

Appendix ZD – Mitigation Measures

Environmental Management	Mitigation Measures
Waste Management	Construction Waste Management - Materials generated during construction, installation and fit out would be managed in accordance with the management methods outlined in the CEMP and WMP prepared for the Project. In particular, materials would be reused on site where possible (e.g. landscaping, contouring) and recycled in other circumstances (e.g. cardboard, packing materials), with disposal the least desirable option. Operational Waste Management - The unloading of materials from trucks would be within the designated reception bunkers in the receival building, minimising the potential for litter and debris to migrate to external areas. - Daily litter patrols would be implemented to ensure the Site is kept tidy. - Waste generated from office/ancillary operations would be separated into residual, commingled recycling and FOGO to maximise diversion from operations. - Non-conforming wastes would be separated from organic material and managed according to type, with a preference for resource recovery. - The Site would be regularly maintained and green waste processed on-site. - Record Keeping and Reporting would be in accordance with the PoEO (Waste) Regulation. - The site would operate in accordance with an OEMP and an EPL. NALG would prepare an OEMP to reflect operations of the facility at the proposed capacity of 146,000 tpa. The OEMP would be prepared in accordance with the <i>NSW Composting and Related Organics Processing Facility Guidelines 2004</i> and would address matters relating to the waste management aspects of operation and maintenance of the facility.
Air Quality	Construction Controls during construction would include the following: <u>Communications:</u> Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.

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	• Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. • Display the head or regional office contact information. <u>Dust Management</u> • As part of the CEMP, develop and implement a construction dust management plan (DMP) which would include, but not be limited to, measures to prevent dust from affecting the amenity of the surrounding area, all materials to be stored or stockpiles at suitable locations and stockpile size height managed, and regular cleaning of haul roads. <u>Site Management</u> • Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken. • Make the complaints log available to the local authority when asked. • Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook. <u>Monitoring</u> • Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, and make the log available to the local authority when asked. • Weekly inspection of equipment and recording of inspection results. • Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked. • Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. <u>Site Layout</u> • Plan site layout so that machinery and dust-causing activities are located away from receptors, as far as possible. • Fully enclose specific operations through solid screens, tarps or barriers where there is a high potential for dust production and the site is active for an extensive period. • Avoid site runoff of water or mud. • Keep site fencing, barriers and scaffolding clean using wet methods.

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	- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on-site. If they are being re-used on-site cover or otherwise minimise risk of dust emission. - Cover, seed or fence stockpiles to prevent wind whipping. - Use of dust suppressants, place stockpiles in sheltered areas away from wind. - Use of concrete blocks to bunker stockpiled material. <u>Operating Vehicle / Machinery</u> - Ensure all vehicles switch off engines when stationary – no idling vehicles. - Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable. - Impose and signpost maximum speed limit on Site. - Use water-assisted dust sweeper on the access and local roads, to remove, as necessary, any material tracked out of the Site. - Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport. - Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable. <u>Construction Activities</u> - Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction (e.g., suitable local exhaust ventilation systems). - Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate. - Use enclosed chutes and conveyors and covered skips. - Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate. - Ensure equipment is readily available on site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. <u>Waste Management</u> - Materials to be collected and stored appropriately.

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	- Waste material is not to be burnt. Operation Controls during operation would include the following: - Regular odour monitoring would be undertaken. - Visual inspections of dust plumes would be undertaken to identify strong or unpleasant odours or dust and take appropriate action to control these. - An OEMP would be prepared for the Site which would include details on complaints management. - Stack sampling would be undertaken as part of the commissioning phase to verify potential emissions from the CHP and Flare to ensure no excess and unexpected emissions. - Stack tests would be conducted to confirm that operation is stable and operating correctly within 6 months of completion and at 6 monthly intervals thereafter. - Regular inspection and maintenance of the control equipment and process monitoring would be undertaken. - A complaint management procedure would be established.
Noise and Vibration	The construction, operational and on-road traffic noise assessment concluded that predicted noise levels comply with applicable noise criteria. Nevertheless, the following mitigation measures would be implemented to maintain compliance: Construction - Breaks would be incorporated during equipment operation. - Construction would be restricted to the ICNG recommended standard working hours of Monday to Friday 7am to 6pm and Saturday 8am to 1pm only. - Potentially noise affected receivers would be contacted before site work begins and informed about the nature of the construction stages and the duration of noisier activities. - A complaint register would be maintained, and contact details would be provided on a board at the front of the site. - Should complaints arise, noise generated on-site would be surveyed to determine actual working noise levels. Operation - All roller doors would remain closed during nighttime operations to limit noise within respective buildings.

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	- Noise complaints would be logged in a complaints register. - Onsite plant and equipment would be regularly maintained. - Noisy activities would be subject to iterative review and improvement measures. - The NALG fleet would be regularly maintained.
Biodiversity	The project would be undertaken in accordance with detailed mitigation measures outlined in Section 7.22, Section 7.3 and Section 8 of the BDAR (Appendix N) and Section 7 of the Arborist Impact Assessment (Appendix O). Biodiversity credits would be obtained to offset impacts to PCT 3544 - Coastal Sands Apple Blackbutt Forest and Petaurus norfolcensis (Squirrel Glider). Koala management would include: - Vegetation retention and protection: Retain and protect areas of PCT 4006 that contain Schedule 1 Koala feed tree species, with retained vegetation clearly marked before works begin. - Koala exclusion fencing: Install Koala-proof fencing around the operational footprint to stop Koalas from entering active areas and reduce the risk of vehicle strike. - Habitat-sensitive lighting: Use low-intensity, downward-facing lighting to reduce light spill into nearby habitat, with motion sensors used where practical. - Vehicle speed control: Set reduced speed limits (20 km/h or less) on internal haul roads, supported by fauna warning signage. A 20m buffer area for protection of the Plant Community Type (PCT) 4006 would be provided A squirrel glider connectivity zone would be provided on the eastern side of the development Plant Community Type (PCT) 4006 would be subject to a Biodiversity Management Plan A Squirrel Glider Management Plan would be established.
Water and Flooding	Construction - An ESCP would be implemented for construction works. - A CEMP would be developed to include staging of works, prioritising stormwater infrastructure. Operation Operations will be conducted with the following controls in place:

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	• 2 raingardens and 1 infiltration basin for stormwater quantity and quality - minimum levels of stormwater basins no lower than 1.70m AHD • Pit and pipe network and swales to drain runoff from the developable area (excluding buildings) – graded so that outlet no lower than 1.70m AHD • 2 x 430 kL water tanks for stormwater quantity and quality management of runoff from the building rooftops • 4 swales to divert off-site runoff from upstream around the developable area • 2 culverts to convey off-site runoff between the swales and underneath the developable area • Filter media for water quality management would be no thicker than 450mm • Monitoring of moisture content of inputs, processing and outputs • Connection to mains water • Testing regime for surface water and groundwater to be established to address guidelines • Tradewaste agreement for leachate discharge.
Soils and Contamination	The Geotechnical Report provides detailed recommendations on construction materials and techniques, summarised below. Design • The Site has been classified in accordance with AS2870-2011 “Residential Slabs & Footings”. While not for residential purposes, this document is considered to contain appropriate guidance and recommendations. • The footings should be designed in accordance with engineering principles based on specific site conditions, which may include incorporation of piers / piling. • The design has been modified to limit the risk of impacting groundwater or PASS. If deeper foundations are identified as required during the detailed design process, potential impacts on groundwater and PASS to be further considered. Footings • Compaction would be required prior to placement of concrete foundations. • The use of temporary liners could be required to support the soil. • Use of piling may be suitable to address ground conditions. Earthworks & Retaining Walls

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	• Clearing would be required, which would expose the underlying sandy soils. Where earthworks would be through sandy profiles, allowance should be made for use of a granular foundation replacement. • Appropriate excavation support could be required, dependent on ground conditions, dewatering method and method of construction. • Detailed design would be informed soil parameters identified in the Geotechnical Report. • Retaining walls are proposed around the western and southern sides of the facility to minimise development footprint while providing a secure construction base. • Where required, fill material should be compacted in near-horizontal uniform layers placed in such a way that provides adequate drainage and prevents ponding during construction. • The geotechnical report provides guidance on specifications for materials, temporary batter slopes, permanent batter slopes and retaining walls. Roads • The geotechnical report provides specifications and standards to apply in road design, construction and drainage. Construction • Clearing - Topsoil, root affected material and existing sand fill should be removed to expose sandy soils using a sand or mud bucket to minimise disturbance of the sand profile. • Detailed design and construction methodology to be informed by geotechnical studies to provide for Site stability and prevention of erosion but should apply these principles: ○ Progressive Clearing: Minimise the footprint of exposed sand at any one time. ○ Temporary Covering: Apply mulching, erosion control blankets, or geotextiles immediately following stripping. ○ Diversion Drains: Use shallow bunds and diversion banks to redirect clean water around disturbed areas. ○ Sediment Basins: Construct appropriately sized basins to capture runoff, noting that high infiltration soils may require lining or sump stabilisation ○ Wind Erosion: Install dust suppression measures (watering, hydro-mulching, wind fences) during dry periods. ○ Revegetation: Establish groundcover rapidly using grass and shrub species suited to sandy soils. ○ Surface Drainage: Direct flows away from exposed sandy batters and towards stabilised drains or lined channels. ○ Long-Term Protection: Maintain vegetation cover, avoid uncontrolled vehicle trafficking, and apply geofabrics or riprap in high-flow zones.

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	• Footings – compaction of soils on site would be required. • Retaining walls and batters are to be constructed in accordance with geotechnical advice. • An unexpected finds protocol for contamination is to be developed and utilised during earthworks stages. • An acid sulfate soils management plan would be prepared in accordance with the <i>NSW Acid Sulfate Soils Manual</i> and submitted to the consent authority prior to commencement of such works. • Erosion and sediment controls are detailed in the ESCP including measures for: ○ Stockpiling ○ Sediment fence ○ Straw bales filters ○ Kerb inlet sediment filter ○ Stabilised site access ○ Drop inlet filter ○ Earthbank Operation • The site would be maintained in a tidy state. • Stormwater quality improvement devices will be regularly maintained.
Bushfire	Asset Protection Zones • APZs would be established and would be maintained in perpetuity. Access • Internal roads would achieve: ○ Minimum 4m vertical clearance ○ Curves have an inner clearance of minimum 6m ○ Minimum distance between inner and outer curves in 6m ○ Crossfall is no more than 10 degrees ○ Maximum grade does not exceed 15 degrees

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	○ Suitable for minimum 23T load ○ Constructed with spray seal coating or asphalt • Suitable appliance parking to be provided adjacent to water tanks on site. Water • 2x 215kL tanks are to be provided on Site and kept full at all times. An additional 2 stormwater retention tanks (2 x 430 kL) would be provided on Site for management of stormwater and water would be available for use. Fittings to be as required for Rural Fire Service/brigade specifications. • Pump room is to be provided and fire truck area adjacent to be kept clear and unobstructed at all times. • All above ground water service pipes external to buildings would be metal, including and up to taps. Electricity & Gas • Where practicable, electrical transmission lines are to be installed underground. • Where overhead, electrical transmission lines are proposed as follows: ○ lines are installed per agreement with utility provider, which may exceed 30m spacing to avoid environmental impact; and • No part of a tree would be closer to a power line than the distance set out in accordance with the specifications in <i>ISSC3 Guideline for Managing Vegetation Near Power Lines</i>. • Relevant recommendations of Preliminary Hazard Assessment are to be complied with. • Hot work on site shall be performed under a safe work permit only. • Firefighting equipment would be provided and staff trained in its use. • Gas leak detection systems would be implemented. Construction • Buildings, structures, gates, fences and external utility infrastructure are to be constructed of non-combustible materials. • The building design should incorporate measures to avoid risk of ember attack including sealing of gaps and openings, use of gutter and downpipe leaf guards. • BAL levels would be considered for the construction of buildings. • BAL levels would be considered for non-habitable structures.

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	Landscaping • Removal of vegetation in areas of highest ecological value would be avoided. • Tree canopy cover would be less than 15% at maturity. • Trees at maturity would not touch or overhang any part of any building. • Vegetation would be managed to remove limbs up to a height of 2m above the ground. • Tree canopies would be separated by 2 to 5m. • Planting preference has been given to smooth barked and evergreen trees. • Vegetation would be spread out and would not present continuous fuel. • Shrubs should not be located under trees. • Shrubs should not form more than 10% ground cover. • Clumps of shrubs should be separated from exposed windows and doors by a distance of at least twice the height of the vegetation. • Grass would be kept mown (as a guide grass should be kept to no more than 100mm in height). • Leaves and vegetation debris should be removed. Emergency Management • A bush fire emergency management and evacuation plan would be implemented. • An emergency planning committee would be established for Site. Operational • All material would be received, stored and processed inside buildings. • The site would be maintained in a tidy condition with vegetation debris collected daily during fire season. • Gutters and vents would be cleared of vegetation regularly, in particular during fire season. • Vegetation maintenance would occur regularly to comply with required standards. • An operational environmental management plan would be developed including hazard and risk management on Site. • All staff would be appropriately trained in Site management and operations. • Maintenance of plant, fleet etc would ensure efficient running and avoid sparks.

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	Fire Suppression NALG would provide fire services including but not limited to: • Supply and installation of fire hydrants and firehose reel. • Supply and installation of fire extinguishers and fire blankets. • Supply and installation of fire pump system. • Supply and installation of fire sprinkler system in the admin building. • Supply and installation of fire detection and alarm system.
Traffic, Access, and Parking	A draft CTMP has been provided in the TIA in Appendix T. The draft CTMP provides initial details on construction traffic management, while a detailed CTMP would be developed at the pre-commencement phase of construction and updated as required. Other mitigation measures include: • All accesses and internal roads would be sealed and constructed to standards per designs. • 21 parking spaces are to be provided. • NALG will prepare a Code of Conduct post determination which will detail truck routes and ensure compliance
Infrastructure Requirements	All works and connections would be undertaken in consultation with relevant authorities and in line with approvals issued. Works would minimise environmental impacts and installation/ fitout would be subject to provisions of the CEMP.
Hazards and Risks	While there were no scenarios found to pose a significant risk, numerous recommendations were made to enhance the safety of the facility, including: • Bio-gas operations shall be subject to hazardous area classification in accordance with AS/NZS 60079.10.1:2022 and electrical equipment would be installed in accordance with AS/NZS 60079.14:2022. • Any hot work on site would be performed under a safe work permit. • Appropriate first attack firefighting equipment and staff training would be implemented to minimise the likelihood of poisonous gas evolution in the event of a fire. • Gas leak detection systems would be implemented and regularly maintained.

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	• Hydrogen sulfide detectors would be either installed at potential release points or be worn on personnel conducting maintenance. • Staff training would be implemented to limit exposure to hydrogen sulfide below standards set by Safe Work Australia. • Regular inspections and maintenance of all plant and equipment would be undertaken and recorded. • Procedures to prevent pollution and manage hazards and risks would be documented in an OEMP. • A pollution incident response management plan would be developed in accordance with <i>AS 3745 - 2010 Planning for emergencies in facilities</i>. • A register of hazardous chemicals would be compiled, including safety data sheets. Chemical use and storage would be undertaken in accordance with waste product safety data sheets. • Hazardous chemicals would be managed in accordance with the placard and manifest requirements in Schedules 11-13 of the Work Health and Safety Regulation. • Accidental spills on site would be managed through implementation of the Proponent's OEMP. A spill kit would be available and staff would be trained in the use thereof. • Personnel would be trained in response to toxic or hazardous materials emergencies and management of hazardous substances. • Personnel would be required to wear and use appropriate PPE. • Stockpiles of materials would be in designated areas and the Site would be kept clear of trip hazards. • Regular inspections of materials and storage locations would be undertaken to ensure adequacy of storage provisions. • Vehicle movements would be restricted to designated areas. Pedestrian walkways would be clearly marked where necessary. • A staff member trained in first aid would be in attendance during operations. A number of controls would be implemented on Site to control hazards and risks: • High moisture content would be retained to minimise dust'. • Air control systems – would provide for air flow and odour control. • Incident response water would be available in tanks. • Operations would be undertaken inside buildings with appropriate bunding and emission control.

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	• Spill clean up equipment would be available and staff would be trained in its use. • Training would be delivered to staff and visitors (as relevant) on specific site hazards and responses. • Fire extinguishers and blankets would be available in admin building. • Fire hydrants and fire hose reels would be provided as required by NCC assessment.
Aboriginal Cultural Heritage	As no sites or potential archaeological deposits were identified in the Site, there are no expected impacts on the archaeological record. Nevertheless, the following measures should be applied: • The persons responsible for the management of onsite works would ensure that all staff, contractors and others involved in construction and maintenance related activities are made aware of the statutory legislation protecting sites and places of significance. Of particular importance is the National Parks and Wildlife Regulation 2019, under the <i>National Parks and Wildlife Act 1974</i>. • An unexpected finds procedure would be developed and implemented during all works. • Should any Aboriginal objects be uncovered during works, all work would cease in that location immediately, the unexpected finds procedure would be followed, and the NSW DCCEEW Environment Line would be contacted. • Should unexpected Aboriginal objects or skeletal remains be identified during construction, works would cease in the immediate area and management actions would be implemented in accordance with the Unexpected Finds Procedure and relevant legislative requirements.
Non-Aboriginal Heritage	In the unlikely event of an unexpected find of historical heritage objects, archaeological relicts or sites during excavation operations, appropriate management procedures would be applied as follows: • Work would cease immediately in the vicinity of the find and site management would be notified immediately. • A qualified archaeologist would be engaged to assess the find. • NSW DCCEEW would be advised as considered necessary and any necessary approvals would be obtained prior to continuing work. • Where known objects or sites would be impacted, all recovery or management of impacts would be in accordance with a statement of heritage impact.
Built Form and Urban Design	No specific mitigation measures are proposed.

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Visual Amenity	To reduce visual impacts and support integration of the Project into the rural setting, the following measures are recommended for detailed design and implementation: • Native Vegetation Screening: Establish targeted planting of locally indigenous trees and shrubs along key sightlines. This would provide long-term screening, soften built edges and reinforce the natural character of the rural setting. • Earth-Toned Materials and Finishes: Apply non-reflective, muted colours and materials that reflect the tones of the surrounding rural environment (e.g., greens, browns, and greys) to minimise contrast. • Low-Impact Lighting: Incorporate downward-facing, shielded, and low-glare lighting to reduce spill and preserve the character of the rural night-time environment. • Landscape Integration: Where possible, use landform shaping, bunds, or contouring to integrate the built form into the surrounding topography and reduce overall visual exposure. • Progressive Planting and Maintenance: Stage planting early in the construction process to ensure screening establishes as the development progresses, with ongoing maintenance to retain visual effectiveness over time. • Signage: All signs on site would be professionally painted and maintained in a clean and legible condition. Signs would be washed at least once per month or as necessary; and • Equipment: No obsolete or useless machinery / equipment would be kept on site.
Socio-Economic	No specific mitigation measures are proposed.
Greenhouse Gas Emissions	GHG emissions would be minimised where possible using the following measures: • Double handling of materials would be avoided by optimising conditions for fleet operations. • Energy awareness programs for staff would be conducted. • Energy efficient plants would be investigated and utilised where appropriate. • Maintenance of plant and equipment would be scheduled to maintain operational efficiency.