



APPENDIX D - ENVIRONMENTAL RISK ASSESSMENT AND MITIGATION MEASURES

The following section provides recommendation for mitigation measures in response to potential impacts identified in **Section 6** of the EIS for SSD-29999239 – Rooty Hill Materials Recycling Facility. The structure of mitigation measures is based on the DPIE’s hierarchy of approaches for managing impacts identified in the *Draft Environmental Impact Assessment Guidance Series* released by DPE in June 2017, as:

- **Performance based measure** – identify performance criteria that must be complied with to achieve an appropriate environmental outcome but do not specify how the outcome is to be achieved.
- **Prescriptive measure** – require action to be taken or specify something that must not be done.
- **Management based measure** – identify one or more management objectives that must be achieved through the implementation of a management plan.

Following the implementation of appropriate mitigation measures as recommended, it is determined that the proposal will not result in any significant adverse impacts on the surrounding environment. The following table illustrates how the matters raised within the SEARs will be addressed.

This analysis comprises a qualitative assessment consistent with AS/NZS ISO 31000:2009 *Risk Management–Principles and Guidelines* (Standards Australia 2009). The level of risk was assessed by considering the potential impacts of the proposed development prior to application of any mitigation or management measures. In accordance with the SEARs, the Environmental Risk Assessment (ERA) addresses the following significant risk issues:

- The adequacy of baseline data;
- The potential cumulative impacts arising from other developments in the vicinity of the site; and
- Measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Risk comprises the likelihood of an event occurring and the consequences of that event. For the proposal, the following descriptors were adopted for ‘likelihood’ and ‘consequence’.

Likelihood		Consequence	
A	Almost certain	1	Widespread and/or irreversible impact
B	Likely	2	Extensive but reversible (within 2 years) impact or irreversible local impact
C	Possible	3	Local, acceptable or reversible impact
D	Unlikely	4	Local, reversible, short term (<3 months) impact
E	Rare	5	Local, reversible, short term (<1 month) impact

The risk levels for likely and potential impacts were derived using the following risk matrix.

		LIKELIHOOD				
		A	B	C	D	E
CONSEQUENCE	1	High	High	Medium	Low	Very low
	2	High	High	Medium	Low	Very low
	3	Medium	Medium	Medium	Low	Very low
	4	Low	Low	Low	Low	Very low
	5	Very low	Very low	Very low	Very low	Very low

The results of the environmental risk assessment for the proposed development are presented in the below table and are based upon the range of technical and specialist consultant reports appended to the EIS. The table has directly related mitigation measures responding to each impact also based upon the range of technical and specialist consultant reports appended to the EIS.

N.B. ‘O’ – Operational; ‘C’ – Construction

‘Pe’ – Performance based mitigation measure; ‘Pr’ – Prescriptive based mitigation measure ‘Ma’ – Management based mitigation measure

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Waste Management	Waste from demolition and construction	C	B	3	Medium	Implementation of the Waste Management Plan to manage waste and recycling and minimise waste being disposed in landfill, in line with the waste management hierarchy in the <i>Waste Avoidance and Resource Recovery Act 2001</i> .	Ma	Low
	Ongoing waste from day-to-day operations (office)	O	B	3	Medium	Implementation of the Waste Management Plan to manage waste and recycling and minimise waste being disposed in landfill, in line with the waste management hierarchy in the <i>Waste Avoidance and Resource Recovery Act 2001</i> .	Ma	Low
	Waste from Materials Recycling Facility Operation	O	B	3	Medium	Implementation of the Waste Management Plan to manage waste and recycling and minimise waste being disposed in landfill, in line with the waste management hierarchy in the <i>Waste Avoidance and Resource Recovery Act 2001</i> . During the MRF processing, the WMP contains guidelines for dealing with non-conforming waste through quality control, waste tracking through measuring the weight of vehicles entering and exiting the site and utilising Cleanaway’s offsite facilities to minimise and manage recyclable materials transported, generated and received for processing.	Ma	Low
Traffic and Transport	Impacts on road network from construction and operational phase. Additional demand on car parking spaces.	C & O	D	4	Low	Traffic control would be required to manage and regulate construction vehicle traffic movements to and from the site during construction.	Ma	Low
Noise and Vibration	Impacts on surrounding landowners from construction and operational phase.	C & O	D	4	Low	Vibration associated with truck activity and onsite activities is predicted to comply with the relevant NSW guidelines at the nearest sensitive receivers. Any vibrating equipment used onsite is to be adequately isolated to prevent vibration issues to nearby receivers and is reviewed by a qualified acoustic consultant. If complaints are received for vibration, management controls are to be implemented, including A Noise Management Plan to determine additional suitable mitigation strategies and or acoustic treatments in the event that noise complaints are received.	Ma	Low
Air Quality	Impacts from demolition and construction phase	C	B	4	Low	Implement an Air Quality Management Plan (AQMP), which contains procedures for dust management, etc associated with construction. The AQMP also contains procedures on recording, evaluating and actioning on complaints arising from proposed activities.	Ma	Low
	Impacts from operational phase	O	D	4	Low	Implement design solutions including all materials receipt, handling, processing and loading activities will occur in an enclosed building. Fast acting roller shutter doors will be closed at all times except to allow the ingress and egress of vehicles. Implement an Air Quality Management Plan (AQMP), which contains procedures for dust management, etc associated with construction. The AQMP also contains procedures on recording, evaluating and actioning on complaints arising from proposed activities.	Ma	Low

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Soils and Water	Impacts from soil quality	C	D	3	Low	The proposed development will be designed to meet Australian Standards that will be suitable for the existing geotechnical conditions of the site.	Ma	Low
	Impacts on downstream water quality	C & O	D	2	Low	Implement the Stormwater Management Plan for the site, including on-site stormwater detention and contribution to offsite water quality management. A sediment and erosion control plan will ensure downstream receiving waters are not adversely impacted by construction activities	Ma	Low
Contamination	Soil and groundwater contain contaminants	C	D	3	Low	Whilst findings indicate the site is suitable for the proposed use, further site investigation will be undertaken prior to the construction of the proposed development following demolition of existing structures on site. Implementation of an unexpected finds protocol (UFP) to address any additional contamination identified during site works and implementing contamination mitigation measures if required.	Ma	Low
Infrastructure requirements	None. The site has access to existing utility services	O	E	5	Very low	Consultation with utility providers to facilitate connection to existing utility services.	Ma	Very low
Fire and Incident Management	Combustible materials stockpiled on site	O	C	3	Medium	Stockpiles of combustible materials are sorted, separated. Valuable materials are compacted, binded and located in storage areas for collection from site. Solid waste materials that have no value are separated and stockpiled to be sent to landfill. Recovered glass is stored in a container. It is noted that these storage areas are located in fire compartments. Each fire compartment is proposed to be separated from one another by full height pre-cast concrete walls. Openings in the walls are proposed to be protected through either a fire shutter (in the case between Compartment 1 and Compartment 2) or sliding fire doors (in the case between Compartment 2 and 3).	Pe	Low
	Spread of fire	O	C	3	Medium	The building is designed with separated fire compartments and includes a fire hydrant and sprinkler systems. The system also includes smoke hazard management and fire water run-off containment.	Pe	Low
Hazards and Risks	Storage of dangerous goods on site (liquid petroleum gas for forklifts)	O	D	3	Low	The quantity of dangerous goods on site is below the threshold for detailed assessment. The storage of LPG on site shall be in accordance with an Operational Plan of Management.	Ma	Low
Aboriginal Cultural heritage	Construction impacts on significant Aboriginal artefacts of place of significance	C	D	3	Low	The project would implement an Unexpected Finds Procedure to manage any potential Aboriginal objects that may be located during construction.	Ma	Low
Urban Design and Visual	Visual impacts from the built form on surrounding sensitive receptors	O	D	3	Low	Implement landscaping to provide visual screening around the perimeter of the site and soften the appearance of built form on adjoining land uses.	Pr	Low
Socio-Economic	Impact on the social quality or equity or economy in the locality.	O	E	5	Very low	None. The proposed development is considered to provide public benefit.	Ma	Very low
Biodiversity	Demolition and construction resulting in loss of flora and fauna.	C	A	3	Medium	Implementation of planting of Cumberland Plain Woodland trees and purchase of 4 PCT ecosystem credits.	Pr	Low

SEARS	Potential Impact	Stage of Project	Likelihood	Consequence	Risk Level	Approach	Mitigation Measure (Pe/Pr/Ma)	Residual Impact
Ecologically Sustainable Development	Ecological impacts that would contribute to climate change and inter-generational impacts.	O	D	3	Low	Implementation of sustainability initiatives proposed for the facility including, but are not limited to: Space efficient building layout. Water sensitive urban design principles. High efficiency equipment and lighting. On-site renewable energy generation in the form of a rooftop solar array. Incorporation of good daylighting to reduce lighting power usage. Installation of a rainwater capture and reuse systems. Natural ventilation to open spaces. Waste storage spaces to promote recycling and sortation.	Pe & Ma	Low