



Construction Environmental Management Plan

**AMETI Eastern Busway
Stage 1 –**

Panmure to Pakuranga

April/2019



Document Details

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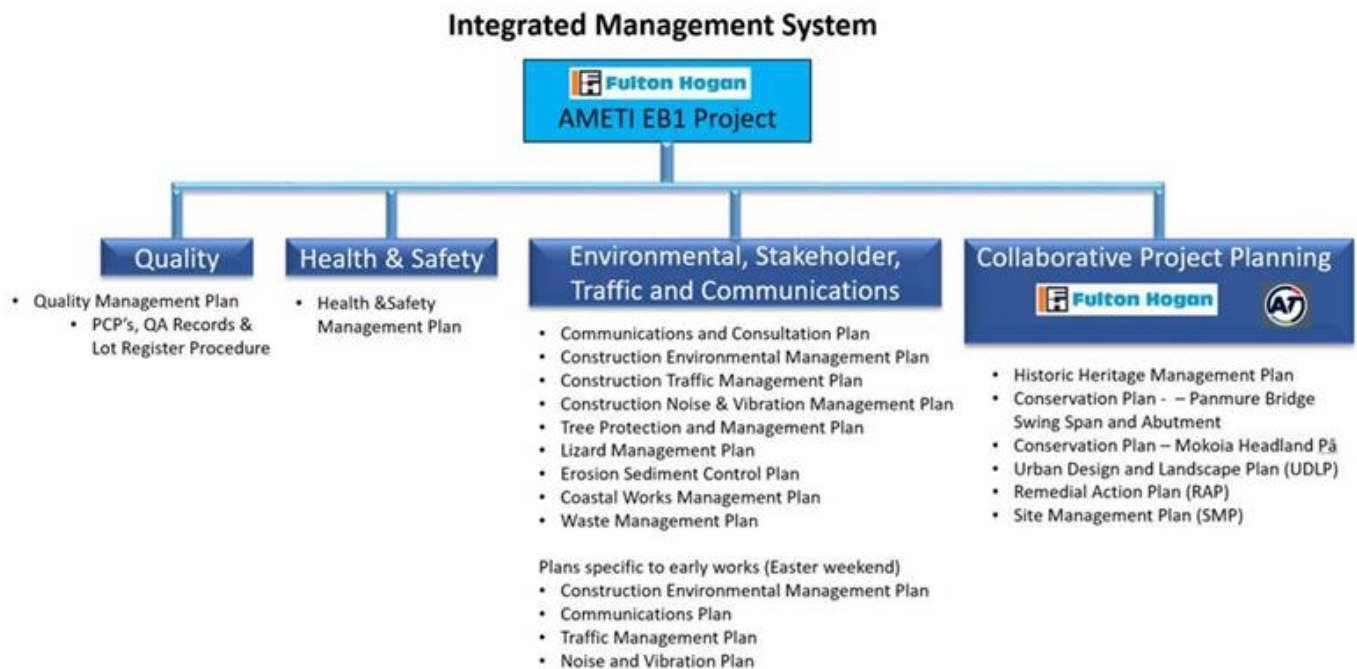
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Integrated Management System



* Note: Some Management Plans are currently being written or amended. Any changes to the current IMS Framework will be advised and amended accordingly.

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1 Introduction

1.1 Purpose and scope

This Construction Environmental Management Plan (CEMP) is for the construction of the AMETI Eastern Busway Stage 1 – Panmure to Pakuranga (the Project).

The plan sets out management methods, controls and reporting standards to be implemented in order to meet the legislative requirements relating to the construction activities associated with the project. It also provides an overview of the different aspects of the construction programme and the key environmental and social issues to be addressed.

It should be noted that this is an umbrella document which also contains relevant “sub management plans” as well as the implementation methods for addressing specific effects or aspects associated with the project construction works.

The CEMP and sub management plans shall be implemented throughout the entire construction period for the Project and is intended to be the primary tool to inform the projects management team of the environmental effects associated with the design and construction of the Project.

The overall objective of the CEMP as stated in designation and resource consent conditions is to avoid, remedy or mitigate any adverse effects associated with the Construction activities as far as reasonably practicable.

This CEMP and sub management plans should be updated throughout the course of the project to reflect significant material changes to construction techniques or the physical environment and must be reviewed at a minimum annually to ensure they are still meeting the management plan objectives. All changes to certified management plans will require recertification by Council.

1.2 Project description

Project works include the reconfiguration of the Panmure Roundabout to a signalised intersection, provision of a new 2.4 kilometre-long dedicated urban busway (referred to as AMETI Eastern Busway Stage 1 – Panmure to Pakuranga) from this intersection along Lagoon Drive, across the Tamaki River, via a new busway specific bridge on a parallel alignment with the existing Panmure Road Bridge, and along Pakuranga Road to the intersection with Ti Rakau Drive. The Project will also provide for shared and dedicated cycle and footpaths along its entire length.

1.3 Mana Whenua engagement

This CEMP recognises AT’s special relationship with mana whenua. Fulton Hogan working as partners of AT, take pride in representing AT and contributing to this relationship. We recognise the importance of building a trusting relationship with mana whenua by showing respect and developing an understanding of their cultural interests.

We are all descended from Ranginui, (our Father Sky) and Papatūānuku, (our Mother Earth). Ngā manawhenua o Tāmaki Makaurau have a special relationship with Ranginui, Papatūānuku, and their taonga (precious) resources, and what they provide.

As descendants and kaitiaki of Ranginui and Papatūānuku, Manawhenua o Tāmaki Makaurau protect their whānau, hapū and Iwi and encourage all people to act as protectors of the earth.

Kaitiakitanga includes:

- protecting, restoring, enhancing the mauri (life supporting capacity) of resources;
- fulfilling spiritual, emotional and inherited responsibilities to the environment;
- maintaining mana over Taonga (resources); and
- ensuring the welfare of the people those resources support.

We recognise that kaitiakitanga is a wider concept and broader than this description.

Fulton Hogan’s commitment to improving the environment and social responsibility aligns and supports kaitiakitanga. Fulton Hogan has a long history of working positively with New Zealanders. In meeting these commitments Fulton Hogan staff, contractors and others involved in the project are supporting kaitiakitanga and Mana Whenua. This CEMP supports these objectives.

An AMETI mana whenua kaitiaki forum has been established for the purposes of undertaking kaitiakitanga responsibilities associated with the project. The forum comprises those mana whenua groups who expressed an interest in being involved in the project and its related activities. Thirteen mana whenua (as listed) are currently part of the forum and will provide on-going support and advice in the design and construction of the AMETI Project:

- a. Ngāi Tai ki Tāmaki Tribal Trust
- b. Ngāti Maru Runanga
- c. Ngāti Paoa Iwi Trust
- d. Ngāti Tamaoho Trust
- e. Ngāti Te Ata Waiohū
- f. Ngāti Whanaunga Inc Soc;
- g. Ngāti Whātua Ōrākei
- h. Te Ākitai Waiohū
- i. Te Kawerau a Maki; and
- j. Te Ahiwaru Waiohū; and
- k. Te Patukirikiri
- l. Ngāti Tamatera
- m. Tainui Te Kauhanganui

With the commencement of construction, the forum's role will include cultural induction for contractors, assistance with Tikanga (protocols - Karakia and blessings) discovery procedures, monitoring, and ongoing provision of mātauranga Māori input.

AT continues to work collaboratively with the mana whenua forum on all aspects of the AMETI project.

1.4 Relationship of CEMP to other management plans

The project requires a set of environmental management and mitigation plans to ensure the successful construction of the project.

This CEMP sets the overall framework for the management of the environmental and social aspects of the project and is supported by a series of "sub management plans" focussing on specialist environmental areas, as identified in the consenting phase of the project.

A number of specific plans (see below and section 4.1 of the CEMP) have been identified as requiring "certification" or submittal to the consenting authority (Auckland Council) as part of the Notice of Requirement (NoR) conditions (14 and 15) and the Bundled Consent (BC) conditions (6 and 7). These plans will require certification prior to commencement of the main works. The overall responsibility for writing these plans will vary between the Contractor Fulton Hogan (FH), the Client Auckland Transport (AT) and Specialist Consultants (as necessary) or may be a joint submission dependent on the plan to be developed.

N.B. the "Kaitiaki forum meetings" will also be utilised to offer opportunity for "mana whenua" to provide input into the plans being developed or methodology proposed especially in areas of cultural significance such as at the Mokoia Pa and its immediate surroundings.

The following management plans identified in the NoR (Notice of Requirement), BC (Bundled Consents) and CS (Contract Specifications – Appendix 1 - *General Clauses NZS3910:2013*) as requiring certification by the Council have been listed in Table 1.

Table 1 – Management Plans requiring certification:

Management Plan	NoR/BC/CS reference	Section Reference in the CEMP
Construction Environment Management Plan	NoR 15a & BC condition 7a	This Plan
*Erosion and Sediment Control Plan	BC condition 7b	Appendix I

Management Plan	NoR/BC/CS reference	Section Reference in the CEMP
*Coastal Works Management Plan	BC condition 7c	Appendix J
Communication and Consultation Plan	NoR condition 21	Appendix K
*Construction Noise and Vibration Management Plan	NoR condition 15	Appendix L
*Construction Noise and Vibration Management Plan relating to the underwater noise impacts	BC condition 7d	Appendix J (Section of the Coastal Works Management Plan)
*Lizard Management Plan	NoR condition 15g, 61, 62	Appendix M
*Construction Traffic Management Plan	NoR condition 25a	Appendix N
*Tree Protection and Management Plan	NoR condition 25f, 55 - 60	Appendix O
*Historic Heritage Management Plan	NoR condition 44 - 45	Appendix P
*Urban Design and Landscape Plans	NoR condition 49 - 54	Appendix Q
*Conservation Plan – Panmure Bridge Swing Span and Abutment	NoR condition 47	Appendix R
*Conservation Plans - Mokoia Pa Headland	NoR condition 46	Appendix S (Note: The design details for the residual land at Mokoia Pā which is subject to the development of a commemorative park, are still progressing. A Conservation Plan will be submitted for certification once detailed design has been confirmed and agreed with mana whenua, HNZPT and Auckland Council. Confirmation has been obtained from Council's Team Leader, Central Monitoring, that this approach is acceptable.
*Site Management Plan; Remedial Action Plan, Site Validation Report	BC Condition 35, 36 and 41	Appendix T
*Site Specific Construction Noise Management Plan	NoR condition 15k / CS Section 7.4	Appendix L
*Site Specific Construction Vibration Management Plan	NoR condition 15k / CS Section 7.4	Appendix L
Waste Management Plan	CS Section 8.7	Appendix U

**These plans will need input from a qualified and experienced professional in the various disciplines.*

The CEMP and sub management plans will also be given effect to by a number of operational work method statements, work instructions or procedures to help summarise the activity specific environmental requirements for on-site personnel.

A number of the plans will need to be task/site specific (e.g. Erosion and Sediment Controls during Utility Service works to identify current underground locations) and as such will be “drafted” for certification prior to any works commencing in the area identified. No construction activities will be allowed to commence until certification has been received from Council.

The management plans bring together the principles of the CEMP and focus on potential specific effects.

Fulton Hogan as the Main Contractor is responsible for undertaking the construction activities and must have due regard to these plans and actions arising, as the physical works proceed. It should be noted that consent conditions may only be triggered at various stages through the construction programme, and the development of management plans (with particular reference to site specific erosion and sediment control plans and site specific noise and vibration management schedules) will be staged and submitted as works progress.

All plans will be “live” documents and will be updated and revised as the construction methodology and requirements for managing the various effects change over time and will reflect changes to the activities, risks, procedures etc.

The ability to make changes to the CEMP (and other plans/procedures) is an important aspect of continually improving the effectiveness of the CEMP so as it is “fit for purpose”. All changes proposed to a certified

management plan will require recertification by Council.

1.5 Designation and resource consent conditions relevant to the CEMP

Table 2 – Designation conditions relevant to the CEMP

Condition Number	Condition	Section Reference in the CEMP
24. The objective of the CEMP is to avoid, remedy or mitigate any adverse effects associated with the AMETI Stage 2A construction so far as is reasonably practicable. The CEMP must include measures to give effect to any specific requirements and objectives set out in these designation conditions. In order to give effect to its objective, the CEMP must be submitted to the Council's Team Leader, Southern Monitoring for certification and is to provide for the following:		
A	Noticeboards clearly identifying the Requiring Authority and the project name, together with the name, telephone number and email address of the site or project manager and the communication and consultation manager;	Sc 3.1
B	Training requirements for employees, sub-contractors and visitors on the cultural history and significance of the area, construction procedures, environmental management (including the Historic Heritage Management Plan) and monitoring;	Sc 4.2
C	A complaints management process setting out methods for capturing, recording and responding to complaints;	Sc 5.3
D	The document management system for administering the CEMP, including review and Requiring Authority / constructor / Council requirements;	Sc 4
E	Environmental incident and emergency management procedures (including spills);	Sc 5.4 & 5.5
F	An outline of the construction programme of the work, including construction hours, indicating linkages to the other subsidiary plans which address management of adverse effects during construction;	Sc 3.2 & 3.3
H	Specific details of demolition to be undertaken during the construction period;	Sc 3.5
I	How construction methods and processes will achieve waste minimisation and energy efficiency;	Sc 3.5
J	Methods to provide for the safety of the general public;	Sc 3.5
K	Where access points are to be located in the construction areas and procedures for managing construction vehicle ingress and egress to construction support and storage areas;	Sc 3.4
L	Methods for managing and monitoring dust as a nuisance, including methods for minimising dust emissions, monitoring procedures and contingency procedures in the event of a dust nuisance event;	Sc 3.5
M	Methods for managing silt and sediment in the construction area;	Sc 3.5, Appendix I
N	Methods for earthworks management (including depth and extent of earthworks and temporary, permanent stabilisation measures and monitoring ground	Sc 3.5 and Appendix I, J, L

Condition Number	Condition	Section Reference in the CEMP
	movement) for earthworks adjacent to buildings and structures;	
O	Measures to be adopted to keep the construction areas in a tidy condition in terms of disposal / storage of rubbish and storage, unloading construction materials (including equipment). All storage of materials and equipment associated with the construction works must take place inside the designation boundaries;	Sc 3.5
P	How the construction areas and yards will be fenced and kept secure;	Sc 3.5
Q	Measures to ensure all temporary boundary / security fences associated with construction of the project are maintained in good order with any graffiti and advertising posters/billboards/fliers removed as soon as possible;	Sc 3.5
R	The location and specifications for any temporary acoustic fences and visual barriers;	Appendix L
S	The location of any temporary buildings (including workers' offices and portaloos) and construction vehicle parking (which should be located in the construction area and not on adjacent streets);	Sc 3.4
T	Provisions for management of mana whenua values to be developed by the kaitiaki forum in conjunction with the project team;	Sc 1.3
U	Provisions for the management of moveable historic heritage so these items are not discarded and are available for reuse where proposed as part of the certified Urban Design and Landscape Plan;	Sc 3.5
V	Methods to control the intensity, location and direction of construction lighting to avoid light spill and glare onto sites adjacent to construction areas;	Sc 3.5
W	Methods to ensure prevention and mitigation of adverse effects associated with storage, use, disposal, or transportation of hazardous substances;	Sc 3.5 Appendix F, G and H
X	Confirmation that site offices and less noisy construction activities will be located at the edge of the construction yards where practicable and any other practical measures to reduce nuisance to adjacent residential properties; and	Sc 3.4, Appendix E
Y	The identity of the appropriately qualified person who will undertake building condition surveys.	Sc 3.5 & Appendix L
25	The CEMP must incorporate the following plans once submitted or certified (whichever is appropriate): o Construction Traffic Management Plan; o Construction Noise and Vibration Management Plan; o Historic Heritage Management Plan; o Site Management Plan; o Urban Design and Landscape Plans; o Tree Protection and Management Plan; o Lizard Management Plan; o Conservation Plans; o Site Specific Construction Noise Management Plans; and	Appendix L, M, N, O, P, R, S, T

Condition Number	Condition	Section Reference in the CEMP
	o Site Specific Construction Vibration Management Plans.	
26	All works must be carried out in accordance with the certified CEMP and with any changes to plans made through an outline plan of works or management plan review process. The CEMP must be prepared, complied with and monitored by the Requiring Authority throughout the duration of construction of the AMETI Stage 2A project.	Sc 5
27	<p>The CEMP must be reviewed as a result of any material change to the project and/or to address unforeseen adverse effects arising from construction or unresolved complaints.</p> <p>Such a review may be initiated by either the Council's Team Leader Southern Monitoring or the Requiring Authority and will in either case be at the requiring authority's cost. A summary</p> <p>of the review process must be kept by the Requiring Authority, provided to the Council's</p> <p>Team Leader Southern Monitoring on request, and made available to members of the public on request.</p>	Sc 1.1, 1.4

Table 3 – Resource consent conditions relevant to the CEMP

Condition Number	Condition	Section Reference in the CEMP
9	All works are to be carried out in accordance with the certified CEMP required by these conditions and in accordance with any certified changes to plans. The objective of the CEMP is to avoid, remedy or mitigate any adverse effects associated with the AMETI Stage 2A construction as far as is reasonably practicable	Sc 5
10. In order to give effect to its objective, the CEMP is to provide for the following:		
A	Noticeboards that clearly identify the consent holder and the project name, together with the name, telephone number and email address of both the site or project manager and the communication and consultation manager;	Sc 3.1
B	Training requirements for employees, sub-contractors and visitors on the cultural history and significance of the area, construction procedures, environment management and monitoring; and	Sc 4.2
C	A complaints management process setting out methods for capturing, recording and responding to complaints.	Sc 5.3
10. The CEMP must include details of:		
A	The site or project manager and the communication and consultation manager (who will implement and monitor the Communication and Consultation Plan), including their contact details (phone, email and physical address);	Sc 1.6

Condition Number	Condition	Section Reference in the CEMP
B	The document management system for administering the CEMP, including review and consent holder / constructor / Auckland Council requirements;	Sc 4
C	Environmental incident and emergency management procedures (including for spills);	Sc 5.4 & 5.5
D	An outline of the programme of works, including construction hours of operation, indicating linkages to the other subsidiary plans which address the management of adverse effects during construction;	Sc 3.2 & 3.3
E	Specific details of any demolition to be undertaken during the construction period;	Sc 3.5
F	How construction methods and processes will achieve waste minimisation and energy efficiency;	Sc 3.5
G	Methods to provide for the safety of the general public;	Sc 3.5
H	Details of the environmental monitoring to be undertaken throughout construction, as required by the resource consent conditions;	Sc 6.1
I	Methods for providing temporary fencing to protect historic heritage sites and/or material, at the direction of the project archaeologist.	Sc 3.5
J	Methods for managing and monitoring dust as a nuisance, including methods for minimising dust emissions, monitoring procedures and contingency procedures in the event of a dust nuisance event;	Sc 3.5
K	Methods for managing the control of silt and sediment in the construction area;	Sc 3.5, Appendix I
L	Methods for earthworks management (including depth and extent of earthworks and temporary, permanent stabilisation measures and monitoring of ground movement) for earthworks adjacent to buildings and structures;	Sc 3.5 Appendix I, J, L
M	Measures to adopt to keep the construction area in a tidy condition in terms of disposal / storage of rubbish and storage unloading of construction materials (including equipment). All storage of materials and equipment associated with the construction works must take place within the boundaries of the designation;	Sc 3.5
N	Measures to ensure all temporary boundary / security fences associated with construction are maintained in good order with any graffiti and advertising posters are removed as soon as possible;	Sc 3.5
O	A section providing for management of mana whenua values to be developed by the kaitiaki forum in conjunction with the project team;	Sc 1.3
P	How the construction areas are to be fenced and kept secure from the public;	Sc 3.5

Condition Number	Condition	Section Reference in the CEMP
Q	Methods to control the intensity, location and direction of construction lighting to avoid light spill and glare onto sites adjacent to the construction areas;	Sc 3.5
R	Methods to ensure the prevention and mitigation of adverse effects associated with storage, use, disposal, or transportation of hazardous substances; and	Sc 3.5 Appendix F, G and H
S	Measures to ensure that site offices and less noisy construction activities are located at the edge of the construction yards where practicable and any other practicable measures to reduce nuisance to adjacent residential properties.	Sc 3.4, Appendix E
11	The CEMP must be prepared, complied with and monitored by the consent holder throughout the duration of construction of the AMETI Stage 2A project.	Sc 5
12	<p>The CEMP must be reviewed as a result of a material change to the AMETI Stage 2A project or to address unforeseen adverse effects arising from construction and/or unresolved complaints.</p> <p>Such a review may be initiated by either the Council's Team Leader, Southern Monitoring or the consent holder. A summary of the review process must be kept by the consent holder, provided to the Council's Team Leader, Southern Monitoring, and made available to the public on request.</p>	Sc 5

1.6 Roles and responsibilities

Everyone involved with the Project has a role in the implementation of the CEMP.

There are three key groups with responsibility for the environmental management of the Project:

- AT as the Project owner and holder of the designation, resource consents and archaeological authorities;
- FH as the contractor undertaking the works; and
- Auckland Council who audits the works and monitors compliance with designation and resource consent conditions, the CEMP and sub-plans.

All FH employees have a responsibility to identify and report all environmental aspects within the workplace and for monitoring the environmental awareness practices of subcontractors.

The key management roles from each organisation in relation to environmental management during the construction of the Project are outlined in tables 4, 5, 6 and 7 below. It should be noted that this list does not include the "Emergency Response Flip Chart" Contacts List set up for specific emergency events (to be included in the Health and Safety Plan).

Key compliance responsibilities noted in Table 4 are not exhaustive. Reference should be made to the sub management plans for key roles and responsibilities relating to the respective environmental disciplines.

Table 4 - Applicable Roles and Responsibilities:

Position	Contact	Key compliance responsibilities
Auckland Transport - Principal Project Manager	Phil Archer	<p>Designation authority contact</p> <p>The AT's person responsible for the designation and resource consents for the project</p>

Position	Contact	Key compliance responsibilities
Engineers Representative	Lucas Nickell	Liaison between AT (Client) and Fulton Hogan to assist in identifying whether day to day operations on the project are meeting environmental objectives
Auckland Transport Communication Manager	Matt Poland	Utilising AT's stakeholder management system to show AT's Communication to stakeholders and the public throughout the construction phase
Contractor's Representative	James Weller	Responsible for all day to day operations on the project and site environmental management.
National Environmental Manager - Construction	Omar Seychell	Development and implementation of the CEMP and sub management plans (including engagement of specialists to deliver on plan development and plan requirements). Reviewing sub management & mitigation plans for project certification by Auckland Council Inspections, auditing and checking of environmental management practices and procedures during construction
Construction Environmental Manager (Site based)	Jason Haggerty	Onsite environmental compliance auditing Inspections, auditing and checking of environmental management practices and procedures during construction CS VUE consent condition management Liaison with Council's monitoring officers Review and updating management plans and associated documents to meet environmental compliance objectives
Construction Manager - Roads	David McGoey	Day to day implementation of the CEMP and sub management and mitigation plans onsite, ensuring compliance with the various environmental requirements of the project Onsite environmental compliance
Construction Manager - Structures	Jeremy Gordon	Day to day implementation of the CEMP and sub management and mitigation plans onsite, ensuring compliance with the various environmental requirements of the project Onsite environmental compliance
Construction Manager - Utilities	Fathi Hassneiah	Day to day implementation of the CEMP and sub management and mitigation plans onsite, ensuring compliance with the various environmental requirements of the project Onsite environmental compliance
Traffic Management	Andrew Finnigan	Providing assistance for safe traffic and pedestrian management during any environmental incident that may need emergency response so as to promote reduced public disruption and faster recovery from the incident. Liaison with AT on all matters affecting traffic movements through site.
Stakeholder/Communication Manager	Jenny Scott	Communication to stakeholders and the public throughout the construction phase Cultural/Archaeological ambassador for the project works. Implementation of the complaints operating procedure, maintenance of the complaints register including the use of the AT's stakeholder management system

Table 5 - Contact Details for Key Personnel

Role	Organisation	Name	Phone	Email
Client Project Manager	Auckland Transport	Phil Archer	09 355 3553	Phil.Archer@at.govt.nz
Engineers Rep	Stellar Projects Consultants	Lucas Nickell	021 824 576	Lucas.n@stellarprojects.co.nz
Contractors Representative	Fulton Hogan	James Weller	027 274 2961	James.weller@fultonhogan.com
Auckland Council Environmental Compliance	Auckland Council	Isabella Wang	09 301 0101	isabella.wang@aucklandcouncil.govt.nz
Council Parks Arborist	Auckland Council (Manukau)	TBC		
Council Heritage Arborist	Auckland Council	TBC		
Contaminated Land Specialist	Pattle Dellamore Partners	Natalie Webster	021 385 037	Natalie.Webster@pdp.co.nz
	Pattle Dellamore Partners	Nerena Rhodes	021 419 975	nerena.rhodes@pdp.co.nz
Project Archaeologist		TBC		
Urban Design Landscape	BECA	TBC		
Landscape Architect	Matthews & Matthews	TBC		
Acoustic Consultant	Marshall Day	Micky Yang	021 057 1091	Micky.Yang@marshallday.co.nz
Building Condition Survey Specialist	Babbage	Gerard Beall	0278014913	Gerard.ball@babbage.co.nz
Ecologist/ Herpetologist	Bio Researches	Chris Wedding	(09) 379-9417	chris.wedding@bioresearches.co.nz
Consultant Arborist	Peers Brown Miller	Matt Paul	021 399 298	matt.paul@peersbrownmiller.co.nz
Supervising/Consultant Arborist	Arborlab	Karl Burgisser	0274-957-420	karlb@arborlab.co.nz
Works Arborist	Franklin Trees	Jason Lord	021 343 721	jason@franklinetrees.com
Erosion and Sediment Control Specialist	Southern Skies Consultants	Campbell Stewart	021 837 824	campbell@southernskies.co.nz
Environmental Manager	Fulton Hogan	Jason Haggerty	027 547 0140	jason.haggerty@fultonhogan.com
Mana Whenua Representative	TBC			
Iwi Cultural Representative	TBC			
Harbourmaster (Emergency Duty Officer)	Auckland Transport		09 362 0397	

Table 6 - Site Emergency contacts

Name	Role	Phone	Email
James Weller	FH Project Manager	027 274 2961	James.Weller@fultonhogan.com

David McGoe	FH Construction Manager	027 809 4604	David.McGoe2@fultonhogan.com
Jeremy Gordon	Bridge Construction Manager	027 520 9391	Jeremy.Gordon@fultonhogan.com
Fathi Hassneiah	Utilities Manager	027 576 7267	Fathi.Hassneiah@fultonhogan.com
Jenny Scott	FH Stakeholder Manager	027 703 5284	Jenny.Scott@fultonhogan.com
John Smith	FH Health & Safety Manager	027 434 3576	JohnH.Smith@fultonhogan.com
Jason Haggerty	FH Project Environmental Manager	027 547 0140	Jason.haggerty@fultohogan.com
Andrew Finnigan	FH Traffic Manager	027 544 6234	Andrew.Finnigan@fultonhogan.com

Table 7 - Other contacts

Role	Organisation	Name	Phone	Email
Spill equipment stockist	Daltons International NZ Safety			
Emergency Response	New Zealand Fire Service/ Police/ Ambulance		111	
Pollution Control	Auckland Council	Pollution Hotline	09 377 3107	
Southern Monitoring	Auckland Council			
Water and Vessel Safety	Auckland Coastguard			
Traffic Management	ATOC			

2 Environmental and social management

Table 8 summarises the significant and potential environmental and social impacts associated with the construction of the project and how the impacts will be managed.

Table 8 - Environmental aspect and impacts

Environmental aspect		Activity	Impact or potential impact (without management)	Impact management technique
Social	Connectivity	Construction of new roads	Severance of local road network (including active modes)	Construction Traffic Management Plan
Natural Environment	Water Resources and Erosion and Sediment Control	Land/stream bed disturbance	Sedimentation	Construction Erosion and Sediment Control Plan (ESCP)
		Construction in/over watercourses and/or margins	Reduced fish passage	Underwater Noise/Vibration Management
	Discharges – construction and operational	Reduction/loss of habitat	Treatment train approach to the design of the operational stormwater network	Hazardous Substance Management - storage and use; Spill response procedures and site provision of Spill kits – specific to works area and risk i.e. floating booms adjacent to waterways
	Fuel spill	Scouring/erosion of stream banks, increase velocity due to restriction caused by piers		
		Reduction in water quality as a result of spills and/or other stormwater discharges into waterways		
	Ecological Resources	Vegetation/tree clearance/control	Reduction/loss of species diversity	Lizard Management Plan/ Ecological Management Plan
		Retaining walls and soil nail installation	Reduction/loss of habitat	Herpetologist engaged to oversee trapping
		Stream diversions etc		Urban Design and Landscape Plan, Tree and Vegetation Protection Management Plan
	Biosecurity	Earthworks and use of Construction machinery	Spread of pest plants	Construction Erosion and Sediment Control Plan (ESCP)
			Spread of plant diseases	Urban Design and Landscape Plan
				Kauri Dieback Disease Protocols
Human Health	Noise and Vibration	Operation of heavy machinery	Physical damage to structures	Construction Noise and Vibration Management Plan,
		Operation of the highway	Nuisance to the public	Dilapidation surveys prior to works as identified, Follow best practice guidelines
	Air Quality	Dust generated from earth works and haul roads	Nuisance to the public	Dust Management and BPO undertaken during all works activities and vehicle movements on site.
				Construction Erosion and Sediment Control Plan (ESCP)
	Hazardous Substances	Earthworks on contaminated land	Contaminated soil	Contaminated Site Management Plan & SVR.
		Pavement surfacing	Contamination from spills or runoff into waterways or stormwater system	Erosion and Sediment Control Plan.
		Plant refuelling and spills or leaks during activities.		Hazardous Substances Management Plan
				Site specific spill response procedures to be implemented

Environmental aspect	Activity	Impact or potential impact (without management)	Impact management technique
	Site chemicals storage.		Minimal chemical storage to be held on site. Dedicated compliant Hazardous goods storage
Culture and Heritage	Archaeology and heritage values	Works uncovering archaeological items e.g. artifacts, middens, koiwi etc. Heritage buildings	Loss of heritage values Damage to archaeological items and cultural significance
			Site specific Archaeological and Heritage induction process Works to be undertaken in accordance with the Historic Heritage Management Plan and the Conservation Plans for Panmure Bridge Swing Span and Abutment and the Mokoia Headland Pā Project specific Archaeological Ambassador to liaise closely with relevant parties Mana Whenua and Iwi. Mana Whenua input into Management plans.
Urban and Landscape Design	Visual Quality	Active transport modes Earthworks Structures Enhancement to adjoining land Lighting	Encourages only motor vehicle use Negative visual amenity for road users and adjacent residents Light spill for adjacent residents and waterways
			Independent busway provided Shared paths integrated within the project Urban Design and Landscape Plan Works methodology to include management of night works activities.

2.1 Legislative requirements

The project is designated in the Auckland Unitary Plan – Operative in Part (AUP), and has a number of resource consents from Auckland Council as well as an Authority under the Heritage New Zealand *Pouhere Taonga* Act 2014. Further Archaeological Authorities required (GA2, GA4) are currently being processed and AT are awaiting confirmation of approval.

FH notes that AT is a Requiring Authority as defined in the RMA and the Project is the subject of the AMETI Stage 2A designation in the Auckland Unitary Plan (Operative in Part).

The environmental legislative requirements of the project are set out in Table 9 and 10 below.

Full copies of designation and resource consent conditions are included in Appendix A

Table 9 - Applicable Legislation and Plans

Legislation	Description	Requirement	Regulator
Resource Management Act 1991	To promote the sustainable management of natural and physical resources. The RMA provides the local and regional authorities with the necessary powers to formulate plans, and set rules and standards for a multitude of activities.	Every person has a duty to avoid, remedy, or mitigate any adverse effect on the environment arising from an activity carried on or on behalf of that person, whether or not the activity is in accordance with the rules in a plan, a resource consent, and a designation section 10, section 10A, or section 20A.	Auckland Council, Ministry for the Environment
NES for Assessing and Managing Contaminants in Soil to Protect Human Health 2011	The NES for Assessing and Managing Contaminants in Soil to Protect Human Health provides a nationally consistent set of planning controls and soil contaminant values; ensures that land	For roading activities, any activity that disturbs soil over 25m ³ in volume at a HAIL site requires consent under this NES.	Auckland Council

Legislation	Description	Requirement	Regulator
	affected by contaminants in soil is appropriately identified and assessed before it is developed; and if necessary the land is remediated or the contaminants contained to make the land safe for human use.		
National Policy Statement for Freshwater Management, 2014	The National Policy Statement for Freshwater Management supports improved freshwater management in New Zealand.	Under this policy, regional councils/unitary authorities must establish objectives and set limits for fresh water in their regional plans. Until Council have developed these, works impacting waterways, water discharges, diversions and takes must be undertaken in accordance with this policy statement.	Auckland Council
National Policy Statement on Electricity Transmission 2008	The National Policy Statement on Electricity Transmission recognises the national significance of the electricity transmission network whilst managing the adverse effects of the network and managing the adverse effects of other activities on the network.	Transpower have been consulted as part of the proposal. S177 approval will be sought from Transpower prior to any works occurring within their designations, to ensure the transmission network is not adversely affected by the proposal.	Auckland Council
NES for Air Quality 2004	The NES for Air Quality seeks to provide a guaranteed minimum level of health for all New Zealanders.	The proposal does not require any consents pursuant to the NES Air Quality as the operational pollutant concentrations will be below the relevant standards. However, the NES Air Quality has helped to inform the requirements relating to construction and operational air quality set out in the consent conditions and relevant management plans.	Auckland Council
Auckland Unitary Plan – Operative in Part	The Auckland Unitary Plan – Operative in Part (2016) has been developed under the Resource Management Act 1991, and is intended to provide direction regarding the use, development and protection of natural and physical resources in the region, as well as promoting the sustainable management of these resources.	Activities carried out under this contract must comply with the designation and consent conditions and rules defined within the Auckland Unitary Plan. Where they do not, consent will be obtained prior to works commencing.	Auckland Council
Hauraki Gulf Marine Park Act 2000	The purpose of this Act is to integrate the management of the natural, historic, and physical resources of the Hauraki Gulf, its islands and catchments, as well as recognising the historic, traditional, cultural, and spiritual relationship of the tangata whenua with the Hauraki Gulf and its islands.	The proposed works must be undertaken in accordance with the purpose of this Act. The implementation of management plans will ensure any adverse effects on the Hauraki Gulf and its catchments are appropriately avoided, remedied or mitigated.	Auckland Council
Heritage New Zealand Pouhere Taonga Act 2014	The purpose of this Act is to promote the identification, protection, preservation, and conservation of the historical and cultural heritage of New Zealand.	Section 42 of the Act directs that an authority is required from Heritage New Zealand Pouhere Taonga if there is 'reasonable cause' to suspect an archaeological site may be modified, damaged or destroyed in the course of any activity.	Heritage New Zealand Pouhere Taonga

Legislation	Description	Requirement	Regulator
Biosecurity Act 1993	The purpose of the Biosecurity Act 1993 is to enable New Zealand to exclude, eradicate or effectively manage pests and unwanted organisms already in the country. The Biosecurity Act requires regional councils and unitary authorities to formulate a regional pest management strategy, list plant and animal species and state objectives, policies and rules with regard to pests, their status and required/anticipated control.	Pest management activities must comply with Local Authority pest management policies and rules.	Ministry for Primary Industries (and Local Authorities)
Freshwater Fisheries Regulations 1983	The Freshwater Fisheries Regulations 1983 at Clause 42 requires that a culvert or ford in any natural river, stream, or water shall be constructed and maintained to allow for the free passage of fish unless a written exemption has been given by the Director-General of Conservation.	These aspects are controlled through the RMA Plans and/or through resource consent conditions as there is no separate consenting process under the Freshwater Fisheries Regulations, with the exception of written exemptions to not comply with the standards of the Regulations.	Department of Conservation
Hazardous Substances and New Organisms Act 1996	The purpose of the Hazardous Substances and New Organisms (HSNO) Act 1996 is to protect the environment, for non-work public health and environmental risks by preventing or managing the adverse effects of hazardous substances and new organisms.	Activities which require hazardous substances must be managed in compliance with the controls identified by the Act.	Environmental Protection Authority
Health and Safety at Work (Hazardous Substances) Regs 2017	The purpose of the regulation is to protect human health and safety in the workplace which could be affected by hazardous substances. This regulation sits under the Health and Safety at Work Act	Activities which require hazardous substances must be managed in compliance with the controls identified in the Regulations.	Worksafe
Health and Safety at Work (Asbestos Regulations 2016)	The purpose of the regulation is to protect human health and safety in the workplace which could be affected by asbestos. This regulation sits under the Health and Safety at Work Act	Activities which require asbestos waste removal must be managed in compliance with the controls identified in the Regulations.	Worksafe

Table 10 - Current Designation and Resource Consents for Project

(* location of AMETI Stage 2a as listed on the resource consents is now known as AMETI Eastern Busway Stage 1 – Panmure to Pakuranga)

Granter	Authority number	Holder	Consent type	Purpose	Location*	Expires
Auckland Council	23 Feb 2018	Auckland Transport	NOR -Designation	Designation	AMETI Stage 2a	22/2/2028
Below mentioned Resource Consents are together identified by the Council as BUN60078023						
Auckland Council	LUC60123881	Auckland Transport	Land Use Consent	Earthworks &ESC Contaminated Land - Environmental Health, Geotechnical works	AMETI Stage 2a	31/1/2028

Granter	Authority number	Holder	Consent type	Purpose	Location*	Expires
Auckland Council	LUC60289131 DIS60083731	Auckland Transport	Land use Consent and Discharge permit (contaminated land)	Discharge of contaminants from disturbances	AMETI Stage 2a	Completion of SVR
Auckland Council	CST60082989	Auckland Transport	Coastal Marine Area (CMA) works	Coastal occupation, Works in the CMA	AMETI Stage 2a	31/1/2053
Auckland Council	DIS60083720 DIS60277558	Auckland Transport	Discharge Permit	Operational Stormwater divert and discharge	AMETI Stage 2a	31/1/2053
Auckland Council	WAT60152193 WAT60291956	Auckland Transport	Water permit	Groundwater diversion	AMETI Stage 2a	28/2/2053
Heritage NZ	2018/852, R11/98,138,2372, 2995	Auckland Transport	Archaeological Authority	Archaeological investigation and reporting	AMETI Stage 2a	2/11/2022
	GA2/GA4			Awaiting approval (February 2019)		TBC

3 Construction methodology overview

The overall project will be managed on a zoned based approach.

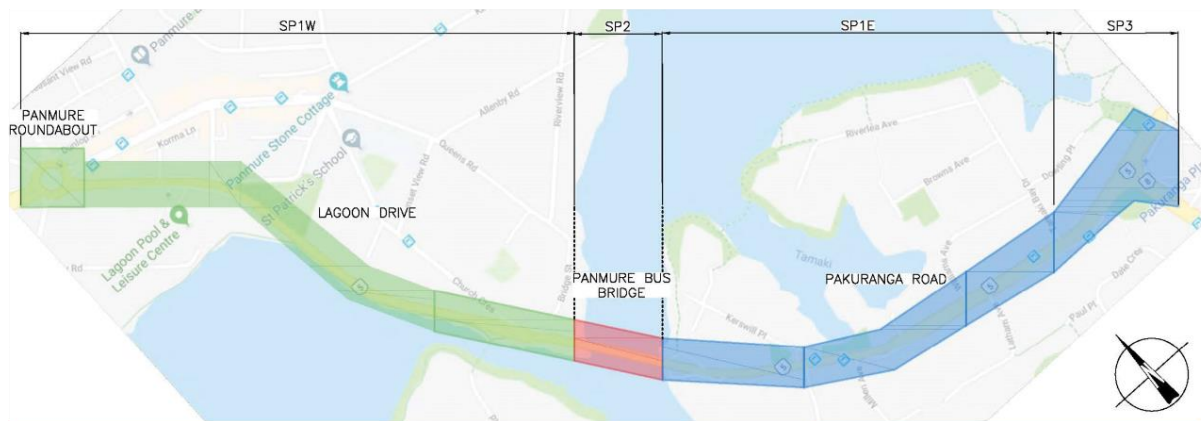
Each zone may also be split into distinct areas. This will allow for a detailed programme to be developed for the construction teams and will facilitate close monitoring of progress against the programme with the ability to make decisions early to mitigate any programme slippage or delays.

The project will have three (3) zones and ten (10) areas as highlighted below and displayed in Figure 1.

Construction methodology and staging sketches are attached in Appendix D.

Table 11 – Management zones

ZONE 1	ZONE 2	ZONE 3
Separable Portion 1 West (W)	Separable Portion 2	Separable Portion 1 East (E) and Separable Portion 3
Areas 1 – Panmure Roundabout Areas 2 – 5 Lagoon Drive	Area 6 – Panmure Bridge	Areas 7 – 10 Pakuranga Rd – Ti Rakau Drive



	Zone 1 SP 1 West Chainage 0-1180	Zone 2 SP 2 Busway Bridge Chainage 1180-1590	Zone 3 SP 1 East & SP 3 Chainage 1590-2600
	Areas 1-5	Area 6	Areas 7-9, 10
Key Features	<ul style="list-style-type: none"> Panmure intersection Major service relocations (water, HV/LV power, fibre, etc) DG Law retaining wall Basin View Lane intersection Soil nail walls Church Crescent intersection Pavement widening and rehabilitation 	<ul style="list-style-type: none"> 210 metre, 3-span steel bridge structure Bridge piers located in the water Cycleway/footpath with viewing decks Mokoia Pā Park Hunua 2 relocation Howick Interceptor relocation EPS embankment 	<ul style="list-style-type: none"> Ti Rakau Drive intersection MSE retaining wall on sand drains New public accessways/driveways Pavement widening and rehabilitation 6m wide old concrete road Rain garden construction Separate pedestrian and cycleways
Key Risks and Constraints	<ul style="list-style-type: none"> Bus and traffic flows/travel times Retaining wall construction close to existing buildings Disruption to local businesses daily operations Utility service cut overs Pedestrian and cycle movements Working in close proximity to Hunua 2 and Howick Interceptor pipes Soil nail wall construction adjacent to live road 	<ul style="list-style-type: none"> Building bridge piers over water Large staging required for piers in the water Launching the steel bridge from eastern abutment Large section steel work required for bridge construction Archaeology finds in and around the Mokoia Pā area Hunua 2 cut in between April and September Residents property access 	<ul style="list-style-type: none"> Timely completion of Ti Rakau Drive ahead of EB2. MSE wall stability during construction MSE wall settlement duration Traffic switches Interface with stakeholders Bus and traffic flows/travel times Removal of old concrete road High ground water table Key service relocations and cut overs
Construction Methodology	<ul style="list-style-type: none"> Implement traffic signals to optimize bus throughput Signalise Basin View Lane early to free up RAB. Minimise switching of traffic or altering routes Ensure Stakeholder liaison and information flow Plan service cut overs with each provider using Last Planner processes Ensure critical pipes are located prior to excavation 	<ul style="list-style-type: none"> Innovative pier head construction Launching of bridge allows 1 set of staging to be utilised at each pier head Ensure steel is ordered as early as possible to allow for any delivery constraints Ensure early investigation works near Mokoia Pā area Ensure detailed programme works and ensure Last Planner processes used 	<ul style="list-style-type: none"> Early pavement widening to increase lanes at Ti Rakau intersection Construct MSE wall early to allow float for settlement Ensure robust monitoring of the wall is set up to track wall stability Traffic switches to be kept to a minimum to maintain familiarity Plan service cutovers with each provider using Last Planner processes

Figure 1: Construction zones to manage concurrent work activities and interfaces across each separable portion

Comprehensive construction methodologies will be written for each aspect of the works which will incorporate environmental considerations and mitigation measures.

3.1 Construction noticeboards

In accordance with Notice of Requirement Condition 24A and Resource Consent Condition 10A, noticeboards will be clearly displayed at all site compounds (e.g. 30 Lagoon Drive and 18 Kerswill Place). Note: Not all site compounds have been determined and additional noticeboards will be installed as these sites are established. Details to be included are;

- Requiring Authority
- Project name,
- Site or project manager details (name, phone, email), and
- Contact details of the stakeholder manager (phone, email and physical address).

An example of a noticeboard is outlined in Figure 1.

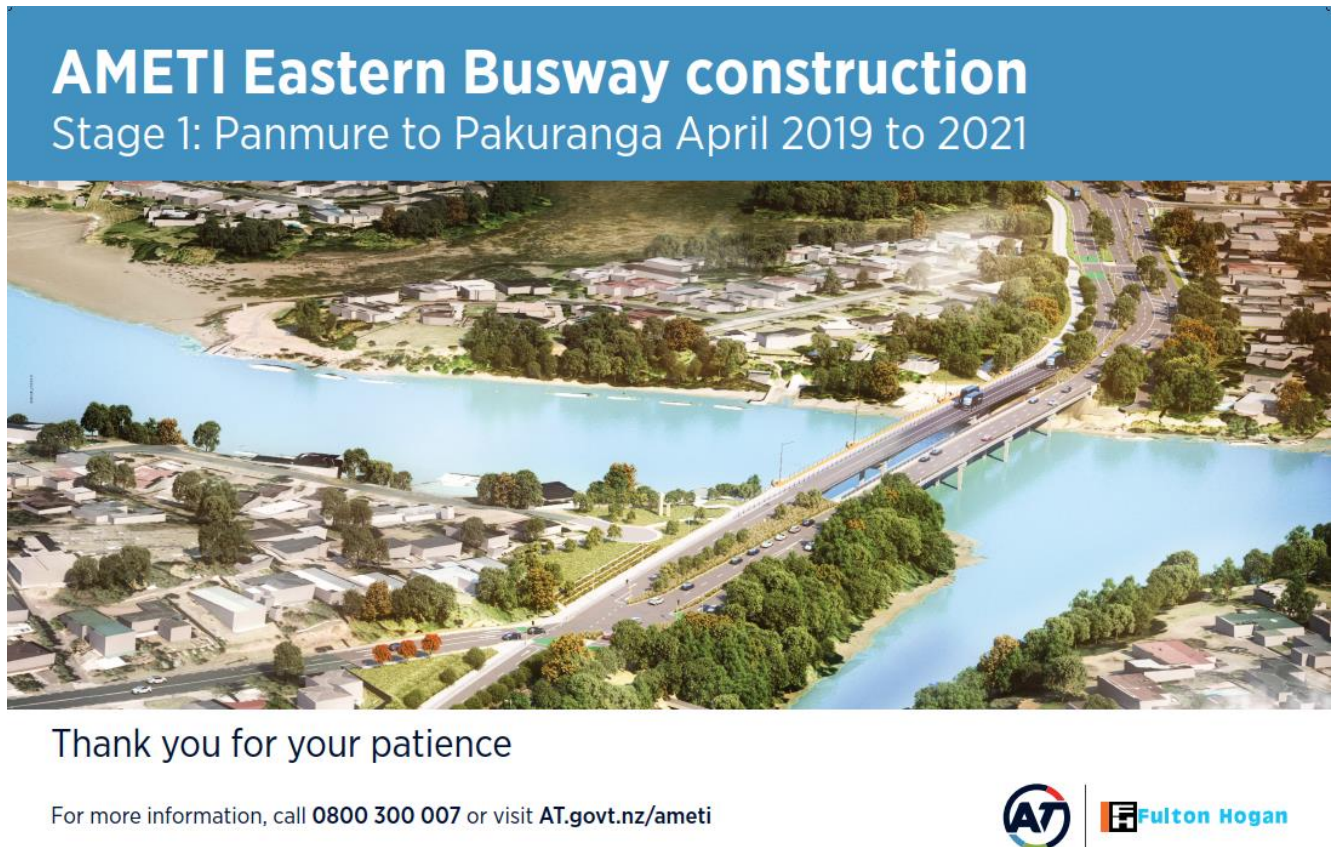
Figure 1: Example - AMETI Construction noticeboard



In addition, construction project boards (example shown in figure 2) will be installed at the following locations;

- West side of Panmure roundabout on E-P Highway in close proximity to the roundabout
- Te Rakau Drive just south of intersection with Pakuranga Road & Pakuranga Highway on left hand side of the road
- Pakuranga Highway just east of intersection with Pakuranga Road & Te Rakau Drive on left hand side of the road.

Figure 2: Example - AMETI Construction project board



3.2 Hours of work

The hours of work will be 0730 to 1800 on weekdays and Saturdays except for some Sunday, public holidays and night activity that will be planned and communicated to Auckland Council 20 working days in advance. Refer to the **Communication and Consultation Plan** (Appendix K) and **Construction Noise and Vibration Management Plan** (Appendix L) for more information relating to hours of works.

3.3 Schedule of construction programme

Table 11 sets out the construction programme and linkages to subsidiary environmental plans. This will evolve during the construction period as the construction methodology is refined and site/ground conditions are better understood. Refer to the Works Programme (Appendix C) for a detailed scheduling of works. It should be noted that a current programme will be updated on a monthly basis as works progress and will be available on request.

Table 12 – General Construction Scheduling and linkages to subsidiary plans

Site Location	Construction Sequencing	Expected Duration	Subsidiary Plans
Panmure Roundabout and Lagoon Drive	<ol style="list-style-type: none"> 1. Site establishment 2. Construction of new driveways and access roads 3. Temporary reinstatement work at Panmure Intersection 4. Construction of signalised Panmure intersection 5. Construction of Busway along Lagoon Drive 6. Construction of signalised Basin View Lane/Lagoon Drive intersection 	21 months April 19 – Dec 20	<p>Lizard Management Plan</p> <p>Construction Noise and Vibration Management Plan</p> <p>Erosion and Sediment Control Plan</p> <p>Communication and Consultation Plan</p>

Site Location	Construction Sequencing	Expected Duration	Subsidiary Plans
			<p>Construction Traffic Management Plan</p> <p>Tree Protection Management Plan</p> <p>Historic Heritage Management Plan</p> <p>Site Management Plan, Remedial Action Plan, Site Validation Report</p> <p>Urban Design and Landscape Plans</p> <p>Waste Management Plan</p>
Panmure Busway Bridge Staging	<ol style="list-style-type: none"> 1. Construct new and temporary driveway and road access; demolish buildings; construct temporary staging to bridge pier 1 from northern bank and to pier 2 from southern bank, and at the same time construct the piling, abutment beam and wing walls for the north abutment and then repeat for the south abutment. 2. Construct Bridge Piers 1 and 2 3. Erect pier girders at pier 1 and 2 4. Erect girders at spans 1 and 3 (between piers and abutments) 5. Erect girders to centre span 2 (between piers 1 and 2); complete earthworks to northern and southern abutments; place precast concrete deck planks and cast deck concrete; install barriers, lights, handrails and services; divert water supply main to new bridge; lay bridge road surfacing and road marking; open bridge to the public. 	21 months April 19 – Dec 20	<p>Construction Noise and Vibration Management Plan</p> <p>Coastal Works Management Plan (includes Construction Noise and Vibration Management Plan relating to the underwater noise impacts)</p> <p>Communication and Consultation Plan</p> <p>Construction Traffic Management Plan</p> <p>Tree Protection Management Plan</p> <p>Conservation Plan (Mokoia Pa headland)</p> <p>Conservation Plan (Panmure Bridge Swing Span and Abutment)</p> <p>Historic Heritage Management Plan</p> <p>Site Management Plan, Remedial Action Plan, Site Validation Report</p> <p>Urban Design and Landscape Plans</p> <p>Waste Management Plan</p>

Site Location	Construction Sequencing	Expected Duration	Subsidiary Plans
Panmure Busway Bridge to Ti Rakau Drive	<ol style="list-style-type: none"> 1. Demolish buildings, erect new fencing on new property boundaries and erect temporary traffic barriers alongside Pakuranga Rd 2. Construct retaining structures for pedestrian /cycleway alongside Panmure tidal basin 3. Provide new access to properties 4. Implement erosion and sediment control measures 5. Construct temporary road access for construction traffic, commencing at the western end 6. Divert services and install stormwater treatment devices 7. Commence Busway earthworks from western end, followed by pavement construction 8. Realign Kerswill Place intersection 9. Construct pedestrian cycleway, retaining walls and boardwalk next to Panmure tidal basin 10. Realign Williams Ave intersection 11. Construct Tamaki Bay Drive turn-around 12. Complete Latham Ave connection to Millen Ave 13. Construct new alignment at Ti Rakau Drive intersection 	<p>Ti Rakau to Williams Ave – 8 months May 19- Dec 19</p> <p>Williams Ave to Panmure Busway Bridge – 20 months May 19 – Dec 20</p>	<p>Construction Noise and Vibration Management Plan</p> <p>Erosion and Sediment Control Plan</p> <p>Communication and Consultation Plan</p> <p>Construction Traffic Management Plan</p> <p>Tree Protection Management Plan</p> <p>Historic Heritage Management Plan</p> <p>Site Management Plan, Remedial Action Plan, Site Validation Report</p> <p>Urban Design and Landscape Plans</p> <p>Waste Management Plan</p>

3.4 Construction yards

Two site construction yards will be established in; vacant land adjacent to Korma Lane and Lagoon Drive (main site office) and adjacent to the bridge site on the Pakuranga side of the river (for housing plant and materials required for the bridge construction). A site office for the bridge construction works will also be based at 20 Kerswill Place.

A detailed site plan will be included in Appendix E which will outline the access/egress points, workers offices and toilet facilities, construction vehicle parking (to be located within the construction areas and not on adjacent streets), locations for emergency response equipment (e.g. spill kits, first aid kits, fire extinguishers) and hazardous substance stores and material handling areas. Site offices and less noisy construction activities will be located at the edge of construction yards to help reduce noise to any adjacent residential properties.

3.5 Project construction environmental aspects

The resource consent and notice of requirement applications have identified the following requirements that are key to be managed through the CEMP. Table 13 summarises these aspects and outlines how they are to be addressed.

Table 13 – Consenting requirements and management technique

Consenting requirement	Management technique
Details of how demolition during construction will be undertaken	<p>Demolition will be undertaken using the principles of reduce, reuse and recycle where possible, with the last option of that being to dispose at landfill. Works will take place in accordance with CEMP requirements, including (but not limited to) communications in line with our Communication and Consultation Plan, dust management, contaminated soil management (where relevant), erosion and sediment control management, tree protection requirements as per the Tree Protection Management Plan, Archaeological Heritage Management in line with Conservation Plans and Noise and Vibration Management.</p> <p>Demolitions to take place include;</p> <ul style="list-style-type: none"> Existing Footpaths/Driveways/Kerbs and Traffic islands. Removal of existing concrete roads where found to intersect with pavement design Removal of fences from former private properties previously demolished by AT engaged demolition contractors. Marina Structure demolition (demolition methodology included in the Coastal Works Management Plan).
Construction methods and processes to achieve waste minimisation.	<p>Fulton Hogan has established a national target to reduce waste to landfill across the business by 25% in 2025 compared to 2017 values.</p> <p>For the project Fulton Hogan will develop a Waste Management Plan and adopt the waste reduction hierarchy, (avoid, re-use, recycle, recover, disposal) and limit the levels of construction waste and identify initiatives to maximise re-use opportunities. Project specific initiatives are:</p> <ul style="list-style-type: none"> Recycling of all plastics (ducting and packaging etc.) through Green Gorilla with zero of this to landfill as recently achieved on the East West Enabling project. Reusing millings and concrete using in-house facilities (such as Whitford Quarry) to eliminate these products from landfill. Filling our plant and trucks with biodiesel from pumps at our Mt Wellington yard - a product made from transformed waste. <p>The Project team will report on progress on a monthly basis as part of AT's project review reports and will work alongside Fulton Hogan's technical services division to maximise recycling content.</p> <p>Reports will be tracked across the duration of the project to highlight areas of success, share initiatives and maximise wins.</p>
Construction housekeeping	<p>All site crew will undertake a site induction which will address housekeeping expectations on the project. All sites are to be left in a tidy condition at the end of each work day. Disposal of waste is to be in accordance with waste minimisation processes and will remain in the designated work areas.</p> <p>All temporary boundary / security fences associated with construction of the project are maintained in good order with any graffiti and advertising posters/billboards/fliers to be removed as soon as possible.</p> <p>All storage of materials and equipment associated with the construction works will take place inside the designated boundaries.</p>
Construction methods and processes to achieve energy efficiency.	<p>Fulton Hogan's proven system for collecting energy use data (including sub-contractors). Our energy and carbon consumption reduction target will be tracked for compliance on a monthly basis and this information will be reported for AT, project staff and to Fulton Hogan senior management to ensure accountability and progress towards project emission savings.</p> <p>For ease of interpretation, results will be displayed on an 'emissions report' dashboard. This provides detailed analysis to engage the project team and subcontractors to understand emission data and help identify opportunities.</p> <p>Specific measures that will be used to reduce the carbon footprint on the project include:</p> <ul style="list-style-type: none"> Optimising our transport routes. For instance, all concrete (approx. 15,000m³) will be transported to our Whitford Quarry to be crushed and recycled. Trucks going out with concrete to Whitford Quarry will come back with aggregate from Clevedon, effectively halving loads (and emissions) and saving up to 830 truck movements. Establishing our Mt Wellington Yard (2.5kms from the site) as a pick up/drop off point for non-local staff. This will help save congestion on roads around the project, scale-down parking constraints on site and reduce overall project carbon emissions.

Consenting requirement	Management technique
	<ul style="list-style-type: none"> Using our Mt Wellington and Clevedon facilities to simplify staging. We will run trucks heading west to Mt Wellington and heading east to Clevedon to minimise project traffic across the bridge, reduce congestion and overall project emissions. Staging our bridge works to utilise a “push” methodology rather than a “stick build” (as described in earlier sections) to minimise temporary works that require more steel and more plant. This will help save time, money and reduce the level of resources otherwise required. Staffing the project with local people. Of our 1000+ Auckland employees, approx. 19% live within 10km of the project. We will prioritise these staff to lessen travel times, help with work/life balance and reduce emissions. We began implementing this approach on Albany Highway, with up to 40% of the project team living locally. Drawing on and benchmarking against initiatives developed across Fulton Hogan such as EROADS (a tool to help with fuel savings) that has already seen in 2017/18 a reduction of 9% in fuel usage for Fulton Hogan across New Zealand).
Methods to provide for the safety of the general public	<p>During construction the following safety methods for the general public will be adopted;</p> <ul style="list-style-type: none"> FH will provide for a safe working environment for all workers, visitors and the public Traffic Management Plans will be developed and reviewed on site to ensure that they are applicable to the situation and effective. Managers will ensure that the general public are not exposed to any hazards that may be created by work activities. All works that have interface with the public will be subject to traffic control measures such as barriers and fencing to prevent entry to site.
Dust nuisance	Section 7 of the Erosion and Sediment Control Plan outlines the measures for managing and monitoring dust as a nuisance.
Temporary fences and visual barriers	Details of any temporary noise fences will be detailed in the Site Specific Construction Noise Management Plans , as they will be used for when construction activities will breach the applicable construction noise standards and visual barriers will be installed as detailed in the Construction Traffic Management Plan as a method to prevent gawking and visual distractions for motorists.
Hazardous substances	Methods to ensure the prevention and mitigation of adverse effects associated with storage, use, disposal, or transportation hazardous substances will be undertaken in accordance with Appendix G Hazardous Substance Use, Handling and Storage Procedure .
Earthworks Management	<p>Across the whole of the construction site the actual “earthworks” areas are not large in area or volume. The majority of the works are civil operations and works are within the existing pavement layers. The earthworks program is expected to take approximately two years.</p> <p>The Erosion and Sediment Control Plan and Coastal Works Management Plan sets out how earthworks management practices are to take place (including depth and extent of earthworks and temporary and permanent stabilisation measures).</p> <p>The Construction Noise and Vibration Management Plan and Coastal Works Management Plan set out how earthworks will be managed adjacent to buildings and structures with specific reference to monitoring ground movements.</p>
Silt and sediment management including stabilisation methods	The Erosion and Sediment Control Plan sets out how silt and sediment will managed in the construction area of the project.
Building Condition Survey Reports / Methods to manage ground movement	<p>Babbage Consultants (Architects and Engineering Consultants) will undertake Building Condition Survey Reports.</p> <p>Ground movement will be managed through the implementation of the Construction Noise and Vibration Management Plan.</p>

Consenting requirement	Management technique
Site security	All construction areas and yards will be fenced and kept secure at all times. Daily site inspections (both at the start of the working day and at the end of the working day) will take place to ensure that temporary boundaries and security fencing is in place, maintained to a good standard to remove trip hazards and to ensure it is upright and effective.
Archaeology and historic heritage	<p>Without due care, destruction or damage to known archaeological and cultural sites and heritage places within the AMETI Eastern Busway Stage 1 – Panmure to Pakuranga works area (including, but not limited to the Panmure Bridge Swing Span and Abutment and the Mokoia Headland Pā) may result.</p> <p>Works are to be undertaken in accordance with the Conservation Plans and Historic Heritage Management Plans for AMETI Eastern Busway Stage 1 – Panmure to Pakuranga works. The plans will confirm methods for avoiding, remedying or mitigating adverse effects on known archaeological and cultural sites and heritage places. It also sets out legal responsibilities when dealing with archaeological and cultural and heritage places. All contractors, project managers and stakeholders will be inducted into the protocol and made aware of their individual responsibilities as detailed in these plans.</p> <p>Specific details of demolition requirements for the existing Marina building will also be covered in the Panmure Bridge Swing Span and Abutment Conservation Plan.</p> <p>The Urban Design and Landscape Management Plan identifies moveable historic heritage items that are to be retained and made available for reuse.</p>
Construction lighting	Where temporary lighting is needed, the extent of lighting will be limited to addressing safety only concerns in order to minimise disturbance to local residents and wildlife. Night works (including associated lighting) will be carefully communicated to stakeholders and the community well in advance of the works to be undertaken. Lighting used during construction will be designed and situated to minimise overspill to other areas and must be installed such that there is minimal interference to the general vehicle road movements. A test drive through the site from each direction should be undertaken after installation of the lighting system to confirm there are nil/minimal impacts to normal traffic users and adjacent properties.

4 Environmental management system and operational requirements

This plan details the comprehensive system in place to deliver the compliance against the environmental legislative and contractual obligations in constructing the project. Fulton Hogan implements ISO14001 Environmental Management System across their business operations. This plan meets the needs of ISO14001 for this project.

The CEMP will be controlled using Fulton Hogan's document management system. The system will maintain revision integrity and distribution of approved controlled copies.

4.1 Fulton Hogan compliance management system

CS-VUE™ is the environmental compliance system adopted by Fulton Hogan to manage environmental statutory requirements. Fulton Hogan requires CS-VUE™ to be used to track and record the compliance of the following legal obligations:

- Resource consent conditions
- Designation conditions
- Department of Conservation concessions and other approvals
- Heritage New Zealand authorities
- Any other agreements or obligations which have compliance conditions.

Fulton Hogan are licensed to use CS-VUE™ to monitor, track and record compliance of the authorities granted to Auckland Transport which relate to this project.

CS-VUE™ is a secure database which matches each consent and condition of (or other legal obligation) with a consent manager and condition manager and automatically sends an email notifying them of compliance requirements.

The consent manager is responsible for overseeing consent compliance management, and the condition managers are the Construction Managers and Site Leads who are responsible for ensuring day-to-day compliance.

The CEMP and sub-plans are the primary vehicle for ensuring compliance. However, online reporting generated from the CS-VUE™ will be used to quickly update evidence to demonstrate compliance in CS-VUE™, with all entries/changes date stamped and annotated with the person's name.

Post-construction, the responsibility of any conditions which have on-going maintenance and operational requirements will be noted to Auckland Transport's Engineers Representative in a formal Notice to Engineer only after the required as built and operational/maintenance documentation has been accepted and signed off.

4.2 Training

All construction staff will be adequately skilled and experienced for the work they will undertake. Training will be provided to ensure all staff are made aware of their environmental obligations on the project. Training records are captured in the Fulton Hogan People Development Platform application and is available to the Construction Environmental Manager. Training records include;

- Who was trained;
- When the person was trained;
- The name of the trainer;
- General description of training content; and
- Expiry dates of training courses/certifications as appropriate.

The project training that will be delivered to staff is outlined in the Table 14.

Table 14 - Project training needs

Type of training	Purpose	Convenor	Attendees
Project Staff induction (including cultural induction)	Induct new staff to the project, providing a general overview to the environmental values, risks, stakeholders, sensitive receptors and contacts for the project as well as cultural history and significance of the	Contractor's Representative	All staff including sub-contractors and visitors

Type of training	Purpose	Convenor	Attendees
	<p>area (including the Historic Heritage Management Plan).</p> <p>Highlight environmental monitoring requirements for all.</p> <p>Highlight requirements around housekeeping and the need to keep construction areas in a tidy condition.</p>		
Enviro-manage	Provide high level corporate environmental and sustainability training.	Fulton Hogan	Senior Management team
Archaeology and Cultural Awareness training	Raise awareness of staff in <i>mana whenua</i> , archaeology and heritage aspects associated with AMETI Stage 2A works including the Historic Heritage Management Plan.	Named archaeologist / cultural monitors	Construction staff
Contaminated land training	Train staff in what to look out for in regards to contaminated land, and what to do if it is discovered.	Environmental Manager or delegate	
Envirowise	"Enviro 101" for construction staff including how to manage spills in accordance with the Spill Response Plan	Environmental Manager or delegate	
Erosion and Sediment Control training	<p>Train staff as to the importance of erosion and sediment control, why controls are in place, what should happen if a control is damaged.</p> <p>Further Specialised training will be provided to staff who are intimately involved in the construction, maintenance and decommissioning of erosion and sediment control devices.</p>	Southern Skies	
Marine Mammal Observers Training	To assist piling crews with observing for marine mammals when working within the coastal environment.	Environmental Manager or delegate	Designated spotter/s
Tool Box Talks / Daily Pre Starts / Tailgate Sessions / Green Alerts	<p>Highlight site and activity specific construction procedures and requirements.</p> <p>Discuss environmental management and monitoring requirements for the day.</p> <p>Share environmental lessons learned across the Construction Industry.</p>	Construction Manager / Zone Manager / Environmental Manager	Construction staff

5 Monitoring and review

All works must be carried out in accordance with the certified CEMP and with any changes to plans made through an outline plan of works or management plan review process. The CEMP must be prepared, complied with and monitored by FH throughout the duration of construction of the project.

To ensure the Construction Environmental Management Plan and its associated sub plans are implemented effectively, a monitoring and review process will be followed so that new and emerging risks can be identified early, and existing risks are continually managed in the best possible manner as the project progresses.

5.1 Environmental monitoring

Compliance monitoring

The sub environmental management plans identify the specific monitoring requirements for each of the environmental disciplines.

In addition to the monitoring identified in the sub management plans, FH requires compliance to be recorded in CS-VUE™. This will be undertaken by the Environmental Manager or delegate and will be regularly updated as evidence (records) of compliance is produced. Records of compliance will include site notes, reports, photographs and minutes etc.

Auckland Council will also undertake compliance monitoring against the conditions of consent/designation. Reports from this monitoring which identify corrective actions will also be managed through the corrective and preventive action process.

Audits

Environmental compliance audits of the project site will be undertaken periodically during construction by the Environmental Manager or delegates. The objective of the audits is to determine if the environmental management requirements are being implemented and maintained, assess the effectiveness of the environmental controls being applied, and identify areas of non-compliance or improvement opportunities so that corrective actions can be taken.

Three types of audits will be undertaken by FH as set out in Table 15.

Table 15 - Audit tools

Audit Type	Purpose	Frequency	Responsibility
E18	Assessment of the implementation of the Construction Environmental Management Plan.	Annual	Environmental Manager and/or delegate
Combined E38 / E39	Assess the performance of the environmental aspects associated with the project. On-site environmental self-performance	6-monthly	Environmental Manager and/or delegate
E37	Environmental inspection checklist to assess sites throughout the project area on a weekly basis by those responsible for those sites	Monthly	Zone Managers, Structures Manager, Site Engineers, Project Engineers

An audit report will be prepared identifying any opportunities for improvement and any corrective actions required. The results of the audit will be used to ensure that best practice continues to be adopted on the ground and reflected in updates to the CEMP. These audit reports will form part of the monthly reports.

The Environmental Manager has responsibility for ensuring that timely corrective actions are taken to remedy deficiencies found during audits.

5.2 Corrective and preventive action

Corrective and preventative actions will be identified through compliance monitoring, audits, and complaints/feedback processes. The actions will be assessed and when relevant discussed with Auckland Council. The CEMP and the sub management and mitigation plans and operating procedures will be updated as required.

5.3 Complaints management process

All complaints from partners (including the Mana whenua forum) and stakeholders including the general public, neighbours, clients and regulators shall be managed according to the **Communication and Consultation Plan**.

A designated public liaison person who will be the main and readily accessible point of contact for persons or parties affected by construction work has been appointed and will be;

Jenny Scott, Stakeholder Manager
Telephone 027 703 5284
Email Jenny.Scott@fultonhogan.com

Methods for Capturing and Recording

All complaints will be forwarded to the Stakeholder Manager and contact details of the complainant and details of the complaint are entered into the Darzin database. The database shall record complaint details including:

- The date, time, location and nature of the complaint;
- Name, phone number and address (if possible – depends on whether details are prepared to be supplied) and
- Any remedial actions undertaken;
- A CAMs (corrective action management) number if requiring logging into the database.

A complaints register can be generated from the Darzin database and made available to AC on request.

Methods for Responding to complaints

Acknowledgement of a complaint is to be provided to the complainant within one working day of receipt. Major complaints such as building damage will be addressed as soon as is practicable. Formal acknowledgement shall be made within five working days of receipt.

The FH Stakeholder Manager works closely with the FH Project Director and delivery team to resolve complaints. The Stakeholder Manager will be proactive in keeping complainants informed of what action is being taken to address their concerns.

If a complaint cannot be resolved within the complaints process timeframe (as outlined in the **Communication and Consultation Plan**), the complainant will be invited to a meeting with the FH Stakeholder Manager and FH Project Management team. All meetings are recorded in Darzin to ensure that a complete record of times, dates and location of meetings is maintained.

When a complaint is resolved it will be 'closed out' as an action in Darzin. Each month a record of complaints activity will be reviewed by the FH Stakeholder Manager to check that all actions have been closed out.

One month after a complaint has been closed out, the FH Stakeholder Manager will make a follow up call to the complainant and record any feedback in Darzin.

Complaints data will be reviewed regularly by the FH Stakeholder Manager, together with the contractor Project Director to identify any trends. If required, improvements to project processes and mitigation strategies will be implemented to minimise future complaints.

5.4 Emergency Management Procedures (including spill response)

Each work site will have a sign in shed where the following will be clearly identified:

- Evacuation Procedures
- Spill Response Procedures
- Assembly Points
- Certified First Aiders on site
- Responsibilities/Notifications
- Contact Names and numbers of Services (e.g police, fire, ambulance, Harbourmaster, Coastguard, National Poisons Centre, Electrical Authority, Gas Authority, Council etc.

At least one person in every crew is trained in first aid. Non-injury emergencies will be advised to the Contractors Representative (or his delegate) immediately who will guide the process for handling the emergency.

The rapid, careful and effective clean-up of any spills is important in reducing the potential for spilled substances to pollute receiving waters.

Spill response materials:

- The contents of spill kits will be appropriate for the type of activity and any chemicals likely to be spilled as well as the location of the work site i.e. land or CMA, river, lagoon. Hydrocarbon absorbing floating booms and pads will be located at all “high risk” areas adjacent to or over waterways for immediate deployment in the event of incidents.
- Spill response kits will be located in areas where there is a significant risk of spills and or in trucks/utes associated with the contract and checked for completeness and appropriateness on at least a monthly basis.

Spill response procedure:

- All personnel will inform their site supervisor of any spills and other incidents involving hazardous materials immediately, regardless of size;
- Minor spills (e.g. <5L) may be cleaned up easily using a spill kit, shovel and plastic bag if on land however even small spills over waterways can have a larger effect and should be treated as a “major spill” pending satisfactory clean up/resolution.
- Major spills (e.g >5L or directly into a Waterway or stormwater system must be controlled and cleaned up in accordance with the following procedures which outline the spill response process and include emergency contact numbers:
- E09 – Spill Checklist (poster). A copy of this spill checklist is included in Appendix F and will be kept with all spill kits.
- E10 – Spill Preparation and Response

The Environmental manager must be notified immediately of any major spill or incidents involving hazardous materials via the relevant Supervisor

Auckland Council and AT will be notified of any major spill or incident which has the potential to pollute or impact on the environment;

All major spills (>5l) must have an OFI Form and CAMs case generated and be investigated and reported in accordance with FH requirements (refer to section 6.6).

Every emergency will be investigated and reported in accordance with the procedure outlined in Section 5.5

5.5 Environmental Incident Procedures

Environmental incidents shall be managed and reported in accordance with the Incident Notification Reporting and Investigation standard (Appendix F).

The Environmental Manager (or delegate) shall ensure that all environmental incidents are recorded on an OFI Form, a CAMs case generated and suitable actions have been undertaken to facilitate close out.

Notification and liaison with the regulatory agencies will be undertaken as required.

5.6 Management review

Each month, a report from Fulton Hogan will be provided to AT and will include a summary of the environmental and consent compliance activities.

A management review of the CEMP and the sub management plans will be undertaken at minimum annually intervals (or sooner where a high rated incident or near miss event takes place or there are legislative changes which may impact the project works). This review will be led by the FH and will include the Environmental Manager and AT representatives. The review will focus on how environmental compliance is being managed and achieved and identifying areas of improvement.

Fulton Hogan is ISO14001 certified. To maintain their certification, independent audits will take place to assess their businesses conformity to ISO14001.

6 Appendices

6.1 Appendix A - Resource Consent and Designation Conditions

6.2 Appendix B - Environmental Hazard Register

6.3 Appendix C - Summary Works Programme

6.4 Appendix D - Construction Methodology and Staging Sketches

6.5 Appendix E - Construction Yard - Site Plan Layout

6.6 Appendix F - Incident reporting, Notification and Investigation Standard / Spill Response Checklist

6.7 Appendix G - Hazardous Substance Use, Handling and Storage Procedure / Hazardous Substance Standard

6.8 Appendix H - Refuelling Maintenance of Vehicles and Equipment Procedure

6.9 Appendix I - Erosion and Sediment Control Plan (including Site Specific Erosion and Sediment Control Plans)

6.10 Appendix J - Coastal Works Management Plan (including underwater noise impacts)

6.11 Appendix K - Communication and Consultation Plan

6.12 Appendix L - Construction Noise & Vibration Management Plan (including Site Specific Noise & Vibration Plans)

6.13 Appendix M - Lizard Management Plan

6.14 Appendix N - Construction Traffic Management Plan

6.15 Appendix O - Tree Protection and Management Plan

6.16 Appendix P - Historic Heritage Management Plan

6.17 Appendix Q - Urban Design and Landscape Plans

6.18 Appendix R - Conservation Plan - Panmure Bridge Swing Span and Abutment

6.19 Appendix S - Conservation Plan - Mokoia Pa Headland

6.20 Appendix T - Site Management Plan; Remedial Action Plan, Site Validation Report

6.21 Appendix U - Waste Management Plan



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