VIC PARK TUNNEL URBAN DESIGN MASTERPLAN

DEVELOPED DESIGN

Boffa Miskell Limited
Rev: E
Status: Final
Date: 24.03.10

NZ Transport Agency — Victoria Park Tunnel

Victoria Park Alliance
NZTA • BECA • FIE • FLETCHER • HIGGINS

Warren and Mahoney

Boffa Miskell

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1.0 INTRODUCTION

1.1 DESIGNATION CONDITIONS TABLE

CONDITIONS			MANAGEMENT PLANS		
CONDITION TYPE	**CONDITION**	**RESPONSIBILITY**	**PLAN**	**LOCATION**	**COMMENTS**
General	**Condition 1.1** Except as modified by the conditions below and subject to final design, the project works shall be undertaken in general accordance with the information provided at the hearing by the Requiring Authority (Transit New Zealand), the Notices of Requirement and the supporting documents, namely: (a) 'Harbour Bridge To City Project – Overview, Notices of Requirement and Attachments Volume 1' prepared for Transit New Zealand by Beca Infrastructure Ltd, dated October 2005; (b) 'Harbour Bridge To City Project – Assessment of Environmental Effects - Volume 2' prepared for Transit New Zealand by Beca Infrastructure Ltd, dated October 2005; (c) 'Harbour Bridge To City Project –Technical Appendices - Volume 3' prepared for Transit New Zealand by Beca Infrastructure Ltd, dated October 2005; (d) 'Harbour Bridge To City Project – A3 Plans - Volume 4' prepared for Transit New Zealand by Beca Infrastructure Ltd, dated October 2005; (e) Further information provided with the response provided under Section 92 Resource Management Act 1991 (dated 2 February 2006). Note: The Harbour Bridge to City project has been renamed the "Vic Park Tunnel Project" (the project).	Vic Park Alliance	All Plans	noted	
Public Open Space and Amenity - Trees	**Condition 10.4** The Requiring Authority shall develop a tree mitigation package comprising transplanting or replanting of trees, and planting of new trees.	Vic Park Alliance	Tree Report	Tree Report	Trees to be removed and proposed plantings are indicated within both the EWP and BoW UDLMP documents.
Public Open Space and Amenity – Auckland City Parks and Reserves	**Condition 11.3** All land owned by the Auckland City Council shall be restored to its pre construction state, or as otherwise agreed by the Auckland City Council (Manager Property Group) and the Requiring Authority in accordance with the Urban Design and Landscape Mitigation Plan.	Vic Park Alliance	UDLMP	noted	Subject to ongoing discussions with Auckland City Council.
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.1** The PMP shall include an Integrated Urban Design and Landscape Mitigation Plan ("UDLMP") to be provided to the Auckland City Council (Group Manager – Community Planning) prior to or together with the outline plan of works for the Project or relevant Project stage. The UDLMP shall be prepared by a suitably qualified person or persons and shall take into account the following: 1. Transit New Zealand's "Guidelines for Highway Landscaping" (dated September 2002) 2. Transit New Zealand's "Central Motorway Improvements: Urban Design Framework" (dated 6 September 2001); and 3. Transit New Zealand's 'Urban Design Implementation Principles" (2006).	Vic Park Alliance	UDLMP	VPT Early Works Package UDLMP (EWP UDLMP) VPT Balance of Works UDLMP (BoW UDLMP)	

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Public Open Space and Amenity - Trees	**Condition 10.3** **In the event that it is not feasible to transplant one or more of the scheduled London plane trees, their removal shall be mitigated by the planting of an appropriate number of London Plane trees in Victoria Park with the intent that the ring of trees that delineates the Park is maintained. The Auckland City Arborist.... by the Auckland City Arborist.**	Vic Park Alliance	Masterplan	Section 4.7.1 (Masterplan)	The London plane trees that need to be removed for tunnel construction will be replaced and the ring maintained.
Public Open Space and Amenity - Trees	**Condition 10.4** The Requiring Authority shall develop a tree mitigation package comprising transplanting or replanting of trees, and planting of new trees.	Vic Park Alliance	Masterplan	Planting Section 7.0 (Masterplan)	Trees to be removed and proposed plantings are indicated within the UDLMP documents.
Public Open Space and Amenity – Auckland City Parks and Reserves	**Condition 11.3** All land owned by the Auckland City Council shall be restored to its pre construction state, or as otherwise agreed by the Auckland City Council (Manager Property Group) and the Requiring Authority in accordance with the Urban Design and Landscape Mitigation Plan.	Vic Park Alliance	All plans	noted	Subject to ongoing discussions with Auckland City Council.
Public Open Space and Amenity – Auckland City Parks and Reserves	Condition 11.4 Any structures and associated infrastructure required to be located within the Victoria Park to provide emergency access to and egress from the Victoria Park tunnel shall be: 1. Made as unobtrusive as practicably possible, while achieving their necessary functionality; 2. Located in a manner consistent with existing buildings and site features, or otherwise near the periphery of Victoria Park, to the extent practicable; 3. If possible integrated into other Park features or structures; 4. Suitably designed and landscaped to minimise their adverse effects.	Vic Park Alliance / Auckland City Council	Masterplan. Detailed design subject to the Victoria Park Sector Plan.	Indicative location shown in Section 4.7.1 (Masterplan). Further detail to come in Victoria Park Sector Plan.	The egress structures are to be dealt with separately. Final details of the Egress Structures will be detailed in the Victoria Park Sector.

Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.4.1** Contents of Detailed Design Plans. 1. Streetscape elements to be included in the detailed design plans as described in condition 12.3(2) shall include: i. Noise attenuation barriers no greater than 5m in height; ii. Road safety barriers; iii. Retaining walls; iv. External appearance and safety considerations (eg. Stone-throwers) of tunnel portals, the design of tunnel portal approaches, and emergency egress; v. The relocated Birdcage (Rob Roy) Hotel and surrounding Franklin Road precinct; vi. Open space in front of the relocated Birdcage Hotel and between the southern tunnel portal and Franklin Road; vii. Replacement of pedestrian and park facilities displaced by the Project; viii. The new pedestrian footbridge and the other new pedestrian facilities proposed by the Project, including those within the St Mary's Bay reserve and Victoria Park; ix. Local road reserves affected by the designation, including Franklin Road, Victoria Street, Beaumont Street and Fanshawe Street; x. The Fanshawe Street/Beaumont Street intersection and the Victoria Street/Franklin Road/Union Street intersection including the following elements; • Sensitivity to the safety of pedestrians; • Improved pedestrian linkages; • Consistency with local traffic plans and requirements • Landscaping and design consistent with the Urban Design Framework which recognises the setting and context of the surrounding area including significant cultural and historic features (if any); • Streetlights and sign gantries; • Preservation of the Jacob's Ladder pedestrian route in recognition of that route's historic significance and social value.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Cond' 12.4.1 i - iii Section 5.0 (Masterplan) Cond' 12.4.1 iv Section 6.3.1 (Masterplan) Cond' 12.4.1.v & vi Section 4.8.1, 4.9.1 5.0 (Masterplan) - with more details to be provided in the Rob Roy Sector Plan. Cond' 12.4.1 vii Section 4.7.0 and 4.7.1. Cond' 12.4.1 viii Sections 4.6.1, 4.7.1. Cond' 12.4.1 ix Section 4 (Masterplan) Cond' 12.4.1 x Section 4.5.1, 4.7.1 with further details to be provided for these two sectors (Sectors 5 and 7).	Developed design drawings included in this package. Detailed design is subject to sector plans.
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.4.2(i)** Landscape elements to be included in the detailed design plans as described in 12.3 (2) shall include the following: i. A plan for the St Mary's Bay Reserve from Shelly Beach Road through to Beaumont Street, developed in accordance with the following concepts: • The final Urban Design Framework; • The recognition of the tree lined St Mary's Bay cliffs as a gateway to Auckland City; • The existing high natural character of the area; • The importance of good pedestrian linkages including footpaths, boardwalks and access to the pedestrian overbridge and Jacob's Ladder; • The need for ground contouring and landscaping which avoids water ponding, where practicable, and that is sensitive to user amenity and safety and the ability to appreciate existing views, having regards to the effects of any noise barriers that are installed; • Replacement and replanting of trees affected by the works and noise barriers.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Sections 4.2.1, 4.3.1, 4.4.1 for St Mary's Bay, Section 4.6.1 for Jacobs Ladder Area, Sections 4 and 7 for replanting details (Masterplan)	Landscape elements are detailed throughout the Masterplan document, with vegetation protected and replaced where practicable.

Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.4.2(ii)** ii. A plan for the western end of Victoria Park, developed in accordance with the following concepts: • The Victoria Park Management Plan (2005); • The final Urban Design Framework; • Recognition of the existing character and design of the Park; • The maintenance of the ring of Plane trees and the location of landscaping features having regard to the amenity of the Park; • Public access and use including access ways and recreational activities; • Effective and imaginative use of the space directly under the viaduct structure; • Minimising the effect of the location and design of any structures and associated infrastructure required for emergency access to or egress from the tunnel; • Areas identified for active recreation including re-establishment of existing activities or new activities such as playgrounds etc and associated parking.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Cond' 12.4.2(ii) Section 4.7.1 (Masterplan)	Note: The skatepark design and relocation is being handled by Auckland City Council. The plans for Victoria Park primarily focus on the rehabilitation following the disestablishment of the site compound and completion of the works. Egress structures are to be dealt with separately with only an indicative location illustrated in the Masterplan document.
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.4.2 (iii)** iii. Specific vegetation removal and modification plans showing all scheduled and non-scheduled trees and significant vegetation to be removed/ relocated/modified and the landowner(s) involved.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Section 4.0 and Section 7.0 (Masterplan)	All planting to be removed is located in either the NZTA designation or ACC land.
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.4.2(iv)** iv. Specific planting plans showing the trees and vegetation to be retained, all new planting, and a detailed plant list and specifications including number, size and species.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Section 4.0 and Section 7.0 (Masterplan)	
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.4.2 (v)** v. Planting programme – the staging of planting in relation to the construction programme.	Vic Park Alliance		Unable to be provided at this time. Pending resolution of the construction programme for the project.	

Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.4.2 (vi)** vi. Detailed specifications relating to (but not limited to) the following: • Vegetation protection (for desirable vegetation to be retained); • Weed control and clearance; • Ground preparation (topsoiling and decompaction to ensure rapid plant establishment and ongoing vigour); • Mulching; • Plant supply and planting; • Maintenance regime (requirements and programme); • Performance standards (for site preparation, plant supply, planting and maintenance).	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Section 4.0 and Section 7.0 (Masterplan)	Specifications for the Masterplan are the same as for those included in the superseded EWP document.
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.5** Where appropriate, landscape mitigation proposals outside of the designation (e.g. Victoria Park, St Mary's Bay Reserve, Westhaven drive and Point Erin) may be agreed by the Requiring Authority with the appropriate landowner and subsequently implemented.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Section 4.7.1 (Masterplan)	Discussions with ACC & NZTA are being undertaken to determine the potential to undertake street planting outside of the designation in the Victoria Park Sector.
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.6** In developing the UDLMP consideration shall be given to: 1. Other measures that may assist the Auckland City Council to promote safety and security for local residents and open space users; 2. Other measures to assist the Auckland City Council to promote a positive pedestrian experience within the Project area, including the development of pedestrian links in Freeman's Bay (Napier Street to the Birdcage Hotel), through Victoria park and the St Mary's Bay Reserve; 3. Cooperating with the Auckland City Council to identify and to provide opportunities to accommodate any stakeholder funded art works; 4. The requirement that Transit's financial commitment to the urban design process is limited to the mitigation of Project related effects resulting from works within its designation.	Vic Park Alliance	All plans.	Throughout the Masterplan and sector plan documents	
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.7** The noise barrier along the St Mary's Bay Reserve shall be designed in accordance with the principles of the Urban Design Framework. This design shall take into account the following considerations: • The provision of acoustic barriers beside the carriageway to achieve, at a minimum, compliance with the Transit New Zealand 'Guidelines for the Management of Road Traffic Noise – State Highway Improvements' (December 1999). Such barriers, where appropriate, shall be transparent. • Allowing maximum appreciation by southbound motorists of the gateway effect of the tree-lined cliffs; • Allowing good views of the Westhaven Marina and the Waitemata Harbour from properties on the cliffs and also from the adjacent walkway; • Making the barrier itself an attractive landscape element; • The cost, constructability, and the maintenance requirements of the barrier (including, removal of graffiti and advertising posters).	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Section 5.2.2 (Masterplan)	

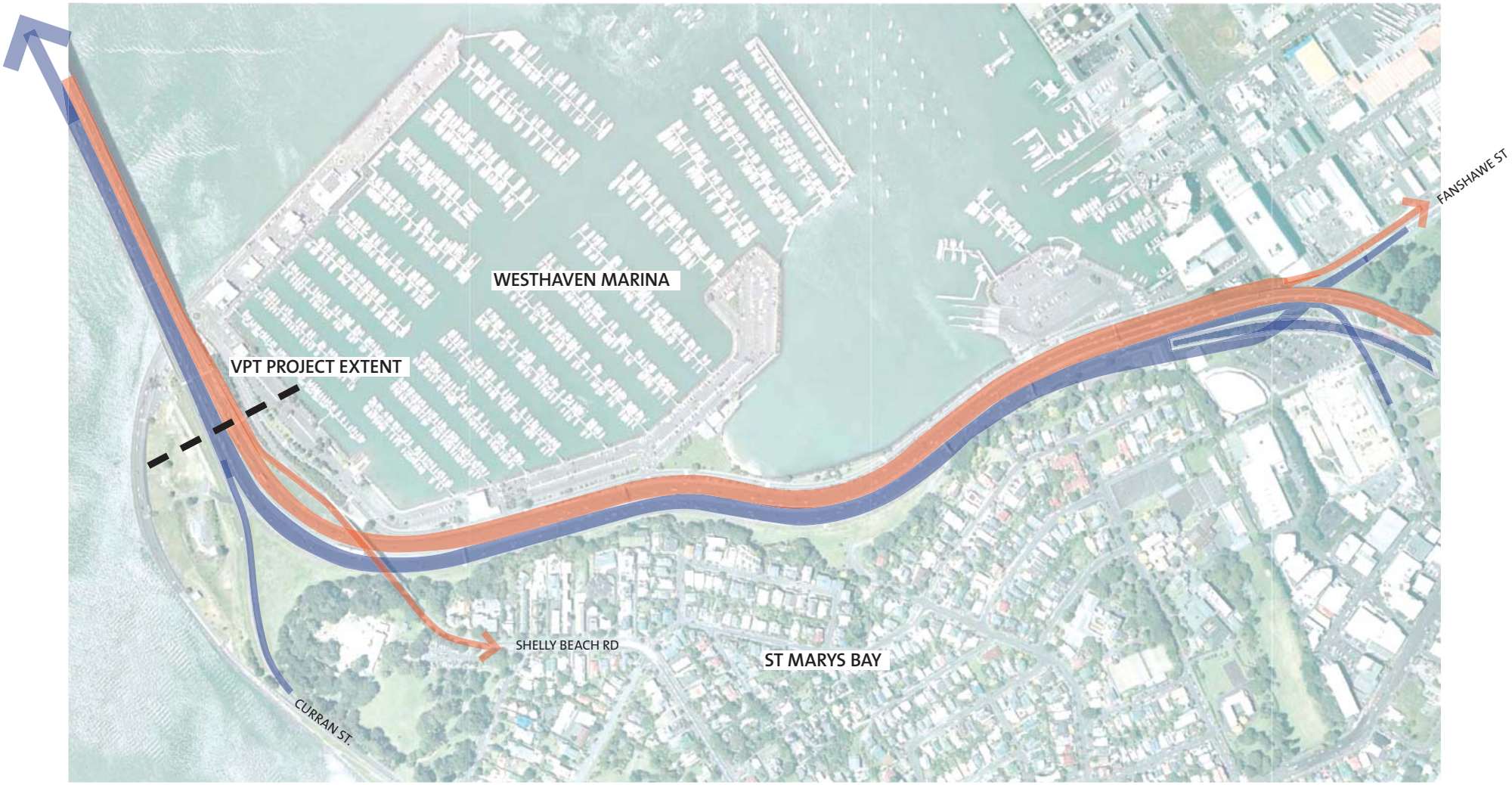
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.8** A management and maintenance plan shall be prepared by the Requiring Authority and implemented for all noise barriers to ensure that, to the extent practicable, the barriers are continually maintained in good condition and free of graffiti and other defacements that may affect the visual amenity of the surrounding areas.	Vic Park Alliance	Masterplan	To be completed.	Note subject to resolution between NZTA and AMA.
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.9** Prior to planting and throughout the ensuing maintenance period, all weed species declared as plant pests in the Auckland region by the ARC (including Total Control/Containment Pests/Surveillance Pests & Research Organisms) shall be controlled and removed from the designated areas by the Requiring Authority.	Vic Park Alliance	All plans	noted	
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.10** In areas where shrub mixes are used, planting densities shall ensure low canopy coverage has been attained by the end of the maintenance period, which will run for three years following completion of the construction works.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Section 7.0 (Masterplan)	
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.11** Where native plants are used, the composition shall reflect the natural plant associations of the area, and the mixes (where relevant) shall be of suitable richness and diversity to encourage self- sustainability once established. This will require the inclusion of appropriate successional species, including canopy tree species either in the initial planting or as enrichment planting.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Section 7.0 (Masterplan)	
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.12** Where practicable, any planting using native plants shall use plants genetically sourced from the ecological district.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Section 7.0 (Masterplan)	
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.13** Planting areas shall be mulched using suitable weed-free, granular organic mulch. The only exceptions to this shall be where the slopes are too steep to allow for its retention. In such cases a neutral or black coloured biodegradable or photodegradable geotextile is to be used.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Section 7.0 (Masterplan)	
Public Open Space and Amenity – Integrated Urban Design and Landscape Mitigation Plan	**Condition 12.14** The landscaping shall be implemented in accordance with the UDLMP within the first 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 3 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.	Vic Park Alliance	Masterplan. Detailed design subject to sector plans.	Section 7.0 (Masterplan)	

1.2 THE VPT URBAN DESIGN MASTER PLAN

This UDLMP Master Plan is being prepared for the overall Victoria Park Tunnel project and is a requirement of the conditions of the Designation for the NZTA Victoria Park Tunnel project. This document builds on the work contained within the draft Vic Park Tunnel Urban Design Framework (20 October 2006) document.

The UDLMP is designed to provide a high level overview of the landscape and urban design outcomes sought for the project corridor. Ten sectors have been identified and these are noted in Section 3 of this document. These sectors will be subject to further more detailed Sector Plans which will provide specific detail on landscaping and urban design features including (but not limited to): plant species; numbers and sizes of planting; any special requirements; maintenance programme; materials specification; exterior treatments; details of hard landscaping; and details of furniture.

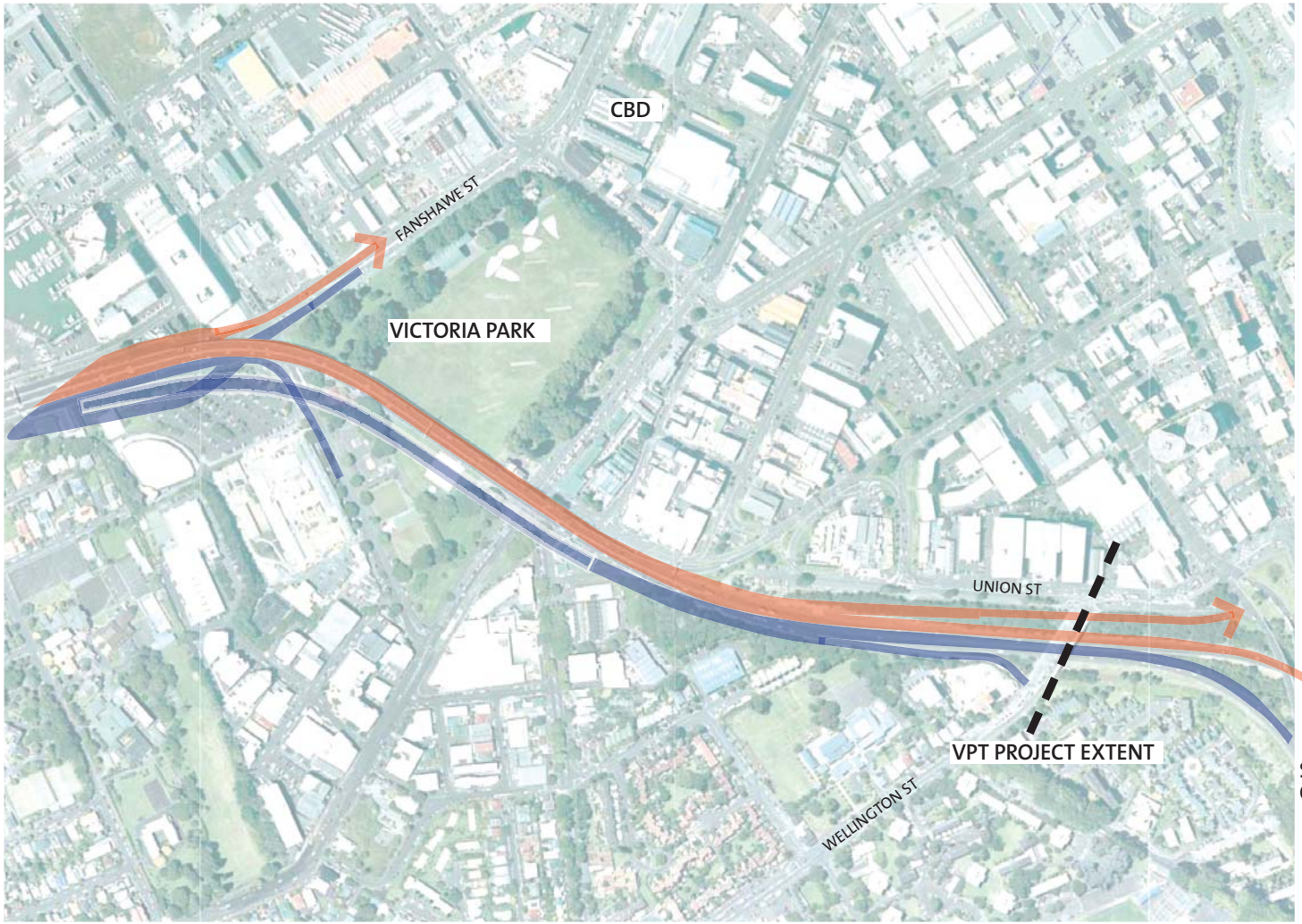
Due to the nature of Alliance construction projects, design improvements, innovations and construction methodologies will change through-out the project life. It is intended that the sector plan detailed design documents will incorporate these changes and be subject to on going design and interrogation throughout the life of the construction project.



1.3 PROJECT DESCRIPTION

1.3.1 VIC PARK TUNNEL PROJECT

The VPT project extends from the southern approaches of the Auckland Harbour Bridge (AHB), through St Mary's Bay (SMB) and across the Victoria Park Viaduct (VPV) to the Wellington Street over-bridge. The corridor includes connections at the Shelly Beach Road off-ramp, Curran Street on-ramp, Fanshawe Street on and off-ramps, Cook Street off-ramp and the Wellington Street on-ramp. The corridor currently consists of four traffic lanes in each direction through St Mary's Bay and two lanes in each direction across the Victoria Park Viaduct. The project will involve the construction of a new tunnel adjacent to the viaduct, to cater for three northbound traffic lanes. The viaduct will then provide four lanes southbound. Modifications are proposed to the Fans awe Street on and off-ramps, and the Wellington Street on-ramp.



1.4 URBAN DESIGN CONCEPTS

In the Urban design framework document a summary of cultural values, history and geology was developed at a broad scale for the VPT route and immediate context. Through consultation with Iwi, ACC and the Alliance design team a number of these concept ideas have been brought through to inform the design of motorway features. A summary of these is represented below, subject to further design refinement through the design build phase.

KI TAI - the sea

Westhaven Drive retaining wall

An abstracted form of a fish has been used to form a textural relief for the retaining wall. Fish is a symbol of the ocean and a source of life

KUPENGA - fish net

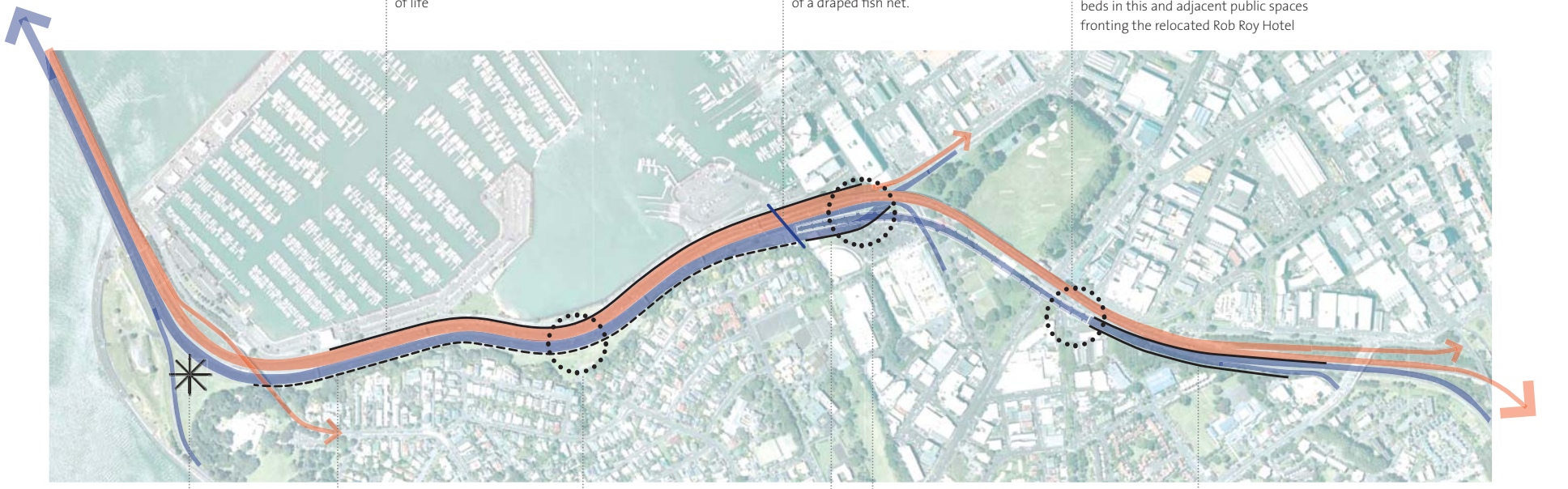
Pedestrian bridge

The pedestrian bridge and the link with Jacob's ladder forms a re-connection between the land and the sea. The cladding of the bridge is representative of a draped fish net.

WAI KUTA / WAIKOKOTA
- a stream with kuta growing and a shallow bay abundant with shellfish

Rob Roy sector

The former shallow foreshore and river mouth is reflected in pavement design and potential planting of kuta reed beds in this and adjacent public spaces fronting the relocated Rob Roy Hotel



TE ROUTU UREIA

Point Erin

Landscape design responds to former foreshore environment

KI UTA
- land / foreshore

St. Mary's Bay Acoustic barrier

Form of barrier responds to ebb and flow of foreshore environment and reflects the form of the cliffline

TE ONEROA A HUATAU
- long beach of Huatau

Westhaven Drive TL5 barrier

Text relief in barrier facing Westhaven drive

TE TŌ
- Te Tō Point

TE TŌ
- Te Tō Point

Westhaven Drive TL5 barrier

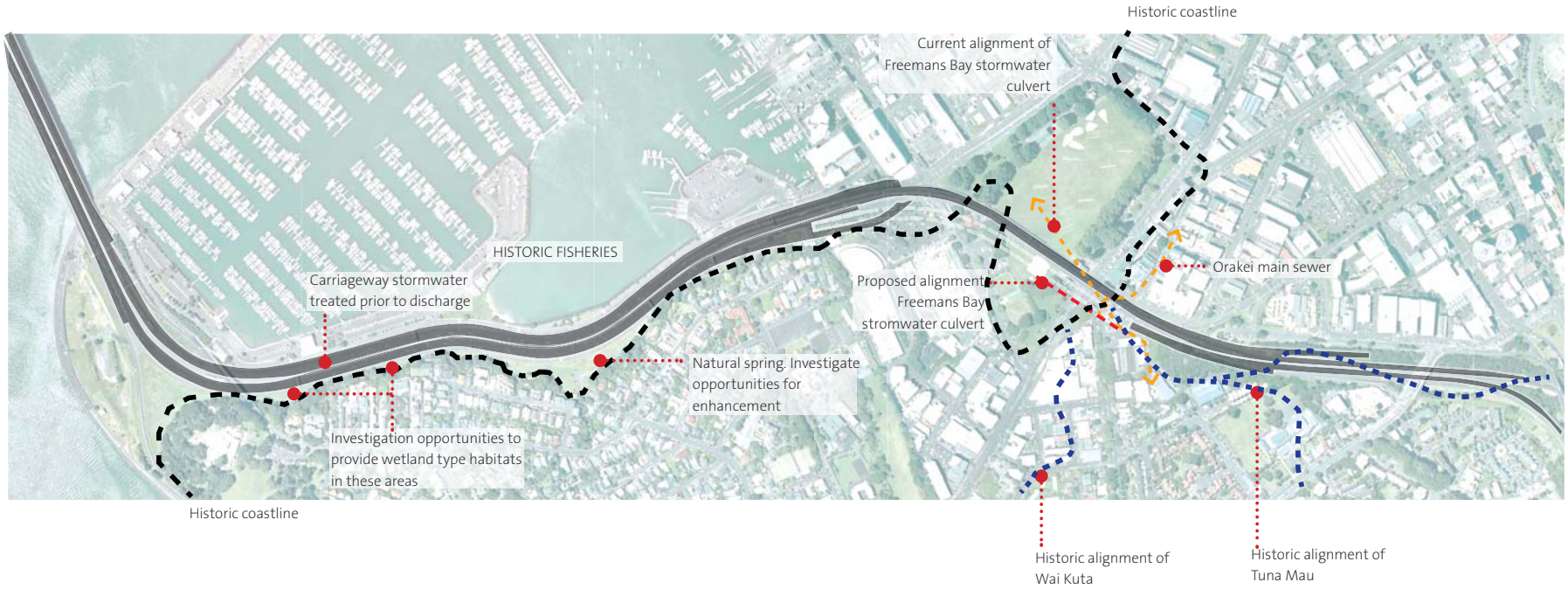
The retaining wall adjacent to the VCC land is split into a lower and upper part - the upper reflecting the sandstone cliff behind, the lower flat smooth precast panels. There may be some representation of palisading in concrete or steel railings to be confirmed through Iwi consultation

TUNA MAU
- a stream abundant with eels

Tunnel approach retaining walls

The precast cladding for the approach walls have a tilted form of 50 - 100mm as a representation of the form of an eel, also responding to the curvature of the alignment

1.5 WATER CONCEPT



2.0 MASTERPLAN

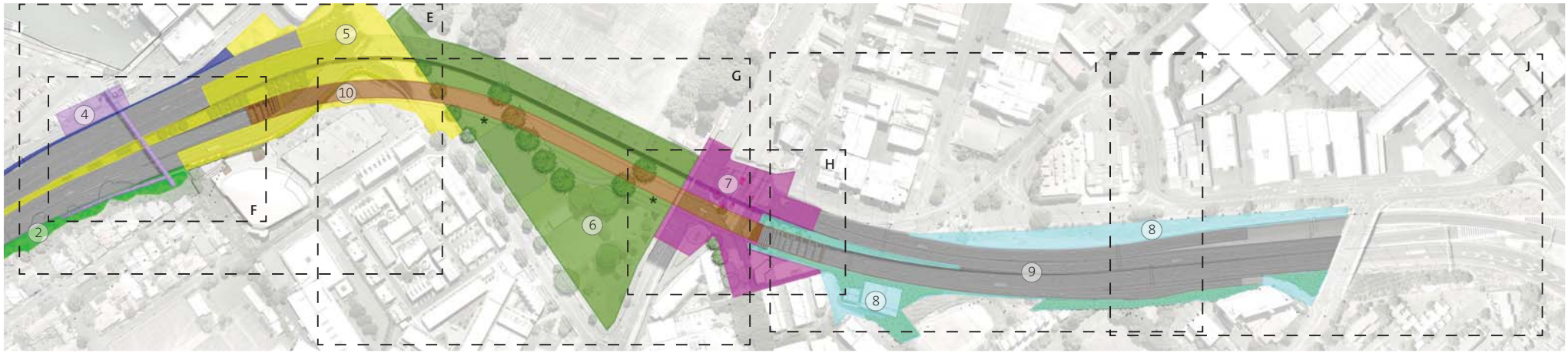
2.1 SECTOR LAYOUT

KEY:

SECTOR LOCATIONS:

1. POINT ERIN
2. ST MARY'S BAY RESERVE
3. WESTHAVEN
4. JACOB'S LADDER FOOTBRIDGE AND TIE-INS
5. BEAUMONT / FANSHAWE
6. VICTORIA PARK
7. ROB ROY
8. FREEMAN'S BAY
9. MOTORWAY CARRIAGEWAY
10. TUNNEL AND PORTALS

GENERAL ARRANGEMENT PLANS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3.0 SECTOR LOCATION PLANS

3.1 POINT ERIN SECTOR

INCLUDES:

- Shelly Beach Road as included within the designation boundary
- The open space under the Shelly Beach Road overbridge, immediately adjacent to the motorway connecting to the land between the Shelly Beach Road overbridge and the Curran Street on ramp
- The NZTA land west of Curran Street on ramp and adjacent to bridge park

3.2 ST MARY'S BAY RESERVE SECTOR

INCLUDES:

- The open space between the rear of the motorway barrier and the toe of the coastal cliff (generally)
- Extent of this sector is from Shelly Beach Road overbridge to the Te Tō Headland (Victory Christian Church)
- Includes St Mary's Bay Reserve and car park

3.3 WESTHAVEN SECTOR

INCLUDES:

- The land between the back of the kerb of Westhaven Drive to the motorway, not including the motorway retaining walls or timber noise wall.
- Extent is from the southern end of the Harbour Bridge through to a point approximately 100m from the end of the Fanshawe Street off ramp

3.4 JACOB'S LADDER FOOTBRIDGE AND TIE-INS SECTOR

INCLUDES:

- The Jacob's Ladder footbridge and associated ramps on the southern tie in
- Also includes the northern landing, stairs, lift and associated land contained within the designation over Westhaven Drive and Z pier of the Westhaven marina area

3.5 BEAUMONT/FANSHAWE SECTOR

INCLUDES:

- The ACC road network and intersection of Fanshawe and Beaumont Streets
- The Fanshawe Street on ramp up to the end of the Victory Christian Church (VCC) retaining wall
- The VCC retaining wall and public footpath adjacent to the VCC lands, connecting Jacob's ladder footbridge ramp to Beaumont Street
- The land beneath the existing viaduct up to the Fanshawe/Beaumont Street intersection
- The land to the north of the Fanshawe off ramp within a triangular lot adjacent to Westhaven Drive
- The land between the northbound and southbound motorway lanes until they merge beyond Jacob's ladder footbridge

3.6 VICTORIA PARK SECTOR

INCLUDES:

- The area of Victoria Park bounded by Beaumont Street, Victoria Street, the line of existing viaduct and an extension up to Fanshawe Street

3.7 ROB ROY SECTOR

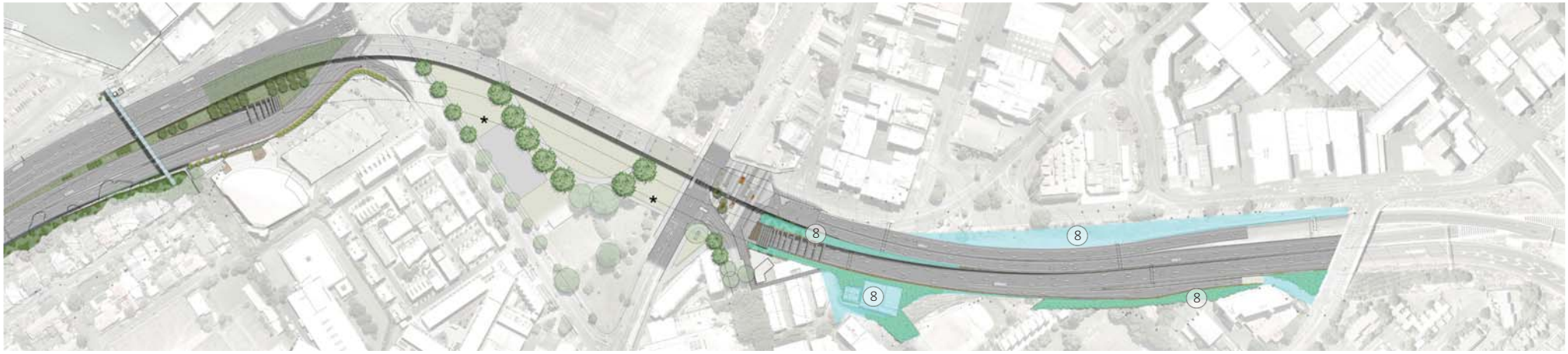
INCLUDES:

- Victoria Street, Union Street and Franklin Road adjacent to the Rob Roy area
- The open space area under the existing viaduct and in front of the current location of the Rob Roy hotel
- The NZTA land being the site of the designated position of the relocated Rob Roy hotel

3.8 FREEMAN'S BAY SECTOR

INCLUDES:

- The land either side of the motorway carriageway from the southern entry of the tunnel to the Wellington Street overbridge
- The land between the south bound viaduct lanes and the northbound tunnel entrance lanes
- The land area to the south of the northbound lanes that will contain the plant building and water reservoirs associated with the tunnel operations



3.9 MOTORWAY CARRIAGEWAY SECTOR

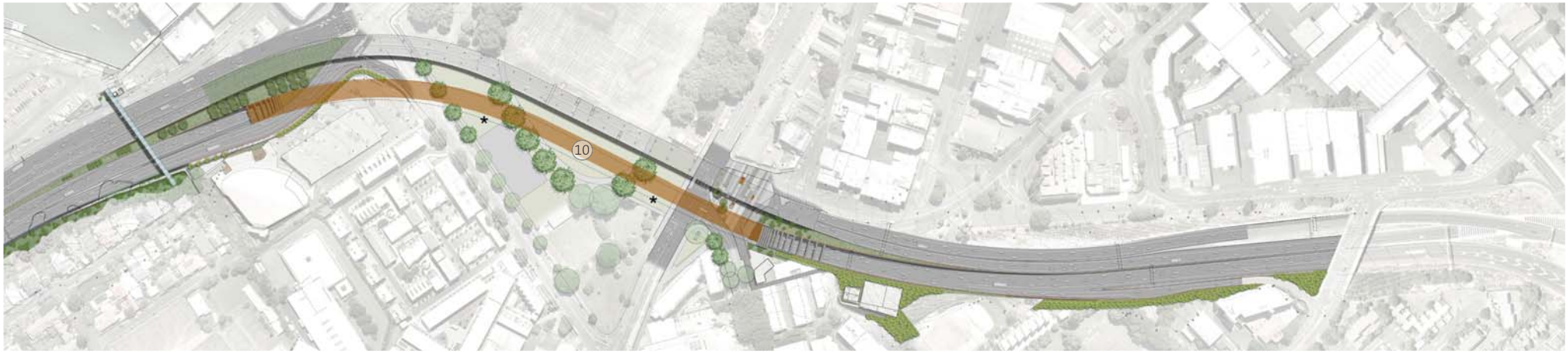
INCLUDES:

• The full carriageway from the Harbour Bridge up to the connection with the CMJ area at Wellington Street including the safety barriers, retaining walls, acoustic barriers and timber fences. Note: excludes tunnel

3.10 TUNNEL AND PORTALS SECTOR

INCLUDES:

- The tunnel and portal structures at the entrance and exit areas



4.0 GENERAL ARRANGEMENT PLANS

4.1.0 PLAN A - existing

4.1.1 PLAN A - proposed

Note: Gantry and lighting locations / design to be confirmed at detail design phase

SECTOR LOCATIONS

1 POINT ERIN

3 WESTHAVEN

9 MOTORWAY CARRIAGEWAY

SCALE 1:500 @ A1, 1:1000 @ A3

KEY:

1.1M CONCRETE BARRIER

SECANT PILE RETAINING WALLS WITH 200MM THICK CONCRETE CLADDING PANELS
REFER SECTION 5.2

TRANSPARENT ACOUSTIC BARRIER - 3-5M HEIGHT
REFER SECTION 5.3

1.8M HIGH SECURITY FENCE TO BE BLACK POOL FENCE OR AN APPROVED ALTERNATIVE AGREED BETWEEN THE ALLIANCE AND ACC

1.4M FENCE TO TOP OF RETAINING WALL AS SAFETY FROM FALLING. TO BE BLACK POOL FENCE OR AN APPROVED ALTERNATIVE AGREED BETWEEN THE ALLIANCE AND ACC

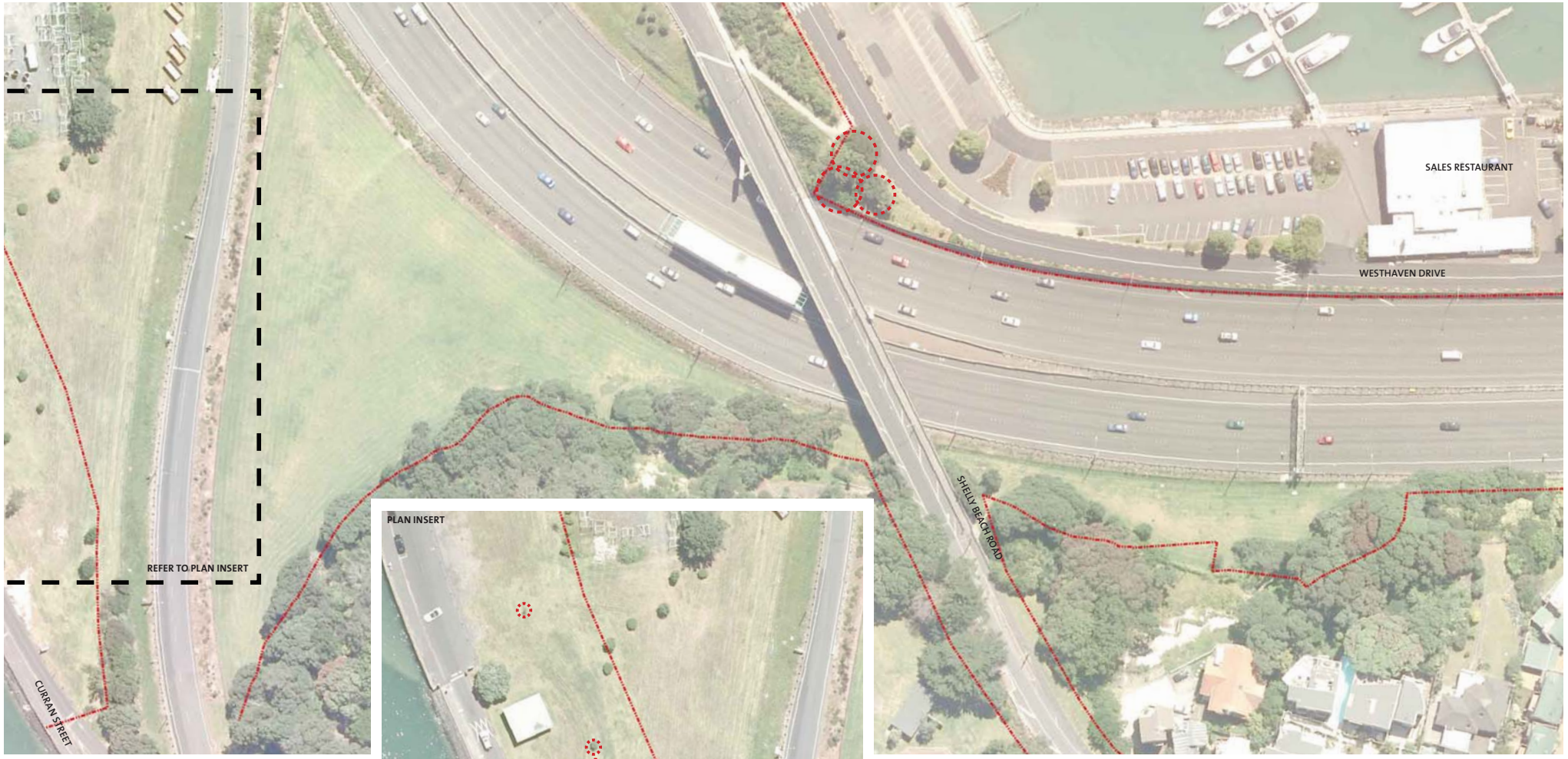
EXISTING TREES RETAINED

SPECIMEN TREES
REFER SECTION 7

LOW SHRUB OR GROUNDCOVER PLANTING
REFER SECTION 7

SCALE 1:500 @ A1, 1:1000 @ A3

4.2.0 PLAN B - existing



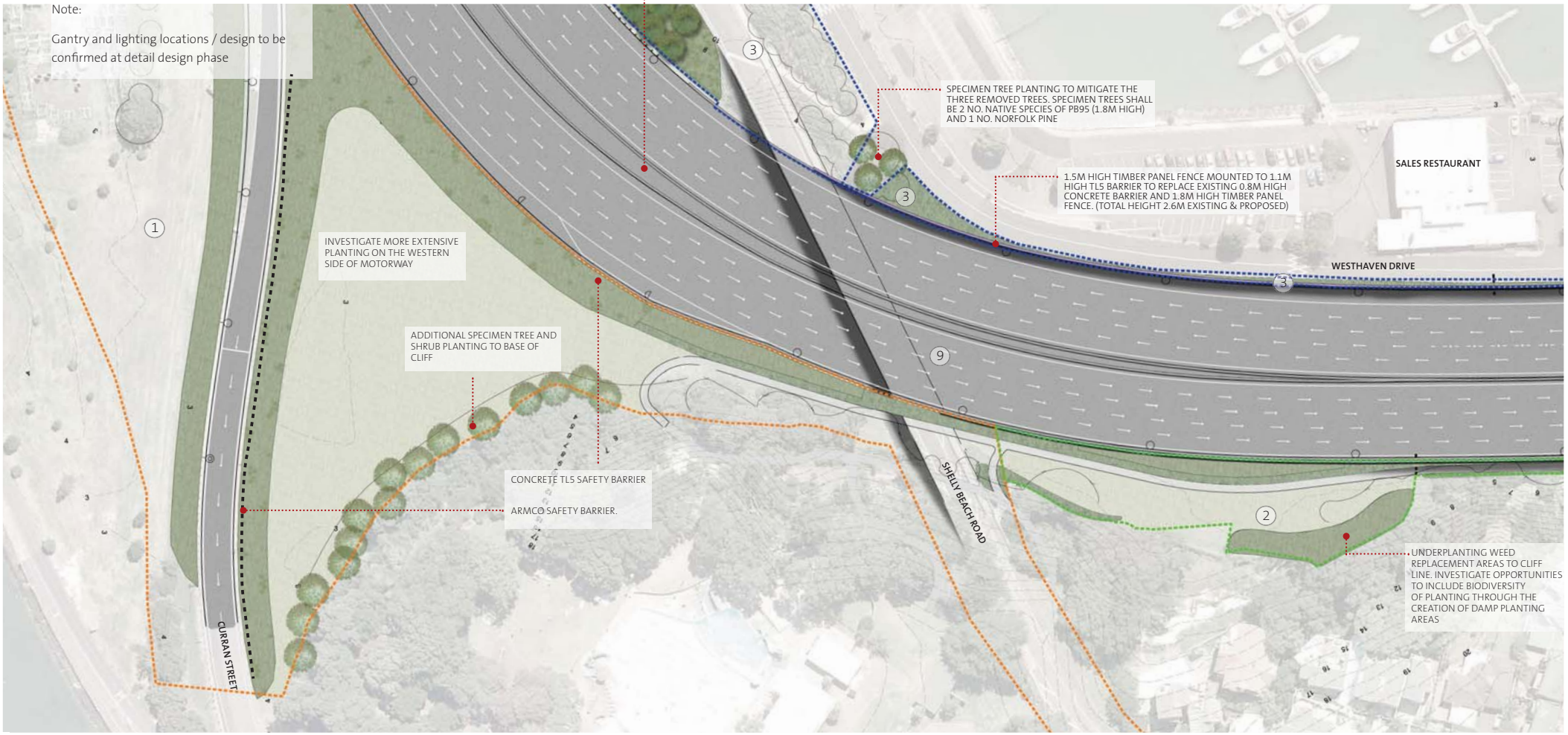
KEY:

TREES TO BE REMOVED SUBJECT TO RESOURCE CONSENT

4.2.1 PLAN B - proposed

Note:

Gantry and lighting locations / design to be confirmed at detail design phase



SCALE 1:500 @ A1, 1:1000 @ A3

KEY:

- 1.1M CONCRETE BARRIER
- SECANT PILE RETAINING WALLS WITH 200MM THICK CONCRETE CLADDING PANELS REFER SECTION 5.2
- TRANSPARENT ACOUSTIC BARRIER - 3-5M HEIGHT REFER SECTION 5.3
- 1.8M HIGH SECURITY FENCE TO BE BLACK POOL FENCE OR AN APPROVED ALTERNATIVE AGREED BETWEEN THE ALLIANCE AND ACC
- 1.4M FENCE TO TOP OF RETAINING WALL AS SAFETY FROM FALLING. TO BE BLACK POOL FENCE OR AN APPROVED ALTERNATIVE AGREED BETWEEN THE ALLIANCE AND ACC
- EXISTING TREES RETAINED
- SPECIMEN TREES REFER SECTION 7
- LOW SHRUB OR GROUNDCOVER PLANTING REFER SECTION 7

SECTOR LOCATIONS

1. POINT ERIN
2. ST MARY'S BAY RESERVE
3. WESTHAVEN
9. MOTORWAY CARRIAGEWAY

FOR ACOUSTIC BARRIER DESIGN ELEVATION REFER SECTION 5.2
FOR WESTHAVEN DRIVE RETAINING WALL PART ELEVATION REFER SECTION 5.3

4.3.0 PLAN C - existing

KEY:

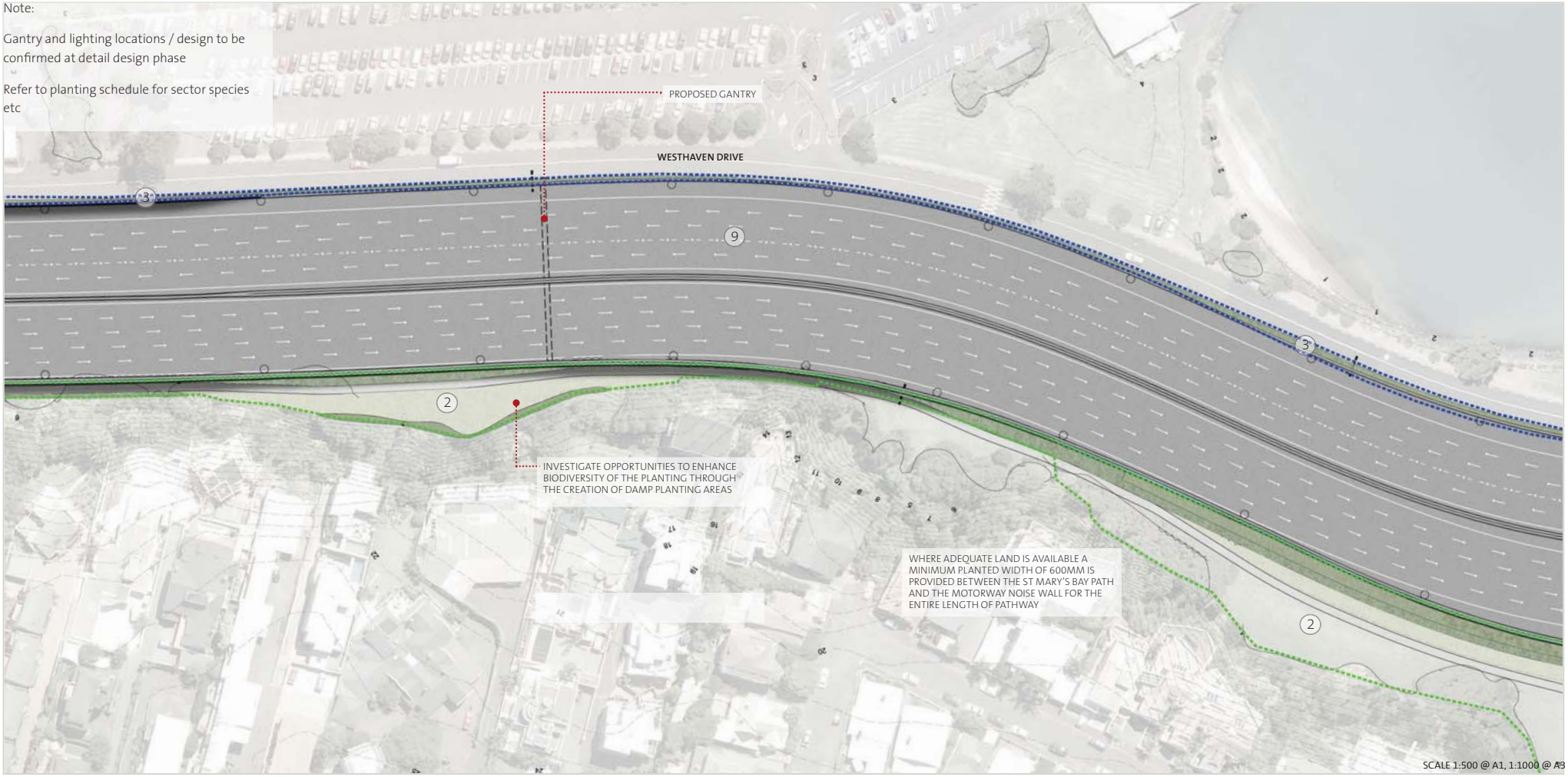
TREES TO BE REMOVED BY ALLIANCE WORKS

4.3.1 PLAN C - proposed

Note:

Gantry and lighting locations / design to be confirmed at detail design phase

Refer to planting schedule for sector species etc



KEY:

- 1.1M CONCRETE BARRIER
- SECANT PILE RETAINING WALLS WITH 200MM THICK CONCRETE CLADDING PANELS REFER SECTION 5.2
- TRANSPARENT ACOUSTIC BARRIER - 3-5M HEIGHT REFER SECTION 5.3
- 1.8M HIGH SECURITY FENCE TO BE BLACK POOL FENCE OR AN APPROVED ALTERNATIVE AGREED BETWEEN THE ALLIANCE AND ACC
- 1.4M FENCE TO TOP OF RETAINING WALL AS SAFETY FROM FALLING. TO BE BLACK POOL FENCE OR AN APPROVED ALTERNATIVE AGREED BETWEEN THE ALLIANCE AND ACC
- EXISTING TREES RETAINED
- SPECIMEN TREES REFER SECTION 7
- LOW SHRUB OR GROUNDCOVER PLANTING REFER SECTION 7

SECTOR LOCATIONS

- 2 ST MARY'S BAY RESERVE
- 3 WESTHAVEN
- 9 MOTORWAY CARRIAGEWAY

FOR ACOUSTIC BARRIER DESIGN ELEVATION REFER SECTION 5.2
FOR WESTHAVEN DRIVE RETAINING WALL PART ELEVATION REFER SECTION 5.3

KEY:

TREES TO BE REMOVED BY ALLIANCE WORKS

4.4.1 PLAN D - proposed

SCALE 1:500 @ A1, 1:1000 @ A3

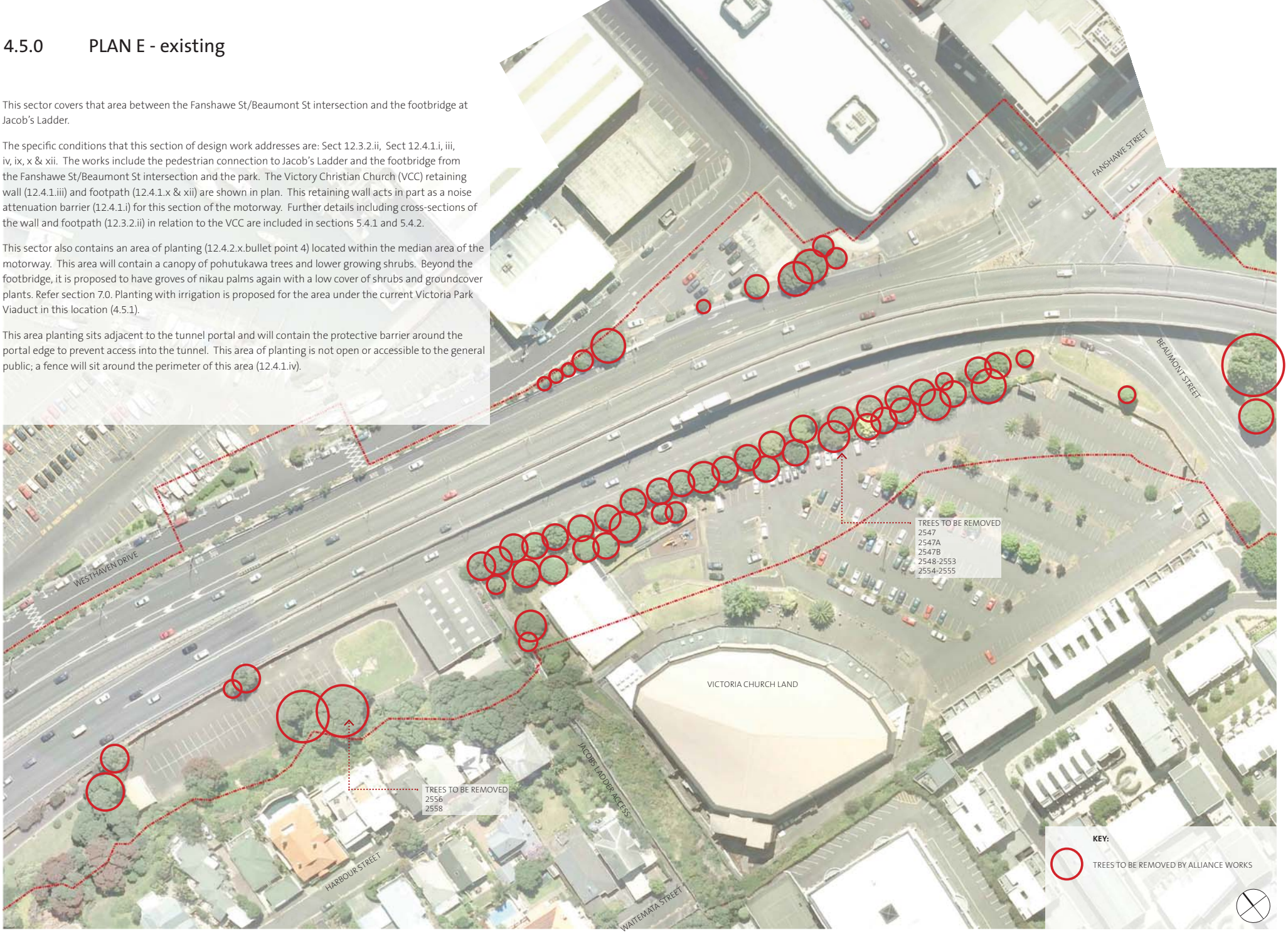
4.5.0 PLAN E - existing

This sector covers that area between the Fanshawe St/Beaumont St intersection and the footbridge at Jacob's Ladder.

The specific conditions that this section of design work addresses are: Sect 12.3.2.ii, Sect 12.4.1.i, iii, iv, ix, x & xii. The works include the pedestrian connection to Jacob's Ladder and the footbridge from the Fanshawe St/Beaumont St intersection and the park. The Victory Christian Church (VCC) retaining wall (12.4.1.iii) and footpath (12.4.1.x & xii) are shown in plan. This retaining wall acts in part as a noise attenuation barrier (12.4.1.i) for this section of the motorway. Further details including cross-sections of the wall and footpath (12.3.2.ii) in relation to the VCC are included in sections 5.4.1 and 5.4.2.

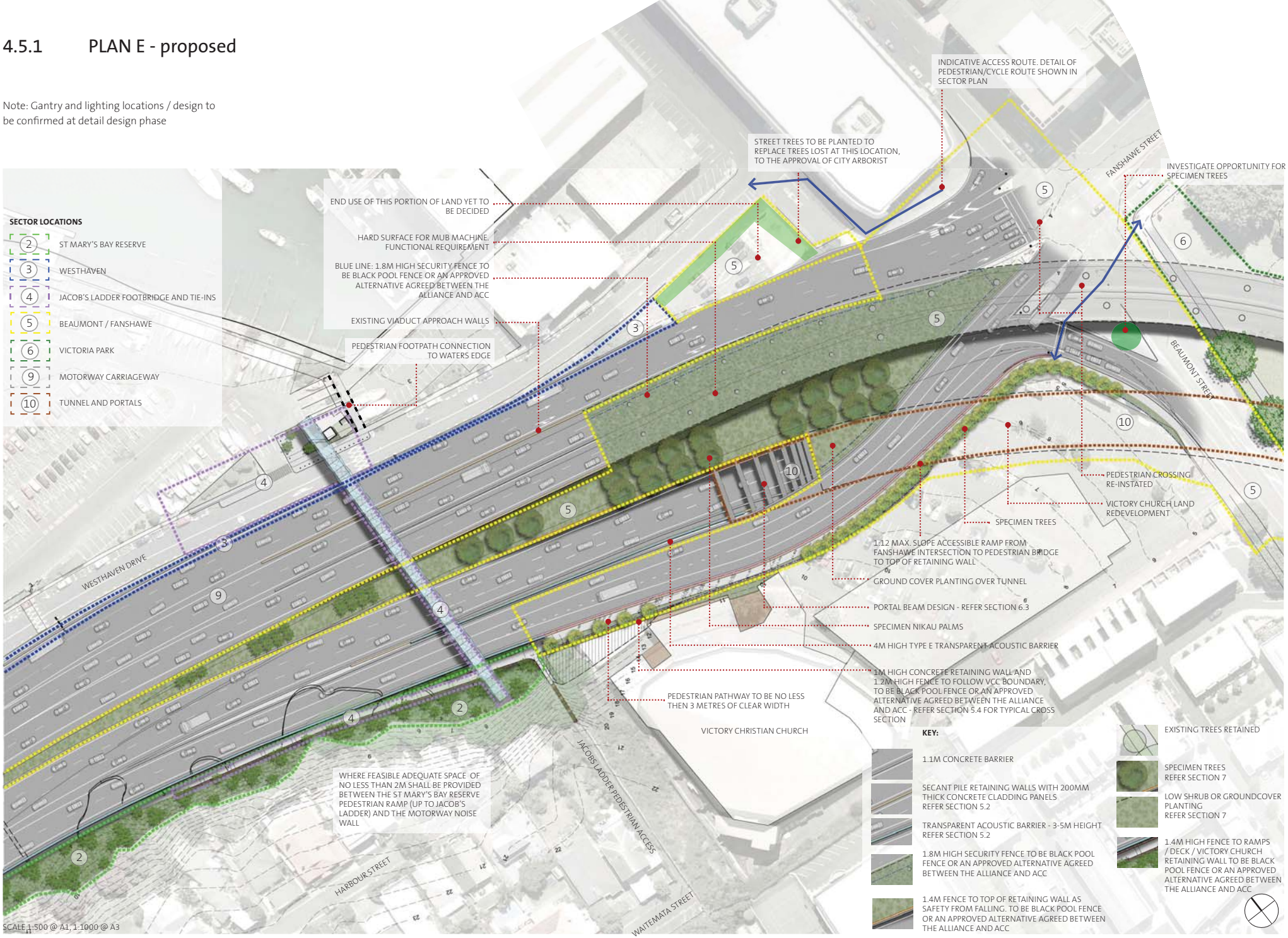
This sector also contains an area of planting (12.4.2.x.bullet point 4) located within the median area of the motorway. This area will contain a canopy of pohutukawa trees and lower growing shrubs. Beyond the footbridge, it is proposed to have groves of nikau palms again with a low cover of shrubs and groundcover plants. Refer section 7.0. Planting with irrigation is proposed for the area under the current Victoria Park Viaduct in this location (4.5.1).

This area planting sits adjacent to the tunnel portal and will contain the protective barrier around the portal edge to prevent access into the tunnel. This area of planting is not open or accessible to the general public; a fence will sit around the perimeter of this area (12.4.1.iv).



4.5.1 PLAN E - proposed

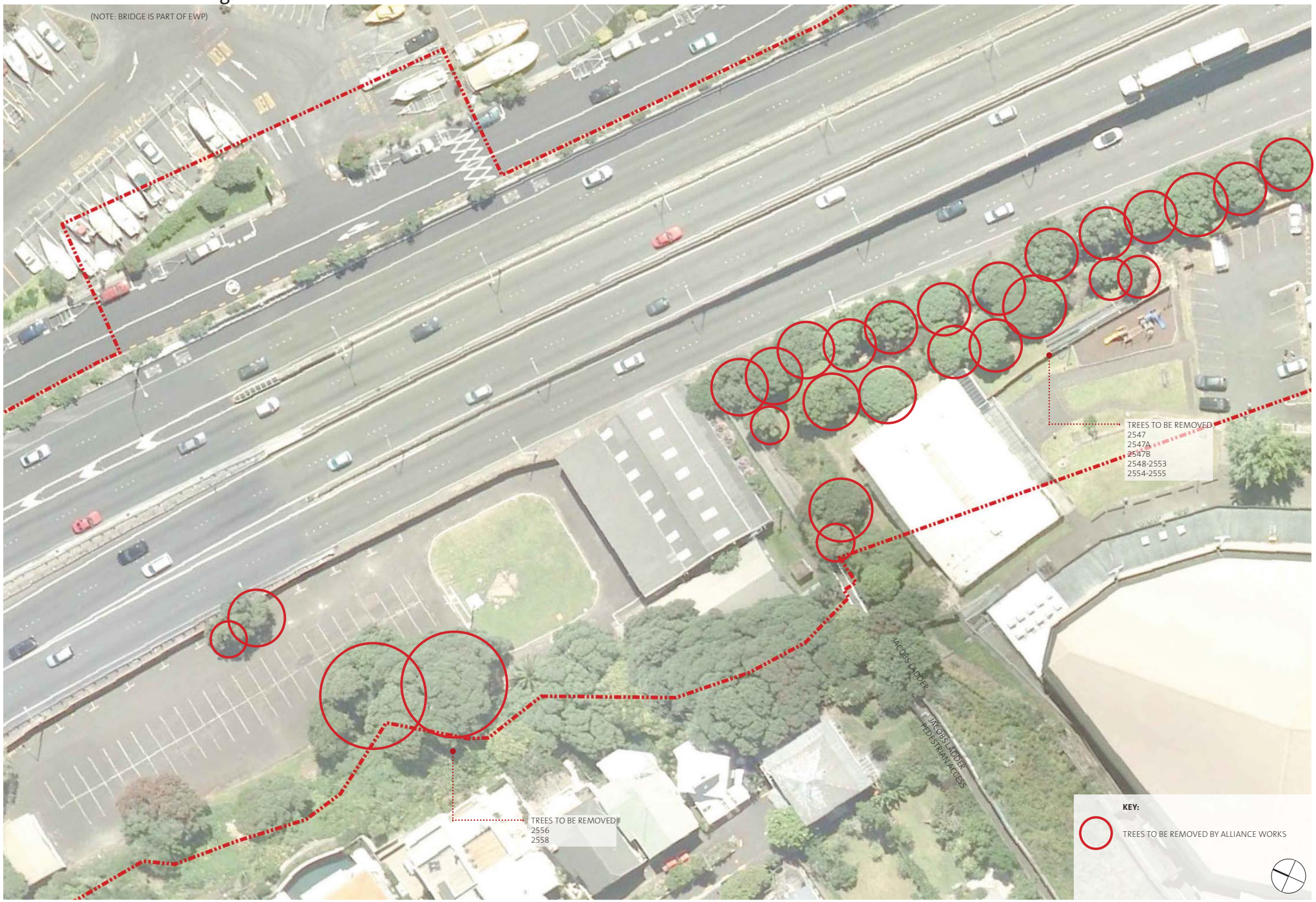
Note: Gantry and lighting locations / design to be confirmed at detail design phase



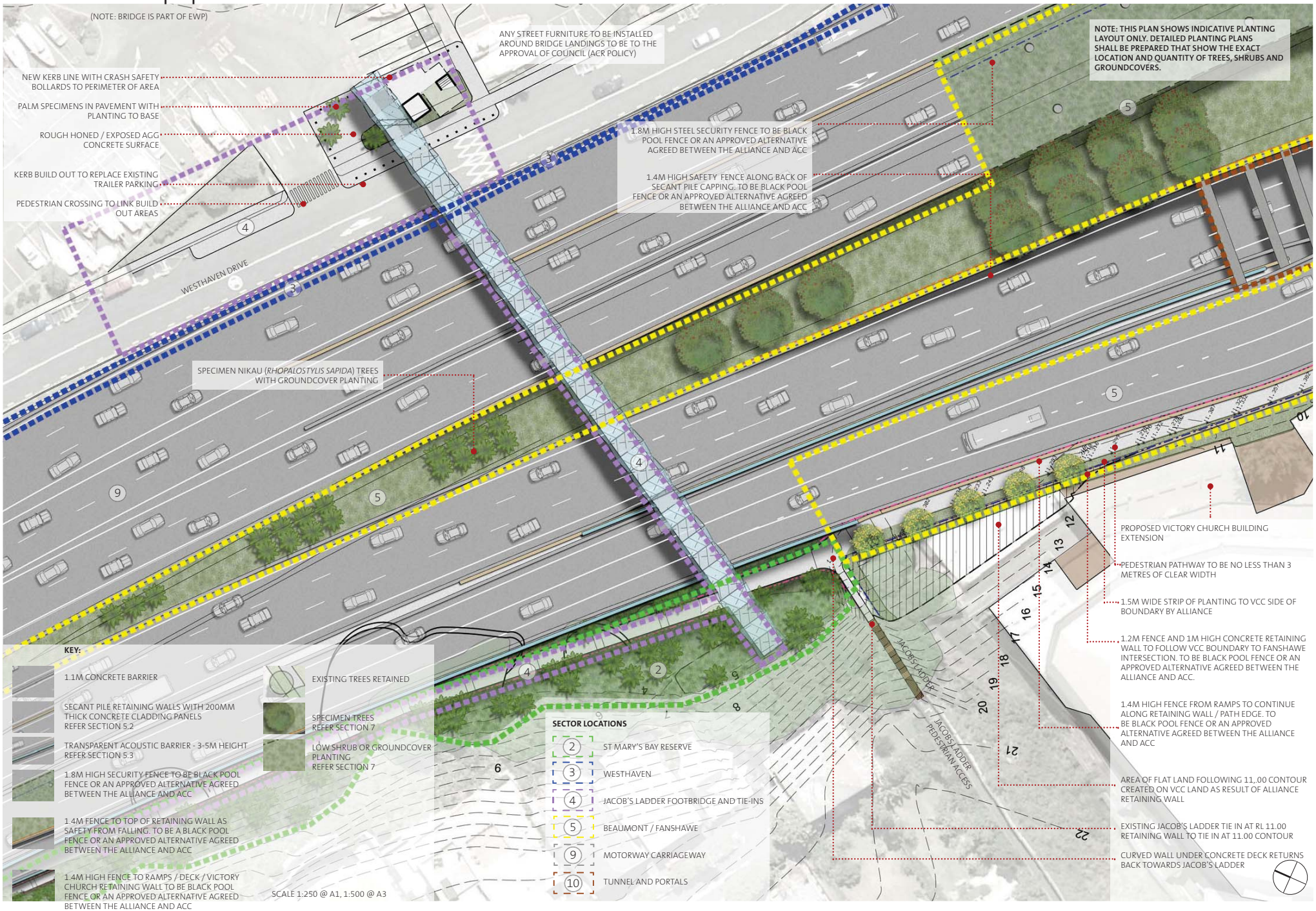
SCALE 1:500 @ A1, 1:1000 @ A3

4.6.0 PLAN F - existing

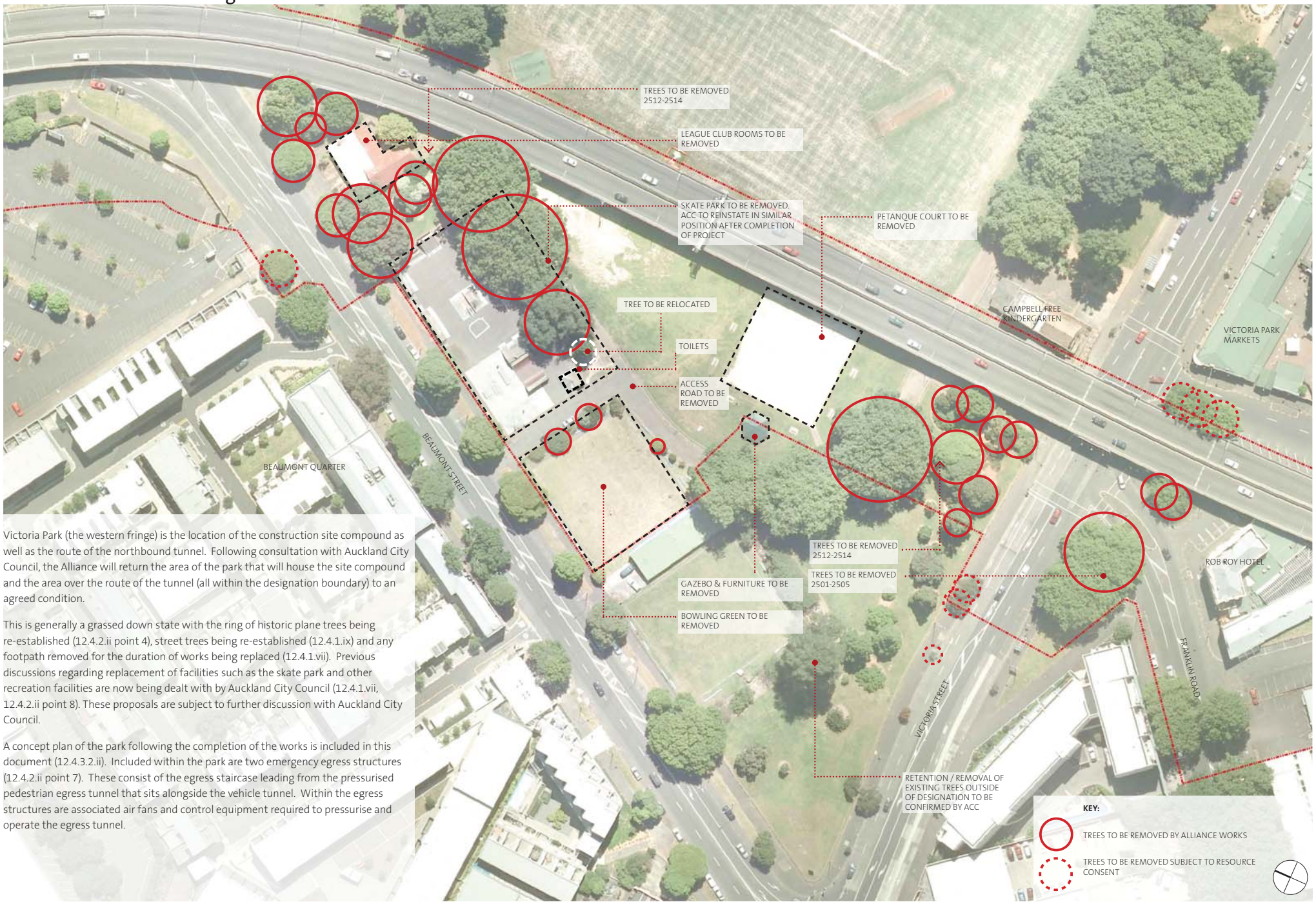
(NOTE: BRIDGE IS PART OF EWP)



4.6.1 PLAN F - proposed



4.7.0 PLAN G - existing

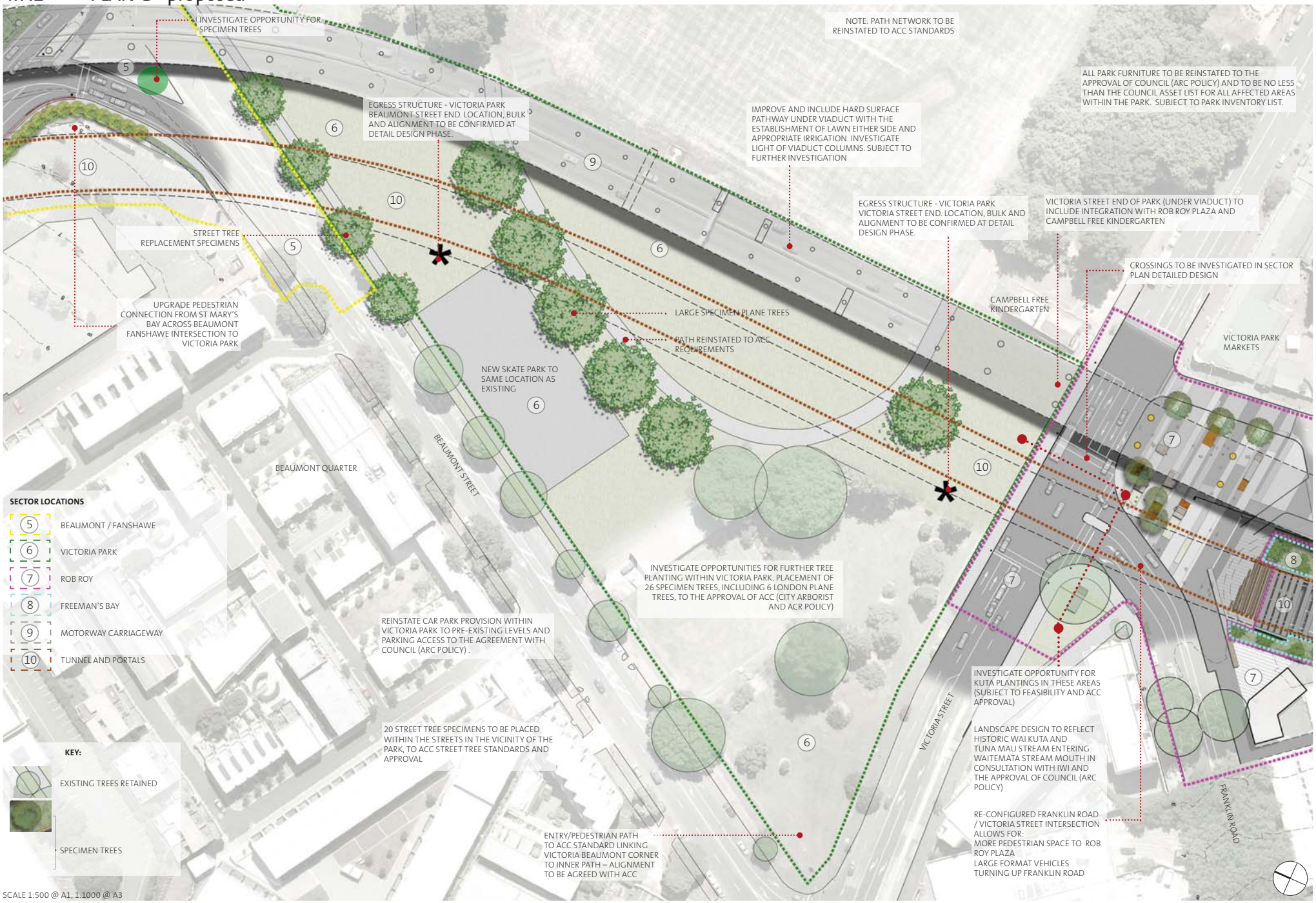


Victoria Park (the western fringe) is the location of the construction site compound as well as the route of the northbound tunnel. Following consultation with Auckland City Council, the Alliance will return the area of the park that will house the site compound and the area over the route of the tunnel (all within the designation boundary) to an agreed condition.

This is generally a grassed down state with the ring of historic plane trees being re-established (12.4.2.ii point 4), street trees being re-established (12.4.1.ix) and any footpath removed for the duration of works being replaced (12.4.1.vii). Previous discussions regarding replacement of facilities such as the skate park and other recreation facilities are now being dealt with by Auckland City Council (12.4.1.vii, 12.4.2.ii point 8). These proposals are subject to further discussion with Auckland City Council.

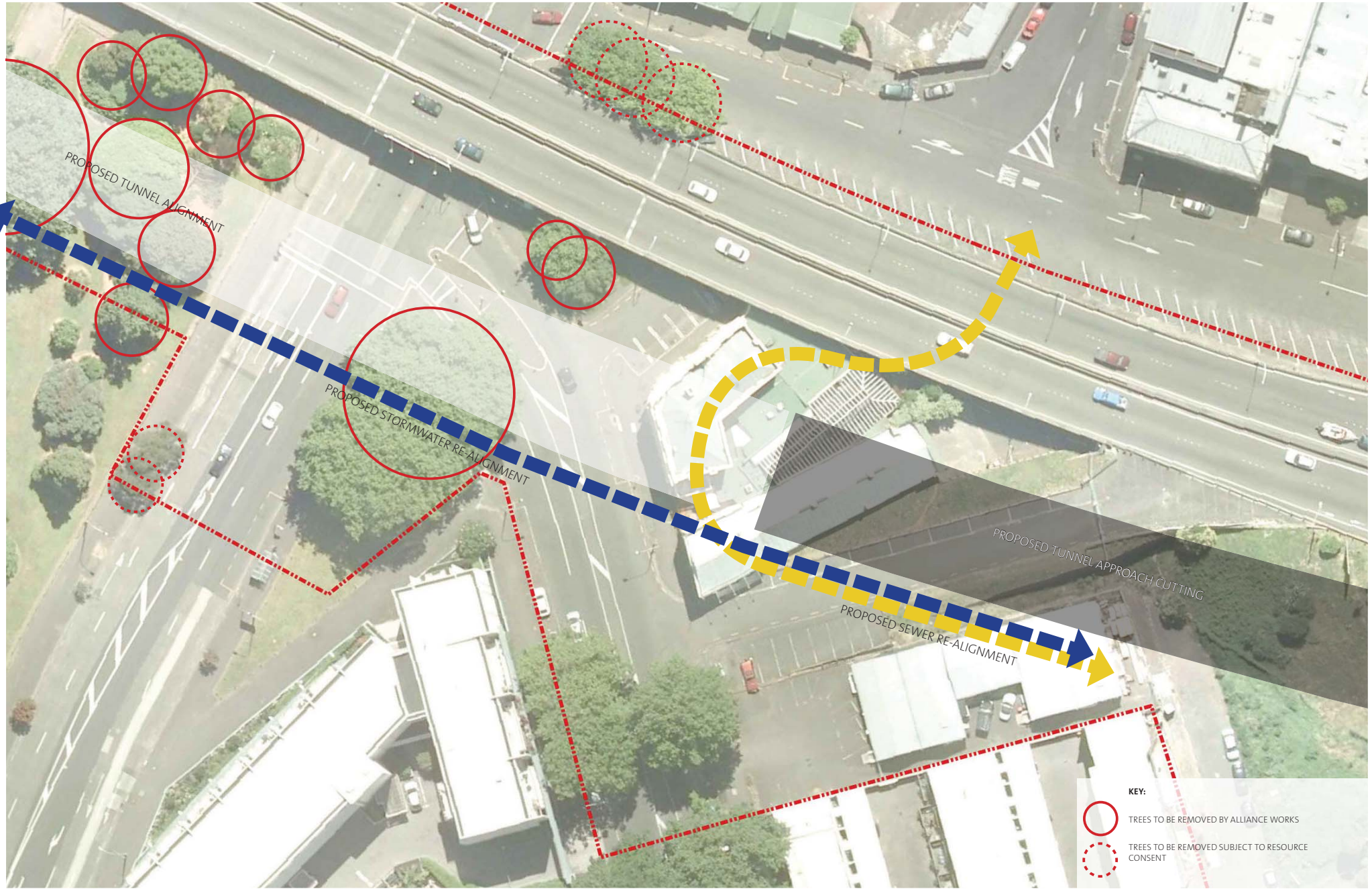
A concept plan of the park following the completion of the works is included in this document (12.4.3.2.ii). Included within the park are two emergency egress structures (12.4.2.ii point 7). These consist of the egress staircase leading from the pressurised pedestrian egress tunnel that sits alongside the vehicle tunnel. Within the egress structures are associated air fans and control equipment required to pressurise and operate the egress tunnel.

4.7.1 PLAN G - proposed

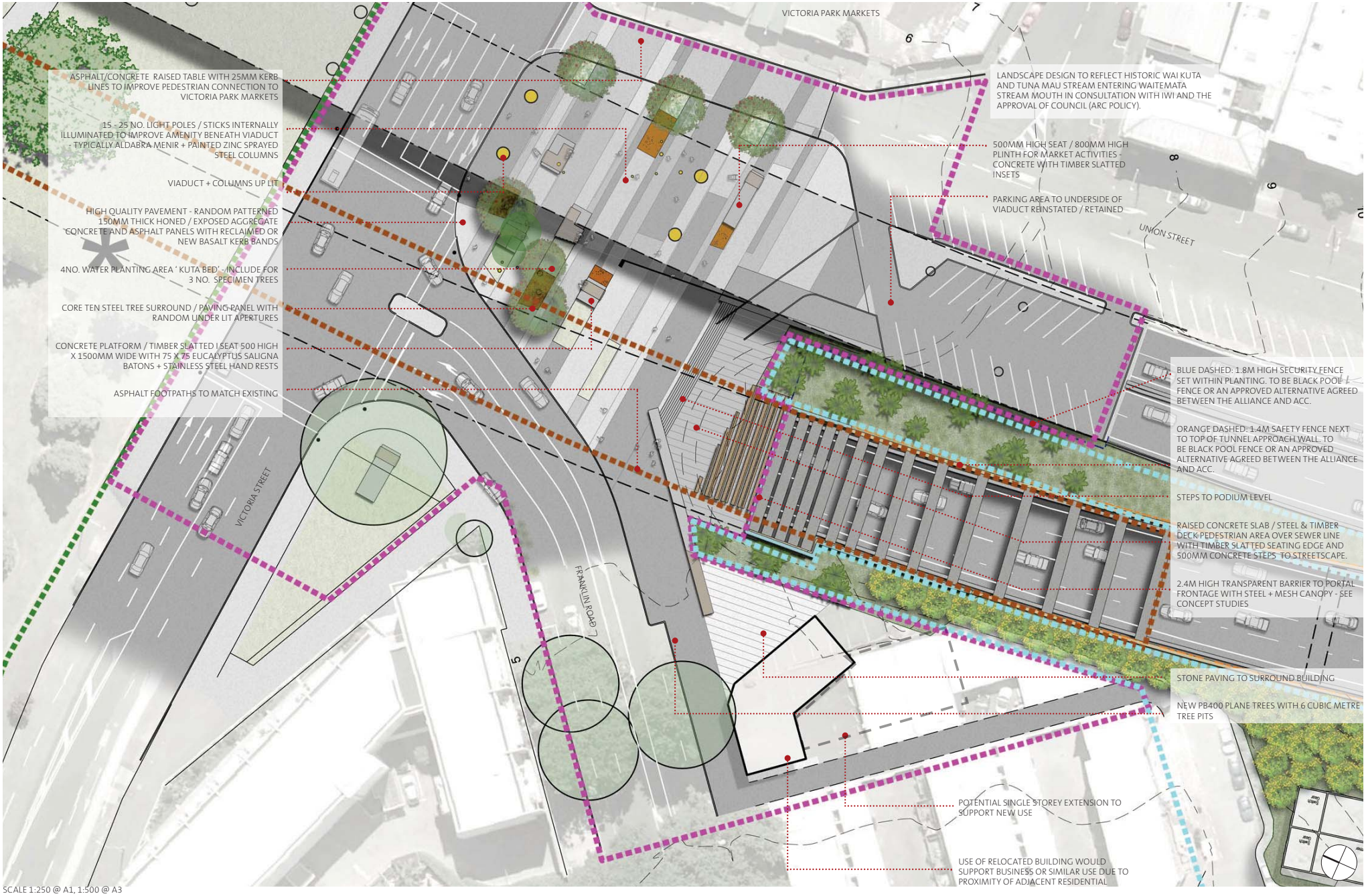


SCALE 1:500 @ A1, 1:1000 @ A3

4.8.0 PLAN H - existing

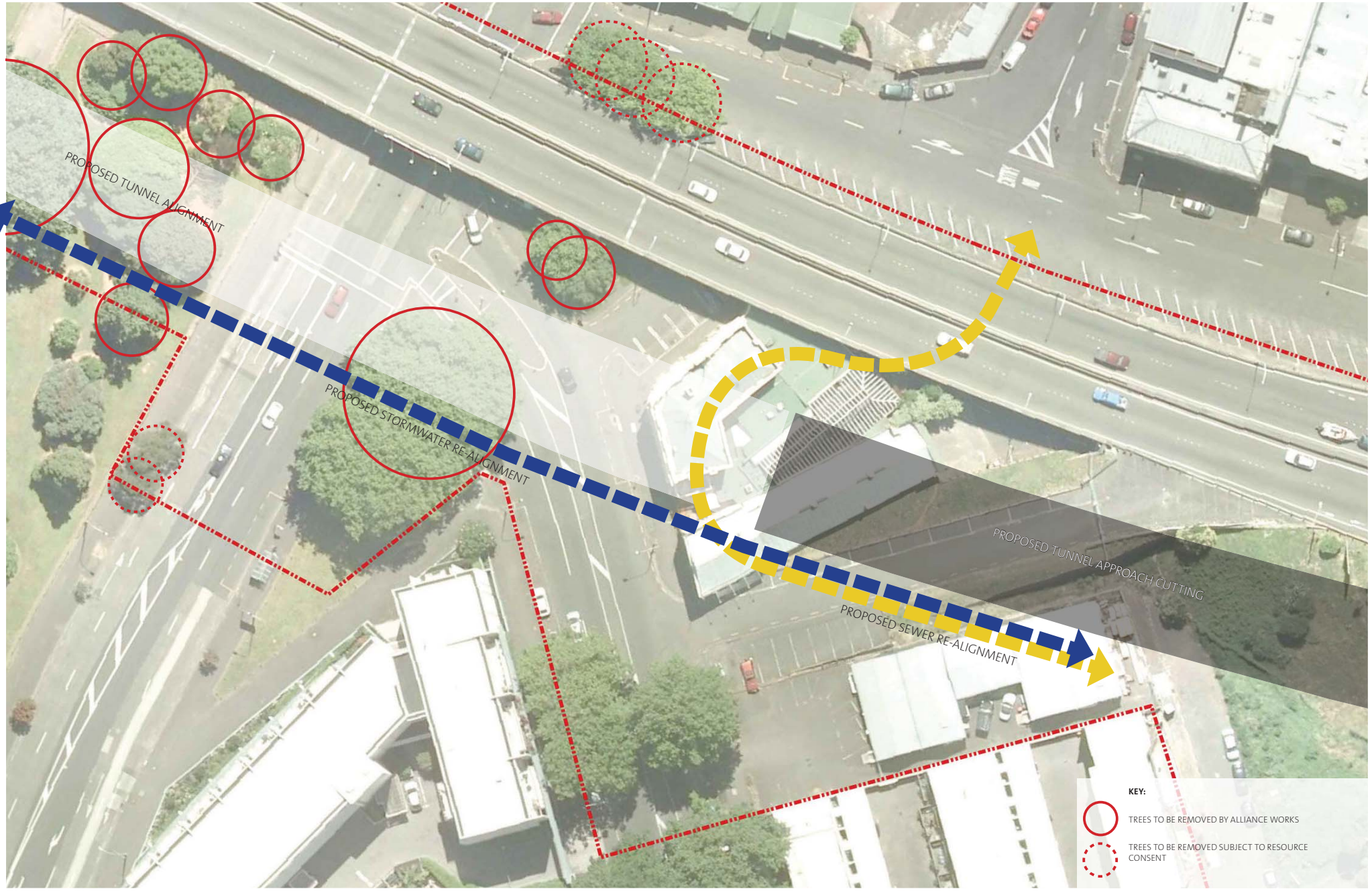


4.8.1 PLAN H: OPTION 2 -proposed



SCALE 1:250 @ A1, 1:500 @ A3

4.9.0 PLAN H - existing



4.9.1 PLAN H: OPTION 4 - proposed

SCALE 1:250 @ A1, 1:500 @ A3

4.10.0 PLAN I - existing

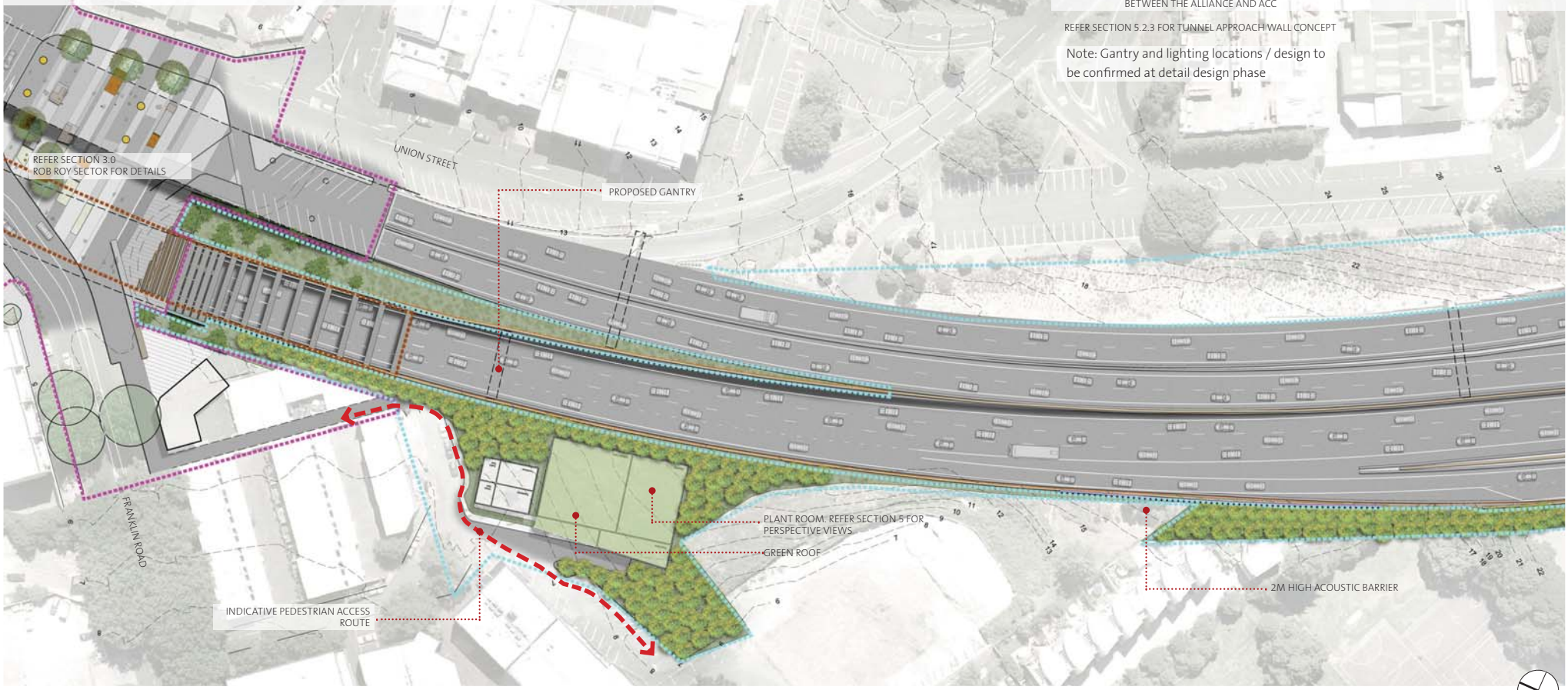
4.10.1 PLAN I - proposed

The Tunnel approach and CMJ tie-in sectors primarily cover the motorway corridor and are therefore focussed on the retaining wall treatments, portal beam structures, motorway planting and acoustic attenuation adjacent to the Napier Lane residential area and Freemans Bay School. This area also covers the location of the proposed plant room and water storage tank building and the associated pedestrian connection (12.4.1.x) to the Napier Lane area from the Franklin Road/Birdcage area. Architectural information on the proposed structure is covered in another section of this report.

The treatment of the retaining walls differs from existing areas of the central Auckland motorway network where patterns have been used to inform or distinguish different locations along the route. In this area, the retaining walls are a plain concrete finish and it is the form and placement of the panels that creates the interest. As the panels curve around the bend in the motorway alignment, the panels are designed to project out from the adjacent panel to give the appearance of 'wrinkling' as the skin of an eel would when bending (12.4.1.iii). Refer section 5.2.

The portal beams at the entrance of the tunnel have been designed to facilitate the transition from natural light into the controlled lighting situation within the tunnel. The beam spacings have been located to reduce the level of natural light closer to the tunnel mouth, while still providing the structural support function that is their primary purpose. Refer section 6.

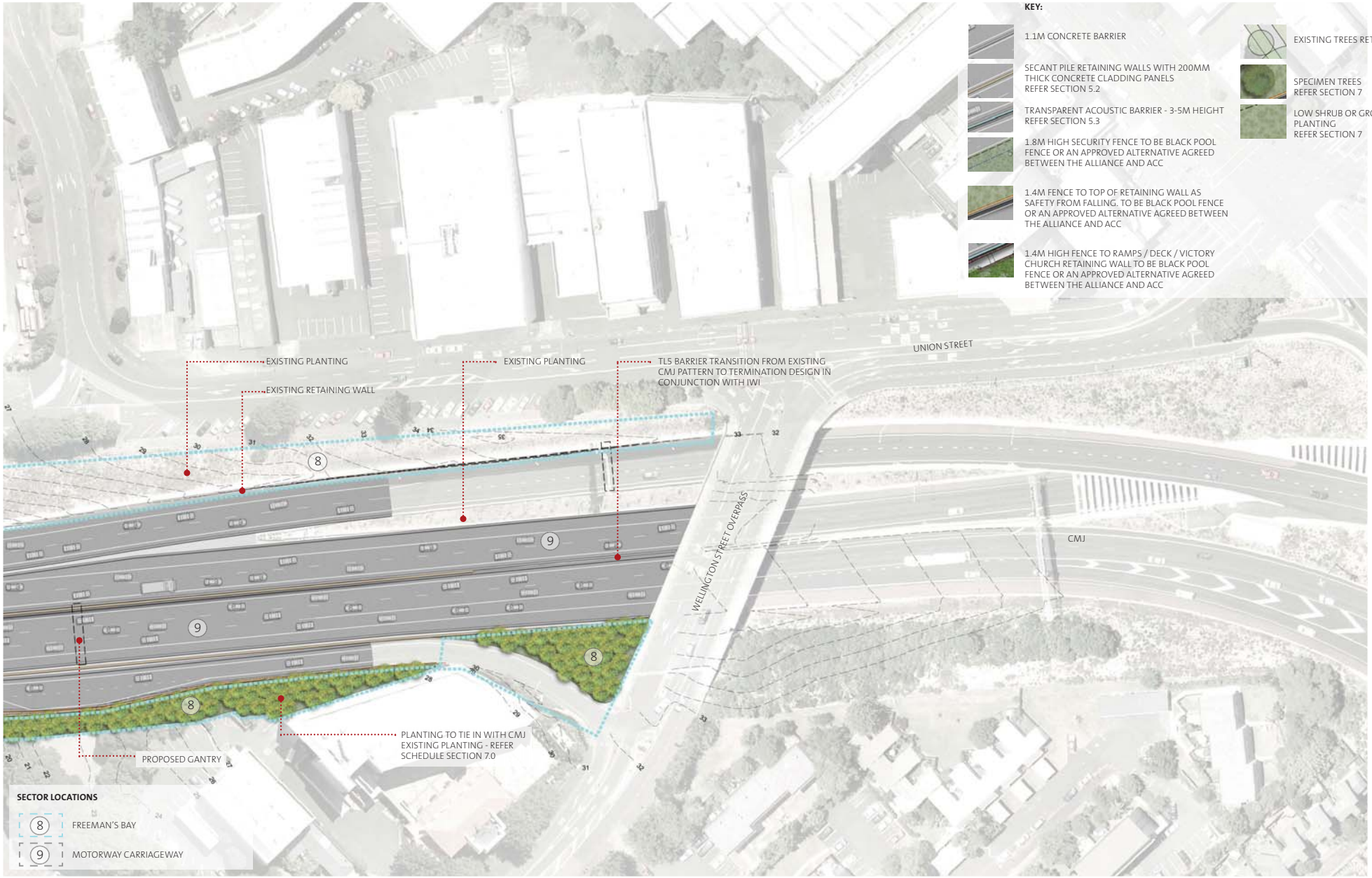
The proposed planting in this sector is to be an extension of the planting that is found in the CMJ section of the network (12.4.2.vi).



SCALE 1:500 @ A1, 1:1000 @ A3

4.11.0 PLAN J - existing

4.11.1 PLAN J - proposed



SCALE 1:500 @ A1, 1:1000 @ A3

5.0 FURTHER DETAIL – RETAINING WALLS & ACOUSTIC BARRIERS

5.1 OVERVIEW

This section contains the developed design plans and sections of the retaining walls and acoustic barriers within the project (12.4.1.i & iii). Descriptive notes and three dimensional models have been developed to assist in the visualisation of the wall treatments and placements. The design team has sought to keep a simple design intention running throughout the route particularly in respect to pattern or finish to the elements. The smooth finish of the concrete retaining walls will run through the tunnel (the proposed tunnel lining material is a smooth composite material) providing continuity of surface textures.

Acoustic mitigation (12.4.1.i) within the area include the wall extension adjacent to the Napier Lane residential area. It is intended that it is a type D wall cladding extension. The other area where noise attenuation is to the Fanshawe St on-ramp / VCC lands wall. Here the concrete retaining wall at 7.00m high provides a degree of attenuation however an additional section of 4 metre high transparent noise barrier type E is required between the Fanshawe St. on-ramp and the tunnel exit. This will be mounted on a modified TL5 safety barrier as it is for the transparent noise barrier along the southern edge of the motorway in the St Mary's Bay sector.

The alliance design team has formed key principles for the developed to detail design of motorway features as follows:

- TL5 or similar barriers are to have a simple engineered appearance. The VPT route has significant views to the built & natural environment in addition to opportunities for urban design input into other structures such as walls, pedestrian bridge and acoustic barriers;
- Form and texture of motorway structures is the preferred method of urban design integration;
- Celebrate scale of engineering structures through simplicity of design;
- Motorway features to visually complement views of the city and natural environment;
- Form of structures to relate to experience of movement from a motorist perspective;
- Establish a connection with site specific cultural or land based themes;
- Maintain a sense of continuity and transition with CMJ

REFER SECTION 4.3 FOR DEVELOPED DESIGN OF WALL TYPES

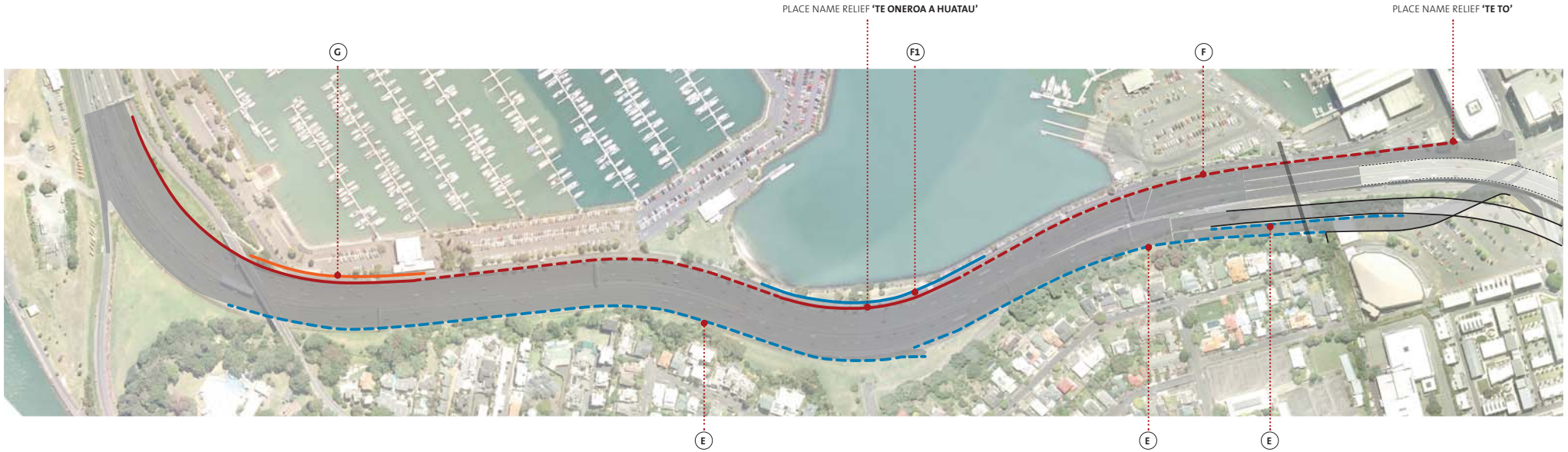
(E) 3 - 5M HEIGHT TRANSPARENT ACOUSTIC BARRIER

(F) BARRIER & TEXTURED RETAINING WALL TOTAL WALL HEIGHT VARIES FROM 1.1 TO 2.7M - GROUND LEVEL TO BARRIER TOP

(F1) BARRIER ONLY - NO RETAINING WALL

TRANSPARENT OR STEEL MESH NO-CLIMB FENCE TO TOP OF BARRIER TO MAKE UP 1.8M MINIMUM NO-CLIMB HEIGHT

(G) 1.5M HIGH TIMBER PANEL FENCE MOUNTED TO WESTHAVEN DRIVE SIDE OF 1.1M HIGH TL5 BARRIER TO REPLACE EXISTING 0.8M HIGH CONCRETE BARRIER AND 1.8M HIGH TIMBER PANEL FENCE. (TOTAL HEIGHT 2.6M EXISTING & PROPOSED)



The wall types proposed for the VPT route is either secant pile or diaphragm walls. In both of these options 200mm thick precast concrete panels will be used as cladding elements to dress the wall according to urban design requirements. Engineers have requested that the walls inside the tunnel be flat and smooth to adhere to cleaning and fireproofing requirements.

The intention of the Alliance design team is to use form and scale to express urban design concepts. The basic parameters of design are the shaping of the top of each of the panels, the finish and the profile. The standard engineering response to wall tops are to angle each panel to fit the cut profile of the adjacent ground. As a point of difference for this route the Alliance design team wish to form a typical top profile so that the fall and rising of the alignment will be expressed through the staggering of the panel tops. This is a similar effect that has been successfully used in a number of Melbourne motorway commissions. This concept will be consistent throughout the project, also for the design of the acoustic barrier through St Mary's Bay reserve.

At this stage there are yet to be decisions made by the project engineers influencing the location and extent of retaining walls, therefore the design of these features is to be kept as flexible as possible until such a time that there can be solid decisions made over the final urban design appearance. It is intended that the urban design concepts as presented will be retained.

The tilted panel concept is intended to be a simple way to form a dynamic experience to the tunnel approach. Tilting each panel in plan view creates vertical shadow-lines responding to the time of day and seasons. Each inside and outside wall will be a direct opposite of the other to accentuate the curve of the alignment.

Wall types A to C indicate both a variation between the inside and outside tunnel approach walls and the transition from flat to 50mm then 100mm tilted panels. The exact locations of these will be decided at detail design phase.

REFER SECTION 4.3 FOR DEVELOPED DESIGN OF WALL TYPES

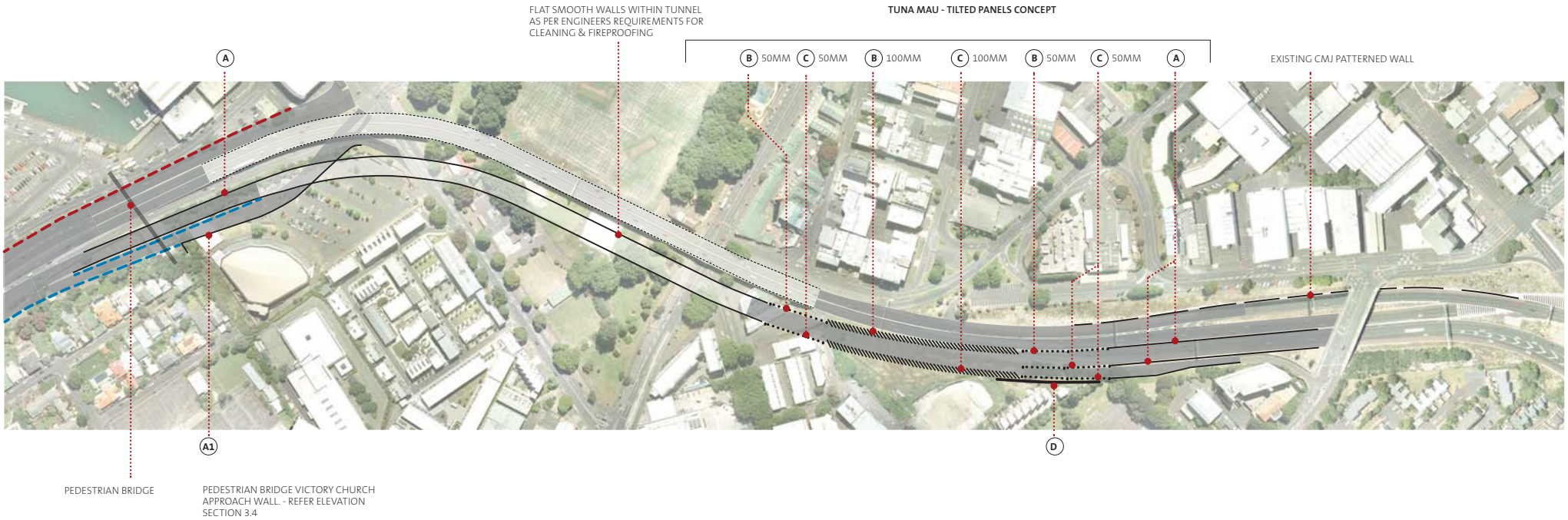
(A) WALL **TYPE A**
FLAT & SMOOTH

(A1) WALL **TYPE A1**
PEDESTRIAN BRIDGE VICTORY CHURCH APPROACH WALL - FLAT & SMOOTH TO HEIGHT OF ACOUSTIC BARRIER, SANDSTONE TEXTURED ABOVE

(B) WALL **TYPE B**
INSIDE TILTED (50 / 100MM)

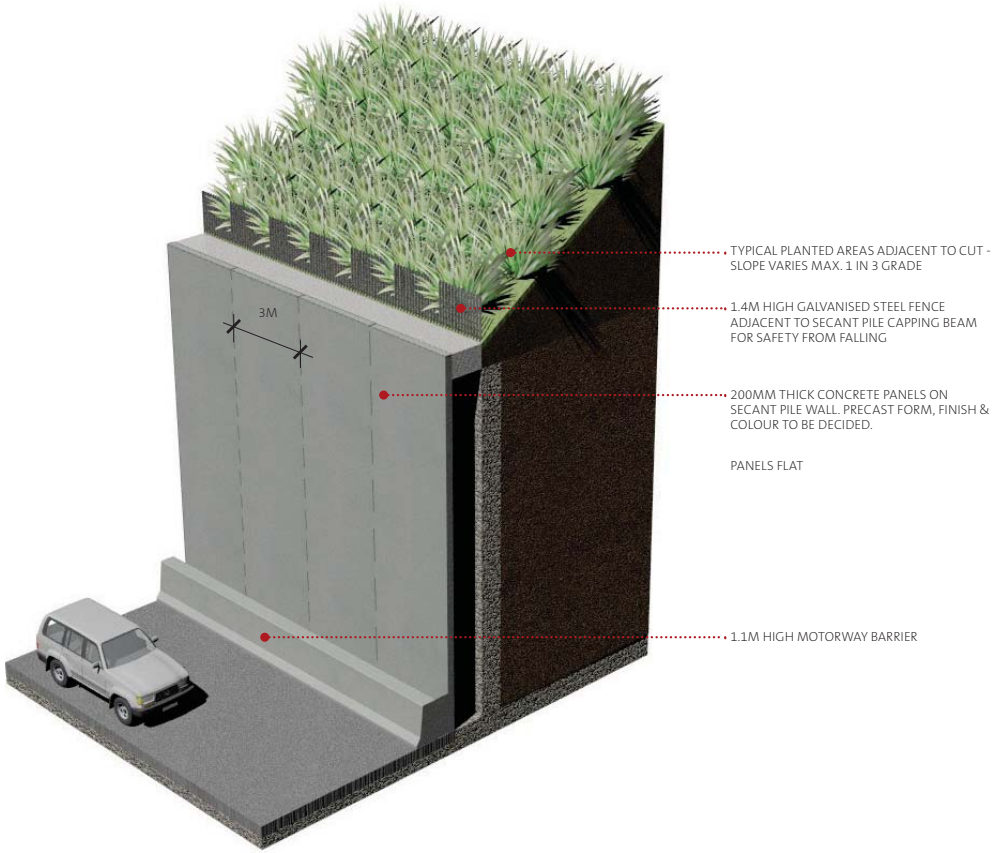
(C) WALL **TYPE C**
OUTSIDE TILTED (50 / 100MM)

(D) WALL **TYPE D**
TOP EXTENSION WHERE REQUIRED IN PLACE OF SAFETY FENCE OR ACOUSTIC BARRIER



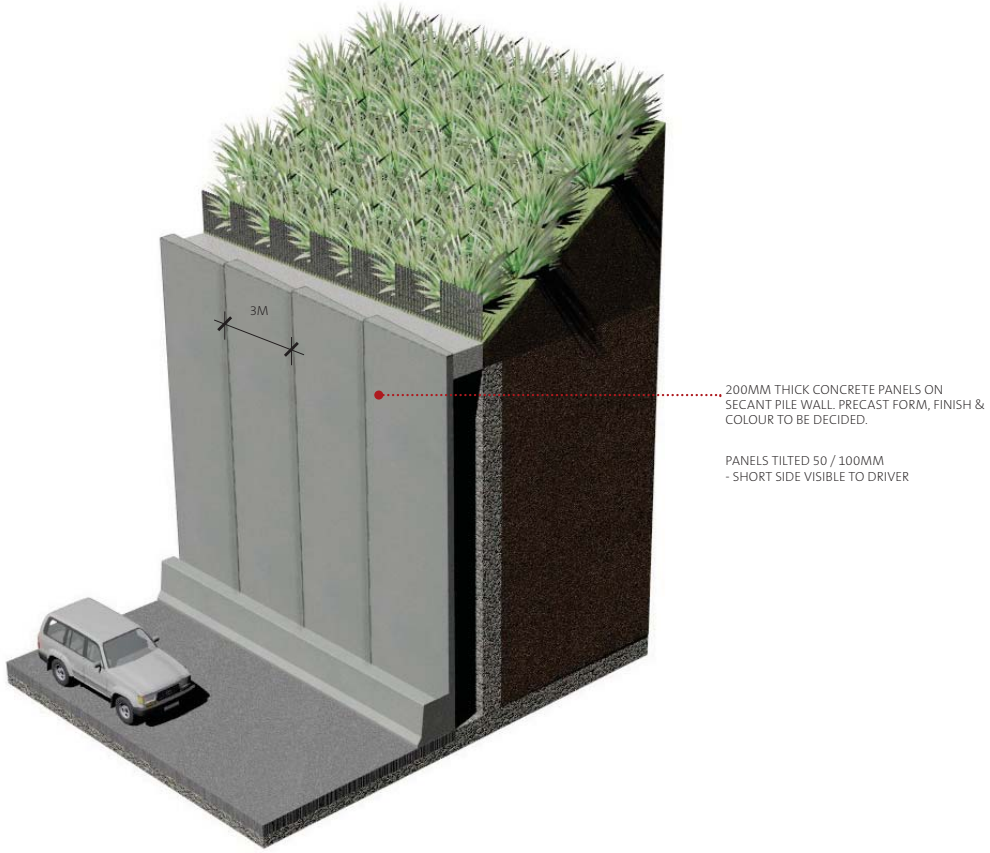
5.2 MOTORWAY CARRIAGE WAY SECTOR

5.2.1 WALL / BARRIER TYPES



WALL TYPE A

STRAIGHT & FLAT



WALL TYPE B

INSIDE TILTED - SHORT SIDE VISIBLE BY DRIVER

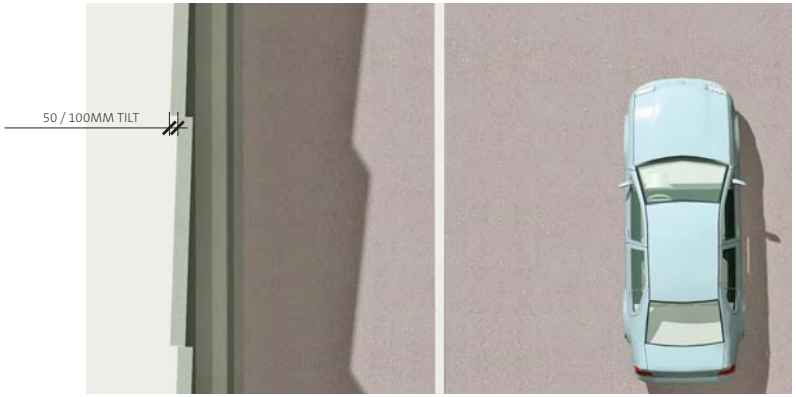
Wall **type A1** shows the proposed building extension to Victory Christian Church (VCC) land. The Alliance design team are working in consultation with the VCC development team and designers to ensure boundary details meet the following requirements:

- **CPTED** and **accessibility** requirements to public walkway / pedestrian bridge;
- **Privacy, security** and fire **emergency access** to VCC land.

The design shown meets the minimum requirements set out in the conditions of consent for VCC land (1.0m high retaining wall with 1.2m high steel railing). This enables a reasonable level of visual surveillance from the building out onto the public walkway. 1m high planting will give VCC a level of privacy while retaining sightlines.

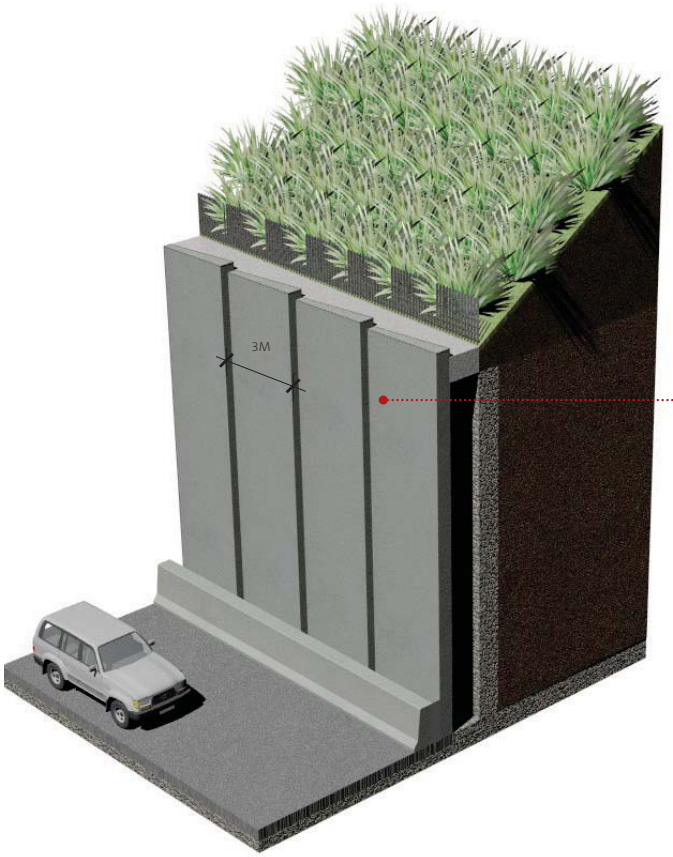
Wall **type B & C** show a 100mm tilt in plan view (see diagram) with a 200mm lift to the top edge in elevation view of each panel. For inside and outside walls this design is inverted with the short side visible by drivers (inside) and the long side visible (outside). This shadow line effect will vary depending on lighting conditions and time of day.

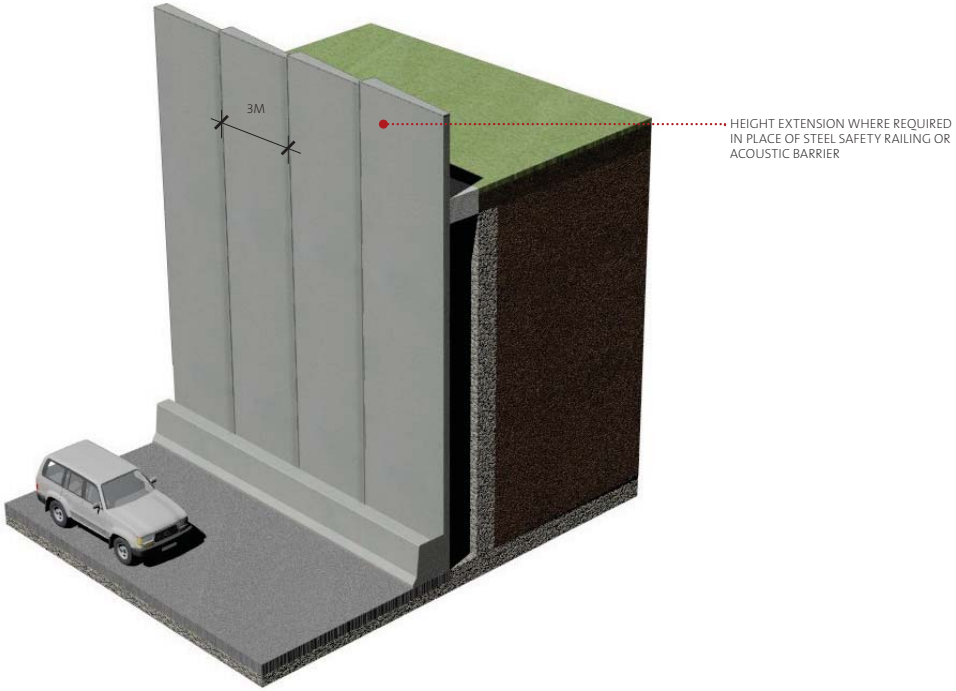
Refer section 4.8 for indicative 3d views from a motorist perspective



WALL TYPE C

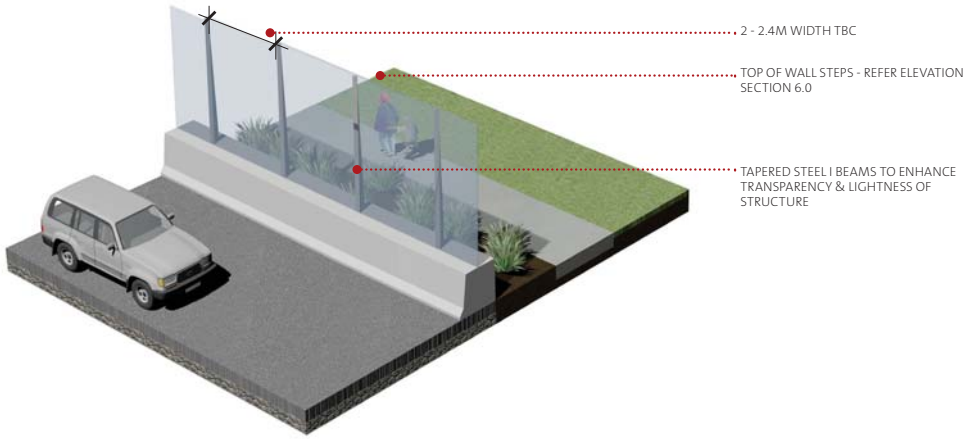
OUTSIDE TILTED - LONG SIDE VISIBLE BY DRIVER





WALL TYPE D

HEIGHT EXTENSION TO TOP - where required in place of safety railing or acoustic barrier



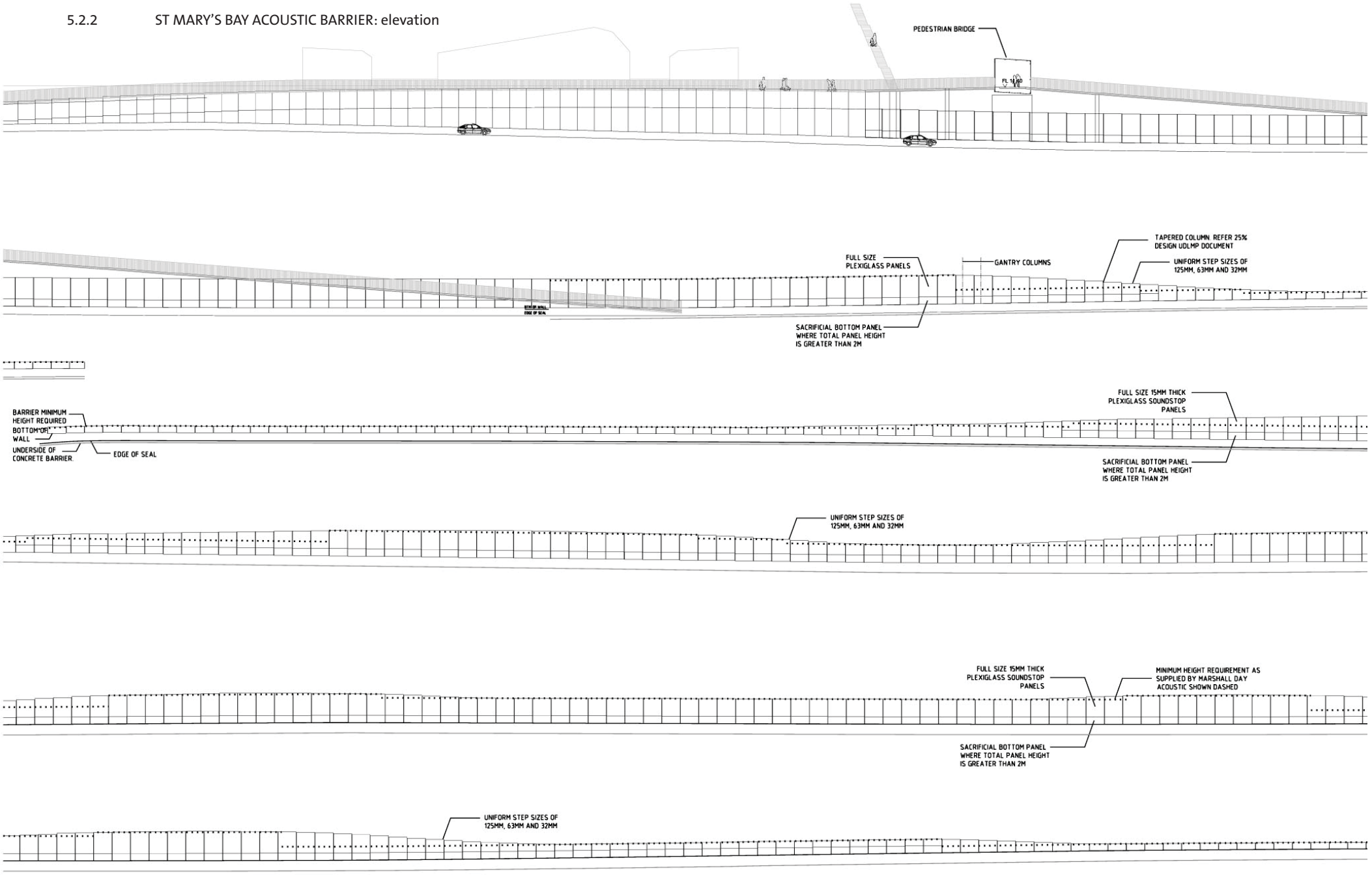
WALL TYPE E

ST MARY'S BAY TRANSPARENT 3 - 5M HEIGHT ACOUSTIC BARRIER

Wall **type E** - St. Mary's Bay acoustic barrier shows a tapered steel I-beam support with plexiglass or similar transparent material. A widened and reinforced TL5 type barrier doubles as a footing for attachment. The design currently awaits input from plexiglass material specialists to enable detail design to be carried out. Factors such as wind loading, bending properties, material size availability, maintenance and vandalism requirements will all be considered in the final design arrangement. Refer section 4.6 for elevation.

- Visual 'lightness' by tapering I-beam support posts;
- Variable height formed with uniform stepping of panels - designed to read as a continuous flowing form

5.2.2 ST MARY'S BAY ACOUSTIC BARRIER: elevation



ST MARY'S BAY ACOUSTIC BARRIER

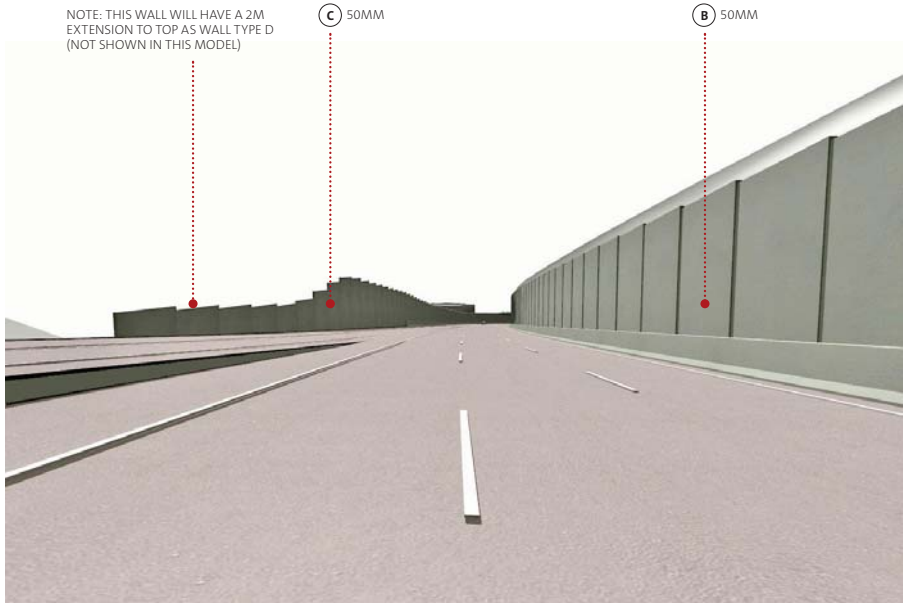
ELEVATION 1:500 @ A3

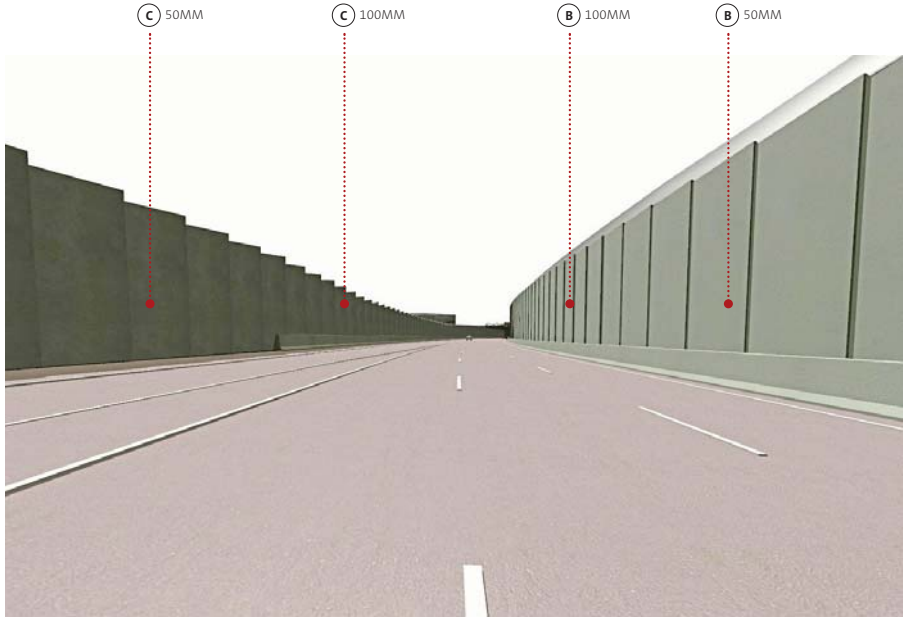
5.2.3 TUNNEL APPROACH TILTED PANELS –3D VIEWS

NOTE: 3D IMAGES ARE INTENDED TO REPRESENT CONCEPT FOR RETAINING WALLS ONLY. NO CONTEXT OR LANDSCAPE TREATMENT HAS BEEN SHOWN.

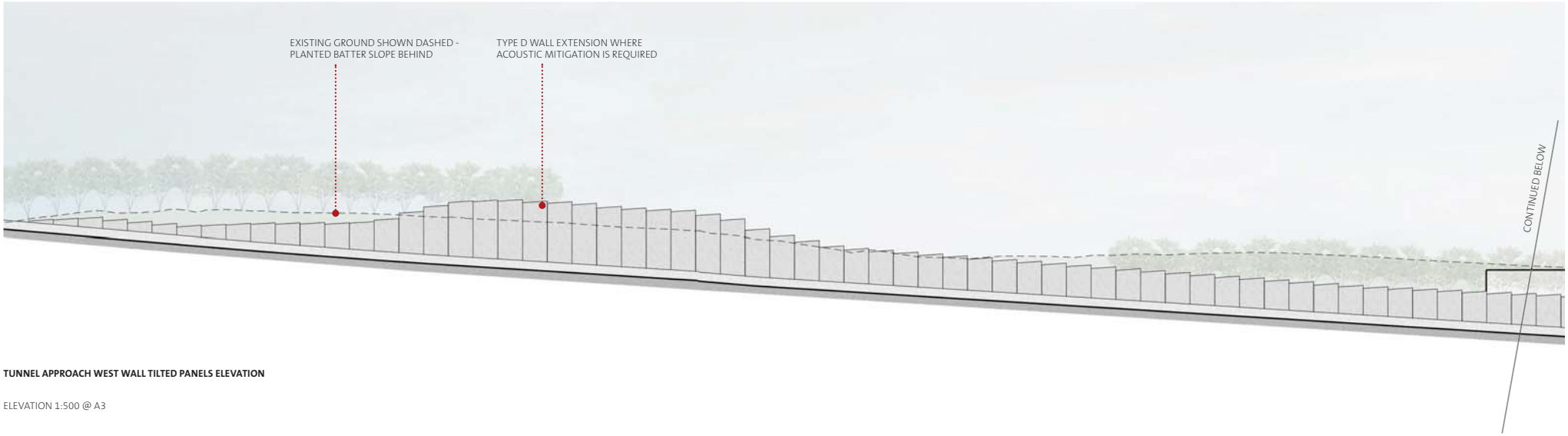
REFER:
4.3 FOR WALL TYPE REFERENCES
4.7.2 FOR LONG ELEVATION

NOTE: THIS WALL WILL HAVE A 2M EXTENSION TO TOP AS WALL TYPE D (NOT SHOWN IN THIS MODEL)



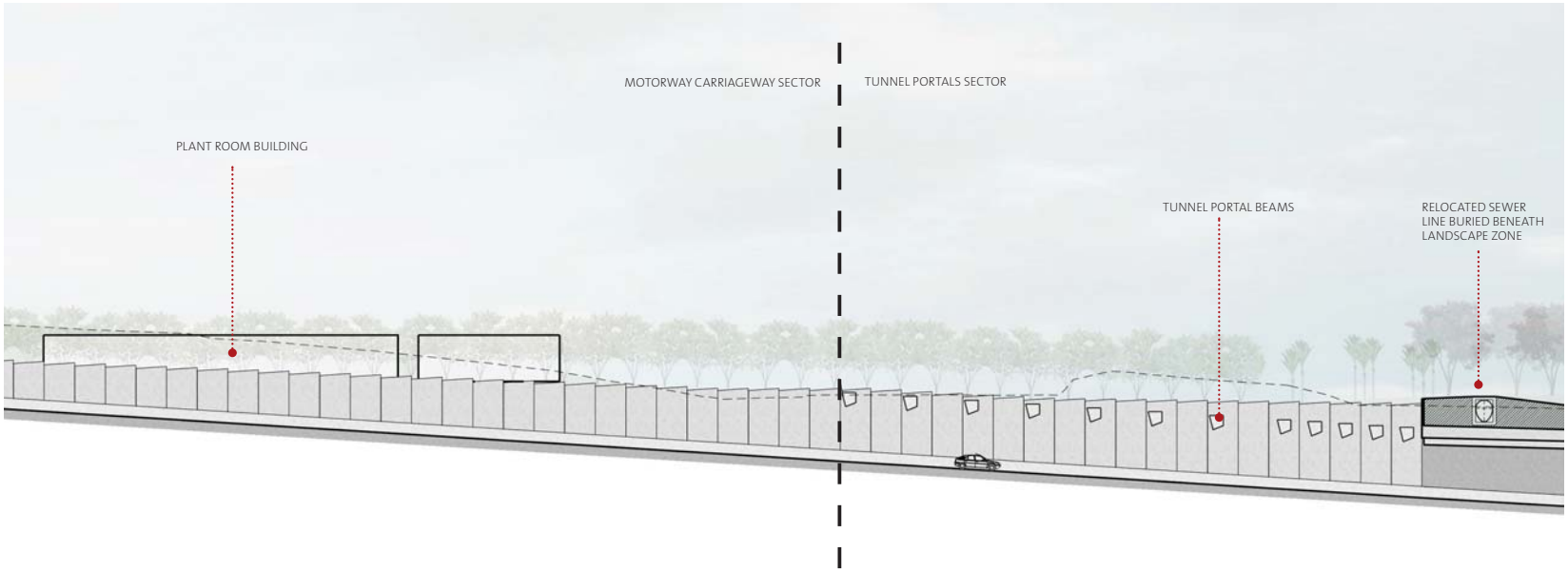


5.2.4 TUNNEL APPROACH ELEVATION AND SECTION

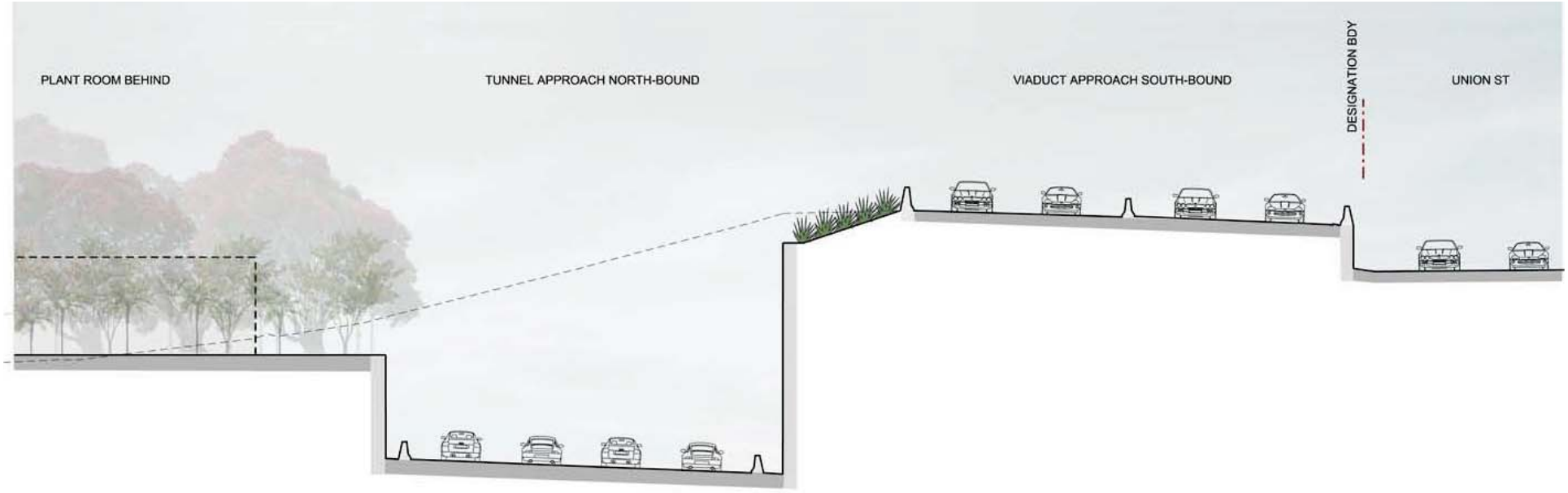


TUNNEL APPROACH WEST WALL TILTED PANELS ELEVATION

ELEVATION 1:500 @ A3



SECTION LOCATION PLAN

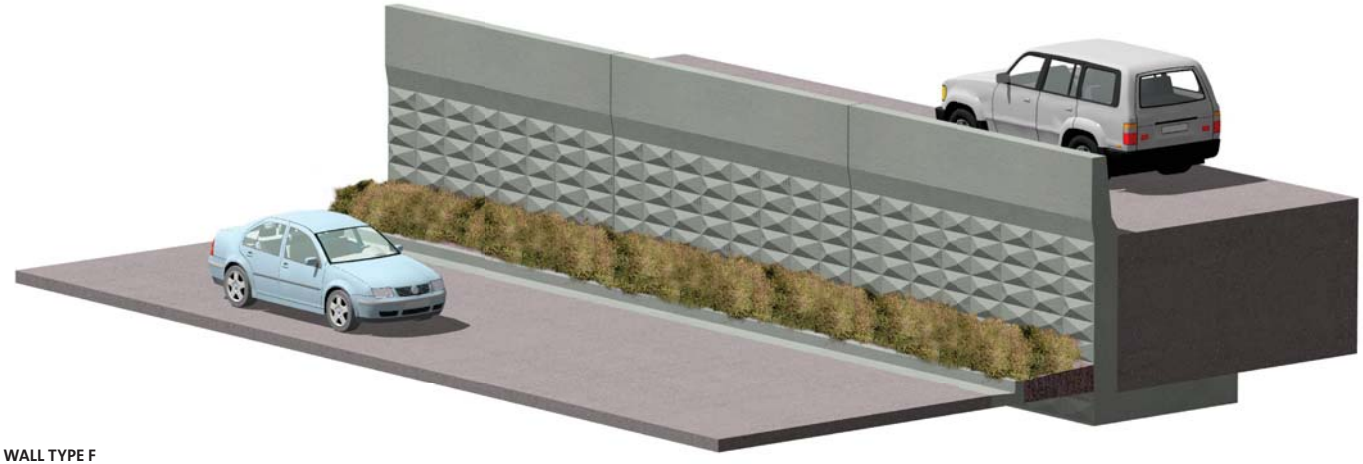


TUNNEL APPROACH SECTION

SECTION 1:200 @ A3

5.3 WESTHAVEN SECTOR

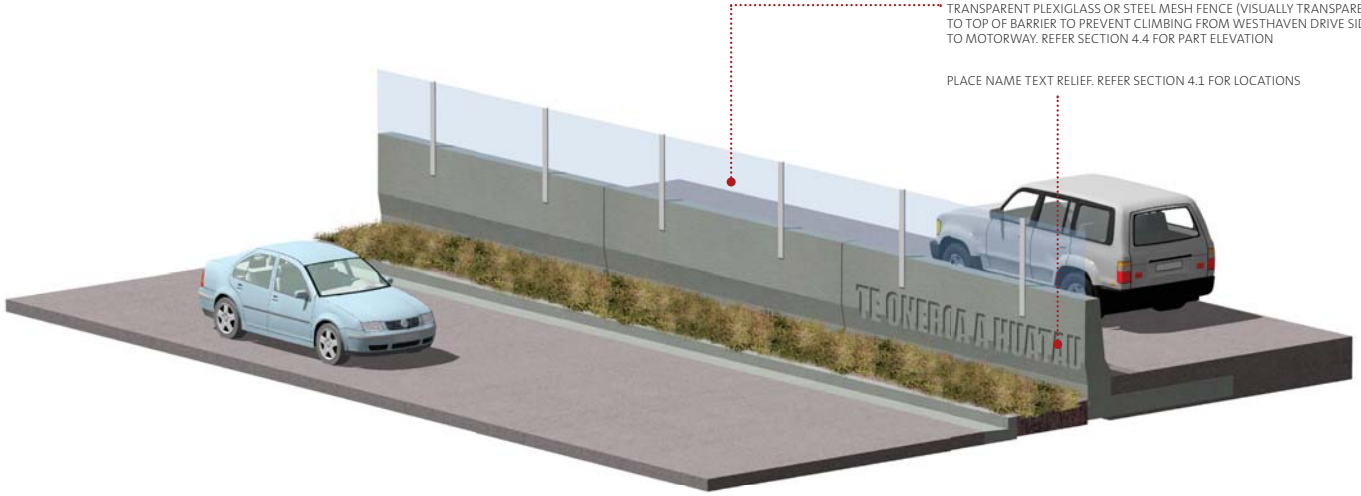
5.3.1 WALL / BARRIER TYPES



WALL TYPE F

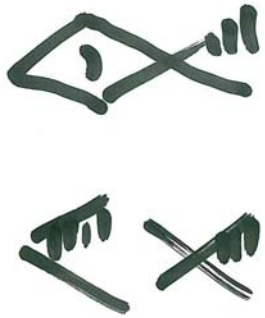
WESTHAVEN DRIVE RETAINING WALL FULL HEIGHT with textural relief

HEIGHT VARIES UP TO 2.7M



WALL TYPE F1

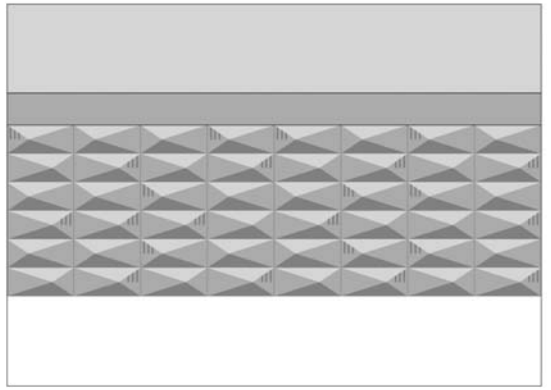
WESTHAVEN DRIVE RETAINING WALL - barrier only with no-climb barrier to top where required



CONCEPT SKETCH BY PITA TUREI

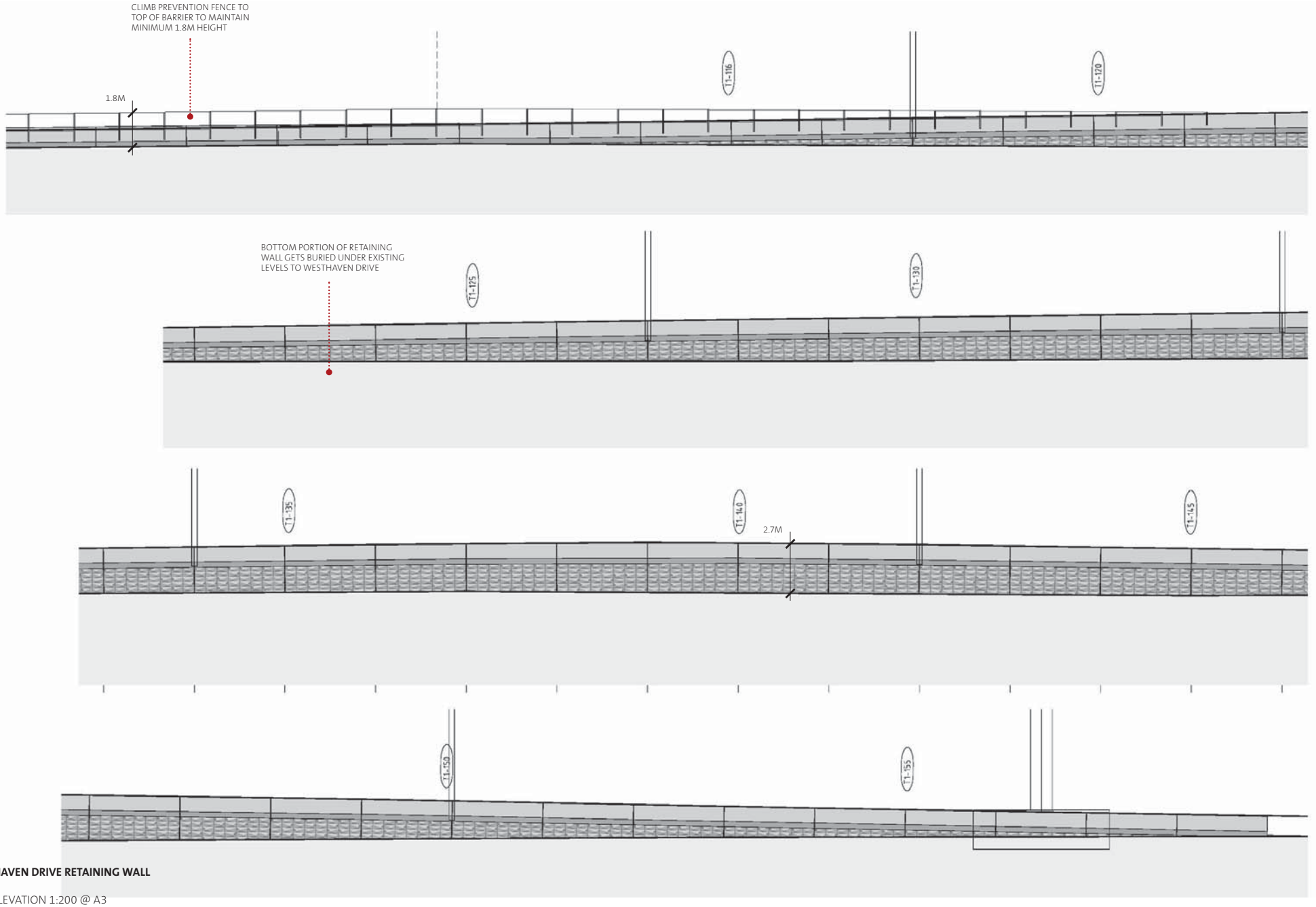
MAORI PLACE NAME BARRIER RELIEF: ELEVATION

(OTHER PLACE NAME - TE TŌ)



RETAINING WALL TEXTURAL RELIEF: ELEVATION

5.3.2 RETAINING WALL: part elevation

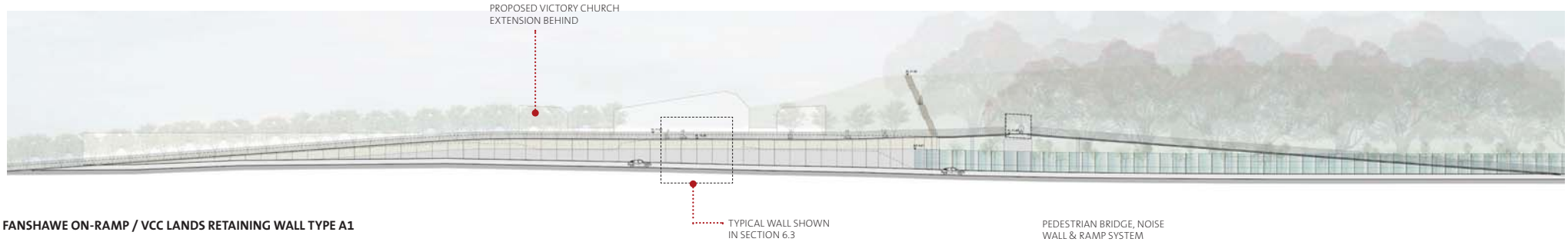


WESTHAVEN DRIVE RETAINING WALL

PART ELEVATION 1:200 @ A3

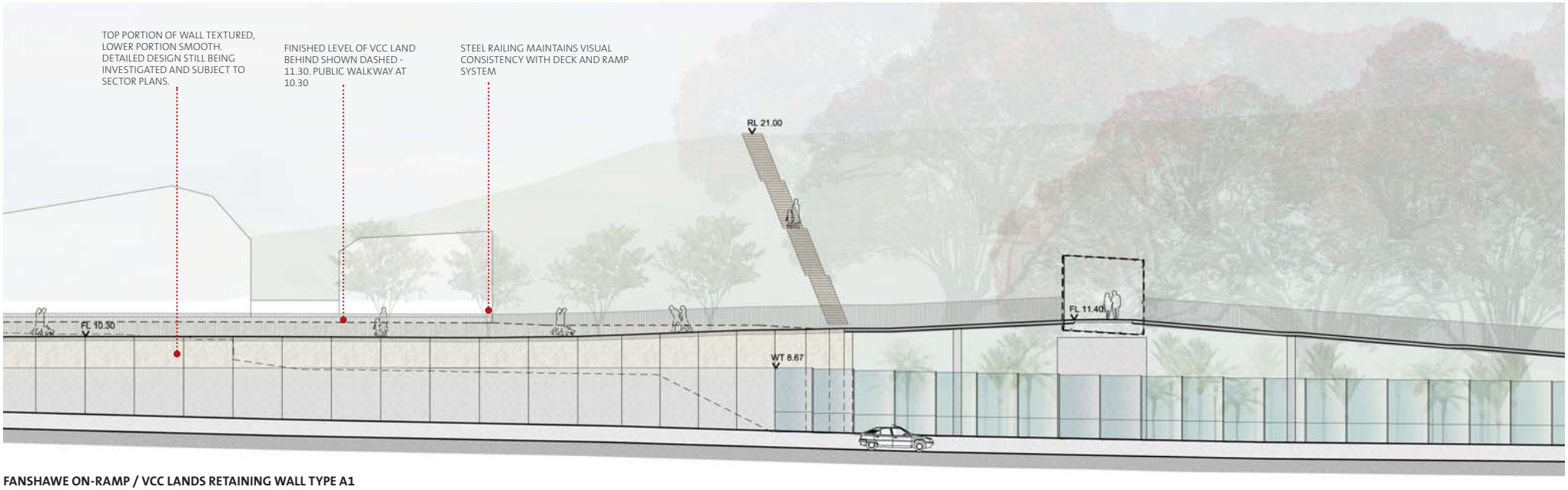
5.4 BEAUMONT/FANSHAWE SECTOR

5.4.1 FANSHAWE ST ON-RAMP / VCC LANDS RETAINING WALL ELEVATION



FANSHAWE ON-RAMP / VCC LANDS RETAINING WALL TYPE A1

ELEVATION NTS

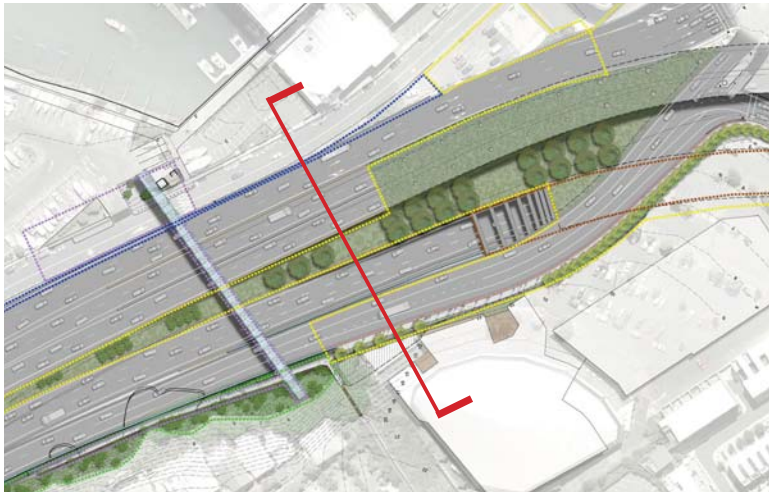


FANSHAWE ON-RAMP / VCC LANDS RETAINING WALL TYPE A1

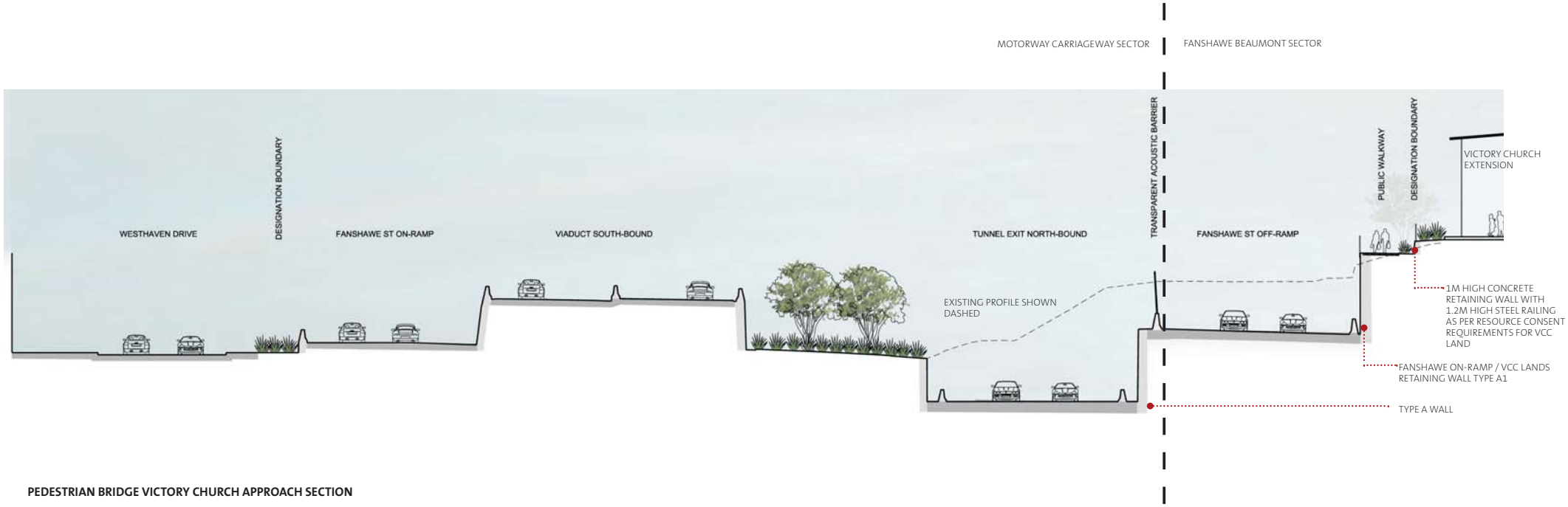
ELEVATION 1:250 @ A3

The lower portion of the type A1 wall will match the height of the type E transparent acoustic barrier at the transition point. It is intended that from the Fanshawe Street intersection this wall will grow out of the ground with panel stepping consistent with the acoustic barrier. This will enable a sense of 'floating' for the pedestrian walkway where it takes off to meet the pedestrian bridge and associated ramp system. The proposed retaining wall will simplify the interface with VCC land and double as acoustic mitigation for Harbour street houses.

5.4.2 FANSHAWE ST ON-RAMP / VCC LANDS RETAINING WALL SECTION



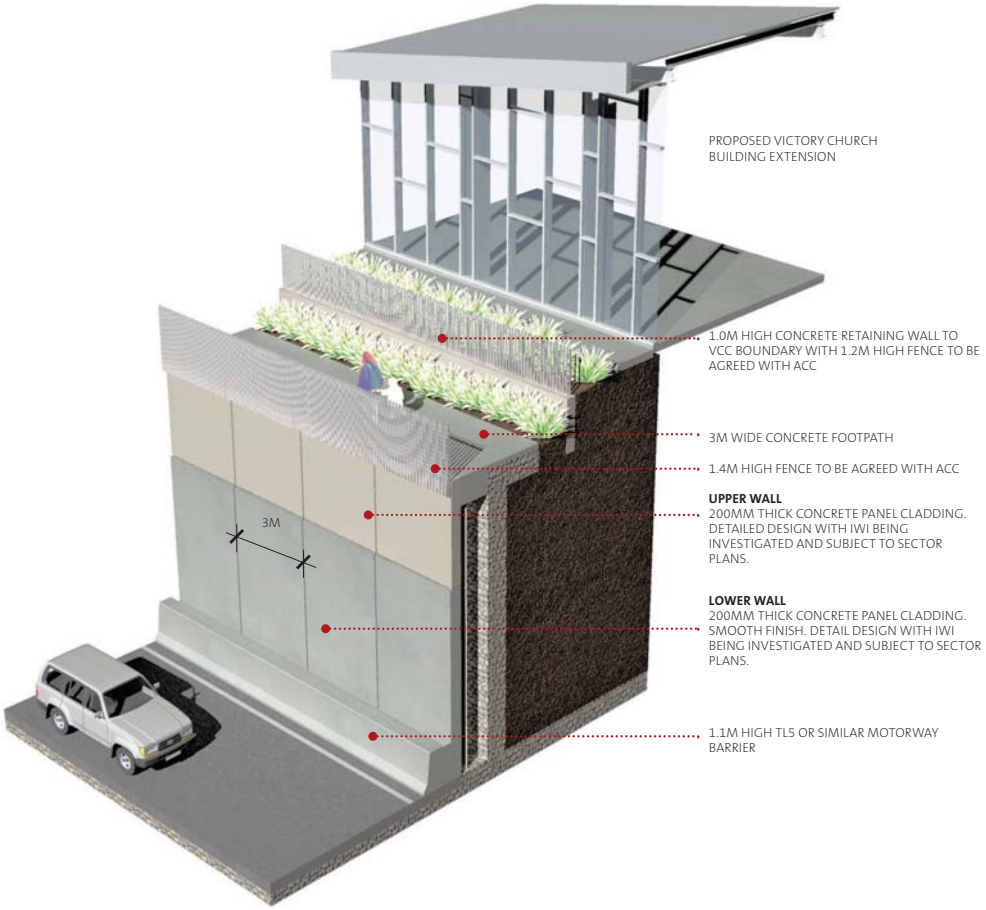
SECTION LOCATION PLAN



PEDESTRIAN BRIDGE VICTORY CHURCH APPROACH SECTION

SECTION 1:250 @ A3

5.4.3 FANSHAWE ST ON-RAMP / TE TŌ HEADLAND/ VCC LAND RETAINING WALL –3D VIEW



PROPOSED VICTORY CHURCH BUILDING EXTENSION

1.0M HIGH CONCRETE RETAINING WALL TO VCC BOUNDARY WITH 1.2M HIGH FENCE TO BE AGREED WITH ACC

3M WIDE CONCRETE FOOTPATH

1.4M HIGH FENCE TO BE AGREED WITH ACC

UPPER WALL
200MM THICK CONCRETE PANEL CLADDING. DETAILED DESIGN WITH IWI BEING INVESTIGATED AND SUBJECT TO SECTOR PLANS.

LOWER WALL
200MM THICK CONCRETE PANEL CLADDING. SMOOTH FINISH. DETAIL DESIGN WITH IWI BEING INVESTIGATED AND SUBJECT TO SECTOR PLANS.

1.1M HIGH TL5 OR SIMILAR MOTORWAY BARRIER

WALL TYPE A1

STRAIGHT AND FLAT to <5m / TEXTURES ABOVE

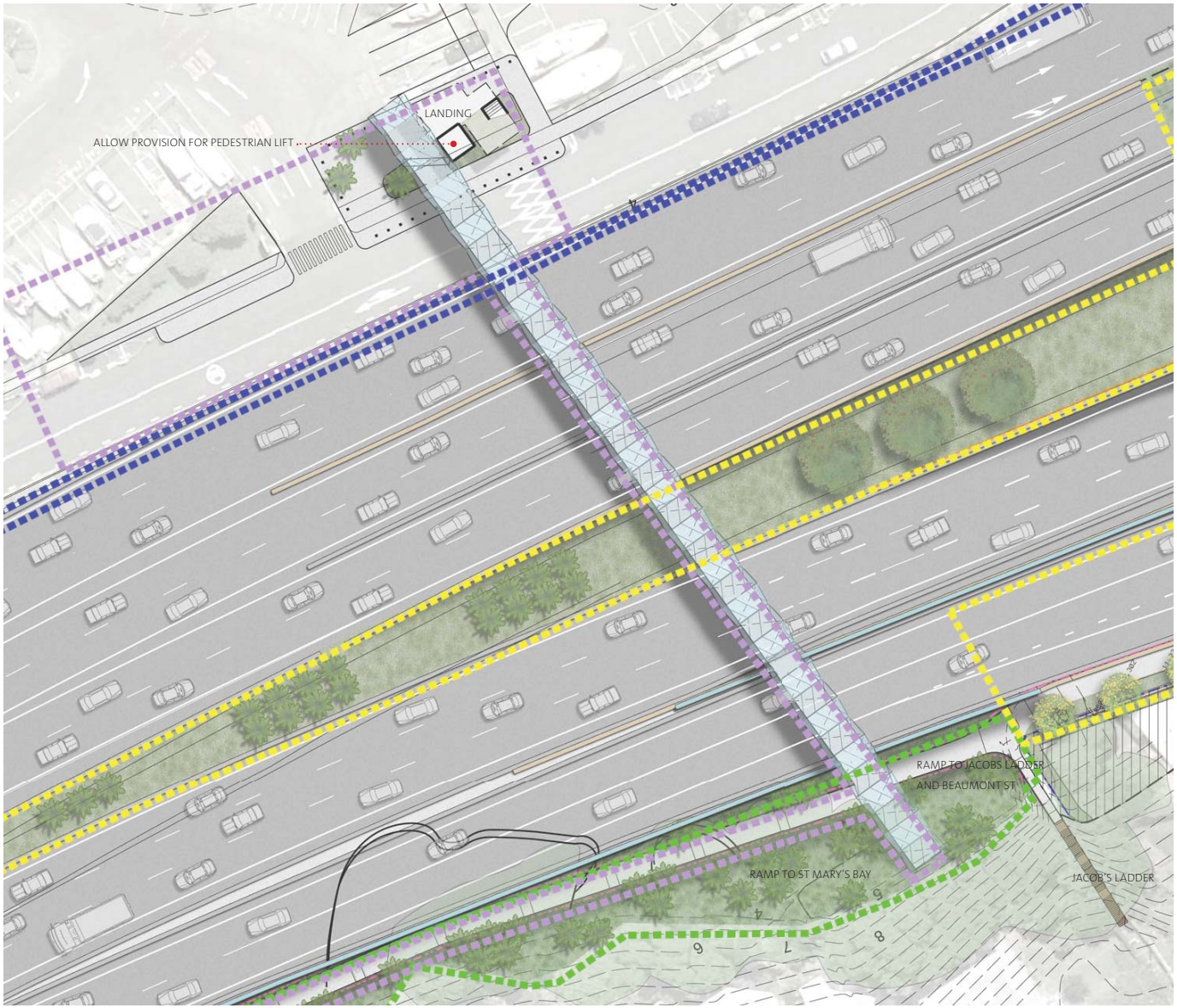
FANSHAWE ON-RAMP / VCC LANDS RETAINING WALL

6.0 FURTHER DETAIL – ARCHITECTURAL STRUCTURES

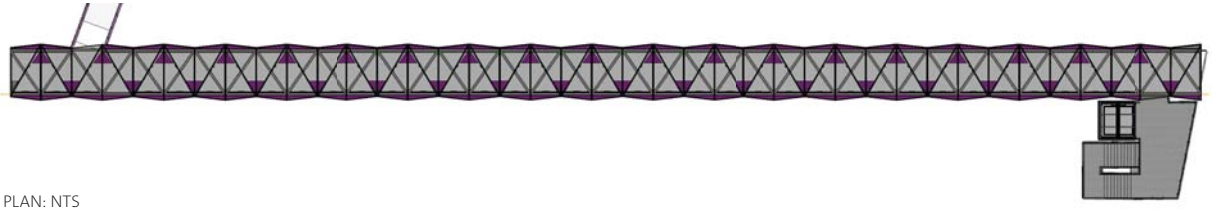
6.1 JACOBS LADDER SECTOR

6.1.1 FOOTBRIDGE

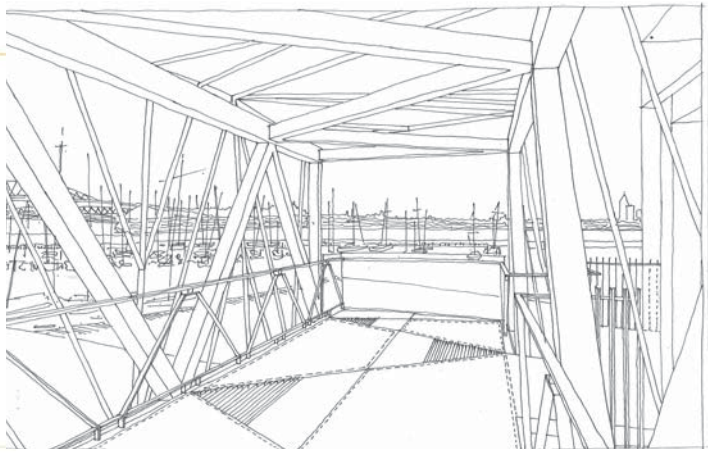
6.1.2 JACOB'S LADDER FOOTBRIDGE AND TIE-INS PLAN



6.1.3 JACOB'S LADDER FOOTBRIDGE, STAIR AND LIFT

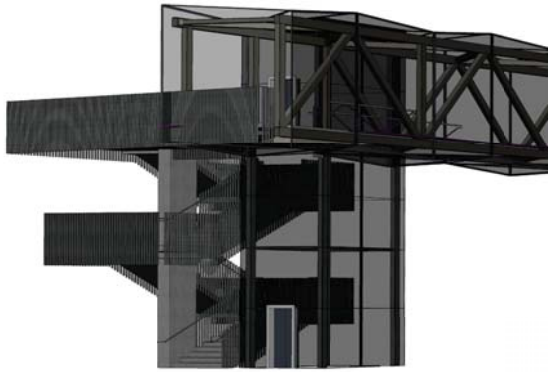


PLAN: NTS



ELEVATION : NTS

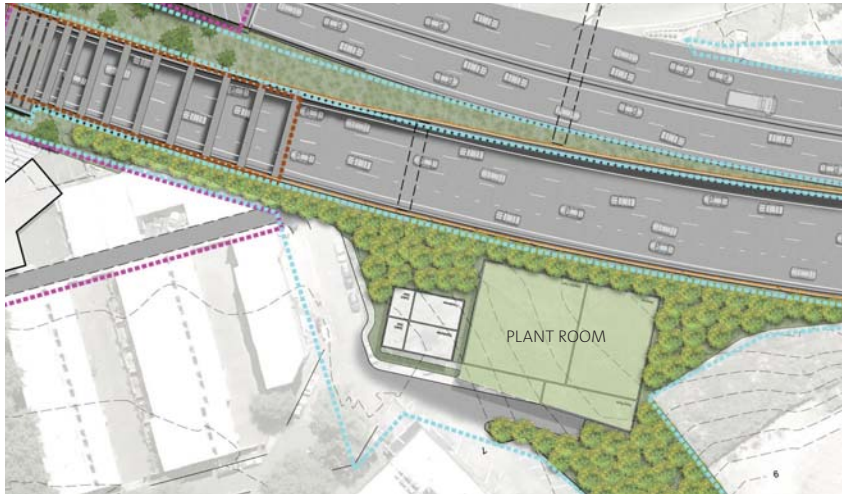
DETAILS RELATING TO CLADDING MATERIALS, COLOUR AND LIGHTING OF THE FOOTBRIDGE; THE BALUSTRADE FINISH OF THE RAMPS AND STAIRS ARE CURRENTLY BEING INVESTIGATED AND SUCH DETAIL WILL BE PROVIDED IN THE RELEVANT SECTOR PLAN (JACOB'S LADDER FOOTBRIDGE AND TIE-INS SECTOR - SECTOR 4)

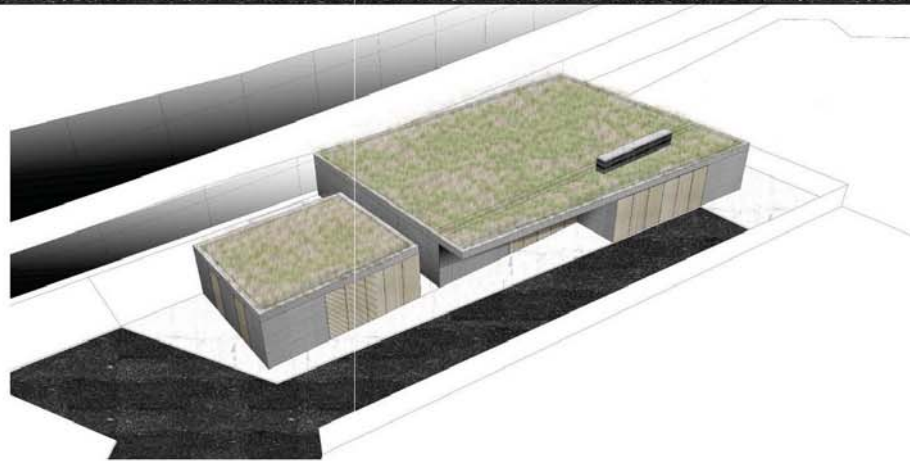


6.2 FREEMANS BAY SECTOR

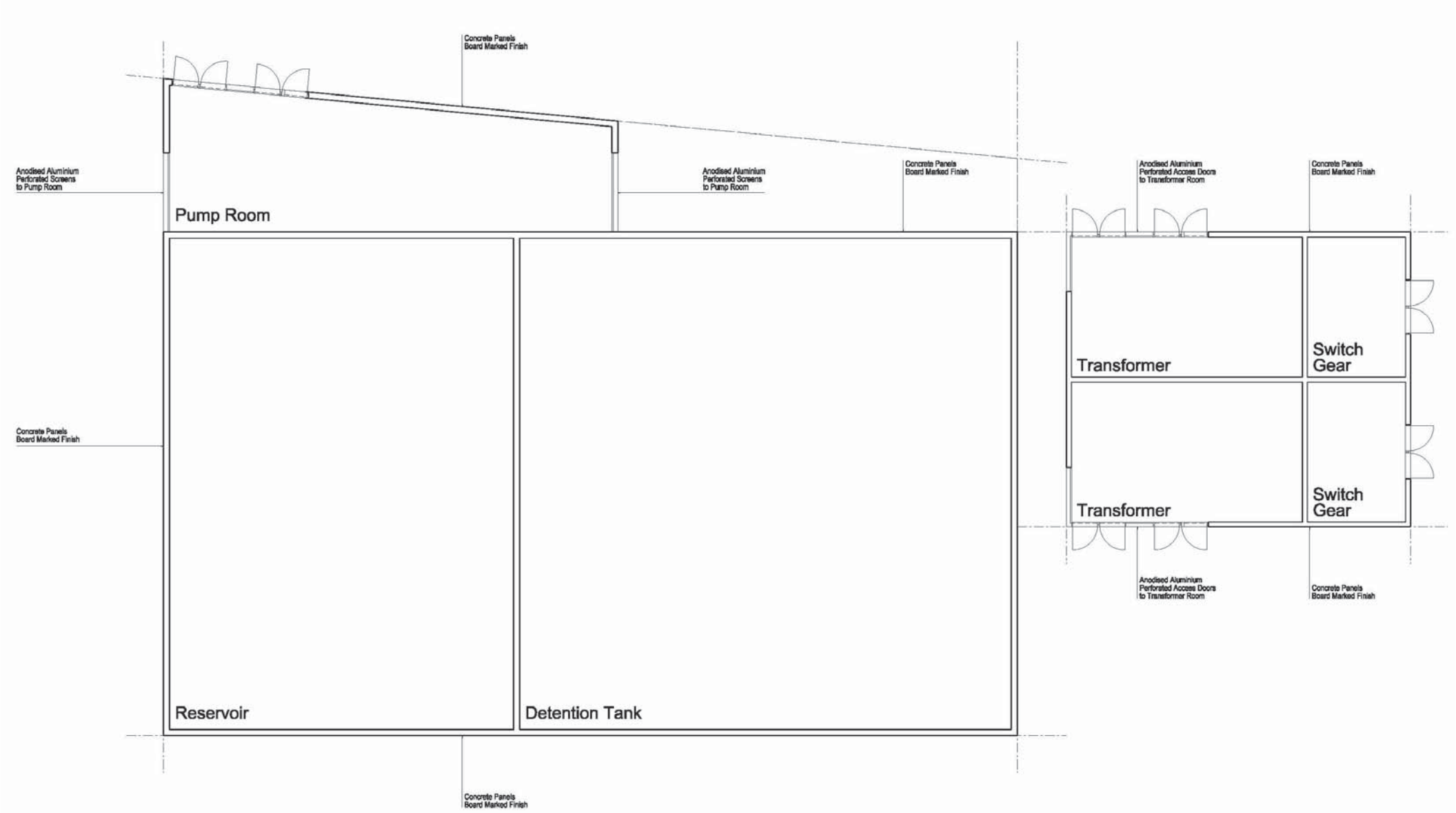
6.2.1 TUNNEL PLANT HOUSE 3D VIEWS / EXTERIOR TREATMENT

The concept design aims to reduce the visual impact of the building within its context. Detailed design will explore materials and finishes including high quality board marked concrete walls to a textured finish, bronze anodised aluminium screens to give a dark rich earth tone and a semi transparent treatment to parts of the facade. A green roof is proposed in order to reduce the visual impact of the structure in the foreground to Freeman's Bay. This will provide a rich landscaped cover to the building, effectively shielding the structure from views from Sale Street and adjoining streets. In addition heavy planting around the structure will also help soften the buildings impact.





6.2.2 TUNNEL PLANT HOUSE PLAN LAYOUT

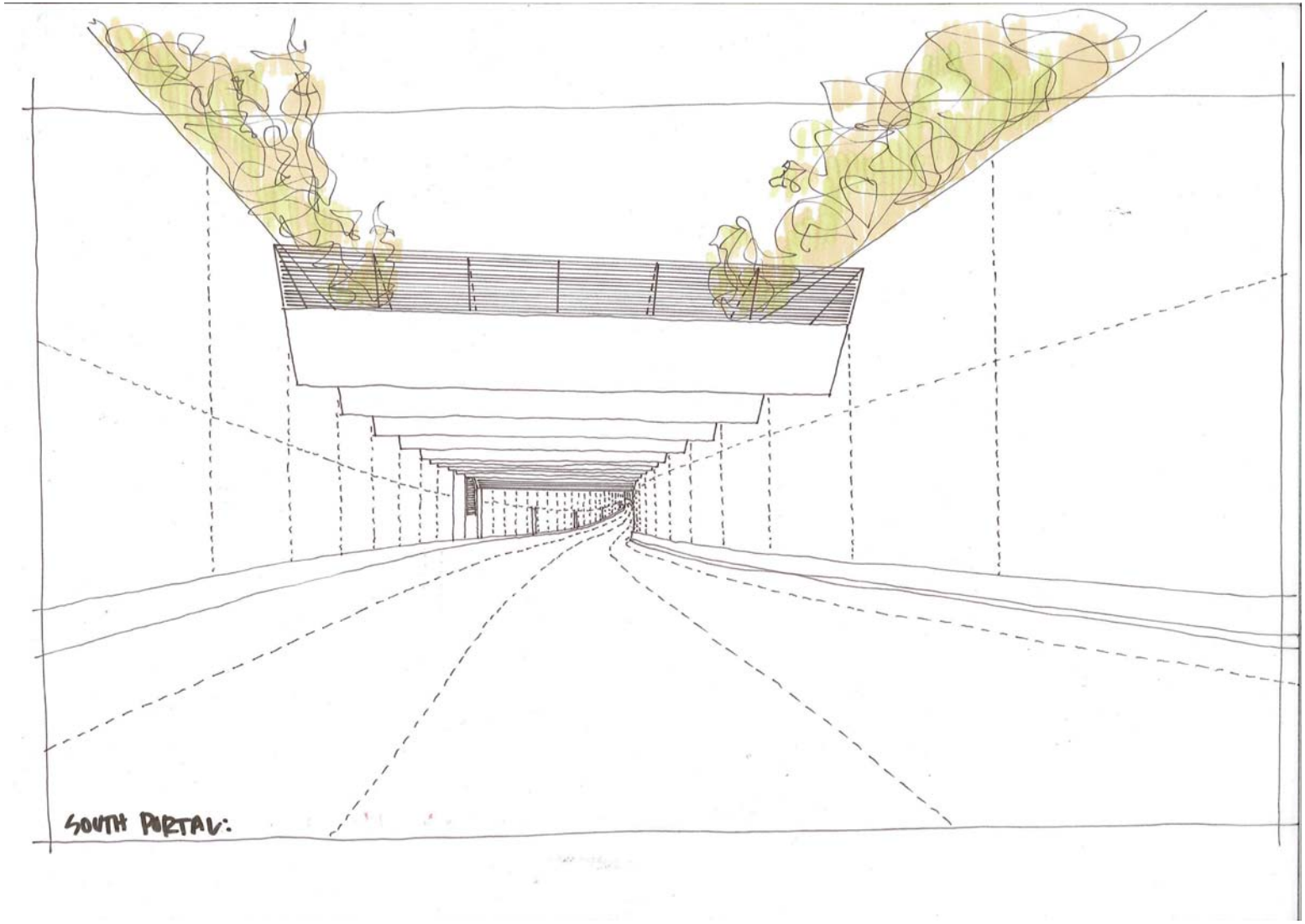


SCALE 1:150 @ A3

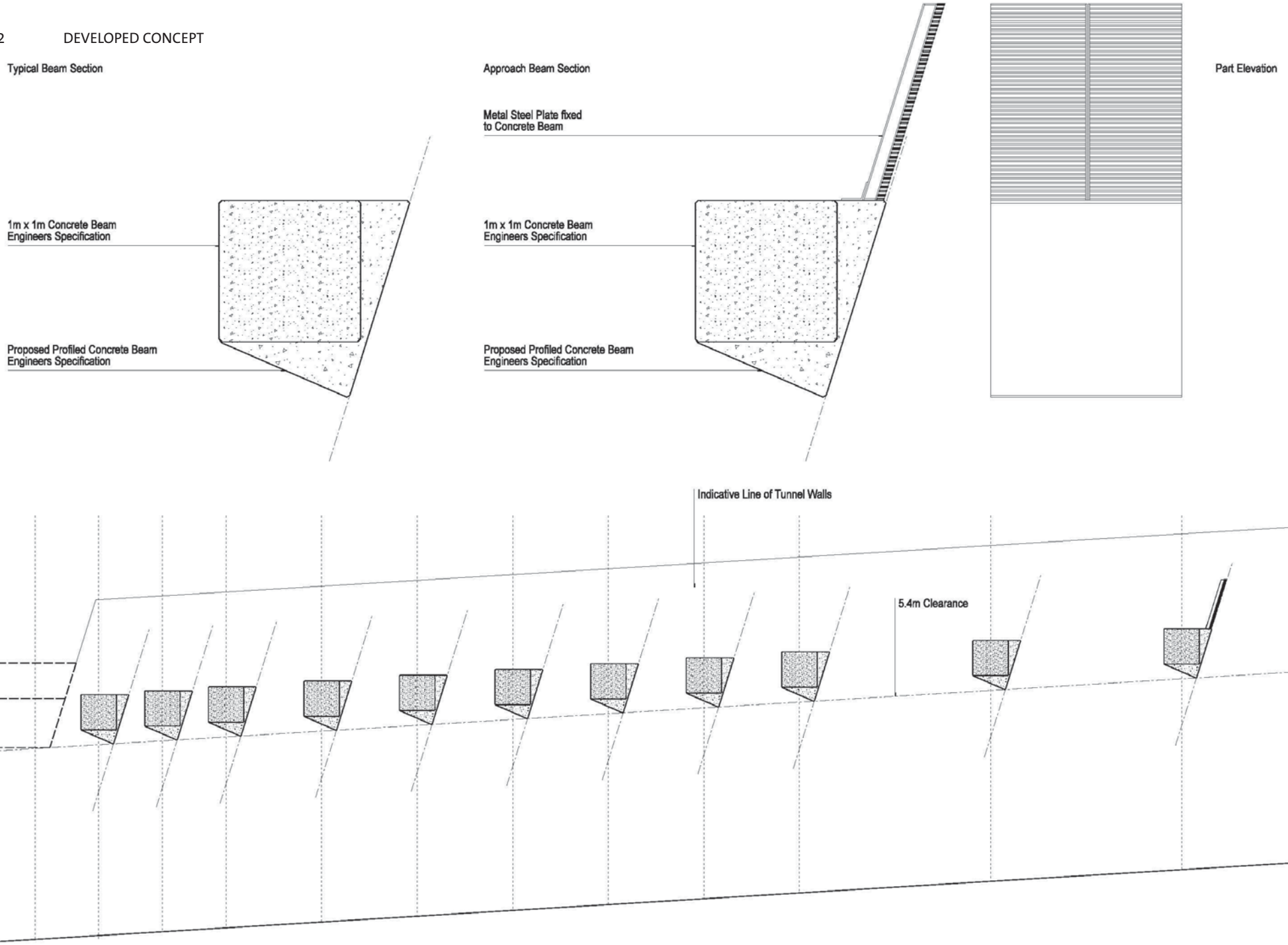
6.3 TUNNEL SECTOR

6.3.1 TUNNEL PORTALS – CONCEPT SKETCH

The concept design for the concrete portal structures has responded to the geometries and designs for the approach retaining walls. Conceived as a series of concrete blades they present a sharp dynamic edge on approach. The setting out of the beams is compressed as you approach the physical entry into the tunnel the spacing becomes more frequent. This controls the transition from natural daylight into the tunnel from a safety perspective, while also providing a dynamic visual experience.



6.3.2 DEVELOPED CONCEPT



SCALE 1:100 @ A3

6.3.3 3D VIEWS


C 50MM
PORTAL BEAM AND STEEL PLATE TREATMENT
REFER SECTION 5.2
B 50MM


A
PORTAL BEAM
A

7.0 PLANTING

7.1 OVERVIEW

Detailed planting plans to come in sector plan detailed design.

PLANT MIXES

SHELLY BRIDGE MIX:

METROSIDEROS EXCELSA
COPROSMA SPECIES
PHORMIUM TENAX

WESTHAVEN DRIVE MIX:

PHORMIUM COOKIANUM
MUEHLENBECKIA COMPLEXA

PLANTING STRIP VARIES BETWEEN 300 & 1500MM BETWEEN PROPOSED WESTHAVEN DRIVE RETAINING WALL AND EXISTING ROAD

MIX OF:

LEPTOCARPUS (APODASMIA) SIMILIS
PHORMIUM TENAX

MUEHLENBECKIA COMPLEXA AT VEHICLE ENTRY TO RETAIN CRITICAL SIGHT LINES

ST. MARY'S BAY RESERVE MIX:

MIX TO INCLUDE GROUNDCOVER, SHRUB AND SPECIMEN TREES APPROPRIATE TO LOCATION AND RECOGNISING CPTED REQUIREMENTS

OPEN CANOPY MIX:

TO INCLUDE GROUNDCOVER, SHRUB AND SPECIMEN TREES

UNDER CANOPY MIX:

TO INCLUDE GROUNDCOVERS, SHRUBS AND SPECIMEN TREES INCLUDING KAHIKATEA, KARAKA, TREE FERNS

DESIGN PRINCIPLES

- Maximise views to harbour;
- Frame St Mary's Bay cliff line landscape character when approaching from bridge.
- Soften visual effect of motorway camber facing the reserve with planted edge strip appropriate of coastal landscape;
- Reinforce coastal edge landscape zone.
- Create a green 'cushion' for the pedestrian bridge ramps.
- Increase biodiversity of corridor

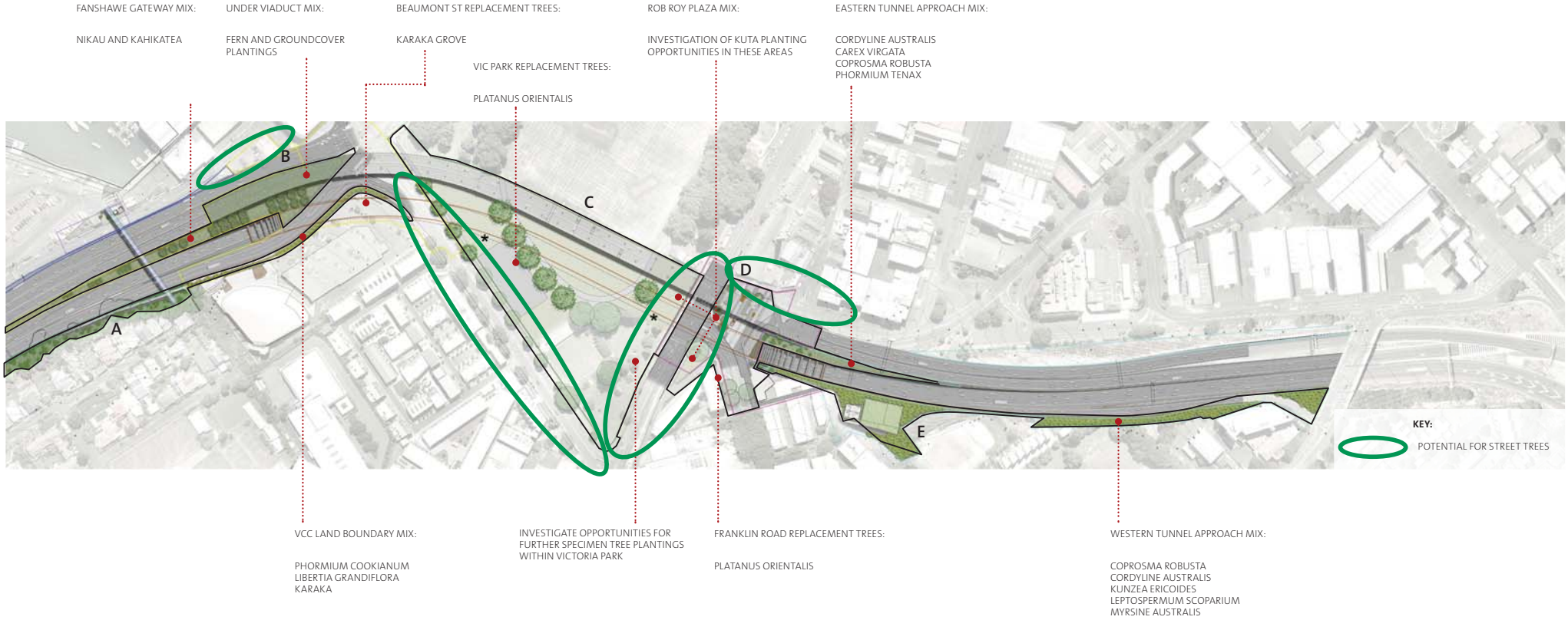
The soft landscape works (planting) are detailed in this section (12.4.2.vi). A plant schedule has been prepared for the project. Detailed Landscape and Planting plans showing the planting areas and vegetation to be retained and removed are to be prepared and submitted to council (ACR Policy) for approval. Consultation has taken place with Iwi, and written confirmation will be sought on the ecological and cultural appropriateness of the planting schedule specifically in regard to eco sourcing.

The planting programme (12.4.2.v) has not been prepared as this is dependant on the overall construction programme being resolved. This item will be addressed once that information becomes available. Consideration will be taken in respect to planting seasons (plant survival rates, watering, stock availability etc).

It is the intention that the planting proposed for the section of works from the CMJ to the tunnel entrance will be an extension of the planting currently found in the CMJ area. It is a logical extension of that planting down into the tunnel entry. This planting will also form the basis of the material used to screen the plant building.

Other plantings will be found in the Rob Roy Hotel precinct. This is subject to further design consideration and consultation. One suggestion to come out of an Iwi Working Party meeting was the importance of the plant kuta for this area. Kuta, Eleocharis sphacelata, is an indicator plant species for the presence of good habitat for eels in streams. As the Rob Roy Hotel precinct is the location of the formerly eel rich stream known as Tuna Mau (now piped underground), this material could be used to give recognition of the former foreshore and stream mouth in that area. Specimen multi-stem pohutukawa trees are also proposed, again alluding to the former coastal edge location.

Within Victoria Park, the trees removed from the historic ring of plane trees will be replaced with large specimen trees. It is hoped to be able to source trees of up to 8m in height, ready for planting at the completion of works. This will require forward procurement and growing on of stock over the next two years. The remainder of the park that is subject to reinstatement will be grassed down in liaison with Auckland City Council. Additional trees to be planted in Victoria Park to be investigated in sector plans.



DESIGN PRINCIPLES

- Reinforce gateway to CBD with structure and rhythm of planting elements;
- Provide a greening effect to reduce impact of motorway junction.
- Build on existing character of Victoria Park and Beaumont Street avenue.
- Reinforce urban design concepts for Wai Kuta / Waikokota.
- Provide consistency with recent CMJ planting and urban greening to motorway edge.

Metrosideros excelsa Pohutukawa

Sophora microphylla Kowhai

Cyathea dealbata Ponga

Rhopalostylis sapida Nikau

Cordyline australis Cabbage tree

Carex virgata Pukio

Leptocarpus similis Oioi

Libertia grandiflora Nz iris

Muehlenbeckia complexa Pohuehue

Phormium cookianum Mountain flax

Phormium tenax Flax

7.3 PLANT SCHEDULES

Sector 1 - Point Erin				
Plant Type		PB Size	Spacing	No. Plants
Trees		45L	as shown	15
Common Name	Botanical Name			
Karaka	*Corynocarpus laevigatus*			15
Shrubs/Small Trees		PB 5, 8, 12	1000mm centres	3185
Common Name	Botanical Name			
Harakeke	*Phormium* sp. (*P.tenax)*			
Harakeke	*Phormium* sp. (*P.cookianum*)			
Grouncover/Small Shrubs		PB 5, 8	750mm centres	8129
Common Name	Botanical Name			
Oioi	*Apodasmia similis (Leptocarpus similis)*			
Rengarenga	*Arthropodium cirratum*			
Kowharawhara	*Astelia solandri*			
Coprosma sp.	*Coprosma acerosa*			
Coprosma sp.	*Coprosma propinqua*			
Coprosma sp.	*Coprosma repens*			
Toetoe	*Cortaderia fulvida*			
Turutu	*Dianella nigra*			
Kiekie	*Freycinetia banksii*			
Kawakawa	*Macropiper excelsum*			
Pohuehue	*Muehlenbeckia complexa*			

Sector 2 - St Mary's Bay Reserve				
Plant Type		PB Size	Average Spacing	No. Plants
Trees		as shown	as shown	331
Common Name	Botanical Name			
"Ti kouka, Cabbage tree"	*Cordyline australis, C banskia*	200L		50
Karaka	*Corynocarpus laevigatus*	45L		5
Mamaku	*Cyathea medullaris*	PB 28		50
Kahikatea	*Dacrycarpus dacrydioides*	PB 95		16
Wheki	*Dicksonia squarrosa*	PB 28		50
Pohutukawa	*Metrosideros excelsa*	PB 150		25
Pohutukawa	*Metrosideros excelsa*	PB 12		50
Pohutukawa	*Metrosideros excelsa*	PB 8		10
Nikau	*Rhopalostylis sapida*	160L		25
Nikau	*Rhopalostylis sapida*	35L		50
Shrubs/Small Trees		PB 5,8,12	1000mm centres	3275
Common Name	Botanical Name			
Kowharawhara	*Astelia solandri*			
Putaputaweta	*Carpodetus serratus*			
Taro	*Colocasia esculenta*			
Toetoe	*Cortaderia fulvida*			
Kawakawa	*Macropiper excelsum*			
Mapou	*Myrsine australis*			
Harakeke	*Phormium sp. (P.tenax)*			
Harakeke	*Phormium sp. (P.cookianum)*			
Grouncover/Small Shrubs		PB 5, 8	750mm centres	5493
Common Name	Botanical Name			
Ground fern	*Adiantum viridescens*			
Rengarenga	*Arthropodium cirratum*			
Ground fern	*Asplenium bulbiferum*			
Oioi	*Apodasmia similis (Leptocarpus similis)*			
Carex grass	*Carex virgata*			
Turutu	*Dianella nigra*			
Knobby club rush	*Finicia nodosa*			
Libertia	*Libertia grandiflora*			
King fern	*Marattia salicina*			
Kiekie	*Freycinetia banksii*			
Pohuehue	*Muehlenbeckia complexa*			

Sector 3 - Westhaven				
Plant Type		PB Size	Average Spacing	No. Plants
Trees			as shown	34
Common Name	Botanical Name			
Pohutukawa	*Metrosideros excelsa*	PB 150		33
Norfolk Island Pine	*Araucaria heterophylla*	200L		1
Street Trees		PB 150	as shown	
Pohutukawa	*Metrosideros* Mistral			9
Shrubs/Small Trees		PB 5,8,12	1000mm centres	1871
Common Name	Botanical Name			
Coprosma	*Coprosma repens*			
Harakeke	*Phormium* sp. *(P.tenax,)*			
Grouncover/Small Shrubs		PB 5,8	750mm centres	2068
Common Name	Botanical Name			
Oioi	*Apodasmia similis (Leptocarpus similis)*			
Harakeke	*Phormium* sp. (*P.cookianum*)			
Pohuehue	*Muehlenbeckia complexa*			
Climbers		PB 8	2000mm centres	67
Common Name	Botanical Name			
Tecomanthe	*Tecomanthe speciosa*			

Sector 4 - Jacob's Ladder Footbridge and Tie-ins				
Plant Type		PB Size	Average Spacing	No. Plants
Trees		transpl'	as shown	3
Common Name	Botanical Name			
Nikau	*Rhopalostylis sapida (large grade transplants with full pit placement)*			
Grouncover/Small Shrubs		PB 8	500mm centres	200
Common Name	Botanical Name			
Oioi	*Apodasmia similis (Leptocarpus similis)*			
Pohuehue	*Muehlenbeckia complexa*			

Sector 5 - Beaumont / Fanshawe				
Plant Type		PB Size	Average Spacing	No. Plants
Trees			as shown	80
Common Name	Botanical Name			
Karaka	*Corynocarpus laevigatus*	PB 150		
Kahikatea	*Dacrycarpus dacrydioides*	160L		
Nikau	*Rhopalostylis sapida*	200L		16
Street Trees		PB 150		*TBC*
Karaka	*Corynocarpus laevigatus*			
Shrubs/Small Trees		PB 5, 8, 12	1000mm centres	*TBC*
Common Name	Botanical Name			
Harakeke	*Phormium* sp. (*P.tenax, P.cookianum*)			
Grouncover/ferns		PB 5, 8	750mm centres	554
Common Name	Botanical Name			
Ground fern	*Adiantum viridescens*			
Rengarenga	*Arthropodium cirratum*			
Oioi	*Apodasmia similis (Leptocarpus similis)*			
Ground fern	*Asplenium bulbiferum*			
Ground fern	*Blechnum penna-marina, B.novae-zelandiae.*			
Carex grass	*Carex virgata*			
Ground fern	*Doodia australis, Doodia squarrosa*			
Libertia	*Libertia grandiflora*			
Pohuehue	*Muehlenbeckia complexa*			

Sector 6 - Victoria Park				
Plant Type		PB Size	Average Spacing	No. Plants
Trees			as shown	46
Common Name	Botanical Name			
London Plane	*Platanus x acerifolia (6m minimum height + 300mm girth)*			6
Park Trees		PB 150		
Various (TBC)				20
Street Trees		PB 150		
Various (TBC)	*CBD standard pit design for Union St and other sts.*			20
Shrubs		PB 8	500mm centres	*TBC*
Common Name	Botanical Name			
Kuta	*Eleocharis sphacelata*			
Groundcover	*Species TBC (1000m2)*			

Sector 7 - Rob Roy				
Plant Type		PB Size	Average Spacing	No. Plants
Trees		PB 150	as shown	20
Common Name	Botanical Name			
Kowhai	*Sophora tetraptera*			10
London Plane	*Platanus x acerifolia*			3
Nikau	*Rhopalostylis sapida*			7
Grouncover/Small Shrubs		PB 5, 8	750mm centres	*80m2*
Common Name	Botanical Name			
Oioi	*Apodasmia similis (Leptocarpus similis)*			
Rengarenga	*Arthropodium cirratum*			
Carex grass	*Carex virgata*			
Turutu	*Dianella nigra*			
Kuta	*Eleocharis sphacelata*			
Libertia	*Libertia grandiflora*			
Pohuehue	*Muehlenbeckia complexa*			
Harakeke	*Phormium* sp. (*P.tenax, P.cookianum*)			

Sector 8 - Freeman's Bay				
Plant Type		PB Size	Average Spacing	No. Plants
Trees		PB 28	as shown	110
Common Name	Botanical Name			
Taraire	*Beilschmiedia tarairi*			
Ti Kouka/cabbage tree	*Cordyline australis / C. ngahere*			
Karaka	*Corynocarpus laevigatus*			
Rimu	*Dacrydium cupressinum*			
Karo	*Pittosporum crassifolius*			
Kohuhu	*Pittosporum tenuifolium*			
	Pittosporum umbellatum			
Tawapou	*Planchonella novo-zelandica*			
Matai	*Prumnopitys taxifolia*			
Five Finger	*Psuedopanax arboreus*			
Kowhai	*Sophora tetraptera*			
Puriri	*Vitex lucens*			
Shrubs/Small Trees		PB 5, 8, 12	1000mm centres	*TBC*
Common Name	Botanical Name			
Hebe	*Hebe stricta*			
Kawakawa	*Macropiper excelsum*			
Mapou	*Myrsine australis*			
Putaputaweta	*Carpodetus serratus*			
Kumarahou	*Pomaderris kumeraho*			
Toetoe	*Cortaderia fulvida & Cortaderia toetoe*			
Harakeke	*Phormium sp. (P.tenax, P.cookianum)*			
Coprosma	*Coprosma repens, C.robusta.*			
Whau	*Entelea arborescens*			
Manuka	*Leptospermum scoparium*			
Nikau	*Rhopalostylis sapida*			
Kanuka	*Kunzea ericoides*			
Grouncover/Small Shrubs		PB 5,8	750mm centres	*TBC*
Common Name	Botanical Name			
Rengarenga	*Arthropodium cirratum*			
Carex grass	*Carex virgata*			
Coprosma	*Coprosma repens*			
Tutu	*Coriaria arborea*			
Libertia	*Libertia grandiflora*			
Pohuehue	*Muehlenbeckia complexa*			

8.0 APPENDIX 1

8.1 TRAVEL TIME ANALYSIS

Travel time analysis was compiled to form an indication of the length of time that motorway features will be experienced. This informs the scale at which urban design features will be designed;

- Pedestrian experience is slower and more interactive thus adjacent features should be of a finer grain, using texture and relief;
- Motorist experience is fast and non-interactive so features should be designed at a macro scale through form and scale;
- The experience of movement is a key driver for the design of larger motorway elements such as acoustic barriers and retaining walls

DRIVING @ **80KMH**	ST MARYS BAY 1000m long **45 sec.**	BRIDGE 200m long **9 sec.**	TUNNEL 450m long **20 sec.**	TUNNEL APPROACH 450m long **20 sec.**
WALKING @ **3.6 KMH**	reserve walk **17 mins.**	across bridge **1 min. 40 secs.** **+ PAUSE TIME**		

9.0 APPENDIX 2

9.1 ROB ROY SECTOR: DEVELOPED CONCEPTS

Situated at the junction of 2 movement routes, fronting onto a premier park and along the line of the original foreshore, the Rob Roy sector represents a natural meeting point and node within the urban structure, both spatially and functionally. However the use and public vibrancy of the site is influenced to no small degree by the presence of the Hamilton Motorway passing over and through the volume of space. This presence has the effect of discouraging most dwelling activities as would normally be expected of such a location.

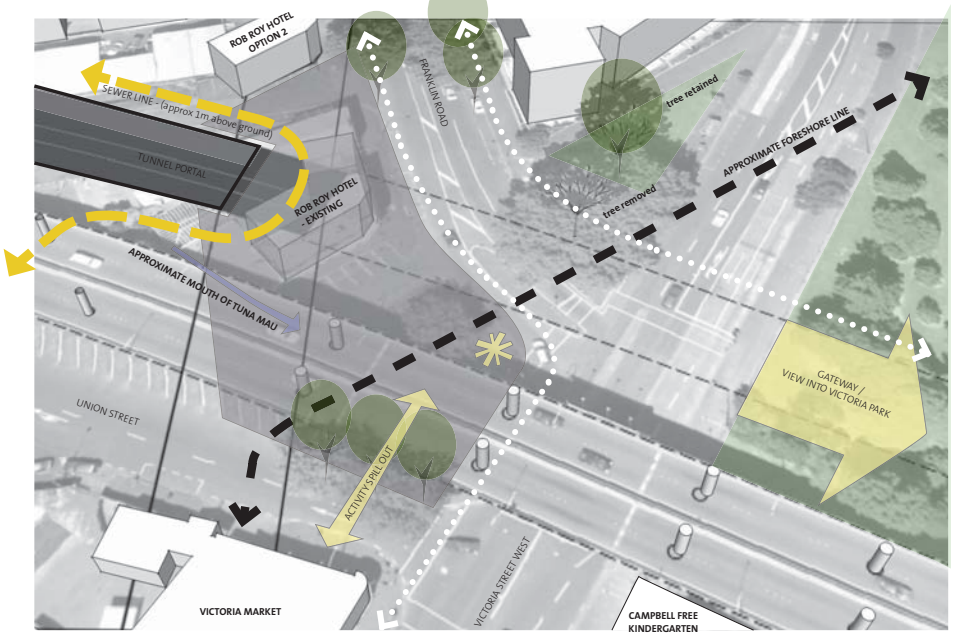
Surrounding uses include residential, commercial/retail (including the Victoria Markets) and open space, however only the Rob Roy Hotel (presently the Birdcage Pub) physically fronts the public space with other uses separated across vehicle carriageways and further compounding the present character of a void within an active part of the city.

As a result the present role the space and buildings play within the surrounding urban context is not as an active public space, but more as a landmark and orientation point at a city movement node. The Rob Roy Hotel building acts as the legible landmark feature to this node.

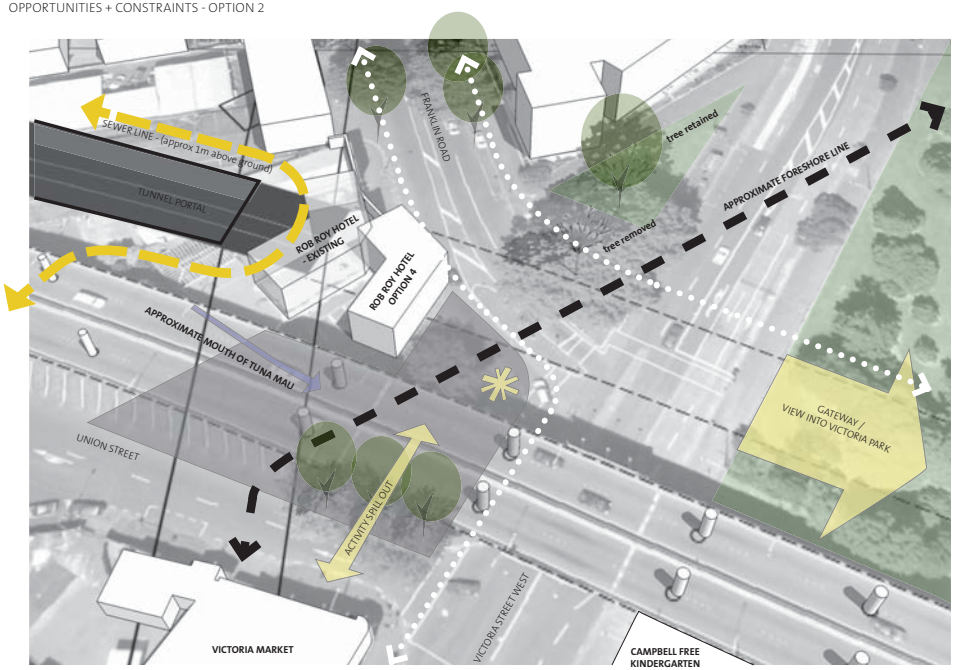
Due largely to the high volumes of both pedestrians and vehicles passing through the site there is clearly greater potential for use of the space whilst continuing to function as a key orientation landmark. Further more the site has the potential to act as a gateway to Victoria Park, echoing its former gateway role to the harbour of Freemans Bay.

EXISTING VIEW FROM VICTORIA PARK
SIDE OF VICTORIA STREET WEST

9.2 OPPORTUNITIES & CONSTRAINTS DIAGRAMS



OPPORTUNITIES + CONSTRAINTS - OPTION 2



OPPORTUNITIES + CONSTRAINTS - OPTION 4A

9.3 PUBLIC SPACE OPPORTUNITIES + CONSTRAINTS

9.3.1 URBAN DESIGN

Options developed have considered a number of key urban design qualities in relation to the details of the location, orientation and feasible future use of the building.

These include;

- **Townscape** - Relationship and orientation to the surrounding urban grain, built form, visual prominence and role as an architectural anchor to Franklin Road;
- **Connections** -Immediate relationship to the streetscape and interplay with public space, servicing and access;
- **Activity Mix** - Likely activation potential of streetscape and public space and ensuring the greatest potential in the creation of new uses;
- **Character** - Relationship of heritage character and contemporary townscape + infrastructure;
- **Custodianship + CPTED Considerations** - Ensuring opportunities for positive community engagement with the public space and the creation of safe urban environments;
- **Diversity + Choice** - As appropriate, the ability to integrate and provide multiple opportunities for fostering public life.

9.3.2 OPTION 2

The designated option has been developed to respond to the urban environment and the technical challenges of constructing the tunnel, related sewer and infrastructure upgrade required. The Rob Roy Hotel is relocated further up Franklin Road, maintaining its orientation to the street alignment and alongside the southern tunnel portal. This location is set back from its former strong corner landmark location addressing Victoria Park, but does maintains a visual connection. The set back creates a significantly bigger area of public space to the north of the site area than presently exists. The set back also creates a potential void in the facade structure of the townscape - which in this option is sort to be mitigated with a canopy structure to the portal, creating a positive rear face to the public space.

Connections through and across the space in front of the Rob Roy Hotel are maintained with a visual connection through to the Victoria Quarter enhanced. The required re alignment of the Franklin Road junction provides an opportunity for a better relationship with the park - less restricted by the viaduct.

The set back location results in the tunnel portal and sewer structure dividing the increased area of public space into 2 portions, a smaller forecourt to the Rob Roy Hotel and the enlarged nodal corner space at the Victoria Street West and Franklin Road Junction. A consequence is that the activity potential provided by any new use of the Rob Roy Hotel is separated from the main space and as such the space has no direct spill out activity.

Feasibility of continued operation of the Rob Roy Hotel as a food & beverage outlet will be restricted by the increased set back from the prominent corner location and will thus require a stronger quality offer to succeed. The potential for use maybe better suited to business commercial activities with the land to the rear of the new location offering some potential to be developed as part of the new Rob Roy Hotel building use - either further buildings or car parking with access along a service lane from Franklin Road.

Additional activity generation to the public space could be considered in the form of a Kiosk set in from the junction.

The public space and location of the Rob Roy Hotel are able to respond positively to the surrounding townscape character within limits of the adjacent viaduct structure. The greater distance from which enables a less oppressive setting to the heritage building than presently exists.

The form of the space and location of the Rob Roy Hotel create an open and naturally surveyed public area, clearly visible from passing traffic. However the location and likely business related use of the Rob Roy Hotel does not offer much benefit of good surveillance over the space. The intrusion of the tunnel portal and sewer pipe present some design challenges to safety at the rear portion of the space.

The space created offers areas to include a choice of experiences and amenity, however limited offer to support this space is gained from the location of the Rob Roy Hotel with activation relying on passing foot traffic and any future development of the Victoria Markets.

9.3.3 OPTION 4

This alternative option to the designation has been driven by creating a more appropriate public space with greater potential for activation form surrounding uses whilst maximising efficient and economic use of land. The Rob Roy Hotel Building is relocated just forward of its current location clear of the new sewer line. The building form is rotated so that the facades address the line of Victoria Street West and the bend of Franklin Road to an adjusted junction.

This option creates a smaller public space than the designation, however this is considered to be more in keeping with the potential of the space and surrounding uses to support activity. The heritage building maintains a prominent corner location addressing the park and spatial node. The southern portal is for the most part concealed from public view behind the Rob Roy Hotel and behind a potential new development fronting Franklin Road.

Connections across the site are maintained for pedestrians however a slight deviation from the desire line between Franklin Road to the Victoria Street West crossing is created around the new location of the Rob Roy Hotel building consistent with the adjusted kerb line to Franklin Road. A consequence of this deviation is that a stronger visual connection is created across to Victoria Park - reinforcing the gateway function of the space.

Servicing of the Rob Roy Hotel building is relocated form its present route in front of the building, across the public space to a rear service area accessed from Union Street.

As a condensed space there is greater potential for satisfactory activation, this is also enhanced by improved visual connections to adjacent spaces and activities engendered by the reduced form and stronger definition of edges.

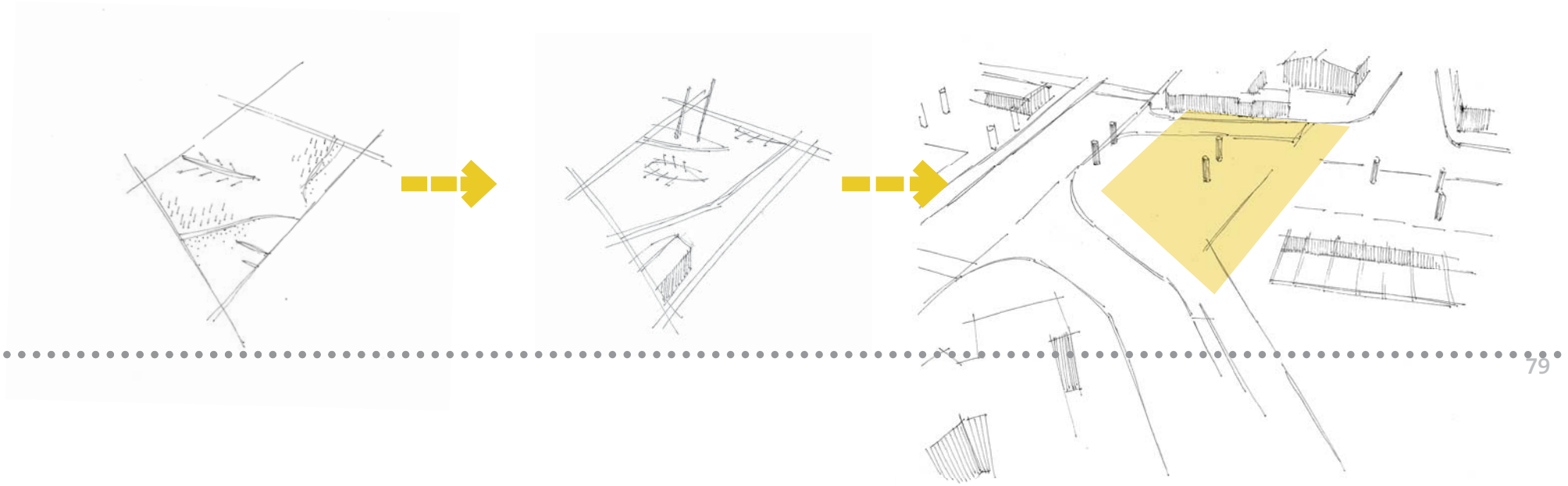
The feasibility of the Rob Roy Hotel to operate as food & beverage outlet is maintain as existing by the orientation and location however it should be noted that a much reduced area is provided for ancillary buildings as presently exists within the current operation.

The remaining Franklin Road frontage presents an opportunity for further development suitable to either residential apartments or business uses with service access from Franklin Road and additional associated land to the rear. The Franklin Road building line is proposed to be maintained to the Rob Roy Hotel Building in the form of a 2.4m high brick wall in front of the pinch point with the sewer line. Some of the land above the sewer line could be utilised to support operation of the Rob Roy Hotel building with appropriate covenants in place.

The character of the townscape is maintained in relation to the heritage building with no more or less an impact made by the existing viaduct. Improved treatment of the public space in front of the Rob Roy Hotel building will enhance the setting and character of this nodal space.

As with option 2 the location of structures and buildings to the rear of the space allow a good level of natural surveillance across the public areas. Increased potential for activity from the Rob Roy Hotel building support a safer environment being created. As with option 2, a public character, opportunities for community values to be represented and lighting - particularly under the viaduct will be crucial in supporting a safe environment.

9.4 ROB ROY SECTOR CONCEPT BACKGROUND



SITE TRACES

WAI-ATA-RAU 'REFLECTING WATERS'
KUTA FRINGED SHALLOW WATERS +
STREAM MOUTH "TUNA MAU'

INDUSTRIALISATION +
THE SHELTERED BAY

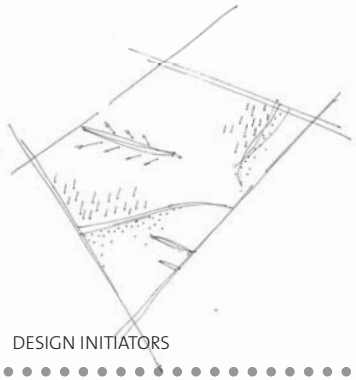
RECLAMATION + TRANSPORT

9.4.1 PUBLIC SPACE CONCEPTS

- The design of the public space within both options seeks to respond to the particular characteristics and values of the site in terms of providing opportunities for use and in acknowledging and conveying the rich heritage associated with this location;
- The design draws on both the pre european and early european heritage of the site, its landscape and associated activities in order to convey this heritage to contemporary site users, as well as providing attractors for community involvement and custodianship;
- Within both options 4 elements are used to convey these stories;
- Planting + Vertical Forms + Horizontal Forms + Ground Surface

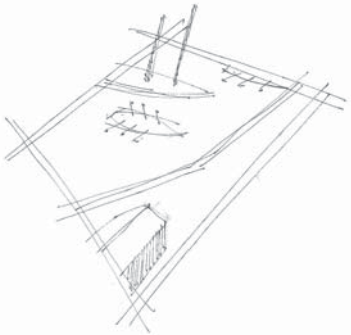
Planting

- beds of native Kuta (as suggested through consultation with Iwi groups) and native tree planting for shelter echo the original vegetation types of the pre european foreshore.



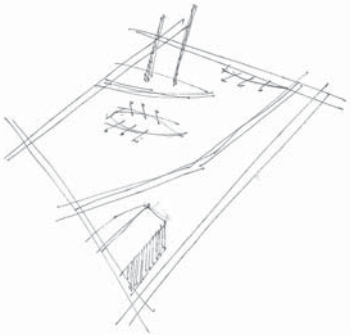
Vertical forms

- lighting and columns that echo masts, oars and associated architectural features whilst providing a mid level visual interest to the under area of the viaduct. These act as legible landmark features capable of conveying a non infrastructure character. Features will also act to light the public space.



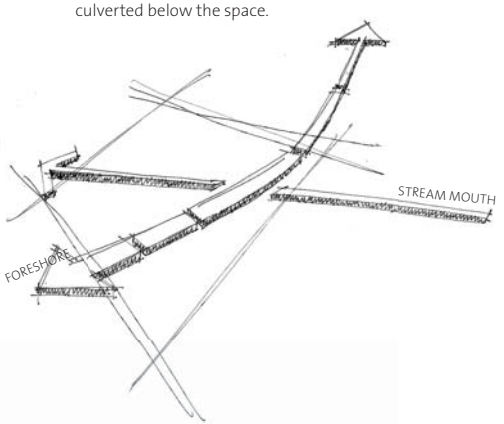
Horizontal forms

- furniture, seating and market plinth's that echo the coming and going of items collected on the shore; vessels, goods and early development.



Ground surface

- a transition of materials that evoke a 'wash' pattern across the space evoking a texture of the former 'shallow sandy bay' and secondly a break through the centre acknowledges the mouth of the 'tuna mau' stream; now culverted below the space.



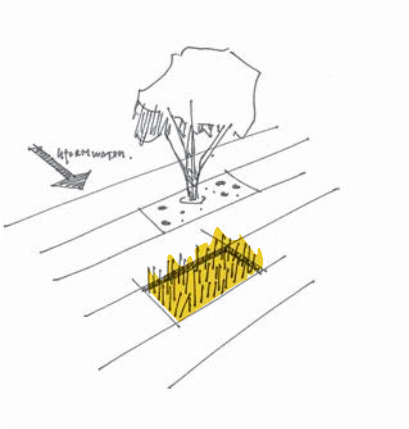
DESIGN INITIATORS

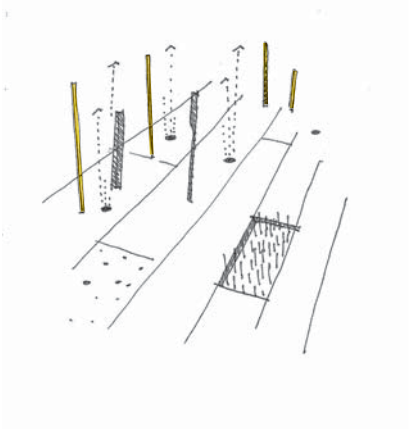
OPPORTUNITIES FOR KUTA TO BE GROWN AGAIN

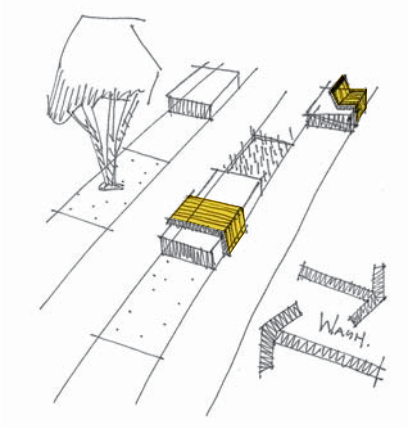
VERTICAL FORMS - MASTS, OARS, CHIMNEYS

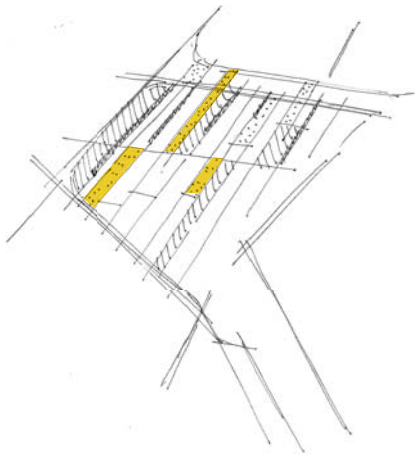
HORIZONTAL FORMS GOODS + VESSELS

REFLECT THE FORMER FORESHORE + STREAM



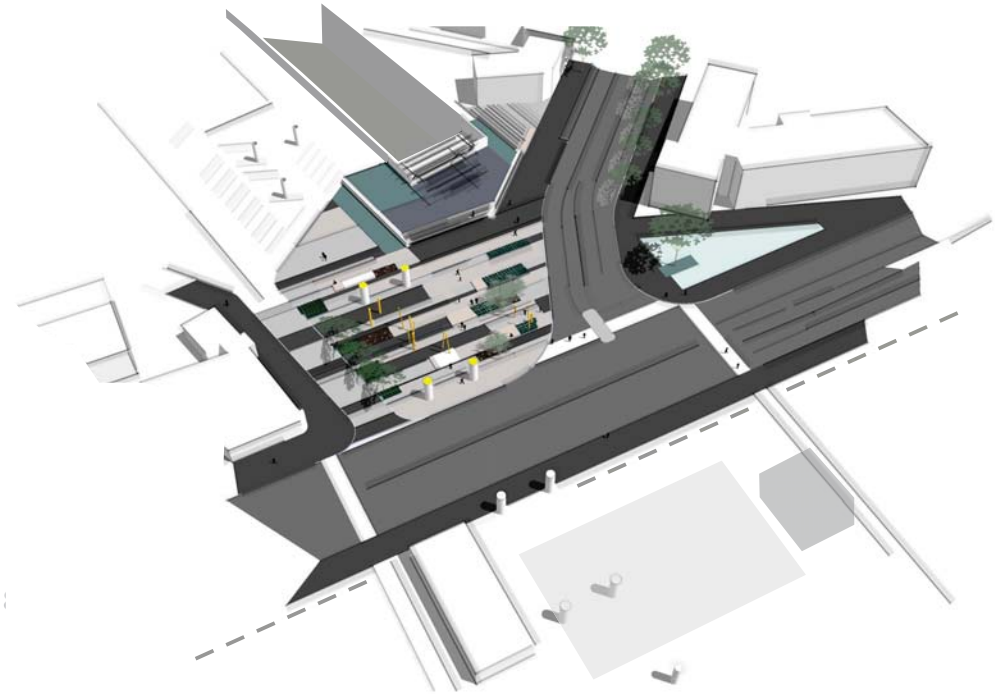




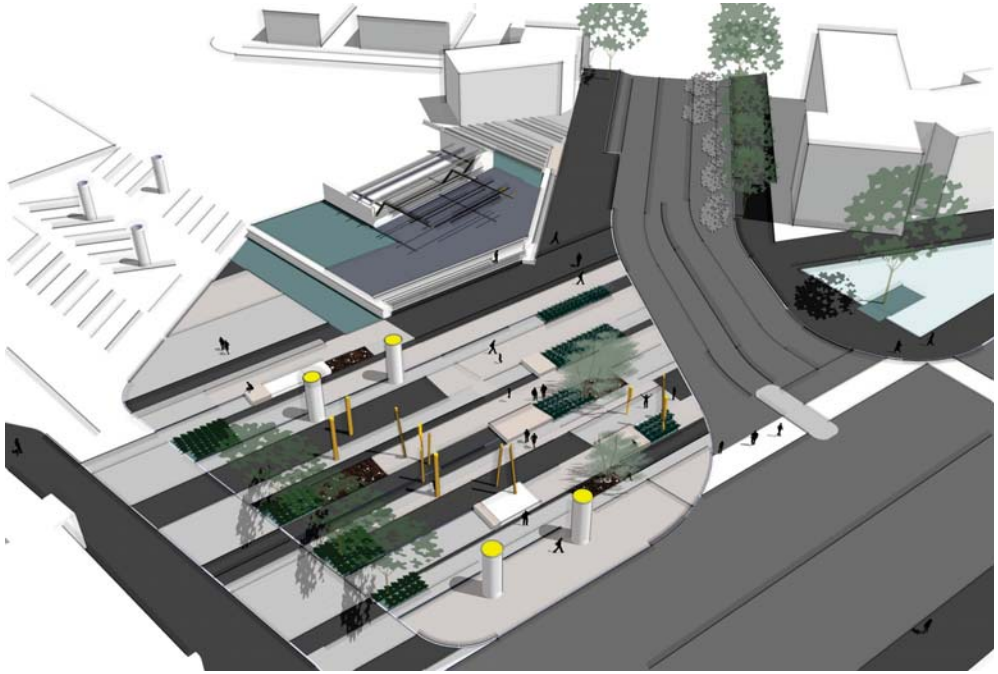


EXISTING VIEW FROM VICTORIA PARK
SIDE OF VICTORIA STREET

ROB ROY RELOCATION OPTION 02
BUILDING BESIDE PORTAL WITH PUBLIC SPACE TO FRONT



ROB ROY RELOCATION OPTION 02
FROM THE NORTH EAST



ROB ROY RELOCATION OPTION 02
FROM THE NORTH EAST

ROB ROY RELOCATION OPTION 02
FRANKLIN ROAD FOOTPATH

LOOKING NORTH TOWARDS THE VICTORIA PARK + THE VIADUCT

ROB ROY RELOCATION OPTION 02
CORNER OF UNION STREET + VICTORIA STREET WEST

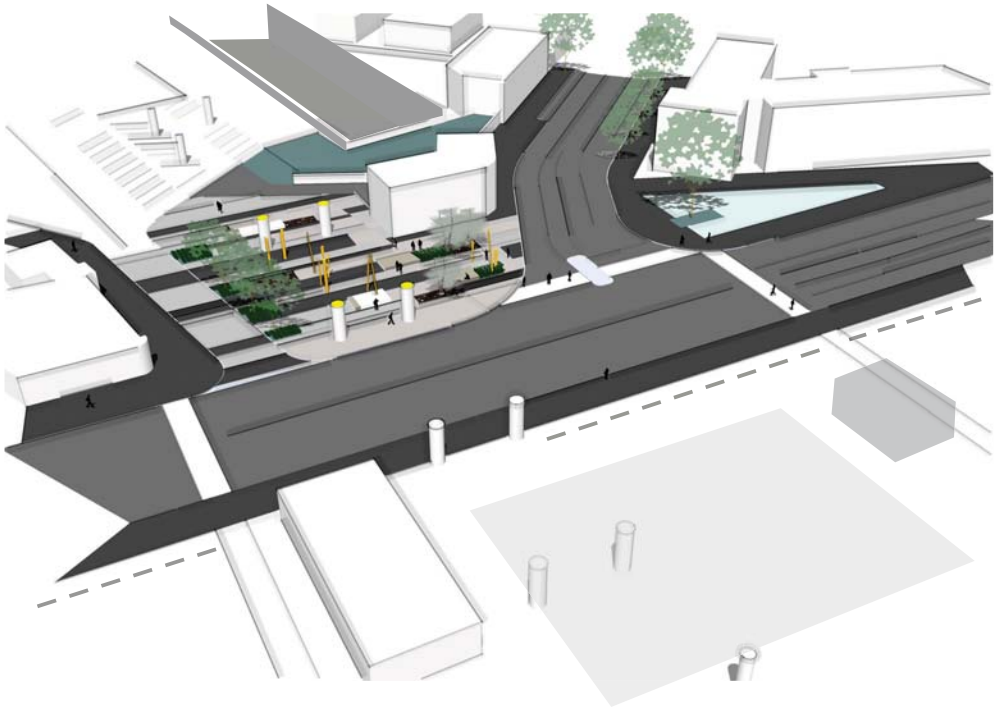
LOOKING SOUTH ACROSS THE PUBLIC SPACE TO FRANKLIN ROAD

ROB ROY RELOCATION OPTION 02
VICTORIA PARK

LOOKING SOUTH TOWARDS VICTORIA MARKET + THE VIADUCT

EXISTING VIEW FROM VICTORIA PARK
SIDE OF VICTORIA STREET

ROB ROY RELOCATION OPTION 04A
BUILDING IN FRONT OF PORTAL

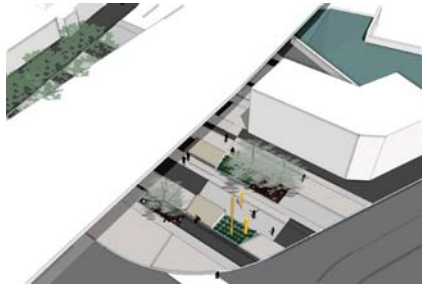


ROB ROY RELOCATION OPTION 04

FROM THE NORTH EAST

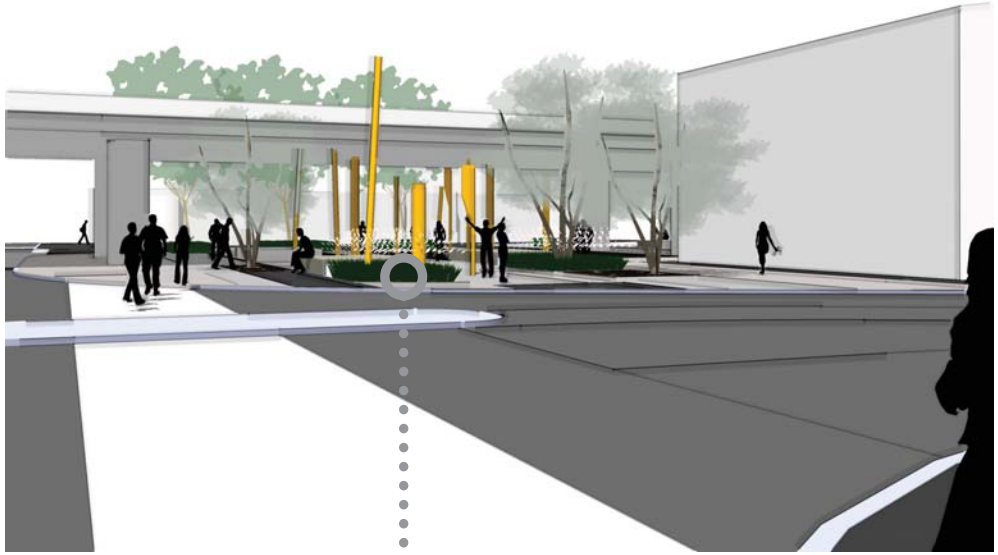
ROB ROY RELOCATION OPTION 04
FRANKLIN ROAD

LOOKING SOUTH TO VICTORIA PARK + THE VIADUCT



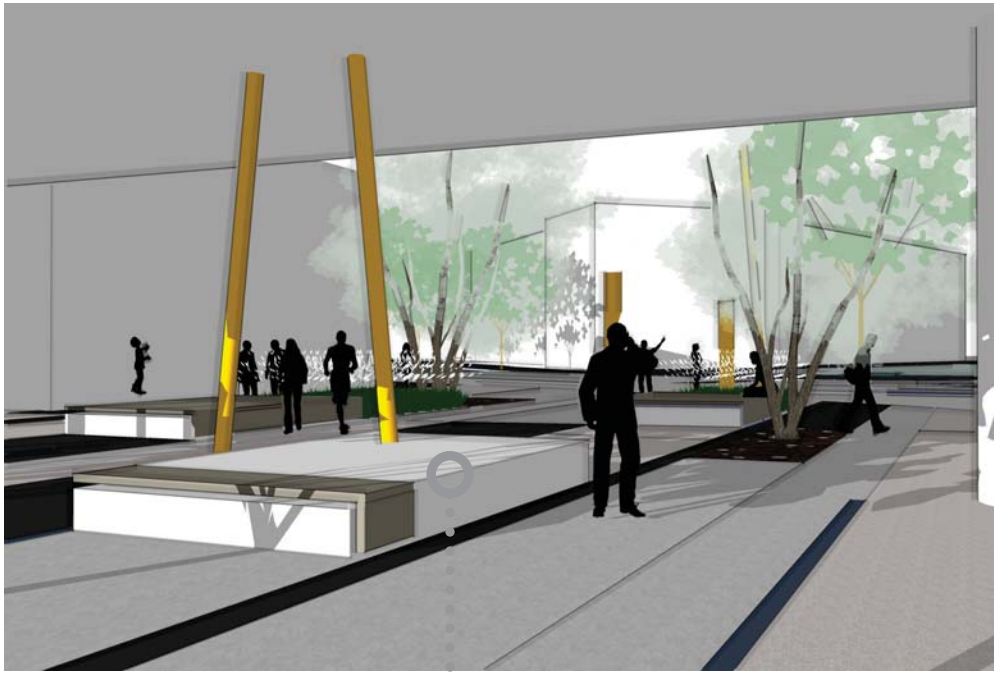
ROB ROY RELOCATION OPTION 04
ABOVE FRANKLIN ROAD

LOOKING SOUTH EAST ACROSS THE PUBLIC SPACE



ROB ROY RELOCATION OPTION 04
FRANKLIN ROAD CROSSING

LOOKING EAST ACROSS THE PUBLIC SPACE



ROB ROY RELOCATION OPTION 04
UNION STREET

LOOKING WEST ACROSS THE PUBLIC SPACE

KUTA BED + STORMWATER

SEATING BECOMES MARKET SPILL OUT OPPORTUNITY