, taking into account mitigation measures, are:

- Vegetation clearance will be reduced when compared to the original design, due to the change in road alignment avoiding disruption of ecological habitat and vegetated corridors, resulting in **low adverse** effects.
- Some areas that possess indigenous biophysical landscape values will still be disturbed. Effects during construction are assessed as **low adverse**. Following mitigation, which is recommended to include restoration of natural vegetation patterns through planting, effects on biophysical landscape values are assessed as **moderate positive**.
- Modification of the natural landform due to the design change will have low adverse construction effects within the design change area of NoR1 because of reduced fill batter slope gradients and cutting of natural terrain. Permanent (operational) effects on the surficial features of the landscape are assessed as **very low adverse**.
- Construction effects on private properties along western Don Buck Road will be greater than what was assessed in the existing LVA, due to the closer proximity of the new road alignment to the dwellings. These effects are related to construction activities, noise and vibration, removal of private gardens and mature planting and existing boundary fencing. Effects, which will be mitigated through screening and management of the timing of activities to minimise disruption, are assessed as **low-moderate adverse**. Permanent effects (Operation) take account of the changed context to a heavily urbanised landscape setting and are assessed as **low adverse**.

- Visual effects are likely to increase when compared with the original design, due to the proximity of the proposed road alignment to neighbouring properties. However, the future plan-enabled urban context means that the visibility and visual quality of roading infrastructure will be coherent with a future urban landscape typology. Temporary (construction) visual effects on adjoining properties are **moderate-low adverse** and on transient viewers are **low adverse**. Operational visual effects after mitigation on adjoining properties and transient viewers are assessed as **low adverse**.

Recommendations identified in the existing LVA and AEE that applied to the original design are considered relevant to the design change area in NoR1. Further to those mitigation measures, this addendum includes additional recommendations to mitigate constructions and operational effects as described in Sections 7.2 & 7.4.