APPENDIX B7

Construction Waste Management Sub Plan

Windsor Bridge Replacement Project

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Glossary / Abbreviations

CEMP	Construction Environmental Management Plan
CWMP	Construction Waste Management Sub Plan
EEC	Endangered Ecological Community
EIS	Environmental Impact Statement
ENM	Excavated Natural Material
EPA	Environment Protection Authority
EP&A Act	*Environmental Planning and Assessment Act 1979*
EPL	Environmental Protection Licence
EWMS	Environmental Work Method Statements
ESR	Environmental Site Representative
FM Act	*Fisheries Management Act 1994*
NOW	NSW Office of Water
OEH	Office of Environment and Heritage
PESCP	Progressive Erosion and Sediment Control Plan
The Project	Windsor Bridge Replacement
TfNSW	Transport for New South Wales
VENM	Virgin Excavated Natural Material
WARR Act	Waste Avoidance and Resource Recovery Act 2001
WRAPP	Waste Reduction and Purchasing Policy

1 Introduction

1.1 Context

This Construction Waste Management Sub Plan (CWMP or Plan) forms part of the Construction Environmental Management Plan (CEMP) for the Windsor Bridge Replacement Project (the Project).

This CWMP has been prepared to address the requirements of the mitigation measures listed in the Windsor Bridge Replacement Environmental Impact Statement and the NSW Department of Planning conditions of approval for the project.

Avoiding the generation of waste is of primary importance to Georgiou when considering waste minimisation and management measures. Waste management and reuse strategies will be considered and implemented where practical and cost-effective. Reuse opportunities will be maximised, with efforts made to implement reuse and recycling initiatives wherever possible.

1.2 Background

The Project has been assessed as State Significant Infrastructure under Part 5.1 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). The *Windsor Bridge Replacement Project Environmental Impact Statement* (EIS) was prepared by Sinclair Knight Merz in November 2012 for Roads and Maritime. The EIS was on public exhibition until 17 December 2012. A Submissions Report (and preferred infrastructure report) was finalised in May 2013 which addressed stakeholder submissions received during the EIS exhibition period. Following this, in December 2013, the Project was approved by the Minister for Planning and Infrastructure.

A Modification Report was submitted to DPIE in September 2019 and placed on public exhibition from 23 October 2019 to 7 November 2019. The submissions were addressed by Transport for NSW in the Submissions Report which was lodged with the Director-General in February 2020.

The Minister for Planning and Public Spaces approved the modification on 30 April 2020. The Minister's CoA were updated to incorporate the modification.

As part of EIS development, a detailed soil, sediments, water and waste assessment was prepared to address the requirements issued by the then Department of Planning. The soil, sediments, water and waste assessment was included in the EIS as Working Paper 7 – Soil, sediments, water and waste.

1.3 Environmental management systems overview

The overall Environmental Management System for the Project is described in the Construction Environmental Management Plan (CEMP).

The CWMP is part of the Georgiou environmental management framework for the Project, as described in Section 4.1 of the CEMP. Management measures identified in this Plan will be incorporated into site or activity specific Environmental Work Method Statements (EWMS).

EWMS will be developed and signed off by environment and management representatives prior to associated works and construction personnel will be required to undertake works in accordance with the identified mitigation and management measures.

Used together, the CEMP, strategies, procedures and EWMS form management guides that clearly identify required environmental management actions for reference by Georgiou personnel and contractors.

The review and document control processes for this Plan are described in Section 9 of the CEMP.

2 Purpose and objectives

2.1 Purpose

The purpose of this Plan is to describe how Georgiou proposes to minimise the amount of waste for disposal, manage waste and reduce energy consumption during construction of the Project.

2.2 Objectives

The key objective of the CWMP is to ensure that waste for disposal and energy use are minimised. To achieve this objective, Georgiou will undertake the following:

- Ensure measures are identified and implemented to minimise waste, manage waste and conserve energy throughout the construction of the project.
- Ensure the preferred waste management hierarchy of avoidance, minimisation, reuse, recycling and finally disposal is followed.
- Provide staff with an increased level of understanding and awareness of waste and resource use management issues.
- Ensure appropriate measures are implemented to comply with all relevant legislation and other requirements as described in Section 3.1 of this Plan.

2.3 Targets

The following targets have been established for the management of waste during the project:

- Avoid the unnecessary production of waste where practical to do so.
- Dispose of waste materials in accordance with legislative requirements.
- Minimise / reduce the quantities of resources to be used.
- Achieve the waste re-use / recycling targets of 90% diversion from landfill.

3 Environmental requirements

3.1 Relevant legislation and guidelines

3.1.1 Legislation

Legislation and regulations relevant to waste management includes:

- *Protection of the Environment Operations Act 1997*.
- Protection of the Environment Operations (General) Regulation 2009.
- Protection of the Environment Operations (Waste) Regulation 2014.
- *Waste Avoidance and Resource Recovery Act 2001 (WARR Act).*
- *Contaminated Land Management Act 1997*.
- *Noxious Weeds Act 1993*.
- *Environmentally Hazardous Chemicals Act 1985*.

3.1.2 Policies, Guidelines and standards

The main guidelines, specifications and policy documents relevant to this Plan include:

- NSW Government Resource Efficiency Policy (NSW Government, 2014)
- Waste Avoidance and Resource Recovery Strategy (EPA, 2014)
- Waste Classification Guidelines: Part 1 Classifying Waste 2014 (EPA, 2014)
- Waste Classification Guidelines: Part 4 Acid Sulfate Soils (EPA, 2014)
- TFNSWQA Specification G36 – Environmental Protection
- Windsor Bridge Replacement Ministerial Conditions of Approval
- Management of Wastes of Road and Maritime Land (RMS, 2014)
- TFNSWWaste Fact Sheets: Virgin Excavated Natural Material (VENM), Excavated Natural Material (ENM), Excavated Public Road Materials, Recovered Aggregates, Asbestos Waste, and Waste Sampling
- Excavated Natural Material Order 2014 (EPA, 2014)
- Excavated Natural Material Exemption 2014 (EPA, 2014)
- Excavated Public Road Material Order 2014 (EPA, 2014)
- Excavated Public Road Material Exemption 2014 (EPA, 2014)
- Reclaimed Asphalt Pavement Order 2014 (EPA, 2014)
- Reclaimed Asphalt Pavement Exemption 2014 (EPA, 2014)
- Recovered Aggregate Order 2014 (EPA, 2014)
- Recovered Aggregate Exemption 2014 (EPA, 2014).

3.2 Minister's Conditions of Approval

The CoA relevant to this Plan are listed Table 3-1 below. A cross reference is also included to indicate where the condition is addressed in this Plan or other Project management documents.

Table 3-1 Conditions of approval relevant to waste

CoA no.	Requirement	Reference
C38	The Applicant shall maximise the reuse and/or recycling of waste materials generated on site as far as practicable, to minimise the need for treatment or disposal of those materials off site.	Section 5.4
C39	All waste materials removed from the site shall only be directed to a waste management facility or premises lawfully permitted to accept the materials.	Section 5.6
C40	All liquid and or non-liquid waste generated on the site shall be assessed and classified in accordance with Waste Classification Guidelines (Department of Environment, Climate Change and Water, 2009), or any superseding document.	Section 5.3
D4 (e)(v)	The Applicant shall prepare and (following approval) implement a Construction Environmental Management Plan for the project. The Plan shall outline the environmental management practices and procedures that are to be followed during construction, and shall be prepared in consultation with the relevant agencies and	Section 6, Section 7

CoA no.	Requirement	Reference
	in accordance with the Guideline for the Preparation of Environmental Management Plans (Department of Infrastructure, Planning and Natural Resources, 2004). The Plan shall include, but not necessarily be limited to: e) an environmental risk analysis to identify the key environmental performance issues associated with the construction phase and details of how environmental performance would be monitored and managed to meet acceptable outcomes including what actions will be taken to address identified potential adverse environmental impacts. ln particular, the following environmental performance issues shall be addressed in the Plan: (v) measures to monitor and manage waste generated during construction including but not necessarily limited to: general procedures for waste classification, handling, reuse, and disposal; use of secondary waste material in construction wherever feasible and reasonable; procedures for dealing with green waste including timber and mulch from clearing activities; and measures for reducing demand on water resources (including the potential for reuse of treated water from sediment control basins);	

4 Environmental aspects and impacts

4.1 Construction waste streams

The following construction related waste streams have been identified:

- Demolition wastes from existing structures that require demolition – bridges, pipe work, pavements.
- Excavation wastes resulting from bulk earthworks.
- Wastes associated with the construction of the bridge and roads
- Vegetation from removal of shrubs and trees.
- Packaging materials associated with items delivered to site such as pallets, crates, cartons, plastics and wrapping materials.
- Wastes produced from the maintenance of various heavy construction equipment including liquid hazardous wastes from cleaning, repairing and maintenance.
- Non-hazardous wastes would be generated through the use of worker's facilities such as toilets.
- General wastes including office wastes, scrap materials and biodegradable wastes.

4.1.1 Identified waste streams

Waste streams commonly generated in offices and construction sites with the potential to be generated on the Windsor Bridge Replacement Project are identified below. This includes the waste classification as per EPA's Waste Classification Guidelines and TfNSW Waste Fact Sheet.

Table 4-1 Construction waste streams

Waste Stream	Classification	Office	Project Site
Paper/Cardboard	General solid waste	X	X
Glass bottles	General solid waste	X	X
Aluminium cans	General solid waste	X	X
Plastic bottles	General solid waste	X	X
Printer and photocopier cartridges/consumables	General solid waste	X	X
Food/general waste	General solid waste	X	X
Greywater/sewerage	Liquid waste	X	X
Mobile phones	Hazardous waste	X	X
Batteries	Hazardous waste	X	X
Steel	General solid waste		X
Oil/oil filters oily rags/spill clean ups	Liquid Waste		
Pesticides herbicides/other chemicals	Hazardous waste		X
Green waste/mulch/timber	General solid waste		X

Waste Stream	Classification	Office	Project Site
Clean fill/topsoil	Pending classification; General solid waste or Excavated Natural Material		X
Contaminated soil	Hazardous waste		X
Concrete	General solid waste		X
Asphalt and gravel products	General solid waste		X
PVC/HDPE conduit	General solid waste		X
Asbestos and asbestos contaminated soil	Special waste		X
Tyres	Special waste		X

4.2 Energy use

The following sources of construction related energy consumption (fuel and power) have been identified:

- Procurement and delivery of materials to site.
- Vegetation removal.
- Site establishment, including compound set up.
- Relocation and protection of services.
- Earthworks.
- Removal, relocation and compaction of excavated material in fill embankments.
- Construction of pavements and culverts.
- Demolition of structures and pavements.
- Operation of site compounds and lighting.
- Construction plant including cranes, rollers, excavators, bulldozers, graders and water trucks.
- Removal of waste from the site.

4.3 Impacts

The potential environmental impacts associated with construction waste generation and energy use include:

- Excessive generation of construction waste directed to landfill, such as excavated soil and rock and vegetation due to inadequate consideration of re-use and recycling opportunities.
- Inappropriate identification and disposal of hazardous waste.
- Excessive generation of wastes for disposal to landfill due to mixing of different classes of waste.
- Generation or spread of contaminated waste/soils, e.g. groundwater, used or expired chemicals, or construction materials.
- Water pollution due to sediment runoff from soil excavation and excess spoil storage.

- Weed infestation from dispersion of seeds and so forth from inappropriate or inadequate controls during clearing and access upgrading activities.
- Consumption of non-renewable resources such as energy, diesel and other chemicals.
- Greenhouse gas emissions due to consumption of energy from non-renewable resources.

5 Waste management

5.1 Classification of waste streams

Where waste cannot be avoided, reused or recycled it will be classified and appropriate disposal will then occur. The classification of waste is undertaken in accordance with the EPA's *Waste Classification Guidelines Part 1: Classifying Waste* (2014). This document identifies six classes of waste: Special, Liquid, Hazardous, Restricted Solid, General Solid (putrescible) and General Solid (non-putrescible), and describes a six step process to classifying waste. That process is described below:

Step 1: Is it 'special waste'?

Establish if the waste should be classified as special waste. Special wastes are: clinical and related, asbestos, waste tyres. Definitions are provided in the guidelines.

Note: Asbestos and clinical wastes must be managed in accordance with the requirements of Clauses 42 and 43 of the Protection of the Environment Operations (Waste) Regulation 2005.

Step 2: If not special, is it 'liquid waste'?

If it is established that the waste is not special waste it must be decided whether it is 'liquid waste'. Liquid waste means any waste that: has an angle of repose of less than 5° above horizontal becomes free-flowing at or below 60° Celsius or when it is transported is generally not capable of being picked up by a spade or shovel.

Liquid wastes are sub-classified into:

- Sewer and stormwater effluent.
- Trackable liquid waste according to Protection of the Environment Operations (Waste) Regulation 2005 Schedule 1 Waste to which waste tracking requirements apply
- Non-trackable liquid waste

Step 3: If not liquid, has the waste already been pre-classified by the NSW EPA?

The EPA has pre-classified several commonly generated wastes in the categories of hazardous, general solid waste (putrescibles) and general solid waste (non-putrescibles). If a waste is listed as 'pre-classified', no further assessment is required.

Step 4: If not pre-classified, is the waste hazardous?

If the waste is not special waste (other than asbestos waste), liquid waste or pre-classified, establish if it has certain hazardous characteristics and can therefore be classified as hazardous waste.

Hazardous waste includes items such as explosives, flammable solids, and substances liable to spontaneous combustion, oxidizing agents, toxic substances and corrosive substances.

Step 5: If the waste does not have hazardous characteristics, undertake chemical assessment to determine classification.

If the waste does not possess hazardous characteristics, it needs to be chemically assessed to determine whether it is hazardous, restricted solid or general solid waste (putrescible and non-putrescible). If the waste is not chemically assessed, it must be treated as hazardous.

Waste is assessed by comparing Specific Contaminant Concentrations (SCC) of each chemical contaminant, and where required the leachable concentration using the Toxicity Characteristics Leaching Procedure (TCLP), against Contaminant Thresholds (CT).

Step 6: Is the general solid waste putrescible or non-putrescible?

If the waste is chemically assessed as general solid waste, a further assessment is available to determine whether the waste is putrescible or non-putrescible. The assessment determines whether the waste is capable of significant biological transformation. If this assessment is not undertaken, the waste must be managed as general solid waste (putrescible).

5.2 Waste exemptions

Clause 92 Protection of the Environment Operations (Waste) Regulation 2014 enables the EPA to grant resource recovery orders and exemptions which allow certain wastes to be beneficially re-used independent of the need to obtain environment protection licences and the payment of waste levies The EPA has issued general orders and exemptions for a range of commonly recovered, high volume and well characterised waste materials that allow their use as fill or fertiliser at off-site locations provided the conditions attached to the general orders and exemptions are complied with.

The general 'Resource Recovery Orders and Exemptions' that may be applicable to this Project are defined in Table 5-1 below..

In additional to these general orders and exemptions the EPA may grant a specific order or exemption where an application is made to the EPA.

Table 5-1 Resource recovery exemptions

Exemption	General Conditions
Excavated Natural Material 2014	The chemical concentration or other attributes of the excavated natural material listed in the Excavated Natural Material Order and Exemption must not be exceeded. The excavated natural material can only be applied to land as engineering fill or used in earthworks. ENM handling, processing and testing requirements are outlined in detail in the exemption
Excavated Public Road Material 2014	The excavated public road material can only be stored within the road corridor at the site where it is to be applied to land. The excavated public road material can only be applied to land within the road corridor for public road related activities including road construction, maintenance and installation of road infrastructure facilities. This exemption does not apply to the land application of excavated public road material on any land outside the road corridor. The excavated public road material cannot be applied on private land. The consumer must land apply the relevant waste within a reasonable period of time.
Raw Mulch 2016	The raw mulch can only be applied to land for the purposes of filtration or as a soil amendment material or used either singularly or in any combination as input material(s) to a composting process. The consumer must land apply the raw mulch within a reasonable period of time.
Reclaimed Asphalt Pavement 2014	The reclaimed asphalt pavement can only be applied to land for road related activities including road construction or road maintenance being: - Use as a road base and sub base

Exemption	General Conditions
	- Applied as a surface layer on road shoulders and unsealed roads - Use as an engineering fill material
Recovered Aggregate 2014	The chemical concentration or other attribute of the recovered aggregate listed in Recovered aggregate Exemption must be met. The recovered aggregate can only be applied to land for road making activities, building, landscaping and construction works. This approval does not apply to any of the following applications: - Construction of dams or related water storage infrastructure, - Mine site rehabilitation, - Quarry rehabilitation, - Sand dredge pond rehabilitation, - Back-filling of quarry voids, - Raising or reshaping of land used for agricultural purposes, and - Construction of roads on private land unless: a. the relevant waste is applied to land to the minimum extent necessary for the construction of a road, and b. a development consent for the development has been granted under the relevant Environmental Planning Instrument (EPI), or c. it is to provide access (temporary or permanent) to a development approved by a Council, or d. the works undertaken are either exempt or complying e. development.

5.3 Classification of potential waste streams

The construction aspects and types of waste potentially generated during construction and outlined in Section 4-1 are detailed with classifications in Table 5-2.

Table 5-2 Classification of potential waste streams

Aspect	Waste Types	Classification	Proposed reuse / Recycling / Disposal
Site Clearing and grubbing: the removal of vegetation from trees and shrubs	Vegetation (logs, mulched timber, weeds)	General solid waste (non-putrescible)	Reapply in landscaping and revegetation. Weeds will be managed, handled and disposed of in accordance with the Weed and Pathogen Management Protocol.
Bulk Earthworks	ENM (Excavated Natural Material) VENM (Virgin Excavated Natural Material) Potentially Contaminated Soils Acid sulphate soils	If material is taken off site classification will be carried out, based on soil tests carried out pre-construction and in accordance with the EPA *Waste Classification Guidelines: Parts 1 and 2* (EPA 2014)	Balance cut and fill earthworks, where possible, to optimise reuse. Soil accordingly classified (e.g. ENM or VENM) generated onsite may be given to a 3rd party offsite under a "s.143 Notice" and this will only occur in accordance with a Resource Recovery Order Exemption and with acceptance by the Principal Contaminated soils will be tested, waste classified and transported to a waste facility licensed by the EPA to accept the class of waste.

Aspect	Waste Types	Classification	Proposed reuse / Recycling / Disposal
			ASS/PASS material that has been tested and confirmed neutralised may be reused on site or transported to an appropriately licensed facility.
Road and Bridge Construction	Steel Reinforcing	General solid waste (non-putrescible)	Separation for offsite recycling
	Conduits and pipes	General solid waste (non-putrescible)	Separation for offsite recycling
	Concrete (solids and washouts) and asphalt	General solid waste (non-putrescible)	Separation for offsite recycling
	Timber formwork	General solid waste (non-putrescible)	Reuse onsite for temporary works
	Packaging Materials, including wood, plastic, cardboard and metals	General solid waste (non-putrescible)	Co-mingled bin for offsite recycling
	Empty oil and other drums	General solid waste (non-putrescible)	Collection by licenced waste contractor for offsite disposal
	Pesticides, herbicides, spill clean ups, paints and other chemicals	Hazardous waste	Collection by licenced waste contractor for offsite disposal
	Metals and electrical cabling	General solid waste (non-putrescible)	Separation for offsite recycling
	Asbestos Contaminated Material	Restricted Waste	Assessment and collection by licensed contractor for offsite disposal
Road and bridge demolition	Concrete, asphalt and gravel	General solid waste (non-putrescible)	Separation for offsite recycling depending on volume generated and distance to recycling plant or Reuse onsite in engineering fill or for stabilised temporary access points
	Scrap metal	General solid waste (non-putrescible)	Separation for offsite recycling
	Lead Paint	Contaminated Waste	Collection by licenced waste contractor for offsite disposal
Compounds and Workshop Operation	Tyres	Special Waste	Collection by licenced waste contractor for offsite disposal
	Waste generated by the maintenance of equipment including air and oil filters and rags	General solid waste (non-putrescible)	Collection by licenced waste contractor for offsite disposal
	Oils, grease, fuel, chemicals and other fluids	Liquid	Collection by licenced waste contractor for offsite disposal
	Batteries	Hazardous waste	Offsite recycling Battery World
	Radiator Fluid	Hazardous waste	Collection by licenced waste contractor for offsite disposal
	Hydraulic Fluid	Hazardous waste	Collection by licenced waste contractor for offsite disposal
	Domestic waste generated by workers	General solid waste (putrescible)	Collection by licenced waste contractor for offsite disposal

Aspect	Waste Types	Classification	Proposed reuse / Recycling / Disposal
	Sewage	General solid waste (putrescible)	Collection by licenced waste contractor for offsite disposal
Office Operation	Paper, cardboard and plastic, including packaging materials from deliveries to site	General solid waste (non-putrescible)	Separate bin for offsite recycling
	Glass bottles and aluminium cans	General solid waste (non-putrescible)	Co-mingled bin for offsite recycling
	Ink cartridges	General solid waste (non-putrescible)	Can be dropped off at: Australia Post, Harvey Norman, Dick Smith, Tandy, JB Hi-Fi, The Good Guys and Officeworks stores
	Food Waste	General solid waste (non-putrescible)	Collection by licenced waste contractor for offsite disposal
	Effluent (eg STP)	Liquid	Collection by licenced waste contractor for offsite disposal

5.4 Reuse and recycling

Waste separation and segregation will be promoted on-site to facilitate reuse and recycling as a priority of the waste management program as follows:

Waste segregation onsite – Waste materials, including spoil and demolition waste, will be separated onsite into dedicated bins/areas for either reuse onsite or collection by a waste contractor and transport to offsite facilities.

Waste separation offsite – Wastes to be deposited into one bin where space is not available for placement of multiple bins, and the waste is to be sorted offsite by a waste contractor.

Where the existing local roads are excavated, this material will be reused on site if uncontaminated or off site in accordance with the conditions attached to the appropriate general resource recovery order or exemption such as the Excavated Public Road Material order and Exemption 2014 (EPA, 2012a). Where this material has not been subjected to potentially contaminating sources, it can be reused within the road corridor without further testing or any specific licensing requirements. Where this material is suspected of being subject to contamination, testing and classification of this material will be undertaken.

Where materials cannot be reused and recycled, all waste would be handled and disposed in accordance with the POEO Act and the Protection of the Environment Operations (Waste) Regulation 2014.

5.5 Waste Handling and Storage

Where waste is required to be handled and stored onsite prior to onsite reuse or offsite recycling/disposal, the following measures apply:

- Spoil, topsoil and mulch are to be stockpiled onsite in allocated areas, where appropriate, and mitigation measures for minimising cross contamination of waste streams, dust control and surface water management will be implemented as per the Soil and Water Management Sub Plan.
- Liquid wastes are to be stored in appropriate containers in bunded areas until transported offsite. Bunded areas will have the capacity to hold 110 per cent of the liquid waste volume for bulk storage or 120 per cent of the volume of the largest container for smaller packaged storage

- Hazardous waste will be managed by appropriately qualified and licensed contractors, in accordance with the requirements of the Environmentally Hazardous Chemicals Act 1985 and the EPA waste disposal guidelines.
- All other recyclable or non-recyclable wastes are to be stored in appropriate covered receptacles (e.g. bins or skips) in appropriate locations onsite and contractors commissioned to regularly remove/empty the bins to approved disposal or recycling facilities.

5.6 Waste Disposal

Waste (and spoil) disposal is to be in accordance with the *Protection of the Environment Operations Act 1997,* Protection of the Environment Operations (Waste) Regulation 2014 and the *Waste Avoidance and Resource Recovery Act 2001*. Wastes that are unable to be reused or recycled will be disposed of offsite to an EPA approved waste management facility following classification (refer to section 5.1). Details of waste types, volumes and destinations are to be recorded in the Waste Management Register (Appendix A).

Prior to transporting wastes to a place that is not owned by TfNSW and is not a licensed waste facility Georgiou must submit to the Principal a completed and signed notice under section 143(3A) of the POEO Act ("s.143 Notice"). This includes waste transported for reuse, recycling, and disposal or stockpiling. Waste in this context means any surplus material and includes spoil, Virgin Excavated Natural Material ("VENM"), Excavated Natural Material ("ENM"), crushed rock, reclaimed asphalt pavement, mulched vegetation, waste concrete, etc. All proposed waste re-use options must comply with the POEO Act and associated regulations.

Further details, including the steps to be taken to obtain the "s.143 Notice" from the landholder, and the template (or proforma) letter to the landholder, can be found in TFNSWEnvironment Technical Direction ETD 2015/020 "Legal offsite disposal of Roads and Maritime Services waste"

This process is a hold point under TFNSWspecification G36, cl 4.11.4. The hold point submission requirement is the completed and signed original copy of "s.143 Notice" received from the landholder receiving the waste with evidence that the Waste Site has the appropriate planning consent.

Note that on Windsor Bridge Replacement Project, it is very unlikely that any soil generated onsite will be given to a 3rd party offsite under a "s.143 Notice" and this will only occur with acceptance from the Principal.

Approved waste management facilities located in the vicinity of the Project include (but are not limited to) those detailed in Appendix B. Prior to disposing waste at a facility, the license details of the facility will be confirmed to ensure compliance.

6 Environmental mitigation and management measures

A range of environmental requirements are identified in the various environmental documents, including the EIS, CoAs and Roads and Maritime documents, and from recent experience on similar road projects. Specific measures and requirements to address waste management and energy use issues are outlined in Table 6-1.

Table 6-1 Management and mitigation measures

ID	Measure / Requirement	Resources needed	When to implement	Responsibility	Reference
	INDUCTION				
WM1	All staff and subcontractors will undergo a site induction and ongoing toolbox talks that will detail waste minimisation and reuse management measures, including the requirements of the waste management hierarchy. Waste minimisation training will include energy consumption awareness that promotes energy conservation methods including minimising energy use by switching off equipment when not in use. Induction attendance will be recorded.	Induction	Construction	Construction Manager / ESR / Superintendent	G36 Good practice
	EWMS				
WM2	Waste management measures from this CWMP will be included in relevant Environmental Work Method Statements to be developed prior to the commencement of specific activities.	EWMS	Construction	ESR / Superintendent	EIS Table 10-1 SW14 Good practice
	PROCUREMENT				
WM3	Procurement strategies will be based upon the philosophy of reduce, reuse, recycle and appropriate disposal.		Construction	ESR/ Site Engineers	G36 CoA 38 EIS Table 10-1 SW18
WM4	Procurement of materials will be planned and managed to avoid the over-ordering of products and minimise excess packaging is to be carried out.		Construction	ESR / Superintendent	Good practice
WM5	Recycled material will be considered for use in all aspects of the project where feasible and reasonable in accordance with the NSW Government's Waste Reduction and Purchasing Policy.		Construction	ESR	G36 Cl 4.11.4 CoA C38
WM6	Materials and products containing recycled content and low carbon footprint will be used where possible.		Construction	ESR / Superintendent	CoA C38 G36 Cl 4.11.1
WM7	The NSW Governments Waste Management Hierarchy of "avoid-reduce-reuse- recycle- dispose" will be followed as the framework of waste management throughout the project.	NSW EPA Waste	Construction	ESR / Superintendent	G36 Cl 4.11.1

ID	Measure / Requirement	Resources needed	When to implement	Responsibility	Reference
		Management Hierarchy			
	WASTE CLASSIFICATION				
WM8	All waste requiring off-site disposal will be classified and disposed of in accordance with the NSW EPA "Waste Classification Guidelines"	NSW EPA Waste Classification Guidelines	Construction	ESR	CoA D(e)(v) G36 Cl 4.11.4 EIS Table 10-1 SW17
	VEGETATION, CLEARING AND GRUBBING				
WM9	Cleared vegetation will be reused or recycled to the greatest extent practicable mulching of vegetation for use in landscaping.	CEMP app B2 Construction Flora and Fauna Management Plan	Construction	ESR	G36 Cl 3.1
WM10	Weeds will be managed in accordance with the Flora and Fauna Management Plan – Weed and Pathogen Management Strategy (Appendix E).	CEMP app B2 Construction Flora and Fauna Management Plan	Construction	Superintendent	G36 Cl 4.8
WM11	Topsoil (weed free) will be stockpiled for later spreading on fill batters and other areas and will only be stockpiled in designated stockpiles sites, with appropriate erosion and sediment control. Other material will be stockpiled but separated from the topsoil stockpiles. Stockpiles will be maintained to prevent growth of weeds.	CEMP app B2 Construction Flora and Fauna Management Plan	Construction	ESR / Superintendent	G36 Cl 4.8
	EXCAVATION AND EARTHWORKS				
WM12	Concrete, asphalt, bricks/masonry and steel products are to be reused on site where possible. Alternatively they will be sent off-site for recycling.		Construction	Superintendent	CoA C38
WM13	Sediment recovered from erosion and sediment control devices will be reused on site as general fill material or it will be incorporated within landscaping materials where possible.	CEMP app B4 – Construction Soil and Water Management Plan	Construction	Superintendent	CoA C38

ID	Measure / Requirement	Resources needed	When to implement	Responsibility	Reference
WM14	Any contaminated waste will be handled, separated, contained, managed and disposed of to prevent migration and further contamination.	CEMP app B8 – Construction Contaminated Land Management Plan	Construction	Superintendent	G36 Cl 4.2
WM15	All surplus materials will be recycled, reused or disposed of in accordance with statutory requirements (including surplus concrete, excavated earthworks and pavement materials plus milled asphalt) including maintaining all records demonstrating compliance.	CSWMP app E - Spoil Management Plan	Construction	ESR / Superintendent	EIS Table 10-1 SW19
WM16	An s143 notice will be completed section where the off-site (on private property) disposal of road construction waste material or VENM is to occur.	CSWMP app E - Spoil Management Plan	Construction	ESR / Superintendent	G36 Cl 4.11.4
WM17	Where available and of appropriate chemical and biological quality for its proposed purpose, stormwater, recycled water or other water sources will be used in preference to potable water for construction, including concrete mixing and dust control. The potential source of captured stormwater would be within temporary sediment basins, sumps and excavations on site during the earthworks stages of the project.		Construction	Superintendent/ Site engineers	CoA D4 (e)(v)
	DEMOLITION OF EXISTING BRIDGE				
WM18	All demolition waste will be segregated and managed in accordance with the EWMS developed for bridge demolition. This will be developed in close consultation with the chosen demolition sub-contractor	EWMS			CoA Table 10-1 SW23
WM19	General demolition waste that cannot be recycled will be segregated and disposed of at Waste Management Facility or other suitably licensed facility.	Appendix B - this plan	Construction	ESR / Superintendent	G36 Cl 4.11
WM20	Asbestos contaminated material will be disposed of as special waste at a suitably licensed facility. All Asbestos contaminated material will be tracked using EPA's waste locate system.	Appendix B - this plan	Construction	ESR / Superintendent	G36 Cl 4.2.1 EIS Table AQ5

ID	Measure / Requirement	Resources needed	When to implement	Responsibility	Reference
WM21	General scrap steel will be taken for recycling at a scrap metal recycler. As steel scrap prices vary weekly between merchants, the location will be nominated immediately prior to disposal.	Appendix B - this plan	Construction	ESR / Superintendent	Good practice
	DUST SUPPRESSION				
WM22	The collection and reuse of captured water for dust suppression, fill conditioning, wash down and use revegetation watering will be carried out where possible. The potential source of captured stormwater would be within temporary sediment basins, sumps and excavations on site during the earthworks stages of the project.	CEMP app B4 – Construction Soil and Water Management Plan	Construction	Superintendent	CoA C6 CoA D4 (e)(v)
	WASTE DISPOSAL				
WM23	Waste will be managed and disposed of in accordance with the PoEO Act and the WRAPP. Wastes that are unable to be reused or recycled will be disposed of offsite at a licensed waste management facility, or premises lawfully permitted to accept the materials following classification.	NSW EPA Waste Classification Guidelines	Construction	ESR / Superintendent	G36 Cl 4.11.1 CoA C39
WM24	A Waste Management Register of all waste collected for disposal and/or recycling will be maintained on a monthly basis until final completion.	Appendix A – this plan	Construction	ESR	G36 Cl 4.11.2
WM25	Oils and other hazardous liquids will be labelled and stored in a sealed container within a bunded area. Material collected from within bunded areas will be disposed off-site at a waste facility approved by the EPA.	CEMP app B4 – Construction Soil and Water Management Plan	Construction	ESR / Superintendent	EIS Table 10-1 SW13
WM26	Any contaminated material removed from the site will be disposed to a suitably licensed facility and a written copy of such records provided to Roads and Maritime.	POEO (Waste) Regulation 2005	Construction	ESR / Superintendent	EIS Table 10-1
WM27	The relevant licences of waste facilities utilised for the disposal of project waste will be obtained (on a regular basis if necessary) to ensure they are legally able to accept that waste.	POEO (Waste) Regulation 2005	Construction	Superintendent	G36 Cl 4.11
WM28	Copies of licences or licence numbers (under the *Waste Avoidance and Resource Recovery Act 2001*) for transporters of	POEO (Waste) Regulation 2005	Construction	ESR / Superintendent	G36 Cl 4.11.1

ID	Measure / Requirement	Resources needed	When to implement	Responsibility	Reference
	industrial/hazardous waste, industrial/hazardous waste treatment facilities and waste disposal facilities prior to disposal of these wastes will be obtain to ensure compliance in monitoring and reporting with the POEO (Waste) Regulation 2005				
WM29	Separate bins will be provided at the site compounds to promote the recycling of paper, cardboard, glass, plastics and metals.		Construction	ESR / Superintendent	G36 Cl 4.11
WM30	Waste oils, liquids, fuels and chemical will be stored appropriately in locked containers	CEMP app B4 – Construction Soil and Water Management Plan	Construction	ESR/ Superintendent	CoA C40
WM31	Site personnel will be encouraged to minimise waste creation and to dispose of waste correctly through the use of signage erected at site compounds	Recycling Signage Induction	Construction	ESR	Good practice
WM32	All effluent from all amenities will be discharged into the local sewerage system, where this is not possible septic tanks and portable self-contained toilets of suitable capacity will be utilised. The use of pit toilets will not be permitted on site. These will be properly maintained with effluent disposed of in accordance with the statutory requirements.	POEO (Waste) Regulation 2005	Construction	ESR / Superintendent	Good practice
WM33	The disposal of wastes will be scheduled where possible to achieve full loads and minimise vehicle trips.		Construction	ESR / Superintendent	Good practice
	DEMAND ON RESOURCES				
WM34	Strategies for minimising fuel and energy consumption will be implemented, including: - Energy efficient design of site buildings, including selecting energy efficient lighting where possible - Design of site construction work sites to minimise unnecessary vehicle movement - Use appropriately sized construction plant, equipment and vehicles to their tasks. - Regular servicing of site plant and equipment	Georgiou Sustainability Policy	Construction	ESR / Superintendent/ PM	G36 Cl 4.11.1

ID	Measure / Requirement	Resources needed	When to implement	Responsibility	Reference
	- Training of personnel in energy efficient best practices - Use of locally sourced material where available and of suitable quality				
WM35	Construction material selection will include recycled material and local materials where possible including: i. Concrete with a greater proportion of flyash; ii. Recycled steel as opposed to virgin steel; and iii. Sourcing local materials.		Pre-construction/ Construction	ESR/ Project Manager/ Superintendent/ Construction Manager	G36 Cl 6 EIS Table 10-1 GHG1
WM36	Fuel efficient plant and equipment will be selected where practicable		Pre-construction/ Construction	ESR/ Project Manager/ Superintendent/ Constriction Manager	G36 Cl 6 EIS Table 10-1 GHG2
WM37	Biofuels will be used where practicable		Pre-construction/ Construction	ESR/ Project Manager/ Superintendent/ Construction Manager	G36 Cl 6 EIS Table 10-1 GHG3
WM38	Waste materials on site such as general fill, rock, aggregate and mulch from cleared vegetation will be reused as far as practicable.	CSWMP app E – Spoil Management Plan	Pre-construction/ Construction	ESR/ Project Manager/ Superintendent/ Construction Manager	G36 Cl 6 EIS Table 10-1 GHG5

7 Compliance management

7.1 Roles and responsibilities

Georgiou's Project Team's organisational structure and overall roles and responsibilities are outlined in Section 4.2 of the CEMP. Specific responsibilities for the implementation of environmental controls are detailed in Chapter 6 of this Plan.

7.2 Procurement of waste contractors

Georgiou will engage waste contractors to manage the collection, recycling or disposal of waste that cannot be reused onsite. A number of different waste contractors will be required to appropriately manage the different waste streams generated onsite. To ensure the selection of reliable and experienced contractors, Georgiou will request the following information that will be included in any contract information:

- Experience
- Any non-conformance notices or environmental offences, penalties or notices
- Copies of licenses and permits for handling, transporting and disposing waste
- Management systems and policies (health and safety, environment and sustainability)
- Proof of compliance with legislation and guidelines
- Cost for collection, processing and recycling/disposal
- Destination of each waste stream
- Processing techniques
- Expected recovery rates of each waste streams.

7.3 Training

All employees, contractors and utility staff working on site will undergo site induction training relating to waste management issues. The induction training will address elements including:

- Incident response, management and reporting;
- Waste reporting requirements;
- Requirements of the waste hierarchy;
- Waste/ recycle storage requirements;
- Other specific responsibilities for waste and reuse management.

Further details regarding staff induction and training are outlined in Chapter 5 of the CEMP.

7.4 Monitoring and inspection

Regular waste monitoring and inspections will be undertaken during construction. These include;

- Weekly Environmental Inspections that includes waste management.
- As required document and record the types and volumes of wastes generated, re-used, recycled and disposed of
- As required document and record the locations of stockpiled and stored waste
- Update the Waste Management Register monthly of all waste collected for disposal and/or recycling until final completion in accordance with the TFNSWG36 specification
- Compile and record monthly resource usage during construction works (e.g. energy, water, fuel, oil, etc
- As required record any results of any soil, surface or groundwater sampling

- The Waste Contractors are to maintain and document the types and volumes of wastes collected recycled and disposed of. They are to provide monthly reports on waste removal and disposal activities to Georgiou.

Additional requirements and responsibilities in relation to inspections, in addition to those in Table 6-1 and above, are documented in Section 8.1 of the CEMP.

7.5 Auditing

Audits (both internal and external) will be undertaken to assess the effectiveness of environmental mitigation and management measures, compliance with this sub plan and other relevant approvals, licenses and guidelines.

Audit requirements are detailed in Section 8.3 of the CEMP.

8 Reporting

8.1 Regulatory

Once a year, a Waste avoidance and resource recovery report will be submitted to the Principal containing information relating to wastes generated or recycled in accordance with Annexure G36/F on or before:

- Within one month from 1 July of the current calendar year, for the previous 12 months of the contract period, or part thereof if the contract commenced after 1 July of the previous calendar year.
- At actual completion date, for the final reporting period

In addition, the Principal will be notified of any suspected or potential contamination (such as odious or visually contaminated materials) exposed during construction activities and work activities will cease within the vicinity of actual or suspected contaminated land.

Tracking and reporting of all waste will be undertaken in accordance with the NSW EPA waste classification guidelines.

8.2 Waste Management Register

A waste management register (Appendix A) will be maintained and include the following information:

- Type of waste and its classification (according to the POEO Act and Waste Classification Guidelines).
- Quantities of waste, measured in tonnes.
- How and where the waste was reused, recycled, stockpiled or disposed of.
- date when the waste was reused, recycled, stockpiled or disposed of; and
- name and waste transport licence (if applicable) of the transporter used.

Waste information must be reported to Roads and Maritime and must include details of the date waste was reused, recycled, stockpiled or disposed, quantity and disposal location. Waste reporting information is to be submitted to Roads and Maritime on a monthly basis.

8.3 Land Condition Assessment

A pre-construction land condition assessment is to occur prior to taking possession of any land nominated by Roads and Maritime for locating site facilities, including areas for construction materials storage and stockpiling. The purpose of the pre-construction land condition

assessment is to identify any existing waste or stored materials on the land prior to the area being occupied. The pre-construction land condition assessment must be undertaken by an independent environmental consultant approved by Roads and Maritime. This report is a hold point under G36 Clause 4.15.2 and the Pre-construction land condition assessment report and evidence of any necessary statutory and environmental approvals must be provided prior to taking possession of any land nominated or authorised by Roads and Maritime for use for the site facilities.

A post-construction land condition assessment will be completed once facilities are no longer required. Once again the land condition assessment must be undertaken by an independent environmental consultant approved by Roads and Maritime and the report must be provided prior to Roads and Maritime accepting those areas of land. These reports will be in accordance with the Roads and Maritime publication “Management of Wastes on Roads and Maritime Services Land”. Where the post-construction land condition assessment report identifies unauthorised wastes attributable to the activities left behind on the areas of land, further work will be carried out in accordance with Roads and Maritime Specification G36, Clause 4.16.

9 Review and improvement

9.1 Continuous improvement

Continuous improvement of this Plan will be achieved by the ongoing evaluation of environmental management performance against environmental policies, objectives and targets for the purpose of identifying opportunities for improvement.

The continuous improvement process will be designed to:

- Identify areas of opportunity for improvement of environmental management and performance.
- Determine the cause or causes of non-conformances and deficiencies.
- Develop and implement a plan of corrective and preventative action to address any non-conformances and deficiencies.
- Verify the effectiveness of the corrective and preventative actions.
- Document any changes in procedures resulting from process improvement.
- Make comparisons with objectives and targets.

9.2 CWMP update and amendment

The processes described in Chapter 8 and Chapter 9 of the CEMP may result in the need to update or revise this Plan. This will occur as needed.

Any revisions to the CWMP will be in accordance with the process outlined in Section 1.6 of the CEMP.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure – refer to Section 10.2 of the CEMP.

Appendix A
Waste Management Register

Waste Management Register							
Date/time reused, recycled, stockpiled or disposed of	Waste Classification	Description of waste (e.g. concrete, asphalt, vegetation)	Amount of spoil or waste collected (tonne)	Transporter name and licence	Facility to receive	Waste Use (reuse, recycled, stockpiled or disposed of)	Invoice No / Tip Docket Ref

Appendix B
Waste Receiving Facilities

Facility	Wastes Received at Facility
Hawkesbury City Waste Depot The Driftway South Windsor NSW 2756 Phone: (02) 4560 4444	• General domestic waste • Building & Demolition waste (no asbestos) • Bricks and Concrete • Garden Organics/Vegetation • Tyres motorbike/passenger car or smaller (maximum of 5 tyres per load) • Gas bottles (9kg LPG only) *No contaminated or asbestos containing materials accepted here
Seven Hills Resource Recovery Centre 29 Powers Road, Seven Hills NSW 2147 Phone: 1300 651 116	• Putrescible material • Dry material • Garden organics • Untreated timber • Tree trunks and roots • Separated bricks, concrete, roof tiles, terracotta pipes • Expanded plastics (eg polystyrene) when load has > 25% by volume *No contaminated or asbestos containing materials accepted here
Kemps Creek Resource Recovery Park 1725 Elizabeth Drive, Kemps Creek NSW 2178 Phone: 13 13 35	• Soils • Mixed Timbers • Construction and Demolition Waste • General Waste • Green Waste • Asbestos containing material (must be arranged prior to delivery and before 3pm) • VENM Clean Fill (must be arranged prior to delivery)
Sims Metal Recycling 82 Marple Avenue Villawood NSW 2163 Phone: (02) 8708 2015	• Scrap metal recycling • E-waste