

Before the Board of Inquiry
Waterview Connection Project

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 David Gibbs (Revised design option: Tunnel Buildings) on behalf of the **NZ Transport Agency**

Dated: 12 November 2010

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STATEMENT OF EVIDENCE OF DAVID GIBBS ON BEHALF OF THE NZ TRANSPORT AGENCY

INTRODUCTION

- 1 My name is Alexander David Gibbs. I am an Urban Designer and Registered Architect. I am a Fellow of the New Zealand Institute of Architects (*NZIA*) and hold a Bachelor of Architecture degree from the University of Auckland. I am a member of The Urban Design Forum, NZIA's Urban Issues Group and signatory to The New Zealand Urban Design Protocol. I have 25 years' experience as a practitioner in private practice.
- 2 I am the Director of Construkt Architects Ltd, an urban design and architectural practice. My practice specialises in large scale projects where architectural and landscape interventions are planned for highly valued landscapes in and around established communities. As examples, the practice is responsible for masterplanning Todd Property Ltd's 170ha Long Bay Community and, in joint venture with Isthmus Group Ltd, for masterplanning Hobsonville Land Company's 167ha Hobsonville Point project.
- 3 I have been engaged within the last 12 months in giving specialist architectural and urban design advice to Manukau City Council and North Shore City Council.
- 4 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*).
- 5 I am familiar with the area that the Project covers relevant to my statement of evidence.
- 6 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

- 7 My evidence will address the following:
 - 7.1 Executive summary;
 - 7.2 Background and role;
 - 7.3 Urban context of the Tunnel Buildings;

- 7.4 Architectural design principles;
- 7.5 Function of the Tunnel Buildings;
- 7.6 The revised architectural design option of the Tunnel Buildings; and
- 7.7 Comments on submissions.

EXECUTIVE SUMMARY

- 8 The NZTA engaged Construkt in September 2010 to provide a revised design option for the ventilation buildings and associated stacks at each end of the tunnel (*Tunnel Buildings*). Contemporaneously Aurecon was engaged to prepare a functional brief for the Tunnel Buildings. The revised design differs significantly from the lodged plans in response to both the NZTA's revised brief and issues raised in submissions. The revised plans for the north and south ventilation buildings (*North and South Buildings*) provide for significantly smaller buildings (in volumetric terms) than the lodged plans.
- 9 The revised design of the *South Building* seeks to minimise the impact on its surroundings by:
 - 9.1 Adopting a slim plan form that allows for significant landscape buffers on each side;
 - 9.2 Providing a "green" roof; and
 - 9.3 Treating the building and stack as a single object of urban sculpture.
- 10 The revised design of the *North Building* seeks to minimise its impact on its surroundings by:
 - 10.1 Maintaining the same extent of facilities underground as was in the lodged plans, but in a smaller footprint;
 - 10.2 Separating the required above-ground facility into four separate smaller buildings that are comparable in scale to nearby multi-unit residential buildings;
 - 10.3 Adopting spacing between the four buildings that is comparable with the typical spacings for residences in the area;
 - 10.4 Containing the site required for the building to a significantly lesser area than required by the lodged plan, leaving the balance available to remain in residential use; and

- 10.5 Treating the building and stack as objects of urban sculpture, in this case, and in contrast to the South Building, adopting distinct but complementary forms.
- 11 A combined motorway and tunnel control facility (*Control Building*) of 640m² is now proposed to be located at the southern tunnel portal in lieu of the smaller control facility of 50m² previously intended for the North Building.

BACKGROUND AND ROLE

- 12 Construkt Architects Ltd was engaged by the NZTA in September 2010 to review and provide a revised design option for the ventilation buildings and associated stacks at each end of the proposed tunnel (*Tunnel Buildings*). The Construkt team (*Team*) consists of:
- 12.1 Paul Edmond, Construkt Principal Architect and Urban Designer;
- 12.2 Andre de Graaf, Construkt Principal Architect and Urban Designer;
- 12.3 Scott Donnell, Senior Architect and Urban Designer;
- 12.4 Natasha Lazarevich, Architectural Graduate; and
- 12.5 Myself.
- 13 My role in the redesign process was to lead the architectural design team on this Project.
- 14 The purpose of the Tunnel Buildings revised design option is to demonstrate to the Board of Inquiry and the community that the design of these structures can be further developed to address many of the concerns which have been raised in submissions. It is important to note that the redesign of the Tunnel Buildings presented in my evidence is not necessarily the final design proposed by the NZTA, but rather a revised design option. Amended proposed designation conditions will specify how the final form of these structures will be achieved.
- 15 The NZTA's brief to my Team included the requirement that the redesign consider:
- 15.1 The submissions lodged on the Project which commented on the ventilation buildings and stacks; and
- 15.2 A new functional brief to be prepared for the design of these buildings.

- 16 Contemporaneously, Aurecon was engaged by the NZTA to prepare the new functional brief for the Tunnel Buildings. This document sets out the minimum spatial requirements for all major items of plant, equipment, and facilities to be accommodated in the Tunnel Buildings, and the preferred spatial relationship between them.¹ The authors of the functional brief are:
- 16.1 Bill Newns, Transport Engineer; and
 - 16.2 Zac Holter, Project Manager – Property.
- 17 The main features of the new brief are summarised as follows:
- 17.1 Removal of the requirement for a 50m² control room from the building proposed for the northern end of the tunnel (*North Building*) and relocation of that control room, in an expanded form, to a separate building of 640m² at the southern end of the tunnel (*Control Building*);
 - 17.2 A decrease in area required for the ventilation building at the southern end of the tunnel (*South Building*) of approximately 1330m² relative to the lodged scheme;
 - 17.3 A lessening of the height required across the bulk of the South Building (excluding the stack);
 - 17.4 A requirement to locate the air extract inlets for each ventilation building at least 100m from the tunnel portal;
 - 17.5 The ability to break the accommodation required for the North Building into discrete “pods”; and
 - 17.6 A lessening of the area and height required for the North Building (excluding the stack).
- 18 In response to that brief, my Team has prepared revised design options for the North and South Buildings. The designs are described later in my evidence.

URBAN CONTEXT OF THE TUNNEL BUILDINGS

- 19 Before describing the revised architectural designs, it is necessary to consider the urban context of the North and South Buildings because it differs markedly.

¹ Functional Brief Waterview Connection, North & South Ventilation Buildings and Operations Centres (18 October 2010).

The South and Control Buildings

- 20 The southern end of the tunnel lies between houses on Hendon Avenue on its north-eastern side and Alan Wood Reserve on its south-western side.
- 21 The South Building site is separated from the rear of the houses fronting Hendon Avenue by a 17m wide rail corridor designation. The houses fronting Hendon Avenue are generally set towards their street frontage on their north-eastern side, with deep rear yards. The distance between the rear of the houses and the proposed South Building ranges from 43m to 64m.
- 22 The South Building site is constrained between a distinctive bow in Oakley Creek and the railway designation, whereas the Control Building site lies on a portion of Alan Wood Reserve that is comparatively wide as a consequence of Oakley Creek bowing in the opposite direction.
- 23 The South and Control Buildings will be on a similar level to the houses to the north-east, whereas on the south-west side of the South Building Alan Wood Reserve falls steeply away towards Oakley Creek (which is deeply incised in a valley).
- 24 A pedestrian/cycle path runs between the site of the proposed South Building and Oakley Creek. It is vulnerable to being overshadowed and dominated by the proposed building because of its proximity and its being significantly lower than the building. This factor is specifically addressed in the redesign of the South Building as explained later.
- 25 Avondale Motorcamp is located on the opposite side of Oakley Creek. There is a significant buffer of existing trees between the subject site and the motorcamp.
- 26 SH20 descends (when viewed travelling north) to enter the tunnel approximately 20m below the South and Control Buildings between substantial abutments.
- 27 The proximity of Mt Albert volcano and the substantial cut through volcanic rock will provide a dramatic sense of descending into a volcanic terrain.
- 28 These factors have been significant determinants of, and design cues for, the proposed architectural designs of the Tunnel Buildings.

The North Building

- 29 The northern end of the tunnel will emerge (when viewed travelling north) from a more shallow cut into the environment of the Great North Road Interchange. This area has an open coastal character.

- 30 The site for the North Building is on the western side of Great North Road between Herdman St and Oakley Avenue. Waterview Primary School and Kindergarten adjoins the site to the west. Oakley Creek Esplanade Reserve is on the opposite side of Great North Road.

ARCHITECTURAL DESIGN PRINCIPLES

- 31 The design principles the Team has followed in preparing the revised design options for the two ventilation buildings are:
- 31.1 Minimising the bulk of the buildings to reflect the headroom required for the various enclosed functions, consistent with delivering a good architectural outcome;
 - 31.2 Setting portions of the buildings into the ground so as to minimise their apparent bulk;
 - 31.3 Mounding of earth against and over buildings so as to minimise visual impact;
 - 31.4 Breaking the building into component structures so as to minimise visual impact; and
 - 31.5 To express the form of the buildings as urban sculpture.

FUNCTION OF THE TUNNEL BUILDINGS

The South and North Buildings

- 32 The primary function of the South and North Buildings is to extract air from the tunnels below.² In essence, stale air will be drawn through ducts within the tunnel to a bank of fans which deliver the air to an exhaust stack. There is a substantial amount of electrical equipment needed to run the fans that ideally should be located close by. Fire fighting equipment is also required. There is a requirement to be able to bring trucks alongside the buildings in order to service the equipment inside.
- 33 The Team has been briefed by the consultant mechanical engineers that the tunnel exhaust inlet should be located at least 100m from the tunnel portal to avoid the extract system preferentially drawing air from the portal instead of the ducted system. This constraint influences the optimal locations for, and relationships between, the exhaust inlets, fans and exhaust stack and is a major determinant of the designs for both buildings.

² See the evidence of Mr Andre Walter for more detail of the function of the Tunnel Buildings.

The Control Building

- 34 The new functional brief has upgraded the control requirement from a relatively minor control room to monitor traffic safety within the tunnel, to a larger facility intended to control both the tunnels and the section of motorway between the Maioro Street and Great North Road Interchanges inclusive.
- 35 While the original control room (of approximately 50m²) was able to be comfortably accommodated within the North Building, the increased size of the upgraded facility (being 640m²) was deemed by the NZTA to be too large to remain in that location and, as a consequence, it is now to be co-located with the South Building. The functional brief allows the control room to be either integrated with the South Building or standalone. The Team chose to separate the South and Control Buildings, as explained later in my evidence.

THE REVISED ARCHITECTURAL DESIGN OPTIONS FOR THE TUNNEL BUILDINGS

- 36 I now describe the three Tunnel Buildings, followed by a comparison of the revised designs with the original lodged AEE designs. My description is accompanied by a set of architectural drawings prepared by Construct (see **Annexure A**) and visualisations prepared by Buildmedia in consultation with Construct (see **Annexure C** for the North Buildings and **Annexure B** for the South and Control Buildings).

South Building: Revised Design

- 37 The revised design of the South Building [*Refer Annexure A:*³ *Drawing 1*] contains all but two functions (being the communications room and public stair) within a tapered and curved building to the rear of numbers 47-79 Hendon Avenue.
- 38 As explained earlier in my evidence, the site for the South Building is constrained between the railway designation and Oakley Creek. It is desirable to leave sufficient room:
- 38.1 Between the building and the railway designation to accommodate a landscape buffer; and
 - 38.2 So that the adjacent cycle way is not dominated or excessively overshadowed by the South Building.
- 39 Refer to **Figure 1** below which illustrates the constraints referred to above. The proposed building platforms are shown hatched. [*Refer also to Annexure A: Drawing 1*].

³ All references are to **Annexures A, B, or C** of my evidence.

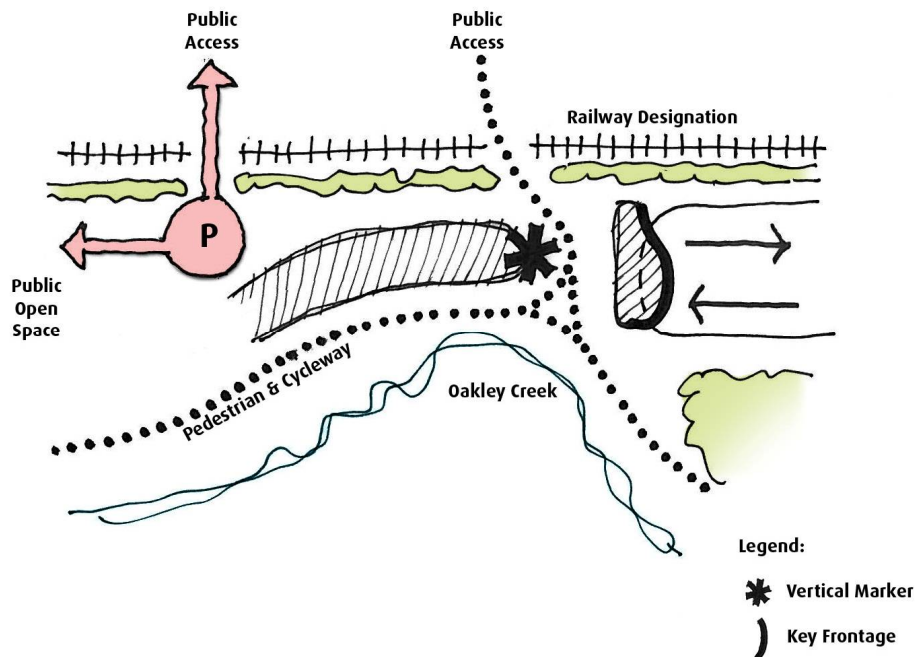


Figure 1 - Showing physical constraints on the South Building site

- 40 Those constraints have determined that the best architectural response is to arrange the spaces required within the South Building in a linear manner. This lengthens the building relative to other solutions the Team explored and, on balance, I consider it allows a response that best fits the site conditions. [Refer Annexure A: Drawing 2.]
- 41 The building is intended to be at grade to facilitate access required to the air extract and electrical equipment within. The Team considered setting the South Building into the ground by approximately 1m, but this was subsequently abandoned because of the:
- 41.1 Extent of ramping and retaining required for truck access to the building; and
- 41.2 Cost and disruption of rock breaking. Initial geotechnical data shows that rock occurs as close as 400mm below ground level in places.
- 42 A “green roof” (turfed, planted and partially paved) slopes from grade at the northern end, up to approximately 6m height before it ramps up further to merge with the extract shaft. While the revised design option drawings show a path on the roof, I understand that the NZTA’s current operational and security requirements will not provide for public access. Irrespective of whether access is available, I consider that the green roof will be an effective visual continuation of the greenery of Alan Wood Reserve. [Refer to

Figure 2 below, Annexure A: Drawing 1 and Annexure B: Visualisations S3 and S6.]

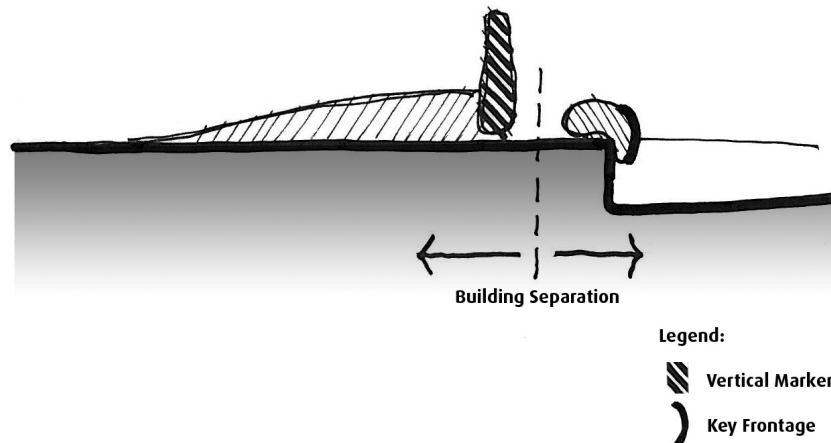


Figure 2 – Showing key design elements of the South and control buildings

- 43 The ventilation stack forms the southern end of the South Building, is tapered and has irregular faceting reminiscent of the crystalline shapes occurring in igneous rock formations. The stack is visually integrated with the design of the bulk of the building. The top of the stack is intended to be sloped to respond to the crystalline design theme – and enhance the intended elegance of the structure. The tip of the stack is intended to be approximately 27m above average ground level, whereas the base of the sloped portion is to be 23m above average ground level. [Refer Annexure A: Drawing 4 and Annexure B: Visualisations S4 and S5.]
- 44 I understand that there will be a periodic requirement to quickly replace or repair the very large air extract fans within the building. For this reason, there will be a gantry crane positioned over top of the fans that will enable them to be lifted and trucked either in or out as required. Each fan will weigh in the vicinity of 8 tonnes, so the structure required to provide for this is significant. The preliminary assessment of the combination of structural depth of the enclosing structure, gantry crane beam and lifting clearance results in the need for a portion of the roof to be elevated approximately 4 metres higher than the main roof. The anticipated height of the raised portion of roof is 10m above ground level. [Refer Annexure A: Drawing 15 Longitudinal Section N02 and Annexure B: Visualisations S5 and S6.]

- 45 The Team's design approach to the raised portion of the South Building has been to:
- 45.1 Constrain the area of increased height to the minimum required by this technical function;
 - 45.2 Treat it as a distinctive design element separate from the form of the main building; and
 - 45.3 Treat it as a sculptural element.
- 46 The materials and forms chosen for the South Building are intended to reinforce the volcanic highway theme described in the Project's Urban and Landscape Design Framework (ULDF),⁴ which provides that design should:
- "keep materials predominantly natural and unadorned, with texture exposed wherever possible as (if) elements have been carved from the land"*
- and
- "Employ dark background colours to reference the underlying basalt of the lava field, with vividly coloured highlights as a contrast –similar to lava cooling under a solid crust."*
- 47 The visual elements that will be most obvious to observers of the South Building are the walls and the ventilation stack. Both are intended to be clad with precast concrete panels. The panels will be irregular in shape and vary in thickness and surface texture.
- 48 The predominant colour will be self-coloured black basaltic rock chip. This will be counterpointed with smaller areas of lighter toned concrete panels and insets of vivid accent colours, the latter to invoke the lava imagery referred to above.
- 49 A balustrade is proposed to be provided by extending the wall panels approximately 1.1m above the finished surface of the roof. At intermittent points, the balustrade is replaced with galvanised steel mesh to vary the profile of the top of the wall. The balustrade requirement means the finished height of the wall will be in the vicinity of 7.1 metres at its highest point (excluding the raised roof portion referred to earlier).

Comparison with the lodged plans⁵

- 50 The revised design of the South Building differs significantly from that contained in the lodged plans in the AEE. *Refer Annexure A:*

⁴ See Section B4.2.1 of the ULDF (attached to Ms Lynne Hancock's evidence).

⁵ See AEE, Part F.08: 420, 421, 422.

Drawings 3 and 5 which show the extent of the previously lodged plans and elevations marked in red and overlaid on the revised design option plans:

- 50.1 The revised design is 133m long (excluding the earth berm at the northern end) whereas the lodged design is 120m long;
 - 50.2 At its widest point the revised design is similar in width to the lodged design (at approximately 35m) but it tapers to just 12m at its northern end, whereas the lodged design maintains its width;
 - 50.3 The revised design is 6m high to the main roof (7.1m to top of balustrade), whereas the lodged design is 8.8m high;
 - 50.4 The revised design has a volume of 14,000m³, whereas the lodged design has a volume of 25,500m³;⁶
 - 50.5 The revised design is more organic in form (in plan and elevation) than the largely rectilinear lodged design; and
 - 50.6 The revised design integrates the ventilation stack more successfully with the main building. The revised stack terminates in a taper that at its highest point is 2 metres higher than the lodged design.
- 51 In summary, although the revised design option is longer than the lodged design, it is a significantly smaller building in total bulk and, in my opinion, integrates much more successfully with Alan Wood Reserve.

Control Building: Revised Design

- 52 The Control Building [*Refer Annexure A: Drawings 1, 2, 6, 7 and Annexure B: Visualisations S1 and S2*] is proposed to be separate to the South Building because:
- 52.1 It does not require a physical link with the South Building in order to meet its function;
 - 52.2 To link it with the South Building would increase the bulk and dominance of that building to no good effect;
 - 52.3 The 24 hour operation of the Control Building is a positive measure that can be used to activate (i.e. enliven with human activity) the southern tunnel portal;

⁶ In each case excluding the stack.

- 52.4 The Control Building will be better able to provide passive surveillance of the area than if it was part of the South Building; and
- 52.5 It better provides for a near-direct pedestrian and cycle connection through the site to Hendon Avenue.
- 53 The proposed site for the Control Building is immediately above, and in part over, the face of the southern tunnel portal. [*Refer Annexure A: Drawings 7 Longitudinal Section S02.*] The primary reasons for that are:
- 53.1 The building can be used to provide visual interest to the otherwise large and bland portal face; and
- 53.2 It presents the opportunity to reinforce the volcanic highway theme by use of building forms, textures and colours that are proposed in the ULDF.⁷
- 54 As with the South Building, the Control Building is intended to reinforce the volcanic highway theme referred to above. That is manifested in the use of irregularly-shaped self-coloured panels, similar in theme to the South Building, but in this case with some subtle differences to suit the circumstances of this building.
- 55 Because the Control Building is an office building with regular occupants (in contrast to the South Building being a container of mechanical equipment), a higher level of glazing is necessary. Additionally, a portion of the building is intended to be cantilevered over the southern tunnel portal. In combination, these two factors suggest that the elements used to achieve the volcanic highway theme over the portal are lighter in weight than precast concrete panels and have more gaps between the panels to allow natural light to be received within the building.
- 56 The revised design option therefore proposes that the South Building be a combination of two type of construction:
- 56.1 Where it is above the tunnel, it will be constructed using precast concrete panels as described above for the South Building; and
- 56.2 Where it is cantilevered over the tunnel portal, the volcanic highway theme will be achieved by the use of comparatively light glass reinforced concrete panels of similar profile to the pre-cast concrete panels supported off the concrete structural walls by steel brackets of varying depths.

⁷ See Annexure E of Ms Hancock's evidence.

- 57 The "lava" accent colours will be applied to further panels set between the structural and fibre-cement panels.
- 58 In order to enliven the southern tunnel portal face as much as is feasible, it is proposed that a portion of the control facility is accommodated in a slim portion of building cantilevered from the portal face beneath the main office floor. Given that this route will become an important "gateway" to Auckland, it is fitting that the architecture of the portal is welcoming.
- 59 I do not intend to make a detailed comparison between the Control Building proposed in the revised design with the control room contained in the lodged AEE (where it was part of the North Building) because, as outlined earlier in my evidence, the two are not comparable in function or size.

North Building: Revised design

- 60 The North Building has an identical function to the South Building, but for reasons explained later in my evidence, has been designed in a distinctly different manner. [*Refer Annexure A: Drawings 8 to 15 and Annexure C: Visualisations N1 to N6.*]
- 61 The revised design option for the North Building is similar to the lodged plans with the AEE⁸ to the extent that the same elements of the building are to be underground, being a chamber for fans, attenuators and the exhaust plenum (*Underground Buildings*). [*Refer Annexure A: Drawing 9 for extent of building underground.*]
- 62 The revised design proposes to place the above-ground elements of the facility into five discrete buildings, being four modestly sized buildings housing mechanical equipment (plant buildings), and the fifth being the exhaust stack. [*Refer Annexure A: Drawings 8 and 11.*]
- 63 The four buildings are arranged along the Great North Road frontage and Herdman St corner, close to the road boundary so as to create a strong urban edge to the road. Refer **Figure 3** below. This positioning of the building serves to leave a substantial green buffer between the North Building and Waterview Primary School and Kindergarten and is a significant improvement on the lodged plans.

⁸ See AEE, Part F08: 410, 411.

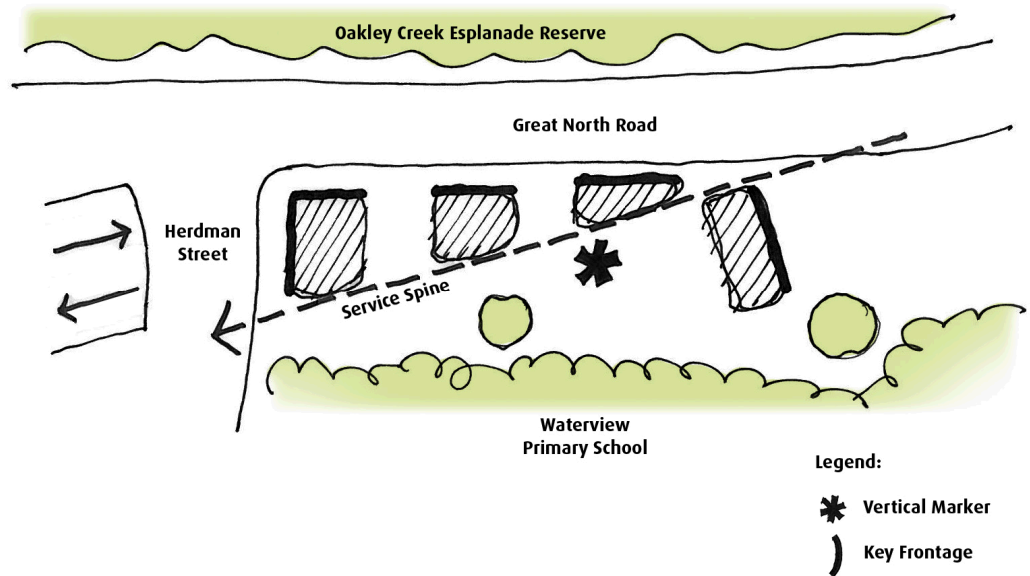


Figure 3 - Showing discrete buildings and key frontages

- 64 The four plant buildings all share a similar design, with subtle variations. Each is a distinct irregular polygon in plan form, with a near-flat roof at approximately 5.5m high. Each building is linked to the others by a roofed, but otherwise open, service corridor. Despite the linkage, the overall impression will be of four separate buildings strung along the street frontage at much the same rhythm as if houses had remained on the site. [Refer to **Figure 4** below and Annexure C: Visualisation N4.]

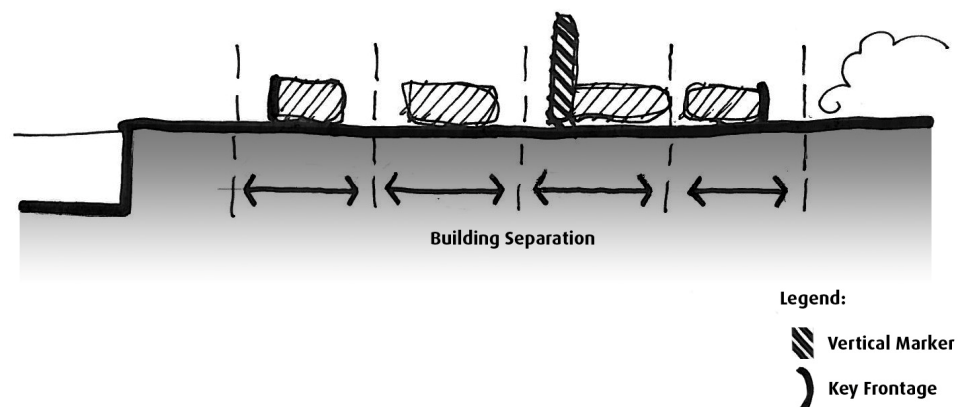


Figure 4 - Showing building separation

- 65 In sharp contrast to the volcanic highway theme of the South Building, the architectural theme for the North Building(s) relates to the coastal maritime environment that SH20 opens into as it

approaches the Great North Road Interchange. For this reason, the Team has designed the four plant buildings as predominantly horizontal structures. The horizontality is emphasised by the “board marking” proposed for the formwork of the concrete structures.

- 66 A coastal “flavour” is intended to be evoked by the use of subtle symbols introduced as small “windows” in the buildings. [*Refer Annexure C: Visualisation N4.*] Each building will have an individual expression of this – using symbols reminiscent of sea organisms and objects that might be found in the inter-tidal zone. In order for this to be effective at night as well as day, the Team proposes that the “windows” will be back-lit at night using energy-efficient LED lighting.
- 67 The ventilation stack, too, has a different expression than that used for the South Building. For obvious reasons, the horizontal theme for the North Building(s) could not be successfully applied to the ventilation shaft, which is so obviously vertical in nature, so the Team has chosen to search for an expression for the stack that is a strong contrast to the plant buildings in form colour and texture.
- 68 The design proposed for the stack [*Annexure C: Visualisation N2*] adopts the principle that if one wishes to make an object appear slimmer and more elegant; the object can be separated into components that are in themselves slim. In this case the Team has proposed that the stack be an assemblage of self-rusted thick steel plates⁹ that are both tapered and curved – in some ways reminiscent of spear-like leaves. The success of this solution relies on achieving an apparent openness at the top as the “leaves” peel way from each other. This design has to be reconciled against the technical need to deliver the exhausted air to the required height in an enclosed conduit. We propose that there is a functional shaft enclosed by the “leaves” that may have a reflective quality, so as to be visually recessive relative to the leaves. This theme is carried into the design of the fence that runs between each pod near the road boundary. Here, weathering steel blades are cantilevered from the ground, reminiscent of seaweed in a current.
- 69 The revised design option for the North Building requires significantly less site area than the lodged design. Accordingly there are three property titles at the corner of Oakley Ave and Great North Road, within the designation, that are no longer required for the North Building. I see benefit in these properties returning to residential use or more intensive residential use once the Project has been completed.

⁹ Commercially referred to as “weathering steel” or “Corten Steel”.

North Building: Comparison with the lodged plans

- 70 The revised design option for the North Building differs significantly from the lodged plans in the AEE. [*Refer Annexure C: Visualisation N4.*]
- 70.1 The revised design, as explained above, provides for the above ground development to be in 5 discrete pods, with their Great North Road frontages measuring 14.5m, 11.5m, 24.5m and 10m in length, whereas the lodged design had the majority of the accommodation in a single building of approximately 102m in length;
- 70.2 The Herdman Street building frontage is the widest at 26.5m, whereas the lodged design largely maintains its 11m width, except for the southern frontage which is 34m long;
- 70.3 The revised design is 6.5m at its highest point, whereas the lodged design is 6.3m high;
- 70.4 The revised design has a floor area of 1033m² compared with 1,351m² for the lodged plans.¹⁰ *Refer to Annexure A: Drawings 12 and 14* which show the extent of the previously lodged plans and elevations marked in red and overlaid on the revised plans and elevations;
- 70.5 The revised design has a volume of 5,700m³ whereas the lodged design has a volume of 8,140m³;¹¹
- 70.6 The revised design uses a site area of 5,751m² whereas the lodged plans use a site area of 8,280m²; and
- 70.7 Whilst the same functions are accommodated underground as the lodged plans, the revised design requires significantly less space underground, which is instrumental in reducing the site area requirement referred to above. Drawing 10 shows the lesser extent of underground building relative to the lodged plans.

COMMENTS ON SUBMISSIONS

- 71 I have read the submissions lodged on the Project that relate to the tunnel ventilation buildings. The submissions received do, of course, relate to the lodged design. In this section of my evidence, I will address those submissions by topic and explain how the revised design option has attempted to address some of the submitters' concerns.

¹⁰ In each case the vent stack and underground buildings are excluded because they are common to both.

¹¹ Ibid.

Location of North Building and stack

- 72 A number of submitters¹² requested that the northern ventilation stack (and building) be located as far from Waterview School (Waterview area) as practicable.
- 73 I will limit my response to the architectural implications of separating the ventilation stack from the other buildings of the north ventilation facility. Other witnesses will give evidence on:
- 73.1 The technical and cost implications of separating the ventilation stack from equipment that feeds to it (Mr Walters); and
- 73.2 The visual impact of the stack in an alternate location further from the school (presumably either in the Oakley Creek Reserve or near the BP Service Station) (Mr Brown).
- 74 The revised design option has considered the ventilation stack as a fundamental part of the architectural composition of the North Building. The verticality of the tower and horizontal nature of the four buildings counterpoint each other and work in harmony. It will be readily apparent to those observing that the two elements (building and stack) belong with each other and make sense of each other.
- 75 On the other hand, if the stack were to be separated from the other buildings to the extent requested by some submitters, it is likely that the disconnect would lead to visual incongruity and ambiguity. In other words, it may well lead the observer to wonder what the function of each building actually is - and why each component is where it is. These questions are much less likely when the two elements are combined.

Design of North Building inappropriate

- 76 A number of submitters¹³ have concerns that the north tunnel building is out of character with the Waterview area because of its scale. Submitters sought the design of the North Building to minimise the visual effects on neighbouring properties, with some requesting that it be undergrounded.
- 77 In response, I note that my Team has completely redesigned the north ventilation buildings.
- 78 A prime objective of that redesign has been to address the scale of the buildings. I consider that the decision to break the North

¹² Including Submitter Nos. 57, 55, 62, 140, 136, 185, 165, 127, 184, 129, 97, 120, 221, 208, 210, 68, 222 and 111.

¹³ Including Submitter Nos. 57, 63, 56, 45, 88, 136, 206, 179, 165, 184, 129, 127, 97, 120, 208, 211, 221, 210, 222 and 111.

Building into discrete “pods” has potential to address many of the submitters’ concerns because each individual pod is comparable in size to the multi-unit dwellings nearby and, at 6.5m maximum height, lower than a typical two storey house. The pods are arranged in a similar spacing as if houses had remained on the site so the urban grain of the neighbourhood is preserved. As previously addressed, the total building area is 318m² smaller than the lodged plans, and less site area is utilised, allowing four residential lots to remain.

- 79 I recognise the potential of the stack to be a dominating visual element in its context. The Team’s revised design for the stack takes the stance that the tower is a sizeable object and there are no means of disguising that. The solution, in my opinion, is for the stack to be designed as large-scale urban sculpture, and the Team’s design for the stack seeks to be precisely that.

Integrated design approach

- 80 Several submitters¹⁴ requested an integrated design approach for the ventilation buildings and associated stacks including artistic, architectural and urban design input.
- 81 I note that the Auckland Council’s submission appears to be requesting that the design of the buildings be a collaboration between architects, urban designers and artists, whereas the private submitters request artistic input without stipulating the specific discipline to provide that input.
- 82 The design Team has recognised that for the Project to succeed, the buildings have to be designed as objects of urban sculpture. They also have to work as buildings fulfilling an important technical role. The team working on this Project has included architects and urban designers who are experienced in reconciling artistic and technical demands. I consider that the work they have produced qualifies as urban sculpture.
- 83 There is ample scope in later stages of the Project design for an experienced artist to become involved with the Project if that is desired.

Location-appropriate design of the approach walls to the southern portal¹⁵

- 84 In response to this request, I understand that “Location-appropriate design” refers to design that acknowledges the nearby presence of Mt Albert and the volcanic origin of the geology through which the tunnel is cut. This is consistent with the ULDF which states:

¹⁴ These included Submitter Nos. 111, 206, 211 and 214.

¹⁵ Submitter No. 111.

"Design the northern and southern portal(s) to reflect their different settings and approaches; in particular celebrate the experience of "entering the volcano" at the southern portal with the use of strong elements and materials that evoke the basalt that the tunnel is diving into." ¹⁶

- 85 I support this design principle and consider that the revised design option gives voice to this principle.

More clarity of the proposed form of the proposed buildings

- 86 Several submitters¹⁷ sought clarification of the proposed form of the Tunnel Buildings.

- 87 In response, I agree that the architectural drawings lodged with the AEE were indeed lacking in detail. I consider that the revised design option drawings attached as **Annexure A** contain ample detail to enable the Board of Inquiry to determine if the effects of the Project (in particular the Tunnel Buildings) can be adequately mitigated.

South Building

- 88 Several submitters¹⁸ sought the redesign or relocation of the South Building so that it was less visually intrusive and maximised open space. From the point of view of preserving area within Alan Wood Reserve, I accept that it could be a good outcome if the South Building was largely underground. However, even if the South Building was largely underground, there would still be significant above-ground structures – for example, the stack and ramped access to the underground chamber (necessary to get trucks and maintenance staff down to install and service the equipment) would still need to remain above ground. The ramp by itself would be a significant intervention in the landscape. (At a minimum, there would be a 5m wide by 35m long opening in the ground before sufficient headroom was gained to roof over the ramp.)

- 89 I understand that the option of placing the South Building underground has been seriously considered by the NZTA, and that it has eliminated that option for various reasons, including those outlined in the evidence of Mr Walters. Accordingly, the brief which Construct received was for the building to be above-ground.

- 90 That being the case, the Team has paid particular attention to designing the building to be a positive intervention in the landscape. In that regard I note:

¹⁶ ULDF, Section B5.4I.

¹⁷ Including Submitter Nos. 57, 111, 62, 125, 135, 185, 127, 231, 232, 98, 117, 149, 166, 97 and 132.

¹⁸ Including Submitter Nos. 151, 135, 185, 206, 179, 127, 180, 184, 129, 229, 232 and 120.

- 90.1 The profile of the building has been kept as low as possible including being ramped down to the ground at the northern end, so as to be as visually unobtrusive as possible (for an above-ground solution);
- 90.2 The green roof will provide an effective visual continuation of the greenery of Alan Wood Reserve; and
- 90.3 It has been designed to be a sculptural object.



David Gibbs
November 2010

Annexures:

- Annexure A: Architectural drawings of revised design option for Tunnel Buildings
- Annexure B: Visualisations of South and Control Buildings
- Annexure C: Visualisations of North Buildings

**ANNEXURE A: ARCHITECTURAL DRAWINGS OF REVISED DESIGN
OPTION FOR TUNNEL BUILDINGS**

ANNEXURE B: VISUALISATION OF SOUTH AND CONTROL BUILDINGS

Waterview Connection
Project: Tunnel Buildings
FOR NZTA

Annexure B: Visualisations -
South and Control Buildings

12 November 2010













ANNEXURE C: VISUALISATION OF NORTH BUILDINGS

Waterview Connection
Project: Tunnel Buildings
FOR NZTA

Annexure C: Visualisations -
North Buildings

12 November 2010











