

Before the Board of Inquiry  
Waterview Connection Project

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*in the matter of:* the Resource Management Act 1991

*and*

*in the matter of:* a Board of Inquiry appointed under s 149J of the Resource Management Act 1991 to decide notices of requirement and resource consent applications by the NZ Transport Agency for the Waterview Connection Project

Statement of evidence of Lynne Hancock (Urban Design) on behalf of the  
**NZ Transport Agency**

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**STATEMENT OF EVIDENCE OF LYNNE HANCOCK (URBAN DESIGN)  
ON BEHALF OF THE NZ TRANSPORT AGENCY**

**INTRODUCTION**

- 1 My full name is Lynne Rosa Hancock.
- 2 I am a Technical Director – Urban Design at Beca Carter Hollings & Ferner Limited (*Beca*). I have worked as an urban designer for 15 years in both the private and public sectors, in Australia and New Zealand, on a wide range of urban design projects including large complex infrastructure projects.
- 3 I have a postgraduate Bachelor of Architecture degree (with Honours) from the University of Technology Sydney, Australia; a Bachelor of Arts in Architecture from Oxford Brookes University; a Diploma in Management Studies from the University of Westminster, London, and a Master of Philosophy degree from the University of Oxford, all in the United Kingdom; and a Bachelor of Arts degree (with Honours) in English literature from Victoria University of Wellington.
- 4 I am a full member of the Urban Design Chapter of the Planning Institute of Australia, and an Independent Professional Advisor in Urban Design to the NZ Transport Agency (*NZTA*) (nationally and on the Auckland Northland panel).
- 5 My relevant experience on roading projects includes:
  - 5.1 Urban Design Manager, Victoria Park Tunnel Alliance;
  - 5.2 Urban Design Lead, Kumeu to Huapai Transportation Study;
  - 5.3 Quality Reviewer and Urban Design expert, Transmission Gully; and
  - 5.4 Urban Designer, Tauranga Eastern Link.
- 6 I was responsible for preparing and producing urban design frameworks for Kumeu to Huapai and for the Tauranga Eastern Link.
- 7 In my role as Beca’s Urban Design business leader, I have also been responsible for the quality of urban design frameworks prepared by other teams (e.g. Hairini Link in Tauranga, and Auckland’s Central Business District Rail Link) and for verifying the detailed landscape design for the Christchurch Southern Motorway.
- 8 My evidence is given in support of notices of requirement (*NoRs*) and applications for resource consents lodged with the Environmental Protection Authority (*EPA*) by the NZTA on 20 August

2010 in relation to the Waterview Connection Project (*Project*). The Project comprises works previously investigated and developed as two separate projects, being:

- 8.1 The State Highway 16 (*SH16*) Causeway Project; and
- 8.2 The State Highway 20 (*SH20*) Waterview Connection Project.

- 9 I am familiar with the area that the Project covers, and the State highway and roading network in the vicinity of the Project.
- 10 I have read the Code of Conduct for Expert Witnesses as contained in the Environment Court Consolidated Practice Note (2006), and agree to comply with it. In preparing my evidence, I have not omitted to consider material facts known to me that might alter or detract from my opinions expressed.

#### **SCOPE OF EVIDENCE**

- 11 My evidence will deal with the following:
  - 11.1 Executive summary;
  - 11.2 Background and role;
  - 11.3 The relationship of urban design to open space, visual and landscape effects;
  - 11.4 The role of an urban and landscape design framework in roading projects;
  - 11.5 Development of urban design for the Project;
  - 11.6 Interaction with stakeholders and other parties;
  - 11.7 Urban design issues for the Project;
  - 11.8 Post-lodgement events;
  - 11.9 Comments on submissions; and
  - 11.10 Proposed conditions.

#### **EXECUTIVE SUMMARY**

- 12 The Waterview Connection is an important transportation project that traverses two distinctive routes, both with complex issues of landscape, land use, amenity and community values.

- 13 As a signatory to the NZ Urban Design Protocol, and guided by its own Urban Design policy the NZTA is committed to connecting to, and integrating with, the surrounding landform, networks and communities so as to protect these values as far as possible.
- 14 An Urban and Landscape Design Framework (*ULDF*) was prepared for the Project to include place-based principles and design concepts. It integrates urban design work commenced by separate teams before the merging of the SH16 and SH20 projects.
- 15 The ULDF is an aspirational document that contains design concepts for elements outside the scope of the Project. Stakeholder and community input was important in developing the design principles and concepts. The Auckland City Council Urban Design Panel was particularly helpful in this regard.
- 16 The Project design as lodged has carried forward the urban design principles contained in the ULDF and these principles have generally been given effect to in the Plans for Structures and Architectural Features and the Urban Design and Landscape Plans lodged with the AEE.
- 17 Key urban design issues for the Project are:
  - 17.1 Impact on the surrounding urban context;
  - 17.2 Open space network planting and amenity;
  - 17.3 Pedestrian and cycle linkages;
  - 17.4 Bulk and scale of ventilation structures; and
  - 17.5 Design of motorway structures.
- 18 These issues have been substantially addressed in the Project's AEE and further refined through post-lodgement work commissioned by the NZTA to provide indicative revised design proposals for the tunnel ventilation buildings and stacks.
- 19 Various elements within the Urban Design and Landscape Plans that are identified for delivery through a 'management plan process' by agreement with Auckland Council would, if progressed, further enhance the connectivity, amenity and visual quality of the Project.
- 20 Proposed designation conditions will provide assurance that the Project's urban design principles will be implemented.

- 21 In my opinion, the Project urban design:
- 21.1 Is the product of a systematic and collaborative process between the urban and engineering design teams;
  - 21.2 Has ensured that key urban design issues have been appropriately addressed;
  - 21.3 Has resulted in a design that balances operational, amenity, sustainability, cost and environmental considerations in line with the NZTA Urban Design Policy; and
  - 21.4 Includes proposed designation conditions with respect to landscape and visual design that support high quality urban design.

### **BACKGROUND AND ROLE**

- 22 The NZTA retained Beca as consultants to assist with the engineering and planning of the Project. The urban and landscape design team (*Design Team*) for the Project was commissioned through the NZTA's National Urban Design Policy Advisor in June 2009. The Design Team consisted of:
- 22.1 Myself;
  - 22.2 Mr Jeff Wells, Structures Architect of JASMAX; and
  - 22.3 Mr David Little, Landscape Architect of Stephen Brown Environments Ltd (*SBEL*).
- 23 My role was to lead the Design Team and deliver the ULDF for the Project and specifically to carry out or oversee various tasks, including:
- 23.1 Co-ordinating inter-disciplinary liaison with the engineering team and other Project Team members (including environmental specialist and resource management planners) on urban design issues;
  - 23.2 Consulting with key stakeholders including tangata whenua, and participation in public meetings on urban design issues;
  - 23.3 Having input to, and involvement in, the concept design process including key structures, open space design, pedestrian and cycleway linkages and amenity planting;
  - 23.4 Co-ordinating inputs, preparation and delivery of the ULDF;

- 23.5 Presenting to the Auckland City Council Urban Design Panel; and
- 23.6 Reviewing submissions received on the notices of requirement and resource consent applications for the Project relating to urban design issues (which I will address later in my evidence).

**THE RELATIONSHIP OF URBAN DESIGN TO OPEN SPACE, VISUAL AND LANDSCAPE EFFECTS**

- 24 Urban design is an 'umbrella' discipline that brings together and coordinates a range of technical inputs. It includes consideration, in particular, of landscape design, (which responds to open space effects), and of architectural and structures design, (which responds to visual effects). Together they address issues such as amenity and connectivity. Within this Project, therefore, urban design is interlinked with the following components:
- 24.1 The impact of the Project on open space; and
- 24.2 An assessment of visual and landscape effects of the Project works.
- 25 Mr Little prepared an Open Space Report<sup>1</sup> which examined the opportunities and impacts of the Project upon the reserves, parks and other open spaces within Sectors 5 to 9 of the Project area. Mr Little will address the impacts on open space in his evidence, including the Proposed Open Space Impacts and Replacement Drawings which have been submitted as part of the Project.<sup>2</sup>
- 26 Mr Stephen Brown, Landscape Architect and Director of SBEL, carried out an Assessment of Visual and Landscape Effects of the Project.<sup>3</sup> His report and evidence assesses the visual and landscape effects of the entire Project and discusses how, and the extent to which, the proposed implementation of the Urban and Landscape Design Plans will (amongst other things) mitigate the visual and landscape effects of the Project works. Mr Brown's evidence will also address the landscaping design proposed for the Heritage Area.<sup>4</sup>

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<sup>1</sup> This Report can be found on the NZTA Waterview Connection website ([www.waterviewapplication.nzta.govt.nz](http://www.waterviewapplication.nzta.govt.nz)) under the heading "Non-Lodged Documents".

<sup>2</sup> AEE, Part E, Appendix E.4. Open space issues are also addressed in the evidence of Ms Amelia Linzey.

<sup>3</sup> AEE, Part G.20 *Assessment of Visual and Landscape Effects*.

<sup>4</sup> AEE, Part F, Appendix F.9 (Sheet 224).

- 27 I managed the development of the (ULDF), which integrates consideration of the visual, landscape and open space aspects, together with architectural design aspects.<sup>5</sup> As discussed further below, the ULDF integrates with wider aspirations and plans of stakeholders in the surrounding area (e.g. of Auckland City Council, Waitakere City Council, Housing New Zealand and the Auckland Regional Council). Therefore it was understood that aspects of the overall urban design visions in the ULDF would need to be delivered by others (i.e. not the NZTA). The lodged Project does not therefore duplicate the ULDF, nor include all the wider stakeholder aspirations.
- 28 I then oversaw the development of the Urban Design and Landscape Plans and the Structures and Architectural Plans for the Project. My 'umbrella' role was therefore to facilitate the coordination of these Plans with each other and with an urban design vision and set of guiding principles.
- 29 The relevant Plans are:
- 29.1 Urban Design and Landscape Plans: Sectors 1 to 6 – Drawings F16: 201-209;<sup>6</sup>
  - 29.2 Urban Design and Landscape Plans: Sectors 7 to 9 – Drawings F16: 210-225;<sup>7</sup>
  - 29.3 Diagrams showing the indicative planting areas for the Great North Road Interchange, SH16 between Waterview and St Lukes, and Alan Wood Reserve – Drawings F16: 226-228;<sup>8</sup>
  - 29.4 Planting schedules at the end of Part F16 (that do not have sheet numbers);<sup>9</sup> and
  - 29.5 Plans of Structures and Architectural Features: Sectors 1 to 9 – Drawings F8: 201-225,<sup>10</sup>
- (together, the Plans). These were lodged with the Assessment of Environmental Effects (AEE)<sup>11</sup> and support the NoRs and consent applications.

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<sup>5</sup> The ULDF can be found on the NZTA Waterview Connection website ([www.waterviewapplication.nzta.govt.nz](http://www.waterviewapplication.nzta.govt.nz)) under the heading "Non-Lodged Documents".

<sup>6</sup> Prepared by Tim Robinson, Architect of Jasmax.

<sup>7</sup> Prepared by David Little, Landscape Architect of SBEL.

<sup>8</sup> Prepared by David Little, Landscape Architect of SBEL.

<sup>9</sup> Prepared by Jasmax and SBEL for SH16 and SH20 respectively.

<sup>10</sup> Prepared by Jeff Wells, Architect of Jasmax.

<sup>11</sup> See AEE, Part F (Plans and Drawings), F.16 and F.8.



- 30 The Urban Design and Landscape Plans are annotated plans showing the proposed planting, location of structures including noise walls and pedestrian and cycle paths.
- 31 As development of these Plans initially commenced when the SH16 and SH20 sections of the Project were separate, the Plans have been prepared by different consultants. As a result, they are at slightly different scales, use different symbols and a different system of annotation. Both are overlaid on an aerial base. Both note that the location and extent of the elements shown may be altered by detailed design.
- 32 The Plans for Sectors 1-4<sup>12</sup> have notes on the drawings. The Plans for Sectors 5-9<sup>13</sup> have notes on the side, keyed to the drawings and divided into 'plan notes' and 'management plan approach'. Both sets of notes refer to design proposals in the Project; however the plan notes reflect what NZTA is offering, while the 'management plan approach' refers to those elements that require agreement with Auckland Council (either because they are outside the designation and/or Council is the ultimate asset owner).
- 33 The Plans for Structures and Architectural Features include annotated plans at various scales, cross sections, elevations, and perspective drawings. Notes to the drawings provide detail on dimensions, materials and colour. Sections and elevations are cross referenced to plans within the set.
- 34 I will discuss both the ULDF and the Plans further in my evidence.

### **THE ROLE OF AN URBAN AND LANDSCAPE DESIGN FRAMEWORK IN ROADING PROJECTS**

#### **The NZTA's obligations in relation to urban design**

- 35 Transit (now the NZTA) became a signatory to the New Zealand Urban Design Protocol (*Protocol*) in 2005, making a voluntary commitment to "planning for, developing and promoting quality urban design".<sup>14</sup>
- 36 In 2007 the former Transit Board approved the NZTA's Urban Design Policy (*Policy*)<sup>15</sup> which continues to guide the NZTA in implementing urban design and is consistent with the Agency's commitment to the Protocol. The Policy has two key urban design objectives, which implicitly relate to the amenity, safety and security and connectedness of surrounding neighbourhoods. They are to:

<sup>12</sup> Produced by Jasmex, 1:2000 at A3.

<sup>13</sup> Produced by SBEL, 1:1500 at A3, with larger scale plans for the Oakley Inlet Heritage Area and Craddock Street.

<sup>14</sup> (NZTA website, <http://www.nzta.govt.nz/planning/process/urban.html>).

<sup>15</sup> Copy provided in **Annexure A** to my evidence.

- 36.1 Ensure State highways contribute to vibrant, attractive and safe urban and rural areas; and
  - 36.2 Achieve integration between State highways, local roads, public transport, cycling and walking networks, and the land uses they serve.
- 37 The Policy also sets out how urban design is to be considered at the planning, design and construction phases of roading projects.
- 38 A ULDF is typically used on large, complex roading projects as a key tool in identifying how the project satisfies the NZTA's Urban Design Policy requirements.
- 39 The role of an ULDF is to ensure that the urban and landscape design concepts for a project are appropriately defined, developed and implemented, and in doing so to provide a means of successfully integrating operational engineering requirements with a site's surrounding natural, modified and human environments. This iterative design process often involves close inter-disciplinary collaboration amongst project team members to address matters such as:
- 39.1 Refinement of highway alignment;
  - 39.2 Land use reinstatement;
  - 39.3 The type and form of key structures, e.g. noise barriers, retaining walls and bridges;
  - 39.4 Open space design and site layout of key open space elements, including stormwater management areas;
  - 39.5 Design and location of key pedestrian and cycle way linkages and connections;
  - 39.6 Amenity and ecological planting;
  - 39.7 Material and finishes of key structural elements; and
  - 39.8 Recommendations in relation to aesthetic opportunities.
- 40 ULDFs can often form the basis for ongoing discussions with project stakeholders to identify other potential opportunities that - while beyond the current scope of works - nevertheless represent opportunities for an integrated development approach for future community projects. (This was certainly the case for this Project.)

### **The purpose of the ULDF in this Project**

- 41 The overall purpose of this Project's ULDF is to:
- 41.1 Demonstrate how the design of the Project supports the NZTA's strategic commitment to high quality urban design outcomes; and
  - 41.2 Demonstrate alignment, as much as practicable, between the NZTA and other agencies (e.g. the Waitakere and Auckland City Councils, Housing New Zealand and others) in their planning, transport and urban design initiatives for the area concerned.
- 42 The ULDF illustrates the guiding landscape and urban design principles for the Project, together with proposed design responses. It sets out an overall urban design "vision", both for the Project and its integration with wider aspirations and plans in the surrounding area. In this respect, the ULDF is "aspirational", reflecting a wider strategic direction and a longer term urban and landscape design vision than just the Project.
- 43 The design concepts within the ULDF were developed through liaison by the urban design team with the engineering team, including geometric, engineering, stormwater designers, environmental specialists and resource management planners. The implications both of widening SH16 and introducing a new section of SH20 motorway were considered in developing the concepts.
- 44 By providing clarity on the expected design outcomes, the ULDF seeks to promote consistent design quality throughout the development and delivery of the Project.
- The need to balance optimal urban design with other factors**
- 45 The urban design concepts illustrate how urban design for the Project could be integrated across the Council boundaries and jurisdictions involved. The ULDF was prepared on this "best case scenario" basis and includes discussion on options investigated, together with recommendations for preferred design concepts.
- 46 It was recognised that a balance has to be achieved between what stakeholders and the community want, and what could be delivered by the NZTA for the Project. Being an aspirational document therefore, the ULDF includes concept designs for elements that are considered by the NZTA to be outside the scope of the Project, but which may be delivered in future by others and / or in partnership with the NZTA.<sup>16</sup>

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<sup>16</sup> These elements include a cycleway from Alan Wood Reserve to the Great North Road Interchange, together with pedestrian / cycle bridges along the route.

**The relationship of the ULDF to the statutory/detailed design phase of the Project**

- 47 The ULDF is therefore a reference document for the AEE that supports the notices of requirement and consent applications lodged in respect of the Project. The ULDF has been a source document which has informed elements of the Project design to date and will continue to do so beyond the scheme design which is submitted as part of this statutory process. The ULDF is a *reference* point for mitigation, but does not *determine* the mitigation that may be implemented in the Project.
- 48 Figure A-2 of the ULDF<sup>17</sup> (attached to my evidence as **Annexure B**) illustrates how the ULDF relates to the statutory process and detailed design phase of the Project. **Annexure C** to my evidence describes the structure of the ULDF.

**DEVELOPMENT OF THE URBAN DESIGN FOR THE PROJECT**

- 49 In this section of my evidence, I discuss how urban design for the Project developed.

**Initial development**

- 50 Previous urban design work undertaken for the Waterview Connection (Sectors 5, 7, 8 and 9) began in 2008 with the development and delivery of a draft Urban Design Framework for the driven tunnel option for SH20 (November 2008). In early 2009, the NZTA investigated further SH20 alignment options and in May confirmed its preference for a combined surface tunnel alignment. Work on an updated framework began in June 2009 for that alignment. It presented design themes and concepts, as well as refined urban design principles, to inform the future detailed design and construction phases of the SH20 project.
- 51 A separate project to widen SH16 between Waterview and Te Atatu (the Causeway project) had begun in early 2009 and was accompanied by its own draft urban and landscape design framework (September 2009). This document included concepts for the corridor and design proposals for various segments.
- 52 In late 2009, the NZTA confirmed its intention to proceed with the SH16 Causeway project and the SH20 Waterview project as a single project of national significance (i.e. Road of National Significance). From this point, the Project was separated into nine different sectors (Sectors 1 to 9) to describe and assess the proposal/effects/impacts of the Project in these areas. The urban design scope of work for the original Waterview urban design team was then expanded to include the relevant section of SH16 in the ULDF.

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<sup>17</sup> Refer ULDF, page A-3.

- 53 This meant that the final ULDF would be a co-ordinated document bringing together previous urban design work by Jasmox on SH16,<sup>18</sup> with the work in progress by the Waterview team. Additional significant work was required to review and integrate the two projects into an overall framework for the completion of the Waterview Connection Project. The final ULDF was delivered in June 2010.

**The ULDF team**

- 54 The final ULDF was prepared by a multidisciplinary urban design team which involved me, Mr Little and Mr Wells (described previously) and Mr Tim Robinson (Urban Designer – Jasmox).
- 54.1 David Little, Jeff Wells and I were initially responsible for the urban and landscape design concepts for SH20 Maioro Street Interchange to Waterview.
- 54.2 David Little led the open space planning and conceptual design of the landscape elements. He was involved in preparation of the Oakley Creek Rehabilitation Guidelines and was the landscape architect on the “early works” Maioro portion of the wider project (i.e. the Southern ramps). He was also involved in development of the noise wall and retaining wall concept designs and pedestrian / cycle facilities for SH20.
- 54.3 Jeff Wells led the bridge and ventilation building design themes and concepts for both the SH16 and SH20 sections of the Project. He also had input into the tunnel and portal design and the relationship between bridge and retaining wall design.
- 54.4 Tim Robinson and Nick Scarles (Landscape Architect – Jasmox) led the urban and landscape team that produced the ULDF for SH16 Te Atatu to Waterview.
- 54.5 Jacque Bell, the NZTA’s National Policy Advisor – Urban Design provided extensive input into the development of the ULDF. She is effectively the “urban design champion” within the NZTA. Ms Bell has worked closely with myself and the urban design teams in developing the urban and landscape concepts for both the separate and then coordinated projects.
- 55 When the two projects merged, I retained overall responsibility for the now combined ULDF. I worked closely with Tim Robinson to develop a consistent format, in terms of chapter headings, text layout and graphic presentation. He retained control of the content

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<sup>18</sup> Already completed in the form of an Urban and Landscape Design Framework for Te Atatu to Waterview (September 2009).

of the SH16 Te Atatu to Waterview sector material and had input into the rewritten and reformatted sections on project background (analysis), and design principles.

### **Urban and landscape design methodology**

- 56 The urban and landscape design methodology reflected the multidisciplinary nature of the Project. There was consideration of connectivity, visual, social, ecological, geological, hydrological and heritage issues in developing the design themes and concepts.
- 57 The development of the urban and landscape concepts was an iterative process that stepped through analysis, to over-arching design principles, to design concepts. Both the SH16 and SH20 urban design teams used this broad methodological approach.
- 58 The key tasks of the Design Team included the following:
- 58.1 Provide input to inform the engineering design for the Project;
  - 58.2 Review and ensure broad alignment with relevant strategic plans developed by the Councils;
  - 58.3 Visit, map and photograph the motorway corridors and Project area;
  - 58.4 Consult with the public and obtain feedback on the combined surface tunnel option;
  - 58.5 Identify issues and design implications;
  - 58.6 Develop the design vision, concepts and themes for each corridor (i.e. SH16 and SH20) which are different due to the distinct characters of the corridor;
  - 58.7 Develop a set of principles for urban design elements;
  - 58.8 Prepare draft design concepts and obtain public feedback to those concepts;
  - 58.9 Further develop the draft design concepts and finalise the ULDF as of June 2010; and
  - 58.10 Produce urban and landscape design plans, and structures and architectural feature plans, reflective of the final Project for which the NZTA seeks to obtain planning approvals (i.e. produce plans to accompany the lodged AEE).
- 59 These tasks are described in more detail in **Annexure D** to my evidence (Urban and Landscape Design Methodology).

60 A copy of Section B of the ULDF, which contains the design vision and principles for the Project, is attached to my evidence as **Annexure E**.<sup>19</sup>

61 The AEE Plans as lodged reflect the Project for which the NZTA seeks approval.<sup>20</sup>

### **INTERACTION WITH STAKEHOLDERS AND OTHER PARTIES**

62 In this section of my evidence I summarise the key consultation that has occurred with stakeholders and the community in relation to the urban design aspects of the Project.<sup>21</sup>

#### **Auckland City Council (ACC) representative group**

63 The NZTA's Urban Design Policy Advisor (Jacque Bell) arranged a series of early meetings in mid-2009 for the Waterview urban design team with a small group representing ACC.<sup>22</sup> These meetings focussed on:

63.1 The future form of Great North Road, at the stage when the Project alignment ran under the Road and a cut and cover tunnel was proposed for a considerable length of it;

63.2 The potential stream diversions in Alan Wood Reserve and resulting open space configuration; and

63.3 The potential for the Richardson Road bridge to be 'inhabited' by buildings with active commercial edges.

64 In relation to Great North Road, earlier design concepts shared between the stakeholders and urban design team became redundant when the Project alignment changed and a deep tunnel replaced the cut and cover tunnel.

65 In relation to the Oakley Creek stream diversions, their ultimate proposed location emerged from considerable multidisciplinary work including from the stormwater, ecology, and landscape teams.

66 The desire for a wide Richardson Road bridge with active uses fronting the carriageway was first captured through stakeholder workshops that informed the 2008 Urban Design Framework

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<sup>19</sup> Refer discussion on how the vision and principles developed in **Annexure D**.

<sup>20</sup> Subject to any post-lodgement design developments (e.g. for the northern and southern ventilation buildings).

<sup>21</sup> Additional comment on consultation is contained in **Annexure D** when summarizing key tasks and methodology. Consultation is also addressed in the evidence of Ms Amelia Linzey.

<sup>22</sup> These meetings occurred on 18 June, 24 June, 6 July and 29 July 2009. ACC was represented by a consultant urban designer, transport planner and, on occasion, a senior landscape architect.

(i.e. before commencement of this Project). At that time the motorway was designed to be in tunnel for the full extent from Richardson Road to the Waterview Interchange. This would have resulted in surplus areas of land that, post-construction, could have been redeveloped with commercial or mixed uses in support of a future town centre at Stoddard Road. Once the Project alignment moved to being at-grade through Alan Wood Reserve, this opportunity no longer existed in as strong a form. However, the current design does not preclude Council from future widening or a second bridge.

- 67 Auckland City Council provided comment to the NZTA on the draft SH20 Waterview ULDF (October 2009) which was prepared before the integration of Waterview with the SH16 Causeway project. Many of the comments were integrated into later versions of the combined ULDF.

#### **Stakeholder group**

- 68 A workshop on the SH20 section of the Project was held with a stakeholder group on 25 November 2009, introducing the Project, discussing the draft ULDF, key themes and landscape rationale and bridge/structure options. This stakeholder group, including ACC, ARTA, Iwi, and Housing New Zealand, had been involved in the development of the earlier 2008 Urban Design Framework for the driven tunnel project. Attendees were broadly supportive of the current Project. Outcomes from the meeting were incorporated into the next iteration of the ULDF.

#### **Project expos and interviews**

- 69 Draft design concepts contained in the ULDF were presented to members of the public during a series of four project expos held in March 2010. Draft concepts were displayed for noise barriers, retaining walls, bridges and the ventilation buildings/stacks.
- 70 The project expos were attended by approximately 435 people. The urban design concepts were also discussed in a series of in-depth interviews held with randomly selected local residents in Te Atatu, Waterview and Owairaka, as part of the Project's social impact assessment. Comments received from the project expos and interviews were considered in developing subsequent ULDF concept designs. More detail on these is included in **Annexure D**, paragraphs 33-43.

#### **Urban Design Panel**

- 71 Together with the Project Team, I prepared material and/or presented the Project and the ULDF as a 'work in progress' to the Auckland City Council Urban Design Panel (*Panel*) on a number of occasions in 2010.<sup>23</sup> (The Panel is an advisory body only, whose

<sup>23</sup> These meetings occurred on 25 February, 31 March, 22 April, 6 May (all pre-lodgement) and 23 September 2010 (post-lodgement with the EPA).



recommendations are made to assist an applicant refine its development proposal. It has no decision-making power.)

- 72 The Panel made a number of specific suggestions. Some were reflected in the ULDF as it developed and were reported back to the Panel at subsequent meetings. Some of the Panel suggestions have been carried through into the lodged AEE for the Project.
- 73 Most of the issues raised in earlier sessions (February, March, April 2010) related to the urban design process and the Panel's desire to see evidence of logical design development, including considerations of key criteria being: connectivity, open space, ecology, hydrology, urban form, and social and community issues. Subsequent meetings were structured around these criteria and Panel commentary.
- 74 The most recent presentation to the Panel took place on 23 September 2010.<sup>24</sup> I understand that the Panel's response was largely positive.
- 75 Outstanding issues for the Panel in relation to the Project were used to inform Auckland City Council's submission, which I will address later in my evidence.

## **URBAN DESIGN ISSUES FOR THE PROJECT**

### **Key issues**

- 76 Through my involvement with the Project, I consider the key urban design issues which require consideration are the following:
- 76.1 Impact of the Project on the surrounding urban context in terms of land use (including removal of housing) and community severance;
- 76.2 Open space network<sup>25</sup> planting and amenity;
- 76.3 Pedestrian / cycle linkages;
- 76.4 Bulk and scale of ventilation structures; and
- 76.5 Design of motorway structures (including road bridges, retaining walls and noise walls).
- 77 In this section of any evidence I comment on how the Project addresses these issues.

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<sup>24</sup> Representatives of the NZTA included Mr David Little, Mr Clive Fuhr and Mr Andre Walter.

<sup>25</sup> As set out in the evidence of Mr David Little.

### **Urban context**

- 78 The Project will result in the removal of housing for both construction and operational needs. Relevant urban design principles for the Project are to: facilitate opportunities to enhance local communities; seek to maintain and enable the development potential of surrounding land; and consider CPTED (Crime Prevention Through Environmental Design) in developing design solutions".<sup>26</sup>

### **Sectors 1-6**

- 79 The urban design and landscape plans<sup>27</sup> show that properties along Alwyn Avenue will be removed to accommodate the extended Te Atatu Interchange, changing the character of Alwyn Avenue to a 'one sided street' in this location.<sup>28</sup> The Project response is to bund and plant out the area between the widened motorway and the street, to provide acoustic and visual buffering for the remaining houses from the motorway. This also provides an attractive landscaped outlook for residents.
- 80 At the Great North Road Interchange there is a significant property take to accommodate the ventilation building and stack and the Interchange ramps.<sup>29</sup> This area has been identified by stakeholders and the community as one where the impact of removing houses and introducing new structures is considerable. The Project will result in widening of the 'urban gap' between the Waterview and Point Chevalier communities with the loss of land uses fronting and overlooking Great North Road.
- 81 The 'urban gap' is of concern as it visually and physically separates the Waterview neighbourhood further from Point Chevalier and its local shops and services. The proposed landscape design<sup>30</sup> provides a landscape edge between Herdman Street and the Interchange, which will buffer the new ramps. While this is an attractive feature in its own right, it cannot restore the suburban streetscape character of Great North Road. However, given that the ramp configuration is too close to Great North Road to allow building in front that could both screen the structures and provide an active frontage, I consider the landscape design proposed to be an appropriate response.
- 82 Between Herdman Street and Oakley Avenue,<sup>31</sup> the above ground portion of the northern ventilation building replaces single houses.

<sup>26</sup> ULDF, Section B2.3, page B-2. (See **Annexure E**.)

<sup>27</sup> See AEE, Part F16, Sheets 221-223. (For ease of reference, the UDL Plans throughout my evidence will be referred to as Plan Number F16: [Sheet No].)

<sup>28</sup> Plan Number F16:203.

<sup>29</sup> Plan Number F16:212 and 217.

<sup>30</sup> Plan Number F16:203.

<sup>31</sup> Plan Number F16:217.

As lodged, the relatively blank façade of the proposed ventilation building, together with the approximately 300 metres of road frontage to be turned over to planting, could be argued to exacerbate the 'urban gap' and any related Crime Prevention Through Environmental Design (CPTED) issues arising from the lack of activity and 'eyes on the street'.

- 83 Since lodgement with the EPA, the NZTA commissioned further design work for the northern and southern ventilation buildings and stacks. This is addressed later in my evidence.
- 84 The reconfigured Waterview Reserve<sup>32</sup> provides a better edge than currently exists at Waterview Park, which is tucked behind the back fences of houses and with only limited frontage to public streets. The Project 'opens up' the park to create a public edge along Herdman Street and Waterbank Crescent, thus creating a stronger relationship with surrounding uses and greater visibility / overlooking of the public space.

#### **Sectors 7-9**

- 85 In his evidence, Mr Little points to the existing relatively poor amenity of areas of Hendon Park and Alan Wood Reserve. Houses currently back onto the open space, which is bounded by rear fences. Because of the irregular shape of many properties, the open space remaining between the rail corridor and the property boundaries is itself irregular. The Project (and rail corridor) sever this space from the rest of Alan Wood Reserve.
- 86 The AEE Plans<sup>33</sup> indicate that a management plan process will resolve the final form of this 'leftover' space. It will be particularly important (in the short and long term) to deal with the vulnerability of these properties to antisocial activities, given that access may still be gained via Hendon Avenue and there are no overlooking properties or formal movement system through the space.
- 87 Some houses will be removed for motorway construction,<sup>34</sup> leaving an area of Hendon Avenue 'one-sided'. This will effectively spread the impacts of the motorway (and future rail) corridor where the existing houses shield them. From an urban design viewpoint I would support reinstatement of a residential use, in a different form from single houses, to recreate a 'two-sided' street, but note that this is a management issue to be resolved with Auckland Council.

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<sup>32</sup> Plan Number F16:212.

<sup>33</sup> Plan Numbers F16:219-220.

<sup>34</sup> Plan Number F16:220.

### **Open space network planting and amenity**

#### **Sectors 1-6**

- 88 The AEE landscape Plans for these Sectors draw strongly on the ULDF and the 'green route' theme, introducing new planting along the SH16 corridor where possible and where consistent with the urban design aim to retain views from the motorway. In Sector 1,<sup>35</sup> however, there are limited opportunities to replace existing mature trees, and the character of this area will be changed with predominantly smaller scale shrub planting. Jack Colvin Park will be maintained in its current form, with additional spectator seating introduced to the sloping edge between the sportsfields and the motorway.
- 89 Extensive planting of pohutukawas at the Te Atatu and Great North Road Interchanges<sup>36</sup> will buffer the apparent scale and 'soften' the appearance of the Interchanges, and also contribute to a sense of identity for these identified 'gateways'. Low (or grass filter strip only) planting is proposed through Sectors 1 – 4<sup>37</sup> to maintain long views towards the harbour, Waitakere Ranges and CBD skyline, in keeping with the urban design vision to reinforce a sense of place for motorway (and cycleway) users.
- 90 Ecological restoration and improvement are positives in the Project, through removal of weeds / exotic species, infill and new planting with eco-sourced native planting from the Tamaki Ecological District,<sup>38</sup> the treatment of stormwater ponds as planted wetland areas, and substantial riparian planting around Oakley Creek.
- 91 I note that the AEE landscape Plan covering Traherne Island shows that existing vegetation within the construction footprint will be retained,<sup>39</sup> where in fact it will be lost. I concur with Mr Dave Slaven that replacement planting for the ecotone is necessary mitigation for the loss of existing vegetation.
- 92 There is limited opportunity from Traherne Island eastward to Waterview<sup>40</sup> to plant, given limitations of width and the need to stabilise the Causeway. Pedestrians and cyclists may be able to use the grass and/or rock armour edging the cycle path for informal seating. Through this section of SH16 the experience will be open with expansive views of the harbour, which is a positive feature of the Project.

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<sup>35</sup> Plan Number F16:201.

<sup>36</sup> Plan Number F16:203.

<sup>37</sup> Plan Numbers F16:201-209.

<sup>38</sup> Refer planting schedules accompanying Part F16 Urban Design and Landscape Plans.

<sup>39</sup> Plan Number F16:207.

<sup>40</sup> Plan Numbers 16:207-209.

- 93 Extensive additional planting at the Great North Road Interchange<sup>41</sup> is combined with mounding up of the land to bring the ground closer to the SH16 on-ramp structures (thereby reducing the apparent height of the structures). The mounding will both visually buffer residents of Point Chevalier and respond to Council's aspiration for an 'urban forest' in this location. The mounding and planting also make the large area within the ramp more visible, strengthening its 'gateway' character in accordance with the planting principles in the ULDF.<sup>42</sup>
- 94 Also within Sector 5, Plan Number F:224 shows the restoration of historic elements, new access paths and hard and soft landscape treatment. This will open up the Star Mill and quarry site, enabling appreciation of this important part of Auckland's heritage for both the local and wider community.
- 95 In relation to CPTED matters, species selection and location alongside cycleways throughout the Project is a mixture of low shrubs and canopy trees where space permits. I consider this to be an appropriate treatment to enable passive surveillance between motorway and cycleway, and to provide shade comfort for pedestrians and cyclists.
- Sectors 7-9**
- 96 In his evidence Mr Little discusses the approach to the open space network that was taken in developing the urban and landscape design concepts for the SH20 section of the Project, and those areas of open space that are proposed to be upgraded as part of the Project.
- 97 Significant vegetation planting is proposed as part of the Project, including riparian vegetation, screening vegetation to the motorway and park amenity planting. The stated intent in the ULDF<sup>43</sup> is to use planting to help mitigate the visual effects of the proposed structures. This is provided for in the Project through a combination of noise walls, bunding and planting.
- 98 The riparian margins of Oakley Creek in this area<sup>44</sup> will be restored, with improvements to the base, side slopes and surrounding vegetation, in accordance with the Project Stream Ecological Valuation requirements.<sup>45</sup> The two stormwater ponds<sup>46</sup> are designed

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<sup>41</sup> Plan Number F:211.

<sup>42</sup> ULDF, Section B5.2, **Annexure E**.

<sup>43</sup> ULDF Section B5.2, page B-13. (See **Annexure E**.)

<sup>44</sup> Plan Numbers F:219-221.

<sup>45</sup> AEE Technical Report G.6 *Assessment of Freshwater Ecological Effects*.

<sup>46</sup> Plan Numbers F:220-221.

as positive landscape features integrated with the path network and will contribute to the amenity of Alan Wood Reserve.

- 99 Between the motorway and Hendon Avenue<sup>47</sup> is an area of what in the short term will appear as 'left over' space within the rail corridor. Heavy planting of flax is proposed as part of the visual mitigation.
- 100 The median planting proposed on the above-ground section of the motorway<sup>48</sup> is a positive aspect that will break up the extent of hard paving in the corridor. While obviously not useable space, it will relate visually to the rest of the open space planting and support the reserve character.

### **Pedestrian and cycle linkages**

- 101 Pedestrian / cycle ways play an important role in accessing and 'activating' open space, and in contributing to a well-used environment which in turn contributes to safety and the perception of safety. Accessibility, visibility and direct lines of travel are key considerations in my assessment of the Project below.

### **Sectors 1-6**

- 102 In Sector 1, earlier drafts of the design concepts replaced the existing underpass at Te Atatu Interchange with at-grade crossings. The Urban Design Panel supported this approach, including deletion of the underpass. However, strong feedback was received from the community in favour of retaining (and upgrading) the underpass. As a result, the NZTA is pursuing both at grade crossings and retention of the underpass.<sup>49</sup>
- 103 With regard to movement and connectivity on the Causeway section of the Project, the upgraded pedestrian / cycle way improves the regional network and makes a positive contribution to user amenity. The pedestrian / cycle way is extended westwards to the Henderson Creek Bridge,<sup>50</sup> and over the Te Atatu Road bridge on the east side;<sup>51</sup> the relocated local access road to Rosebank domain creates separated vehicle and cycle lanes;<sup>52</sup> the cycleway is widened, including on a new overbridge at Patiki Road<sup>53</sup> (wider, with shallower approach grades and more sweeping turns) and a new

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<sup>47</sup> Plan Numbers F:219-223.

<sup>48</sup> Plan Numbers F:220-223.

<sup>49</sup> Plan Number F16:203.

<sup>50</sup> Plan Number F16:201.

<sup>51</sup> Plan Number F16:203.

<sup>52</sup> Plan Number F16:204.

<sup>53</sup> Plan Number F16:205.

boardwalk at Rosebank Road,<sup>54</sup> and on the new Whau River<sup>55</sup> and Rosebank bridges<sup>56</sup> separate from the road bridges.

- 104 Within Sector 5, Plan Numbers F16:210-212 show a reconfigured pedestrian / cycle way linking the SH16 cycle way east and west of the Great North Road Interchange, accessed by new pedestrian paths through the archaeological site, which also connect to Great North Road and the Waterview Esplanade. Low planting between the pedestrian / cycle way and the motorway enables views / passive surveillance. A new walkway from Point Chevalier to Eric Armishaw Reserve, completion of the esplanade walkway reserve, and a pedestrian bridge across Oakley Creek to the Star Mill site, further improve the connectivity. I note by reference to the Structures and Architectural Features Plans,<sup>57</sup> that the height of the ramps over this area will provide ample clearance to the pedestrian / cycle way.<sup>58</sup> This helps to retain visual 'openness' that contributes to people's sense of personal safety and security.
- 105 In Sector 6, the SH16 pedestrian / cycle way remains on-road between Carrington Road and the Chamberlain Park golf course,<sup>59</sup> somewhat compromising the clear, direct and at grade connection along the rest of the route. However, amenity along Sutherland Road is currently better than can be achieved off-road, and I understand that without acquisition of properties edging the motorway, there is insufficient space in this location for a pedestrian / cycle way.

### **Sectors 7-9**

- 106 In Sector 9, a new pedestrian / cycle path extends the SH20 cycle network, running under the Richardson Road Bridge and through Alan Wood Reserve on the south side of the corridor.<sup>60</sup>
- 107 The NZTA proposes to deliver the SH20 cycleway linkages at the points where at-grade motorway sections are proposed. The ULDF includes a continuous pedestrian and cycle way the length of the SH20 corridor, in support of a linked, walkable network. However, only the cycle way from the Maioro extension to the tunnel southern portal, together with the Hendon bridge, will be delivered by this Project given the Project alignment through Sector 8 is in deep tunnel, not at surface. This means that delivery of concept designs for the Olympus, Phyllis and Soljak bridges (as contained in the

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<sup>54</sup> Plan Number F16:206.

<sup>55</sup> Plan Number F16:204.

<sup>56</sup> Plan Number F16:209.

<sup>57</sup> Plan Number F8:431.

<sup>58</sup> Ramp 2 is the lowest at around 4.2m and the others are in the order of 8m.

<sup>59</sup> Plan Number F16:214.

<sup>60</sup> Plan Numbers F:219-223.

ULDF) would need to form part of the local road cycleway to be delivered by the Council (not the NZTA).

- 108 The new Hendon bridge links the pedestrian / cycle way through the Hendon Reserve to Richardson Road.<sup>61</sup> This bridge is well located to enable pedestrian / cycle movement across the motorway and also to different open spaces within Alan Wood Reserve (including into the Valonia Street site). Its oblique alignment will minimise land take and enable active open space between the ramp and properties on Hendon Avenue. Finally, the main span is of an appropriate scale in relation to the wide corridor which the bridge crosses; and the colour relates to the volcanic theme of SH20.<sup>62</sup>
- 109 New or improved reserve entries and connections into the local road network through the Valonia Street site, to Methuen Road, Hendon Avenue and Valonia Street are also part of the Project. The pedestrian / cycle network has been well integrated with the open space network. Using the Valonia Street site to support active recreation uses is a benefit to the passive open space and paths it adjoins, setting up for 'busier', more overlooked areas.
- 110 Further movement choice for pedestrians is provided by paths around wetland and lawn features, and small bridges over Oakley Creek.<sup>63</sup> Currently the channelized Oakley Creek is a barrier to movement across Alan Wood Reserve. The small footbridges will enable pedestrians to cross over the creek, and will support greater use of the open space network. As part of the developed landscape plan, the edges to the waterway will also need to be detailed to reflect the Oakley Creek Re-alignment and Rehabilitation Guidelines, which set out a planted edge treatment.<sup>64</sup>
- 111 From the Hendon Bridge, views of the restored Oakley Creek habitat and Alan Wood Reserve will also be available, in addition to views of the motorway corridor itself. This bridge, and elevated views on the 'zigzag' path to Methuen Road, will also afford pedestrians new elevated views to the side slopes and summit of Mt Albert. Plan Number F16:220 notes that a viewing platform on the Methuen Road path could be introduced through the management plan process.<sup>65</sup> I would support this as a way of enhancing the pedestrian experience; costing would need to be agreed between NZTA and Auckland Council.

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<sup>61</sup> Plan Number F:221.

<sup>62</sup> Plan Number F8:471.

<sup>63</sup> Plan Number F16: 220-222.

<sup>64</sup> See Technical Report G.6, Appendix C.

<sup>65</sup> See Note M2.



- 112 As lodged, the above-ground southern ventilation building<sup>66</sup> compromises the pedestrian / cycle movement network through Alan Wood Reserve. It is an internalised box that does not 'activate' the open space around it in any way. It blocks views between the pedestrian / cycle way and access points from Hendon Avenue; and it creates a 'pinch point' on the south side which funnels people through a narrow area (with 8-10m high blank walls on one side and the creek edge on the other). There is then an abrupt change of direction around the building at its western end, with the tight curve allowing no clear line of sight. This creates opportunities for concealment and undermines a sense of safety.
- 113 As noted earlier, the NZTA has commissioned further design work for the southern ventilation building and stack since lodgement. This is discussed later in my evidence.

**Bulk and scale of ventilation structures**

- 114 The AEE<sup>67</sup> shows the northern ventilation building partially underground. While a fully underground option is preferred by the Design Team, I understand that a balance of considerations by the NZTA has determined the Project design, including cost.
- 115 I consider that the building design meets the urban design principles in Section B of the ULDF in the following ways:
- 115.1 The majority of the building is underground and the above ground portion aligns with and is set back appropriately from the street;
- 115.2 Planting screens the building from the school; and
- 115.3 Servicing and parking is away from the street edge.
- 116 The following elements shown on the AEE plans as lodged do not meet the urban design principles:
- 117 The requirements of the ventilation building appear to preclude 'active edges' – that is, openings to the street (Great North Road) or the school. The building is 'closed', with blank frontages;<sup>68</sup>
- 117.1 The building is significantly longer (though not higher) than surrounding housing; it differs in scale and type from the built context;
- 117.2 The stack is located near the school ground's boundary and not with the tunnel portals; and

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<sup>66</sup> Plan Numbers F16:219 and F8:420-421.

<sup>67</sup> Plan Numbers F8:917-410.

<sup>68</sup> Plan Numbers F8:410-411.

117.3 Due to the functional requirements of the building, there are no other uses or functions proposed to be co-located with the building and stack.

- 118 The southern ventilation building for the Project is proposed to be located fully above ground.<sup>69</sup> The stack's off-centre location creates a less impressive tunnel approach. There is no other structure of the bulk and industrial type of this one in the vicinity, resulting in a significant change to the neighbourhood character. I do not consider that the Project design as lodged satisfies the urban design principles in the ULDF. In the light of revised design options that have been prepared post-lodgement for both the ventilation buildings and stacks, I propose revised conditions to address these issues later in my evidence.

### **Design of motorway structures**

#### ***Road bridges***

*Sector 1: Te Atatu Road bridge.*

- 119 The plan and sections of the widened Te Atatu Road Bridge are shown on AEE Plan F8:917-210. The additional pedestrian / cycle span on the east side of the bridge enhances the pedestrian network. I consider that the balustrade treatment and new guardrail to the edges of the bridge will contribute positively to local identity and sense of place, thereby reflecting the design principle in the ULDF to denote Te Atatu Road as an important urban gateway.

*Sector 9: Richardson Road bridge*

- 120 The Richardson Road Bridge forms a pair with the Maioro Bridge, referencing the volcanic highway theme through the 'fractured' pier and parapet treatment.<sup>70</sup> The bridge design is consistent with the urban design principles for continuity, slenderness and horizontality of structure, and integrated parapet and balustrade design.<sup>71</sup>

#### ***Retaining walls***

- 121 The retaining wall west of the Rosebank ramps on SH16<sup>72</sup> is designed to match the concrete retaining panels on SH18. This design responds to the retaining wall design principles in the ULDF,<sup>73</sup> including consistency with the existing highway design context.
- 122 Retaining wall design for SH20 was not included in the AEE documentation. However, wall design concepts are included in the ULDF<sup>74</sup> and I understand that they will be developed further at

<sup>69</sup> Plan Numbers F8:917-420; 919-420 to 422.

<sup>70</sup> Plan Number F8:480.

<sup>71</sup> ULDF Section B5.3.1, page B-14. (**Annexure D.**)

<sup>72</sup> Plan Number F8:700.

<sup>73</sup> ULDF Section B5.6, page B-20. (**Annexure D.**)

<sup>74</sup> ULDF Section B5.6, page B-21-22. (**Annexure D.**)

detailed design. The design concepts respond to the retaining wall principles in terms of materials, colour, and integration with bridge design.

### **Noise walls**

- 123 Noise barriers are required in a number of locations along both SH16<sup>75</sup> and SH20.<sup>76</sup> Noise barriers will be of varying height and their design will have visual implications for motorway and pedestrian / cycleway users, residents, users of reserves, and people using local roads.
- 124 The Project uses bunding, and combines noise walls with bunds where possible to reduce the height of the 'structure' element.<sup>77</sup> This will assist in softening the appearance of the walls, particularly when associated with planting, as per the urban design principles.
- 125 Noise wall concept designs for both SH16 and SH20 are not included in the AEE documentation but I understand (as with retaining walls for SH20) that the concepts in the ULDF are to be developed further as part of detailed design. The concepts illustrate different wall types<sup>78</sup> whose form and colours relate to the different highway themes and the particular setting, in accordance with the design principles. Also in accordance with the NZTA design guidance for noise walls, the concepts include high quality, long life materials.

### *Sector 5: Great North Road interchange*

- 126 Noise attenuation of the ramps at the Great North Road Interchange was investigated by the noise specialist Ms Siiri Wilkening and discussed with Mr Stephen Brown in relation to their visual impact. As a result of those discussions, the road surface will be treated, obviating the need for large noise barriers on the ramps. One ramp only (Ramp 2) will have a higher safety barrier (1.1m) that doubles as a noise wall. This is a balanced and positive outcome from an urban design perspective.

### **Conclusions**

- 127 In my opinion:
- 127.1 The NZTA has adopted a logical and collaborative approach to the development of urban design for the Project;
- 127.2 The urban design issues identified by stakeholders and the community have been substantially addressed;

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<sup>75</sup> Plan Number 16:201-203 (Te Atatu) and 16:213-215 (Waterview to St Lukes).

<sup>76</sup> Plan Numbers F16:220-223.

<sup>77</sup> Refer annotations to Plans F16:213-215.

<sup>78</sup> ULDF Section B:5.5, Figures B-19-20, pages B-16-17. (**Annexure D.**)

127.3 The urban design principles in the ULDF have generally been given effect in the Plans for Structures and Architectural Features, and the Urban Design and Landscape Plans; and

127.4 The elements within the urban design and landscape plans that could be delivered through the 'management plan process' by agreement with Auckland Council would further enhance the connectivity, amenity and visual quality of the Project.

## **POST-LODGEMENT EVENTS**

### **Ventilation buildings and stack design**

- 128 Due to refinement of specifications for the northern and southern tunnel ventilation buildings, the control facilities are now proposed to be relocated from the northern to the southern vent building. At the same time the NZTA has commissioned further design work for the ventilation buildings and stacks.
- 129 Mr David Gibbs in his evidence discusses the architectural design of the revised ventilation building options and provides a commentary on their relationship to the AEE lodged designs. I therefore limit my comment to how the revised options give better effect to the urban design principles and design themes in the ULDF.
- 130 For the northern ventilation building, the most important change is its reduced footprint, with the above ground portion presented as a series of four smaller buildings along Great North Road, with spaces between them. This redesign reflects the Project's urban design principles by:
- 130.1 Taking up a smaller area, 'giving back' two lots on the corner of Oakley Avenue. This means that in the future this land will be available either for reinstatement as single dwellings or, with consolidation, a more intensive development;
- 130.2 Breaking up the original building massing to result in a scale and rhythm along the street that references the existing residential character and integrates more successfully with it;
- 130.3 Referencing the context of the coastal location (through materials, colour and façade treatment); and
- 130.4 Treating the stack as a sculptural element.
- 131 For the revised option for the southern ventilation building, the building massing is broken down into a small building housing the control or operational facilities (directly at the tunnel portal) and a larger building to the north. This design is a significant improvement on the lodged proposal in that:

131.1 It both reduces the bulk of the building and better incorporates it into the open space network. The building appears to 'lift up' out of the landscape, rather than being 'plonked' onto it;

131.2 As a consequence of the redesign, the pedestrian / cycle path has been relocated and now links to Hendon Avenue through the gap between these buildings (rather than around the back). This removes concerns about safety and security of the former circuitous, isolated route; and

131.3 The design of the southern portal has been refined and detailed to reinforce the experience of 'entering the volcano', an important design theme for SH20.

132 I concur with Mr David Gibb's evidence that the redesigned building massing and architectural treatment indicated for the southern ventilation buildings and portal reflect the 'volcanic highway theme' and urban design principles in the ULDF, including undergrounding the building as far as possible and treating above-ground elements as integrated 'urban sculpture'.<sup>79</sup>

#### **Removal of Cradock Street emergency exhaust**

133 Due to changes in the fire / life safety design, the central emergency stack at 36 Cradock Street is no longer required for the tunnel component of the Project and Plan No. F16:225 becomes redundant. Proposed amendments to conditions LV.1 and LV.3 therefore remove reference to the design of this stack. From an urban design perspective the removal of the stack from the Project is a positive outcome, retaining the existing low-scale area character.

#### **COMMENTS ON SUBMISSIONS**

134 I have read submissions lodged on the Project that raise urban design or related issues relevant to my area of expertise. In this section of my evidence I will address these submissions to the extent not already covered by my preceding evidence.

135 I have grouped the submissions as those relating to:

135.1 The urban design process;<sup>80</sup>

135.2 Neighbourhood character and amenity;<sup>81</sup>

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<sup>79</sup> Refer ULDF, Section B5.4, **Annexure E**.

<sup>80</sup> Including Submitter Nos. 121, 126, 148, 160, 186, 191, 199, 203, 210, 211, 223, 225, 230.

135.3 Pedestrian and cycle linkages;<sup>82</sup> and

135.4 Landscape design.<sup>83</sup>

136 I also deal with these submissions individually:

136.1 Friends of Oakley Creek; and

136.2 Auckland City Council.

### **Urban Design Process**

137 Submissions relating to the urban design process fall into three categories: those that oppose the Project on the basis that it does not meet the NZTA's urban design policy objectives; or seek community input into urban design going forward; or seek confirmation that certain aspects of the Project will be delivered.

138 *NZTA's urban design policy:* In my opinion, the process to develop the Project's urban design was thorough and collaborative, and thereby reflects the Method outlined in the NZTA's Urban Design Policy. I also consider that the urban design outcomes support the Urban Design Implementation Principles of the Policy, namely, a balance of cost, operational, amenity, sustainability and environmental considerations.<sup>84</sup>

139 *Community input into urban design:* the bridges, retaining walls and ventilation building and stack concepts in this proposal, and the noise wall concepts in the ULDF<sup>85</sup> have been presented to stakeholders and the public, and their feedback has informed the development of the concepts. Going forward into detail design, community input into the final appearance of these structures is envisaged in proposed condition LV.3<sup>86</sup> by way of involvement of the Community Liaison Group.

140 *Several submissions relate to design quality:*<sup>87</sup> In my view there are two key mechanisms for taking design quality forward from this

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<sup>81</sup> Including Submitter Nos. 18, 26, 35, 43, 56, 60, 62, 108, 127, 135, 138, 140, 150, 151, 153, 167, 175, 176, 184, 186, 191, 210, 219, 221, 223, 228, 231, 232, 235, 237, 238, 248, 251.

<sup>82</sup> Including Submitter Nos. 23, 33, 36, 56, 60, 88, 93, 92, 103, 104, 115, 119, 120, 129, 130, 135, 136, 138, 142, 146, 148, 156, 167, 176, 180, 183, 185, 186, 191, 192, 199, 200, 202, 203, 204, 206, 207, 211, 219, 223, 225, 227, 228, 230, 235, 237, 238, 251.

<sup>83</sup> Including Submitter Nos. 38, 45, 46, 52, 73, 96, 100, 104, 122, 124, 161, 179, 191, 206, 212, 217, 241, 24334, 48,70, 75, 77, 79, 81, 88, 121, 122, 142, 158, 164, 209, 221,224, 247, 249.

<sup>84</sup> Refer **Annexure A**.

<sup>85</sup> Refer **Annexure E**.

<sup>86</sup> Refer **Annexure F**.

<sup>87</sup> Submitters No. 104, 185, 191, 221.

proposal into detail design: first, through a requirement that the detailed design of the final landscape and structures meets the urban design principles set out in Section B of the ULDF, by way of a condition;<sup>88</sup> and secondly, through appropriate consultation on the final appearance of key structures, also by way of condition.<sup>89</sup>

- 141 Four submitters, including Auckland City Council, sought the involvement of artists: Friends of Oakley Creek for signage and/or elements within the Oakley Creek area<sup>90</sup> and another for the design of the ventilation stacks.<sup>91</sup> Mr and Ms Stanton<sup>92</sup> also suggested that funding for the public art component should be included in the Project. There is a distinction to be made between the design of Project structures and of 'standalone' elements in the landscape. I concur with Mr David Gibbs that the public should be confident that integrated teams of structural engineers, architects and urban designers do have the technical skills to produce high quality design of motorway structures. Artists' input could be secured under the aegis of the Community Liaison Group, as per an amendment to proposed condition LV.3.<sup>93</sup>
- 142 Funding, commissioning and managing the delivery of 'standalone' public art is not envisaged for the Project (save for interpretive signage in the Oakley Inlet Heritage area,<sup>94</sup> which I understand is included). The community and Auckland City liaison process referred to in condition LV.3 should assist the Urban and Landscape team identify appropriate locations and concepts for artworks.
- 143 *Delivery*: Submissions concerning Project delivery related to monitoring and maintenance of the landscape design after implementation,<sup>95</sup> including a weed management program.<sup>96</sup> These are met by proposed conditions LV.5 and LV.6.<sup>97</sup> I appreciate the public's desire to return public space to the community as soon as possible and to see that space designed and built to a high standard. AEE Plan F16:212 sets out what I consider to be a high quality design proposal for Waterview Reserve, with the

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<sup>88</sup> See amended proposed condition LV.3 (**Annexure F**) and Section B of ULDF (**Annexure E**).

<sup>89</sup> See amended proposed conditions LV.1-3 (**Annexure F**).

<sup>90</sup> Submitter Nos. 179, 206.

<sup>91</sup> Submitter No. 211.

<sup>92</sup> Submitter No. 206.

<sup>93</sup> Refer **Annexure F**.

<sup>94</sup> Plan note 8, Plan No. F16:224.

<sup>95</sup> Submitter Nos. 122, 148.

<sup>96</sup> Submitter Nos. 191, 217.

<sup>97</sup> Refer **Annexure F**.

understanding that this design is subject to agreement between the NZTA and the Auckland Council.

### **Neighbourhood Character and Amenity**

- 144 Issues raised in these submissions focused on neighbourhood amenity, neighbourhood identity and character. Most concerned the impact of removing houses along Great North Road on the “attractiveness and safety” of the pedestrian environment and sought improved Crime Prevention Through Environmental Design (CPTED) outcomes. Of related concern were the bulk, scale and industrial character of the ventilation buildings, both within residential neighbourhoods and the open space network of Alan Wood Reserve.<sup>98</sup> With regard to Great North Road, I agree that removal of housing removes a visual connection between the public and private domain (that is, casual overlooking of the street) and activity along the edge of the street, and thereby reduces the perception of safety. While I understand that engineering and space requirements constrain the location of the northern ventilation building, and limit the ability to replace active uses with active uses, there are elements of the Project design in this location that could be improved to better address resident concerns. I discuss these below.
- 145 Due to refinement of specifications for the northern and southern ventilation buildings, revised design options have been prepared that in my view resolve a number of the urban design issues (as discussed in the Post Lodgement section of my evidence above).
- 146 The revised design option for the northern ventilation building draws on the size and spacing of houses in the area. From a bulk and scale perspective, this is more appropriate within the Waterview neighbourhood context. There is also potential for semi-transparent fencing to enable visual connection from Great North Road into the site.
- 147 While I consider that the proposed landscape planting and the redesign option for the northern ventilation building together balance security and permeability requirements, I accept that these measures cannot restore or replicate the existing neighbourhood character. The removal of control facilities to the southern ventilation building also means the removal of staff who would otherwise be using the northern building. This means that there are reduced opportunities for activity around the building. The ventilation building facades should therefore animate the street as far as possible, especially at night.

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<sup>98</sup> Submitter Nos. 14, 51, 62, 71 91, 123, 135, 151, 152, 167, 182, 201, 223, 237.



- 148 I recommend the following additional improvements:
- 148.1 That detailed design of this ventilation building incorporate lighting that illuminates the facades and creates a focus on Great North Road. This is implicit in Mr Gibbs' evidence and this principle could be secured by way of amended condition.<sup>99</sup>
- 148.2 That the western footpath be reinstated as a shared bicycle / pedestrian path, to encourage more activity along this side of Great North Road (as suggested in the Cycle Action Auckland submission).<sup>100</sup> I understand that the NZTA is supportive of this change, which would require future amendment of Plan Nos. F16: 212 and 217 following consultation with Auckland transport agencies as per proposed condition OT.1.<sup>101</sup>
- 149 The revised indicative design for the southern ventilation building significantly reduces its bulk and scale, and provides for a generous public space connection behind the portal. Although the building remains above ground, it provides much better connectivity than the lodged design. In line with the urban design principles,<sup>102</sup> it also treats the building and stack as integrated elements that have a sculptural quality.
- 150 The 'green roof' is a positive feature of the design that is key to integrating the building with the landscape, softening its industrial character and reducing its apparent bulk and scale. The Construct / Buildmedia visualisations<sup>103</sup> show the roof space as publicly accessible. I understand that the access to the roof of the larger building may need to be controlled (for operational and security reasons) and this may result in fencing or other security arrangements that reduce the relatively 'seamless' connection with the public open space, as well as its ability to be used for overlooking the park, sportsfield and cycleway. However, on balance, I consider the revised design option an acceptable compromise, for the reasons discussed in the Post-Lodgement section of my evidence above, and taking into account Mr David Gibbs' evidence that even with an 'underground' solution, there would be elements of the building and its servicing that would need to be located above ground.

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<sup>99</sup> Refer **Annexure F**, LV.1 (e)(vi).

<sup>100</sup> Submission No. 79 (note that this suggestion was made to enhance the cycle network but I consider it has CPTED advantages as well).

<sup>101</sup> See Murray evidence, **Annexure A**.

<sup>102</sup> Refer ULDF Section, **Annexure E**.

<sup>103</sup> See Gibbs evidence, **Annexure A**.

- 151 The Waterview Primary School Board<sup>104</sup> and Waterview Kindergarten<sup>105</sup> seek mitigation in the form of acoustic barriers, planting to hide noise bunds and walls, and boundary fencing. In my opinion, this is all well provided for in the Landscape Plan.<sup>106</sup> (I understand that the Kindergarten is to be relocated to a site on Oakley Avenue, adjacent to the school.)
- 152 One submitter<sup>107</sup> requested that Herdman Street be realigned northwards. No specific issue was identified aside from the desire for 'good urban design'. I assume that the request relates to moving the ramps, building and stack northwards, and note that the alignment is fixed by the engineering requirements for the tunnel portal. Moving the street northwards would result in insufficient headroom at the portal for vehicles exiting the tunnel. It would also reduce the area being returned to open space as part of the Waterview Reserve. I see no urban design benefit in a street realignment.

#### **Pedestrian and Cycle Linkages**

- 153 Many submissions relate to pedestrian and cycle linkages. They generally express concern about the severance impacts of the Project, the resultant lack of non-road based connections,<sup>108</sup> and a desire for walking and cycling access between communities and open spaces to be enhanced.<sup>109</sup> The majority sought additional connections in the form of:
- 153.1 The extension of the SH20 cycle way to link Alan Wood Reserve to Waterview;<sup>110</sup>
- 153.2 The provision of cycle / pedestrian bridges linking Waterview to the Unitec Campus and Phyllis Reserve; and
- 153.3 The provision of cycle / pedestrian bridges at Soljak Place (over New North Road), and over Alan Wood Reserve ('Olympus' bridge).
- 154 While these linkages are not part of this Project, they are not precluded by it. They are consistent with the wider aspirations of

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<sup>104</sup> Submission No. 166.

<sup>105</sup> Submission No. 231.

<sup>106</sup> Plan No. F16:217.

<sup>107</sup> Submitter No. 120.

<sup>108</sup> Submitter Nos. 103, 221.

<sup>109</sup> Some submitters requested a suite of upgrades including cycle way and various bridges; others nominated one or more new connections.

<sup>110</sup> Key submissions in respect of the continuous cycle way were received from Auckland City Council, Friends of Oakley Creek, Northwestern Residents Association, Living Communities and Cycle Action Auckland.

the ULDF to connect and enhance neighbourhoods and open spaces. I support their future delivery through mechanisms other than the current Project.

- 155 Also outside the scope of the Project are submitters' requests for a cycle / pedestrian bridge across SH16 linking Waterview with Point Chevalier,<sup>111</sup> a cycle / pedestrian bridge across SH16 and the Great North Road (as an alternative to the existing St Lukes Road overbridge<sup>112</sup>), and an extension of the St Lukes Road overbridge to include a pedestrian and cycle path on the western edge.<sup>113</sup> In advocating for the inclusion of additional connections through Alan Wood Reserve, three submitters<sup>114</sup> mentioned the tunnel portal as both an obstruction and a potential connection.
- 156 One submitter<sup>115</sup> comments that the portal location results in the loss of a linkage from Methuen Road to Olympus Street to Murray Halberg Park. I would note in response that this link does not currently exist and is in fact partly provided for in the Project (Plan Number F16:220 shows a new pedestrian connection from the cycleway up to Methuen Road). This connection is on alignment with Olympus Street and may, in the future, be extended over the motorway to link with it. The revised design option for the southern ventilation building, with a large open space behind the portal, also maintains the open space connection in this location.
- 157 One submitter noted that the 'shared path' design approach should provide for both pedestrian and cycle modes in allowing for both accessible and direct paths of travel.<sup>116</sup> This is a core urban design principle and I consider that the landscape design meets it, with a combination of accessible ramps complemented with stairs where these are on 'desire lines' or direct pedestrian travel routes (e.g. Hendon bridge, Plan Number F16:221).

### **Landscape Design**

- 158 Many of the submissions received in this category concerned a desire for appropriate species in appropriate locations and more planting in certain areas. They are dealt with by Mr David Slaven (ecology) and Mr David Little (open space). Mr Stephen Brown covers in detail the visual mitigation provided by planting within the Project. I therefore limit my comment to those submissions that merge into urban and landscape design issues.

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<sup>111</sup> Submitter Nos. 88, 136, 167, 180, 192, 200, 221, 148, 151.

<sup>112</sup> Submitter No. 130.

<sup>113</sup> Submitter No. 79.

<sup>114</sup> Submitter Nos. 185, 191, 221.

<sup>115</sup> Submitter No. 221.

<sup>116</sup> Submitter No. 221.

- 159 Waitakere City Council<sup>117</sup> seeks planting of low growing species between the Northwestern cycle way and the motorway to provide an increased sense of separation while retaining views.
- 160 The planting proposal is in keeping with the existing open coastal environment (i.e. predominantly shrubs and grassland). A significant area near the Northwestern cycle way<sup>118</sup> will have short grass to act as a filter strip and treat surface water runoff, while keeping open views. The Te Atatu section of the cycle way is predominantly a parkland setting (trees in grass).<sup>119</sup> Some ground cover planting has been indicated adjacent to the cycle way.
- 161 Several submissions were received from residents of Alwyn Avenue, Te Atatu,<sup>120</sup> concerned about noise effects and the appearance of a fence on the proposed bank opposite their properties.<sup>121</sup> They provided an alternative design for the noise bund profile and fencing, showing a reversed bund with the steeper side edging the cycleway and the shallower, planted slope edging the motorway. Ms Siiri Wilkening comments in her evidence that reversing the bund would make no noticeable difference to the predicted noise levels. I understand also that the fence shown in visual simulations, and which the submitters object to, provides no additional benefits in terms of noise and could be deleted. From an urban design perspective the reversed bund is a much poorer outcome for users of the cycle way, which would be edged by a high, steep bank, and for the streetscape, which would lose the vegetated outlook proposed in the AEE. I consider the AEE design a better urban design outcome.
- 162 The same submitters also proposed that any earthworks are made to appear naturally formed so that the land appears naturally contoured. In reviewing the AEE plan and sections provided by the submitters, I consider this has already been done as far as possible within the space available.
- 163 Transpower<sup>122</sup> has submitted on the distance and height of landscaping in relation to pylons, requesting an onerous condition that would effectively cut a swathe through the proposed landscape treatment of the Te Atatu Interchange<sup>123</sup> by removing parkland and native canopy planting. The landscape plan for this area was drawn

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<sup>117</sup> Submitter No. 212.

<sup>118</sup> From Traherne Island to Waterview, Plan Nos. F16:207-209 and at Rosebank, Plan No. F16:204.

<sup>119</sup> Plan No. F16:203.

<sup>120</sup> Submitter Nos. 38, 46, 73, 124.

<sup>121</sup> Plan No. F16:203.

<sup>122</sup> Submitter No. 52.

<sup>123</sup> Plan Nos. 202-203.

up using the New Zealand Electricity (Hazard from Trees) Regulations 2003 and is based on minimum clearances. A new condition intended to meet Transpower's concerns is proposed and discussed in the evidence of Mr Hugh Leersnyder.<sup>124</sup> It references the need to comply with the New Zealand Electricity (Hazard from Trees) Regulations 2003.

**Submission from Friends of Oakley Creek<sup>125</sup>**

- 164 Friends of Oakley Creek sought various matters, including those discussed below.
- 165 That generally throughout the Project, retaining walls are to be covered in such a way that natural landform is restored. *Response:* Generally, retaining walls have been minimised through the use of piers or bunded embankments. Where unavoidable, these will reflect the design concepts for structures in Section B of the ULDF.
- 166 That pedestrian / cycle linkages (around the Oakley Creek catchment) to be designed with berms and approaches to minimise uptake of open space. *Response:* This approach was undertaken in the design of the small bridges over the creek, and the Hendon Bridge.<sup>126</sup> The southern landing comes down on piers through the stormwater pond, so does not affect the open space (nor is this area included in the open space calculations). The northern landing is also designed so that extensive bunding does not encroach upon potential open space.
- 167 That mitigation should include funding for interpretive signage or art work to enhance the value of Oakley Creek. *Response:* I agree that interpretive signage or artwork would enhance people's appreciation of Oakley Creek and contribute to a sense of place (both important aspects of urban design). However, I do not see this as a mitigation requirement for the Project, and understand the development of such elements is a matter for the NZTA and Auckland Council (as owner of such assets).
- 168 That stormwater treatment facilities to be redesigned to include a more naturalistic outcome and include access, viewing, and interpretation signage. *Response:* Stormwater ponds in the Project are already natural curved shapes, and the proposed planting will further soften these shapes by breaking up the regular sweeps of the curves. Access and outlook is provided around both ponds in the form of pathways. I agree that with Mr David Little that interpretive / educational signage would be a positive feature and see its location, content and design being developed in consultation

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<sup>124</sup> See Mr Hugh Leersnyder's evidence, **Annexure D**.

<sup>125</sup> Submitter No. 179.

<sup>126</sup> Plan Nos. F16:219-222 and, for detail on Hendon Bridge, also Plan No. F8:470-471.

with Auckland Council and the Community Liaison Group, along with identification of potential funding sources.

**Auckland City Council Submission<sup>127</sup>**

- 169 I address key issues raised by ACC that relate to future land uses, the Urban and Landscape Plans,<sup>128</sup> the urban design principles underpinning them, the noise walls,<sup>129</sup> and the Richardson Road bridge design.<sup>130</sup> Mr David Gibbs' evidence deals with the design of the ventilation buildings and stacks, and I consider that, as per his response to Council, the [revised indicative] design substantially addresses its concerns.

**Future land uses**

- 170 The ACC does not support the reinstatement of a formal sportsfield at Waterview Reserve and seeks quality family housing on parts of Waterview.<sup>131</sup>
- 171 *Response:* The final form of Waterview Reserve is subject to agreement between the NZTA and Auckland Council. In relation to the potential for housing in this area, there was a series of urban design investigations into potential land use scenarios through the course of developing the ULDF. These investigations showed how a mix of more intensive residential, community and commercial uses might be laid out within Waterview after the Project was constructed. While I concur with the desire to replace the housing lost to the Project, I consider that the sustainability of an urban community is also contingent on quality open space. Mr Little's evidence addresses the reinstatement of open space within the Waterview neighbourhood as a response to community concern about losing their local park and facilities. I agree with him: the urban design outcome of a new Waterview Reserve that integrates better with the surrounding community is, in my opinion, a positive aspect of the Project.

**Urban and Landscape Plans**

- 172 ACC seeks that the landscaping plans for the motorway corridor avoid the use of abstract patterns of cultivated planting.
- 173 *Response:* In my opinion, the landscape design is a suitable response to a highly modified environment. Formal patterns<sup>132</sup> are limited to within the median, and edging the corridor as a transition

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<sup>127</sup> Submitter No. 111.

<sup>128</sup> AEE, Part F, F.16.

<sup>129</sup> ULDF, **Annexure E**.

<sup>130</sup> Plan Nos. F8:917-480 and F8:919-480.

<sup>131</sup> Submitter No. 111, paragraph 57.

<sup>132</sup> Labelled 'native highlight planting' on Plan Nos. F16:210-213 and 219-223.

to the more 'natural' urban forest planting proposed for larger areas.

- 174 ACC seeks the naturalistic form of [stormwater] treatment devices.<sup>133</sup>
- 175 *Response:* This has been achieved through irregular and curving shapes of the stormwater ponds as far as practicable<sup>134</sup> within the construction footprint, between ramps, and between the motorway and the path network. The riparian planting proposed to edge the ponds will further soften their appearance and give them a 'naturalistic form'.
- 176 ACC seeks that landscaping in the area should not necessarily comprise mass block planting, and should provide visual connections to the Oakley Creek environs and passive surveillance for Great North Road.<sup>135</sup>
- 177 *Response:* the landscape design in this area is a mix of canopy trees, shrubs, riparian planting, and grass. Low planting is indicated adjacent to pedestrian paths. There is a necessary balance of screening of large motorway elements and openness for good pedestrian sight lines. As noted, the introduction of a shared path along the western edge of Great North Road will assist in animating the street edge by putting more 'eyes on the street'.
- 178 The ACC seeks the provision of additional landscaping on streets around the southern tunnel portal and open motorway sections. *Response:* Streetscape upgrades to local streets, rather than to open space areas, are outside the Project's scope.

#### **Noise walls**

- 179 Noise walls and the surrounding landscapes should not become for graffiti or antisocial behaviour.<sup>136</sup>
- 180 *Response:* This is most relevant to Alan Wood Reserve.<sup>137</sup> Noise walls are set amongst buffer planting, and atop bunds with a minimum 2 metre separation from paths, so that their elevation and the landscaping in front of them can make them less accessible to graffiti. Lines of sight along the shared path are clear, so that people are visible to each other and there is no potential for concealment. Noise walls adjacent to the railway corridor on the other side of the motorway are potentially more vulnerable because

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<sup>133</sup> Submitter No. 111, paragraph 318.

<sup>134</sup> Plan Nos. F16:201, 211, 212, 220, 221.

<sup>135</sup> Submission No. 111, paragraph 419.

<sup>136</sup> Submission No. 111, paragraph 102.

<sup>137</sup> Refer Plan No. F16:219-223.

of the fragmented nature of the open space between the corridor and the rear of Hendon Avenue properties. Here the heavy planting of flax in those areas least able to have casual surveillance will be a deterrent to entry and potential antisocial behaviour.

- 181 Glass or other visually permeable materials for high noise barriers to eliminate shading effects, reduce visual effects and allow the retention of views.
- 182 *Response:* Transparent materials are typically used to enable identified important views (for example the heritage cliffs and pohutukawas at St Mary's Bay, in the Victoria Park Tunnel project). No such important views are at issue in this Project. A range of materials was investigated in the development of the noise walls for this Project, resulting in design concepts and a materials and colours palette that is a considered response to the respective volcanic and green route themes. These concepts are for solid walls that are attractive features in the landscape. The appropriate urban design principles in this Project are: to balance noise and visual impact by limiting the height of walls; and to design the walls to be 'double-sided' so that they contribute positively to the amenity of both motorway users and neighbours'. The noise wall concept designs for this Project reflect these principles and I do not consider the introduction of visually permeable elements would significantly affect the amenity they offer.

#### **PROPOSED CONDITIONS**

- 183 In the documentation lodged with the AEE, the NZTA included a set of Proposed Consent Conditions (see Part E, Appendix E.1). This included proposed landscape and visual conditions. They require the urban design and landscape plans lodged with the AEE to be reviewed and revised in accordance with the final conditions, to include specific matters and to take into consideration various issues. (See Conditions LV.1 and LV.2 in particular.)
- 184 A set of the proposed conditions is contained in **Annexure F** to my evidence. The various amendments referred to earlier in my evidence are now shown in **Annexure F** (in underline and strikethrough).




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**Lynne Hancock**  
**November 2010**



**Annexures:**

A – NZTA (Transit) Urban Design Policy

B – Figure A-2 from the Urban and Landscape Design Framework (ULDF)

C – The Structure of the ULDF

D – Urban and Landscape Design Methodology

E – Section B of the ULDF (Design Vision and Principles)

F – Proposed Visual and Landscape Conditions (with amendments)

**ANNEXURE A: NZTA URBAN DESIGN POLICY**



## URBAN DESIGN POLICY

### Introduction and issues

#### **New Zealand Urban Design Protocol**

Transit, as a signatory to the New Zealand Urban Design Protocol (the Protocol), is committed to planning and delivering quality urban design. State highways play a key role in contributing to the quality and character of urban and rural environments. Transit's primary contribution to achieving the objectives of the Protocol is a state highway network that achieves a high level of functionality while at the same time supports a high quality natural, built and social environment.

#### **What is urban design?**

Urban design involves the design and placement of buildings, roads and open spaces in towns and cities to create desirable places in which to live, work and play. On a large scale it is concerned with urban and rural structure, the pattern of buildings, open space and movement networks. On a small scale, it is concerned with urban and rural character and function and how roads, open spaces and buildings interact, appear and function.

#### **What urban design is not**

Urban design is not just about the aesthetic characteristics of roads and the introduction of public art and sculpture. These may contribute to good urban design, but the concept is more fundamentally concerned with the structure, character and function of urban and rural areas.

#### **How urban design assists Transit**

The application of urban design principles assists Transit in the identification and evaluation of key issues early in the project development process. This allows Transit to identify scope and funding needs more accurately in the planning phase of a new state highway project, which is an essential prerequisite for cost efficiency and effectiveness. On existing state highways there may be limited opportunity to fulfil the objectives of the NZ Urban Design Protocol and each initiative will be considered on a case-by-case basis.

One of the objectives of this focus on urban design is the achievement of an affordable state highway network that New Zealanders can be proud of in the future. However, there are many challenges involved in fulfilling this objective, including that many of the benefits of good urban design accrue in the long term.

**State highway categorisation and urban design**

State highway categorisation helps deliver urban design by allowing the planning and construction of state highways to reflect local context. It also requires this emphasis on local context to be balanced with the need to maintain the primary function of the state highway concerned.

For example, where the state highway forms the main street in a small town, it will be designed and managed in conjunction with the local community and may contain features to aid connectivity and town centre vibrancy such as traffic calming or controlled pedestrian crossings.

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**Partnership and cost sharing**

Good urban design can only be achieved by working in partnership with local authorities, other agencies and communities. A number of urban design components are outside of Transit's mandate as an infrastructure provider, or may not be appropriate for Transit to seek funding for as part of a state highway project. In these situations Transit looks to its transport and planning partners to share or meet the costs involved.

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*Urban design is concerned with issues such as connectivity*



	<p><b>Urban design policy</b></p> <p><i>Transit will implement the Integrated Planning Policy by giving effect to this supporting policy, which relates to the contribution made by state highways to urban and rural form and amenity. Transit's policy on seeking to influence land use planning as part of an urban design approach is set out in Chapter 4.</i></p> <p>As a signatory to the New Zealand Urban Design Protocol Transit plans and design state highways in a way that supports good urban design and value for money. In particular, Transit aims to:</p> <ul style="list-style-type: none"> <li>• ensure state highways contribute to vibrant, attractive and safe urban and rural areas; and</li> <li>• achieve integration between state highways, local roads, public transport, cycling and walking networks and the land uses they serve.</li> </ul>
<p><b>UDIP</b></p>	<p>Transit will apply its Urban Design Implementation Principles (UDIP) to all state highway activities:</p> <ol style="list-style-type: none"> <li>1. Appropriate urban design needs to be determined on a case-by-case basis for state highway improvement activities. Each activity is different and should not be assumed to be a precedent for the next.</li> <li>2. Urban design elements need to be incorporated into the activity at the outset. This will help ensure the project design addresses urban design in an efficient and cost effective manner.</li> <li>3. Urban design will not represent an extravagant use of public funds. Urban design initiatives should not attempt to 'disguise' a road, rather they should enhance its integration with the surrounding environment.</li> <li>4. Early collaboration with local stakeholders will occur to promote alignment between urban design initiatives of Transit and the views of affected communities.</li> <li>5. Co-funding of urban design initiatives with local stakeholders will always be considered. Where a local community desires a higher level of urban design than Transit provides, Transit will seek the cost of the higher level outcomes from local stakeholders.</li> <li>6. Urban design will be consistent with the operational requirements of state highways, while recognising the needs of motorists, pedestrians, cyclists and surrounding communities. State highway categorisation has a key role to play.</li> <li>7. All components of urban design will be considered when incorporating urban design into state highway activities. Urban design can contribute to: <ul style="list-style-type: none"> <li>• assisting economic development;</li> <li>• improving safety and personal security for all state highway users;</li> <li>• improving access and mobility for motorists, pedestrians, cyclists and passenger transport;</li> <li>• protecting and promoting public health through the state highway being appropriately integrated with an interconnected road network; and</li> <li>• ensuring environmental sustainability through appropriate use of materials and influencing surrounding land use development.</li> </ul> </li> </ol>

## Method

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### Urban design method

To achieve Transit's urban design policy outlined above, as it relates to the design of state highways, Transit will:

1. use the Transit Urban Design Professional Services Guide PSG/12 (contained within the State Highway Professional Services Contract Proforma Manual SM030) to implement urban design in the various stages of each Transit project.
  2. seek early collaboration with local stakeholders to promote alignment between Transit's urban design initiatives and the views of affected communities.
  3. seek cost sharing of urban design initiatives with relevant local authorities and other stakeholders to maximise opportunities to improve urban and rural environments, multi-modal transport opportunities and visual quality and character.
  4. consider all environmental treatments (such as stormwater facilities), features to facilitate economic development (such as access to urban centres), engineering factors (such as road design being safe and functional) and facilities to address social requirements (such as community cohesion, providing pedestrian and cycling linkages) in the design of a state highway project from the outset. Guidance on detailed design issues is provided in the Urban Design Professional Services Guide PSG/12.
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**ANNEXURE B: FIGURE A-2 FROM THE URBAN AND LANDSCAPE  
DESIGN FRAMEWORK (ULDF)**

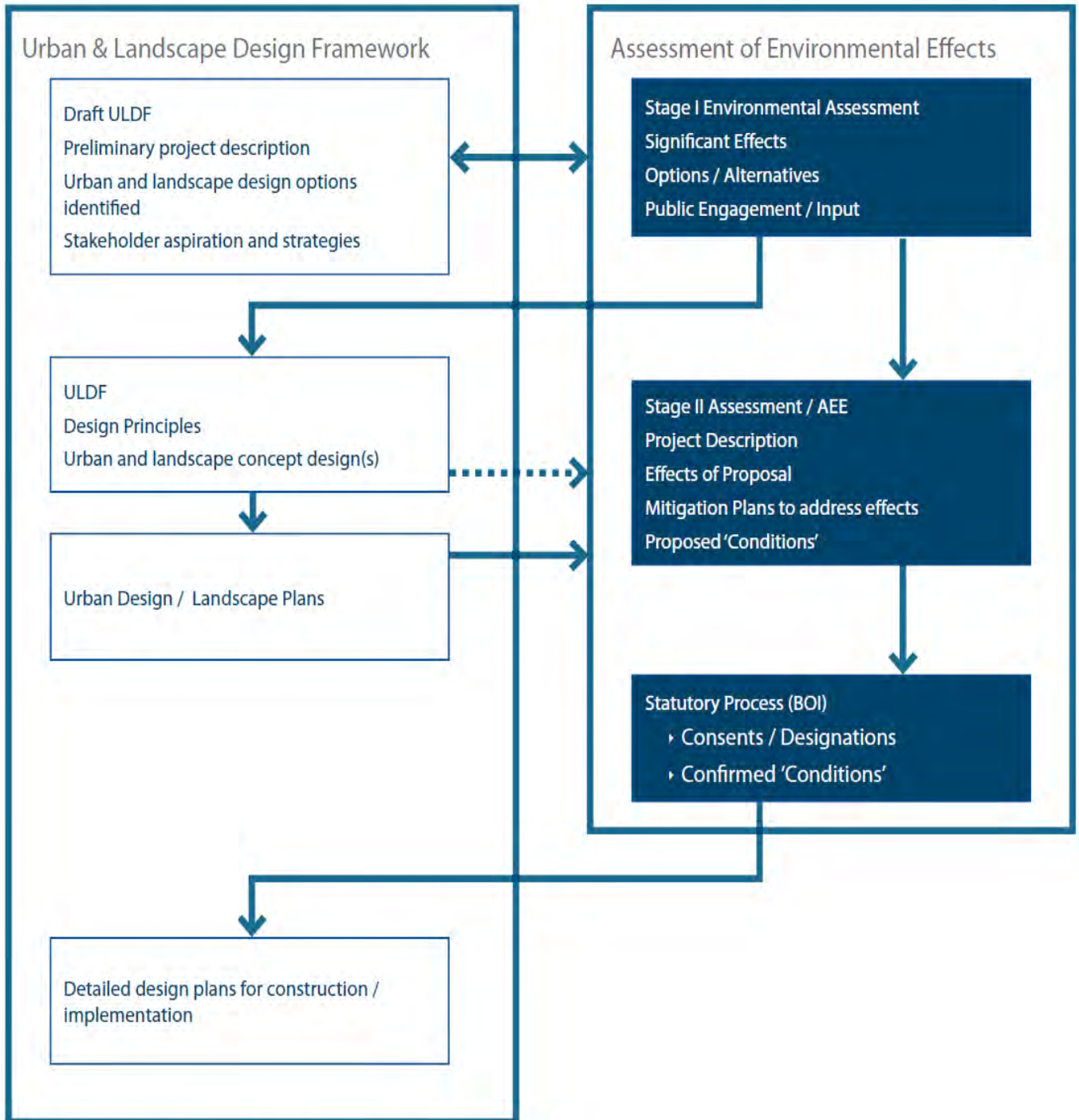


Figure A-2: Summary of relationship between ULDF and AEE



## ANNEXURE C: THE STRUCTURE OF THE ULDF

- 1 The ULDF demonstrates the development of the urban and landscape concept design. The design process is reflected in the structure of the document; the design proposals are underpinned by analysis of the place, the constraints and issues, and the design cues it offers. The ULDF also identifies and illustrates options for key aspects of the concept design.
- 2 Earlier drafts of the ULDF contained additional material in the form of opportunities and constraints diagrams, and more detail around options for open space location and design, major structures and potential future land use reinstatement. This material informed the final version of the ULDF (June 2010) and much of it was presented to the Urban Design Panel as the Project developed.
- 3 The ULDF contains the following three separate sections:
  - 3.1 Section A – Background;
  - 3.2 Section B – Design Vision and Principles; and
  - 3.3 Section C – Sector Design Principles).
- 4 **Section A - Background** includes:
  - 4.1 A description of the Project;
  - 4.2 A review of relevant NZTA and other documents to identify the implications of national, regional and local policy and strategies on the design of the Project; and
  - 4.3 An analysis of the urban context, identifying environmental, ecological, social, iwi, landscape and built elements that constitute issues, challenges and opportunities for the Project.
- 5 **Section B - Design vision and principles** includes:
  - 5.1 The urban and landscape design vision for the Project;
  - 5.2 Overarching urban design project principles that reflect the strategic and urban analysis and the NZTA’s urban design objectives; and
  - 5.3 Corridor-wide design principles for ecology, planting, bridges, noise walls, retaining walls and other structures.

- 6     **Section C - Design** includes:
- 6.1   Sector by sector design concepts, including comparison between existing and potential future condition;
  - 6.2   Design developed by a multi-disciplinary urban design team in consultation with engineering, planning and environmental specialists to ensure variable design solutions. Design concepts have also been reviewed in workshop consultations with territorial and statutory bodies and exhibited in public consultation evenings in the local area. Other stakeholders such as Housing New Zealand have also been involved in design proposal options; and
  - 6.3   Structures and landscape design, with sufficient detail for important design features to clearly convey the desired built outcome.

## **ANNEXURE D: URBAN AND LANDSCAPE DESIGN METHODOLOGY**

- 1 This annexure summarises the key tasks and methodology employed by the Design Team in development of urban design for the Project (as introduced earlier in my evidence).

### **Input to engineering workstreams**

- 2 The urban and landscape design was not only responsive to inputs from other technical workstreams but also had input into the engineering design. This was not a single task but a series of interactions over the course of the Project. To ensure coordination between the urban design and engineering work, regular meetings and workshops took place between those teams. In particular:
  - 2.1 The urban design team participated in multi-disciplinary workshops early in the SH20 Project to undertake a comparative evaluation of the potential adverse impacts associated with the open section of road between the deep tunnel and the cut and cover tunnel. As a result of these workshops the open section 'gap' was closed and this section of motorway became deep tunnel;
  - 2.2 Significant discussion was held around the Great North Road Interchange ramps at Waterview Reserve. Options of both the urban design Project team and the Council stakeholder group were tested, resulting in a 'tightening' of the Great North Road Interchange ramp footprint and reduction in design speed to 80km/hr. This had additional broader benefits in reducing impacts on residents, visual amenity, archaeological sites and structures in the coastal marine area (CMA);
  - 2.3 Weekly meetings were held between the structures architect and the structural engineer around the design of road and pedestrian bridges. This resulted in refinement of the bridge designs;
  - 2.4 Landscape / ecology / environment / stormwater / urban design team members worked together to define a suite of integrated principles for proposed stream diversions for the section of Oakley Creek passing through Alan Wood Reserve. This resulted in guiding principles<sup>138</sup> that informed the proposed open space network and the horizontal alignment through Alan Wood Reserve north to allow for a well-connected cycling/walking route to the south, integrated with space for a restored Oakley Creek channel;

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<sup>138</sup> See Section B of the ULDF, **Annexure E**.

- 2.5 Multidisciplinary workshops were held to identify possible ventilation stack locations and constraints. The structures architect and tunnel engineers also coordinated form of the ventilation buildings;
- 2.6 Noise mitigation workshops were held to determine the best practicable noise mitigation solutions. Ongoing liaison between the noise specialists and the landscape architects (with consideration of visual impacts) informed the type and form of noise mitigation, particularly on the Great North Road Interchange ramps and through Alan Wood Reserve; and
- 2.7 I attended weekly project meetings through the course of the Project, with other discipline leaders and the NZTA, to flag and respond to any issues of coordination arising.

### **Document review – strategic context**

- 3 The urban and landscape design of the Project was informed by a number of strategic plans developed by stakeholders including Auckland City Council (ACC), Waitakere City Council (WCC), Auckland Regional Transport Authority (ARTA) and the Auckland Regional Council (ARC). The urban and landscape design seeks to provide broad alignment with the spirit of the Plans, to deliver where possible the outcomes sought in these documents and to support outcomes which may be delivered by other parties.
- 4 Documents reviewed included: Auckland Regional Growth Strategy (1999), the Auckland City Growth Management Strategy (2003), the Auckland City Council Future Planning Framework (2008), the Auckland City Open Space Framework 'Our Collective Taonga: Places for People, Places for Nature' (2008), the North-West Wildlink Strategy (2006), the Auckland Regional Land Transport Strategy (draft, 2009), Auckland Transport Plan (2009), Auckland Passenger Network Plan 2006, Auckland City Liveable Arterials Plan (2007), Auckland Regional Freight Strategy (2006), Auckland City Council Walking and Cycling Strategy (2007), and Waitakere City Walking and Cycling Strategy (2003).
- 5 The draft 2008 Urban Design Framework for the driven tunnel was also reviewed.
- 6 The strategic context also includes the New Zealand Urban Design Protocol to which the NZTA is a signatory, and the NZTA's Urban Design Policy.

### **Site analysis – area context**

- 7 The motorway corridors and wider Project area were visited, mapped and photographed on a number of occasions by the Design Team. The condition of existing structures and facilities, pedestrian

and cycle movement, current land uses, vegetation, CPTED (*Crime Prevention Through Environmental Design*) was noted and relevant comment and photographs included in the ULDF.

### **Consultation on combined surface tunnel option**

- 8 In June 2009, feedback was sought on the NZTA's combined surface and tunnel option. At the time this option included a gap between the deep tunnel and cut and cover sections of the Project. Following the consultation some stakeholders and local residents expressed concern about the lack of design and mitigation detail.
- 9 During this phase of consultation, community feedback raised visual/amenity impacts as a concern, particularly in relation to surface motorway sections and proposed noise barriers. People wanted to see 'good design', urban design, visual screening and increased undergrounding of the alignment as mitigation for visual and amenity impacts.
- 10 Stakeholder feedback raised similar issues. For example, the ARC was concerned about the design of the interchanges, as well as impacts on adjacent land uses, communities and natural/cultural heritage sites. The ACC also raised impacts on adjacent land uses, asking the NZTA to provide for built form along the planned Richardson Road bridge edges and Hendon Avenue, to reduce severance, and to encourage 'appropriate land uses and an enhanced urban environment'. The ACC supports urban redevelopment on surplus NZTA land once the motorway is completed.
- 11 The loss of public open space was raised as a significant area of concern with the proposed SH20 alignment. Stakeholders including the Eden Albert Community Board, Ngati Whatua o Orakei, Waterview Primary School, Mount Albert Playcentre and local community groups (including the North Western Community Association, Springleigh Residents Association, Living Communities and Friends of Oakley Creek) expressed concern about loss of recreational space at Waterview Reserve and Alan Wood Reserve. Groups called for these impacts to be mitigated appropriately by the NZTA. Both the ARC and ACC also identified replacement of open space affected by the Project as a key concern.
- 12 Public feedback also highlighted concern over disruption to pedestrian/cyclist connectivity as a result of the Project, and the potential for this to increase severance. Respondents highlighted the need for construction of walkways and cycleways, both to enhance the development of the motorway network, and as mitigation for lost connections. The ACC and WCC both requested that the NZTA develop a pedestrian/cycleway connection between the existing SH20 Cycleway at Maioro Street with the Northwestern Cycleway at SH16.

- 13 The NZTA responded by:
- 13.1 Making design modifications, notably closing the gap between the deep tunnel and cut and cover tunnel;
  - 13.2 Developing detailed design concepts (including urban design and reserve replacement concepts);
  - 13.3 Scheduling a series of community expos to present and receive feedback on these concepts; and
  - 13.4 Progressing detailed design for lodgement.
- 14 Jacque Bell, of the NZTA, also invited an ACC stakeholder group (comprising a transport planner, urban design consultant and on occasion a landscape architect) to meet regularly with the Project's urban design team to provide comment on the developing design. This group represented Council and community concerns to the urban design team.<sup>139</sup>

**Identification of issues and their design implications**

- 15 The identification of issues is the link between 'what is' and 'what might be', in providing design cues for landscape and structures architecture, as well as for the location and linkages of open spaces, pedestrian and cycle networks, and where supporting future land uses may be enabled. Issue identification resulted from the detailed strategic and contextual analysis undertaken in the early stages of the Project. It also, importantly, draws on commentary from stakeholders and the community, including that received from the June 2009 consultation.
- 16 SH16's urban design framework (September 2009) described the existing condition and issues segment by segment of the route under the various headings (landscape setting and views; movement and connectivity; and structures).
- 17 Issues and design implications were also recorded in the first draft framework for SH20 and for the portion of SH16 from Waterview to St Lukes (October 2009). Because a wide range of issues had emerged from stakeholder workshops associated with development of the draft 2008 Urban Design Framework (i.e. for the full driven tunnel alignment), it was important for continuity and completeness to include them alongside new issues arising from the 2009 Project (i.e. the combined surface tunnel alignment). This included a series of illustrative diagrams that paired 'effects' and 'proposed mitigation' under the various headings (open space; severance; urban form; perceived impacts; ecological; construction; and visual impact).

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<sup>139</sup> See discussion in my evidence.

- 18 The first combined draft of the Urban and Landscape Design Framework in February 2010 included whole of Project, catchment-wide annotated diagrams that captured all the issues and design implications across both SH16 and SH20.

**Development of design vision, concepts and themes**

- 19 Given the Project history, the overall design themes for SH16 and SH20 developed separately and they remain separate within the final combined ULDF. This reflects the distinct characters of the different corridors within the Project. The urban and landscape design responded to and developed the existing design context for each corridor.
- 20 The SH16 design theme drew on the 'Green Route', identified as extending from Waterview to Royal Road, and from Royal Road to Brigham Creek motorway extension. When the section of SH16 from Waterview to St Lukes was included in the Waterview Connection Project in August 2009, the 'Green Route' theme was applied to this extension by the Design Team.
- 21 The SH20 design theme drew on the 'Volcanic Highway', identified for the extent of the motorway from the SH1/SH20 Interchange (at Manukau), north along SH20 to the Great North Road Interchange.
- 22 Within these themes:
- 22.1 The SH16 design concept references the existing harbour landscape of wide open spaces, water and coastal escarpments; and
- 22.2 The SH20 design concept references the volcanic landscapes that the route traverses, including key landforms.
- 23 The shared high level aims of these themes are to:
- 23.1 Celebrate the (respective) landscape experiences;
- 23.2 Create / define journey stages and landscape gateways;
- 23.3 Appropriately scale the design;
- 23.4 Promote continuity; and
- 23.5 Use materials, finishes and colours that give a distinctive identity to the route.
- 24 Under each aim, corridor-specific, key principles were developed. A key aspect of the principles was the emphasis on the route experience for the road users, to help create a sense of identity and

'place' such that people know where they are and can 'read' the landscape. This was translated by the Design Team as retaining or creating new views to distinctive elements in the landscape, using planting to emphasis a travel sequence and arrival/ decision points along the route, and designing structures that related in their form, materiality and colour to the respective 'green' or 'volcanic' theme.

- 25 The importance of these high level principles is to 'set the scene' for more detailed recommendations for landscape and structural elements, capable of being used to guide detailed design for the Project.
- 26 An overall urban and landscape design vision underpins the urban design aims and principles. The design vision states<sup>140</sup> that the Western Ring Route and Waterview Connection should respond to the unique natural and built landscapes through which they pass, including the sensitive coastal edge, the valleys and volcanic field of the Auckland isthmus, and the local neighbourhoods. The design vision is strongly related to the route experience in seeking to maintain and enhance the positive aspects of the motorway setting, both for its users and the local communities. The vision notes that both motorways should:
- 26.1 Reinforce the travel sequence of coast, causeway, valley and urban character;
  - 26.2 Connect and re-connect neighbourhoods and public open spaces severed by the corridor;
  - 26.3 Minimise impacts of the Project on the surrounding communities;
  - 26.4 Visually relate to their setting in the scale and type of structures and planting; and
  - 26.5 Use structures that contribute positively to the environment, integrate functionality with elegant and refined design, and serve to orient the viewer.<sup>141</sup>

#### **Principles for urban design elements**

- 27 The NZTA's urban design aims<sup>142</sup> were the foundation for a set of over-arching principles that have guided the development of the urban and landscape design. These principles, developed in consultation with stakeholders, included design in context, respect for heritage, identity and distinctiveness, connectivity, respect for

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<sup>140</sup> ULDF, Section B2.1. (**Annexure D.**)

<sup>141</sup> ULDF, Section B2.1. (**Annexure D.**)

<sup>142</sup> Refer **Annexure A.**



the natural environment, quality design, public safety and security, development opportunities, value for money and users' experience.

- 28 The establishment of corridor-wide design principles followed for ecology, planting, bridges, tunnel portals, ventilation buildings and stacks, noise walls and retaining walls, and highway furniture. This was a collaborative exercise involving other disciplines and building on previous urban design work. The design principles are consistent with, and support, the NZTA's published urban design principles<sup>143</sup> (for road bridges, pedestrian bridges, underpasses and noise walls). The principles would go on to inform the proposed open space network and pedestrian / cycle linkages as well as the design of architectural structures within the corridor.

**Draft design concepts and public response to draft concepts**

- 29 A first draft combined ULDF for the Project was produced for the NZTA in February 2010. The draft design concepts contained in the ULDF were presented to members of the public during a series of four project expos held in March 2010. Draft concepts were displayed for noise barriers, retaining walls, bridges and the ventilation buildings/stacks.
- 30 The project expos in March 2010 were attended by approximately 435 people. The urban design concepts were also discussed in a series of in-depth interviews held with randomly selected local residents in Te Atatu, Waterview and Owairaka, as part of the Project's social impact assessment.
- 31 In the feedback some residents raised concern that the community was not consulted enough on the urban design and reserve replacement concepts. However, the urban design team had drawn on the outcomes of previous consultation feedback, and on the inputs from key stakeholders in developing these concepts, and had also considered and responded to the desired outcomes in relevant Area Plans.<sup>144</sup>
- 32 In particular, the strong focus on a connected open space network, on pedestrian and cycle links, and on ecological restoration, which underpinned the urban and landscape design work, directly addressed strategic aims of the ARC, ACC and WCC.

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<sup>143</sup> Urban design guidance notes, <http://www.nzta.govt.nz/resources/urban-design/urban-design-docs.html>.

<sup>144</sup> For Avondale/Blockhouse Bay, Western Bays, Eden/Albert, Mt Roskill/Hillsborough areas.

- 33 Specific issues raised in the public feedback in March 2010, included the following:

***Open Space Replacement***

- 34 The draft concepts incorporated three main elements:

34.1 Upgrade to Phyllis Reserve;

34.2 Expansion to Saxon Reserve; and

34.3 Changed land configuration / upgraded facilities in Alan Wood Reserve.

- 35 Comments made in relation to these concepts were varied. Some people supported the proposed mitigation concepts and new bridge linkages. Others raised the need for better access / linkages to the proposed areas of open space replacement, especially for Waterview residents (given the distance from Waterview to the areas proposed for upgrade).

- 36 Many people who attended the expos expressed significant concern over the distance between the proposed areas of reserve reinstatement and the communities which would be affected by the loss of local open space areas. Feedback was received in strong opposition to the draft concepts on the basis that they would be less convenient and would not serve the communities affected (but rather would benefit the communities living close to the reserves proposed for upgrade). This consultation indicated a strong preference for open space mitigation directly within the local area affected, rather than upgrading facilities/reserves which are within walking distance and providing enhanced connections to these facilities.

- 37 Comments were also received which urged the NZTA to consider factors such as appropriate landscaping, for amenity reasons, to ensure functionality of areas such as sportsfields and to provide for ecological habitat. Some people requested that facilities for children/teenagers be considered at Waterview Reserve and Alan Wood Reserve.

***Cycle and Pedestrian Linkages***

- 38 Draft concepts for the SH20 Cycleway (between the current Maioro Street termination of SH20 and the Northwestern Cycleway at SH16) and three pedestrian bridges (one connection Great North Road with Phyllis Reserve, and two providing links over Alan Wood Reserve) were displayed. Most people appreciated the (then proposed) bridge linkages and supported their inclusion as part of the Project.

39 Feedback was received on pedestrian and cycle crossing options at the Te Atatu Interchange. The public had differing viewpoints, with some believing that an underpass should be retained and others preferring an at-grade or bridge connection. Those supporting an improved underpass generally did so based on traffic safety concerns (associated with the speed of traffic travelling through the interchange and the threat of drivers running red lights), and better convenience for pedestrians/cyclists who would not be required to stop at multiple sets of lights. There was support for constructing a safer, better designed underpass and anti-graffiti measures. Other people preferred a full closure of the underpass, citing safety and CPTED concerns. Alternative crossing options suggested were at-grade crossings (with physical barriers to separate pedestrians from the traffic and to stop people from crossing the road outside of designated crossing areas), or an overbridge over the whole of SH16.

#### ***Design elements***

40 A key concern identified was the proximity of the ventilation building and stacks to sensitive sites such as open space areas and Waterview Primary School and Kindergarten. This concern had also been raised in 2008 with the (superseded) driven tunnel project.

41 The ACC, the Eden Albert Community Board, Waterview Primary School, North Western Community Association, Springleigh Residents Association, Living Communities and Friends of Oakley Creek all requested mitigation of urban design and visual impact issues as part of the overall mitigation package.

42 While most people appreciated the design concepts for the built elements of the Project and felt they were much better than a 'standard' finish, feedback was mixed between those respondents who liked the bridge forms and colours, noise barrier concepts and treatment of the ventilation stacks a sculptural elements, and those who felt that the design should be more subdued and 'plainer'.

43 Some people were concerned over the visual impacts of the proposed (northern) ventilation stack, noise barriers and ramps, mainly due to the scale of the proposed structures.

#### **Developed design concepts**

44 Following the public expos, the urban and landscape design was further developed and included in the Urban and Landscape Design Framework.

45 The more detailed ULDF (June 2010) is intended to illustrate how the Project may be integrated with its surrounding urban context, through describing and illustrating a range of design concepts. These concepts (for open space, cycle and pedestrian linkages, and structures) are illustrated in plan, section, elevation and using

perspective sketches and photomontages. They describe the aspirational vision that is wider than the Project.

**Urban Design and Landscaping Plans and Structures and Architectural Features Plans for the AEE**

- 46 After the ULDF was finalised in June 2010, the NZTA determined what aspects of urban design would be included in the Project to be lodged with the EPA and its consultants, Jasmax and SBEL, continued to develop and produced landscape and architectural plans to accompany the AEE.
- 47 At this point, it was clear that not all the urban design concepts contained in the ULDF could be carried forward into the AEE.
- 48 The final AEE plan sets reflect input from the Project engineering team. The plans accompanying the AEE, and their relationship to the ULDF and its design principles and concepts, are discussed in more detail in my evidence.

**ANNEXURE E: SECTION B OF THE ULDF (DESIGN VISION AND PRINCIPLES)**

## B1 Route experience

The Western Ring Route – Waterview Connection comprises two distinctive routes. Broadly, SH16 is a ‘coastal highway’ which captures views between the harbour, surrounding hills and distant CBD of Auckland. SH20 dives into and out again of the volcanic landscape at the base of Owairaka. Within each route is a further range – or sequence – of spatial and environmental character zones that reflect the natural and built environment:

### SH16 Te Atatu to St Lukes

1. Passing through Te Atatu ridge – urban context disrupted by previous motorway insertion
2. Crossing the Whau – abrupt transition between enclosure and openness
3. Rosebank Domain – Semi-enclosed, ecological area with varying spatial character
4. Rosebank peninsula – elevation promotes harbour views, visual contact with urban form
5. Traherne Island – planting forms a brief transitory enclosure
6. Man-made causeway – expanses of waterscape
7. Harbour edge, Waterview Creek margins – large scale infrastructure meets sensitive ecological area
8. Waterview Interchange to Point Chevalier – enclosure within an urban landscape
9. Point Chevalier to St Lukes - an existing urban centre severed previously by motorway insertion, transition to open space surroundings.

### SH20 Mt Roskill to Waterview

10. Tunnel – a dramatic dive into the volcanic landscape
11. Alan Wood Reserve – opening into (or leaving) a green valley with distinctive pedestrian bridges overhead that create an identifiable sense of place
12. Richardson Road and Maioro Interchange bridges – an urban and light industrial setting and a smooth transition to the Mt Roskill highway.

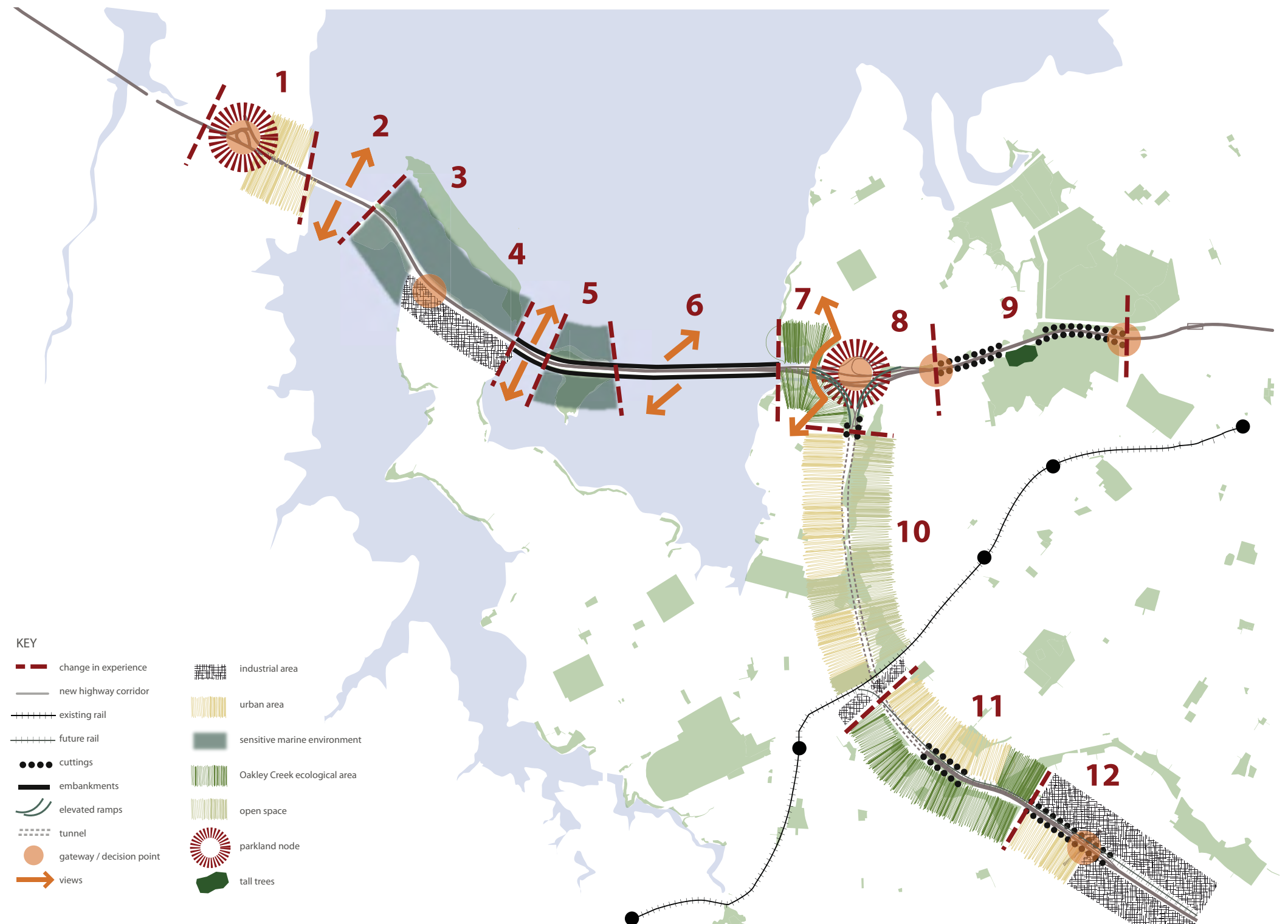


Figure B-1: Route experience

# Western Ring Route ▶ Waterview Connection

## B2 Design vision

### B2.1 Urban and landscape design vision

The Western Ring Route and Waterview Connection should respond to the unique natural and built landscapes through which they pass, including the sensitive coastal edge, the valleys and volcanic field of the Auckland isthmus, and the local neighbourhoods. The design vision is strongly related to the route experience in seeking to maintain and enhance the positive aspects of the motorway setting, both for its users and the local communities. The motorways should:

- Reinforce the travel sequence of coast, causeway, valley and urban character;
- Connect and re-connect neighbourhoods and public open spaces severed by the corridor;
- Minimise impacts of the project on the surrounding communities;
- Visually relate to their setting in the scale and type of structures and planting; and
- Have structures that contribute positively to the environment, integrate functionality with elegant and refined design, and serve to orient the viewer.

### B2.2 NZTA urban design objectives

As a signatory of the New Zealand Urban Design Protocol (2005), NZTA is committed to quality urban design outcomes. This has been translated into the Urban Design Policy (Transit, 2007) with the following objectives:

- Ensure state highways contribute to vibrant, attractive and safe urban and rural areas; and
- Achieve integration between state highways, local roads, public transport, cycling and walking networks and the land uses they serve.

A companion document to the New Zealand Urban Design Protocol is Te Aranga – Maori Cultural Landscape Strategy which seeks to reinstate, develop and articulate the physical and cultural landscapes of whanau, hapu and iwi. This document has informed the development of the Framework.

### B2.3 Over-arching urban design principles

The NZ Transport Agency's urban design objectives are the foundation for a set of over-arching principles that have guided the development of the urban and landscape design for this project. These principles, developed in consultation with stakeholders, are:

#### Design in context:

- Acknowledge the natural and built characteristics of the local area as well as the strategic policy context within which the project sits
- Facilitate opportunities to enhance the local communities and the quality of the surrounding natural and built environment.

#### Respect for heritage:

- Recognise natural, cultural and built heritage features in the design proposals in a manner that preserves their integrity and meaning
- Promote the sensitive protection and preservation of the natural landscape, including rock formations that identify the Auckland volcanic field.

#### Identity and distinctiveness:

- Reflect and contribute to the identity of the area
- Respond to the distinctive features of the surrounding coastal edge, waterways, parkland and urban areas
- Provide panoramic and focussed views to hills, harbour and the Auckland CBD
- Create new gateway or landmark features sympathetic with the local character

#### Connectivity:

- Enable connectivity by all modes of movement (walking, cycling, public transport, private vehicle)
- Consolidate and connect areas of open space to 'heal' the currently fragmented network
- Facilitate opportunities for safety improvements and for integration with other projects.

#### Respect for the natural environment:

- Prioritise low impact design and environmentally responsive solutions
- Minimise the ecological impacts of the project and return optimum ecological conditions to the local catchment.
- Facilitate opportunities for well designed public open spaces and connectivity between green spaces.

#### Quality Design:

- Design and build structures and surrounding spaces to a high standard.

#### Public safety and security:

- Consider CPTED (Crime Prevention Through Environmental Design), road safety, noise exposure and accessibility for the mobility impaired in the selection and development of design solutions.

#### Development opportunities:

- Seek to maintain and enable the development potential of the adjacent land.

#### Value for money:

- Use cost effective design solutions.
- Provide the best long term practical solution to stormwater treatment of the motorway

#### Users' experience:

- Design the motorway landscape and structures to present motorway users – and users of adjacent spaces – with a coherent, interesting and visually pleasant environment.

## B3 Existing design themes

Auckland's volcanic field shapes much of the character for the Western Ring Route. This is one of two high-level themes that characterise the Western Ring Route to the south and west. The other theme is the 'green route' which informs the design of SH16.

### B3.1 The 'green route' – SH16

- Theming for SH16 supports Waitakere City's aspirations for an eco-corridor, and Auckland City's desire for SH16 east of Waterview to be treated as an urban forest. The focus of the green route is on intensive planting of native species, including vertical 'green walls'.

### B3.2 The 'volcanic highway' – SH20

- The volcanic features along the SH20 route have been identified as a "significant landmark features for local Iwi and the Auckland people" that "inform the nature and character of the SH20 alignment" (MHX Urban Design Masterplan)
- The Hopua tuff ring south of this project and the Avondale Heights tunnel in Sector 8 are those parts of SH20 where the experience of the volcanic landscape is potentially at its most dramatic
- The volcanic landscape is interpreted through the landscape and structures design to capture the experience of moving through the volcano and 'diving into' the lava flow.

# Section B ▶ Design vision and principles

## B4 Design concepts

### B4.1 SH16 Design Concept

This design seeks to reinforce the existing harbour landscape, particularly the experience of traversing wide open spaces, water and coastal escarpments. Figure B-17 is a summary diagram of the landscape design concept, showing the sequence of views and edge conditions that constitute the route experience.

#### B4.1.1 SH16 Design inspiration

The design concept is grounded in the challenges of the project, including the need to protect the corridor against projected sea level rise, the constraints created by existing structures, and a sensitive ecological setting. Works will strengthen character by minimising the visual impact of elements in the landscape, using attractive finishes to enhance the environment and achieving cohesion of finishes across a range of furniture and structures.

The following key principles informed the design:

- Celebrate the coastal experience
  - Maximise notable extensive views of the CBD skyline, harbour, Waitakeres and volcanic cones from the motorway
  - Sensitively treat structures and details, and frame views
  - Minimise the visual impact of motorway elements in the landscape
- Create landscape gateways
  - Strengthen the relationship between the harbour flats, the Isthmus and West Auckland
  - Accentuate natural gateways between coastal edges and interchanges
  - Dense drifts of Pohutukawa and coastal plants on along the whole route
- Appropriately scale the design
  - Respond to the large scale of the landscape and existing structures
- Promote continuity
  - Achieve cohesion with other parts of the WRR through use of similar finishes and colours
- Use materials, finishes and colours that give a distinctive identity to the route
  - Use subtle and ‘recessive’ concrete finishes when viewed from a distance, using dark aggregate texture for close-up interest and human scale
  - Use colour emphasis on cycleway bridges to highlight this route
  - Use colour and material to emphasise Te Atatu overbridge as part of an urban ‘gateway’
  - Use attractive finishes to enhance the environment
  - Achieve cohesion of finishes across the range of furniture and structures.

Earthworks on SH16 also contribute to the design concept and existing landscape by:

- Forming ground profiles to increase enclosure or a sense of openness, while meeting engineering requirements and protecting the route from sea levels
- Replicating the scale, slope and shape characteristics of the existing landscape where space permits; or using steep or trapezoidal forms where it does not
- Adding variety or enhancement to the landscape where planting cannot be undertaken
- Elevating screen plantings
- Reducing the size and scale of other structures to a human scale (eg noise walls).

#### B4.1.2 SH16 Design palette

Images that show the palette of colours, plants, materials, and forms and textures that illustrate these design principles for SH16 are shown in Figures B-3–B-5.

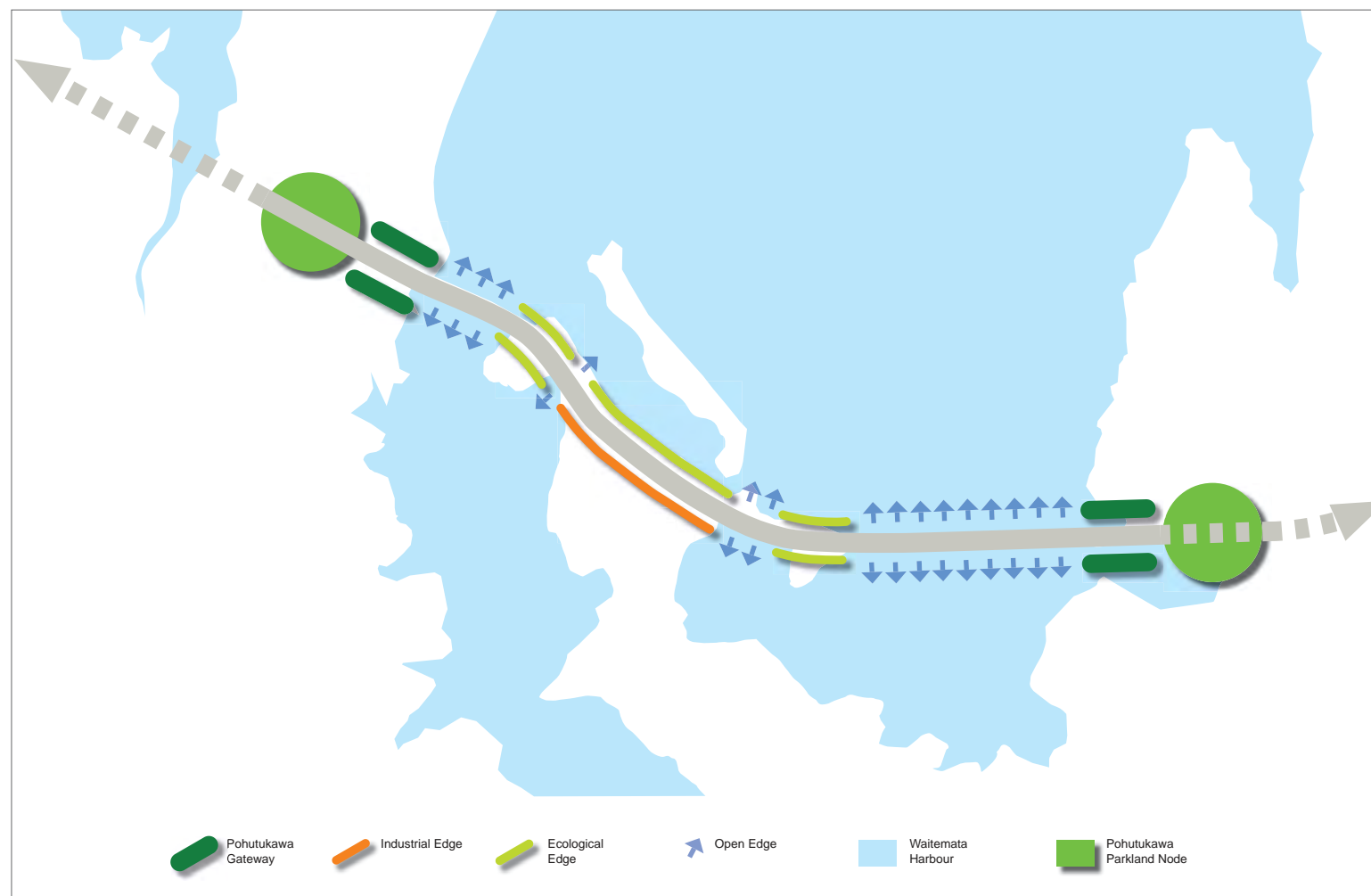


Figure B-2: SH16 landscape design concept



# Western Ring Route ▶ Waterview Connection

Forms (below) are strong, simple and predominantly horizontal, reflecting the large scale of the landscape and existing structures, and allowing attention to focus on expansive, interrupted views.

Patterns and finishes employ finer textures that provide interest to the pedestrian close up.

Te Atatu Overbridge is an element in the urban landscape and is treated as a gateway element.

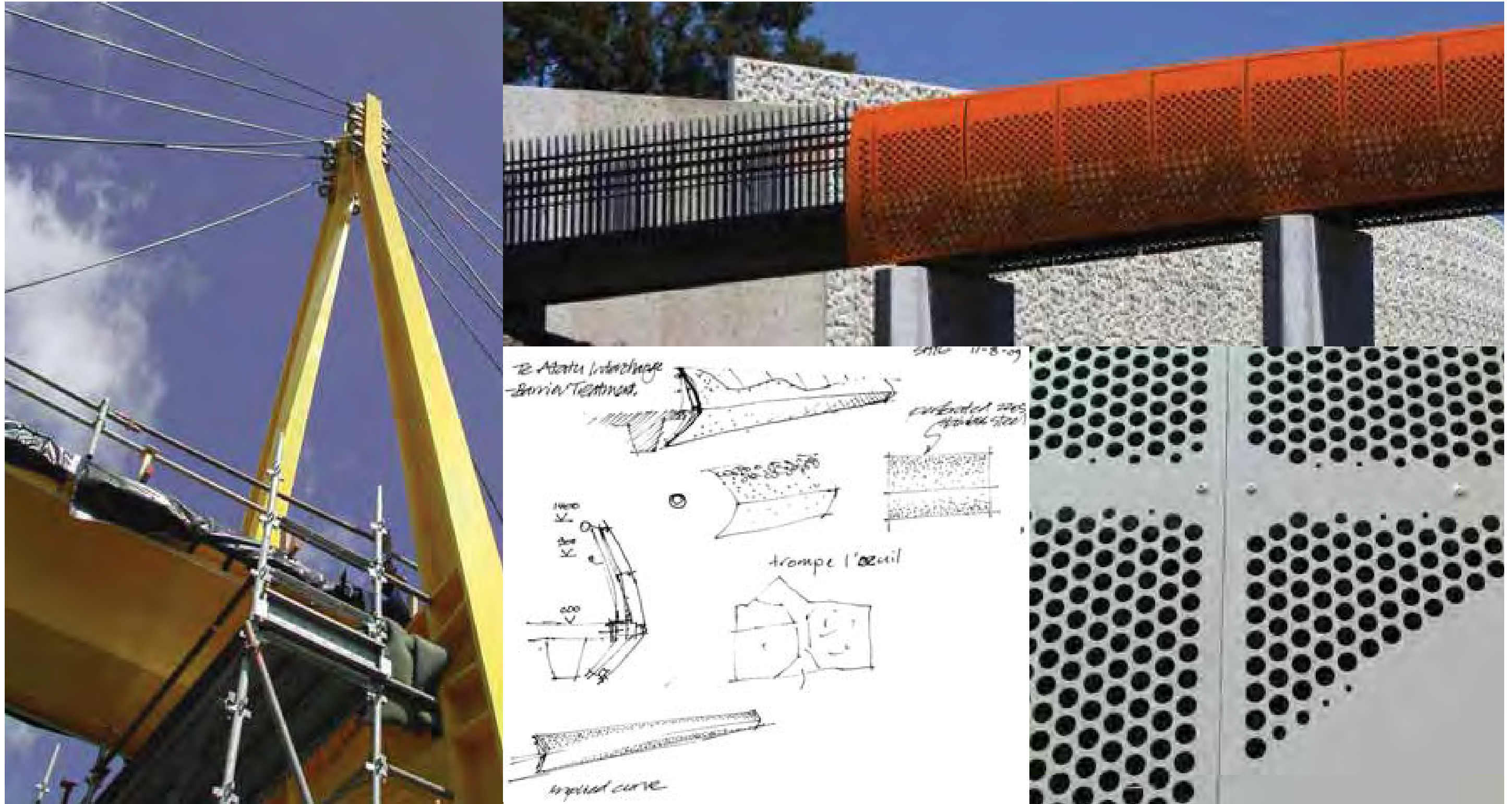


Figure B-3: SH16 Design palette: forms, patterns and finishes

## Section B ▶ Design vision and principles

The planting palette is predominantly native coastal species, with the vivid red of dense drifts of pohutukawa providing a contrast at important gateways.

Plant size and form reflects the existing condition, with lower scale planting along the causeway and the trees providing height and a transition in scale to the larger motorway elements at key interchanges.

The images below capture the characteristic planting that the concept design seeks to draw on.



Figure B-4: SH16 Design palette: planting

# Western Ring Route ▶ Waterview Connection

An 'earthy' palette with solid, unadorned materials should be used to anchor the wall elements in the landscape. The coastal character of marbled, sandy surfaces is interpreted through exposed aggregates, rough surface textures, and repeated patterns.

In contrast the built structures - bridges - are steel, finished and coloured to highlight their function and their role in orienting users of the route.

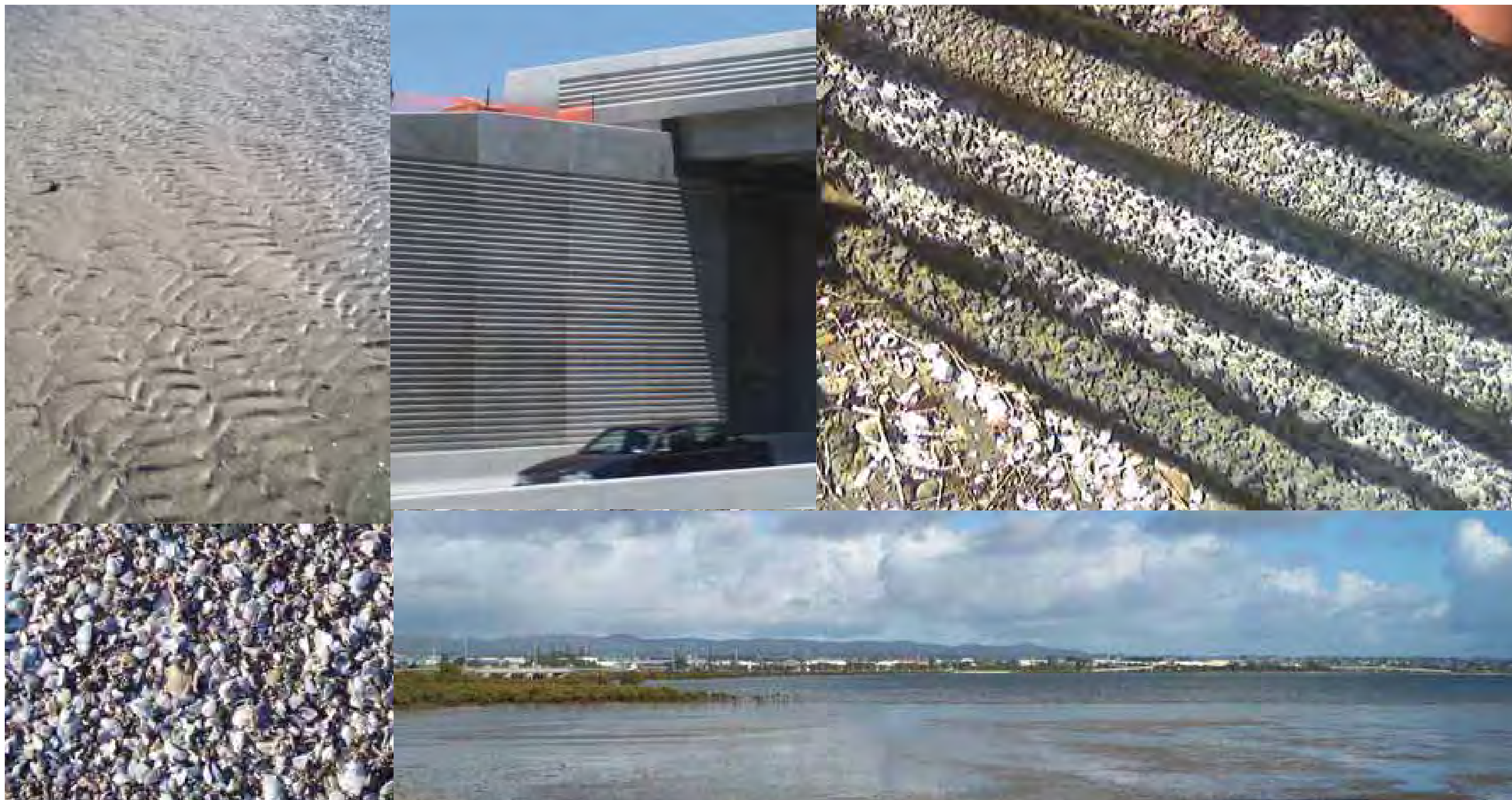


Figure B-5: SH16 Design palette: materials and textures

# Section B ▶ Design vision and principles

## B4.2 SH20 Design Concept

The alignment travels through a landform that has been shaped by its volcanic history. The design seeks to highlight and complement the volcanic landscape it traverses, including key landforms and associated cultural responses. Figure B-6 is a summary diagram of the sequence of edge conditions that will distinguish this part of the route.

### B4.2.1 SH20 Design inspiration

The design concept draws on the area's unique natural and cultural history, and seeks to harness and reference the natural processes that formed the landscape. The design also addresses the need to mitigate motorway impacts on public open space, at the same time aiming to provide a high amenity, high quality environment for both passive and active recreation, reconnecting areas that will be severed by the motorway, and where possible enabling linkages to other open spaces beyond the corridor.

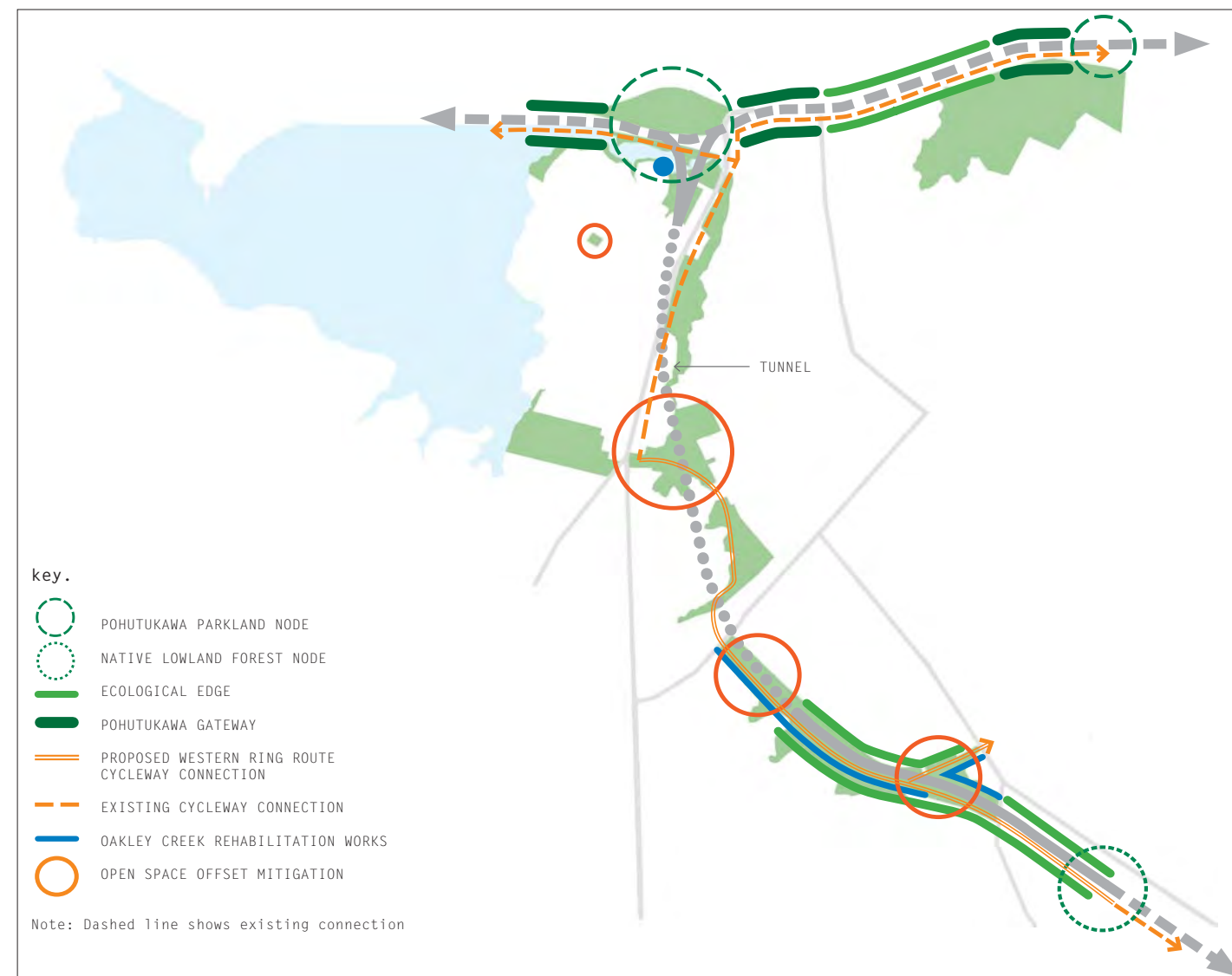


Figure B-6: SH20 landscape design concept

The following key principles have informed the design:

- Celebrate the volcanic experience
  - Enhance, celebrate and frame views to volcanic cones
  - Terrace the landform sculpturally to evoke volcanic flow and movement
- Define the journey stages and gateways
  - Use landscape to create a pohutukawa node / gateway at the Waterview Interchange
  - Design the tunnel portals to provide a strong sense of the changing experience on entering the tunnel
- Appropriately scale the design
  - Respond to the scale of the urban environment, particularly when introducing a new motorway corridor through open space and residential neighbourhoods
- Promote continuity
  - Design structures (bridges, retaining and noise walls) to relate to the existing SH20 volcanic highway themes and to link into the SH16 coastal themes
- Use materials, finishes and colours that give a distinctive identity to the route
  - Keep materials predominantly natural and unadorned, with texture exposed wherever possible as elements have been carved from the land
  - Employ dark background colours to reference the underlying basalt of the lava field, with vividly coloured highlights as a contrast – similar to lava cooling under a solid crust.
  - Select endemic planting whose foliage provides bright greens to contrast against the dark background.

### 4.2.2 SH20 Design palette

Images that show the palette of colours, plants, materials, and forms and textures that illustrate these design principles for SH20 are shown in Figures B-7 –B-10.

# Western Ring Route ▶ Waterview Connection

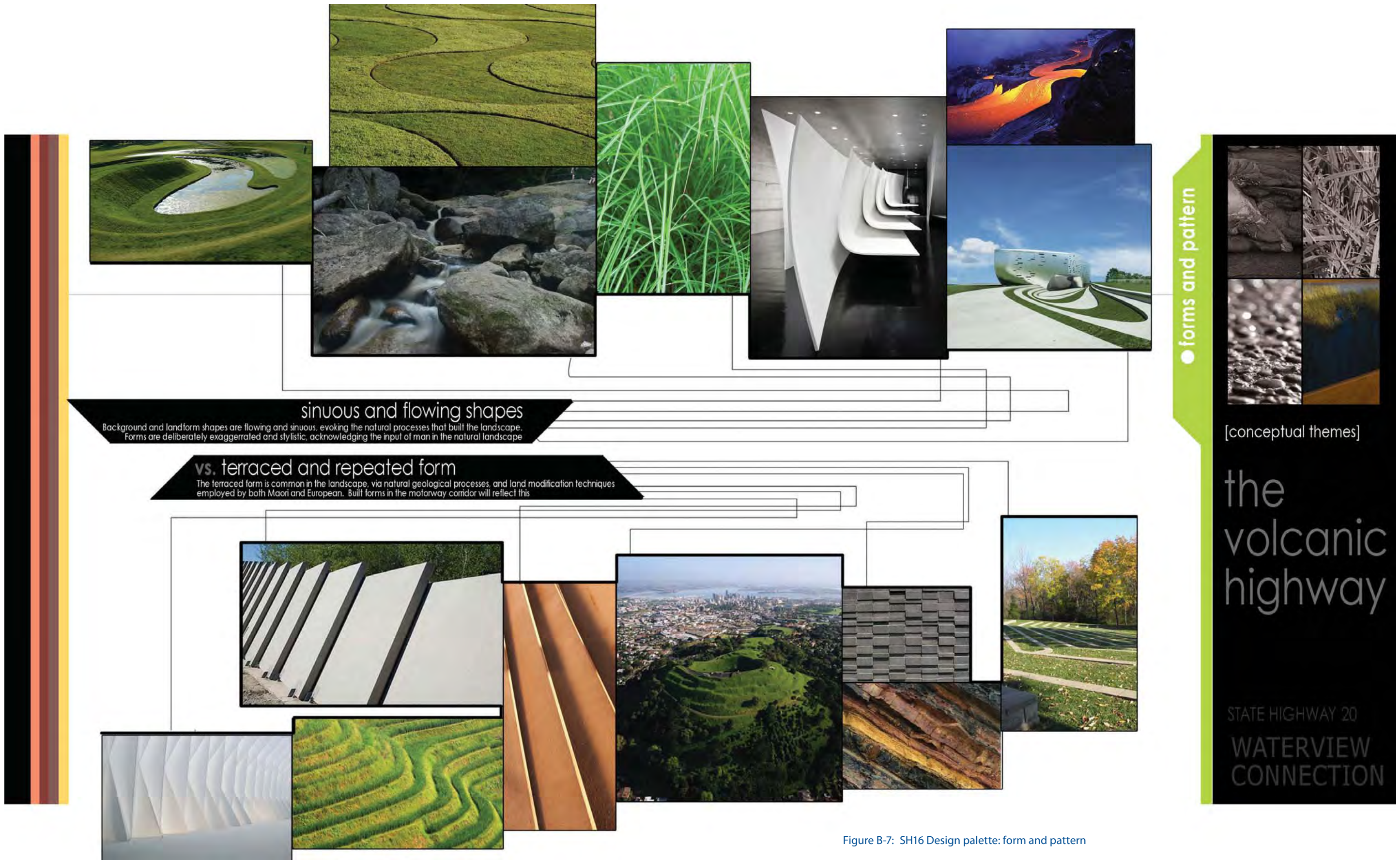


Figure B-7: SH16 Design palette: form and pattern

# Section B ▶ Design vision and principles



Figure B-8: SH16 Design palette: planting

# Western Ring Route ▶ Waterview Connection

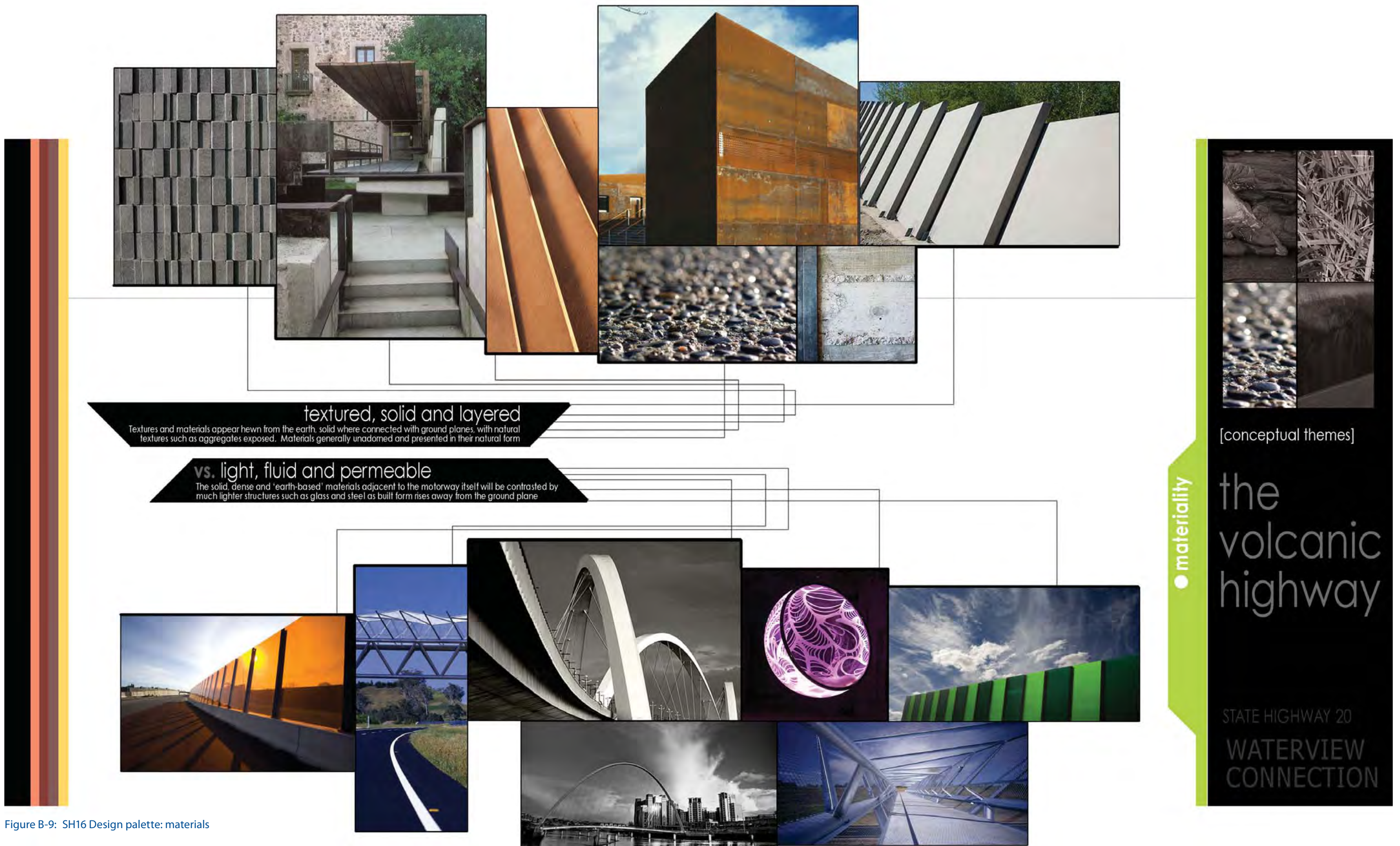


Figure B-9: SH16 Design palette: materials

# Section B ▶ Design vision and principles

**monochromatic base**  
shades of black and charcoal provide a recessive and sophisticated base, against which colour can be effectively used. The hue is culturally relevant and evokes the basalt sub-strata of the land

**vs. splashes of colour**  
carefully limited use of bright colour will be used to strikingly contrast against the dark background matrix of colour. The dark background will serve to make colours used in detailing and planting appear more vivid

[conceptual themes]

the volcanic highway

STATE HIGHWAY 20  
WATERVIEW CONNECTION

● colour palette

Figure B-10: SH16 Design palette: colour



# Western Ring Route ► Waterview Connection

## B5 Corridor-wide design principles

### B5.1 Ecological Principles

#### Oakley Creek Rehabilitation

Ecological principles were developed by members of the wider project team and integrate landscape, urban design, ecology and hydraulics considerations. They support the rehabilitation of the creek in a comprehensive 'whole of stream' approach that encompasses both riparian restoration and recreation of in-stream habitat, and will result in significant native restoration around the Waterview interchange and associated creek margins.

These principles are consistent with the 'NZTA Western Ring Route - Oakley Creek realignment and rehabilitation guidelines' developed as a separate document. Together they have guided the landscape and planting design concepts.

Key ecological principles that underpin the landscape design philosophy are:

#### Landscape Connections and Public Access

- Establish functional linkages and ecological connections between habitat types
- Ensure that stream edge planting and its relation to park layout generally meets ACC CPTED guidelines
- Provide legible open space linkages and viewpoints
- Place the majority of pedestrian options outside of the 100 year floodplain but provide occasional stream-edge walkway options
- Place bridges as necessary to ensure landscape connections
- Celebrate stream features with associated open space areas.

#### Landscape and Ecology Values

- Optimise natural character and landscape amenity values for the stream corridor and its associated open space
- Restore native vegetation communities in the stream corridor
- Provide for functional, diverse and representative riparian habitats
- Retain and enhance significant in-stream features, such as rock cascades and pools
- Avoid safety fences through appropriate design responses to embankments and open water
- Retain remnants of the basalt channel structure as appropriate for heritage values; or limit rehabilitation of channelised sections to areas where hydraulic, landscape or ecological gains are significant.

#### Streambank Morphology

- Restore channelised sections of the stream with an appropriate natural bank profile
- Retain natural stream profiles to the extent practicable between proposed SH20 extent and Oakley Creek
- Allow for a cross sectional profile that resembles a natural staged channel, including a permanent flow channel, stream banks based on the two year event, and associated floodplains and berms to hold the 100 year event
- Apply erosion control measures using an adapted stream profile and biotechnical construction techniques.

#### Stream Diversion

- Limit the extent of stream diversion to the extent practicable
- Provide for increased functional values of diverted streams (according to SEV criteria)
- Design for no net loss of functional stream value following mitigation.

#### In-stream Habitat

- Restore representative in-stream heterogeneity where appropriate (pool, riffle and run)
- Align in-stream habitat restoration with hydraulic objectives for erosion control, conveyance, and grade change
- Provide fish passage for existing and potential native fish populations
- Preserve groundwater inflows and prevent 'leaking' to artificial drainage.

#### Water Quality

- Integrate proposed stormwater management with natural stream environments to connect them visually and ecologically, if not hydrologically
- Investigate options for in-stream water quality treatment
- Identify opportunities to daylight natural channels or form treatment filter strips at pipe outlets to the stream
- Design stream buffers to prevent contaminant spills.

#### Planting

- Plant stream margins, banks and floodplain areas to achieve the objectives of ARC's Riparian Zone Management Guidelines (TP148)
- Provide for appropriate naturalised planting to adjacent property boundaries while retaining passive surveillance of park environments.

#### Construction

- Provide for appropriate staging and construction techniques to avoid potential impacts to downstream environments and in-stream aquatic habitat
- Utilise innovative biotechnical construction to restore a natural streambank morphology.

#### Harbour / coastal rehabilitation

##### Landscape Connections and Public Access

- Extend and connect existing landscape habitats, such as coastal escarpment characters, within the corridor where opportunity exists
- Provide additional local connections from Rosebank onto the cycleway route, increasing recreation access for workers
- Continue to provide managed rather than uncontrolled public access to sensitive ecological areas in the marine reserve.

##### Landscape and ecology values

- Ensure that structures and landform modification, such as the widened causeway and bridges, support ecological systems by providing enhanced stormwater treatment
- Encouraging ecological colonisation of structures such as the coastal armour by including plantings.

# Section B ▶ Design vision and principles

## B5.2 Planting principles

### SH16 – Te Atatu to St Lukes

- Areas of planting will contribute to the design concept and existing landscape by:
  - protecting and retaining existing planting where possible
  - using eco-sourced species native to the site where possible
  - using extensive drifts of Pohutukawa
  - being consistent with the Traherne Natural Heritage Restoration Plan currently under preparation (a joint initiative between NZTA and DoC)
- Where works occur on Traherne Island, additional plantings will be required. Aggressive weed species shall be removed. All work in these areas will be undertaken in coordination with a qualified terrestrial and freshwater ecologist
- Native plants affected by works will be reused on Traherne Island
- A maintenance and management plan must be provided for the design
- Planting will be provided to suit any relevant designation or resource consent conditions
- Filter strip areas adjacent to the highway are proposed to be planted with alternatives to common grass, subject to consent approval. These planting areas will achieve the following requirements:
  - they should not impede the effective operation of the drainage function provided by the filter strip area
  - they should provide for a low-maintenance installation which does not require regular cutting or other treatments
  - they should be classified as “frangible” elements for the purposes of ensuring the filter strips also provide a “clear zone” adjacent the highway
  - they should not grow higher than approximately one metre
  - they should not pose a barrier to walking and vehicle access in case of emergencies
  - they should preferably include native species.

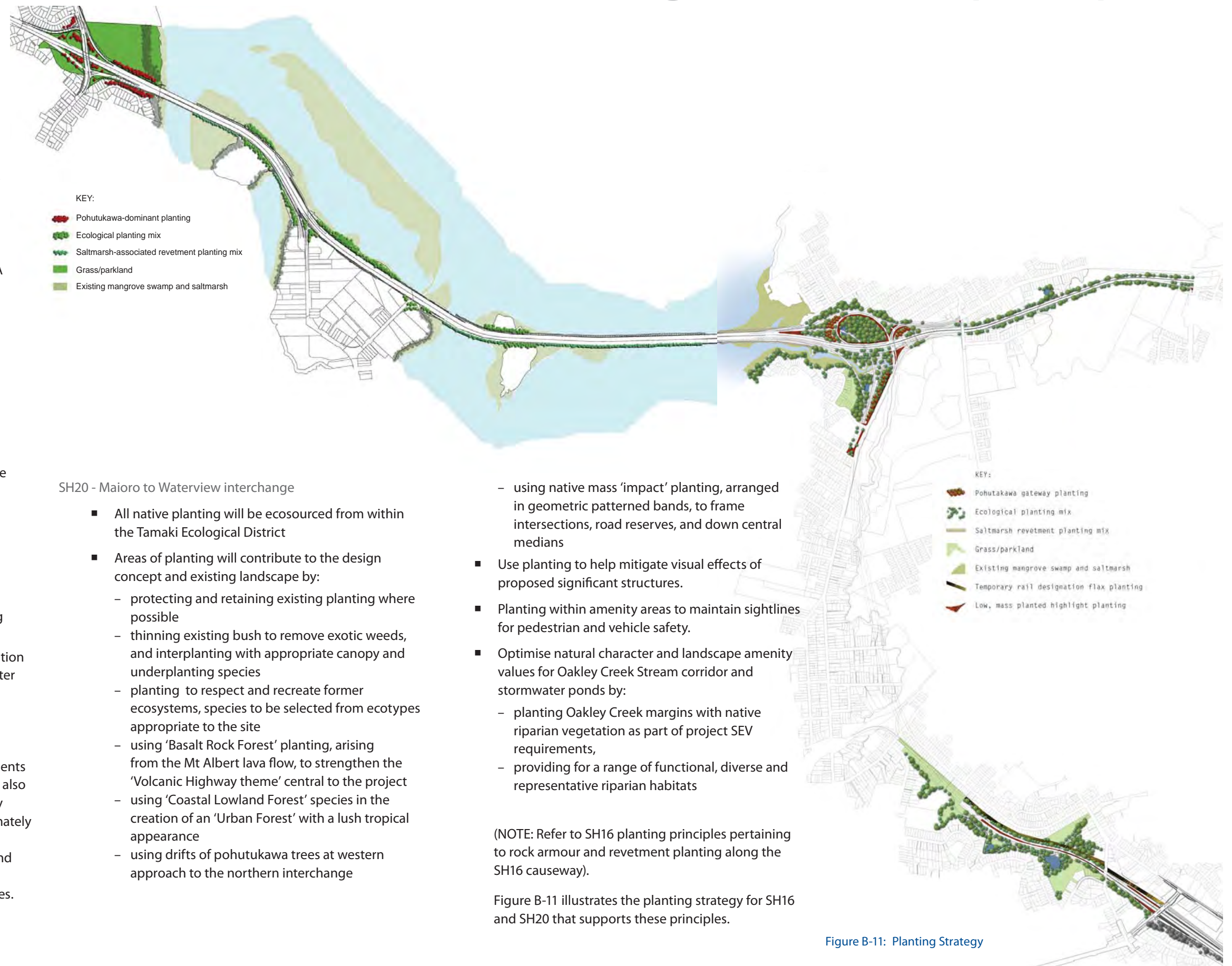


Figure B-11 illustrates the planting strategy for SH16 and SH20 that supports these principles.

Figure B-11: Planting Strategy

# Western Ring Route ► Waterview Connection

## B5.3 Bridge design principles

### B5.3.1 Road bridges

The following design principles apply to road bridges on the project:

- Design bridges to reflect their local context, including their visibility from the motorway and from the surrounding community and open spaces
- Design bridges to be recognisable as part of the Western Ring Route 'family', with individual variations reflecting the requirements of their specific settings (ie the SH20 volcanic concept and the SH16 green route)
- Because the Maioro and Richardson Road bridges are close together and highly visible from the motorway they will be experienced and should be designed as a 'pair'. Maintain a central pier for both the Maioro and Richardson Road bridges to provide continuity with the Mt Roskill section
- Balance the structural elements to minimise the bridge profile and create a simple, elegant whole.
- Make the bridge as slender and open as possible to reinforce the horizontality of the structure
- Design the barrier as a strong, simple form, whose surface texture creates a play of light and shade. Abstract, repetitive patterns are suitable to add interest while not distracting drivers. Form barrier elements above 800mm high in metal rail
- Integrate the parapet and balustrade design so that this part of the bridge presents a unified appearance and reads as one element
- Where the corridor is constrained, particularly against the travelling lanes, carefully design and detail closed abutments to present a high quality finished appearance
- Structures that eliminate the need for headstocks and enable simple, elegant column or pier design are preferred: these could include wall type piers, haunched girders or tapered piers
- Integrate lighting and drainage with the structure, leaving the external surfaces of the bridge free of drainage pipes or services, and the draining system concealed from all views. Incorporate vandalism protection with lighting design and selection.

### B5.3.2 Pedestrian / cycle bridges

The following design principles apply to pedestrian / cycle bridges on the project:

- Locate pedestrian bridges to support pedestrian desire lines and flow paths and to connect into the regional cycle and walking network
- Design pedestrian bridges to be consistent in form and appearance with each other, within the constraints of their different locations and structural imperatives
- Ensure that bridges are fully accessible and that where ramps are used, they are incorporated into the existing topography and open space areas, and their slope minimised. The paths of travel for ramps and stairs should be as close as possible
- Integrate bridges into the surrounding open space context as far as possible. This includes relating to the character and scale of the surrounding landscape and urban form
- Keep the length of the bridge as short as possible and viewlines as open and direct as possible, to
  - promote the safety and security of bridge users
  - achieve a balance between using the natural topography to minimise the incline (of approach or the bridge itself) and reducing the span.
- Design bridges to create a high amenity environment for cyclists and pedestrian, and one that feels comfortable and safe to use, by providing sufficient width for two-way traffic without creating a feeling of 'tightness' for users, particularly when passing others
- Select long-life, durable materials and finishes that do not significantly degrade in appearance over time
- Apply anti-graffiti coating as part of the bridge construction phase to prevent patchy application and appearance at later stages
- Develop a lighting plan for each structure, to promote night time use and to create a feature for drivers along the highway, with the detailed design
- No signs are to be placed on pedestrian / cycle bridges, and gantries should be located to minimise their visual impact on all bridges and other highway structures.

### B5.3.3 Ramps and piers

- Design ramps to present a coherent experience, including where they will be highly visible from underneath. A smooth, flowing profile is preferred
- Minimise the number of piers landing in sensitive ecological and archaeological areas, and where future pedestrian / cycle ways are to be located
- Where there is sufficient room to form the land around ramps, mound up to minimise the amount of supporting structure and visually bring the ground closer to the ramp (thus reducing the appearance of height).

### B5.4 Tunnel, portals, ventilation buildings and stacks design principles

The tunnel portals are the thresholds between the above and below ground sections of the motorway and different driving environments for road users. The design of the tunnel and portals should contribute to road safety, driver behaviour, integration with the surrounding urban area and visual interest for road users. Attention to the architectural detailing and material selection as well as the bulk and massing of these elements is critical to their successful integration in the surrounding urban and landscape setting.

- Design the northern and southern portal to reflect their different settings and approaches: in particular celebrate the experience of 'entering the volcano' at the southern portal with the use of strong elements and materials that evoke the basalt which the tunnel is diving into
- Locate stacks at or as close to the tunnel portal as possible so that their function is easily understood and they 'announce' the tunnel entries
- Take advantage of the double skin construction to design the outer skin of the stack in a way that adds visual interest, reinforces a sense of place, and ties in to the design of the tunnel approaches
- Ensure that the portal design allows for a transition from external light levels to the lower internal light levels of the tunnel

- Where possible, bury the large ventilation buildings below ground level and create a useable space above them. Where it is not possible to submerge all or part of the ventilation buildings:
  - screen them from or integrate with surrounding residential or community uses with bunding and / or planting
  - locate and design them to respect the pattern of surrounding development. Minimise the area taken up by parking, and locate parking and servicing away from the street edge and screened from residential properties.
  - consider integrating them with other buildings or structures to provide for different functions and to group built form together
  - make a positive contribution to the surrounding environment, for example by positioning windows to overlook public spaces.
  - design them to the minimum dimensions required for their function
  - integrate their design with the portal and stack.
- Design the tunnel interior to reinforce a clear, safe path of travel, maintain driver attention through varying a combination of tunnel geometry, spatial form and lighting, and to create a pleasant driving experience distinctive from that of the open road.

# Section B ▶ Design vision and principles

## B5.5 Noise walls design principles

Noise walls are integrated with the design of the overall corridor and complement the motorway structures, landscaping and roadscape elements. The design inspiration for the form of noise and retaining walls is in the overlapping or terracing of the landscape revealed through geology and through land modification. The noise wall concepts reference both geology and engineered topography. Detailed design should give effect to these guiding concepts by reinforcing the noise wall principles for this project.

The noise wall principles are:

- Consider alternatives to the use of noise walls, including quiet road surfaces, the use of buildings as noise barriers and bunding. Also consider limiting the height of noise walls to balance noise and visual impacts
- Recognise that noise walls are seen from adjacent land uses as well as from the motorway and design them to be 'double-sided', contributing positively to the amenity of residents and open space users
- Design walls with a horizontal emphasis, offsetting joints to create a somewhat informal, random appearance
- All walls are to be designed to have 'thickness' so that they appear as sculptural elements in the landscape. For SH16, use a related design with face finishes and delineation that evokes the geological strata (refer Figure B-27). For SH20, wall type 1 builds on the 'volcanic highway' theme with overlapping, contrasting materials and textures that present a comparatively heavy appearance (refer Figure B-28, B-30 and B-31). Wall type 2 (Figure B-29, B-32 and B-33) is a retrofit of the existing timber noise walls at Maioro, enlivening them with colour that also relates to the volcanic theme palette
- Where walls step or change direction, allow them to overlap to terminate rather than butting them up against each other. At the same time, minimise the change in horizontal alignment so as not to create abrupt shifts along the top edges

- Materials should be of high quality, and long-lasting (minimum 50 year life), preferably concrete pre-cast panels mounted on semi-concealed steel posts. For SH20, dark, 'scorched' colours will be enlivened with red / orange / gold tones between the panels; for SH16, green posts between panels will reinforce the green route concept
- Locate noise walls behind crash barriers, with planting at the base both to soften the appearance and to bring strong highlight planting colour against the darker background
- Where appropriate, planting should be used to soften and enhance the appearance of the walls
- Applied artwork ('stuck on' elements) is not suitable for the design of noise walls in this project.



Figure B-13: SH20 Noise wall concept – wall type 1



Figure B-12: SH16 Noise wall concept

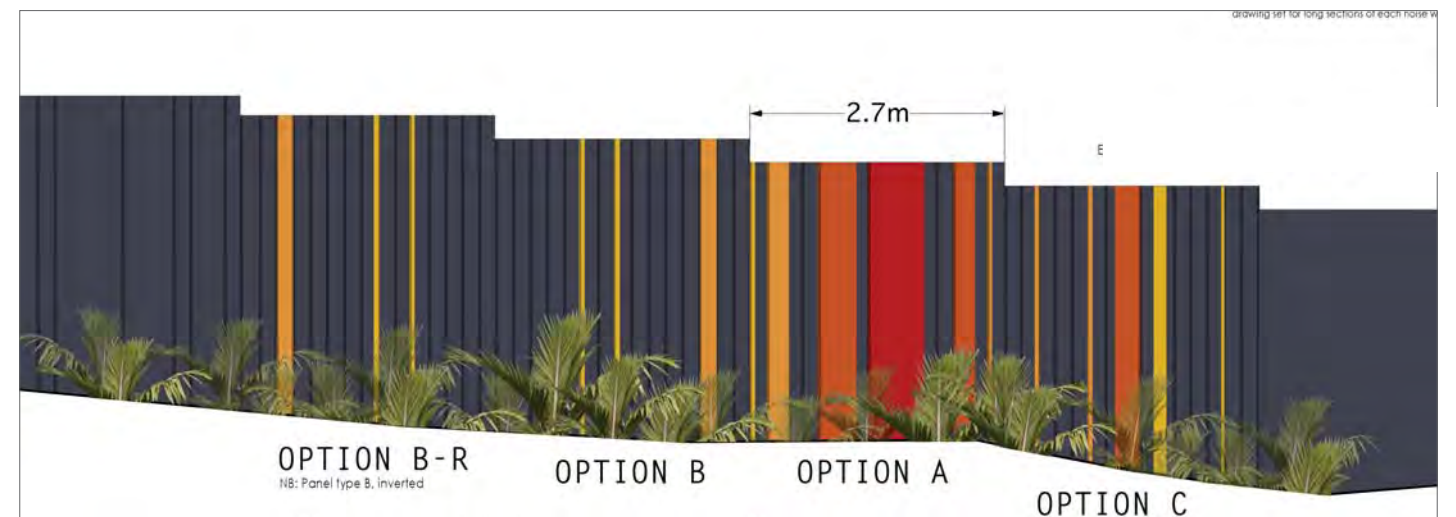


Figure B-14: SH20 Noise wall concept – wall type 2

# Western Ring Route ▶ Waterview Connection

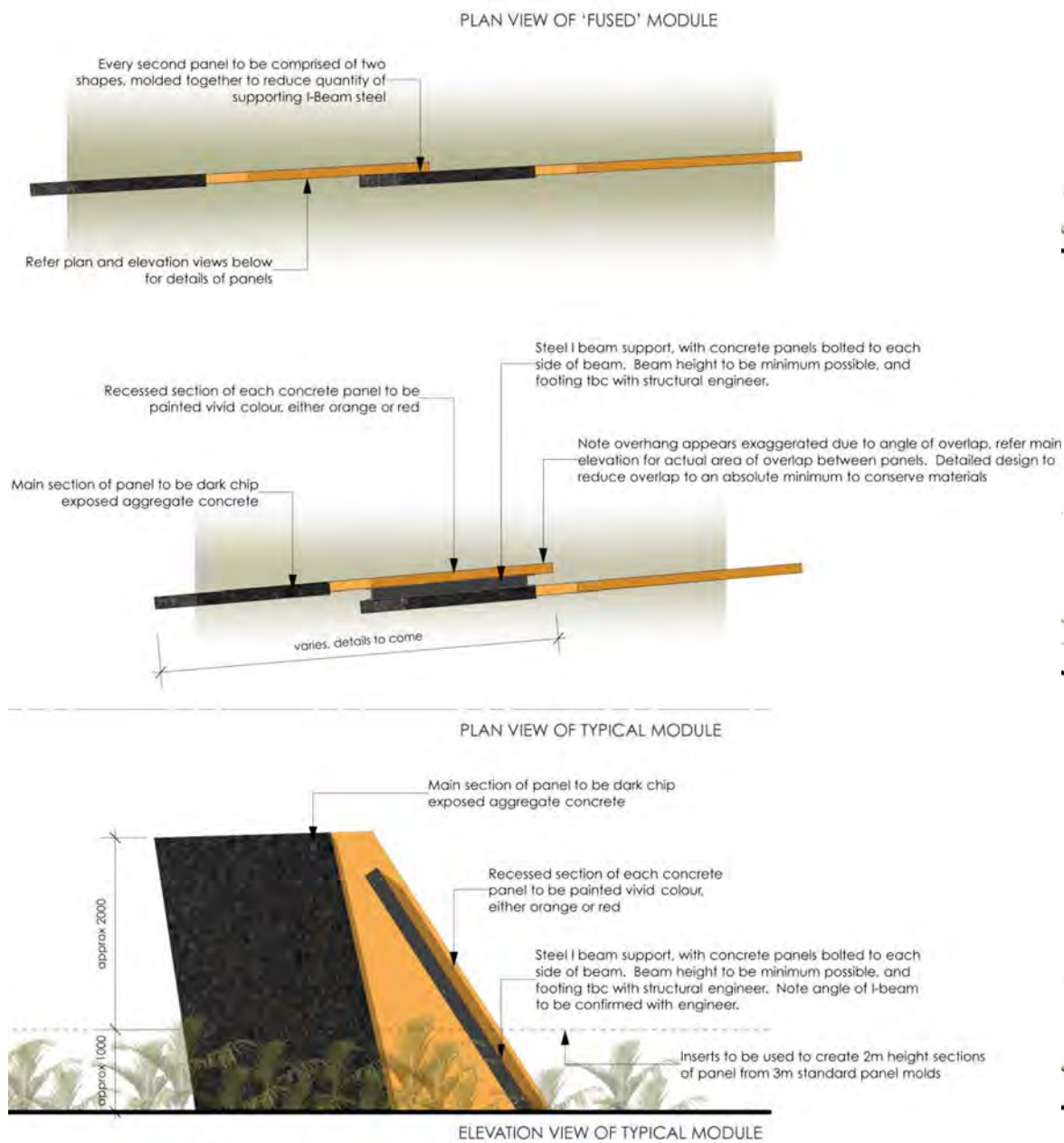


Figure B-15: SH20 Noise wall type 1 – plan and elevation

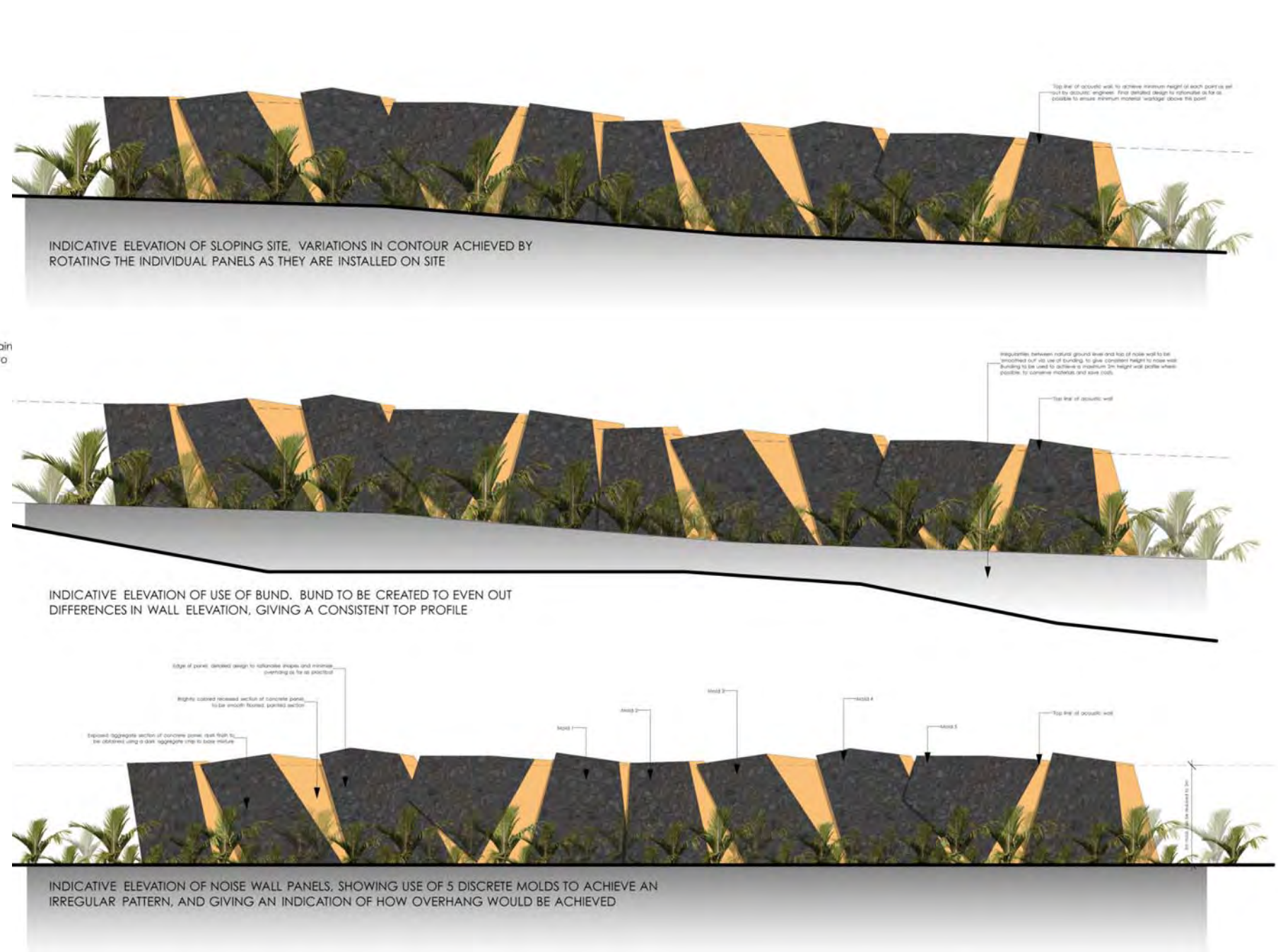


Figure B-16: SH20 Noise wall type 1 – long elevations

# Section B ▶ Design vision and principles



Figure B-17: SH20 Noise wall type 2– long elevations

CHANGE IN LEVEL TO BE ACHIEVED USING A STEPPED ARRANGEMENT, IN 100MM INTERVALS - NO FALL BETWEEN PANELS LESS THAN 100MM OR MORE THAN 400MM EXCEPT IN SPECIFIC INSTANCES, REFER ENGINEER'S LONG SECTIONS

INDICATIVE LONG SECTION SHOWING SPACING AND TYPICAL RHYTHM OF PANEL TYPES. NB NOISE WALL 3 IS EXAMPLE SHOWN  
Refer also sheet L-5700-006 for cladding details and engineers drawing set for long sections of each noise wall

KEY

<span style="display:inline-block; width:15px; height:15px; background-color:red;"></span>	Resene 'DeI Toro'
<span style="display:inline-block; width:15px; height:15px; background-color:orange;"></span>	Resene 'Chilean Fire'
<span style="display:inline-block; width:15px; height:15px; background-color:yellow;"></span>	Resene 'California'
<span style="display:inline-block; width:15px; height:15px; background-color:gold;"></span>	Resene 'Supernova'
<span style="display:inline-block; width:15px; height:15px; background-color:darkblue;"></span>	Resene 'Nero'

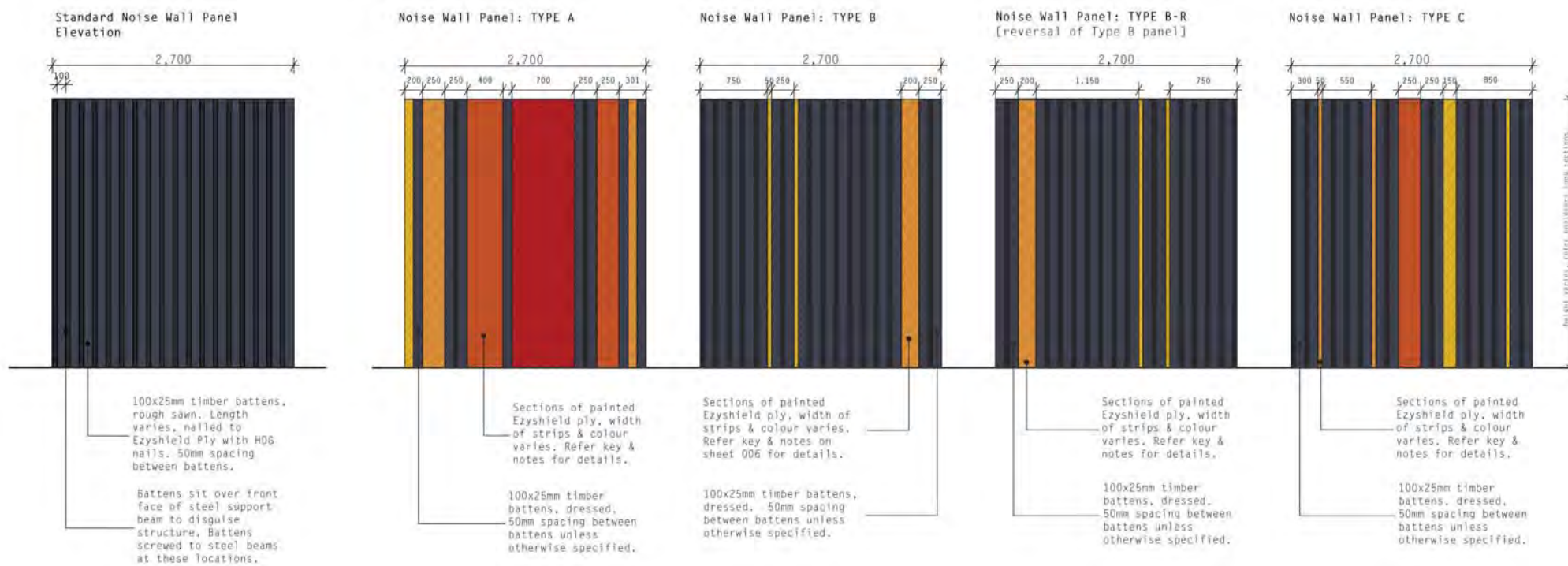


Figure B-18: SH20 Noise wall type 2– panel options

# Western Ring Route ▶ Waterview Connection

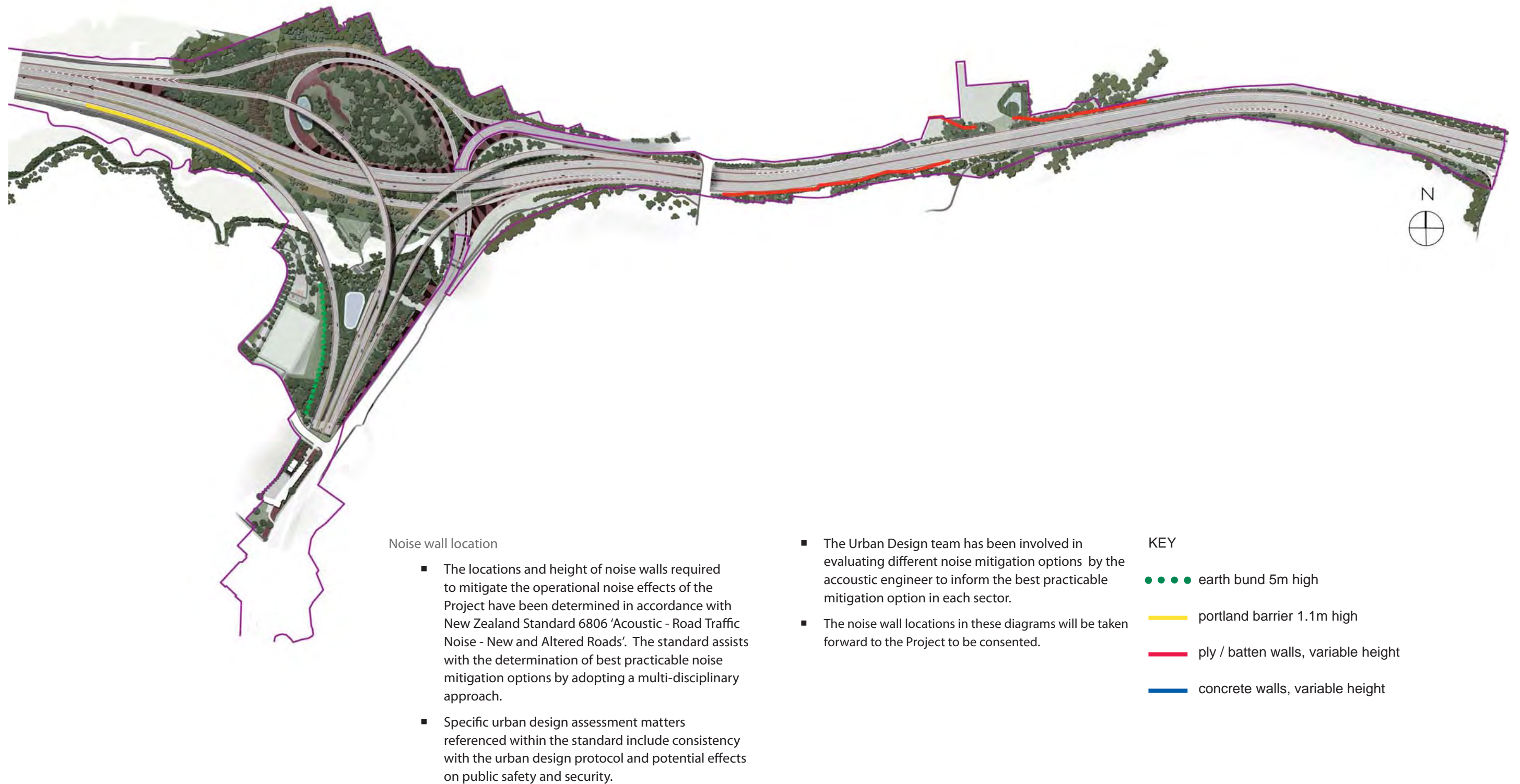
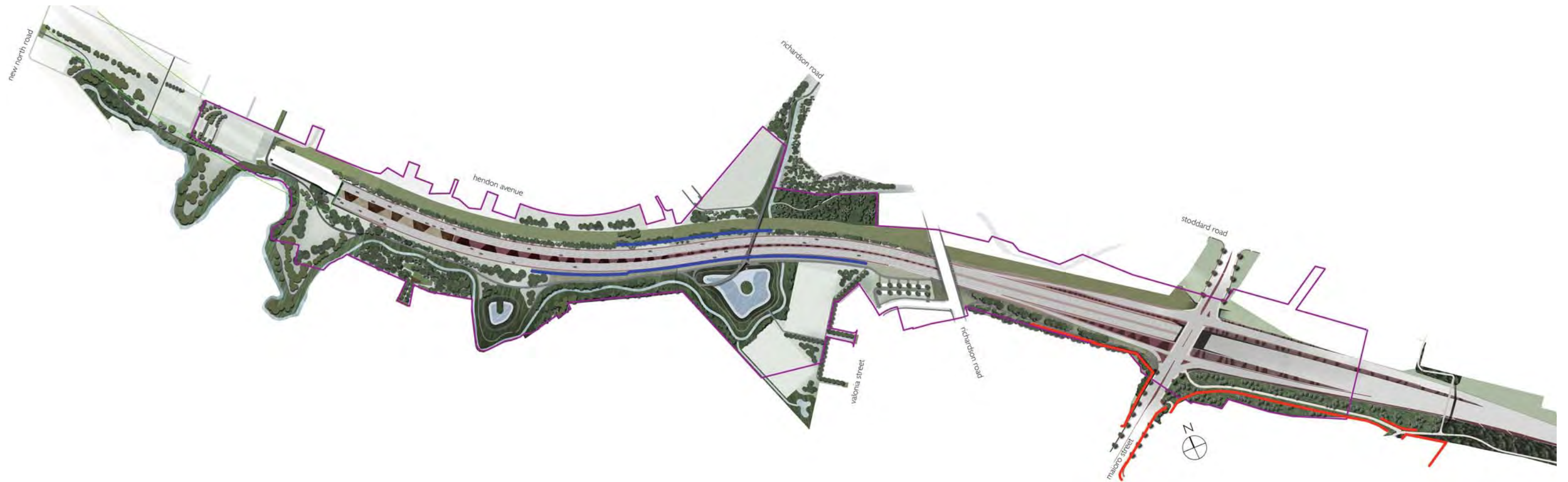


Figure B-19: Location and type of noise walls, Sectors 5, 6 and 7

## Section B ▶ Design vision and principles



### KEY

- ● ● ● earth bund 5m high
- portland barrier 1.1m high
- ply / batten walls, variable height
- concrete walls, variable height

Figure B-20: Location and type of noise walls, Sectors 8 and 9



# Western Ring Route ► Waterview Connection

## B5.6 Retaining walls design principles

The retaining wall design for SH16 and SH20 differs to reflect the different settings and existing motorway context. The design principles are:

### In general

- Establish and reinforce connections to the existing highways (SH18 and SH20 Hillsborough-Mt Roskill section)
- Visually integrate the retaining wall materials and finishes with the landscape design and the design of bridge structures, with any shared paths and the immediate highway context
- Detail and finish the retaining walls to create a consistent 'language' with the noise walls on the project
- Design retaining walls with a predominantly horizontal emphasis, or 'ground' them in the landscape by means of heavier, more deeply etched or darker materials at the base
- Use landscaping where possible to reduce the visual impact and perceived mass of the retaining walls
- Design safety barriers and fencing to be integral with the wall, aligning joints and posts, and locating fixings so as not to compromise the appearance of the wall to the motorway users.

### SH16 retaining walls

- Concrete retaining panels on SH16 should match those on SH18, with exposed dark aggregate and subtle horizontal corrugations which seek to complement rather than compete with the harbour landscape (refer Figure B-21).

### SH20 retaining walls

- Design retaining walls on SH20 to reflect the materials and colours suggested by the 'volcanic landscape' theme, for example through the use of basalt harvested during tunnel construction
- Colours are predominantly dark with strong contrasting splashes of 'fire' colour (red, dark orange, gold)
- Retaining walls at the portals are to be integrated with the portal design, for consistency and a 'wrap around' effect that emphasises the approach to the tunnel.



Figure B-21: SH16 retaining wall concept

# Section B ▶ Design vision and principles

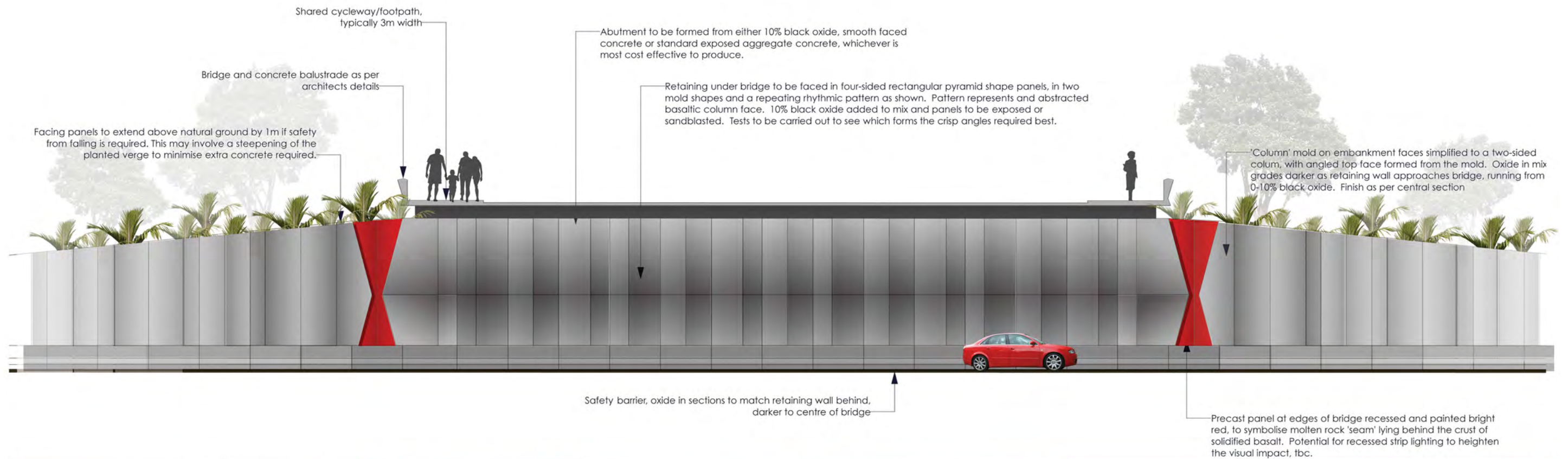


Figure B-22: SH20 retaining wall concept

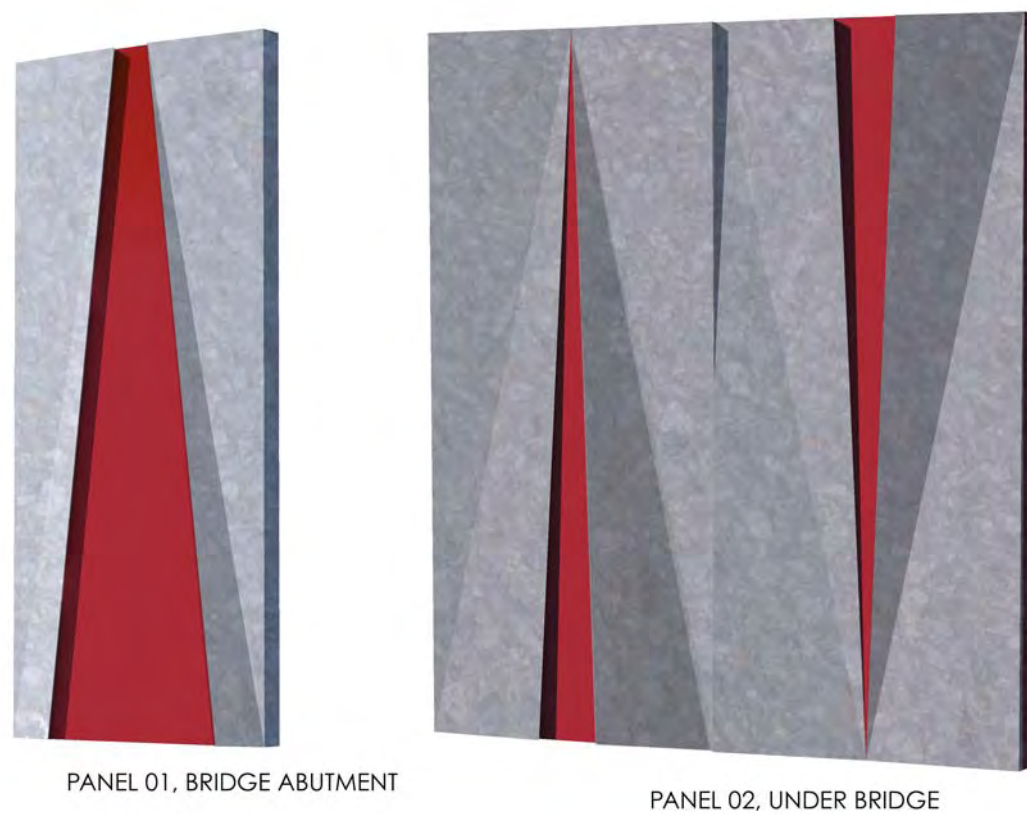
# Western Ring Route ▶ Waterview Connection

- Precast panels under Maioro and Richardson Road bridges (Refer Figure B-22 and B-23) have been designed with recessed sections painted red to symbolise the rock 'seam' lying behind the crust of solidified basalt. Their profile is relatively simple with a vertical emphasis, relating strongly to the barrier design that represents the 'fractured' appearance of solidified magma without detracting from its impact. The red colour distinguishes the 'bridge experience' for drivers from the rest of the motorway.
- Three panels with subtly different emphasis (Figure B-22, below right) enable considerable variety in the planes of the retaining wall over the length of the wall, while at the same time providing a simple, cost effective profile to construct and install.



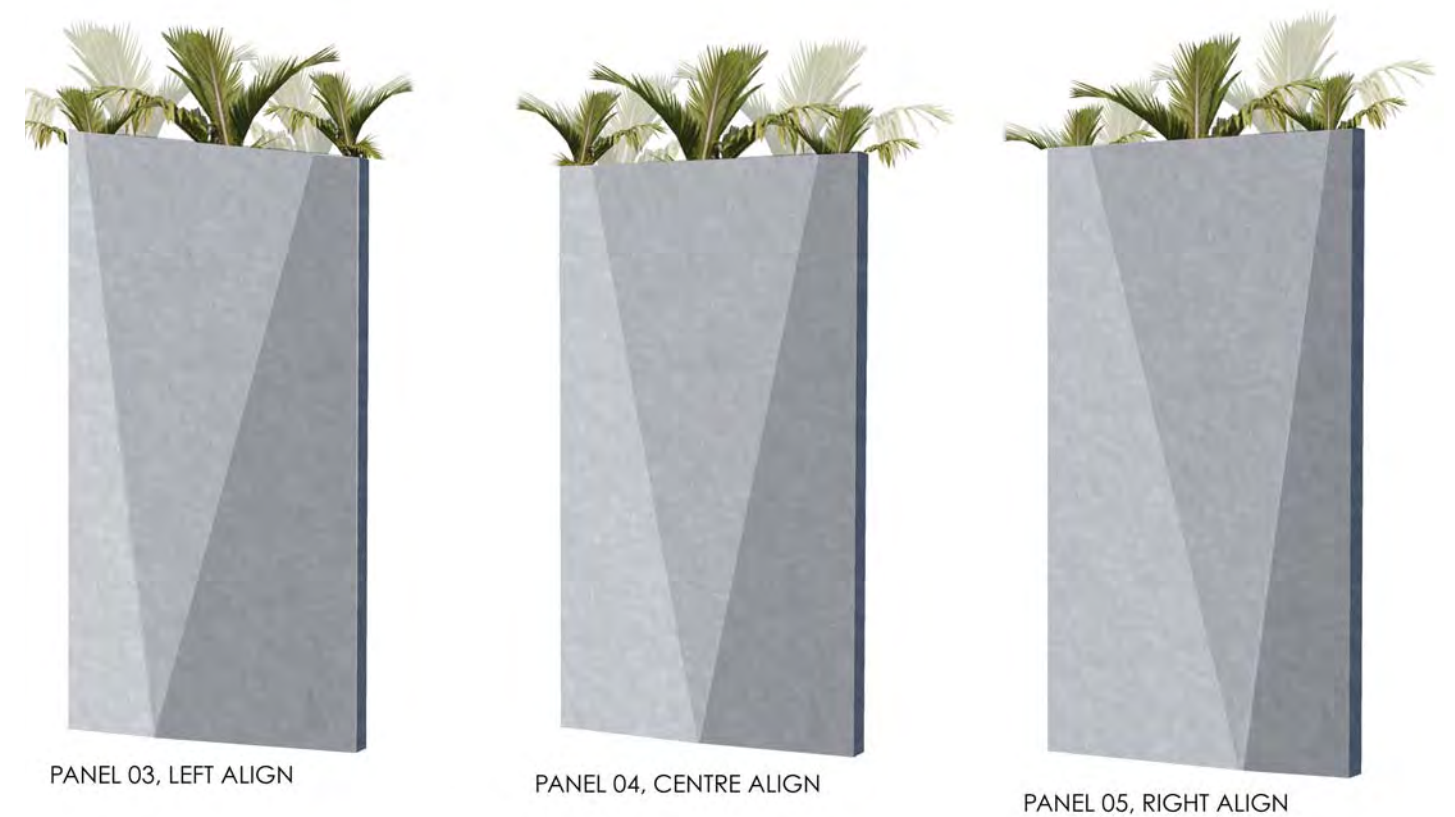
BASALT/COLUMNAR/MAGMA IMAGERY

Figure B-24: SH20 materials inspiration



PANEL 01, BRIDGE ABUTMENT

PANEL 02, UNDER BRIDGE



PANEL 03, LEFT ALIGN

PANEL 04, CENTRE ALIGN

PANEL 05, RIGHT ALIGN

Figure B-23: SH20 retaining wall profiles

# Section B ▶ Design vision and principles

## B5.7 Highway furniture design principles

### In general

- Keep the size and number of elements to the minimum permitted by engineering design standards and by combining elements (eg. lighting and signage support) when safety permits
- Coordinate the design of roadscape elements with the design of major structures such as portals, bridges and ramps
- Use anti-graffiti paint across the range of structures and furniture, ensuring that the full extent of elements is covered to avoid a patchy appearance in the event of damage and cleaning or repainting.

### Lighting

- Minimise the impact of lighting on surrounding neighbourhoods by screening glare from lights
- Generally locate lighting columns in the central median, with additional columns in shoulder areas around interchanges. Low-energy lighting is required, with LED lamps preferred where they can be demonstrated to achieve acceptable performance and meet maintenance requirements
- On SH16 columns between interchanges will be plain galvanized finish while lighting columns at interchanges will be treated with black paint finish. On SH20 all columns will be painted black
- SH16 cycleway lighting will be consistent with cycleway lighting on the Mt Roskill section of SH20.

### Gantries and signage

- Signage should be combined onto fewer mounting posts and into fewer sign panels wherever possible
- Signs are not to be mounted on pedestrian / cycle bridges. Signage on road bridges should be limited to the names of the local road, in a format integrated with the design of the bridge barrier
- If existing round modular pipe sign gantries on SH16 are to be retained they shall be painted black
- Gantries for electronic messaging signs will be based on the wide-span, slim girder pattern already used in Auckland Central Motorway Junction and modified to improve their appearance and to deter casual access. Designs should also minimise the visual impact of these structures on views

- All new gantry units are to meet these performance requirements:
  - All steel elements should be specified to achieve extended durability in a marine environment
  - All coating systems are to match specifications used on structural bridge elements and provide long-term durability in a marine environment
  - All units shall be painted black
  - Potential for corrosion is to be minimised through formation of structural elements to reduce trapping of water on horizontal surfaces
  - Support posts are to be as slender as possible
  - Spanning girder elements are to be sized to minimise their vertical depth, and minimise the visual impact of diagonal elements
  - All signage should be visually contained within the depth of the spanning girder, through integrated design of girders and signage panels.
  - No signage should extend above or below the girder. Signage for road users is not permitted to be mounted on support posts.

### Barriers

- Clear zones will replace barriers where possible, particularly on the causeway, enabling better views. Where clear zones are not possible, 'New Jersey' concrete barriers will be used to provide adequate protection in case of vehicles leaving the carriageway
- On bridges, any barrier element above 800mm high will be formed in metal rail.

### Fencing

- On SH16, highway fencing will be 1.4m high welded mesh 'pool fence' with folded edges, finished with black polyester powder coat (refer Figures B-24–25)
- On SH20, fencing will be a black mesh (chain) fence with steel posts and top rail finished in black (refer Figure B-26).

### Seating

- On SH16 informal seating will be provided on the causeway along the cycleway at approx. 300m centres and near the Whau in the form of 500mm high rocks matching the type used in the adjacent coastal armour.



Figure B-25: Visualisation: black finishes to corridor furniture



Figure B-26: Artist's impression of retaining wall, fence, noise walls, lighting and signage gantry – SH16

# Western Ring Route ▶ Waterview Connection

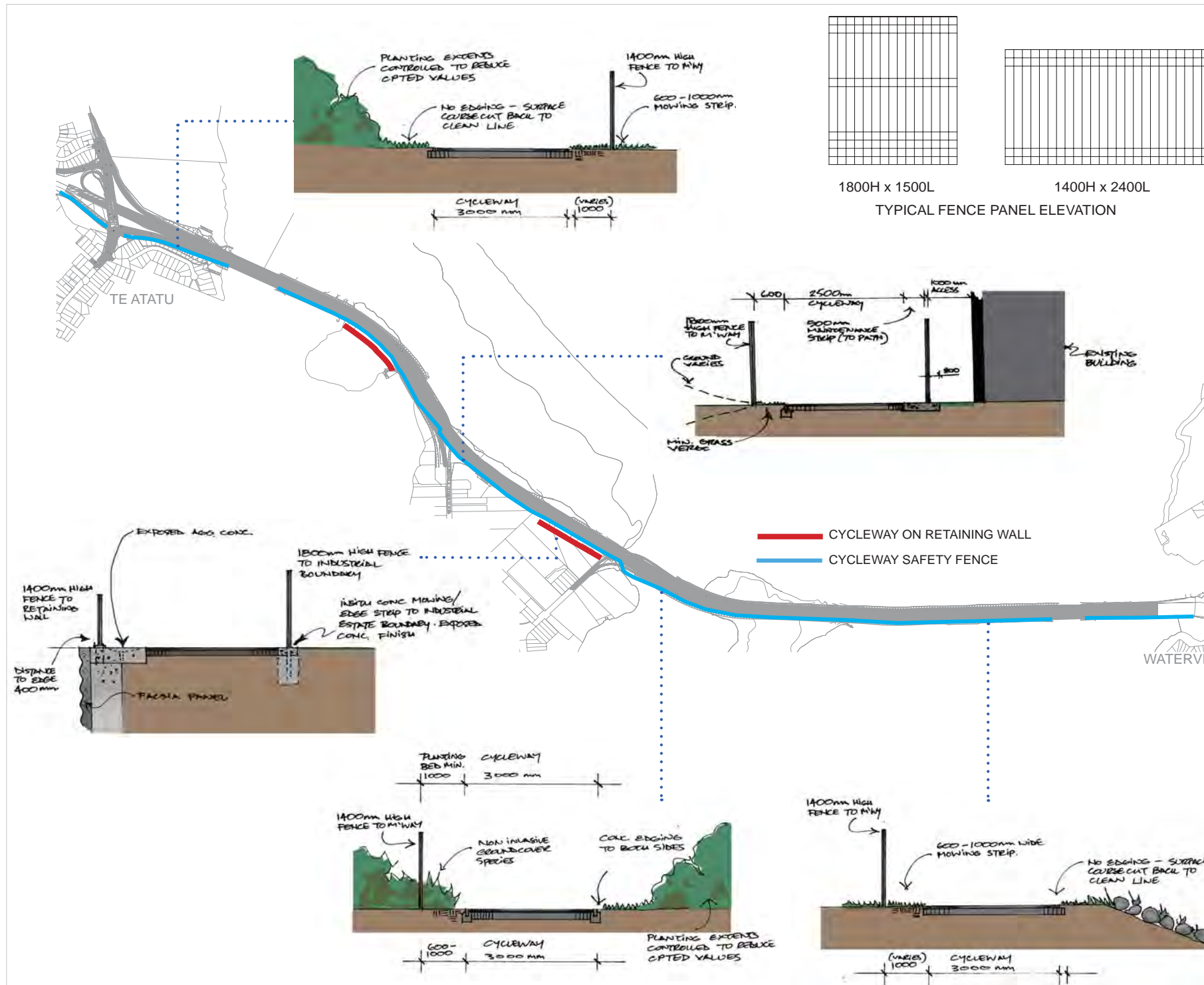
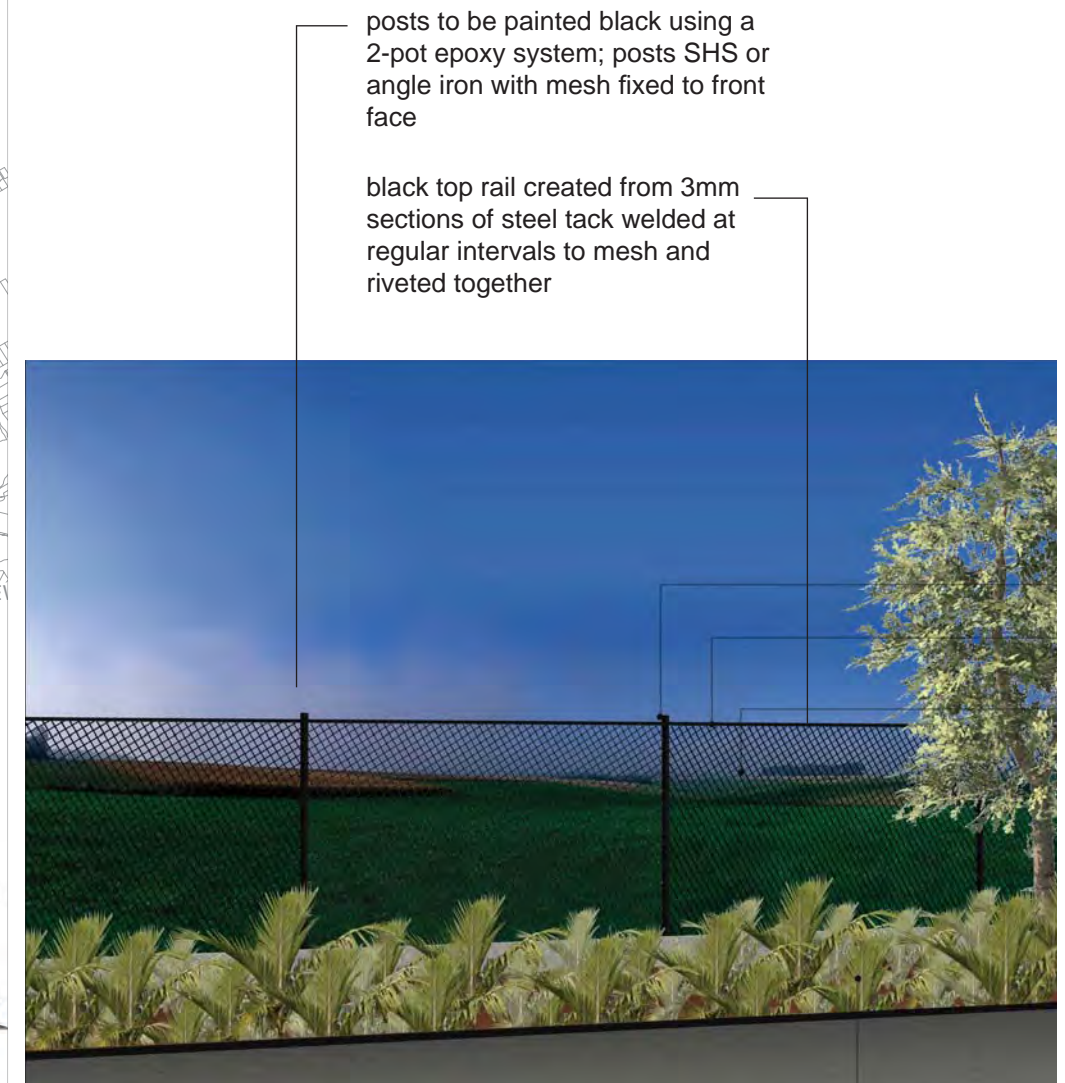


Figure B-27: Proposed fencing arrangements – SH16



posts to be painted black using a 2-pot epoxy system; posts SHS or angle iron with mesh fixed to front face

black top rail created from 3mm sections of steel tack welded at regular intervals to mesh and riveted together

Figure B-28: Proposed fence concept – SH20

**ANNEXURE F: PROPOSED LANDSCAPE AND VISUAL CONDITIONS<sup>145</sup>  
(WITH AMENDMENTS)<sup>146</sup>**

LV. 1	<p>The Urban Design and Landscape Plans (UDL Plans) (Drawing Numbers <u>20.1.11-3-D-L-810-200 to 228 (and planting schedules)</u>) shall be reviewed and revised in accordance with the conditions and submitted to the [Auckland Council] <u>for their confirmation that they comply with the conditions of the consents / designation approval</u> prior to construction of the relevant Project stage. <u>The UDL Plans shall include:</u></p> <ul style="list-style-type: none"> <li>(a) Planting to screen houses and noise walls;</li> <li>(b) Planting along the corridor on Traherne Island, in accordance with these conditions and the Ecological Management Plan;</li> <li>(c) Specimen planting on the Great North Road Interchange and the Te Atatu Road Interchange;</li> <li>(d) Specimen planting at the tunnel portals;</li> <li>(e) The final form of the <u>northern and southern ventilation buildings and stacks to be in accordance with the design principles of Section B of the Urban Landscape and Design Framework (ULDF June 2010) and the following conditions :</u></li> </ul> <p><u>For the northern vent building:</u></p> <ul style="list-style-type: none"> <li>(i) <u>The design shall maintain the same components underground as does the lodged design;</u></li> <li>(ii) <u>A fragmented form such that the above-ground building is broken down into small, discrete elements;</u></li> <li>(iii) <u>Any required roof linkages shall not dominate the form of the building; and</u></li> <li>(iv) <u>Lighting integrated with the façade design to illuminate the Great North Road street edge.</u></li> </ul> <p><u>For the southern vent building:</u></p> <ul style="list-style-type: none"> <li>(v) <u>A slim, linear plan arrangement that maximises the separation of the building from the houses on Hendon Avenue to the east and the pedestrian / cycle way to the west;</u></li> <li>(vi) <u>Modulation of the building such that the operation facility is separated from the remainder of the building to allow a pedestrian / cycle way to the west.</u></li> </ul> <p><u>For both buildings and stacks:</u></p> <ul style="list-style-type: none"> <li>(vii) <u>Treatment of the structures as objects of urban sculpture.</u></li> </ul> <p><u>(f) The appearance of the Great North Road Interchange ramps:</u></p> <ul style="list-style-type: none"> <li>(i) <u>The design shall take into consideration the impact of the structures on the visual quality of the open space underneath; and</u></li> <li>(ii) <u>The design of the piers and underside of ramps shall be reviewed by the Auckland Council urban design panel.</u></li> </ul>
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<sup>145</sup> Contained in AEE, Appendix E.1, pages 26-27.

<sup>146</sup> Shown in underlining and strike-through.

LV.2	<p>The <u>UDL Plans</u> shall be revised to take into consideration the following:</p> <p>(a) Finalisation of the noise barriers (as required by Condition ON.3) <u>in accordance with the design principles for noise walls in the ULDF (Section B)</u>;</p> <p>(b) Any relevant Open Space Restoration Plans prepared in accordance with these conditions;</p> <p>(c) Oakley Inlet Heritage Plan, prepared in accordance with these conditions;</p> <p>(d) Ecological Management Plan, prepared in accordance with these conditions; and</p> <p>(e) Western Ring Route: Maioro Street Interchange and Waterview Connection - Oakley Creek Rehabilitation and Restoration Guidelines (Boffa Miskell, 2010);</p> <p>(f) <u>Specific revisions to the UDL plans, as follow:</u></p> <p>(i) <u>Drawing No:20.1.11-3-D-L-810-210 and 211: change in planting type to low-lying area north-west of Waterview Interchange from 'coastal forest' to 'flax / cabbage tree wetland'</u>;</p> <p>(ii) <u>Drawing No:20.1.11-3-D-L-810-211: change in small area of planting north of the interchange from 'existing' to 'proposed'</u>;</p> <p>(iii) <u>Drawing No:20.1.11-3-D-L-810-213: provision of a boundary wall of 2m in height (with agreement of the St Francis School)</u>;</p> <p>(iv) <u>Drawing No:20.1.11-3-D-L-810-219: addition of one toilet facility (Auckland City standard or similar); and increase planting between planting and westbound ramp;</u></p> <p>(v) <u>Drawing No:20.1.11-3-D-L-810-221: addition of one toilet facility (Auckland City standard or similar);</u></p> <p>(vi) <u>Drawing No:20.1.11-3-D-L-810-222: increase of Oakley Creek riparian margin to 20m width and realignment of Hendon bridge to western edge of this area; recreation of existing carpark to back of tavern following completion of works; and change part of the flax planting in rail designation south of 6 Hendon Avenue to grass;</u></p> <p>(vii) <u>Drawing No:20.1.11-3-D-L-810-224: deletion of emergency stack;</u></p> <p>(viii) <u>New Sheet: rehabilitation of 'Waterview Glades' area (Sector 7)</u></p>
LV.3	<p>In revising the <u>UDL Plans</u>, consultation shall be undertaken with <u>Iwi, the Community Liaison Group and the Manager, Urban Design [Auckland Council]</u> on the final appearance of the following structures:</p> <p>(a) Northern vent building and stack; <u>and</u></p> <p>(b) <del>Cradoek Street exhaust;</del> and</p> <p>(c) Southern vent building and stack.</p>
LV.4	<p>The NZTA shall have implemented the <u>UDL Plans</u> within 6 months of practical completion of construction of the Project.</p>
LV.5	<p>The landscaping shall be implemented in accordance with the <u>UDL Plans</u> within the first planting season following the completion of the construction works provided that climatic conditions are suitable, otherwise at the first practicable opportunity thereafter, and shall be maintained for the next 2 years thereafter. Should the landscaping be implemented in stages (depending on construction phases), landscaping may be implemented after the first planting season of each stage.</p>

LV.6	The NZTA shall implement the <u>UDL Plans</u> taking into account the pest plant management guidelines detailed in the Ecological Management Plan.
LV.7	<u>The UDL Plans shall make provision for close planting of fast growing native shrubs or small trees (Griselinia, Karo, Pittosporums, Tarata or similar) along the security boundary of Construction Yard 1 facing Te Atatu Road. This planting shall be implemented prior to operational use of the yard and maintained in a healthy state for the duration of the works programme. Such planting shall occur at no greater than 1.0m centres and shall comprise plants that are Pb28 or larger at the time of planting.</u>
LV.8	<u>The NZTA shall ensure that the Temporary Embankments constructed for the Causeway Project are located on the seaward side of SH16 between the motorway end of Rosebank Road and the bridge over the Waterview inlet.</u>