

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 Stephen Brown (Visual and Landscape) on behalf of the **NZ Transport Agency**

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## **STATEMENT OF EVIDENCE OF STEPHEN BROWN ON BEHALF OF THE NZ TRANSPORT AGENCY**

### **INTRODUCTION**

- 1 My full name is Stephen Kenneth Brown. I am the Director of Stephen Brown Environments Limited (*SBEL*). I hold a Bachelor of Town Planning degree and a post-graduate Diploma of Landscape Architecture.
- 2 I am a Fellow of the New Zealand Institute of Landscape Architects, an Affiliate member of the New Zealand Planning Institute, and have practised as a landscape architect for 28 years.
- 3 During that period I have specialised in landscape assessment and planning. This has included evaluating the landscape effects associated with a wide variety of development proposals, including the assessment of: various developments at Eden Park (including the Rugby World Cup 2011 proposals), the Marsden Point port development, the Sylvia Park commercial centre, and various other commercial, residential and infrastructure developments. Within Auckland City, I have evaluated and provided evidence on projects ranging from the Sky Tower and the Sylvia Park Town Centre development, to apartment buildings in the Railway Precinct, and both multi-unit developments and individual houses within the City's various residential zones.
- 4 For nearly 30 years I have also been involved with the protection of Auckland's volcanic cone sightlines and, more strategically, I have undertaken and participated in many landscape assessments aimed at identifying landscape values at the district and regional levels. This has included undertaking assessments of the Auckland Region's landscape (from 1982 — 1984), Auckland's urban coastlines (1995), eastern Manukau City (1995), North Shore City (1997 - 2000), Waitakere City's Northern Strategic Growth Area Study (2000), Franklin District (2001), the Mahia Peninsula and Wairoa District (2003), the Kawhia and Aotea Harbour catchments (2006), the Thames Coromandel District (2006/7) and Otorohanga District (2008) — among others. I was a key participant in the recent assessment and identification of the Auckland Region's outstanding landscapes (2002 - 2005). In 2006 I was part of a team under the umbrella of Urbis Ltd that was awarded the (UK) Landscape Institute's Strategic Planning Award for the "*Landscape Value Mapping Study of Hong Kong*" for the Hong Kong Government. My contribution included development of an assessment method and evaluation criteria that were employed in that study.
- 5 Of some relevance to the current applications, I have also assessed the visual and landscape effects of a number of transport projects. In the mid 1980s I assessed the alternative rail corridor routes for

the Channel Tunnel rail corridors feeding into Folkstone (for Travers Morgan PLC), and since then have evaluated:

- 5.1 The eastern airport accessway effects and route options – for Auckland International Airport Ltd (1989 -1991);
  - 5.2 The Albany to Puhoi Realignment (*ALPURT*) B2 corridor, Waiwera river crossing and Thomson Hill cutting / tunnel options – for the Auckland Regional Council (*ARC*) (1999);
  - 5.3 The Weiti River bridge proposal – for the *ARC* (2000);
  - 5.4 The effects of the proposed Dominion Road redevelopment / lane widening – for Auckland City (2000);
  - 5.5 The effects associated with different roading options for an arterial route through Omokoroa – for Western Bay of Plenty District Council (2001);
  - 5.6 The effects of the Lake Road road widening designations – for North Shore City Council (2002);
  - 5.7 Various bridge, tunnel, and submerged tube options for crossing the Waitemata Harbour – including the effects of land based connections and tunnel ventilation structures – for Opus International and Transit NZ (2002/3); and
  - 5.8 The effects of widening and realigning parts of Glenfield Road - for North Shore City (2004).
- 6 In 2000 I evaluated the proposed Tauranga Northern Arterial's implications (utilising assessments prepared by LA4 and Priest Mansergh and site visits), before providing recommendations to Transit NZ, the Bay of Plenty Regional Council and Western Bay of Plenty District Council about the landscape mitigation measures that should be employed in conjunction with development of the proposed arterial corridor.
- 7 My evidence is given in support of notices of requirement and applications for resource consents lodged with the Environmental Protection Authority (*EPA*) by the NZ Transport Agency (*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:
- 7.1 The State Highway 16 (*SH16*) Causeway Project; and
  - 7.2 The State Highway 20 (*SH20*) Waterview Connection Project.
- 8 I am familiar with the area that the Project covers, and the State highway and roading network in the vicinity of the Project.
- 9 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**

- 10 My evidence will deal with the following:
- 10.1 Executive summary;
  - 10.2 Background and role;
  - 10.3 Summary of assessment of visual and landscape effects;
  - 10.4 Post-lodgement events;
  - 10.5 Comments on submissions; and
  - 10.6 Proposed visual and landscape conditions.

## **EXECUTIVE SUMMARY**

- 11 This statement builds on my AEE Report (Technical Report G.20) prepared for the NZTA, and briefly summarises my assessment of effects in relation to the Waterview Connection Project, and its impact on a variety of receiving environments around the margins of the upper Waitemata Harbour, the Whau River, Oakley Creek and the suburbs of Te Atatu, Avondale (Rosebank Road), Point Chevalier, Waterview, and Owairaka / Mt Albert.
- 12 I conclude that the Project's higher order effects are concentrated around the Te Atatu Interchange, the Great North Road Interchange / Oakley Creek / northern Waterview area and in the vicinity of Alan Wood Reserve and Hendon Park. Whilst acknowledging that appreciable effects will also be experienced between Henderson Creek and Te Atatu by local residents – primarily due to the removal of existing trees on the margins of the North-western Motorway – and also by those exposed to (and using) the SH16 causeway while works to widen and lift it are underway, these are not ultimately as significant as the impacts associated with:
- 12.1 Housing removal around the Te Atatu Interchange (Titoki Street and Alwyn Avenue), at Waterview (Cowley Street, Herdman Street, Great North Road and Waterbank Crescent) or even within parts of Hendon Avenue in Owairaka;
  - 12.2 The new ramps and infrastructure at the northern tunnel portal in Waterview;
  - 12.3 The displacement of most of Alan Wood Reserve by the new SH20 corridor and southern tunnel portal at Owairaka;

- 12.4 The new tunnel portal buildings and ventilation stacks at both ends of the proposed tunnels – in Waterview and Owairaka; and
- 12.5 the relocation of Waterview Reserve.
- 13 The scale of the Project, together with its individual components, means that the communities of northern Waterview and Owairaka (in the vicinity of Alan Wood Reserve and Hendon Park) will be very significantly impacted by both the temporary works proposed and on a more permanent basis.
- 14 However, the intensive mitigation proposed by the NZTA – including bunding, walling, massed planting, the relocation of Waterview Reserve and the provision of other sports grounds and public open spaces at Owairaka – also means that such ‘scars’ will gradually diminish and ‘heal over’ in the long term: 5-10 years after completion of the Project and restoration of the temporary work areas and construction yards. In particular, the massive changes associated with SH16’s causeway reconstruction, and cut and cover operations around Oakley Creek Reserve and Great North Road will have a high public profile and will be significant in their own right. But they will also ‘tail off’ rapidly at the end of the construction period.
- 15 Even so, some effects – such as the reduction in Alan Wood Reserve’s scale, the related physical separation of Mt Albert, and even the loss of greenery next to SH16 between Henderson Creek and the Te Atatu Interchange will be more enduring. Additionally, the physical presence, and likely visual dominance, of the vent structures / buildings at both tunnel portals remain of concern: at Waterview they will impart their own particular signature on the northern ‘gateway’ to Waterview, whereas at Alan Wood Reserve they will dominate much of that park’s residual open space.
- 16 Having described these key findings, I will address recent changes to the Project and submissions received in relation to it. Key changes include the deletion of the Emergency Exhaust Stack proposal for 36 Cradock Street, within part of residential Avondale otherwise relatively untouched by SH20. In addition, the NZTA has commissioned Construct (architects) to develop a ‘revised design option’ for the buildings and structures at both tunnel portals. This design option adopts a somewhat different approach from that conveyed by the rather hard edged, ‘industrial’ buildings and stacks portrayed in the AEE and related simulations. Although not formally adopted by the NZTA as the only approach to mitigation of the tunnel buildings and structures, the revised design option indicates the possibility for achieving greater compatibility between them and their largely residential surrounds.

- 17 Turning finally to submissions on the Project, I therefore provide additional analysis and commentary about what might be achieved through adoption of this 'revised design option'. In addition, I address submissions that traverse a wide range of matters, including effects on:
- 17.1 The Waitemata Harbour and its natural character values;
  - 17.2 Oakley Creek and its reserve;
  - 17.3 Residents within Point Chevalier and St Francis Primary School;
  - 17.4 The Unitec campus;
  - 17.5 The new Waterview Park;
  - 17.6 Trees and plants around the SH16 and SH20 corridors;
  - 17.7 Residents within Oakley Avenue and the Waterview community more generally;
  - 17.8 Alwyn Avenue at Te Atatu;
  - 17.9 Great North Road;
  - 17.10 The Te Atatu Pony Club and Orangihina Reserve; and
  - 17.11 Existing Volcanic Sightline A1 and A2, together with proposed Sightline A13.
- 18 Whilst accepting that the 251 submissions received by the EPA often raise matters that have required further analysis and clarification, it remains my opinion – overall – that the visual and landscape effects of the Project are manageable and appropriate in relation to the predominantly urban environments that are exposed to SH20, in particular. Although the Causeway Project will also impact on the Waitemata Harbour margins and part of the Whau River, these effects are incremental and will not change the fundamental nature of interaction between Auckland's metropolitan area and these key landscape features.

### **BACKGROUND AND ROLE**

- 19 SBEL was engaged by the NZ Transport Agency (NZTA) to assist with landscape and open space design for the SH20 / Waterview Connection Project in June of 2009. I was engaged in July 2009 to specifically address the visual and landscape effects of both the SH20 Waterview Connection Project and SH16 / Causeway Project. As a result, I have consulted with David Little, Landscape Architect, of SBEL and Lynne Hancock, Technical Director – Urban Design of

Beca Carter Hollings & Ferner (*Beca*) in relation to the urban and open space design of SH20, and with Tim Robinson, Landscape Architect, of JASMAX in relation to those same matters for SH16.

- 20 Some of my preliminary discussions with NZTA staff and the consultants identified above have fed into the design process for both motorway corridors, especially in relation to landscape treatment / mitigation, and I have more directly (and formally) provided input on different noise wall options and proposed property acquisitions near Hendon Avenue (Sector 9). Due to my evaluative role, I have focused on assessing the effects of the design process – as determined by the NZTA’s engineers and other design consultants (noted above).
- 21 I prepared an Assessment of Visual and Landscape Effects Report (*Report*) which assessed the visual and landscape effects of the entire Project. It also discusses how, and the extent to which, the implementation of the proposed Urban and Landscape Design Plans will (amongst other things) mitigate the visual and landscape effects of the Project works. In preparing my Report, I also had regard to the Urban Landscape and Design Framework (*ULDF*),<sup>1</sup> the preparation of which was overseen by Lynne Hancock of Beca.
- 22 Mr Jeremy Froger, also from SBEL, peer-reviewed my Report.
- 23 My Report was lodged with the EPA on 20 August 2010 as part of the overall Assessment of Environmental Effects (*AEE*) (specifically, Part G, Technical Report G.20).
- 24 That Report was accompanied by a set of Plans (Drawing Nos. 20.1.11-3-D-810-200 to 209 and 20.1.11-3-D-L-810 - 210 to 225) (*Plans*), also contained in the AEE (see Part F, Drawing Set F.16). The Plans show the urban design and landscape design concepts proposed for the Project by the NZTA.
- 24.1 The relevant plans for Sectors 1 – 6 are Drawings F16: 201 – 209.<sup>2</sup>
- 24.2 The relevant plans for Sectors 7 – 9 are Drawings F16: 210 – 225.<sup>3</sup>
- 25 The Plans show the disposition of key elements discussed in my Report, including proposed carriageways, slip lanes, ramps, flyovers, bridges, tunnel portals, ventilation stacks, buildings,

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<sup>1</sup> See the NZTA website [www.waterviewapplication.nzta.govt.nz](http://www.waterviewapplication.nzta.govt.nz) under the heading “Non-Lodged Documents”.

<sup>2</sup> Prepared by Tim Robinson of JASMAX, landscape architects for the original SH16 Causeway Project.

<sup>3</sup> Prepared by David Little, landscape architect, of SBEL.



signage gantries, noise walls, stormwater ponds, cycleways / walkways and planting.

## **SUMMARY OF ASSESSMENT OF VISUAL AND LANDSCAPE EFFECTS**

### **Purpose of my Report**

- 26 My Report addresses the effects of the Project works by assessing the existing values associated with current views and exposure to both motorway corridors, before examining the degree of interaction that will occur between those corridors and surrounding communities, then qualitatively evaluating landscape, natural character and amenity effects that will accrue during the construction and operation of the Project.

### **Landscape assessment method<sup>4</sup>**

- 27 The effects associated with SH16 and SH20 relate to the alignment, configuration and design of both motorways. To assess these effects, the following assessment process was adopted for SH16 and SH20:
- 27.1 Identification of the motorway corridors and development components that might affect their visual exposure to, and perception by, both local and wider communities. In addition to the actual carriageways, bridges, portals, causeways and other structures that are central to the Project, such elements also include noise attenuation measures (predominantly walling and bunding), planting and park improvements beyond the direct physical compass of SH16 and SH20 that have been proposed to mitigate, and/or off-set, the adverse effects of motorway development and reconfiguration.
- 27.2 Identification of catchments and audiences that either are, or may be, exposed to SH16 and SH20.
- 27.3 Field identification and mapping of sample viewpoints around both motorway corridors to help interpret existing values, the level of exposure in relation to each motorway, and the nature of changes likely to be experienced from them. These viewpoints capture perspectives from both the public and private domains. Although there is long-standing acceptance that district plans do not protect private views from individual properties, the outlook and anticipated impact experienced by individual landowners can help to gauge and explain the effects that the local community would be subjected to in a collective sense.

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<sup>4</sup> Section 3.1, pages 19-20 of Technical Report G.20. (See also Section 9, pages 99-108).

- 27.4 Preparation of photomontages for a representative sample of viewpoints to assist with comparison of the `before' (current) and `after' (post development / realignment) environment experienced from those viewpoints.<sup>5</sup>
- 27.5 Analysis of existing values, exposure and effects in relation to a sample of viewpoints around each motorway corridor: employing both a matrix based, assessment sheet (designed to ensure consistency and a rigorous approach to such evaluation) and descriptive analysis.
- 27.6 Delineation of those catchments and audiences exposed to both motorway corridors that would be subject to different levels of impact in relation to them.
- 27.7 Analysis of effects – including those pertaining to mitigation – as the basis for reaching findings about the visual impacts of SH16 and SH20.
- 27.8 Explanation of the conclusions derived from all of the above.
- 28 As a result, my Report contains the following critical appendices:<sup>6</sup>

<b>Appendix</b>	<b>Contents</b>
A	Viewpoint location and Visual Catchment Maps
B	Buildmedia and Precision Aerial Surveys Visual Simulations
C	Assessment Matrix Tables and Photographs: SH16 Sectors 1-6 Public Viewpoints
D	Assessment Matrix Tables and Photographs: SH16 Sectors 1-6 Private Viewpoints
E	Assessment Matrix Tables and Photographs: SH20 Sectors 7-9 Public Viewpoints
F	Assessment Matrix Tables and Photographs: SH20 Sectors 7-9 Private Viewpoints
G	Buildmedia Visual Simulation Methodology

- 29 To assist in following my analysis of the visual and landscape effects of the Project by Sector, the table below summarises the relevant Plans, viewpoints and visual simulations for each Sector:

<sup>5</sup> With Buildmedia modelling simulations using views and viewpoints selected by SBEL.

<sup>6</sup> Page 5 of Technical Report G.20.

Sector	Relevant Plans <sup>7</sup>	Viewpoint sheets <sup>8</sup>	Viewpoints <sup>9</sup>	Visual simulations <sup>10</sup>
1	201-203	Sheet 1	<b>Public:</b> 1/1 – 1/23 <b>Private:</b> 1/R1 – 1/R7	1/4, 1/8, 1/R6 & 1/R7
2	204-205	Sheets 1 & 2	<b>Public:</b> 2/24 – 2/25 <b>Private:</b> 2/R8 – 2/R9	2/25
3	204-206	Sheet 2	<b>Public:</b> 3/26 – 3/28 <b>Private:</b> no viewpoints	No simulations
4	204-209	Sheets 3 & 4	<b>Public:</b> 4/29 4/42 <b>Private:</b> 4/R10 – 4/R13	4/35, 4/37, & 4/R14
5	210-213 & 224	Sheets 4 & 5	<b>Public:</b> 5/43 – 5/70 <b>Private:</b> 5/R14	5/47, 5/52, 5/55, 5/56, 5/61, 5/65 & 5/68
6	213-216	Sheets 4 & 5	<b>Public:</b> 6/71 – 6/76 <b>Private:</b> 6/R15	6/R15
7	217	Sheet 5	<b>Public:</b> 7/77 – 7/84 <b>Private:</b> 7/R16 – 7/R17	7/78 & 7/R16
8	218, 219 & 225	Sheet 6	<b>Public:</b> 8/85 – 8/90 <b>Private:</b> 8/R18 – 8/R19	8/90 & 8/R19
9	219-222	Sheet 6	<b>Public:</b> 9/91 – 9/133 <b>Private:</b> 9/R20 – 9/R27	9/102, 9/103, 9/104, 9/112, 9/R20, 9/R23, 9/R24

30 I now address the key findings of my visual and landscape impact assessment in relation to the SH16 Causeway Project and the SH20 Waterview Connection Project – as lodged.

### **The SH16 Causeway Project<sup>11</sup>**

31 This part of the Project extends from the margins of Henderson Creek to the current St Lukes Interchange. It also encompasses redevelopment of the Great North Road Interchange and connection of SH16 with SH20 at the northern tunnel portal in Waterview. The following summaries address the key effects identified in relation to Sectors 1 – 6, together with “cumulative effects”, effects in relation to the “from motorway experience” (associated with use of the motorway corridor by motorists and cyclists) and the Project in its entirety.

<sup>7</sup> Part F, Drawing Set F.16. References above are to sheet numbers.

<sup>8</sup> Appendix A to Technical Report G.20.

<sup>9</sup> Appendices C – F to Technical Report G.20; referring to assessment viewpoint numbers for Sectors 1 – 9 and both public and private viewpoints. Private viewpoints are differentiated with an “R” before the individual viewpoint number.

<sup>10</sup> Appendix B to Technical Report G.20: referencing those viewpoints for which photo simulations have been prepared. Again, private viewpoints are differentiated with an “R” before the individual viewpoint number.

<sup>11</sup> Section 4, pages 28-33 of Technical Report G.20.

**Sector 1<sup>12</sup>**

<b>Drawing Set:</b>	<b>Appendix A Plan:</b>	<b>Viewpoint No.s (Appendices C, D &amp; E)</b>	<b>Visual simulation No.s (Appendix B)</b>
201-203	Sheet 1	<b>Public:</b> 1/1 – 1/23 <b>Private:</b> 1/R1 – 1/R7	1/4, 1/8, 1/R6 & 1/R7

- 32 Although the existing Te Atatu Interchange sets the scene for additional change within the existing SH16 corridor, the removal of dwellings next to Titoki Street and Alwyn Avenue will be significant in its own right and will expose the motorway system to properties and residents within both streets that are currently screened from it. However, the bulk of changes to the main carriageways, slip lanes, underpass, pedestrian connections, Northwestern Cycleway and contours will still fall within the physical compass and visual setting of the current SH16 corridor.
- 33 The receiving environments affected by the Project works will remain much the same as at present, with the motorway's visual catchment strongly ring fenced by Titoki Street, Royal View Road, Alwyn Avenue, small parts of Bridge Avenue and Te Atatu Road, and the Te Atatu Pony Club paddocks. First bunding, then noise walls and planting, will also help to limit the impact on those parts of Titoki Street and Alwyn Avenue exposed to the 'gaps' left by house removals.
- 34 These same elements will soften the wider profile of the Te Atatu Interchange, with the proposed mix of specimen tree and coastal forest / pohutukawa planting having a beneficial impact on its character and transition through to the Whau River in the longer term. This will be especially so between the Te Atatu Interchange and the Whau River, but also in close proximity to both locations where the current visual catchment is modified by house removal – at Titoki Street and Alwyn Avenue.<sup>13</sup>
- 35 Consequently, whereas there will be significant disruption of the current landscape and amenity effects associated with the initial works on and around the Te Atatu Interchange, these will rapidly "drop off" as the reconstruction is completed and rehabilitative planting beside the motorway margins starts to take hold. The lights, bridge, noise walls etc. that remain visible in the long term will become increasingly secondary to this planting over time, near Alwyn Avenue especially, while the other components of the Project works will simply assume much the same role and place as the existing motorway elements.

<sup>12</sup> Executive summary, pages 8-15 of Technical Report G.20. (See also Section 6.5, pages 60-66).

<sup>13</sup> Section 6.5.2, page 64 of Technical Report G.20.

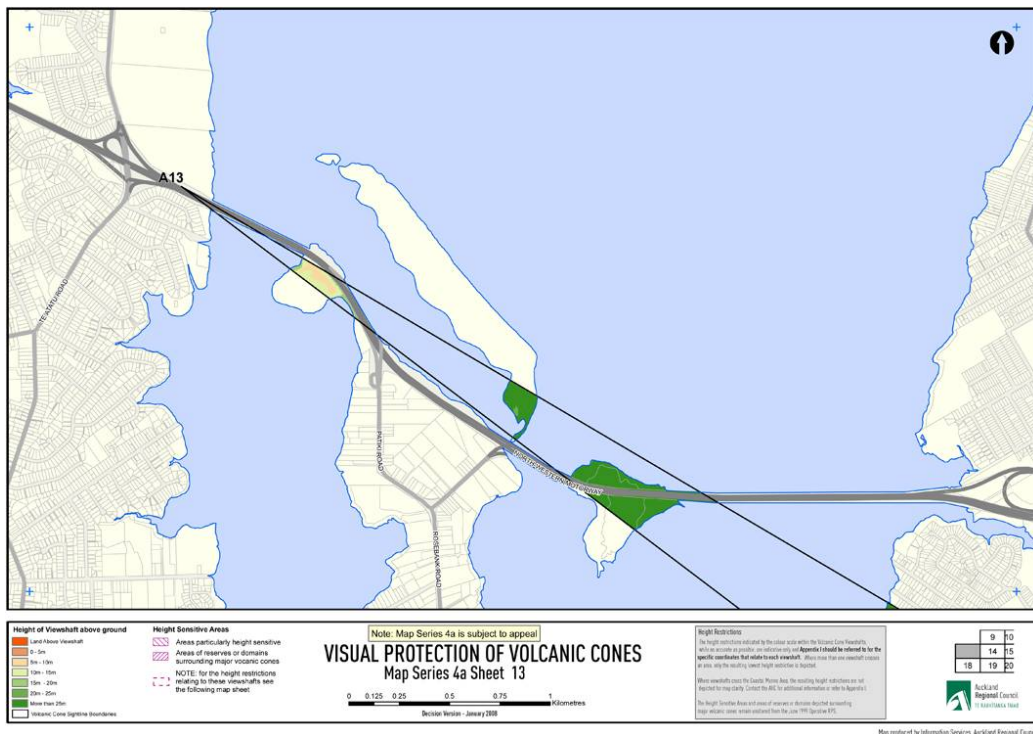
- 36 Between Te Atatu and Henderson Creek the removal of trees down both sides of the motorway corridor will expose both local residents and Jack Colvin Park to the motorway more directly than is presently the case. Their removal will also remove the “green walls” that presently enclose it in an appealing manner. The motorway will lose some of its mature, “boulevard” character and naturalness. These effects would be mitigated – to a limited degree – by planting and fencing along the edge of Jack Colvin Park.<sup>14</sup>
- 37 The residential catchment potentially affected by the proposed tree removal occupies a relatively narrow strip directly abutting the motorway. Consequently, exposure to the trees, as well as potential effects derived from their removal, diminish quite markedly away from this line. Nevertheless, in part because of the reliance on the trees down both sides of the motorway to enhance local amenity, and (in the case of Jack Colvin Park) landscape values, their loss will generate a moderate to high level of impact.<sup>15</sup>
- 38 In relation to proposed Volcanic Sightline A13 (overleaf),<sup>16</sup> it is anticipated that even though signage gantries are to be located within Sector 1 (east of Te Atatu Road), as well as within Sector 3, (east of the Whau River Bridges), none of these will impact on the line of view from the A13 origin point to Mt Albert. The integrity of that sightline will not be affected by the proposed modifications to the motorway corridor.

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<sup>14</sup> Section 6.5.4, page 65 of Technical Report G.20.

<sup>15</sup> Section 6.5.2, page 62 of Technical Report G.20.

<sup>16</sup> Section 5.3, page 44 of Technical Report G.20.



39 In summary, therefore, modifications to Sector 1 will be more wide-ranging and significant in the short term, especially around the Te Atatu Interchange, Titoki Street and Alwyn Avenue. In the medium to longer term, however, the Interchange and corridor stretching down to the Whau River will take on a much more a positive aspect – both for neighbouring residents and motorway users – but the removal of trees both sides of the corridor through to Henderson Creek will have a more enduring effect overall, especially for those living in adjoining streets and using Jack Colvin Park.

**Sector 2<sup>17</sup>**

Drawing Set:	Appendix A Plan:	Viewpoint No.s (Appendices C, D & E)	Visual simulation No.s (Appendix B)
204-205	Sheets 1 & 2	<b>Public:</b> 2/24 – 2/25 <b>Private:</b> 2/R8 – 2/R9	2/25

40 The proposed modification to lanes on the existing vehicle bridge over the Whau River, provision of a new cycleway / pedestrian bridge, and modifications to the bridge approaches will only marginally increase the current encroachment of SH16 structures into the Whau River environment. Furthermore, this will occur at a point in the River that lies in close proximity to a major transmission corridor, the Te Atatu Boating Club, residential development, boat moorings and vessels in the Whau River’s main stream. The western embankment will, in future, also be more substantially

<sup>17</sup> Section 6.6, pages 66-67 of Technical Report G.20.

screened by coastal planting on the margins of Sector 1, while coastal planting in Sectors 3 and 4 will help to screen and integrate proposed modifications to the Whau River Bridges approaches near Pollen Island and the Rosebank Domain.

- 41 All effects in relation to this Sector will be low. Even though the eastern side of the vehicle and pedestrian / cycleway bridges pass through part of the Outstanding Natural Landscape identified down that side of the Whau River, any additional or cumulative effects associated with Sector 2 will be of a very low order, given the contextual situation already outlined and the limited extent of proposed works within and around the Whau River margins.

### **Sector 3<sup>18</sup>**

<b>Drawing Set:</b>	<b>Appendix A Plan:</b>	<b>Viewpoint No.s (Appendices C, D &amp; E)</b>	<b>Visual simulation No.s (Appendix B)</b>
204-206	Sheet 2	<b>Public:</b> 3/26 - 3/28 <b>Private:</b> no viewpoints	No simulations

- 42 The reconfiguration of motorway lanes across the toe of the Rosebank Peninsula will result in the removal of shrubs and trees – including weed species – along both sides of the motorway and the erection of sizeable retaining walls down its southern flank. However, the fact that virtually all of the land abutting that edge is currently occupied by business and industrial activities (with service yards, parking, storage areas and warehouse entrances facing the motorway), limits the inherent sensitivity of that boundary to change. Although some very specific views to the Waitemata Harbour from individual business premises will be adversely affected by the Project, the very nature of activities and built forms spread along the distal end of the Rosebank Peninsula limits the sensitivity of the motorway / peninsula interface to the changes proposed.
- 43 Thus, even when viewed from the motorway itself, the reconfigured lanes will sit within a long established framework of existing motorway elements and the retaining walls will be seen largely juxtaposed against an array of industrial buildings, warehousing, security fencing, containers, service yards and car parking.
- 44 The fact that the new lanes will be viewed, more remotely, from the Point Chevalier and Te Atatu Peninsulas, or the Waitemata Harbour – over considerable distances, with a very flat angle of viewing – further limits the potential exposure of the carriageways and retaining walls to receiving environments beyond the bounds of the Peninsula and Pollen Island.

<sup>18</sup> Section 6.7, pages 67-70 of Technical Report G.20.

- 45 Coastal planting within Sectors 3 and 4 along the seaward side of the motorway will further enhance the “internal” profile of the motorway, while also helping to screen and filter views of the walling in the longer term.
- 46 This combination of factors suggests that, overall, the effects generated within Sector 3 will be relatively low. Because the realigned lanes stay physically close to the current motorway footprint and, visually within the existing corridor, this Sector will have no appreciable impact on nearby Pollen Island or the wider coastal environment that is identified as being an Outstanding Natural Landscape. Again, the proposed planting within both Sectors 3 and 4 will help to maintain the current distinction between the motorway corridor and that natural coastal environment.

#### **Sector 4<sup>19</sup>**

<b>Drawing Set:</b>	<b>Appendix A Plan:</b>	<b>Viewpoint No.s (Appendices C, D &amp; E)</b>	<b>Visual simulation No.s (Appendix B)</b>
204-209	Sheets 3 & 4	<b>Public:</b> 4/29 4/42 <b>Private:</b> 4/R10 – 4/R13	4/35, 4/37, & 4/R14

- 47 It was initially anticipated that the effects of widening and lifting the motorway Causeway within Sector 4 would generate significant landscape and natural character issues. However, the analysis from relevant viewpoints – employing visual simulations where applicable – indicates that only those vantage points in close proximity to the Causeway, such as parts of the Howlett Street Walkway, will be appreciably affected by this aspect of the Project. For instance, sea level viewpoints on the Hewlett Street Walkway at the very edge of the Waterview lagoon will reveal the Causeway’s more elevated profile cutting across the broad expanse of the Upper Waitemata Harbour. However, when viewed from most other vantage points around Point Chevalier, Waterview and the Rosebank Peninsula, viewing angles are typically high enough to prevent any such view “blockage” or obstruction, but not sufficiently high to reveal the increased width of the Causeway.
- 48 As a result, once the filter strips and rock armouring is “bedded in” around the Causeway, it will have a profile and appearance very similar to the current Causeway. Its long term impact on landscape, natural character and amenity values is therefore likely to be low. Proposed planting next to the motorway across Traherne Island, as well as between SH16 and Pollen island will further help to reduce the profile of both the Causeway and wider motorway corridor.
- 49 It is also recognised that the Causeway is located within a very exposed and highly sensitive part of the coastal / harbour

<sup>19</sup> Section 6.8, pages 70-73 of Technical Report G.20.



environment. Further, in the short term at least, the process of reclamation, motorway reconfiguration and remediation will be highly visible. As such, it is anticipated that the scale of effects during reclamation and reconstruction of the Causeway will be much higher than Sector 4's more permanent, long term effects.

### **Sector 5<sup>20</sup>**

<b>Drawing Set:</b>	<b>Appendix A Plan:</b>	<b>Viewpoint No.s (Appendices C, D &amp; E)</b>	<b>Visual simulation No.s (Appendix B)</b>
210-213 & 224	Sheets 4 & 5	<b>Public:</b> 5/43 – 5/70 <b>Private:</b> 5/R14	5/47, 5/52, 5/55, 5/56, 5/61, 5/65 & 5/68

- 50 Although redevelopment of the Great North Road Interchange involves development largely focused on part of the current SH16 network and motorway infrastructure, it also involves the completely new development of SH20's extension and connection with the current interchange between Herdman Street and SH16. This will involve the removal of a sizeable number of dwellings, together with the removal and reconstruction of Waterview Reserve, and the imposition of ramps, fly-overs, the northern tunnel portal, lighting, etc on the remaining residential community around Great North Road, Herdman Street and Waterbank Crescent. This key part of the Project will also be exposed to arterial traffic flows up and down Great North Road, SH16 itself and part of the Oakley Creek Esplanade Reserve.
- 51 In conjunction with the northern tunnel portal building and ventilation stack within Sector 7 (to be located between Herdman Street and Oakley Street), this part of Sector 5 will generate massive change at the northern end of the Waterview residential community. It will effectively remove part of that current residential environment and push its boundaries back towards Waterbank Crescent, Daventry Street and Oakley Avenue.
- 52 This transformation – from part of a residential suburb into part of Auckland's motorway network – will result in very significant landscape change that is matched by a range of amenity impacts on the local community. These impacts will commence at the inception of site works and, despite the positive remedial and mitigatory effects of bunding and planting, will remain apparent even in the long term. The proposed northern tunnel portal, adjoining ventilation portal building and stack, fly-overs and lighting – together with traffic once the Project is complete – will leave a permanent imprint on the northern end of Waterview.
- 53 Potential nuisance effects associated with traffic activity and lighting, which are inevitably exacerbated by awareness of traffic

<sup>20</sup> Section 6.9, pages 73-79 of Technical Report G.20.

noise (regardless of its intensity), will particularly affect those living close to the northern end of Waterbank Crescent, living along the coastal side of Herdman Street (west of Waterbank Crescent) or using the Crowley Street Walkway and reconfigured Waterview Reserve. Just as important, the wider community's perception of SH20 encroaching into, and eroding, the Waterview residential area will diminish some of that catchment's integrity and perceived amenity values as a whole.

- 54 More positively, the motorway / Great North Road Interchange's direct effects will primarily fall on a quite confined part of the Waterview residential area, focused on nearby parts of Herdman Street, Waterbank Crescent, Oakley Street and Great North Road. As such, even though the public at large may perceive the motorway connection as having a major impact on Waterview as a whole, the reality is that most of the residential catchment beyond this first tier of properties will have surprisingly little direct visual contact with the motorway system and will not be significantly affected by it.
- 55 Consequently, a very clear dichotomy emerges between the high levels of effect visited on the area generally around Waterview Reserve, the Waterview Primary School and that part of Great North Road north of Oakley Avenue, and the moderate to low order of effects that will be experienced from central Herdman Street (near Waterbank Crescent) westwards and from Oakley Street southwards.
- 56 It is recognised that the development of the new SH20 connection with SH16 could also impact on the perceived separation, even "severance", of Waterview from nearby Point Chevalier. However, the existing SH16 interchange, together with Oakley Creek and the Unitec campus, already promotes a strong feeling of separation between these two communities; indeed, from Mt Albert / Carrington as well. All three communities have somewhat different identities. Consequently, although development within Sector 5 (in conjunction with Sector 7) might well reinforce such perceptions, it will not initiate them. Nor are these perceptions likely to be supported by any physical severance: Waterview will retain strong vehicular and pedestrian / cycleway links to Point Chevalier, Carrington and the nearby Unitec campus – in part via the reconfigured Waterview Reserve.<sup>21</sup>
- 57 Although some residents living on the northern side of the current SH16 interchange, near Montrose Street and Berridge Avenue through to Eric Armishaw Park, may also be initially exposed to the proposed fly-overs and other structural modifications, the combination of existing and new planting within and around the motorway carriageways and slip lanes will, over time, almost

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<sup>21</sup> Section 6.9.3, page 78 of Technical Report G.20.

entirely screen the Interchange from view. This is also the case in relation to the nearby harbour / lagoon / Oakley Creek margins and the Unitec campus.

- 58 Consequently, even though a few individual residents – such as those at 42a Montrose Street – will be affected to a greater degree than is typical because of that property’s extremely close proximity to the current Interchange, Sector 5 would have generally a quite low impact on its surrounds, apart from Waterview. Those changes to the Great North Road Interchange that remain visible from these parts of the catchment will largely be consistent with what is already visible from such vantage points.

### **Sector 6<sup>22</sup>**

<b>Drawing Set:</b>	<b>Appendix A Plan:</b>	<b>Viewpoint No.s (Appendices C, D &amp; E)</b>	<b>Visual simulation No.s (Appendix B)</b>
213-216	Sheets 4 & 5	<b>Public:</b> 6/71 – 6/76 <b>Private:</b> 6/R15	6/R15

- 59 Even though development within Sector 6 involves widening of the current SH16 pavement and carriageways, such changes will be very strongly associated with the current motorway corridor. The main changes to the external appearance and profile of the motorway will arise from the new noise abatement walls proposed north and south of the motorway, removal of dwellings on Great North Road, and the provision of new stormwater pond in that same general area. Bunding and planting would help to soften the effects of these changes and should, in fact, appreciably enhance much of the waste ground – filled with weeds – north of the current motorway.
- 60 It is anticipated that the noise abatement walls near Sutherland Road, Parr Road South and Novar Crescent could adversely affect the residential outlook from adjoining properties - at least in the short term – especially if a large amount of existing vegetation needs to be removed to facilitate their erection. However, these same residents are already exposed to the existing motorway, with its mixture of infrastructure and vehicle traffic, and the combination of residual, present-day vegetation and new planting should reduce such effects to a low level within 8 – 10 years.
- 61 Between SH16 and Great North Road, effects will be much more positive, both in the short and longer terms, despite the removal of existing dwellings at 1102C and 1102D Great North Road. In particular, the in-filling of much of the open space presently bordering SH16 with “coastal forest” and other mixed native planting will enhance both that space and the motorway’s margins.

<sup>22</sup> Section 6.10, pages 79-83 of Technical Report G.20.

This planting, assisted by the motorway's cut through local ridgelines at St Lukes and Point Chevalier, and low profile in general, will further reduce its visual signature over time, as well as the presence and nuisance effects of highway traffic. Consequently, it is anticipated that the effects for Sector 6 as a whole will be limited and typically of a low order.

### **Cumulative effects<sup>23</sup>**

- 62 The proposed changes to SH16 and its connection with SH20 at Waterview will, in general, exacerbate the effects associated with the current Northwestern Motorway, most notably within Sector 5, at the Great North Road Interchange.
- 63 Yet, focusing at first on Sector 5, it is primarily the effects of the entirely new SH20 northern tunnel portal, ramps and fly-overs that will affect Waterview's residential area – which is only peripherally affected by the current Great North Road Interchange. Conversely, those parts of Point Chevalier, the Unitec campus, Eric Armishaw Park and the coastal margins of Herdman Street, that are exposed to the current SH16 network, will be affected to a much lesser extent by the reconfiguration and additional development of the actual interchange. In other words, the truly cumulative effects associated with Sector 5 will be appreciably less than the new, direct effects associated with SH20.
- 64 Sectors 1 - 4 and 6 will also register effects that add, cumulatively to those already generated by the Te Atatu Interchange and motorway through to Henderson Creek, the Whau River Bridges, crossing of the toe of the Rosebank Peninsula, Waterview estuary Causeway, and St Lukes - Point Chevalier corridor. Yet, it is actually very difficult to single out the point at which new effects depart from those associated with the existing motorway network. Even so, if the entire Project associated with the SH16 works was new, then the level of impact would be much greater than has been identified. The fact that most of the effect ratings for Sectors 1 - 4 and 6 remain low to modest signals that the current motorway makes additional change (as currently contemplated) more acceptable from a landscape and amenity perspective. However, it remains very difficult to single out specific cumulative effects per se.
- 65 The fact that the effects identified are, in general, quite low suggests that the proposed motorway system will have a similar character to the current system and / or that parts of it will actually be improved by proposed mitigation measures. This appears to be the case with most of Sectors 1 – 4 and 6, together with the current Interchange part of Sector 5.

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<sup>23</sup> Section 6.12.7, pages 87-88 of Technical Report G.20.

### **'From Motorway' effects<sup>24</sup>**

- 66 It is anticipated that the current experience of driving along SH16 and looking towards key landscape features – the Waitemata Harbour, Waterview estuary, Pollen and Traherne Islands and various peninsulas – will not be greatly changed by the Project. Some of the tension and appeal of travelling across an open expanse of water may be marginally diminished by the increased number of lanes atop the Causeway, while the new retaining walls along the Rosebank Peninsula and noise walls near Point Chevalier will increase the structural content of the motorway periphery at points between St Lukes and Henderson Creek. But these “modifications” will not change the fundamental nature of the journey; they will not change the extent of exposure to the harbour and lagoon, while the walling and structural changes will occur where natural values are already very appreciably compromised.
- 67 The one part of the Project that does raise concern in this respect is between Te Atatu and Henderson Creek, due to the anticipated removal of mature planting down both sides of the motorway and the resulting loss of both natural content and the “boulevard” type feeling of that stretch of road.
- 68 Elsewhere, the vegetative content of the motorway corridor will be significantly and beneficially increased – most notably between Te Atatu Road and the Whau River, along the Rosebank Peninsula’s coastal edge, at Traherne Island, around the Great North Road Interchange and on around the proposed wetland and motorway margins between St Lukes and Point Chevalier.
- 69 Cyclists will enjoy very similar experiences to those just described. In addition, the provision of three new pedestrian / cycleway bridges – at the mouth of the Waterview estuary, over the Whau River and over the Patiki Road on-ramp – together with extension of the Northwestern Cycleway along the motorway’s southern edge west of Te Atatu, will further enhance the experience of using the Cycleway and its perceived safety. Widening of the Cycleway to a more typical 3m, and the use of 1.4m high rail fencing to separate it from vehicle lanes across the Causeway, will further help to maintain a sense of connection with the Waitemata Harbour and Waterview lagoon for cyclists and motorists alike.

### **Summary of effects: Sectors 1 to 6<sup>25</sup>**

- 70 Inevitably, the redevelopment and expansion of the footprint of SH16 will generate effects that add, cumulatively to those already generated by the current motorway corridor. This appears likely to be especially apparent in the short to medium term – perhaps five years from the completion of the Project – while the new areas of reclamation, walling along the toe of the Rosebank Peninsula and

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<sup>24</sup> Section 6.12.8, page 88 of Technical Report G.20.

<sup>25</sup> Section 6.12.9, pages 88-89 of Technical Report G.20.

house removal around the Te Atatu and Great North Road Interchanges remain relatively new and “raw”. However, over time, the modifications to the current motorway system will be rapidly assimilated by the current motorway corridor and new planting and bunding (in particular) will help to ameliorate and screen many of the changes proposed from local residents.

- 71 The new, wider and more elevated, Causeway will have a larger profile than at present, but no appreciably greater impact on the Waitemata Harbour’s natural character or landscape values in the long term. Similarly, the changes to the motorway corridor across Traherne Island, the Whau River and past Pollen Island, will have little, if any, impact on the residual naturalness and key coastal characteristics of these important harbour features.
- 72 Furthermore, south of Great North, around the Meola stormwater pond and opposite Chamberlain Park, an area of existing waste ground will be rapidly improved with revegetation, while development around Oakley Creek offers the twin opportunities to remove privet and other weeds from that area and, at the same time, provide for interpretation of the historic Starr Mill site.
- 73 Even so, the removal of housing at the northern end of Waterview and short-term displacement of Waterview Reserve will have a significant adverse impact on that area, compounded by the incursion and intrusion of the northern tunnel portal, together with its ramps and flyovers connecting SH20 with the North-western Motorway. In the short term, especially, these effects will be serious and highly disruptive.<sup>26</sup>
- 74 However, over time, new screen bunding, planting and the re-creation of a semblance of Waterview Reserve will soften this impact and gradually help to create an effective buffer between the motorway corridor and remaining housing around Herdman Street, Waterbank Crescent, Oakley Avenue and the Waterview Primary School.
- 75 More permanently, it appears likely that – much like Great North Road at present – the new motorway / tunnel corridor will still intrude into the Waterview community, but primarily its outer margins, around Waterbank Crescent. Although the ventilation stack and more distant fly-overs (beyond a reconfigured Waterview Reserve) will still remind local residents of the change that has occurred, they will eventually have a quite limited impact on their local amenity values.

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<sup>26</sup> Section 6.12.9, page 89 of Technical Report G.20.

- 76 Overall, therefore, it is considered that the development of SH16 and part of SH20, as proposed within Sectors 1 – 6, is acceptable in terms of its landscape, natural character and amenity effects.<sup>27</sup>

#### **Mitigation measures<sup>28</sup>**

- 77 In reaching these conclusions, it is important to affirm, however, the importance of implementation of the proposed mitigation that is outlined in Drawings F16: 201 – 209.
- 78 In particular, the proposed bunding and planting are critical to the gradual reduction of more temporary construction and immediate post-construction effects in the longer term – linked directly to the maturation of planting within and around the motorway and associated structures. Consequently, any reduction in such measures would significantly increase the overall impact of the Causeway project on both the regional community and local residents, especially near the Te Atatu and Great North Road Interchanges, and at Waterview.

#### **The SH20 Waterview Connection Project<sup>29</sup>**

- 79 This part of the Project extends from the northern tunnel portal near the current Waterview Reserve and Herdman Street in Waterview to Alan Wood Reserve, then to the Maioro Street Interchange at Mt Albert / New Windsor. The following summarises the key effects identified in relation to Sectors 7, 8 and 9, and the Project as a whole.

#### **Sector 7<sup>30</sup>**

<b>Drawing Set:</b>	<b>Appendix A Plan:</b>	<b>Viewpoint No.s (Appendices C, D &amp; E)</b>	<b>Visual simulation No.s (Appendix B)</b>
217	Sheet 5	<b>Public:</b> 7/77 – 7/84 <b>Private:</b> 7/R16 – 7/R17	7/78 & 7/R16

- 80 The combination of the northern portal building and ventilation stack will reinforce the effects identified in relation to the much more physically wide-ranging and fundamental redevelopment in Sector 5. Together, the combination of structures and landscape modification within what is presently the northern end of Waterview will have a major impact on both that residential catchment per se, and on wider public perception of the suburb.

<sup>27</sup> Section 6.12.9, page 89 of Technical Report G.20.

<sup>28</sup> Section 6.12.9, page 89 of Technical Report G.20.

<sup>29</sup> Executive summary, pages 15-18 of Technical Report G.20. (See also Section 7, pages 90-98).

<sup>30</sup> Section 9.6, pages 108-110 of Technical Report G.20.

- 81 Viewed from locations that are not as directly exposed to the new motorway corridor and southern tunnel portal (such as Great North Road approaching from the south, Oakley Avenue or even Oakley Creek Reserve), the portal building and ventilation stack will introduce structures to the margins of Waterview that have an industrial quality. They will also act as local 'landmarks' that signal the presence of the southern tunnel portal and motorway, although proposed tree planting and architectural treatment of the proposed buildings should ultimately help to limit long-term impacts to a moderate level. Just as important, exposure to both buildings / structures from within the residential catchment south of Oakley Avenue, the Primary School, and Waterbank Crescent rapidly diminishes, so that such effects would be largely restricted to those residential properties and parts of the Oakley Creek Reserve in close proximity to the Sector 7 "site".
- 82 However, more short term and temporary effects, related to the removal of housing, site preparation and development of both structures will be significant. This includes the very significant disruption that will occur with re-routeing of traffic down parts of Great North Road to avoid the 'cut and cover' section of the tunnel but, perhaps more importantly, the temporary cut into and through the Oakley Creek Esplanade Reserve and location of temporary construction yards and facilities within that open space.
- 83 These temporary works will have a major impact on the verdant 'pasture' and open space immediately abutting Great North Road. Open working faces cutting through the current landforms, together with haulage areas, compounds, security fencing, offices, trucks and other equipment, will completely transform the current park-like reserve for up to 5 years. As a result, much of the presently tranquil open space, which provides such a contrast with both a heavily trafficked Great North Road and suburban Waterview, will be both visually and physically displaced. Although the esplanade reserve will eventually be restored in a state as close as possible to that found near Oakley Creek at present, and Waterview Reserve will also be redeveloped as rapidly as possible to provide some passive recreational amenity for Waterview's inhabitants, the short term effects associated with the cut and cover operations will be very significant during the Project's construction phase.
- 84 In the longer term, though, most effects will be confined to the tunnel portal building and stack. In particular, public exposure to the portal building and ventilation stack (as 'landmark' elements next to Great North Road that are associated with the SH20 tunnel portal) has the potential to colour the general public's perception of Waterview as a whole. Even so, the primary school and pre-school facility, together with both Herdman Street and Oakley Avenue will limit both structures' exposure to, and imposition on, the great bulk of Waterview's residential community.



- 85 Overall, therefore, I anticipate that the short-term impacts on Waterview will be much more significant than those experienced in the long term. Yet, there can be little doubt that the portal building and 25m stack will still introduce a more utilitarian array of components and quality to the northern end of Waterview that ultimately compounds some of the adverse effects already described in relation to Sector 5.

### **Sector 8<sup>31</sup>**

<b>Drawing Set:</b>	<b>Appendix A Plan:</b>	<b>Viewpoint No.s (Appendices C, D &amp; E)</b>	<b>Visual simulation No.s (Appendix B)</b>
218, 219 & 225	Sheet 6	<b>Public:</b> 8/85 – 8/90 <b>Private:</b> 8/R18 – 8/R19	8/90 & 8/R19

- 86 Sector 8 mostly relates to the tunnel section of SH20 running from Waterview to Alan Wood Reserve. This will have little, if any impact, on the “Avondale Heights” area through to the southern portal. In terms of visual and landscape effects alone, this is a major ‘benefit’ that has emerged in the course of the NZTA’s refinement of the Waterview Connection Project proposal. It effectively minimises such effects in relation to a very sizeable residential catchment stretching from Oakley Avenue and Great North Road in Waterview to Alan Wood Reserve in Owairaka – over a distance of nearly 2.2kms.
- 87 In my AEE assessment (Technical Report G.20) I also addressed the southern tunnel portal building and ventilation stack as part of my evaluation of effects pertaining to Sector 8. This was on the basis that I (mistakenly) thought that the tunnel portal marked the boundary between Sectors 8 and 9. As a result, both the related viewpoints and photo simulations in my Technical Report reflect this. However, I have since been informed that both structures lie within Sector 9 and – accordingly – my evidence now reflects this.
- 88 Subsequent to completion of the AEE, I was also advised that NZTA proposed to locate an emergency exhaust stack within Sector 8 at 36 Cradock Street. Some 12m high, the stack was to be located at the interface between Oakley Creek / Phyllis Street Reserve and the residential area of Avondale heights. However, I now understand that the emergency exhaust stack has been superseded as a result of reconfiguration of the tunnels’ air ducting. Consequently, it is no longer needed at Cradock St and no other tunnel structures will therefore have an impact on land within or exposed to Sector 8.

<sup>31</sup> Section 9.7, pages 111-114 of Technical Report G.20.

**Sector 9<sup>32</sup>**

<b>Drawing Set:</b>	<b>Appendix A Plan:</b>	<b>Viewpoint No.s (Appendices C, D &amp; E)</b>	<b>Visual simulation No.s (Appendix B)</b>
219-222	Sheet 6	<b>Public:</b> 9/91 – 9/133 <b>Private:</b> 9/R20 – 9/R27	9/102, 9/103, 9/104, 9/112, 9/R20, 9/R23, 9/R24

- 89 The transformation of most of Alan Wood Reserve into a motorway corridor will be a dramatic and quite fundamental change. For those residents who directly overlook and feel a sense of ownership of the current open space – in the vicinity of Hendon Avenue, Methuen Road, Valonia Street, Roseville Street and other nearby parts of the local residential receiving environment – the impact will be dramatic and almost entirely negative in terms of current landscape and amenity values. Moreover the line of light standards will tend to signpost the motorway corridor, and even though the noise walls along its periphery will help to screen the actual carriageways and traffic – assisted by bunding and planting over time – they will also reinforce the severance and division of the current Alan Wood Reserve / Hendon Park open space.
- 90 The southern portal building and adjacent ventilation stack – at the junction of Sectors 8 and 9 – will also exacerbate the wide-ranging effects associated with corridor and tunnel development in other respects. Although the visual profile and impacts of the new portal building will be “reined in” reasonably tightly, so that it more directly and adversely affects nearby parts of the Hendon Avenue and Methuen Road residential catchments, the proposed building and 27m stack will still be visible – albeit more sporadically – from residential areas behind and above Hendon Avenue. This includes parts of the local residential catchment looking down the axis of Stewart Road and climbing the lower slopes of Mt Albert, as well as on the New Windsor ridge near Roseville Street and Richardson Road. The proposed buildings will accentuate the impact of motorway development within Alan Wood Reserve and will “industrialise” the western end of the Park.
- 91 Moreover, the portal building and ventilation stack will also be exposed to, and significantly exacerbate the motorway’s effects on, the western end of Alan Wood Reserve. In particular, the portal building’s very hard-edged profile will be directly exposed to the adjoining sports fields developed to mitigate some of the effects of the motorway development, together with the Avondale Motor Park and other residents already identified. Consequently, the presence of the ventilation stack and, more particularly, the portal building above the southern portal will introduce a range of effects to the western end of Alan Wood Reserve, near Stewart Road, New North Road and Bollard Avenue, that are otherwise almost unaffected by

<sup>32</sup> Section 9.8, pages 114-120 of Technical Report G.20.

the rest of the Waterview Connection development, thus exacerbating the wider “above ground” effects of the development beyond the point where SH20 sinks into the proposed tunnels.

- 92 These factors, combined with the portal building’s rather utilitarian, even industrial, profile – within public open space directly abutting a sizeable residential catchment – mean that it will generate a high level of impact, in both the short and long term.
- 93 Conversely, both exposure to, and the direct effects of, the rest of the proposed motorway development will rapidly tail off away from this very immediate catchment. For instance, those living atop the New Windsor ridge or higher up Mt Albert’s slopes will be scarcely affected at all by SH20’s development.<sup>33</sup> In addition, the development of stormwater ponds south of the motorway corridor (associated with Oakley Creek’s realignment) and sports fields on 25 Valonia Street would help to buffer those living in Whittle Pl, the lower reaches of Valonia Street and parts of Methuen Road from the bulk of proposed development. Moreover, bunding, noise walls and planting around the periphery of the motorway will help to isolate it both visually and aurally from much of the surrounding residential catchment over time. The planting will gradually in-fill much Waterview Connection of Alan Wood Reserve and, in time, create a landscape that is (arguably) more natural in some respects. The pedestrian / cycleway bridge will have a sculptural profile that belies the more functional nature of most of the corridor, while the Richardson Road bridge will affect a small part of the catchment that is already exposed to industrial and commercial development. Finally, although the 20m light standards will remain clearly visible, they have a more skeletal, ephemeral character and will not be overly intrusive or inappropriate in their own right.
- 94 This description clearly highlights the importance that the passing of time and maturation of peripheral planting will have in helping to “bed in” the motorway and gradually reduce its impact. As a result, it is anticipated that the bulk of Sector 9 will have a more significant impact at the inception of works and initial completion of the Project than it will in the longer term. Even so, the community’s “loss” of most of a local amenity resource and the transformation of Alan Wood Reserve will still be significant. In addition, it appears likely to generate the perception of severance and a partitioning of the New Windsor residential area from Mt Albert, even if this is not a physical reality. The limited extent of proposed cycle / pedestrian access across the proposed motorway corridor is likely to reinforce such perceptions.
- 95 Turning finally to the merger of the Project with SH20 as it presently stands, the highway corridor between Richardson Road and Maioro Road passes through a linear area of waste open space that is

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<sup>33</sup> Section 9.8.2, page 115 of Technical Report G.20.

dominated by bare clay and weed species. A line of commercial and light industrial service yards, parking bays and storage areas also flank it.

- 96 As a result, the impacts of motorway development on nearby Stoddard Road and Richardson Road will be minor, at worst: the existing business premises will effectively isolate the motorway from Stoddard Road and nearby residential properties, while the outlook from above – in the vicinity of the Christ the King Church and Primary School – is likely to improve as planting on the near motorway banks gradually takes hold.

#### **Summary of effects: Sectors 7 to 9<sup>34</sup>**

- 97 In total, Sectors 7-9 would generate a highly variable range of effects, from modest to highly significant. For the most part, the short term effects will be more significant than those during and immediately after construction, with the “loss” of Alan Wood Reserve and the imposition of industrial type portal buildings and ventilation structures on the residential environs at both ends of the tunnel signal features of SH20’s development.
- 98 In the longer term, peripheral vegetation growth and the gradual integration of most of the motorway into its wider urban environs will gradually reduce such effects, without entirely alleviating or offsetting them. Even so, the proposed above-ground motorway will sit at the point of intersection between Mt Albert’s western slopes and the shallower profile of the New Windsor ridge, and the proposed planting – combined with bunding and noise walls – will help to limit both its visual presence and effects over time. Elsewhere, Sector 8’s tunnel under Avondale Heights will avoid any significant impacts on the central core of Waterview’s residential community and the contrasting open space and greenery of the Oakley Creek Esplanade Reserve.
- 99 Although the two portal buildings, ventilation stacks and (as lodged) the emergency exhaust structure in Cradock Street remain of some concern, their effects remain quite limited in their scope and may well be reduced with both careful architectural treatment and the maturation of surrounding planting.

#### **Mitigation measures<sup>35</sup>**

- 100 Overall, it is considered that the development of SH20, as proposed within Sectors 7 – 9, is acceptable in terms of its landscape and amenity effects. It is important to reiterate, however, that these findings rely on the implementation of the mitigation proposals that are described in Drawings F16: 210 – 225.

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<sup>34</sup> Section 9.10, pages 120-123 of Technical Report G.20.

<sup>35</sup> Section 9.10.4, page 123 of Technical Report G.20.

- 101 In particular, the proposed bunding and planting are critical to the gradual reduction of more temporary construction and immediate post-construction effects in the longer term – linked directly to the maturation of planting within and around the motorway, tunnel portals and associated buildings / structures. Consequently, any reduction in such measures would adversely affect the Project's longer term appearance and appreciably increase its impact on local residential communities.

## **POST-LODGEMENT EVENTS**

### **Addendum to Technical Report G.20**

- 102 Since the Project application was lodged, a Technical Addendum Report (*Addendum*) has been completed and lodged.<sup>36</sup> The section of the Addendum<sup>37</sup> that is relevant to my Report provides:
- 102.1 Additional detail cross-referencing of my Report to other technical reports lodged for the Project; and
- 102.2 Mitigation options / alternatives applicable to the tunnel portal buildings and emergency exhaust stack (although the latter is no longer relevant to my assessment).
- 103 Referring to the tunnel portal buildings and stacks, the Addendum states:
- "In relation to possible 'relocation', alternative locations generally comprise other nearby residential locations or reserve land. Consequently, relocation of the portal buildings and/or emergency exhaust stack would shift the 'issue' and effects in each case, but would not effectively resolve or mitigate them.*
- Burying or lowering of the portal buildings is already being partly employed for the northern tunnel portal structure, but is not a realistic option for the emergency exhaust which requires its stack to be elevated in order to protect local air quality.*
- Sinking or burying of the southern tunnel portal building is an option that has also been considered. From a visual or landscape perspective, this option could have a significant and positive impact on Alan Wood Reserve's remaining open space, depending upon the degree / extent of implementation. For example, complete undergrounding of the southern portal building would very significantly reduce the level of intrusion and open space encroachment associated with the proposed structure. On the other hand, partial 'burial' would reduce the structure's profile and*

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<sup>36</sup> See *Technical Addendum Report G.31*.

<sup>37</sup> Appendix 8, *Technical Report G.31*. (Copy provided in **Annexure A** to my evidence for ease of reference).

*intrusiveness although it would not appreciably altering the area of available open space.”*

### **Temporary embankments – SH16 Causeway**

- 104 The NZTA propose to construct a Trial Embankment on the northern side of the existing SH16 causeway. The size and length of the proposed Trial Embankment will be determined following further design, though it will be contained within the proposed construction footprint. It is anticipated that the embankment will be constructed to a maximum height of approximately 2.0m above the current motorway crest – matching the height of the proposed causeway. As with the main construction method, a temporary coffer dam will be used during construction.<sup>38</sup> The embankments are to be located within the proposed motorway designation. Each is to be approximately 40-50m long, extending out some 40m into the Waitemata Harbour from the northern edge of SH16. As a result, the combined footprint for both structures will be up to 150 – 200m long.
- 105 The trial embankments will comprise different mudcrete layers exposed to the wave and tidal actions of the open harbour and will be constructed approximately one year in advance of the Causeway works commencing. Although their final location has yet to be determined, the open water required for the trials suggests a site close to the toe of the Rosebank Rd Peninsula, stretching as far east as Traherne Island and the inlet to Waterview’s estuarine area.
- 106 In my opinion, the Trial Embankment will give rise to much the same effects (in a more physically limited way) as are associated with the permanent coastal works of the permanent causeway. In particular, they will restrict views out to the adjacent harbour from a section of the North-western Motorway and appear somewhat akin to an out-lying extension to the current Causeway when viewed from Point Chevalier, parts of Waterview, Eric Armishaw Park and the actual harbour. Most effects related to these ‘external’ views and audiences will be minimised by viewing distance and the integration of the bulk of the embankment’s profile with both the existing Causeway and the more elevated backdrop of the Rosebank Peninsula with its mantle of industrial buildings and premises.
- 107 Even so, in order to ensure that such effects do not become more pronounced in their own right, it is recommended that the location of the Trial Embankment be restricted to that part of the causeway curtilage between the Rosebank Peninsula and the Causeway Bridge.

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<sup>38</sup> Refer to Dr Hsi’s evidence for the Trial Embankment Report.

### **Redesign of northern and southern ventilation buildings and stacks**

- 108 As I will explain in relation to the submissions received for the Project, both the northern and southern tunnel portal buildings, together with their ventilation stacks, have been the focus of considerable discussion and debate. As discussed by Ms Amelia Linzey, this, together with the environmental assessments (including my own) regarding the effects generated by these buildings / structures, led to the NZTA undertaking a review of the scope for these facilities and additional design development.
- 109 As a result, Construct Architects prepared a revised design option for the portal buildings and ventilation stacks which show an approach that might be adopted to help mitigate their effects. As I will explain in my response to submissions for both the northern and southern portals, these proposals involve modulation of built forms, integration of structures with their open space surrounds and the sculptural treatment of both buildings and stack facades. Consequently, they represent a significant 'improvement' over the buildings and structures depicted in the AEE and related simulations.
- 110 However, it is important to appreciate that even though the 'revised' buildings and structures would have a range of benefits (that I will describe in the next section of this statement), they are not specific proposals for approval. However, some of the key features of the redesign option are now included in the amended proposed landscape and visual conditions (Condition LV.1), which I discuss later in my evidence. As such, I can only indicate that the Construct revised design option would clearly have a beneficial effect (compared with the buildings and structures depicted in the AEE) if implemented.

### **COMMENTS ON SUBMISSIONS**

- 111 I have read submissions lodged on the Project that raise visual and landscape, 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 in my evidence or my AEE assessment.
- 112 The following is a list of the main 'topic areas' identified in the submissions:

#### ***State Highway 16 Causeway Project***

112.1 Adverse effects of the causeway / reclamation on the Waitemata Harbour;<sup>39</sup>

112.2 Impacts on views of the Waitemata Harbour;<sup>40</sup>

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<sup>39</sup> Eg. Submitter No.228.

<sup>40</sup> Eg. Submitter No.212.

- 112.3 Adverse impacts on the Whau River and the natural character of the coastal environment;<sup>41</sup>
- 112.4 Adverse effects of SH20 on Oakley Creek reserves and Waterview Glades area;<sup>42</sup>
- 112.5 Impacts on the cultural and heritage values of the Oakley Creek corridor;<sup>43</sup>
- 112.6 Adverse impacts of the new Te Atatu Interchange on Alwyn Avenue;<sup>44</sup>
- 112.7 Visual impacts of new Great North Road Interchange on Point Chevalier north of SH16 and St Francis School: should be more planting near the school<sup>45</sup> (ACC, Submission No.111 - point 415: *"the use of bunding and the retention of existing vegetation to reduce effects upon views of Waterview Interchange from the north (i.e. Point Chevalier), and ensuring that landscaping shown in the visualisation montage is added to the landscape plan, with plans to be submitted for the approval of the Auckland Council"*);
- 112.8 Interchange effects in relation to the Unitec campus: additional assessment should be undertaken on the effects of the interchange on Unitec Buildings 1 and 207, together with a possible 10 storey block near Viewpoint 5/54;<sup>46</sup>
- 112.9 Interchange, portal and ramp effects in relation to the new Waterview Reserve (ACC, Submission No.111 - point 407: *"Council seeks further consideration as to then likely amenity of the proposed open space for future users, given its proximity to the motorway, and whether it provides sufficient buffer / mitigation for residents in this area. The Council seeks, at minimum, thickening of planting along the motorway boundary"* – although Point 419 somewhat contradicts this by also seeking that landscape treatment ensures visual connections to Oakley Creek, *"including not comprising of mass block planting"*);
- 112.10 Removal of planting around the Great North Road Interchange and lack of adequate replacement planting;<sup>47</sup>
- 112.11 Adverse effects of noise barriers on Alwyn Avenue next to the Te Atatu Interchange;<sup>48</sup>

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<sup>41</sup> Eg. Submitter No.136.

<sup>42</sup> Eg. Submitter No.179.

<sup>43</sup> Eg. Submitter No.158.

<sup>44</sup> Eg. Submitter No.38.

<sup>45</sup> Eg. Submitter No.93.

<sup>46</sup> Eg. Submitter No.160.

<sup>47</sup> Eg. Submitter No.243.

<sup>48</sup> Eg. Submitter No.124.



- 112.12 Adverse effects of noise barriers on daylighting of adjoining properties near the Great North Rd Interchange;<sup>49</sup>
- 112.13 The adverse visual effects of Ramp 4;<sup>50</sup>
- 112.14 Lack of details in relation to tunnel portal and cut and cover sections of tunnel;<sup>51</sup>
- 112.15 Removal of trees and replacement by trees that are too small and not sufficiently diverse;<sup>52</sup>
- 112.16 Visual pollution associated with the Great North Road Interchange and SH20 connections;<sup>53</sup>
- 112.17 Adverse impact on urban landscape values<sup>54</sup> (J W Morris, Submission No.88: "*..... will transform Waterview from a green and leafy suburb turned into an industrial landscape*") and urban and residential amenity, including Waterview's 'signature';
- 112.18 Construction effects of Great North Road Interchange, SH20 links and causeway;<sup>55</sup>
- 112.19 Adverse visual effects of Construction Yard 1 on the Orangihina Reserve;<sup>56</sup>
- 112.20 Avoidance of impacts in relation to proposed Volcanic Sightline A13.<sup>57</sup>

**State Highway 20 Waterview Connection Project**

- 112.21 Adverse effects of northern control building & ventilation stack – including impacts on the adjoining pre-school and primary school<sup>58</sup>: should be placed underground, moved - towards the BP Station or Great North Road Interchange – and re-designed to minimise effects (Submitter No.81: "*proposed industrial control building completely contradicts the area's current look / feel, visual identity and character from an urban design point of view*");
- 112.22 Adverse effects of Southern control building & ventilation stack; should be underground;<sup>59</sup>

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<sup>49</sup> Eg. Submitter No.14.

<sup>50</sup> Eg. Submitter No.104.

<sup>51</sup> Eg. Submitter No.149.

<sup>52</sup> Eg. Submitter No.161.

<sup>53</sup> Eg. Submitter No.61.

<sup>54</sup> Eg. Submitter No.133.

<sup>55</sup> Eg. Submitter No.176.

<sup>56</sup> Eg. Submitter No.64.

<sup>57</sup> Submitter No.207.

<sup>58</sup> Eg. Submitter No.85 & Submitter No.175.

<sup>59</sup> Eg. Submitter No.120.

- 112.23 Removal of houses in Oakley Avenue will increase exposure to Great North Road and change 'neighbourhood dynamics';<sup>60</sup>
- 112.24 Loss of trees and greenery; replacement by trees that are too small and not sufficiently diverse<sup>61</sup> (ACC, Submission No.111 - point 420: "*the provision of additional landscaping on streets around the southern tunnel portal and open motorway sections, to complement proposed corridor planting*");
- 112.25 The effects of motorway lighting on local amenity;<sup>62</sup>
- 112.26 Loss of passive, open spaces;<sup>63</sup>
- 112.27 Impacts of exposure to motorway, portal, traffic and noise on use of residual open / passive space within and around Alan Wood Reserve;<sup>64</sup>
- 112.28 Loss of community connectivity;<sup>65</sup>
- 112.29 Adverse impact on urban landscape and amenity;<sup>66</sup>
- 112.30 The temporary effects of Construction Yards 6 and 7 (Sector 7) on the Waterview community<sup>67</sup> and Primary School (Auckland City Council Submission No.111 – point 418: "*The appropriate use of staging of planting to address the potentially high visual effects during construction .....*"); and
- 112.31 Avoidance of impacts in relation to proposed Volcanic Sightline A1 and A2.<sup>68</sup>

### **Discussion**

- 113 Almost all of the matters identified in the submissions have already been traversed in Technical Report G.20 and my evidence. However, some matters have not been fully explored, while others have been subject to further review and assessment since lodgement of the Waterview Connection applications.
- 114 The effects of the northern and southern tunnel portal buildings and ventilation stacks, are a constant refrain in the submissions, as I have already indicated. As a result, the NZTA commissioned Construkt Architects Ltd (*Construkt*) in September 2010 to further

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<sup>60</sup> Eg. Submitter No.67.

<sup>61</sup> Eg. Submitter No.161.

<sup>62</sup> Eg. Submitter No.191.

<sup>63</sup> Eg. Submitter No.167.

<sup>64</sup> Eg. Submitter No.156.

<sup>65</sup> Eg. Submitter No.185.

<sup>66</sup> Eg. Submitter No.43,

<sup>67</sup> Eg. Submitter No.101.

<sup>68</sup> Submitter No.207.

investigate the location, configuration and design of both portal / control buildings and stacks. The evidence of Mr David Gibbs, from Construkt, provides details about this revised design option.

- 115 Earlier in my evidence, I also noted that the emergency exhaust stack originally proposed for 36 Cradock St is no longer part of the SH20 tunnel proposals for Sector 8. As a result, I need make no further comment on it.
- 116 In the following sections of my evidence, I will therefore comment on the key submissions that are not already, or fully, addressed in my Report and evidence.

### **The north building and ventilation stack**

- 117 Construkt, assisted by David Little of SBEL and engineering advice from AECOM, have prepared new architectural and landscape proposals for the northern control building and ventilation stack.<sup>69</sup> As explained in the evidence of Mr David Gibbs on behalf of Construkt, the main features of the 'revised design option' for the tunnel portal building and stack include:
- 117.1 Deconstruction of the portal building to reduce its profile and ensure its scale is more compatible with the residential matrix of Waterview as a whole. This has resulted in one structure – potentially appearing excessively monolithic and 'industrial' – being subdivided into several smaller buildings of a smaller, more residential, scale.
- 117.2 Adoption of a design theme and profile for the resultant buildings and ventilation stack that relates to the local coastal environment with cladding that is redolent of sedimentary layering and marine shells. Instead of attempting to merge with Waterview's predominantly single and two-storey residential environment, the stack has more of a sculptural dimension and sets out to positively 'challenge' its surrounds via both its shell / petal-like form and corton steel cladding.
- 117.3 Location of both the resulting buildings and ventilation stack as far away from the Waterview pre-school and primary school as possible, together with local housing.
- 117.4 Retention of a residential frontage along Oakley Avenue. Although the existing houses at 1445 and 1449 Great North Road still need to be removed to accommodate construction of the SH20 tunnel and underground components of the building, residential re-development will still 'sleeve' the Great North Rd / Oakley Avenue corner and the beginning of the latter road corridor.

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<sup>69</sup> See **Attachments B1-B4**, attached to my evidence as **Annexure B**.

- 117.5 Provision of open space around and between the resulting building / structures that, together with a central covered way and car parking, will contribute to the feeling of a cluster or 'community' of modestly scaled buildings. This is much more compatible with the wider residential character of Waterview than was the case with the original design contained in the AEE.
- 117.6 Provision of a framework of trees and other planting around the revised buildings and stack that help to further down-scale these components visually and reduce their sense of proximity to the pre-school and Great North Road, in particular.
- 118 In Technical Report G.20 I identified the potential for the ventilation building and stack to amplify the effects of the new tunnel portal and motorway corridor, to impact on the residential amenity of the area around Oakley Ave and Herdman St (despite the intervention of the primary school) and to adversely affect the public profile of Waterview as whole. However, the redesign that has been developed clearly shows that the ventilation building can be more than just an industrial 'eye-sore'. It can have a scale, profile and curtilage that, if not entirely residential in its own right, is at least much more benign than was foreshadowed in my AEE report.
- 119 Although the Construct / SBEL proposals for the north building are indicative only, and would be subject to further refinement in the course of design development, they clearly demonstrate that mitigation measures – that remain both functional and practical – would significantly reduce the impacts originally associated with the north building and ventilation stack.
- 120 The return of housing to the corner of Oakley Avenue and Great North Road (1445 and 1449) would further diminish the public exposure and profile of the ventilation building and – in conjunction with Waterview Primary School – help to isolate both the portal building / compound and stack from the surrounding residential community.
- 121 Even so, the stack will remain a prominent feature at the northern edge of Waterview. Although its more sculptural treatment would help to reduce its functional / industrial connotations and could eventually – like the chimneys of the old Victoria Park brickworks and New Lynn potteries – turn it into a more positive, signature, feature over time, I remain of the opinion that it will still retain some negative connotations for the local community; less so the regional populace, which is likely to be much less sensitive to this issue.
- 122 In my opinion, the revised designs suggested are very positive and entirely compatible with the local landscape.

- 123 Many submissions address the possibility of moving the north building and ventilation stack. The difficulties inherent in such relocation, from an engineering perspective, are explained in the evidence of Mr Andre Walter. From a landscape perspective, I am also concerned about any possible movement of the stack onto the Oakley Creek Esplanade Reserve. Such a move would, in my opinion, compromise the innate naturalness, aesthetic value and passive qualities of a key open space that retains considerable importance for the Waterview community at large, not just those living near Oakley Ave, Herdman Street and the north tunnel portal in general.
- 124 Although, some submissions presuppose that the current BP station provides a foundation for such relocation, the reality is that the service station is now substantially screened from the surrounding reserve by titokis, shrubs and eucalypts. Consequently, co-location of the ventilation stack would not greatly assist with integration of the stack into the Reserve: its 25m high profile would still appear quite incongruous and, in all likelihood, visually intrusive within the open space margins of Oakley Creek, regardless of its ultimate form and cladding. As such, I cannot agree that the stack should become a permanent feature of the Oakley Creek Esplanade Reserve subsequent to rehabilitation of the 'cut and cover' section of SH20.
- 125 Having said this, I agree that relocation of the stack with, or close to, the ramps feeding to and from the Great North Road Interchange would reduce its impact on the immediate community and such a move is unlikely to compromise the values associated with those parts of Oakley Creek – between Great North Road and the Unitec campus. However, any such move would also have engineering implications that Mr Andre Walter addresses.

#### **The south building and ventilation stack**

- 126 The height, length and form of the indicative south portal building and ventilation stack have also been reviewed by Construct.<sup>70</sup> The revised indicative building is lower – rising to approximately 7.1m instead of 9.0m – but has been stretched out to some 135m overall. In part, this is to accommodate ramping up of the grass at the northern end of the building (near the first of two junior sports fields) onto a 'turf roof'. This building would rise to an apex at the ventilation stack that could become a more elevated 'promontory'. Even so, the more conventional profile of the ventilation fan gallery would still rise up to 9m high, straddling a 20m section of the main building.
- 127 Again, Construct's revised design option concept shows the proposed development 'deconstructed', with a single-storey control

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<sup>70</sup> See **Attachments B5-10** in **Annexure B**. For ease of reference, figures referred to in Annexure B will be referred to in the shortened form. Annexure Bx, with "x" indicating the figure number.

room – overhanging the tunnel portal – physically divorced from the rest of the portal building which accommodates most of the above-ground engineering functions and ventilation fans. An area of grass and car parking separates the two buildings, with a cycleway running between them to Hendon Avenue and Stewart Rd.

- 128 Both structures, together with the adjoining ventilation stack, have been 'themed' by Construkt as volcanic elements, with their vertically striated walls displaying a faceted, tectonic structure and basalt-like cladding and colouring that reinforces the 'geological surfacing' of the main building out of the surrounding open space and grass. This tectonic 'uplift' would be reinforced by the retention of existing planting between the main structure and Oakley Creek – opposite the Avondale Motor Camp – and new planting both sides of the main building and its fan gallery.
- 129 The segmented character and sloping nature of much of the South Building would significantly reduce its visual profile when compared with the structure addressed in my Report. Planting along the Oakley Stream and cycleway margins would soften the profile of the southern building when viewed from that side of Alan Wood Reserve, including the Avondale Motor Camp, while the flax planting within the railway reserve would also help to reduce its apparent scale and height when viewed from residential properties along Hendon Avenue and down the Stewart Road corridor.
- 130 The South Building and stack would create a collection of structures that give meaning to part of Alan Wood Park that might otherwise end up as 'dead space' between the junior sports fields and southern tunnel portal. It would also render the grouping of proposed buildings / structures more compatible with the rest of that park land together with its wider residential setting. Despite its increased length and still considerable scale, overall, the new main building (and stack) would display more visual unity and more aesthetic affinity with Alan Wood Reserve than the original proposal.
- 131 Overall, therefore, I consider that the effects associated with this option would be Moderate, possibly Low-Moderate when looking from north of Hendon Avenue, depending upon the degree to which the Construkt vision is actually carried through and expressed in the final structures on site.
- 132 Clearly, the revised portal South Building and stack would still occupy a sizeable part of the remaining open space within Alan Wood Reserve and I anticipate that some would still regard it as disrupting the continuity and naturalness of this residual area of park land. On balance, however, it appears that the aesthetic attributes of this option – including its distinctive, 'tectonic' profile and cladding – would significantly off-set many of the negative effects identified in relation to a more conventional building and stack.

- 133 Even though undergrounding of the South Building would reduce the visual effects of the portal structures to an even greater degree, and therefore better protect the integrity of Alan Wood Reserve's residual park open space, this would still generate a Low to Low-Moderate level of effect: vehicular access would still be required to the tunnel portal structures, provision would still have to be made for parking, and the tunnels' ventilation fans would still sit at, or slightly above, ground level, together with lifting gear and security fencing. Although these components of an underground building (and ancillary development) would have a lower visual profile overall, and their effects would be physically restricted to just the central part of the existing Reserve, they would still affect the perceived useability and character of Alan Wood Reserve in the future.

#### **Impacts on the coastal environment**

- 134 Although the causeway across the Waitemata Harbour – from Waterview to the Rosebank Rd Peninsula and across the Whau River – will expand the area of physical encroachment into its littoral and inter-tidal margins, and also affect Traherne Island, this will not result in significant changes to the natural character of the inner harbour. Such changes will be incremental and appreciation of their visual and landscape effects will be restricted, in the main, to a small number of private properties that overlook the Harbour and Whau River from the vicinity of Oakley Avenue, Howlett St, Hemington St and Herdman St in Waterview and Alwyn Ave at Te Atatu – together with the actual harbour.
- 135 Although the new cycleway / pedestrian bridges over the Whau River and Waterview Inlet channel will marginally increase the envelope of physical structures traversing both waterways, such changes will be incremental and will have a Low to Negligible impact on perception of those landscape features.
- 136 Similarly, even though the new causeway will physically encroach into more of the harbour and Waterview Inlet water areas, mud / sand flats and areas of mangrove colonisation, very few vantagepoints are sufficiently elevated to reveal the full extent of such change. Although, therefore, the temporary works along the causeway are bound to be unsightly and will draw attention to the changes proposed, the permanent profile of the causeway is expected to be similar to that which exists at present (especially when viewed from surrounding parts of Waterview, Point Chevalier and the Harbour). Consequently, there will be little real change to the perceived character of the Waitemata Harbour, and the interplay of its water areas with both the redeveloped causeway and its littoral margins.
- 137 It is also acknowledged that bands of vegetation either side of the current North-western motorway, including weed species and wattle, will be removed from the path of the causeway across

Traherne Island and the toe of the Rosebank Road Peninsula. Yet the revegetation of these motorway margins – together with those near the Whau River, Pollen Island and Waterview will help to enhance the natural character of the coastal environment in the longer term.<sup>71</sup>

### **Impacts on views to the Waitemata Harbour**

- 138 Waitakere City Council's submission<sup>72</sup> raise concern about the maintenance of views to the Harbour from SH16, its causeway and – by inference – residential areas abutting the Te Atatu Interchange and Te Atatu Road. Yet, the only areas where planting and other elements might, in the future, obstruct views to the Waitemata Harbour are on the western approaches to the Whau River and in the vicinity of the Te Atatu Interchange – within its cutting.
- 139 However, this planting will be necessary to address the more obvious and pressing visual amenity effects of the Te Atatu Interchange in relation to those living within and near Alwyn Avenue, while the pohutukawa and other coastal planting extending down to the banks of the Whau River will enhance the naturalness and endemic content of that outlook – both in its own right and by diminishing the visual presence of noise walls, other motorway structures, housing and the transmission pylons that currently scar the environment between Te Atatu Road and the River. This planting, in conjunction with other nodes of planting on Traherne island and at the edge of Waterview, will contrast with the very open scenic experience enjoyed when crossing the Whau River and harbour causeway. If anything, the resulting contrast between attractively enclosed views and others that are dramatically panoramic will invigorate the experience of crossing both water bodies. It will also tidy up the areas of half pasture, half planted coastal fringe at both ends of the causeway.
- 140 Somewhat removed from the actual harbour, Construction Yard 1 (which I address in its own right later in my statement) is potentially a more temporary and selective obstacle to views across part of the Te Atatu Pony Club land. However, it sits on part of a ridge that rises up immediately east of Te Atatu Road, restricting views to the harbour. Consequently, though Waitakere City's submission might infer that Construction Yard 1 generates effects in respect of such views, this does not appear to be the case at its proposed location.
- 141 As shown in photos from Viewpoints 1/16 and 1/18 and 1/R6,<sup>73</sup> Construction Yard 1 will also be visible, over greater distance, from the vicinity of Te Atatu Road's bridge over SH16, together with

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<sup>71</sup> Refer AEE, Part F, Drawings F16. 202-209.

<sup>72</sup> Submitter No.212.

<sup>73</sup> See Appendix B of Technical Report G.20.



McCormick Green and residential properties on its margins. However, it will either sit below the brow of the cutting on the far side of the Te Atatu Interchange or sufficiently far down the ridge slopes north of SH16 that it will have little impact on harbour views for the duration of its use.

### **Impacts on Oakley Creek and its Esplanade Reserve**

- 142 Similarly, around Oakley Creek, vegetation would be removed near Great North Road and Cowley Street to accommodate ramp piers, the ramps, opening up and interpretation of the Starr Mill / Tannery site, and the provision of a walkway / cycleway and bridge next to Oakley Creek.<sup>74</sup>
- 143 However, much of the vegetation to be removed comprises the extensive stands of privet on the south side of Oakley Creek and a more sporadic scattering of pines, wattle and other weed species. Revegetation employing native species around the Great North Road Interchange, Starr Mill site, motorway ramps and a reconfigured Waterview Park will increase the vegetative diversity, native / endemic content and natural character values of both sides of the Creek once rehabilitation is complete and the planting starts to mature.
- 144 Slightly removed from the actual waterway, the anticipated cut and cover operations between Great North Road and Oakley Creek, together with Construction Yards 6 and 7, will indeed have a profound impact on the appearance and character of the wider reserve for approximately 5 years. These temporary effects will mainly impact on the grassed open space and vegetated slopes between Oakley Avenue and Waterview Downs – much less so the bush-lined and treed stream margins of Oakley Creek itself extending into the adjoining Unitec campus.
- 145 Regardless, the loss of semi-mature and some mature trees near Great North Road,<sup>75</sup> as well as the displacement of a swathe of verdant open space, by working areas, offices, equipment, vehicles and secure compounds, will transform the appearance of Oakley Creek and its margins. The high profile of this transformation – especially in relation to Great North Road, Oakley Avenue, Alford Street and Alverston Street – will exacerbate such effects.
- 146 Although the main working areas associated with the cut and cover operations will fall away from Great North Road and thus not be directly exposed to it, other viewpoints near the Unitec campus's main drive, its accommodation Buildings 311 and 312, together with the Oakley Creek Walkway and Great North Road cross-connection, will all face towards these operational areas. Fortunately, the

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<sup>74</sup> **Attachment B7.**

<sup>75</sup> **Attachments B11 and B12.**

extensive tree cover around these vantagepoints will limit the extent and duration of such exposure to a few, very physically precise, vantagepoints (such as individual rooms in building 312) and fleeting glimpses from both the walkway and campus road network.<sup>76</sup>

- 147 In the longer term, the yards will be removed and the land affected by the cut and cover operations restored to open space, complete with grassed areas – as now – and replanting, again with native species (predominantly). While this will still result in the loss of some existing semi-mature trees and other planting, the more permanent effects arising from the cut and cover operations within Oakley Creek Reserve will be relatively minor.

#### **Impacts on the cultural / heritage values of Oakley Creek**

- 148 The archaeological / historic values of the Starr Mill site are already referenced in my Report<sup>77</sup> and in the addendum to that Report, (attached to my evidence as **Annexure A**). The *Assessment of Archaeological Effects* (Technical Report G.2) addresses other existing sites and locations of archaeological, historical and cultural significance, and is discussed in that Addendum.
- 149 In my opinion, Technical Report G.2 addresses the key cultural and heritage effects as they pertain to the archaeological / heritage landscape of lower Oakley Creek.

#### **Impacts of the Te Atatu Interchange on Alwyn Avenue**

- 150 Most of the concerns raised by local residents appear to focus on the appearance and impacts of the noise walls that, together with bunding, would 'front end' the mitigation around the new Te Atatu Interchange.
- 151 The bunding will soften the base and lower edges of the walling, but it would still be prominent in the short term. Planting is proposed to sit in front of parts of the walling in the future, but not hide it totally – much like domestic fencing is framed by garden trees and vegetation. Indeed, I do not consider it realistic to expect planting to provide total concealment of the walling; that is not its function. In the medium to long term, that walling – together with proposed bunding and planting – will provide a high level of screening and mediation between Alwyn Avenue and the Te Atatu Interchange. As the planting matures, both sides of the noise walls, an increasingly verdant and park-like fringe will emerge that complements more distant views to the open space of the Orangihina Reserve and the Waitemata Harbour.

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<sup>76</sup> **Attachment B13.**

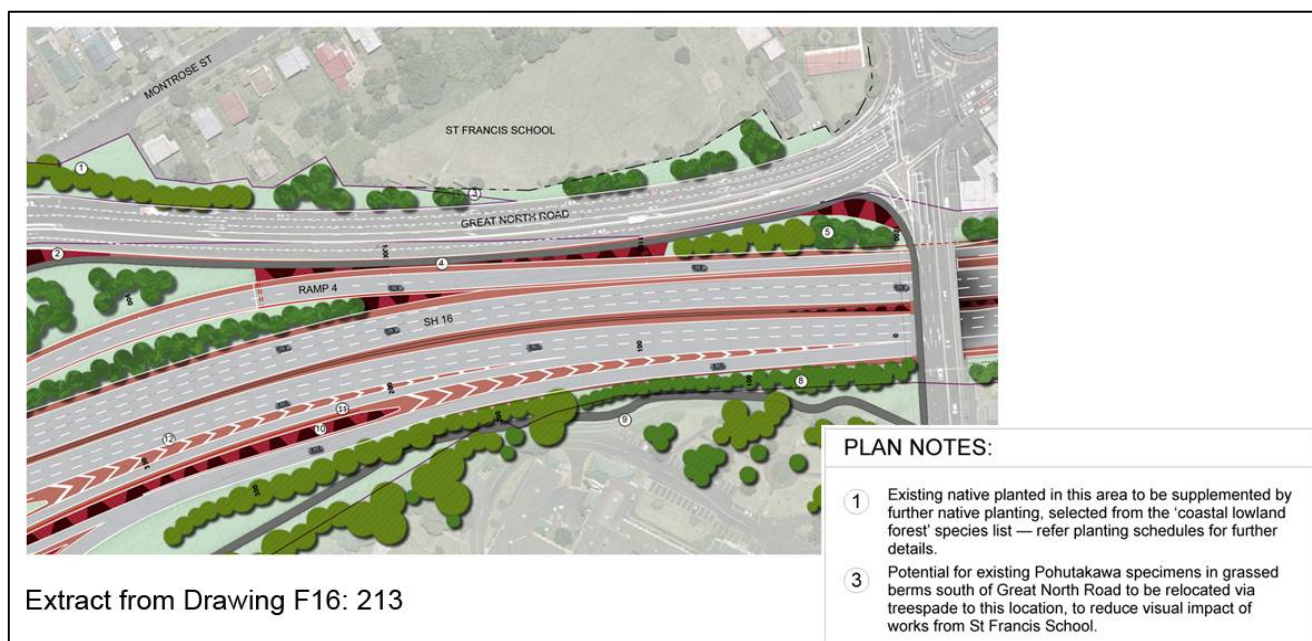
<sup>77</sup> See pages 44-46 of Technical Report G.20.

152 Consequently, it is my opinion that the current mitigation strategy for Alwyn Avenue (and also nearby Titoki Street) remains entirely appropriate. I also note that Ms Lynne Hancock's evidence directly addresses the design and appearance of the noise walls.

153 The other effects related to interchange development are addressed in my Report and in paragraphs 32 –39 in my evidence.

### **Impacts of the Great North Road Interchange and Ramp 4 on Point Chevalier and St Francis School**

154 Although concern has been raised by St Francis School and others about the impacts of the new Great North Road Interchange on that particular primary school and other properties in the vicinity of Point Chevalier's commercial centre, Drawing F16: 213<sup>78</sup> shows that the road and motorway corridors near St Francis School and the Point Chevalier commercial centre will change to a much more limited degree than other parts of the existing Interchange. Moreover, existing planting on the northern side of both the Interchange and Great North Rd will be almost entirely retained and "*existing pohutukawa specimens in grassed berms south of Great North Road [are] to be relocated ..... to this location, to reduce [the] visual impact from St Francis School.*"<sup>79</sup>



155 Ramp 4 is the most significant addition to the northern end of the interchange; however, existing planting next to Great North Road will be interposed between the school and Ramp 4. A number of sign hoardings are also located within the school grounds, abutting

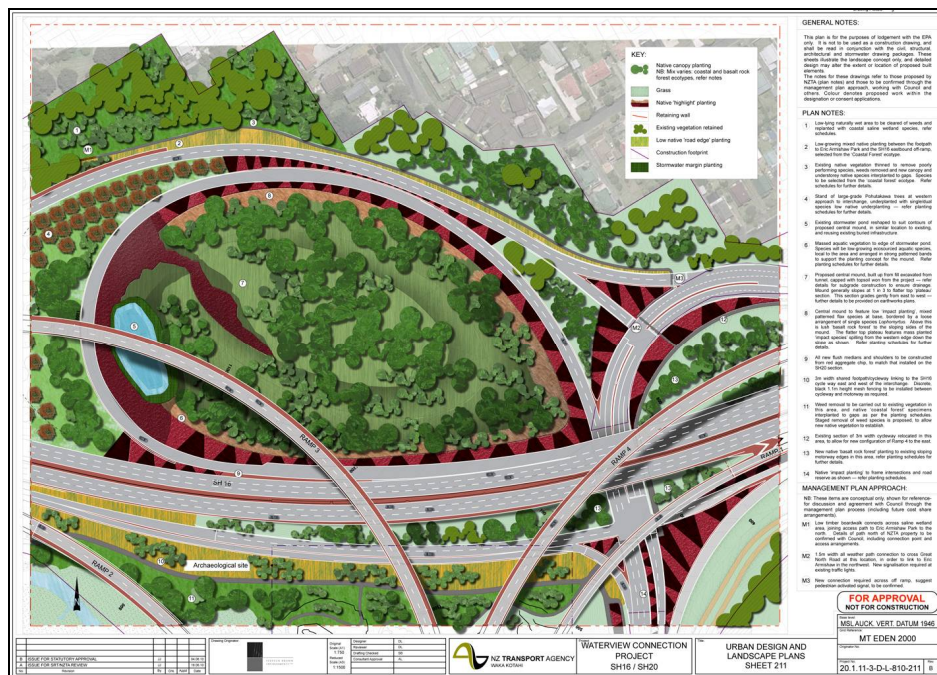
<sup>78</sup> AEE, Part F.

<sup>79</sup> Note 3, Drawing F16. 213 – see overleaf.

Great North Road and the School's sports fields provide an open space buffer between the motorway / Ramp 4 and St Francis's teaching blocks and administration.<sup>80</sup>

156 As a result, the proposed ramp will be intermittently exposed to the school as it descends from its apex above SH16 and Great North Road near Oakley Creek to merge with the motorway cutting under Carrington Road. Other structures, apart from the elevated highway light standards, will – as now – also remain substantially concealed from the school.

157 Within the surrounding street network of Point Chevalier, I assessed the levels of likely exposure via my AEE Viewpoints 5/43 – 5/52 and 5/R14.<sup>81</sup> Again, this assessment took into account the proposed retention of existing planting around the northern periphery of the Interchange combined with supplementary planting between and around the existing vegetation, as well as between the various ramps and slip lanes. This is, for example, reflected in BuildMedia's photo simulation for Viewpoint 5/47.<sup>82</sup> Even though the simulation for Viewpoint 5/R14 at 42A Montrose Street fails to show any new planting, Drawing F16: 213 reveals that this is still intended along that property's interface with Great North Road.



158 **Attachments B15-19** comprise photos taken from those parts of Point Chevalier's residential road network that are more exposed to

<sup>80</sup> **Attachment B14.**

<sup>81</sup> See Appendix B of Technical Report G.20.

<sup>82</sup> See Appendix B of Technical Report G.20.

the proposed Interchange and ramps. These confirm the findings in my Report that those most exposed to the current and future motorway interchanges comprise a relatively small number of residents who live at, or near, the ends of a series of cul-de-sacs at the following locations:

- 158.1 38 – 44 & 33-39 Montrose Street (**Annexure B15** & Viewpoint 5/R47);<sup>83</sup>
  - 158.2 1-7/55 & 60 Alberta Street (**Attachment B16** & Viewpoint 5/47);
  - 158.3 10, 13 and 15 Berridge Avenue (**Attachment B17**);
  - 158.4 66 & 68 Smale Street (**Attachment B18**); and
  - 158.5 1, 2, 4A & 4B Maryland Street (**Attachment B19**).
- 159 All of these properties are presently exposed to the Great North Road Interchange and / or Great North Road, with all but Montrose Street sitting on the rim of the cutting that encloses the interchange. Most also look to the motorway system and corridor through existing vegetation<sup>84</sup> that will be augmented by the proposed mitigation planting.
- 160 Montrose Street is slightly different insofar as houses both sides of that road sit on a slope that falls towards a small gully abutting Great North Road and the properties identified look towards Great North Road through a gap in the present vegetation within the gully. That gap,<sup>85</sup> at the back of 42-44 Montrose Street, allows local residents to see the existing traffic and part of the infrastructure associated with Great North Road – over other housing and gardens, and the road curtilage which rises up to meet Great North Road. Part of the motorway – emerging from the Carrington Road cutting and rising up to bridge Great North Road – is also visible from this quarter.
- 161 As shown in the simulation for Viewpoint 5/R47, Ramp 4 will become a prominent to dominant feature of this outlook. The simulation for 42A Montrose Street accentuates this impact somewhat, as it is the property closest to Great North Road and SH16 and it has the least intervening vegetation and other screening elements. It is also one of a small number of properties that sits partly within the gully system looking upwards towards Great North Road and SH16. Yet, this same property helps to buffer those within the rest of Montrose Street from both the existing and proposed interchange elements.

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<sup>83</sup> See **Annexure B** to my evidence; also refer to Appendix B of Technical Report G.20 for Viewpoint references.

<sup>84</sup> **Attachment B20**.

<sup>85</sup> **Attachment B20**.

- 162 In fact, Ramp 4's effects may well be exacerbated by the limited visibility of SH16 in relation to most of Montrose Street at present: seen from around 33-39 (the northern side) and 38-40 (the southern side) of Montrose Street, the new ramp appears likely to be elevated above intervening housing and vegetation – thus dominating much of the southern skyline. This situation clearly reinforces the need for the in-fill planting around, and west of, St Francis School to be implemented. With that planting in place it is expected that the longer term effects of the revised Great North Road Interchange will be kept to a Moderate level overall (for the specified properties).
- 163 In relation to all of the other Point Chevalier properties identified, views are already both more constrained and fragmented by existing planting. Furthermore, such views also reveal more of the existing interchange system, including its array of carriageways, bridging and slip lanes. Even though Ramps 3 and 4 will add new components to such views, they will not fundamentally change their content or overall character. In effect, Ramps 3, 4 and other infrastructure proposed will incrementally alter the existing array of structures associated with both the motorway and Great North Road.
- 164 Again, proposed planting will screen most, if not all, of these elements. Over time, they will enclose and visually isolate the bulk of the interchange. Consequently, I do not consider the changes to these views as being as significant as I have described in relation to part of Montrose Street. In the short to medium term, such changes will generate effects of a Low / Moderate order; further into the future they will have a Low to Negligible effect, with proposed planting contributing to the beneficial enclosure and definition of local streetscapes.

#### **Impacts of the New Great North Road Interchange on Unitec**

- 165 The Unitec submission criticises my Report for not addressing the full extent of effects generated in relation to the campus, in particular Buildings 207, 208, 209 and 210, together with an iconic Building 01 – notable for its Victorian, brick-clad façade near Carrington Road – and a “theoretical 10 storey building” located close to Viewpoint 5/54.<sup>86</sup>
- 166 In fact, that viewpoint captures the point of greatest exposure to the current interchange from within the current Unitec Campus and the photo shown from that viewpoint is taken from a small terrace at the rear of Building 207. **Attachments B21** and **B22** show this grouping of buildings, together with Building 01. These confirm that Building 207 enjoys a higher level of exposure to the Great North Road Interchange and harbour than 208 – 210, even though it only has one, rather modest, window facing in that direction. In fact,

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<sup>86</sup> See Appendix B of Technical Report G.20.

Building 208 comprises two pre-fab blocks: one of which is entirely screened from the Interchange by a large pohutukawa and intervening Building 209, while the other has no windows facing to the west. Building 210 comprises a small annex to 208, sitting entirely under the pohutukawa that I have just described, while Building 209 appears to be a garage used for storage.

- 167 Just two wings of Building 01 face towards SH16 and the Waitemata Harbour, with its greater bulk – and historic façade – oriented directly towards the intersection of Point Chevalier and Carrington Roads. It is also strongly enclosed, both physically and visually, by a wealth of oaks, Morton Bay figs, Pohutukawa and other, very substantial, trees. These merge with the trees around Oakley Creek to establish a very strong visual barrier between the Unitec campus and most of both the Great North Road Interchange and SH20 corridor (see Viewpoints 5/69 and 5/70).
- 168 These trees, in conjunction with Buildings 207-210, actually limit the degree of exposure to the motorway interchange and corridor, especially from the lower floors of both wings. More commanding views are available from Building 01's upper storeys,<sup>87</sup> but even then the motorway will remain part of the foreground matrix of motorway and suburban development, with the upper Waitemata Harbour, Te Atatu Peninsula and other notable landscape features stretching well beyond. Ramps 3 and 4 will be clearly apparent in such views, but they will not dominate, or fundamentally change, this outlook.
- 169 Looking from the vicinity of Buildings 207 and 208, an assortment of asphalt paths, old compost bins, building foundations, Building 209, and even rather haphazardly parked cars, compound the somewhat utilitarian character of this part of the campus. Together with a rapid fall in topographic levels between Building 209 and Great North Road which limits SH16's exposure to this part of the Unitec campus, they also reinforce the visual screening afforded by the trees that I have already mentioned.
- 170 Consequently, while the introduction of Ramps 3, 4 and other proposed motorway structures to views from this part of the campus will be visible, it will not alter the existing visual interplay between a highly modified suburban landscape in the foreground and the more natural, but also more distant, Waitemata Harbour and Waitakere Ranges beyond. The fundamental nature of such views will not change.
- 171 I further consider that the existing trees near Great North Road and Oakley Creek, in conjunction with proposed planting around the interchange, afford sufficient mitigation for such views from Buildings 01 and 207-210. Although Unitec's submission also

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<sup>87</sup> **Attachment B22.**

requests that a photomontage be prepared showing the view from Building 207, it is my opinion that this view is not sufficiently critical to warrant this additional work.

- 172 Turning to the matter of a new 10 storey building located near Viewpoint 5/54 and views of the Great North Road Interchange from it, such development is not a Permitted Activity under the provisions pertaining to Concept Plan D04-10 and Special Activity 1 Zones (which has a 10m height limit). However, Ms Amelia Linzey addresses this matter in her statement and makes it clear that no specific building platforms or proposals for such development are currently forthcoming. As a result, there appears to be no sound basis for assessing the effects of the proposed interchange on a 'future' 10 storey building.
- 173 As a result, there appears to be no sound basis for assessing the effects of the proposed motorway interchange in relation to a 10 storey building within the Unitec campus. It is not part of the current environment – either in reality or by dint of a resource consent – and may never eventuate.
- 174 Finally, in relation to impacts on Unitec's accommodation wings (specifically Buildings 311 and 312), I have already addressed this matter in my preceding section which addresses the cut and cover section of SH20.

#### **Impacts of the New Great North Road Interchange on Waterview Reserve and its buffering function**

- 175 Mr David Little specifically addresses the functionality and amenity values of the reconfigured Waterview Reserve. However, Auckland City has also raised concerns about the future Reserve's ability to buffer the remaining residents in Waterbank Crescent from the new motorway ramps and north tunnel portal. The reconfigured park will still cover some 2.2ha in area, with approximate dimensions of 170 X 100m. **Attachment B23** is a photo of the existing park and, although not sharing exactly the same dimensions as the proposed park, this image gives an idea of the extent of the new open space. Beyond this, a 30m bund – comprising raised embankments and massed planting – will lie between the new park and motorway corridor, while the road corridors of Herdman Street and Waterbank Crescent will afford additional separation between local residents and the proposed ramps.
- 176 As indicated by the simulations for my Report, Viewpoints 5/56 and 5/61 and analysis of Viewpoints 5/60, 5/62, 5/63, 5/66 and 5/68, this combination of spaces and elements will afford significant buffering between the new motorway corridor and Interchange and remaining housing - within Waterbank Crescent, Herdman Street and near parts of Daventry Street. Consequently, my opinion about the adequacy of this spatial separation and physical screening has not changed since production of my AEE Report. I still consider that



the more permanent amenity effects of the proposed motorway will be quite Modest, even though the construction effects will be much more Significant.

- 177 In my opinion, the combination of massed revegetation along the margins of the motorway corridor and Oakley Creek, combined with the 'opening up' and interpretation of the Starr Mill site, represents a balanced and appropriate response to the need for both visual mitigation and protection of an important heritage resource.

**Removal of planting around the Great North Road Interchange and lack of adequate replacement planting**

- 178 Drawings F16: 210 – 213 show that vegetation removal on the northern periphery of the Great North Road Interchange and near the Unitec campus will be minimal – essentially limited to areas between Great North Road and SH16 – while vegetation clearance around Oakley Creek is to be off-set by the extensive rehabilitation proposed. This revegetation includes new planting near a reconfigured Waterview Reserve and Waterbank Crescent, as well as next to Montrose Street, Alberta Street, Berridge Avenue, Smale Street and Maryland Street.

- 179 The very extensive planting proposed around the Interchange – including massed aquatic vegetation, pohutukawas and 'basalt rock forest planting' – will replace, and very substantially build on, the existing planting around both SH16 and Great North Road. As well as rehabilitating the margins of Oakley Creek and Eric Armishaw Park, it will in-fill the area of domed grass that presently occupies the very centre of the interchange and will fill in gaps around its northern and southern margins.

- 180 Indeed, apart from in-filling the area around the Starr Mill / Tannery site again after its initial interpretation – which is not supported in Technical Report G.2: *Assessment of Archaeological Effects* – it is difficult to imagine how more planting could be incorporated in the current Interchange proposals. It will, given time to mature, screen most of the Interchange's margins and buffer them from adjoining residential properties.

**Removal of trees in general and their replacement**

- 181 Drawings F16: 201 – 223 show that there will be significant vegetation removal at three locations:
- 181.1 Along the margins of the North-western Motorway / SH16 between Henderson Creek and the new Te Atatu Interchange;
  - 181.2 Along the toe of the Rosebank Road Peninsula and part of Traherne Island; and
  - 181.3 Around the lower reaches of Oakley Creek.
- 182 I have explained my concerns about the loss of mature trees between Henderson Creek and McCormick Green, while much of the

vegetation to be removed from the margins of Oakley Creek and Traherne Island comprises weed species: privet, wattle, pampas, etc. Even so, it is acknowledged that some native species will also be lost and the combined motorway corridors will encroach into smaller pockets of native and exotic vegetation near the middle and upper reaches of Oakley Creek in particular.

- 183 However, it is my opinion that this vegetation removal will be more than off-set by the broad array of planting proposed around all of the above-ground components of SH16 and SH20, including:
- 183.1 Stormwater / wetland planting on the margins of Jack Colvin Park near Henderson Creek;
  - 183.2 "Te Atatu pohutukawa escarpment planting", "Te Atatu escarpment species" and "Te Atatu pohutukawa parkland planting" around the Te Atatu Interchange – through to the Whau River;
  - 183.3 Three pockets of "Te Atatu escarpment species" located around the Patiki Rd on-ramp and native "harbour coastline species" planting (filtering into the existing 'ribbonwood shrubland' matrix, flax, cabbage trees and salt marsh on the inland side of Pollen Island) on the harbour side of SH16;
  - 183.4 Mass planting of a mixture of native coastal species – the "Traherne Island motorway mix" – along that Island's motorway margins;
  - 183.5 Two very extensive bands of oioi ('jointed rush' or 'sea rush') occupying the filter strips down both sides of the causeway;
  - 183.6 "Native mixed planting" merging with Eric Armishaw Park next to the Great North Road Interchange, together with enhancement of the current planting around its periphery to create a more rigorous "coastal forest ecotype";
  - 183.7 "Ecosourced and massed native planting" between and around all interchange ramps, combined with "native impact planting" to frame intersections and the road reserves";
  - 183.8 A stand of large grade "pohutukawa specimens" and "basalt rock forest type planting" near and atop a new central mound at the interchange's centre;
  - 183.9 Native "coastal lowland" planting east of Carrington Road, flanked by "coastal forest ecotype" and "Meola Wetland" planting near a large stormwater pond and wetland between SH16 and Great North Road;
  - 183.10 Native "basalt rock forest" planting and other native eco-sourced species to be located near the existing Oakley Creek corridor south-east of New North Road and Bollard Avenue, as well as near the tunnel portal building and ventilation stack;

- 183.11 Massed flax within the realigned rail corridor running from near the tunnel portal through to Richardson Rd and the existing SH20 terminus at Maioro Rd; and
- 183.12 A mixture of the "basalt rock forest ecotype" planting, mature canopy species, "median highlight planting" (down the centre of the motorway median) and massed "motorway buffer planting" – all employing native species – around the motorway corridor, tunnel portal and stormwater ponds within Sector 9.
- 184 This combined planting will massively increase the scale and diversity of planting around both motorway corridors. It will also enhance the endemic character of the motorway margins and generally help to 'green' their margins. Although I have already commented on the adverse effects of the 'in-filling' of much of Alan Wood Reserve by massed tree and shrub planting, there can be little doubt that it, together with the pohutukawa nodes near SH16, will become signature components of the Western Ring Route in years to come.
- 185 The only location where this will not be the case is within Sector 1, although the stormwater planting within Jack Colvin Park and along its motorway edge will at least help to soften some of that particular interface.

**The need for additional street tree planting near the southern tunnel portal**

- 186 Focusing purely on the issue of visual effects and their mitigation, the idea of additional street tree planting near the southern portal appears to be substantially driven by the perceived effects of the 27m high ventilation stack and 9m high portal building – as assessed in the AEE. Such concerns are amplified by the viewshaft down Stewart Road into that part of Alan Wood Reserve to be occupied by the proposed portal building (Viewpoint 8/89).<sup>88</sup>
- 187 In the context of both these concerns and the limited opportunities for planting within and around the railway designation, such an approach appears sensible and might well have a beneficial effect. It would, over time, enhance the separation of both structures / buildings from the surrounding residential environment and further help to soften their profiles. Although such planting would have little effect in relation to those residential properties at the very interface of Hendon Avenue with Alan Wood Reserve, I would therefore support such an approach – in relation to the sort of buildings and structures anticipated in my AEE Report.

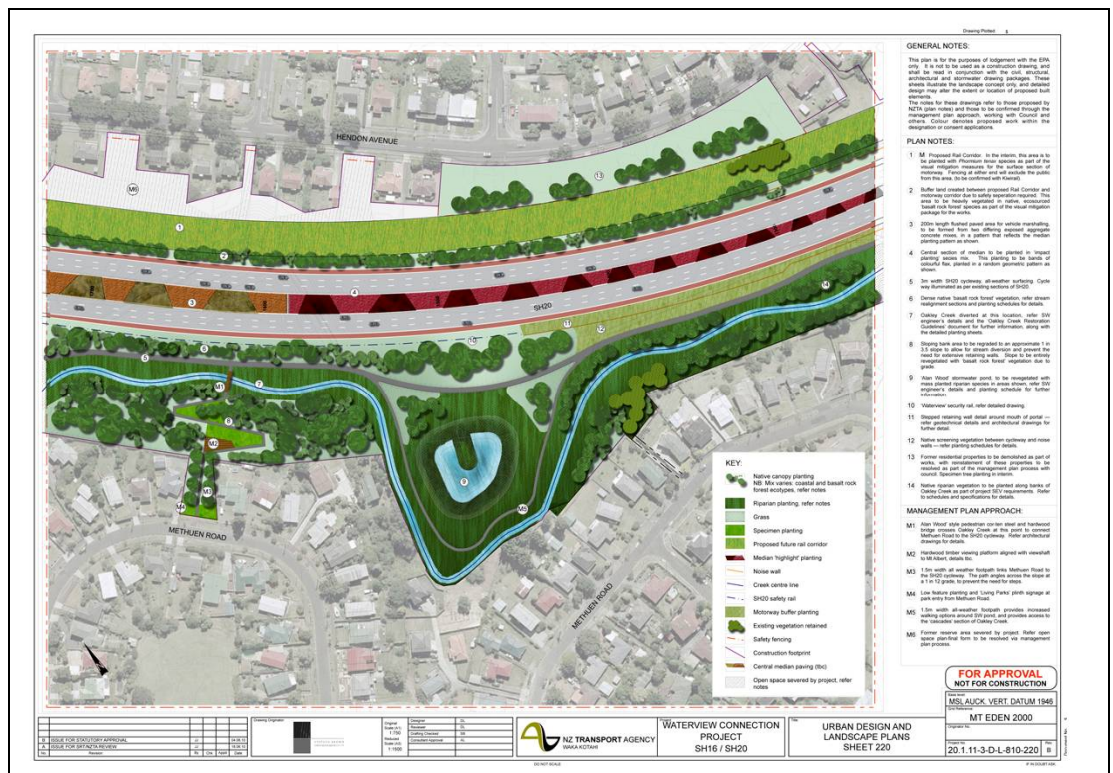
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<sup>88</sup> See Appendix B of Technical Report G.20.

188 Less positively, planting within the street network south of the tunnel portal – in particular, around Bollard Avenue and parts of Methuen Road – would only achieve a similarly positive effect if it actually screened much of the remaining open space on the fringes of Alan Wood Reserve and Oakley Creek. On balance, I doubt that such measures are either appropriate or worthwhile.

189 Moreover, should building re-design and mitigation occur, as promulgated by Construct, it becomes more questionable whether additional street tree planting north of the portal buildings / structures is also worthwhile. Most of the proposed main portal building would be lowered so that it is more compatible with the existing houses and tree planting lining Hendon Avenue. Just as important, the sculptural profile of the buildings and stack could well make them landmarks within the residual park - not large 'blots on the landscape' – and this would bring into question the whole need to 'camouflage' them and integrate them into their surrounds.

190 Auckland City's submission also requests more planting within the open spaces around the motorway corridor. Yet, as explained (see below: Drawing F16: 220), massed tree and shrub planting is already proposed around that corridor, to the point where much of Alan Wood Reserve will, in the future, be 'filled in' by a dense matrix of trees and shrubs (see simulations for Viewpoints 8/90, 9/102, 9/103, 9/1049/112, 9/R23 and 9/R24).<sup>89</sup>



<sup>89</sup> See Appendix B, Technical Report G.20.

- 191 Although this planting will be counterbalanced by pockets of open space (including sports fields), the railway designation and stormwater ponds, I consider that an appropriate balance is currently struck between screening / mitigation and the on-going public use of the motorway's marginal areas. As a result, I don't believe that additional planting is needed within the current confines of Alan Wood Reserve and Hendon Park.

**Light spill from the motorways**

- 192 Inevitably, the new sections of motorway will be highlighted at night-time by a 'halo' of ambient light. This will, in all likelihood, exacerbate, other amenity effects that I have already described. Certainly, such lighting, combined with the day-time presence of its 20m light standards, will increase awareness of SH20 as a whole.
- 193 Yet, the spatial separation of most peripheral housing will help to limit the scope of such effects and in Technical Report G.10 addressing such effects, Mr Geoff Waller outlines a range of other factors that have to be taken into account in addressing lighting effects. He has concluded that the proposed lighting will meet relevant district plan requirements and AS/NZ standard 1158. As a result, the proposed motorway and construction yard lighting will not generate any excessive amenity / nuisance effects.

**Noise barriers affecting daylighting at Point Chevalier**

- 194 The noise barriers attached to Ramps 3, 4 and other elevated sections of both SH16 and SH20 will comprise just Portland Barriers, which have a height of 1.0-1.1m. Separated from housing to the south and south-west by Oakley Creek and the reconfigured Waterview Park, these barriers will have no appreciable impact on housing in the vicinity of Waterbank Crescent and Herdman Street.
- 195 East of Carrington Rd, additional noise walling – typically in the vicinity of 2.5m high – will sit within the motorway designation, part way down the cut slope that separates the motorway from adjoining residential properties. The degree of physical separation between the walling and those boundaries is variable, but generally 5.0m or more, with up to 1.0m of the walls' height reduced by their location part way down the cut slope (see cross-section overleaf).



*Cross-section of motorway noise barriers east of Carrington Road*

- 196 Consequently, the noise walls will sit well below the 2m + 35° daylight indicator control applicable for sites on the northern side of other residential properties within the Residential 6A Zone. The proposed walling will, in fact, have much the same effect as conventional domestic fencing and will not give rise to excessive levels of over-shadowing or building over-dominance.

#### **Removal of houses in Oakley Ave**

- 197 Housing at the intersection of Oakley Avenue and Great North Road will be removed in the course of cut and cover operations and during construction of the north tunnel portal building and ventilation stack. However, it is now anticipated that some form of housing development will be reintroduced to 1445 and 1449 Great North Road – the properties that lie at the 'gateway' to Oakley Avenue – regardless of whether or not the 'Construkt revised design option' is built.
- 198 As a result, the eastern end of Oakley Avenue will still experience a greater degree of temporary exposure to Great North Road than at present, although demolition, excavation, construction and deviation of Great North Road appear likely to have a much more significant impact on the quality of life experienced by local residents throughout the construction period.
- 199 However, once rehabilitation has been completed, including the reconstruction of dwellings at 1445 and 1449 Great North Road, this situation will change, with residential 'normality' effectively returning to Oakley Avenue. At that point, there will be relatively little difference in the levels of exposure to Great North Road, compared with at present.

### **The Loss of open spaces at Waterview and Owairaka**

- 200 Three major open spaces would be affected by SH20: Waterview Park, parts of the Oakley Creek Esplanade Reserve (on a more temporary basis) and Alan Wood Reserve. I have already addressed the impacts of the Waterview Connection Project on all of these open spaces and highlighted related effects which include the:
- 200.1 Permanent displacement of open space within Sector 9 by the motorway corridor, structures (including light standards) and buildings;
  - 200.2 Five year loss of open space near Great North Road;
  - 200.3 Much shorter term 'loss' of Waterview Park; and
  - 200.4 Perceived 'severance' of New Windsor from Owairaka / Mt Albert.
- 201 However, it is equally important to reiterate that:
- 201.1 Waterview Reserve will be reconfigured and resurrected in a more public location that directly fronts Herdman Street and Waterbank Crescent, within a relatively short period – hopefully 1 to 2 years.
  - 201.2 The temporary loss of open space near Oakley Creek to accommodate the cut and cover section of SH20 will not compromise the upper reaches of that esplanade reserve, nor the recreational utility and park / open space character of the adjoining Phyllis Street and Harbutt Reserves.
  - 201.3 Alan Wood Reserve's open space has been subject to a rail corridor designation for decades: its active recreational values and much of its more passive recreation functionality will be maintained through the provision of new sports fields, cycleways and pocket open spaces. This includes the establishment of new sport fields and a more passive fringe on land at 25 Valonia Street (even though that land already has consents for medium intensity housing development) and the 'naturalisation' of Oakley Creek near Methuen Road and Whittle Place.
- 202 These factors, together with the massed planting at all three open spaces, will actually enhance the vegetative content of Alan Wood Reserve and Waterview Park in the future. Over time, they will also contribute to heightened public and residential appreciation of the 'green corridor' flanking SH20.

### **Construction Yard 1**

- 203 Most of the construction yards are indicative and actually embrace areas of operation within the SH16 and SH20 corridors. However, Construction Yard 1 is physically separate from the Te Atatu Interchange and is to be located in the middle of the combined pony

club land and Orangihina Reserve, roughly opposite Titoki Street.<sup>90</sup> Although buffered by a stormwater pond next to Te Atatu Road, the yard – including its offices, parking areas, equipment, materiel and security fencing – will be directly exposed to both that arterial route and Titoki Street.

- 204 Throughout the duration of reconstruction at the nearby Te Atatu Interchange and along SH16 local residents, commuters and other road users, together with pony club members and users of the Orangihina Reserve (to the north and east), will be clearly exposed to the Construction Yard. It will occupy land that presently affords a passive, open space backdrop to Te Atatu Road and will generally reduce the visual amenity of both local residents and road users – in effect, expanding the sphere of influence of the nearby interchange and motorway.<sup>91</sup>
- 205 Again, such effects will be temporary, with the area occupied by Construction Yard 1 rehabilitated and returned to pasture upon completion of the Causeway Project – after some 4 to 5 years. Furthermore, Te Atatu Road’s own corridor, together with the open space either side of the compound, will serve to physically isolate and buffer the yard from both nearby residential properties and the walking trails and passive open spaces of nearby Orangihina Reserve (focused on the harbour foreshore and Whau River). Nevertheless, it is acknowledged that these short to medium term effects will be significant.
- 206 It has been suggested in some submissions that Construction Yard 1 could be relocated further north, away from the paddocks used by the Te Atatu Pony Club. I accept that this would have clear benefits from the Pony Club’s point of view, minimising the physical encroachment of the yard on its current areas of grazing and activity.
- 207 Furthermore, it is correct that the land north of the proposed yard site falls towards a shallow gully, roughly opposite part of Old Te Atatu Road, and relocation to this area would reduce the Construction Yard’s visual profile and effects – at least in part. It would also place the yard opposite (or close to) the Shell service station on the western side of Te Atatu Road, helping to further separate it from local residential properties. Moreover, most residential properties either side of Old Te Atatu Road and the service station are more elevated than those near Titoki Street, so that most local residents would look over the compound, rather than more directly into and through it.
- 208 On the other hand, such a move would also place the Construction Yard at a location where the margins of the Orangihina Reserve drop

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<sup>90</sup> See AEE, Part F, Drawings F06. 1 and 2.

<sup>91</sup> **Attachment B24.**



sufficiently low to accommodate clear views to the Waitemata Harbour, Rangitoto and the Auckland CBD – both from the road and adjoining residences.<sup>92</sup> Along most of the rest of Te Atatu Road the land on its seaward side rises up and obstructs such views, as is the case near Titoki Street.<sup>93</sup> A relocated construction yard would intrude into this 'window' to the Waitemata Harbour and obscure much of it. In addition, a site at this location would lie closer to the publicly accessible part of Orangihina Reserve that extends through to Darnica Place and the Harbourview residential estate, increasing exposure to that area of community activity.<sup>94</sup> Any such move would also increase the distance of heavy traffic movements between the yard and SH16.

- 209 Consequently, some very real trade-offs are involved in any move to the north and, given the temporary nature of the anticipated effects generated by Construction Yard 1, it is doubtful that such a move is worthwhile from a landscape / visual perspective (though this does not obviate its benefits for members of the pony club).
- 210 The possibility of moving Construction Yard 1 closer to the motorway corridor and further eastwards offers another alternative – away from both Te Atatu Road and housing either side of Titoki Street. Yet, this would also move the yard closer to both the harbour and the Whau River. The yard would also sit on the brow of the ridge immediately north of SH16, potentially affecting views from the vicinity of Alwyn Avenue to the Waitemata Harbour. On the other hand, many of the dwellings potentially affected by such a move are themselves destined for removal and it would also place the construction yard on the outer edge of the Te Atatu Pony Club grounds, as opposed to sitting in the middle of them.
- 211 Even so, it would have a higher profile overall, relative both the motorway system and regional community. It would also impact on views from those properties remaining within Alwyn Avenue, together with others looking across the Te Atatu Interchange and McCormick Green from the eastern end of Royal View Road.
- 212 Finally, it has to be recognised that even though the Te Atatu Pony Club is a long established and accepted feature of the Te Atatu Peninsula landscape, its own array of buildings, yards, structures and parking areas exert appreciable influence over the 'Harbourview land' and are not entirely conducive to the protection of local amenity and views to the harbour.<sup>95</sup> Construction Yard 1 would exacerbate this situation, but not actually create it.

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<sup>92</sup> **Attachment B25.**

<sup>93</sup> **Attachment B24.**

<sup>94</sup> **Attachment B25.**

<sup>95</sup> **Attachment B26.**

- 213 Consequently, there are no easy solutions in respect of Construction Yard 1's location and the best temporary solution may well be to retain the yard at its proposed location in conjunction with screen planting by fast growing species (such as Griselinia, Karo, Pittosporums, Tarata or similar) along the Te Atatu Road frontage. At best, this would offer partial mitigation of the yard's visual effects; nevertheless, I would support any related condition of consent requiring such treatment.

### **Construction Yards 6 and 7**

- 214 I have already addressed the permanent and temporary effects of the NZTA's development proposals on the Waterview community and primary school. Construction Yards 6 and 7 embrace both the areas of cut and cover operations near Great North Road and the combination of tunnel portal, ventilation stack, portal building and ramp development around Waterview Park and Oakley Creek.<sup>96</sup> Related house removals, earthworks, construction and park relocation / reconfiguration will – as I have already acknowledged – have a profound impact on northern Waterview for some 5 years.
- 215 More positively, I understand that even though the redeveloped Waterview Reserve sits next to Construction Yard 6's proposed compound, it will be developed as quickly as possible to buffer local residents from operations near Oakley Creek and Great North Road and establish an open space resource that helps to compensate for the temporary loss of the grassed reserve land near Oakley Creek.
- 216 In all other respects, it is accepted that the Construction Yards, and works within them, will be both intrusive and disruptive – especially so for the local Waterview community – but also for those using Great North Road and, to a lesser degree, the Unitec campus. Given the fenced-off nature of the combined work areas and yards, it appears that it will be very difficult to clearly distinguish one from the other: they will visually overlap and jointly impact on both residents and users of the local road network.
- 217 The ACC<sup>97</sup> has requested that staged planting be investigated to see whether or not that might assist with the mitigation of effects in relation to both construction yards. In my opinion, the most significant mitigation that could occur in relation to Yard 6 is the relocation and redevelopment of Waterview Reserve as quickly as possible – as already proposed and detailed. This will achieve a critical buffer between the new SH20 corridor and the residential environs of Waterbank Crescent, Herdman Street and Daventry Street, together with the local primary school.

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<sup>96</sup> Refer to AEE, Part F; Drawings F06. 1, 7 and 8.

<sup>97</sup> Submitter No. 111.

- 218 Yard 7 is much more problematic, simply because the location of both working areas and Great North Road will change as the cut and cover operations proceed. In reality, I think it doubtful that staged planting will work in this area until cut and cover operations are complete. Moreover, the 18 months to 2 year time frame for works and the construction yard directly adjacent to Waterview Primary School mean that such planting would barely start to get established and mature when it is supplanted by more permanent landscape treatment around the northern portal buildings and stack. Consequently, I see little being achieved by staged or temporary planting in the vicinity of Construction Yard 7.

**Adverse impact on the urban landscape and amenity**

- 219 My Report and evidence combine to address the effects of the Project Auckland's urban landscape and amenity. The highly complex nature of such effects is reflected in the multiplicity of different receiving environments and audiences that have been addressed in my Report and this statement.
- 220 Nevertheless, the combination of my analysis of effects for some 160 individual viewpoints, related sector-by-sector evaluation, and conclusions – together with those sections in this statement which address "Post-lodgement Events" and other submissions – attempt to identify and gauge the full extent of effects that the NZTA's proposals will generate in relation to both urban and natural environments. I have already summarised those effects and, while acknowledging the supplementary matters addressed in this and preceding sections, see no reason to modify my key findings, as already outlined.

**Volcanic Sightlines A1 and A2**

- 221 The ARC's<sup>98</sup> submission seeks an assurance that, as well as avoiding any impacts on proposed Volcanic Sightline A13 (Change 8), the Waterview Connection Project should avoid having an impact on existing Sightlines A1 and A2 (see overleaf). These capture views to Mt Albert from New North Road and Richardson Road respectively.
- 222 Having reviewed both viewshafts,<sup>99</sup> I can confirm that Sightline A1 commences at the intersection of New North Road and Blockhouse Bay Road. It captures a view of the western slopes of Mt Albert, with the sightline traversing New North Road and the northern end of Alan Wood Reserve.
- 223 Located further to the south, Sightline A2 originates near Viewpoint 9/122<sup>100</sup> and looks down the axis of Richardson Road to Mt Albert –

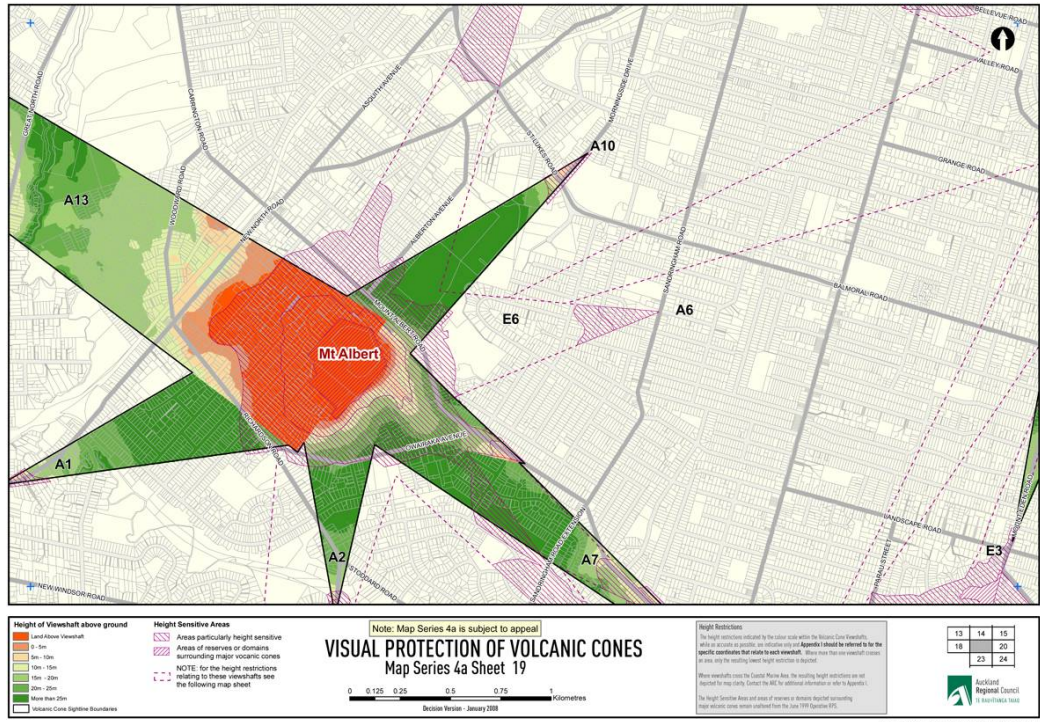
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<sup>98</sup> Submitter No. 207.

<sup>99</sup> And, indeed, having confirmed their significance in a succession of studies and reviews for the ARC and Auckland City from 1996 to October of this year.

<sup>100</sup> See Appendix E attached to my Report.

over part of the proposed SH20 extension and Richardson Road bridge. The following photos, taken in the course of the 2002 / 2003 review of all of the Isthmus's volcanic sightlines, show A1 and A2 with the 'base line' and 'side lines' that eventually determined the revised extent of each sightline.



The Auckland Regional Policy Statement Change 8: Mt Albert's Volcanic Sightlines





225 In the case of Sightline A2, the proposed bridge will commence approximately at the current Valonia Street intersection and extent away from the sightline origin point. The associated motorway and most structures will remain well below the level of the sightline 'base plate'. However, it appears likely that some of the proposed motorway light standards either side of the new Richardson Road

bridge may well project through the bottom of the sightline. Even so, they will remain much more insubstantial than the street lights which already frame the roadway and cut through the cone's profile. Furthermore, the future lights' skeletal outlines are likely to be absorbed by the mottled 'patchwork' of vegetation and suburban elements on the fringe of Mt Albert Reserve. In my opinion, such incursion will not have a significant impact on appreciation of the cone and its profile.

- 226 Finally, I can also reiterate that I believe redevelopment of SH16 – including works in the general vicinity of the Whau River bridge – will have no appreciable impact on proposed Sightline A13. As shown in my Report, this sightline (see below) originates on the North-western Motorway immediately east of the current Te Atatu Interchange and reveals Mt Albert (in conjunction with a more distant Mt Eden and One Tree Hill) to those motorists heading towards the Auckland Isthmus.



*Sightline A13 Photo (S. Brown 2002)*

- 227 In my assessment, the proposed widening and increased elevation of the SH16, together with above-ground structures, will not adversely affect this view. Again, the new highway light standards will – as at present – protrude through part of this sightline, but this remains a characteristic of the vast majority of the volcanic 'viewshafts' – most of which originate on arterial roads. Fortunately, the linear and, generally, light-weight profile of most light standards means that they visually co-exist with Auckland's cones – including Mt Albert – without compromising the integrity and value of such views. In my opinion, this will also be the case in relation to A13.

- 228 Overall, therefore, the Project will not adversely affect, or reduce, the integrity of Auckland's Volcanic Cone Sightlines.

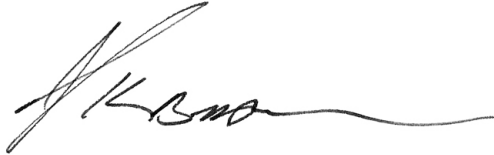
### **PROPOSED VISUAL AND LANDSCAPE CONDITIONS**

- 229 In the documentation lodged with the AEE, the NZTA included a set of Proposed Consent Conditions.<sup>101</sup> These addressed, among other matters, proposed landscape and visual conditions, which I recommended would be appropriate to attach as conditions to the designations sought.
- 230 However, given the recent deletion of the Cradock Street emergency stack and the development of Construct's 'revised design option', I consider that it is necessary to modify proposed Condition LV.1, which relates to these structures. I consider that Construct's revised design option for both tunnel portals indicates a potential way forward, that would address many of the concerns raised in my AEE Report in respect of development at both locations.
- 231 Even so the NZTA has signalled that it wishes to retain a degree of design flexibility in respect of these buildings / structures. As a result, proposed Condition LV.1 has been amended to include a new subparagraph (e) which requires that the final form of the northern and southern ventilation buildings and stacks must:
- 231.1 Be in accordance with the design principles of the ULDF (Section B); and
- 231.2 Comply with various conditions which are intended to effectively pull out some of the key features of Construct's revised design options.
- 232 Insofar as this still leaves room for condition LV.1 to be implemented in a variety of ways, my revised assessment of the 'new' buildings and support for the new condition must remain qualified, as I have already indicated.
- 233 I also consider that two additional landscape conditions are appropriate, addressing:
- 231.3 Temporary screen planting next to Construction Yard 1; and
- 231.4 The location of SH16's Temporary Embankments.

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<sup>101</sup> See Part E, Appendix E.1, page 26.

- 234 As a result, **Annexure C** contains an amended LV.1 and new LV.7 and LV.8, which address these matters. It also contains other conditions – suggested by the urban design and open space experts – that I also consider to be appropriate.



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**Stephen Brown**  
**November 2010**

**Annexures:**

- Annexure A *Addendum to Report G.20 Assessment of Visual and Landscape Effects*
- Annexure B Photos and photo simulations addressing issues raised in submissions: Attachments B1 – B22
- Annexure C AEE: proposed Visual and Landscape Conditions



**ANNEXURE A: ADDENDUM TO REPORT G.20<sup>102</sup>**

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<sup>102</sup> Appendix 8, Report G.31.

**Appendix 8**

**Addendum to Technical Report G.20**

***Assessment of Visual and  
Landscape Effects***

**Technical Assessment:** G.20 Assessment of Visual and Landscape Effects’

**Respondent:** Stephen Brown

This Addendum provides additional detail in relation to:

- Cross-referencing of Technical Report G.20 *Assessment of Visual and Landscape Effects* to other Technical Reports lodged for the Waterview Connection Project (including Technical Reports G.10: *Assessment of Lighting Effects*, G.17: *Assessment of Terrestrial Vegetation Effects*, and others (highlighted below); and
- Mitigation options / alternatives applicable to key components of the proposed tunnel portal buildings and emergency exhaust stack in Cradock St, Avondale.

<b>Matter Addressed:</b>	<b>Explanation:</b>
Cross-referencing to Technical Report G.10 <i>Assessment of Lighting Effects</i>	Relevant sections of the <i>Lighting Effects</i> report address pole height at p.13, then proceed to describe the <i>Proposed Environment During Operation</i> followed by a <i>Description of Lighting Effects</i> - for each Sector - at pages: 15, 18-24, 26-29 and 33-38.
Cross-referencing to Technical Report G.17: <i>Assessment of Terrestrial Vegetation Effects</i>	<p>Particularly relevant sections of the <i>Terrestrial Vegetation Effects</i> report are as follows:</p> <p><b>Existing Vegetation Values</b>            pp.10 – 13: mapping of Valued vegetation            p.14: Henderson Creek to Te Atatu            p.14: the Whau River            pp.14-17: the Rosebank Peninsula, Pollen &amp; Traherne Islands            pp.17-22: Oakley Creek &amp; Harbutt Reserve</p> <p><b>Project Effects on Vegetation</b>            p.26: Henderson Creek to Te Atatu            p.26: the Whau River            p.27: the Rosebank Peninsula, Pollen &amp; Traherne Islands            p.28: Oakley Creek</p> <p><b>Avoidance, Remediation and Mitigation</b>            pp.34-37</p>
Cross-referencing to Technical Report G.15: <i>Assessment of Stormwater and Streamworks Effects</i>	The following sections of the <i>Stormwater and Streamworks Effects</i> report address the stormwater attenuation / treatment components of the Project: pp.63-66: Te Atatu and Jack Colvin Park wetland treatment devices pp.75- 78: Causeway Bio-filter strips pp.79-82: Great North Rd Interchange / Northern Portal wetland p.83: ‘Meola Wetland pp.88- 90 ‘Alan Wood Reserve Wetland’

<b>Matter Addressed:</b>	<b>Explanation:</b>
	<p>Turning to the wider coastal environment, the following sections from the <i>Assessment of Coastal Processes Effects</i> report are also of note in relation to the coastal physical processes found around the margins of the Waitemata Harbour, Waterview estuary and Whau River:</p> <p>pp.44-80: Construction effects and mitigation options  pp.81-104: Operational effects and mitigation options</p>
<p>Cross-referencing to Technical Report G.2: <i>Assessment of Archaeological Effects</i></p>	<p>The archaeological / historic values of the Starr Mill site are already referenced at pp.44-46 of the <i>Assessment of Visual and Landscape Effects</i> report. In addition, the following sections of the <i>Assessment of Archaeological Effects</i> report address other existing sites and locations of archaeological, historical and cultural significance:</p> <p>pp.14-17: recorded archaeological and heritage sites, primarily middens, brick work remnants, building remnants and settlement sites  pp.18-78: identified sites and remnants for each Sector  pp.81-83: the significance of the identified Maori sites  p.83: sites related to Dr Daniel Pollen  p.84: sites related to the Starr Mill / Tannery / Quarry  p.85: other early European sites  pp.86-87: the ‘Oakley Creek Heritage Landscape’</p> <p>The last of these references is important in terms of local landscape values, although it is largely contained within the Oakley Creek Esplanade Reserve.</p> <p>Subsequent sections of the <i>Archaeological Assessment of Effects</i> report address the Effects of the Proposal directly:</p> <p>pp.87-88: Sectors 1-4, which remain largely unaffected by the proposed motorway corridors  pp.88-90: Sector 5, which is largely unaffected physically, but would be affected visually by the imposition of ramps and fly-overs on the valuable ‘Waterview Inlet Heritage Area’  pp.91-92: Sector 9, which would be unaffected by the motorways in terms of archaeological values  p.93: impacts on heritage landscape values</p>
<p>Analysis of Mitigation Alternatives in Relation to Key Effects</p>	<p>Mitigation options / alternatives have been considered in the course of preparation of the Landscape and Urban Design concepts (as set out in Drawings F16: 201 – 225). In respect of current options for mitigation, the only alternatives not already addressed in Technical Report G.20 include:</p> <ul style="list-style-type: none"> <li>▪ relocation of the northern and southern tunnel portal buildings and emergency exhaust stack; or</li> <li>▪ ‘burying’ of these structures, or parts thereof.</li> </ul>

<b><i>Matter Addressed:</i></b>	<b><i>Explanation:</i></b>
	<p>In relation to 'relocation', alternative locations comprise other nearby residential locations or reserve land. Consequently, relocation of the portal buildings and/or emergency exhaust stack would shift the 'issue' and effects in each case, but would not effectively resolve or mitigate them.</p> <p>Burying or lowering of the portal buildings is already being partly employed for the northern tunnel portal structure, but is not a realistic option for the emergency exhaust which requires its stack to be elevated in order to protect local air quality.</p> <p>Sinking or burying of the southern tunnel portal building is an option considered. From a visual or landscape perspective, this option could have a significant and positive impact on Alan Wood Reserve's remaining open space, depending upon the degree / extent of implementation. For example, complete undergrounding of the southern portal building would very significantly reduce the level of intrusion and open space encroachment associated with the proposed structure, while partial 'burial' would reduce the structure's profile and intrusiveness but would not appreciably altering the area of available open space.</p>

**ANNEXURE B: PHOTOS AND PHOTO SIMULATIONS RELATED TO  
RESPONSE TO SUBMISSIONS**

## ANNEXURE C: PROPOSED LANDSCAPE AND VISUAL CONDITIONS<sup>103</sup> (WITH AMENDMENTS)<sup>104</sup>

LV. 1	<p>The Urban Design and Landscape Plans (UDL Plans) (Drawing Numbers 20.1.11-3-D-L-810-200 to 228 (and planting schedules)) shall be reviewed and revised in accordance with the conditions and submitted to the [Auckland Council] for their confirmation that they comply with the conditions of the consents / designation approval 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) <u>The final form of the 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> <ul style="list-style-type: none"> <li><u>For the northern vent building:</u> <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> </li> <li><u>For the southern vent building:</u> <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> </li> <li><u>For both buildings and stacks:</u> <ul style="list-style-type: none"> <li>(vii) <u>Treatment of the structures as objects of urban sculpture.</u></li> </ul> </li> </ul> </li> <li>(f) <u>The appearance of the Great North Road Interchange ramps:</u> <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> </li> </ul>
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<sup>103</sup> Contained in AEE, Appendix E.1, pages 26-27.

<sup>104</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	<p>The NZTA shall implement the <u>UDL Plans</u> taking into account the pest plant management guidelines detailed in the Ecological Management Plan.</p>



LV.7	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.
LV.8	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.