

Appendix 2: CONSULTATION, FEEDBACK AND RESPONSES

Site Specific Management Plans 005 + 006 - Otaihanga North and South [COMBINED]

MacKays to Peka Peka Expressway

M2PP-121-D-MPL-0006

29 JANUARY 2014

The following tables set out the responses to comments raised by reviewers and those parties consulted in regard to the preliminary SSMP. The project responses are either reflected in the certification issue to which this Appendix pertains, or have been directed to other processes for action, or have been considered but for the reasons noted not agreed to. The parties consulted are those identified by the consent conditions and for Otaihanga are:

- Te Āti Awa ki Whakarongotai;
- KCDC;
- GWRC;
- Kāpiti Cycling Incorporated; and
- Implementation Group of the Kāpiti Coast District Council Advisory on Cycleways, Walkways and Bridleways

COMMENTS ON PRELIMINARY ISSUE SSMP5+6:OTAIHANGA

KCDC REVIEWERS COMMENTS [JW=Julia Williams- Landscape Architect; DP = Deyana Popova-Urban Designer; Stu Kilmister-CWB Planner; Shona Myers-ecologist – provided as document and also meeting notes

Condition Reference	Condition Detail	Reviewer/commenter	KCDC Reviewer's comment	reference in SSMP	Management Plan Author's response
DC.1	Plans will generally comply with the plan set presented in the AEE	JW	There are inconsistencies with the Landscape and Visual Plans in the AEE: On Sheet 3, an area of vegetation just north of Otaihanga Road in the vicinity of the CWB is no longer shown. On Sheet 5, an area of vegetation to be retained east of Wetland 8, on the edge of the designation is no longer shown.	Sheet 3 Sheet 5	Plans have been amended to address these issues. Note: since the AEE areas of the pine forest adjacent to Otaihanga Road have been removed by others, including, we suspect a small number of kanuka trees. This has influenced the vegetation community mapping that formed the basis of these SSMP areas.
DC.7A e)	SSMPs shall be consistent with the relevant Management Plan and/or the UDLF	JW	Should the third paragraph on "Planting Methods and Specifications" read: Organic mulch shall be placed over the area to be planted at least 2 weeks prior to planting to allow for settlement. <i>Note: organic mulch shall be not used within the areas of wetland and stormwater treatment that are subject to temporary or permanent inundation. For these areas, alternative plant protection techniques will be used (e.g. staking and propriety mapping mechanisms).</i>	Page 24 / Section 5.M	This section has been amended to address this issue.
DC.59A(f)(i)	Lighting for the benefit of pedestrians and cyclists	JW	Require information on lighting	Page 10 / Section 4.A	The lighting of the CWB will include: lighting under the bridges where there is frequent walking and cycling activity (urban areas), an overhead light at each intersection of the local roads and CWB to make drivers and CWB users aware of each other's movements, and lighting of the CWB in the urban section (Leinster to Mazengarb Roads) to provide for way-finding and comfort for users. The details of whether these lights are low level (bollard) or overhead on poles (approx 4.0m high) is being worked through with

					KCDC. All lighting is to be scaled and light levels responsive to standards
		JW	Overall signage concept needs to be finalised in conjunction with local details		Agreed – consultation with KCDC on signage graphics and locations of signs has occurred and these details have been added.
DC.59A(g)(ii)	Minimum 3.0m wide CWB path	JW	The CWB does not meet this condition as is it only 2.5m wide.	Page 10 / Section 4.B	Plans and text have been amended to show 3.0m wide surfaced (seal or Kapiti blue) wide main line CWB. Will be provision alongside 3.0m for horses in rural areas with grass verge 1.0m wide where practicable, without changes to cuts and fill.
DC.57(f)	Each SSLMP shall include details of vegetation retention and proposed planting	JW	<i>"Changes have been made re the Otaihanga pine plantation. I approve of removing all remaining pines once the canopy has been opened. I note that landscape plan, at the time of the meeting on 27-09-13, was to remove all pines, plant the perimeter of the wetland edge, establish quick growing shelter belt vegetation on the private property boundaries (2 rows) and revegetate the remaining area (formerly shown as pine in the AEE plans) in slow growing grass species. Current regrowth in areas cleared a year ago is self-sown mahoe up to 1m tall. Provided the blackberry is kept under control, natural revegetation will occur on these grassed areas if the grass is not maintained."</i>	Page 17 / Section 5.F	Agree in part, and SSMP amended to reflect removal of pines and landscape, visual and ecological buffer planting proposed following pine removal (as outlined in SSMP). Consultation with some adjoining landowners has occurred. Most of the re-growth observed following pine removal has been inkweed, blackberry, gorse and tree lucerne - with only small areas of mahoe and karamu regeneration surrounding the Otaihanga Northern Wetland.
G.41	Areas of valued terrestrial and ecological vegetation	SM	No details provided on area of Kanuka forest to be cleared. <i>"I understand the area of loss may be able to be reduced from AEE, and I support this."</i>	Page 13 / Section 5.A	Agree, SSMP section and graphics updated to reflect revised amount of clearance.
G.42	Mitigation planting	SM	It would be useful to know what percentage of the total proposed ecological planting is represented by the 1.76ha riparian and 1.4ha wetland planting proposed here. <i>"I support minimising the amount of wetland vegetation and habitat affected"</i>	Page 14-15 / Section 5.B & C	Agree, revised to include a new Appendix 5 to illustrate percentage of mitigation across Expressway within this SSMP area.
G.34(m)	Salvage of elements of any valued habitat of indigenous flora and fauna	SM	Area of salvage planting still to be specified	Page 20 / Section 5.I	Agree, updated in terms of estimates of wetland plants for salvage (following advice from constructors on methodology).
DC.64(d)(iv)	Minimising effects of the CWB	SM	Details of minimisation of effects on kanuka still to be specified	Page 13 / Section 5.A	Agree, this section has been updated.
		JW	What is the difference between Wetland Planting, Planted Indigenous Wetland Habitat, and Ecological Wetland Planting	Sheets 2 - 6	No difference, these are all indigenous wetland planting areas.

		SM	"Project will include planting of wetland habitat (new wetland on sheet 2 of SSEMP) as well as salvage and translocation of wetland plants to new wetland and remaining parts of northern and southern Otaihanga wetlands (App 3 of SSEMP). Terminology needs to be consistent through the plan."	Sheet 2 and Appendix 3	Areas of salvaged wetland plants (<i>Carex</i> spp. and <i>Baumea</i> spp.) will be incorporated into new formed wetlands as part of the planting.
G.41(c)(ii) / G.42	Mitigation planting	JW	"The AEE ecological mitigation planting around the WWTP drain (SSMP plan Sheet 2) bears no resemblance to the planting shown on the AEE Mitigation Planting plans page 12 [TR7 Appendix A, Figure 5]. I don't know if the outcome is better or worse than the original plans."	Page 19 / Section 5.1 Sheet 2	AEE mitigation plans were illustrative in nature, with details to be confirmed in conjunction with detailed design (and ecological, stormwater input). Key design intent was to incorporate ecological mitigation requirements within this SSMP ecological mitigation focus area. And this is shown on the plans.
G.41(c)(ii) / G.42	Mitigation planting / New wetland adjacent to the WWTP Drain to mitigate permanent loss of wetlands	SM	The SSMP identifies planting around the WWTP Drain as being in a stormwater storage area, the function should be primarily ecological and not stormwater "Proposed wetland planting is in similar area to that identified in Fig 4, page 91 of EMP and F-2 of Matiu Parks evidence. Page 19 of SSEMP describes planting as being <i>Baumea</i> and <i>Carex</i> sedgeland and scattered manuka habitat with enrichment planting of <i>kahikatea</i> , <i>swamp maire</i> and <i>pukatea</i> which I support. SSEMP however identifies this wetland planting as being in stormwater storage area – function should be primarily ecological and not stormwater."	Page 19 / Section 5.1 Sheet 2	As agreed by GWRC and KCDC ecological reviewers in development of EMP, these areas have multiple functions in terms of flood storage requirements to maintain hydraulic neutrality, landscape and visual mitigation as well as ecological mitigation requirements. As agreed during certification of the EMP, these areas have been designed to function as ecological mitigation areas with a number of ecological success measures to be demonstrated as part of ecological and landscape sign-off. Noting this, maintaining the other roles of flood storage and landscape and visual amenity are critical.
DC.7A, DC.57A & DC.59A	SSUDPs and SSLMPs must be consistent with the ULDF	JW	ULDF 5.10.1: Plans don't show or indicate landform to be retained although this was shown on the Vegetation to be Retained plans eg M2PP-46R-D-DWG-8701 Sheet 1. Would be useful to indicate this on the landscape plans.	Sheet 2 - 6	The Vegetation To Be Retained plans for this SSMP area have been submitted to KCDC and these illustrate the updated landforms to be retained.
		JW	ULDF 5.10.4: The ULDF proposed a standard slope of 1:3. Cross-section 1 (east of southbound lane) shows 1:1.67	Sheet 9	Cross section 1 has been amended to reflect the current design as shown on the plans.
		JW	ULDF 5.10.5: "Stuart Kilmister reports limited success re hydroseeding on dunes over summer. Is there a fallback position if hydroseeding does not succeed?"	Page 18 / Section 5.H	The Landscape Specification (Appendix 3) sets out the details for hydro-seeding and notes that if environmental conditions are unfavourable alternative methods shall be used (e.g. applying organic mulch directly on to sand faces, or using straw worked into the surface, etc).
		JW	ULDF: 5.11.2: Remove <i>Vitex lucens</i> from Planting Schedule - not a local species and considered a weed	Sheet 22	Agree, SSMP amended to delete this species.
		JW	ULDF 5.7.3: Direct sight lines along local roads to and under bridges to be finalised		Sight lines are shown in the SSMP on Sheet 6.
		JW	ULDF 5.7.4: Details to be provided on the scale and shape of abutments to provide an openness along with consented and proposed abutment forms and gradients		Spill-through abutments are provided with abutment angle reduced to 70 degrees, refer Appendix 3.

		JW	ULDF 5.7.5: Requires detail on how gabion forms and precast panels with stone facing will be integrated under bridges and on transition from abutments to landscape context.		Gabion walls replaced with pre-cast concrete panels with exposed aggregate finish. Gabion walls used as a transition marker at CWB intersection. These will tie into side of bridge abutment.
		JW	ULDF 5.7.7: No detail has been provided on how the spaces beneath bridges will be lit to enhance the quality of the space including natural light penetration		No lighting will be installed under bridges in rural areas (including Otaihanga Road bridge). However, there will be two pole lights at the end of the cycleway at the intersection with Otaihanga Road.
		JW	ULDF 5.7.12: Prefer Option 2 on Sheet 12 over Option 1. Page 12 notes that "a wide space of 6.0m width is provided for CWB on the south side of Otaihanga Road under the bridge", should this read 3.3m?	Sheet 12 and Page 12	Confirm that this should read 3.0m (minimum).
		JW	ULDF 5.9.4: How is the textured upper half of the noise wall shown on sheet 12 integrated in the low barrier? How is the transition from 2m barrier to 1.1m barrier handled?	Sheet 12	Both the bridge abutment pre-cast panel and the 1.0m upstand at the toe will be finished with an exposed aggregate.
		JW	ULDF: 5.13 Median Barriers: On sheet 9, cross section 1, is it planting or grass in the 3m median strip? It looks too narrow to plant or maintain.	Sheet 9	There is no planting in the median in SSMPs 5 & 6. Median planting will occur only where the median is 6.0m wide and the road is straight; if there is a 6.0m wide median but the road is on a curve, there cannot be any planting because it will restrict sightlines.
DC.57	The SSLMPs shall be consistent with the LMP	JW / SM	LMP 8.41.3: How is the interface between the Otaihanga Kanuka and Mass Planting Area 2 treated? Will existing kanuka have the perimeter buffered by kanuka planting? Is there any problem with the proposed planting seeding into the kanuka stand? <i>"I understand effects on Otaihanga will be significantly minimised which is supported. Any plantings need to be appropriate and eco-sourced"</i>	Sheet 17	The intention here is to use kanuka slash from any trees lost within the Otaihanga Kanuka Area for the buffer area (area cleared) as far as practicable (depends on how much is available - as focus is to minimise loss) and then buffer plant this area with kanuka dominated species mix. Ecological observations suggest that exotic grasses and broadleaved vegetation are likely to restrict future regeneration of this area - so the kanuka species mix is supported.
DC.57	The SSLMPs shall be consistent with the EMP	SM	EMP 7.7.3 & 7.1.3: Further details needed with regard to EMP 7.7.3 Wetlands and 7.1.3 Indigenous Vegetation		Uncertain as to nature of comment.
DC.59A(g)	The SSUDP prepared for the CWB shall include certain information	SK	The footpath under the Otaihanga over bridge identified as 2.0m does not meet condition DC59B ii which states Austroads is the appropriate design guide with an absolute minimum standard for a shared path is 2.2m in fact it should be built to a reasonable minimum of 2.5m wide with a barrier to separate vehicle traffic from pedestrians and cyclists	Sheet 8	Agreed – CWB under Otaihanga Bridge will be minimum of 3.0m

SK	<p>The identified crossing point does not adequately show how recommended guidelines for sight lines are achieved particularly from the northern over bridge abutment when looking westbound (towards the sea). I understand the minimum recommended sight line is 73m in a 60km/hr zone and 115m in an 80kmhr zone – this requirement should be confirmed and shown how it can be achieved in this location.</p> <p>If the Alliance cannot achieve the appropriate sight lines we would like to offer a possible solution by placement of a central refuge over the throat of the site office driveway. I understand that the sand dune will be reinstated once the site office shuts down so the widened pavement immediately outside the site office driveway could conceivably contain a central pedestrian refuge, which the CWB path could be redirected too.</p>		<p>Agreed – the sight lines have been described on plan to demonstrate that these can be met.</p>
SK	<p>The geometry on the cycle way curves are not shown. As we don't know the design speed of the cycle way we cannot be sure what the radii is on the curve leading under the southern abutment, and if it will be fit for purpose. We assume a cycleway design speed of 15-25kmhr but this detail is lacking from the design drawings</p>		<p>The design standards are those from AUSTRROADS. The provision for curves will meet these standards.</p>
SK	<p>Sheet 12 shows two CWB options under the southern abutment; with or without gabion treatment. We support removal of the gabion to create additional width (3.3m max shown) We recommend 2.5-2.8m with a vehicle proof barrier to provide further separation</p>	Sheet 12	<p>Agreed – the gabion will be removed to allow more space for CWB.</p> <p>It is not agreed that a vehicle proof barrier is appropriate. A raised kerb is proposed and frangible marker poles installed at the kerb edge between the CWB and the road carriageway. A solid barrier is considered inappropriate as it will generate a sense of entrapment beneath the bridge, will take up further width of space to be of 'vehicle proof' construction, cause a build-up of rubbish on the path and may restrict sight lines.</p>
SK	<p>Sheet 21 shows the notional CWB path at 2.5m wide with a 1m grass verge for equestrians. We believe the Condition DC59G ii states 3.0m will be provided on the CWB path parallel with the expressway. This is not shown in the drawings. We believe the shared pathway should be 3m wide</p>	Sheet 21	<p>Agreed – plans and text amended to show 3.0m wide surfaced (seal or Kapiti blue) wide main line CWB. Will be provision alongside 3.0m for horses in rural areas with grass verge 1.0m wide where practicable without changes to cuts and fill.</p>
SK	<p>We are unsure to what extent lighting is provided at the crossing point and /or under the Otaihanga Road overbridge</p>		<p>No lighting is proposed on the CWB or on the Expressway itself in this rural location. However, a pole light is proposed at the thresholds of the CWB with Otaihanga Road to act as orientation points, recognizing the change in position of the</p>

				<p>CWB from the west to east sides of the Expressway as suggested by CPTED review.</p> <p>It is anticipated that cyclists using the CWB at night will have lights for their own safety and to light their way ahead.</p> <p>There is no existing street lighting on Otaihanga Road and no new lighting is proposed.</p>
		JP	<p>Suggested points for consideration regarding the conflict area between cyclists and vehicles on Otaihanga Road Crossing:</p> <ul style="list-style-type: none"> * Loop activated flashing cycle warning signs on both sides of the crossing point * Provision of a physical barrier separating the shared path from the traffic lane on the south side of Otaihanga Road 	<p>As noted above; the safety at Otaihanga Road CWB crossing will be provided for by the sightlines to give drivers and people using the CWB visibility to each other's movements across the road, a static warning sign to alert drivers to the crossing point from each direction, a kerb line to the CWB from Otaihanga Road to discourage drivers from driving onto the CWB, and upright marker posts on the kerb line to reinforce the separation and provide definition to the road edge and CWB space for users.</p>

Table added 12 February 2014

<i>COMMENTS ON CERTIFICATION ISSUE SSMP5+6:OTAIHANGA</i>			
<i>KCDC REVIEWERS COMMENTS</i>			
<i>Page</i>		<i>KCDC Comments</i>	<i>Management Plan Author's response</i>
9	Consultation	Not complete: Iwi group to respond.	Response included in Appendix 2
Sheet 4	Final designation	There is no final designation marked on the plans and no indication of what will sit on the 'boundary'. I assume that there will be stock in this rural zone so will a 7-wire fence be used? In this area between Otaihanga Road and Waikanae Bridge, it may make sense to have the fence on the western side of the private driveway. Either way, some indication of fence type and location is required.	<p>The final designation boundary is to be confirmed once construction is completed. Condition DC.2 requires the width of the designation to be reviewed and any areas of land that are not required for the operation, maintenance, off-set mitigation and storage areas are removed from the designation. DC.2 c) requires that we give notice to Council of the final designation.</p> <p>The Alliance has developed 2 types of fencing specifications for final boundary treatment in rural areas:</p> <ul style="list-style-type: none"> • 7 wire stock fence • Deer fence <p>In urban areas:</p> <ul style="list-style-type: none"> • 1.8m galvanised chain link • 1.8m timber fence
Sheet 6	Otaihanga Construction Yard	One issue that councillors were very concerned pre hearing about was the reinstatement of the dune landform along the frontage of the yard once it was decommissioned at the end of construction, particularly the dune at the entrance to yard. The plan shows the entry revegetated but not the reinstatement of the dune.	Note added to Sheet 6 as Revision C
Sheet 42	Plant schedule	No percentages for mix for MP1 and MP 2 edge plantings	Schedule updated, issued as Revision C
Page 19	Mitigation Planting	Massed planting (and this is a question rather than a criticism)– aren't the drier slopes those that are west facing cf east facing	Correction made

Page 7	Appendix 3 Bridge Summary	Under ULDF Principles Summary, text for principle 7 has to be edited (for typos) and also the word 'Textured' needs to be removed as it is not intended. <i>DP Notes; I have confirmed this with Dean and Frazer at one of our meetings</i>	Cannot change wording of Principle 7. 'textured' removed from assessment column, sheet replaced
Page 3	Appendix 3 Bridge Summary	Add material finishes	Material finishes not to be included on this plan. Surface finishes shown on Sheet 8.
Appendix 4	Landscape Specifications	There is no formal process for incorporating the final soil mix details/ proportions into the specification and this information will be useful for Council. It would be useful for the Council to have a copy of the final topsoil mixes and the locations where they are used for future reference.	KCDC will be provided with the final soil composition ratios once confirmed with the Alliance construction team. These will be sent through separately (i.e. will not form part of the Landscape Specifications)
Appendix 4	Landscape Specifications	Specification document C5010 – Landscaping – Maintenance Only has been dropped from the Specification set that will be used by the Constructor as essentially it is only relevant for post construction maintenance. However reference to it is embedded throughout the Landscaping Specifications M2PP-220-D-SPC-120.	Correction made

COMMENTS ON PRELIMINARY ISSUE SSMP5+6:OTAIHANGA					
GWRC REVIEWERS COMMENTS [PW=Philippa Crisp, AF=Adam Forbes]					
Condition Reference	Condition Detail	Reviewer/commenter	GWRC Reviewer's comment	reference in SSMP	Management Plan Author's response
G. 41 c)	Identification of valued indigenous vegetation.	AF	Can the proposed extent of loss (ha) of the Otaihanga Kanuka Forest be confirmed? It appears that detailed design has determined a changed extent of loss. However, no specific detail is provided as to what the change is. As a consequence is there any change to the nature and/or amount of mitigation required, and are there any resource consent or consultative requirements due to this change?	Page 13. Section 5A.	Agree, SSMP has been updated with final details. A lesser are of the Otaihanga Kanuka Forest will be affected than was originally proposed at issue of resource consent.
G.41 c)	Identification of valued indigenous vegetation.	AF	It is noted that no vegetation clearance is proposed to the Otaihanga Mahoe site.	Page 13. Section 5A.	Agree, no modification is required to this valued area of vegetation.
G.42 & DC.57 f)	Mitigation planting.	AF	It is not clear how kanuka slash will be used in buffer planting around Valued Vegetation to be retained – specifically in the buffer planting treatment around the newly exposed edges of Otaihanga Kanuka. The SSMP states "kanuka slash...will be used around immediate edges as temporary protection". Can you please clarify what is intended here? Does this mean the kanuka slash be used as part of measures to protect the remaining forest from physical disturbance, or does it mean the slash be used to protect planted specimens (or is there another protective use)? Please confirm – will planted specimens (i.e. the kanuka dominant species mix) be planted within/amongst areas of slash? Also, will specific provision be made for any kanuka slash holding seed at the time of felling to be specifically used as a kanuka seed source when arranging slash within the buffer planting treatment? How far will buffer planting typically extend from the newly cleared kanuka forest edge?	Page 23. Section 5.L. Bullet 3— "Buffer planting around..."	Agree, SSMP text amended to better reflect the intent of the kanuka slash to assist with establishing kanuka edge planting around the Otaihanga Kanuka Forest. Extent of buffer planting identified on SSMP drawings.
G. 42. b)	Specific areas/length of mitigation, especially planting.	AF	It is noted that the proposed area of stream mitigation planting is 0.01 ha less than the amount stated in the EMP. Can the reason for this shortfall please be provided, with an explanation of how that amount will be included at this or another site?	Page 14. Section 5.B. Second bullet.	This section has been amended to demonstrate how any shortfall in mitigation will be undertaken with this SSMP area or others.

G. 42C	Details of new stream.	AF	With regard to the new stream, please confirm (details not given in SSMP): - distance in meters of new stream to be created. - area (ha) of proposed riparian planting. - target SEV score for the new stream channel.	Pages 20 & 21. Section 5.J.	Agree, final areas now included on distance in metres of new stream to be created, area (ha) of proposed riparian planting and target SEV score for new stream channel.
G. 42 & DC. 57 f)	Mitigation planting.	AF	With regard to the proposed boundary planting, Killalea Drive, where fast growing exotic tree species are proposed—it is noted that poplar and willow are being considered. Has consideration been given to incorporating a suitable type of flowering gum tree? With careful selection this planted area would then provide a winter nectar source for nectar feeding birds and insects of the area.	Page 24. Section 5.L.	Pine removal extent and nature of buffer planting (if any) is being agreed with KCDC. Consultation with several of the neighbours has occurred and this has involved discussion on suitable tree species; various eucalypt species and several other tree species are being considered.
G 42.	Mitigation planting and habitat replacement.	AF	Regarding the proposed wetland on the WWTP drain—on comparison of the configuration of mitigation types presented in the EMP ("SSEMP SITES – GENERAL LOCATION PLAN OTAIHANGA WETLANDS") with the SSMP 5 & 6 – Sheet 2 Masterplan, there appear to be differences in the layout of mitigation zones. Such as, the SSMP shows a Flood Storage Area. This area is not shown on the corresponding EMP plan. Further, the EMP plan proposes the southern parts of the proposed wetland area as terrestrial mitigation planting (light green hashed) however the SSMP shows this area as ecological wetland planting and riparian planting. A brief explanation of how these changes have come about would be appreciated, along with confirmation that specific required areas (ha) of mitigation are still provided for/incorporated in the changes.	SSMP 5 & 6 – Sheet 2 Masterplan & EMP SSEMP Sites – General Location Plan Otaihanga Wetlands	In general as agreed through the BOI process and in developing the EMP, the intent of most of the wetland mitigation areas within the SSMP sites was for these areas to be located within offset flood storage areas. Agree there has been a change in this location, but the intent of the detailed design was to rationalise these areas - and this has been done through the incorporation of flood storage areas and new planted wetlands (and through following stormwater modelling). The full extent of ecological mitigation planting has been updated to reflect these changes (and changes from the EMP).
G. 42C	SSMP content	AF	In accordance with Condition G.42C c) vii), please provide specifics for monitoring and maintenance processes relating to control of plant and animal pests, and planting maintenance.	Page 28. Section 5.U.	These aspects are all addressed in the Landscape Specifications in Appendix 4.
G. 42C	SSMP content	AF	In accordance with Condition G.42C c) iii), please provide areas and lengths of mitigation areas where that data is not already part of the SSMP 5 & 6.	-	Refer updated information in SSMP and Appendix 5.

DC. 57 f) & G. 42C c)	Planting methods and specifications	AF	In the third paragraph it appears there is a word missing which actually reverses the meaning of the paragraph. The Note reads "Organic mulch shall be used within the areas of wetland..." — it is suggested that this Note should read: "Organic mulch shall NOT be used within area of wetland...". Please either amend accordingly or confirm that this correction is not necessary.	Page 24. Section 5.M.	Agree, the text has been amended to reflect this error.
Various	-	AF	Please provide the missing Appendices relevant to Section 5. M – V inclusive.	Pages 24 – 28.	Agree, revised Appendices now included.
DC. 57 f) & G. 42 c)	Plant maintenance.	AF	Please advise whether a standard protocol (photopoint monitoring?) will be used for photographing restoration areas (planted areas). If not a standard protocol – what will be the basic approach to this monitoring to ensure the data is consistently useful in the future?	Page 27. Section 5.S.	Photopoints will not be formally used but site photographs of planting will be taken regularly during site inspections as part of monitoring planting. As outlined in the EMP and LMP, there are a range of plant success measures that will be used, predominantly 80% canopy cover achieved and successfully maintained. In terms of ecological parameters, these are set out in the EMP and include a number of measures.
Various	Mitigation success monitoring.	AF	Proposed methods for annual weed survey, annual pest monitoring, and landscape and ecological success monitoring – post construction, are not provided in the SSMP. For example, in relation to landscape and ecological mitigation planting—how will the success measures (e.g. 80% canopy closure or natural colonisation by non-planted indigenous species) be determined— e.g., transect or plot based survey or another method?	Pages 28 & 29. Section 5.V.	These are outlined in the EMP, LMP and maintenance schedule (Landscape Specifications in Appendix 4), predominantly using visual inspections tailored to various planting types (e.g. wetland plant canopy success will be different to terrestrial).
N/A	N/A	PC	Should be Foxton, not Manawatu Ecological District?	Page 26	Agree with intent, but Consent Condition DC.57 (f) (vii) F.3 states, "Any native plants to, so far as practicable, be genetically sourced from the Manawatu Ecological Region" and G42C(c)(v)E 3 states, "Any native plants to be genetically sourced from the relevant Ecological District". Throughout the project the focus in plant selection is Foxton Ecological District for all ecological mitigation planting and virtually all of the indigenous planting throughout the project.
		PC	Weedy species – Japanese cedar and <i>Salix matsudana</i> – sterile clones?	Sheet 22	<i>Salix matsudana</i> x <i>alba</i> 'Moutere' has been specified, which is a sterile clone. A limited amount of Japanese cedar (<i>Cryptomeria japonica</i>) has been specified as it is part of the character of this area; there are several large existing Japanese cedar trees, which have been planted for amenity in this rural lifestyle area.

COMMENTS ON PRELIMINARY ISSUE SSMP5+6:OTAIHANGA – ADDITIONAL COMMENTS on 7 December 2013					
GWRC REVIEWERS COMMENTS [AF=Adam Forbes, ecologist]					
<i>Condition Reference</i>	<i>Condition Detail</i>	<i>Reviewer/commenter</i>	<i>GWRC Reviewer's comment</i>	<i>reference in SSMP</i>	<i>Management Plan Author's response</i>
		AF	Appendix 5, Table 1A is missing the 'A' in its labelling	Appendix 5 Ecological Mitigation Table	Amended table title to refer to '1A'.
			Appendix 5, the set of tables which keeps a running tally of habitat loss and mitigation against what was agreed is helpful. At this stage it is noted that according to Table 2A, shortfalls are occurring in three of the four mitigation types. It would be reassuring now to be informed of which specific mitigation areas the current shortfalls will likely be made-up in, and assurance that a surplus in one mitigation type will not be viewed as sufficient to satisfy shortfalls in any other mitigation type.		Three new sections added within the Word document in 'Vegetation' and 'Wetlands' sections to state that shortfall and surplus of ecological mitigation within this SSMP would be addressed in the Drain 7/Wharemauku and Kakariki/Smithfield SSMPs (these being the largest ecological mitigation sites).

COMMENTS ON PRELIMINARY ISSUE SSMP5+6:OTAIHANGA – ADDITIONAL COMMENTS, CERTIFICATION ISSUE on 15 January 2014					
GWRC REVIEWERS COMMENTS [AF=Adam Forbes, ecologist]					
<i>Condition Reference</i>	<i>Condition Detail</i>	<i>Reviewer/commenter</i>	<i>GWRC Reviewer's comment</i>	<i>reference in SSMP</i>	<i>Management Plan Author's response</i>
G.42 & DC.57 f)	Mitigation Planting	AF	As noted in earlier comments it is not clear how kanuka slash will be used in buffer planting around Valued Vegetation	Pages 21 and 22, Section F. Vegetation to be Cleared.	This section has been expanded to explain the process and supervision of the work by the Project Ecologist.
G.42 b)	Specific areas / length of mitigation, especially planting.	AF	Shortfalls in Stream Habitat mitigation proposed – Freshwater and Riparian. This matter, now and ongoing, needs to be addressed (i.e. a plan going forward on how will the required mitigation be provided for within the bounds of available space.	Pages 16-17 Streams and Riparian Works and page 19, Wetlands	This has been addressed by providing information and details (i.e. increased stream length and associated riparian planting is proposed within either: Drain 7/Wharemauku Ecological Mitigation Area; the Kakariki/Smithfield Ecological Mitigation Area; the lower Ngarara Stream downstream of Ngarara Road; or the upper Kakariki Stream upstream of the Designation.

G.42	Mitigation planting and habitat enhancement.	AF	As per comments raised in re relation to Preliminary Issue of SSMPs 5 & 6 (see table above).	Pages 16-17 Streams and Riparian Works and page 19, Wetlands	As per comments above.
Various	Planting specifications	AF	Planting Specification not provided with SSMP.	Appendix 4	Landscape Specification has been issued as Draft as part of SSMP; Specification is currently undergoing internal review and will be supplied when internal review has been completed.

COMMENTS ON PRELIMINARY ISSUE SSMP5+6:OTAIHANGA KAPITI CYCLING INC.					
<i>Condition Reference</i>	<i>Condition Detail</i>	<i>Reviewer/commenter</i>	<i>Comment</i>	<i>reference in SSMP</i>	<i>Management Plan Author's response</i>
DC59A.f ii and iii and DC59A.g, DC59Ai(xi) and DC.57 c)	CWB		Suggest that as an additional safety feature, the Alliance researches the availability of smart warning signs. We believe that there are products that detect the presence of a cyclist approaching on the CWB, and then provide a signal to a variable message sign set up to provide the standard MOTSAM 'cyclist' symbol in a yellow flashing mode	Page 10	It is not proposed to install additional warning signs as design engineers have determined that the sightlines and static warning signs provide for safe crossing.
DC59A.f ii and iii and DC59A.g, DC59Ai(xi) and DC.57 c)	CWB		We suggest that the end of the CWB where it meets the road on the north side should incorporate the latest treatment used by KCDC for the nearby Otaihanga Road crossing beside the Main Trunk Rail Line. This includes a pair of steel crash barriers arranged to provide a physical message to cyclists, together with raised surfacing and words to warn of the proximity of traffic. On the south side we prefer Option 2 of Drawing Sheet 12 for the abutment details because it provides a more generous CWB width. Between the CWB and road edge some protection is desirable, but we do not support a concrete wall that would only detract from the open feeling beneath the bridge. Instead we suggest that the suitable edge treatment would be via bollards or lightweight frangible posts as used currently by the NZTA as a psychological barrier on some central medians.	Sheet 8	Agreed that a threshold treatment is desirable – details to be further determined to ensure this is consistent. Originally proposed use of gabion for thresholds, but this may be change to hold rails or bollards. Agreed also that marker posts rather than a solid barrier to the edge of Otaihanga Road to separate the CWB from road carriageway is appropriate

DC59A.f ii and iii and DC59A.g, DC59Ai(xi) and DC.57 c)	CWB		Shows new CWB signs which we support. However, the use of “Kapiti Cycle Route” as the title may need a rethink as KCDC currently uses a similar title “Kapiti Coast Cycle Route” to mark the coastal route along the beach suburbs from Raumati to Peka Peka via Otaihanga.	Sheet 14	Agreed that the signs nomenclature needs to be related to KCDC network – the signage is being worked through with KCDC.

COMMENTS ON PRELIMINARY ISSUE SSMP5+6:OTAIHANGA					
Implementation Group of KCDC Advisory on Cycleways, Walkways and Bridleways: [JN= Jan Nisbet]					
<i>Condition Reference</i>	<i>Condition Detail</i>	<i>Reviewer/ commenter</i>	<i>Comment</i>	<i>reference in SSMP</i>	<i>Management Plan Author's response</i>
DC.59	CWB	JN	Provision of an off road route available to horses	SHEETS 2-6 and 17-18	The CWB is available to horses. A 1.0m wide grass strip adjoining the 3.0m CWB will be provided where feasible and if space permits.
DC.59	CWB	JN	Signage for the route refers only to a cycleway and it needs to have walkers and horse riders included in the name or a more generic name such as off road route.	SHEETS 17-18	The current design and information on the signs was supplied by KCDC and is consistent with signs used elsewhere; the pictograms used on the signs display both walkers and cyclists but not horses. KCDC to advise on an alternative name for the route.

COMMENTS ON PRELIMINARY ISSUE SSMP5+6:OTAIHANGA					
FRIENDS OF WAIKANA E RIVER: [FF= Ferial Falconer, Chair]					
<i>Condition Reference</i>	<i>Condition Detail</i>	<i>Reviewer/ commenter</i>	<i>Comment</i>	<i>reference in SSMP</i>	<i>Management Plan Author's response</i>
DC.59	CWB	FF	Width of CWB inconsistent with consent conditions.	E. Conditions of Consent [Summary] and page 12	Text and plans have been amended accordingly and are consistent with what was agreed with KCDC and with the consent conditions.
	N/A	FF	Water body in right hand corner of sheet – where is the outlet? Also Otaihanga Drain – where is the outlet?	Sheet 3	Water body shown, which is outside the designation is a farm drain. The outlet is uncertain but it is assumed that it flows into the Muaupoko Stream. The Otaihanga drain flows into a network of drains and drainage channels. It is a site of regular water contamination testing by the Alliance.

Table added 3 February 2014

COMMENTS ON PRELIMINARY ISSUE SSMP5 &6: TE ATIAWA KI WHAKARONGATAI					
<i>Condition Reference</i>	<i>Condition Detail</i>	<i>Reviewer/ commenter</i>	<i>Comment</i>	<i>reference in SSMP</i>	<i>Management Plan Author's response</i>
57 e) i	SSMP to be prepared in consultation with Te Atiawa ki Whakarongatai		No specific comments on the SSMP were received. However, the scope and detail of input by Te Atiawa ki Whakarongatai into the design of some Expressway elements is currently being discussed with the Alliance.		A meeting was held on 13th December 2013 with Ben Ngaia & Tony Ropata from Takemore Trust, Hemi Sundgren, Te Atiawa ki Whakarongatai, and Mahara Okeroa, representing NZTA to go through SSMP 5&6 and 7 and to discuss opportunities for iwi input into aspects of design. A further meeting was held on 23 January 2014 with Hemi Sundgren, which discussed specific opportunities for design input on the Waikanae River Bridge (i.e.columns, barrier, abutments).

Appendix 3: BRIDGE SUMMARY

Site Specific Management Plans 005 + 006 - Otaihanga North and South [COMBINED]

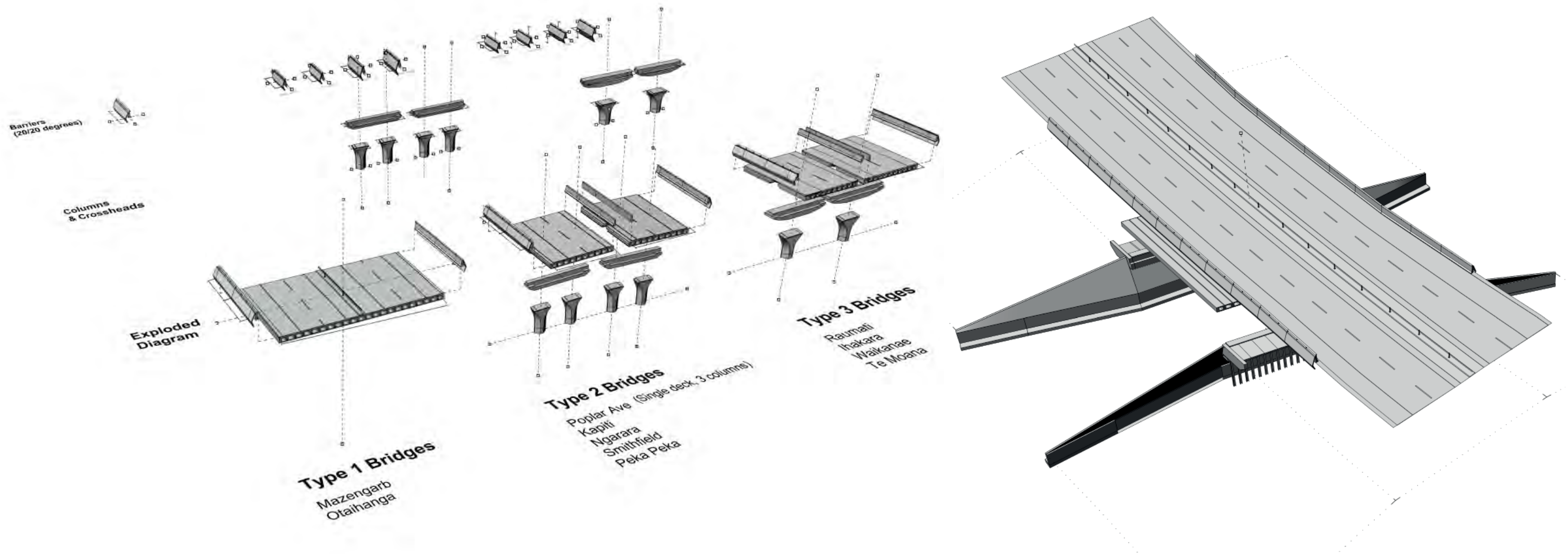
MacKays to Peka Peka Expressway

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Bridges as a series of components

Proposed Otaihanga exploded isometric



Design Objectives

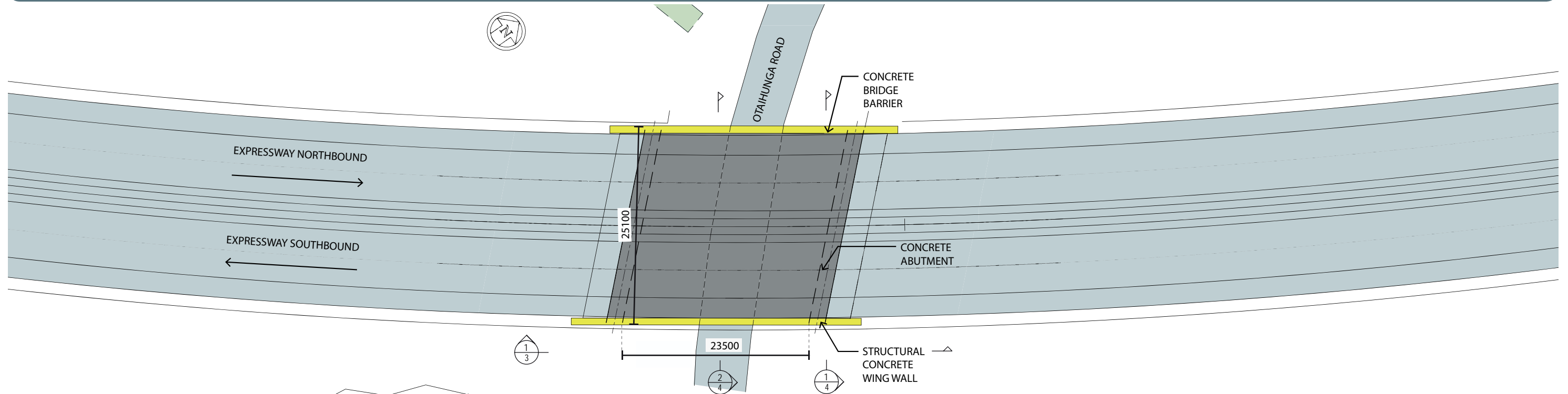
With reference to the Urban and Landscape Design Framework (Technical Report 5) (ULDF) there are five design objectives for the bridges and their respective contexts. These five objectives are overarching aims for the project and have been extracted from the Design Concept statements in two sections of the ULDF: Local Road Interface Design (section 5.7) and Bridge Design (section 5.8).

The purpose of extracting these objectives is to enable any changes to bridge structures and their context made through the concept and detailed design process to be considered at the highest level of the design intent. There are design principles in each of the sections as noted above and these too form a basis for considering the development of the designs for the bridges and their context.

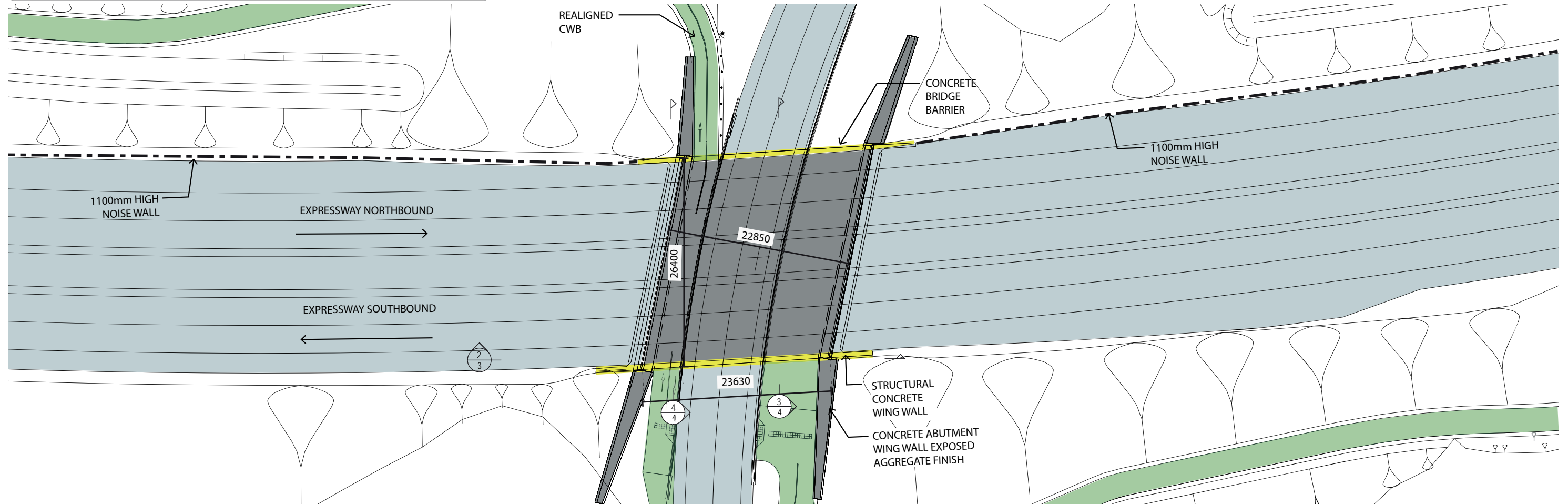
As is typical in a design evaluation process, any aspects of design that do not align with the design principles would be elevated to consideration against the design objectives.

Design Objectives:

1. The public spaces of the roads and streets take primacy over the experience for the Expressway because local people will be making slower movements and as a consequence the bridges will be more visually apparent to them than to people travelling along the Expressway.
2. As a new element in the landscape, the bridges respect the surrounding landscape and are expressed in terms of their horizontality, fluidity and simplicity because the landscape is relatively low key and low in scale; having several 'feature' bridges would become both visually complex and overwhelming in scale.
3. Bridges are formed as a whole from a single kit of parts, which allows the components to be repeated and a similar approach used at the multiple crossings to register as a 'family' of bridges because people will have multiple interactions day to day with the Expressway and this approach promotes simplicity and visual continuity
4. Utilise concrete prefabricated parts because this allows fine levels of quality control, cost benefits and significant improvements in construction time at the crossings and reduces disturbance to the area.



AEE PLAN- OTAIHUNGA ROAD BRIDGE - 1:500@A3



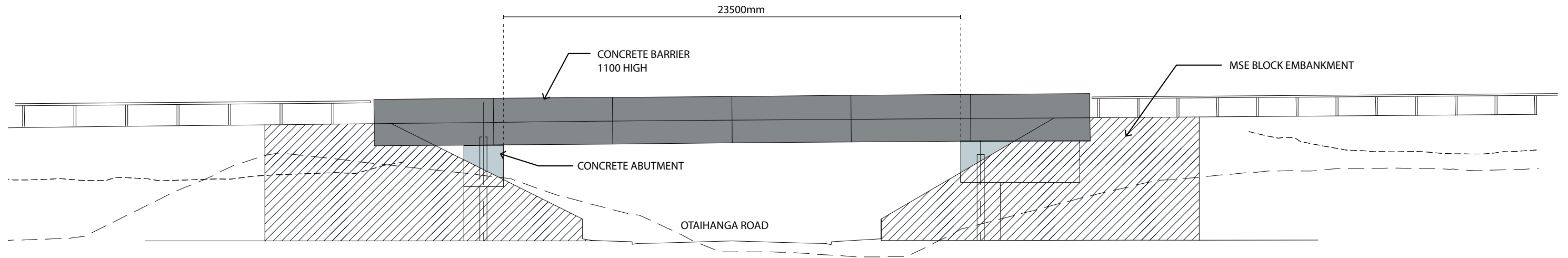
PROPOSED PLAN- OTAIHUNGA ROAD BRIDGE- 1:500@A3

Design development

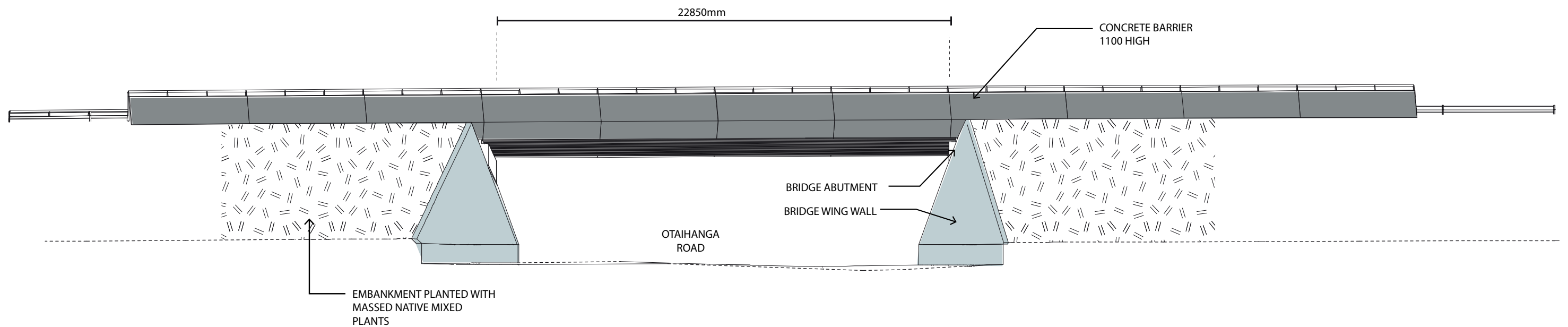
- | | |
|--|--|
| <ol style="list-style-type: none"> 1. Change in position of crossing 2. Width of bridge 3. More detail provided for abutment treatment 4. Cycleway integration to local road | <ol style="list-style-type: none"> 5. Concrete noise walls 1.m high (same height as bridge barrier) |
|--|--|

Rationale

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Improve sight distance on local road and cycleway 2. Improve sight distance on expressway 3. Extended bridge abutments tie in with and retain the proposed embankment. Designed as one long continuous element they | <ol style="list-style-type: none"> lead pedestrians though and under the bridge connecting one side to the other. 4. To improve connection of cycleway with local road 5. Noise mitigation |
|--|---|



1. AEE ELEVATION - OTAIHANGA ROAD BRIDGE EAST ELEVATION (LOOKING WEST) - 1:200@A3



2. PROPOSED ELEVATION - OTAIHANGA ROAD BRIDGE EAST ELEVATION (LOOKING WEST) - 1:200@A3

Design development

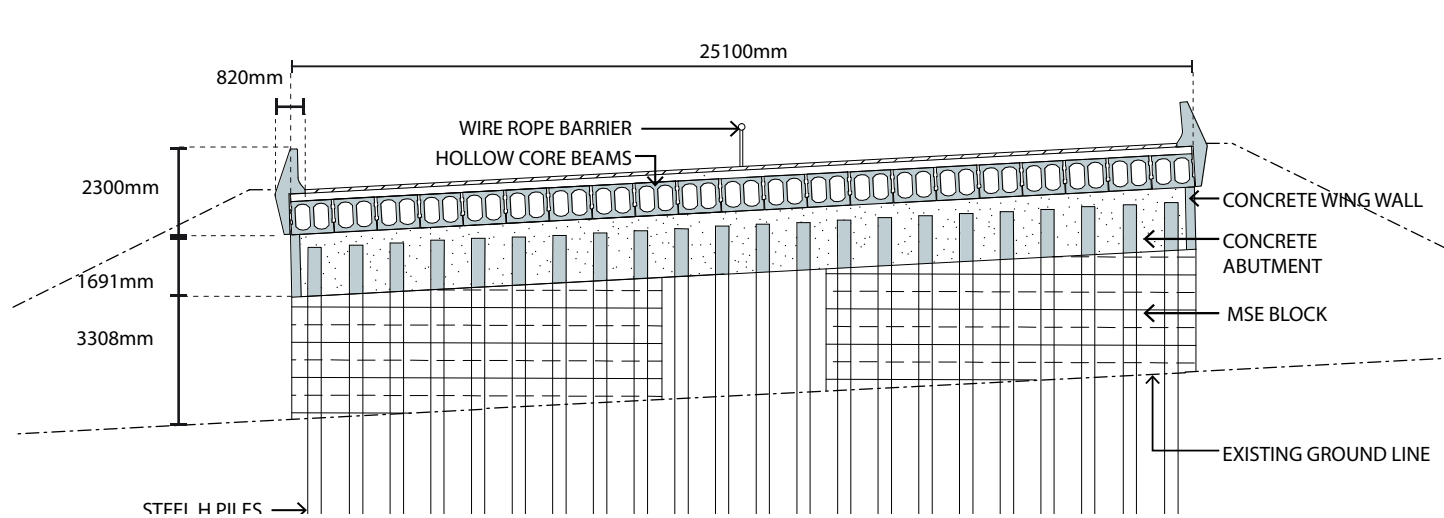
1. Local road reserve width increased
2. On road cycleway provided
3. Abutment steepened
4. Abutment treatment identified. Gabions removed

5. Footpath widened to 3m south of Otaihanga Road from under the bridge

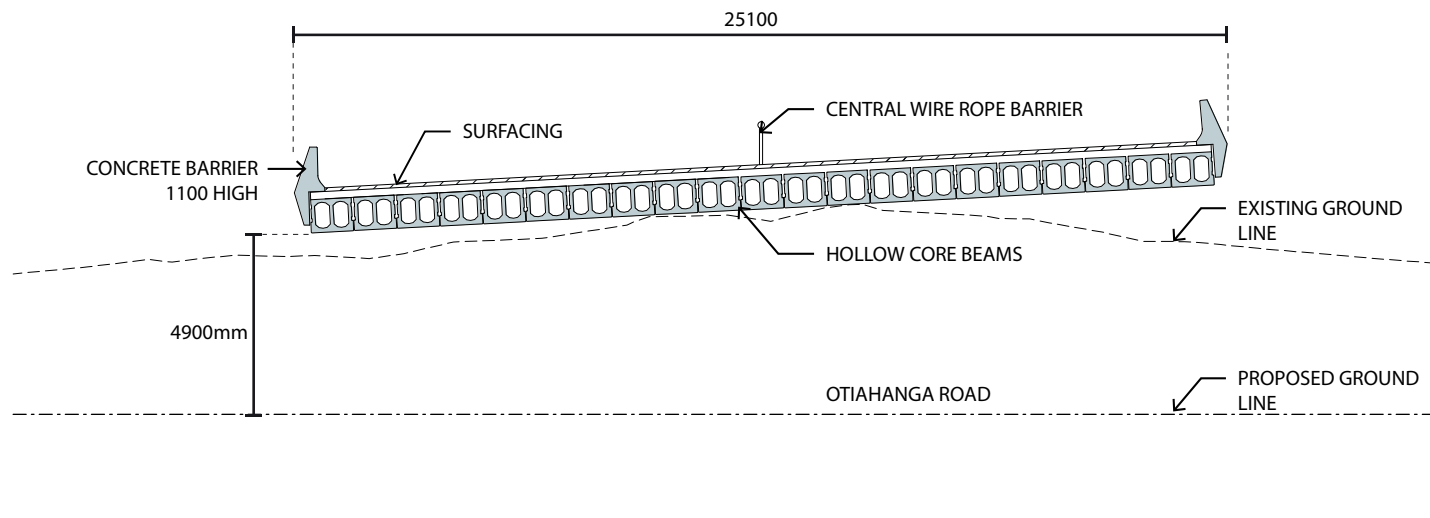
Rationale

1. Improve sight distance, increased opening under bridge
2. To improve connection of cycleway with local road
3. To provide wider road for sight distance without increasing bridge spans and depth of beams/size of barriers

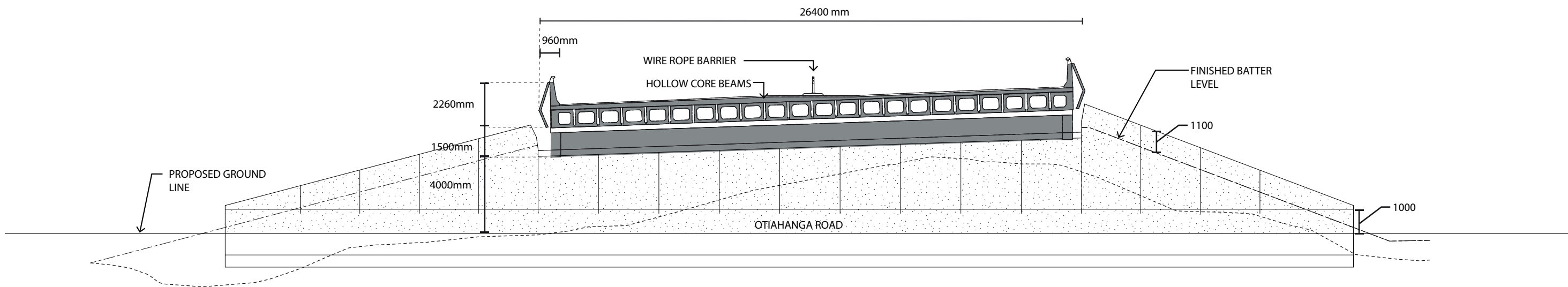
4. Gabion baskets removed to allow for a wider footpath/ cycleway on south side of Otaihanga road
5. Southern footpath to form part of CWB. Consistent width required



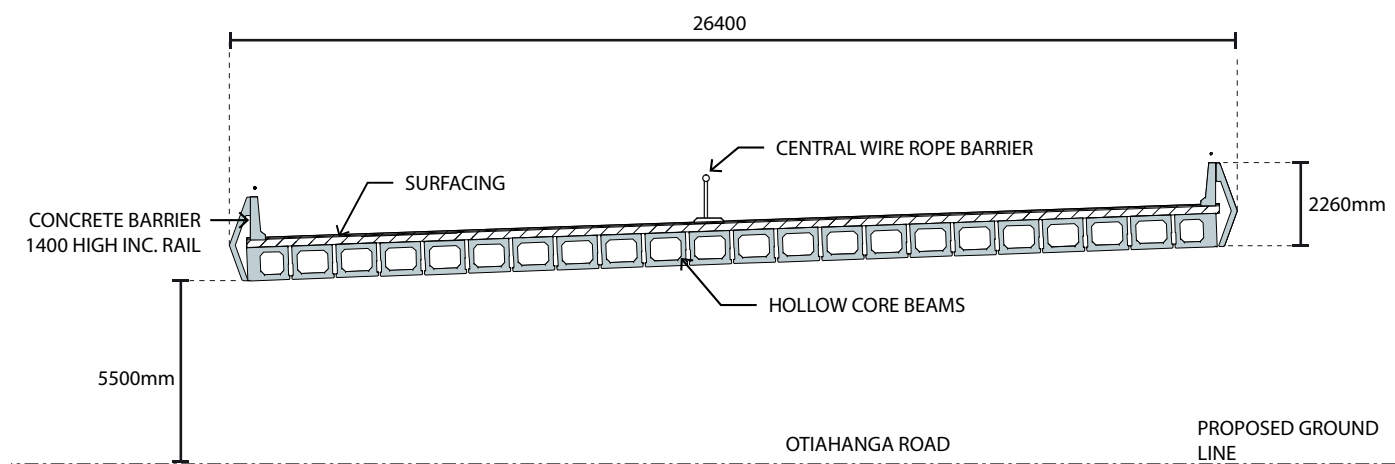
1. AEE SECTIONAL ELEVATION - OTIAHANGA ROAD BRIDGE NORTH ABUTMENT - 1:200@A3



2. AEE SECTIONAL ELEVATION - OTIAHANGA ROAD BRIDGE (LOOKING NORTH) - 1:200@A3



3. PROPOSED SECTIONAL ELEVATION - OTIAHANGA ROAD BRIDGE NORTH ABUTMENT - 1:200@A3



4. PROPOSED SECTIONAL ELEVATION - OTIAHANGA ROAD BRIDGE (LOOKING NORTH) - 1:200@A3

Design development

1. More information provided for the bridge abutment
2. Abutment steepened

Rationale

1. Extended bridge abutments tie in with and retain the proposed embankment. Designed as one long continuous element they lead pedestrians though and under the bridge connecting one side to the other.
2. To provide wider road for sight distance without increasing bridge spans and depth of beams/size of barriers



AEE VISUALISATION - OTAIHANGA ROAD BRIDGE (NORTH SIDE OF OTAIHANGA ROAD LOOKING EAST)



PROPOSED VISUALISATION - OTAIHANGA ROAD BRIDGE (NORTH SIDE OF OTAIHANGA ROAD LOOKING EAST)

Elements

AEE Design

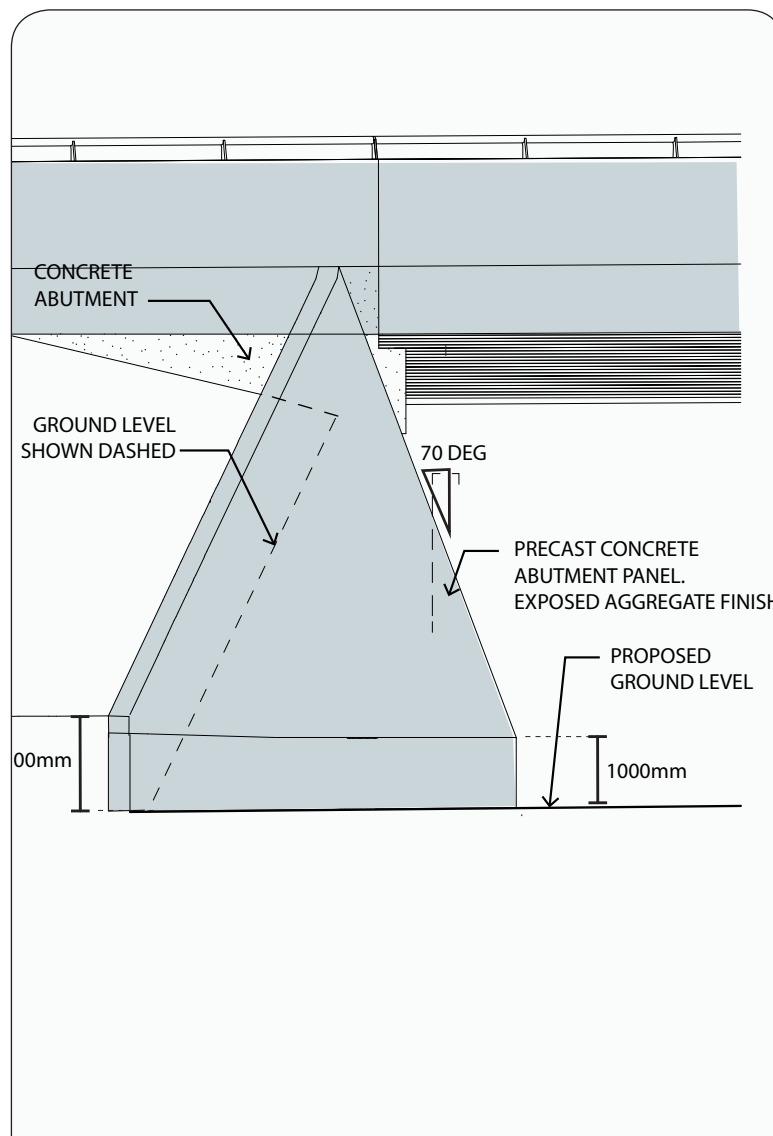
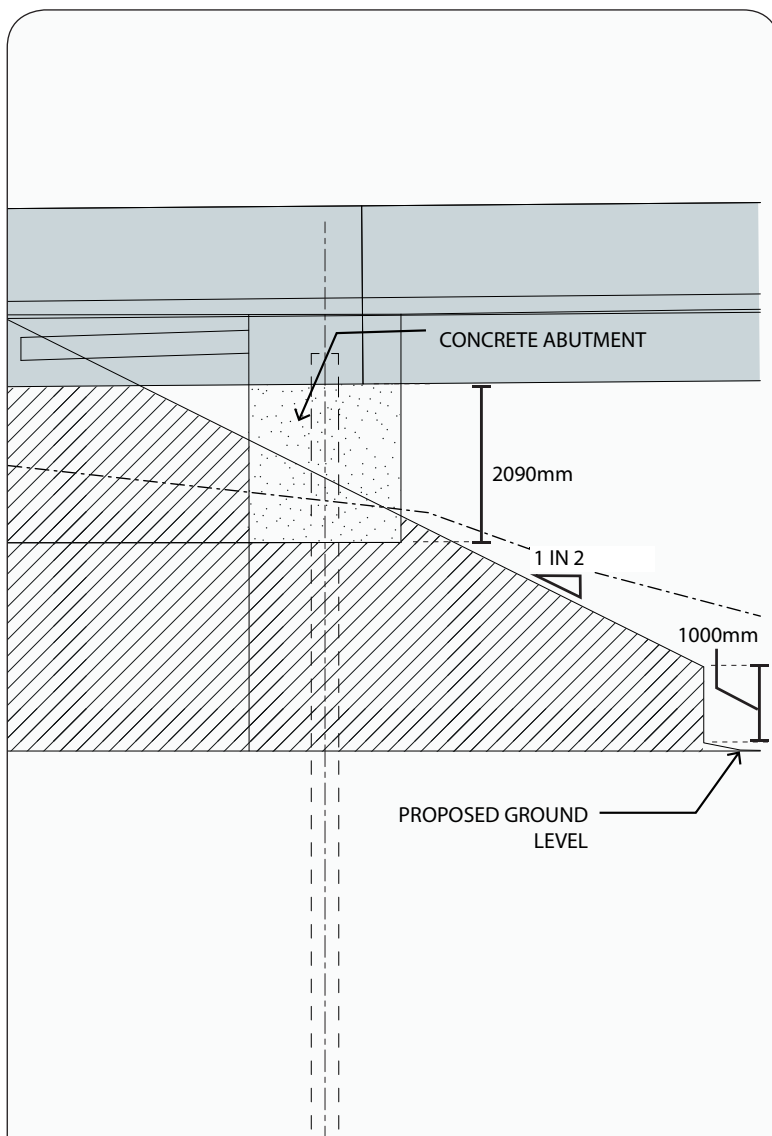
Current Design

Developments

Why?

ULDF Principles

Abutment Elevation 1:100@A3

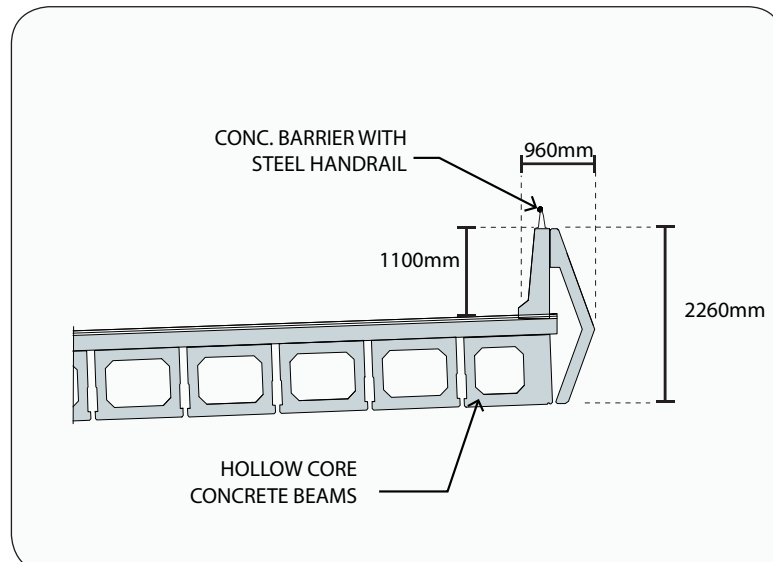
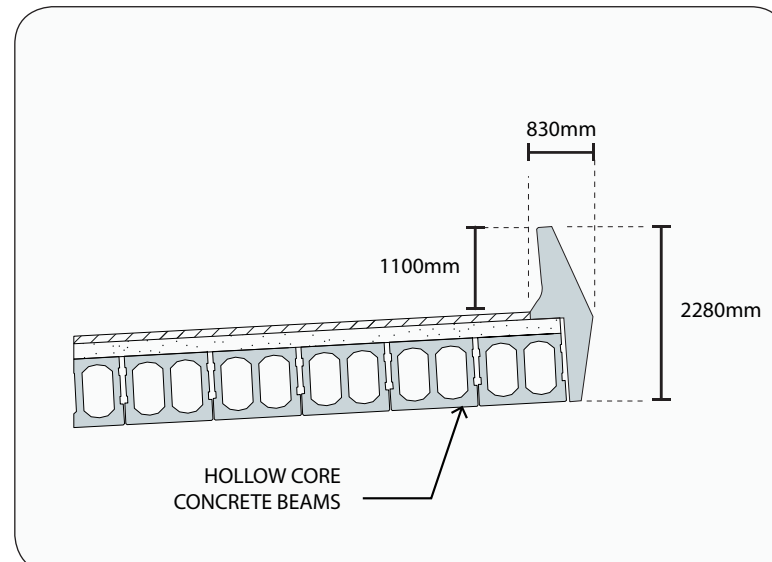


1. More information provided for the bridge abutment
2. Spill through abutment angel reduced.
3. Handrail shown on top of barrier

1. Lack of resolution in the AEE. Abutment design developed. Extended bridge abutments tie in with and retain the proposed embankment. Designed as one long continuous element they lead pedestrians though and under the bridge connecting one side to the other.
2. Improvements to local road design. Wider local road and hard shoulder, improved sightlines without increasing bridge spans and depth of beams/size of barriers
3. Safety requirement for cyclists using the expressway

1. Please refer to ULDF principles summary on sheet; 7 of this document. With particular reference to principle number; 1, 2, 3, 5, 8, 11 and 13

Cross Head & barrier junction 1:100@A3



1. Reduced barrier height
2. Handrail shown on top of barrier

1. Bridge deck and beam development
2. Safety requirement for cyclists using the expressway

1. Please refer to ULDF principles summary on sheet; 7 of this document. With particular reference to principle number 1, 2, 3, 4, 8 and 13

ULDF principle	Assessment of ULDF principles
1. Make the bridges generally consistent in their form so they register as a 'family' and provide some visual continuity within the local environment	Proposed bridge form remains consistent and has become even more so as there is less variation in types from that shown in AEE. Accordingly there is enhanced consistency in the local environment.
2. Express the bridges as simple forms that sit across the changes in landscape and are not seen as strong statement in their own right	Proposed bridge form remains as in AEE being a visually simple structure and sits across the landscape as an horizontal element. The bridge has moved in plan to the west to enable improved sight lines from drivers to the CWB crossing point of the local road.
3. Unite the bridge elements of pier, cross head, deck and barrier as one sculptural form and ensure services are concealed from view	Proposed bridge form remains as in the AEE – has no piers and the form is generally consistent with other bridge forms – will appear as part of same family given barrier form.
4. Ensure the form of the bridges from the underside is visually appealing to recognise the primacy of the local roads user's experience in design consideration	Proposed bridge remains as in AEE and principle will be satisfied provided there are no services elements or other extraneous protrusions below the deck when viewed from below.
5. Design the intersection of the piers with the ground in concert with the local road interface design of abutment forms and materials (refer to local road interface design principles)	Proposed bridge remains as in AEE with no piers. The abutment forms remain as sloping faces. These have steepened from the AEE design, but this has allowed for a widened space at the local road level increasing the availability of width for footpath and CWB as well as providing for require sight lines for local road crossings by cyclists and walkers.
6. Light the spaces beneath local road over bridges to enhance the quality of the space including the use of natural light penetration where the local road has a higher frequency of pedestrian cycling and other non-vehicular users	Proposed bridge not intended to be lit beneath, as in AEE, as this is not a high use walking and cycling route. However, the sloping abutment and no piers means there is some natural light penetration to the space beneath the bridge.
7. Use architectural lighting to emphasise the sculptural forms of the bridges and light units that are readily serviceable from the ground	Proposed bridge remains, as in AEE, with no architectural sculptural forms beneath in the form of piers to be lit. There is some potential that remain to light the external barrier, but the rural location suggests a low key unlit approach is more appropriate.
8. Utilise the opportunity provided by multiple bridges to make a system of parts that can be repeated at each location and improve efficiency of construction	Proposed bridge, as in the AEE, remains of the same systematised approach to allow repetition at other locations and improves the efficiency of construction.
9. Use textured finishes within the bridge elements surfaces' to provide a crafted finish – avoid printed forms	Proposed Otaihanga bridge will have a textured and coloured barrier that distinguishes this as a string horizontal element. The other elements (deck underside) will be simple concrete that makes them visually recessive relative to the barrier.
10. Repeat the bridge design concepts within the design of pedestrians bridges recognising that these may be able to utilise lighter weight materials	Not relevant
11. Develop each bridge crossing design considering the piers types best suited to the location	Not relevant
12. Locate bridge piers associated with bridge watercourse crossings away from riparian edges to prevent need to armour stream edges	Not relevant
13. Ensure that the integrity and significance of the bridge forms as important to the amenity of the community is not accorded any less priority than the other design requirements of the project	Proposed bridge form at Otaihanga Road has seen the consideration of all the contributing factors of visual amenity, safe CWB crossing, structural design in high seismic zone, and constructability.



Appendix 4: LANDSCAPE SPECIFICATION

Site Specific Management Plans 005 + 006 - Otaihanga North and South [COMBINED]

MacKays to Peka Peka Expressway

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SEE SEPARATE A4 BOUND DOCUMENT.

Appendix 5: ECOLOGICAL MITIGATION TABLE

Site Specific Management Plans 005 + 006 - Otaihanga North and South [COMBINED]

MacKays to Peka Peka Expressway

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M2PP Explanation of Changes to Mitigation Requirements and Availability

These tables compare consented habitat loss and mitigation requirements, with the locations and quantum resulting from Detailed Design Table 1 and 1A compare the amount of habitat loss and its location. Table 2 and 2A compare the amount of mitigation to be provided and its location. Note that habitat loss is measured at 17 discrete sites (AEE). Mitigation is provided for in a 6 broad mitigation areas (SSEMP). The final rows identify if there is a surplus or shortfall in available mitigation sites necessary to meet the updated calculations. This worksheet will be updated as each SSEMP is developed and will guide design of subsequent SSEMPs to ensure mitigation requirements are met.

Source - AEE and EMP Calculations				
Table 1: Habitat Loss by Site / Stream	Indigenous Wetland Habitat (ha)	Indigenous Terrestrial Habitat (ha)	Stream Habitat - Freshwater (linear m)	
Raumati Manuka Wetland	0.03			
Southern Otaihanga Wetland	0.55			
Northern Otaihanga Wetland	0.53			
El Rancho Wetland	0.38			
Unnamed Sites 1 - 7	0.01	1.80		
Tuku Rakau Forest	0.30	0.25		
Ngarara Mahoe		0.86		
Otaihanga Kanuka Forest		0.17		
Raumati Road Kanuka		0.35		
Waikanae River Riparian (planted)		0.13		
Kakariki Stream Riparian (planted)		0.18		
Culverts (inc armouring)			1,119	
Diversions			1,525	
Bridges (armouring)			327	
Loss Allowed by Consent (G.42)	1.8	3.74	2,971	

As progressively updated by Detailed Design				
Table 1A: Habitat Loss by Site / Stream	Indigenous Wetland Habitat (ha)	Indigenous Terrestrial Habitat (ha)	Stream Habitat - Freshwater (linear m)	
Raumati Manuka Wetland	0.03			
Southern Otaihanga Wetland	0.86			
Northern Otaihanga Wetland	0.53			
El Rancho Wetland	0.38			
Scattered cabbage trees	0.01	1.80		
Tuku Rakau Forest	0.30	0.25		
Ngarara Mahoe		0.86		
Otaihanga Kanuka Forest		0.06		
Raumati Road Kanuka		0.35		
Waikanae River Riparian		0.22		
Kakariki Stream Riparian		0.18		
Permanent Culverts (inc armouring)			1,119	
Diversions			1,525	
Bridges (armouring)			327	
Revised Total Loss	2.11	3.72	2,971	
Difference consented and actual	0.31	-0.02	0.00	

Reference
AEE Calc
Updated by Detailed Design
AEE Calc
AEE Calc
AEE Calc
AEE Calc
AEE Calc
AEE Calc
Updated by Detailed Design
AEE Calc
Updated by Detailed Design
AEE Calc
AEE Calc
AEE Calc
AEE Calc

Table 2: Ecological Mitigation Requirements	Indigenous Wetland Habitat (ha)	Indigenous Terrestrial Habitat (ha)	Stream Habitat - Freshwater (linear m)	Stream Habitat - Riparian (ha)
Total Mitigation Required	5.4	7.6	5,240	17.7
+ Flood storage areas 2A & 3	4.1	0	1,400	5.9
Combined Total (G.42)	9.5	7.6	6,640	23.6
Raumati Manuka	2.07	1.15	330	1.14
Otaihanga Wetlands	1.14	4.34	440	1.77
Muaupoko	0	0	75	0.46
Kakariki / Smithfield	2.33	4.32	2,350	8.8
Hadfield / Paetawa	0	1.65	1,375	5.25
Drain 7	3.92	0	1,560	6.32
Total Available Mitigation Area/Length	9.46	11.46	6,130	23.74
Surplus / Shortfall	-0.04	3.86	-510	0.14
Situation	Shortfall	Surplus	Shortfall	Surplus

Table 2A: Ecological Mitigation Areas	Indigenous Wetland Habitat (ha)	Indigenous Terrestrial Habitat (ha)	Stream Habitat - Freshwater (linear m)	Stream Habitat - Riparian (ha)
Revised Mitigation Requirements	6.3	7.5	5,240	17.7
+ Flood storage areas 2A & 3	4.1	0	1,400	5.9
Combined Total (G.42)	10.4	7.5	6,640	23.6
Raumati Manuka	2.07	1.15	330	1.14
Otaihanga Wetlands	1.81	3.57	438	1.55
Muaupoko	0	0	72	0.22
Kakariki / Smithfield	2.33	4.32	2,350	8.8
Hadfield / Paetawa	0	1.65	1,375	5.25
Drain 7	3.92	0	1,560	6.32
Total Available Mitigation Area/Length	10.13	10.69	6125.20	23.28
Surplus / Shortfall	-0.30	3.18	-514.8	-0.32
Revised Situation	Shortfall	Surplus	Shortfall	Shortfall

Recalculated
Updated total
EMP calc
Updated by Detailed Design
Updated by Detailed Design
EMP calc
EMP calc
EMP calc

Appendix 6: WETLAND PLANT SALVAGE

Site Specific Management Plans 005 + 006 - Otaihanga North and South [COMBINED]

MacKays to Peka Peka Expressway

M2PP-121-D-MPL-0006

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MacKay's to Peka Peka Expressway Alliance:
Otaihanga Wetlands Indigenous Vegetation/Habitat Salvage Requirements

Consent conditions

Resource consent condition G.34 m) requires *"The salvage of elements of any valued habitat of indigenous flora and fauna identified in condition G.41 that is being lost as a result of the Project where practicable, including provision for transfer of elements of the affected habitat to ecological mitigation sites. This should include as a minimum: felled logs, Carex, Baumea and associated soils;"*

On this basis, the Ecological Management Plan (EMP) requires that during indigenous vegetation clearance within wetlands, consideration must be given to the salvage of components of any wetland vegetation that is to be cleared. The EMP states that salvage requirements will be detailed in the Site Specific Landscape Management Plans (SSLMP) and/or the applicable SSEMP. The EMP also states that salvage is to include mulch, logs, soils and duff, and any plants that are likely to survive translocation to a new site. These species are to be identified in the SSMPs.

Prior to preparing the ecological components of the SSMP for the Otaihanga – Mazengarb area, this document has been prepared for the construction team to identify which wetlands have indigenous vegetation and to guide the construction methodology and timing in respect of wetland vegetation clearance and restoration of wetlands.

Based on our interpretation of the consent requirements above, wetland species are required to be transplanted from the Otaihanga Northern and Otaihanga Southern Wetlands, these being listed areas of valued vegetation in Condition G.41.

Translocation site/s

The intention is to pre-load the Otaihanga Northern Wetland (the site where wetland plant translocation is required) first as part of construction in this section. Given the 'unresolved' issues with potential contaminants in the Otaihanga Central Wetland, we consider it would be preferable to avoid the use of this central wetland for the transplanted species required as part of the ecological mitigation/planting requirements for the Project, instead focusing on the early development of the 'WWTP Wetland' (located just north of the Waste Water Treatment Plant (WWTP) Drain). The Otaihanga Central Wetland mitigation will need to be undertaken at some stage (as required by consent conditions), and potentially in conjunction with any contaminant management requirements (if any).

The creation of the WWTP Wetland will involve the initial scraping off of existing blackberry and weeds and immediate topsoil approximately to a depth of approximately 300 – 600mm (or until surface water/ saturated peat is located). Once this level has been determined, the scraped area will then be formed into a restored wetland, with associated contouring, raised areas and low points.

All the wetland plants to be salvaged from the Otaihanga Northern Wetland can then be transplanted to this new area to resolve any contaminant issues or further translocation issues.

All the wetland plants to be salvaged from the Otaihanga Southern Wetland can also be transplanted into this new WWTP wetland. No plants are required to be transplanted from the Otaihanga Central Wetland site –given dominance of weed species (and associated seed sources) and potential contaminated soil issues.

Ecological, landscape and stormwater/hydrological input will be required for the detailed design, of this wetland and incorporation with the WWTP Drain (to provide for fish passage). As part of the construction of the new WWTP Wetland, the site would have good access to assist with wetland plant translocation.

Wetland plant translocation

Consistent with consent condition G.34 m, best endeavours must be used to try and transplant as many of the wetland plants as possible from the areas of wetland located under the Expressway Embankment. The large trees in the wetland are manuka and as they are very unlikely to survive transplanting we have not included them to be translocated (refer photographs below). The consent condition specifies *Carex* and *Baumea* (refer photographs below).



Photo 1: *Carex* species (foreground of photo) to be transplanted (photo taken in vicinity of Expressway location in Northern Otaihanga Wetland). . Manuka are taller species in background of photo.



Photo 2: *Carex* and *Baumea* species (in the foreground) to be transplanted (photo taken in vicinity of Expressway location in Southern Otaihanga Wetland). . Taller plants in background are manuka with pine beyond.

The *Carex* and *Baumea* plants to be translocated are approximately 1.0m high and they have a relatively large rootmass within the peat. We envisage that the edge plants can be scooped out of the wetland with an excavator bucket and placed onto a flat deck truck/trailer and then be transplanted in trailer loads to the planting site. Alternatively, all plants could be removed by hand with a good cutting blade to slice through roots (with ecological briefing/supervision).

Given these are wetland plants and therefore do not tolerate dry environments for too long, all transplanted specimens should be replanted within a short time period (ie less 48 hours but depends on weather and prevailing environmental conditions).

More detail on the translocation methodology and specifications as part of the overall wetland design in this area will be developed as part of detailed design.



Matiu Park
Principal | Ecologist

25 June 2013
(Updated 16 December 2013)

- ⬢ Notified designation
- ⬢ Likely long term designation
- ⬢ Construction footprint
- ⬢ Valued Wetlands
- ⬢ Vegetation affected
- Wetland condition monitoring location

STEP 4: Restore western section of Otaihanga Central Wetland once contaminated site issues / construction complete

OTAIHANGA NORTHERN WETLAND

STEP 2: Transplant wetland plants from area of northern Otaihanga wetland under footprint to new constructed WWTP Wetland

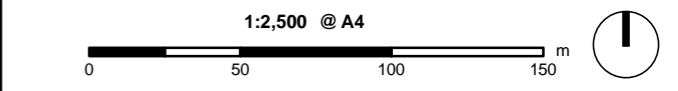
STEP 1: Clear vegetation and create new WWTP Wetland here (TRANSLOCATION SITE FOR WETLAND PLANTS)

OTAIHANGA CENTRAL WETLAND (POTENTIALLY CONTAMINATED)

STEP 3: Transplant wetland plants from area of southern Otaihanga wetland under footprint to new constructed WWTP Wetland

OTAIHANGA SOUTHERN WETLAND

INDICATIVE AREA
Location of new mitigation wetland



June 25, 2013 W09181B_WET_Wetlands_A3.mxd