



TOONDAH HARBOUR

CHAPTER 14 WASTE MANAGEMENT



14. Waste Management

14.1. Introduction

The Waste Management EIS chapter and technical studies were completed by SHG. Details of the key personnel involved in the study are provided in Appendix 1-F.

14.1.1 Scope of Study

Specific requirements for the waste management assessment to address the EPBC Act EIS Guidelines and other legislative requirements include describing and assessing the potential impacts of all wastes to be generated by the Project (during construction and operation) and provide details of each waste stream in terms of:

- Operational handling and fate of all wastes including storage;
- On-site treatment methods proposed for the wastes (including grey waste);
- Methods of disposal (including the need to transport wastes off-site for disposal) proposed to be used for any trade wastes, liquid wastes and solid wastes; and
- Proposed discharge/disposal criteria for liquid and solid wastes.

The scope of the waste study includes waste generated by the construction and operation of:

- Residential housing, roads, infrastructure and parks construction and occupation;
- Retail and food services commercial spaces;
- Marina and supporting operations;
- Ferry terminal and commuter car parks; and
- Public recreation areas.

A number of waste streams are not within the scope of this assessment as they are addressed in detail in other sections. These include:

- *Dredge material* – This is being regarded as a resource and is to be transported to Toondah Harbour to provide land reclamation material for residential foundations;
- *Stormwater management* – Waste removal from stormwater filters and controls will require planning and management. This scope does not include the design and management of stormwater engineering and WQOs, which are described in Section 9.4.2; and
- *Wastewater management* – Wastewater will generally utilise existing infrastructure operated by RCC. Proposed wastewater infrastructure and processes are described in Section 2.5.2.

14.1.2 Activities that May Generate Waste

Impacts resulting from waste generation are generally addressed by other chapters of the EIS, e.g., the potential for specific types of waste to impact on marine ecology are addressed in Chapter 16. This section addresses how waste will be managed on site, therefore focus on activities that will generate waste streams.

Project activities with the potential to generate waste include:

Building and civil works (onshore and within the reclamation)

- Waste associated with vehicles using the site, such as car wash facilities;
- Construction waste such as building materials, packaging dunnage and general waste from site labour; and
- Demolition of the trade college

Reclamation and maritime construction works

- Demolition of the existing ferry terminal and harbour infrastructure; and
- Construction waste including building materials, labour-force general waste and packaging dunnage

Ongoing operation of the ferry terminal, marina and urban developments

- Generation of waste from the occupants of residential and commercial/mixed use areas, including sewer, grey water, municipal solid waste, green or garden waste, compostable materials and recyclables;
- Potential generation of waste from minor marine maintenance operations, refuelling and marine craft sewage receiving facilities associated with the marina and ferry precinct;
- General waste generated by operational use of the ferry terminal and commuter car park; and
- Waste generation associated with recreational and visitor use of the extensive public parks and recreation facilities along the foreshores, boardwalks and nature trails

14.2. Assessment Framework

A large part of the waste profile will closely resemble that of any similar sized master planned community, with waste generation arising from residential, retail, hospitality and commercial construction and uses.

Waste assessment for Toondah Harbour is examined in terms of waste generation from construction and operation.

14.2.1 Project Waste Management Principles

The general principles for waste management for the Project will be consistent with the objectives of the Queensland Waste Management and Resource Recovery Strategy (QWMRRS). The waste and resource management hierarchy follows best practice waste principles in order of preference:

1. Avoid and reduce waste;
2. Reuse waste;
3. Recycle or compost waste;
4. Recover fuel and energy from waste; and
5. Dispose of waste.

The relevant priority from the QWMRRS is 'Strategic Priority 1' which refers to:

Reducing the impacts caused by waste on the environment will help achieve the following outcomes:

- *Reduction in the amount of waste that goes to landfill, is littered or illegally dumped;*
- *Reduction in waste-related greenhouse gas emissions;*
- *Reduction in the long-distance transport of waste;*
- *Protection of Queenslanders' lifestyles and the enjoyment of our natural environment;*
- *Savings for households from avoiding unnecessary waste; and*
- *Reduction in the impact on neighbouring communities and amenity value from waste facilities.*

For construction, managing waste on site, reducing waste to landfill, reduction in transport of waste and avoidance of impacts from waste management will be the priority for contractors. To address the QWMRRS hierarchy, options for the construction contractor/s to consider are listed in relation to avoiding waste generation, re-use, recycling and appropriate disposal.

Waste Avoidance

- Accurately estimate quantities of materials required during the construction phase to reduce excess that could add to waste;
- Consider the whole-of-life environmental cost of products chosen for construction and ensure durability standards are high to prevent the need for ongoing replacement;
- Reduce transportation and handling of materials both within the Project footprint and by suppliers;
- Formulate contractual clauses to encourage the implementation of good waste management practices; and
- Design into construction stages measures to reduce waste generation and allow waste handling facilities to be incorporated. For example, maintaining the separation of waste streams throughout construction to improve reuse and recycling where possible, thereby avoiding waste going to landfill

Waste Re-use

- Employ a waste contractor to collect recoverable materials from site;
- Crush concrete and brick materials generated in feasible quantities for re-use on and off site;
- Maintain a separation of waste streams to maximise the use of waste products, prevent the contamination of recoverable materials and prevent damage to unused materials so they may be used in other parts of the Project;
- Schedule works to maximise the use of excess or waste materials in the next component of work;
- Stockpile or store waste or excess materials appropriately so their re-use can be maximised; and
- Beneficially re-use dredge material for land reclamation

Waste Recycling

- Where possible and permissible by engineering specification, preference the use of products that include recycled content;
- Advise contractors and suppliers to use recycled products or products with recycled constituent components where feasible; and
- Investigate the use of alternative materials where possible to reduce the use of virgin materials, e.g., the use of fly ash in concrete, where this will result in the same or better engineering strength.

Waste Disposal

- Maintain a record of waste generation including re-use and recycled material use and generation. Where possible require contractors to do the same or provide this information;
- Implement training to maximise awareness around waste reduction, re-use and recycling;
- Develop and implement procedures for the disposal of waste including standardised containers for different waste streams, signage, locations and stockpile management;
- Employ suitably qualified contractors for the management of wastewater from ablution facilities; and
- Require proof of appropriate disposal (receipts from licensed facility) of wastes.

During operations, body corporate managers and owners will be responsible for maintaining waste systems in accordance with RCC waste policies and regulations. The remainder of priorities, such as waste separation and removal will be within the management control of RCC. The design and management of waste-related infrastructure at Toondah Harbour will be sympathetic to municipal waste operations in ensuring waste is separated and stored securely. The recently updated RCC *Waste Reduction and Recycling Plan 2021-2030* is the current basis for waste management within the Redland City LGA. The latest RCC plan is “the first stage of a broader 30-year strategy to create a zero-waste society by 2050”. This plan will be adhered to during construction and operation of the Project. The plan and its targets acknowledge the Redlands’ environmental context, which includes significant coastal settlements and the nearby MBRS.

As per RCC policy and the waste plan, all residents will have access to kerbside wheelie bin collection services. This includes a weekly waste and fortnightly recycling service (including larger recycling bins), with mainland residents having

the option to also receive a fortnightly green waste collection service for garden organics. Once the Project is operational, the residential waste will be included in the Council waste and recycling service.

The Project will also reflect priorities set out in the recent *Council of Mayors SEQ Waste Management Plan 2021* (CoMSEQ Waste Plan) which sets out a directional path for action and collaboration across South East Queensland Councils. The plan addresses the key challenges and opportunities for the Redlands with a focus on three core waste streams, being commingled recycling, organics (food & green waste) and residual waste.

Recently, a *Queensland Organics Strategy 2022-2032* and associated Action Plan have been developed and released by DES, which outline the actions to be taken over the next decade to avoid the generation of organic waste in the first place and improve the end-use management of the material that cannot be avoided. This strategy will also help contribute to the end-of-decade national commitment of halving food waste and the amount of organic waste going to landfill. The Project will ensure that all aspects during construction and operation are aligned with the strategy and action plan.

These recently released waste management strategies and guides will be implemented during construction and operation of the Project, and will ensure that the Project achieves innovative and best practice measures for minimising waste generation and managing the waste that is unavoidable.

14.3. Waste Generation

Waste streams and the aspects of the Project they relate to are described in this section. Waste streams have been aligned with the current National Waste Report categories which are presented in Table 14-1.

Table 14-1: National Waste Report Categories and Types.

Waste categories	Waste types included in this category
Masonry materials	Asphalt, bricks, concrete, rubble (including non-hazardous foundry sands), plasterboard and cement sheeting
Metals	Steel, aluminium, other non-ferrous metals
Organics	Food, garden organics, timber, other organics, biosolids. Excludes paper, cardboard, leather, textiles and rubber (included in separate categories) except where specified, hazardous organic wastes (these are included in the 'hazardous' category)
Glass	Glass
Paper and cardboard	Cardboard, Liquid paperboard, newsprint and magazines, office paper
Plastics	PET (1), HDPE (2), PVC (3), LDPE (4), PP (5), PS (6), Other (7)
Textiles, leather and rubber	Textiles; leather and rubber (excluding tyres)
Hazardous	Acids, alkalis, inorganic chemicals, reactive chemicals, paints, resins, inks and organic sludges, organic solvents, pesticides, oils, food-derived organic wastes (K100, K110 and K200), other putrescible or organic waste (K140 and K190), organic chemicals, contaminated soils, asbestos contaminated materials, other soil/sludges (including contaminated biosolids), clinical and pharmaceutical, tyres, other miscellaneous, unclassified hazardous wastes
Other	Other unclassified materials

14.3.1 Construction

At this preliminary concept stage, only limited information is available on the size, materials and construction methodology for the various aspects of the Project. Under the EP Act, site-based management plans will require approval from RCC and the Queensland Government on the management of waste.

The Commonwealth Government (2012) has previously identified the following key waste streams relating to construction:

- Concrete and bricks;
- Asphalt;
- Metals;
- Timber;
- Plastics;
- Plasterboard;
- Rock and excavation stone; and
- General waste from staff crib rooms and site administration.

It is expected that all of the above waste materials will be generated during demolition and construction activities for the ferry precinct, residential, mixed-use node and foreshore parkland areas.

14.3.1.1 *Ferry Terminal and Existing Harbour Infrastructure Demolition*

Demolition will involve the removal of up to five structures that are currently in place to service the ferries and, operators' needs, and provide services to transiting passengers, e.g., ticketing and food and beverages. Improvement and redesign of the 4.6 ha of paved and concreted areas will require removal of large volumes of asphalt and concrete and realignment of underground services. In addition, demolition of the existing piers, jetties and the current boat ramp will involve removal of concrete, steel and timber.

While the majority of the construction waste streams are those identified by the Australian Government, there may be minor demolition-related quantities of plasterboard, timber, plastics and steel. It is also possible that some of the older buildings in the ferry precinct will contain asbestos. Plasterboard is generally considered a contaminant and does not yet have a reuse or recycle capacity. Timber has limited uses if damaged during mechanised demolitions, however the timber wharf materials, especially if hardwood timbers, have a very high market value and there are considerable opportunities for their reuse and recycling. Plastics from the existing ferry terminal building are unlikely to have enough volume or be in suitable condition for reuse or recycling.

Significant quantities of concrete, asphalt, metals and timber are likely to be recovered from the ferry wharf reconstruction and will be available for recycling via a number of currently operational private recycling sector businesses.

Additionally, there is likely to be waste associated with vehicles using the site, including car wash facilities. Construction waste such as building materials, packaging dunnage and general waste from site labour has been included in the assessment. Retail and food services construction waste will be referenced along with residential, as many (if not all) of these sites will be shared with residential dwellings.

14.3.1.2 *Building and Civil Construction Works*

An appreciation of the scale of the construction works can contribute to an appreciation of the likely waste stream scales. The more detailed level of planning required for operational and building works applications will provide information for reliable waste estimates during the future state approval processes however a broad assessment of likely waste

streams and volumes can be made using the existing level of detail. Section 2.3 provides scale and timing of the key building construction elements.

It is anticipated that construction of the ferry precinct, marina coves, parks, residential buildings and commercial/retail buildings will generate the following waste streams:

- Waste concrete from spills and rework;
- Minor metals waste from offcuts of reinforcing and fixings;
- Significant plastic waste from PVC pipe offcuts, polymer moisture barriers offcuts and thin film packaging;
- Cardboard packaging; and
- General waste from construction labour crib rooms and administration facilities.

14.3.2 Operations

The ongoing operation and use of Toondah Harbour will comprise of the ferry precinct, residential areas, mixed use node, commercial/retail operations, parklands, water play/lagoon pool, public/visitor facilities and the marina.

14.3.2.1 Residential Precincts

Based on Queensland Government data collected for per capita municipal solid waste (*Recycling and Waste in Queensland 2018*), each resident can be estimated to generate 0.685 tonnes per annum (tpa) of general waste and a further 0.200 tpa of recycled waste. Currently, with the mix of dwelling types planned, it is estimated that there will be approximately 5,700 residents (excluding hotel occupants). This is based on average occupancy data held and used for infrastructure planning by RCC for the dwelling types projected for construction and is an extrapolation of existing data. Table 14-2 provides a summary of the estimated residential waste volumes based on 5,750 residents, which accounts for the occupants of all residential areas. The per capita municipal waste data also refers to illegal dumping and green waste, however these have been disregarded due to the higher-density nature of the Project and absence of the type of isolated locations where illegal dumping usually occurs, along with the likelihood that green waste will more likely be included in commercial waste streams by maintenance providers.

Table 14-2: Estimated Residential Precincts Waste Generation per Annum.

Stream	Per capita mass generated	Toondah Harbour Annual Residential Waste (based on 5,750 residents)
Municipal solid waste	0.685 tpa	3939 t
Recyclable waste collection	0.200 tpa	1150 t
Wastewater/sewage	300 L/day	630 ML

As outlined in Section 2.5.2, additional augmentation requirements to the existing RCC sewerage infrastructure are to be confirmed following the finalisation of the sewer and water network hydraulic assessments and associated infrastructure master plans to be undertaken for the preparation of the PDA development application. This process will determine impacts to existing networks after implementation of the Project and confirm adequate performance of the proposed network.

RCC is already satisfactorily managing wastewater, meeting WQOs and legislative requirements, and understands the proximity to a sensitive marine environment which encompasses MNES, including the MBRS. Potential impacts to the

environment from the release of wastewater has been assessed through the cumulative and consequential impacts discussed in Chapter 26 in Volume 3.

14.3.2.2 *Commercial/Retail Operations*

The intended model for the mixed use node, residential, marina and public open space areas is to provide for small scale shopfronts and businesses that will specialise in meeting the tourism, commuter, leisure, marine and residential demand characteristics that will likely be unique to Toondah Harbour and contribute to the PDA's destination appeal. Generally, it is the private sector that collects waste from retail and commercial locations, however, until the detailed design phase, data for this stream of waste collection is not generally available at a level of definition that would permit reliable estimates of waste generation. In addition, the number and nature of tenancies is unlikely to be determined until after construction, making data generation premature. Operation of the commercial businesses will require waste to be managed via commercial providers and with building or body corporate management.

14.3.2.3 *Parkland and Public Tourism Facilities*

Parkland, public visitor and tourism facilities will total more than 9 ha in area at the completion of the Project. The use of these facilities is anticipated to generate considerable municipal solid waste via public bins and systems to contain litter and fugitive waste via stormwater. Currently the primary management of these areas is expected to be by RCC in accordance with Council's *Waste Reduction and Recycling Plan*, which will be the primary document to ensure that waste is limited in this context.

14.3.2.4 *Marina*

During operations, the marina will have the potential to generate waste from minor marine maintenance operations, refuelling and marine craft sewage receiving facilities. Marina operations waste will be assessed in conjunction with waste from all other waterfront and reclaimed land construction. The biggest operational environmental risks from marina-generated waste include general waste and packaging dunnage impacting on Moreton Bay, and provision of sewer services for leisure craft and refuelling.

The marina will utilise commercial/trade waste streams to dispose of user solid waste (leisure craft disposal) and will also serve to dispose of marine craft sewage as most will be unable to pump out on board sewage in Moreton Bay (contained in legally required holding tanks). The marina will ultimately provide such services either through a mobile pump out or stationary facility to support up to 200 berthed vessels. This capability will connect to the reticulated RCC sewer services. Potentially, if the facility is small scale, stored sewer liquids may be taken by tanker truck to RCC sewer receiving facilities.

14.3.2.5 *Ferry Precinct*

Ferry movements consist of approximately 200 passenger and 80 vehicle ferry trips per week. This schedule is currently constrained by the width and depth of the Fison Channel and the turning basin, which limit the number and size of vessels that can approach the loading facilities. With the proposed channel and harbour expansion, it is assumed there will be a 10% increase in the number of ferry movements and an unquantified increase in the number of passengers, given that the expanded harbour is expected to accommodate larger ferries.

The Project will provide more comprehensive food and beverage services for passengers in transit, including cafes and bars in the ferry precinct, with higher quality spaces than are currently available. This will generate an increase in commercial/trade waste. Further, the expanded turnover will place greater demands on waste from servicing the ferries between trips, including commercial/trade waste and sewer.

Vehicle queuing areas are provided for vehicles waiting to travel on the vehicle barges to Minjerribah (North Stradbroke Island). In addition, there is high (currently underserved) demand for mainland parking for island residents along with visitors who do not wish to take their vehicles to the islands. The existing port already manages a significant daily

turnover, consisting of Minjerribah residents, visitors, some of their vehicles, public transport and access for services and maintenance staff and equipment to the islands. While parking areas are not generally expected to generate high levels of waste, the ferry car parks are important staging points for residents and holiday makers loading and unloading vehicles while transiting through Toondah Harbour. As such, waste generation and litter issues are expected to be higher than at most urban car parks.

14.4. Adaptive Management and Monitoring Measures

Waste management plans for construction and operations will focus on the diverse land uses within Toondah Harbour and their differing waste streams and risks. Once the detailed design and plans are produced for construction, waste management plans will be developed and implemented by construction contractors.

Waste management plans will be required to demonstrate objectives in line with the Queensland Waste Avoidance and Resource Productivity Strategy, which is an outcome of the *Waste Reduction and Recycling Act 2011* and National Waste Policy. The stated aims of the strategy are:

The Strategy's three strategic priorities will guide the transition to a more circular economy, reduce the amount of waste disposed of to landfill, or illegally, and provide a more sustainable source of end-of-life products and materials to create new products.

The primary focus of these policies is on decreasing the overall waste generation and proportion of waste that is diverted to landfill. It aims to do so by improving range of wastes that can be converted to resources through improved separation along with improvements to industry and local government capabilities.

There is currently no formal framework for waste management plans within Queensland regulations, however there are ample guidelines available for waste management plans for all waste streams, in addition to regulations ensuring that waste streams are contained. The primary focus will be on meeting the RCC *Waste Reduction and Recycling Plan 2021-2030* and ensuring that Toondah Harbour activities integrate with municipal operations and are in line with RCC policies and strategies.

Where an activity is anticipated to generate waste, mitigation measures to reduce the level of waste and any impacts associated with the generation of the waste in Table 14-3. Management measures address management of waste only. Measures specific to terrestrial fauna, marine fauna and migratory shorebirds are addressed in Chapters 15, 16 and 17 respectively.

Table 14-3: Waste Management Measures

Potential Impacts	Mitigation Measure	Desired outcomes and effectiveness
Generation of wastes from construction (building, civil and marine) works	<ul style="list-style-type: none"> Develop waste management plans for each aspect of construction (dredging and reclamation, marine works, building works and civil works) Construction waste is not to be disposed to the marine environment at any time Construction waste (with the exception of clean fill) is not to be disposed into the terrestrial environment of the port or the reclamation area. As outlined in the NAGD, dredge material is a natural resource that can be beneficially reused for reclamation and not a waste 	<ul style="list-style-type: none"> Avoid impacts to the marine and terrestrial environments within and surrounding the Project footprint from waste during all periods of construction Waste management and disposal is highly regulated through a range of legislation, strategies and policies and management measures have been proven to be effective across countless construction sites

Potential Impacts	Mitigation Measure	Desired outcomes and effectiveness
	<ul style="list-style-type: none"> ▪ Specific waste management locations will be identified prior to the commencement of construction and designated collection bins, or other appropriate containers will be supplied to facilitate waste segregation ▪ Use of devices to prevent litter entering the water such as sediment fences and trash racks ▪ Materials recycling or re-use on site will be encouraged ▪ Loose waste and bins will be kept covered to secure waste to prevent wind, rain or animals spreading litter or contaminants through the Project footprint ▪ The Project footprint will be maintained in a clean and tidy manner and waste will be progressively removed from site and not allowed to stockpile ▪ The collection and transport of waste from the Project footprint will be by licensed contractors and disposed of at waste disposal facilities licensed for the various waste streams ▪ Avoid stockpiling concrete during demolition and ensure isolation of concrete from other waste. Concrete to be re-used as fill where possible ▪ Demolition timber to be separated on site and recycled where possible ▪ A complete inventory, including material safety data sheets, of chemicals to be used on site will be developed and maintained ▪ Chemicals and fuels, including empty drums, are to be stored in appropriately bunded areas in accordance with relevant regulations. The volumes of these chemicals/fuels on site are to be kept below limits for notifiable activities or, if above these limits, appropriate permits and license are to be obtained ▪ Any unknown or suspected contaminated material will be handled and disposed of in accordance with Project-specific contaminated land management plans and legislative requirements ▪ The movement and quantities of wastes and recovered materials on/off site will be recorded in accordance with legislative requirements ▪ Provide self-contained toilets (Portaloos or similar) on site for the duration of construction which will be transported and regularly serviced by a licensed contractor ▪ Daily inspection and removal of litter from the site and adjacent areas ▪ In the event of any of waste release into the environment (marine or terrestrial), the incident will be reported following the requirement of the EM Framework and the relevant incident response plan. Appropriate spill clean-up procedures will be followed 	

Potential Impacts	Mitigation Measure	Desired outcomes and effectiveness
Generation of wastes from operations including residential, commercial and retail uses	<ul style="list-style-type: none"> Develop waste management plans during detailed design for all open space and recreational areas including the foreshore park and boat ramp for non-motorised recreational vessels Identify specific waste management locations in the Project footprint during detailed design. Supply designated collection bins or other appropriate containers to facilitate segregation and encourage waste recycling or re-use Keep loose waste and bins covered to secure waste to prevent wind, rain or animals spreading litter or contaminants through the Project footprint Install educational signage in parks and other recreational areas, explicitly stating the risk to wildlife of disposing of rubbish in the water Collect and dispose of wastes from residential, commercial and retail development in accordance with council requirements and by licensed contractors at licensed waste disposal facilities Remove any trade or regulated waste by a licensed trade waste contractor to a licensed reception facility Comply with building standards and codes for urban sewer. Secondary containment of overflow devices to be incorporated in landscaping Design commercial sites to incorporate storage bin areas that capture 'fugitive' waste. Lidded bins are appropriate for the waste stream to prevent vermin and wildlife impacts Provide appropriate and sufficient containers for litter, including Tangler bins for the disposal of damaged fishing line and tackle at land-based recreational fishing locations within the Project footprint Store chemicals and fuels, including empty drums, in appropriately bunded areas in accordance with relevant regulations Handle chemical and fuels in accordance with the appropriate material safety data sheets and manufacturer specifications. Transport and store in containers that are fit for purpose Handle and dispose of any contaminated material in accordance with legislative requirements 	<ul style="list-style-type: none"> Minimise waste escaping into the marine and terrestrial environments within and surrounding the Project footprint and avoid any spills outside of containment areas Waste management and disposal is highly regulated through a range of legislation, strategies and policies and management measures. The measures proposed are expected to be highly effective RCC Waste Reduction and Recycling Plan 2021-2030 is the current basis for waste management within the Redland City LGA. The latest RCC plan is "the first stage of a broader 30-year strategy to create a zero-waste society by 2050". This Plan will be adhered to during construction and operation of the Project
Generation of wastes from operations at the ferry terminal and marina	<ul style="list-style-type: none"> Develop waste management plans for the marina and ferry terminal and include in lease and contract documentation Provide a pump out facility for removal of sewage from recreational boats within the marina Identify specific waste management locations in the Project footprint during detailed design. Supply designated collection bins or other appropriate containers to facilitate segregation of waste types and encourage waste recycling or re-use 	<ul style="list-style-type: none"> Minimise waste escaping into the marine and terrestrial environments within and surrounding the Project footprint and avoid any spills outside of containment areas. The measures proposed are expected to be highly effective Waste management and disposal is highly regulated through a range of

Potential Impacts	Mitigation Measure	Desired outcomes and effectiveness
	<ul style="list-style-type: none"> ▪ Keep loose waste and bins covered to secure waste to prevent wind, rain or animals spreading litter or contaminants through the Project footprint ▪ Install educational signage in car parks and other communal areas, explicitly stating the risk to wildlife of disposing of rubbish in the water ▪ Remove any trade or regulated waste by a licensed trade waste contractor to a licensed reception facility ▪ Store chemicals and fuels, including empty drums, in appropriately bunded areas in accordance with relevant regulations ▪ Handle chemical and fuels in accordance with the appropriate material safety data sheets and manufacturer specifications. Transport and store in containers that are fit for purpose ▪ Handle and dispose of any contaminated material in accordance with legislative requirements 	legislation, strategies and policies and management measures

14.5. Residual Risk of Impact

The risk of significant residual impacts from waste generation has been assessed following the methodology outlined in Chapter 6 of the EIS. The risk of significant residual impacts to MNES such as terrestrial and marine flora and fauna and migratory shorebirds has been addressed in Chapters 15, 16, and 17 respectively. Risk of impacts from waste to ecological sensors is considered low if managed appropriately (Table 14-4).

This chapter has provided an assessment of the likely waste phases and streams associated with the Project and a description of potential impacts that could occur if waste is not contained, reduced or recycled effectively. Risks generally will arise from failures in short term storage or transport/reticulation. Assessment of the quantity of waste materials is unable to be carried out until the Project's detailed design phase, however the type of waste generated and management measures for appropriate handling of the various waste streams are addressed through this EIS.

Table 14-4: Waste Risk Assessment for Key Activities.

Activity	Initial risk assessment					Mitigated risk assessment				
	Scale	Duration	Impact	Likelihood	Risk	Scale	Duration	Impact	Likelihood	Residual risk
Generation of wastes from construction (building, civil and marine) works	Local	Medium	Medium	Possible	Medium	Site	Medium	Low	Not Likely	Very Low
Generation of wastes from operations including residential, commercial and retail uses	Local	Permanent	High	Possible	High	Local	Permanent	Medium	Not Likely	Low
Generation of wastes from operations at the ferry terminal and marina	Local	Permanent	High	Possible	High	Local	Permanent	Medium	Not Likely	Low