15 WASTE

15.1 Introduction

This Chapter provides a summary of technical information from other chapters of the Glebe Option EIS (Volume 4) in relation to waste management and minimisation for the Glebe Option. The proposed management measures described below are reflected in the draft Glebe EMP.

15.2 Methodology of Assessment

15.2.1 Regulatory Requirements

The regulatory requirements governing waste management are contained within the Queensland *Environmental Protection Act 1994* (EP Act), the *Environmental Protection Regulation 1998* and associated *Environmental Protection (Waste Management) Policy 2000* (EPP Waste), and the *Environmental Protection (Waste Management) Regulation 2000 (EPR Waste)*.

The EP Act is the principal piece of legislation that governs issues related to the management of waste in Queensland. The EPP Waste is subordinate legislation to the Act. The purpose of this policy is to protect and enhance environmental values, namely the well-being of people and ecosystems. The EPR Waste is also subordinate legislation to the EP Act that focuses on waste services and infringement penalties.

The EPP Wasteprovides a strategic framework for managing wastes by establishing a preferred waste management hierarchy:

- waste avoidance
- waste reuse
- waste recycling
- energy recovery from waste
- waste disposal

The EPP Waste also requires that 'cleaner production' should be considered in determining how waste is managed. A cleaner production program is defined as:

> *A program to identify and implement ways of improving a production process so that the process –*
> *(a) uses less energy, water or another input; or*
> *(c) generates less waste; or*
> *(c) generates waste that is less environmentally harmful.*

The EPP Waste does not specify criteria for activities or development. Rather, it lists the issues and guidelines that the administering authority must consider when making a decision to approve a development application. Guidelines set out by the EPP Waste will, therefore, be the basis of any waste management strategies employed for the Glebe Option.

Certain waste management activities (including disposal and transport of waste) are environmentally relevant activities that require approval under the EPA Regulation.

Part 3, Section 13 of the EP Act 1994 defines waste as follows:

- *anything left over, or an unwanted by-product, from an industrial, commercial, domestic or other activity; or surplus to the industrial, commercial, domestic or other activity generating the waste. The resource need not necessarily be of value;*
- *a gas, liquid, solid or energy, or a combination of any;*
- *a resource that would otherwise be classified as a waste under Section 13, but that the administering authority considers to have a beneficial use other than disposal, may be approved as not constituting waste under the EP Act.*

General and regulated wastes are defined in EPP Waste and EPR Waste respectively as:

- *general waste means waste other than regulated waste; and*
- *regulated waste has the meaning given by the EPR Waste as non-domestic waste mentioned in Schedule 7 (whether or not it has been treated or immobilised) and includes:*
  - *for an element, any chemical compound containing the element; and*
  - *anything that has contained the waste.*

15.2.2 Identification of waste streams

Potential waste streams from the Glebe Option were identified by reviewing the conceptual design and activities required to carry out the Glebe Option, through construction, operations and decommissioning of the construction camp phases.

15.3 Waste Generation

15.3.1 Workshop, plant and equipment

Waste generated from these activities is likely to be similar for construction of the weir and pipeline. Plant and equipment required will include excavators, cranes, bulldozers, delivery trucks for sand, gravel and concrete, and tub-grinders (Chapter 5).

15.3.2 Hazardous waste

Likely regulated wastes generated throughout construction include:

- hydrocarbon wastes including oil, oil-water mixtures;
- vehicle and equipment washdown waters and surfactants;
- tyres;
- hydraulic fluid;
- packaging including steel drums and plastics;
- cement additives and solvents; and
- batteries.

The generated wastes can impact receiving water quality of local water courses and create potential contaminated soil.

15.3.3 Ablutions

It is expected that a maximum of 30–40 personnel shall be working on the weir raising at any one time. A typical allowance is 20–30 construction workers during the initial construction period with a professional workforce of 10. Construction camp accommodation would be located close to Taroom with access to local sewage treatment and

disposal systems. Existing amenities will not be sufficient for the number of people on-site during construction and pump-out facilities will be installed.

Pipeline construction will utilise approximately 50 personnel and construction camp accommodation would be located close to Taroom or Wandoan. Portable day camps and corresponding facilities would be installed at selected locations to support mobile work teams.

15.3.4 Other forms of waste water

Erosion and sediment control devices will trap stormwater on the main works area for the weir. Significant sediment basins are not envisaged as the catchments are small; however, some water will be temporarily retained. No standing water is expected to be retained within stormwater management systems employed along the pipeline route.

15.3.5 Office and domestic waste

A temporary construction office catering for approximately 10 staff will be located at the weir site. Waste generated includes paper, toner cartridges, general refuse including recyclable cardboard and plastics as well as putrescible waste. Paper and toner usage are expected to be minimal with the low number of office staff. Pipeline office needs will also be catered for in this location.

15.3.6 Construction Waste

Concrete and steel waste and demolition waste from works associated with the weir will be generated. Packing crates, pallets, cardboard and plastic packaging waste will be generated via delivery of materials and supplies to site.

15.3.7 Excess Spoil

Spoil (excavated soil and rock) will be produced at the weir and from the pipeline. Potential impacts are smothering of vegetation from stockpiling and erosion and sedimentation. Spoil at the weir site is expected to be re-used in works such as levee construction. A greater volume of excess spoil is expected to be generated from pipeline excavation. The potential for this spoil to be contaminated is considered to be minimal as the surrounding areas of the proposed work sites have been largely undisturbed and unlikely to have been subject to any form of contaminating activity. The exception is in the vicinity of cattle yards, one of which is on the proposed pipeline alignment (refer to Chapter 7 - Land).

15.3.8 Green waste

Vegetation will be required to be removed around the perimeter of the weir site to allow for construction access (<5ha). It is proposed that the tree and shrub vegetation within the inundation area will be cleared except in the upper riparian zone of tributaries or where there is significant vegetation near FSL in the Dawson River. The total area of vegetation to be cleared is 690.14 ha. Only limited clearing of vegetation will be required for the pipeline

route, as it crosses grazing land that is largely cleared and follows Nathan Road reserve, apart from minor deviations across private land. The pipeline easement will require a total disturbance area of approximately 253 ha, of which 10.63 ha (7%) is currently remnant vegetation and 4.87 ha (2%) is currently non-remnant re-growth.

15.3.9 Emissions

Vehicle emissions will be generated by construction vehicles during any land clearing and earth moving activities, and light vehicle movements to and around the work sites. These impacts are expected to be minor, and are discussed in greater detail in Chapter 10 (Air quality and greenhouse gas).

15.4 Waste management

Wastes generated by the Glebe Option have the potential to create impacts upon the air quality, water quality and soil quality if they are not properly managed. The EPP Waste sets out a hierarchy for waste management which is considered to achieve the best environmental outcomes for projects in Queensland (see Section 15.2.1).

This hierarchical structure will be considered for all activities associated with the Glebe Option that are likely to produce significant waste streams. The principle of waste avoidance will be employed wherever practical to reduce raw materials required and optimise efficiency of materials that are used.

Waste streams produced as part of the Glebe Option will in the first instance be reused and recycled. Disposal of material to landfill will be last resort for waste management.

A detailed Waste Management Plan (Glebe Option) will be prepared as part of the Glebe Option EMP prior to commencement of construction. The Waste Management Plan will identify the waste management strategies listed below.

15.4.1 Construction waste

Sub-contractors conducting on-site servicing of vehicles and machinery will be required to hold a relevant approval (temporary) ERA 28: Motor Vehicle Workshop under provisions of the EP Act.

Oils, grease, hydraulic fluid or chemical waste are to be disposed of in a lawful manner as this material or any other material contaminated by fuel and chemical residues, is likely to be classified as 'regulated waste'.
The amount of regulated waste to be generated is expected to be of a minor volume. Appropriate measures will be taken to store, contain and dispose of such wastes in suitable containment devices to ensure prevention and minimisation of releases to land and waters. Such measures include:

- all liquid contaminants will be stored in designated storage areas and appropriately bunded or otherwise contained in accordance with *Australian Standard 1940 – The Storage and Handling of Flammable and Combustible Liquids;*
- weekly inspection of work sites will be undertaken to detect any chemical/oil spills;

- all spillages of fuels and chemicals in the works area are to be contained and cleaned up immediately using appropriate equipment (e.g. on-site spill kits). Soils that are contaminated by hydrocarbons can be treated by bioremediation techniques on-site, or removed and disposed of at a licensed facility;
- servicing of all machinery and equipment is to be conducted off-site except for minor routine activities; and
- should a significant spill occur which potentially causes or threatens environmental harm, the EPA will be notified, the cause of the incident investigated and effective measures to cease discharge and recover contaminants implemented.

Construction and demolition waste will be reused on-site whenever possible; either as raw material or used as fill on-site. No recycling facilities for construction wastes were identified in the area. Nevertheless, further investigation will be undertaken if any of this waste is required to be moved off-site. Packaging materials will be treated as described for office and domestic waste (Section 15.3.5).

15.4.2 Green Waste

All vegetation cleared will be recycled wherever possible as millable timber, artisans' raw material, fauna habitat, mulch for site reinstatement or firewood. The suitability of the material for these purposes is provided in Chapter 12 –Terrestrial ecology.

Mulching of suitable vegetation will be undertaken for use in rehabilitation and stabilisation of exposed areas during construction and site rehabilitation. Vegetation will also be used in erosion control on embankments. Burning on-site would only be considered where material is unable to be re-used or if burnt for energy generation. For the pipeline, little millable timber was found so the remaining material will be mulched other than that which the construction contractor pushes to the edge of the pipeline alignment where it will provide fauna habitat and retard runoff.

15.4.3 Excess spoil

Excess spoil will be used in rehabilitation, levee banks at the weir or for embankments associated with the Surat Basin Rail (SBR) railway corridor (pending confirmation of need and agreement with SBR). Selective use in appropriate areas (e.g. badly gullied sites) followed by revegetation with trees is an option that will be pursued. Excess spoil which is not re-used will be shaped to conform to the surrounding landscape, topsoiled and revegetated according to the Glebe EMP.

15.4.4 Office and domestic waste

On-site segregation of paper / cardboard, plastic, glass, aluminium cans and scrap steel will be processed at the Biloela transfer station. Segregated materials will be securely stockpiled until an economic volume can be transported. Further investigation of local recycling opportunities will be undertaken; for example, local schools, Scouts or other community groups may be involved in the recycling of aluminium cans.

Putrescible wastes generated by mess facilities will be collected on-site in lidded industrial bins stipulated by the EPR Waste. To ensure no spills, leaks or other environmental incidents associated with waste handling or storage, all putrescible waste will not be disposed of on-site, instead it will be transported and disposed of by licensed contractors to appropriate treatment or receiving facilities.

15.4.5 Ablutions

Temporary ablution facilities will be installed at locations (to be confirmed at the detailed design phase) for the weir site and along the pipeline. Excluding portable toilets, sewage produced from these facilities will be stored in a closed tank with appropriate odour treatment. Tanks shall be sized, installed and maintained correctly so as not to result in leaks, overflow sewage or impact the surrounding air quality. Emptying of tanks will be scheduled as appropriate and transport and disposal of sewage will be by a licensed contractor. Portable toilets specifically to be used along the pipeline route, shall be serviced regularly and wastes disposed by a licensed contractor.

15.4.6 Other forms of waste water

Grey water from the office and showers will be kept separate, labelled as unfit for human consumption and used for dust suppression. Stormwater retained in sediment and erosion control devices will be pumped out and similarly used in dust suppression.

15.4.7 Decommissioning of construction site

At the completion of construction works the work sites will be decommissioned. This includes removal of all temporary buildings and structures and rehabilitation via landscaping. Treatment of all wastes will follow the processes outlined above. Within the construction footprint there are areas that may require specialised attention including decontamination, including:

- concrete batch plant;
- concrete raw materials stockpiles;
- construction water storage tank facilities;
- water treatment plant;
- construction offices;
- workshops;
- ablutions facilities;
- storage areas;
- bulk fuel supply tanks; and
- refuelling areas.

The final treatment methods applied at potential areas of contamination will be at the discretion of the contractor but will be in accordance with the controlling regulations.

15.5 Summary

The management of waste associated with the construction, operation and construction site decommissioning of the Glebe Option will be undertaken in accordance with relevant legislative requirements, guidelines and the Waste Management Plan (Glebe Option).

It is anticipated that the majority of waste generated as a result of the Glebe Option can be beneficially reused within the Project or perhaps in nearby contemporaneous projects. Where wastes cannot be reused, recycling opportunities will be put in place. Appropriate facilities exist in the local region (e.g. sewage treatment in Taroom or regulated landfills in Taroom and Wandoan) to accept wastes disposed offsite.

The Glebe Option EMP (Chapter 21) that describes measures to reduce or negate impacts for waste.