

Appendix C

Environmental Management and Mitigation

Environmental impact	ID	Mitigation measures	Timing
Noise	NV1	- For certain construction equipment/machinery, the use of manufacturers exhaust silencing devices may be possible. These may take the form of engine shrouding, or special industrial silencers fitted to exhausts. - Noise levels of plant and equipment must have an operating sound power or sound pressure level compliant with AS 2436-2010. - Scheduling work generating noise with special audible characteristics and / or vibration levels should be enclosed by erection of temporary noise barriers as per AS 2436:1981 to shield residential receivers from noise. - Use low-vibration construction equipment where feasible (e.g., smaller rollers, non-vibratory rollers). - Implement buffer zones between heavy plant and sensitive receptors (residences, substations, instrumentation). - Stage or sequence works to avoid multiple vibration-generating activities occurring simultaneously. - Adopt soft-start procedures for vibratory rollers or impact equipment. - Use alternative construction methods such as - non-vibratory compaction - Install anti-vibration mounts (spring or elastomeric isolators) under inverters, HVAC, and transformers. - Ensure proper balancing of fans, motors, and rotating machinery to reduce operational vibration. - Conduct regular maintenance (bearing checks, belt tensioning, alignment).	Construction and operation
	NV2	The contractor should regularly service and maintain all equipment and machinery at optimum operating conditions, to minimise excessive noise emissions generated by faulty, overused, or unmaintained machinery.	Construction
	NV3	- All employees, contractors, and subcontractors must receive an environmental induction covering site operating and delivery times, nearby sensitive receivers, scheduling of noise- or vibration-generating works, designated parking and loading/unloading areas, and environmental incident procedures including but not limited to: - no amplified music or use of radios, loud conversation or shouting, - use designated access pathways, - turn off plant and equipment when not in use if feasible and practical - avoid obstruction of operational areas (such as public roads) by construction materials and equipment. - Controlled release of compressed air - Site opening / closing times (including deliveries) - Locations of nearest sensitive receivers - Scheduling of work generating noise with special audible characteristics and / or vibration levels scheduling - Construction employee parking areas - Designated loading / unloading areas and procedures - Environmental incident procedures	Construction

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	NV4	To mitigate construction noise impacts on nearby sensitive receivers, temporary noise barriers should be installed where feasible and effective. These barriers should be positioned between noisy equipment and affected receivers to provide a physical sound buffer, particularly during high-noise activities. The use of temporary noise barriers can significantly reduce noise levels by blocking direct line-of-sight sound transmission, and their design, height, and location will be selected based on site-specific conditions and the nature of surrounding land uses.	Construction
	NV5	- Queries and complaints handling: - A documented complaint process, including an escalation procedure so that if a complainant is not satisfied there is a clear procedure. - Provide a quick response to complaints, with complaint handling staff having both a good knowledge of the project and ready access to information. - Implement all feasible and reasonable measures to address the source of complaint. Complaints should be treated sensibly and be given a fair hearing in consultation with communications personnel, stakeholders, and an acoustic consultant where required. - Keep a register of any complaints, including details of the complaint such as date, time, person receiving complaint, complainant's contact number, person referred to, description of the complaint, time of verbal response and timeframe for written response where appropriate. - Noise nuisance complaints would be managed through the Construction Environmental Management Plan (CEMP) prepared by the Principal Contractor during operations. - During construction, the contractor will keep the local community well informed about construction activities. Any complaints regarding environmental noise emissions from the construction site are to be recorded and investigated. - Maintain good communication between the community and project staff and appoint a community liaison officer to facilitate where required. - In the event of an unforeseen breakdown of construction equipment, a response protocol should be implemented to minimise impacts on surrounding sensitive receivers. Construction personnel should be required to report any such breakdowns immediately to the site supervisor. Temporary mitigation measures, such as relocating equipment or using quieter alternatives, should be deployed as soon as practicable, with a target response time of within 1 hour during standard working hours. A nominated site contact should be available to manage these issues during standard hours, while a dedicated 24/7 out-of-hours contact should be provided to address emergency concerns or complaints. These contact details will be shared with nearby stakeholders and displayed prominently on-site	Construction and operation
	NV6	- During the construction phase, particularly for out-of-hours activities such as OSOM (Over Size Over Mass) and heavy vehicle deliveries of BESS modules from the port to the site mitigation measures should be implemented. These measures include the careful scheduling of high-noise activities to occur within standard construction hours where possible, the use of quieter equipment or noise-suppressed machinery, as per AS2436:2010 and the deployment of temporary noise barriers or enclosures (considering site topography) to reduce impacts on nearby sensitive receivers. - For out-of-hours deliveries or construction activities likely to generate elevated noise levels or traffic disruptions, additional management measures will be adopted to minimise disruption to the local community including time period when work will be undertaken and to determine the level of exceedance. These include a requirement to provide periodic project specific notifications to affected sensitive receivers no later than seven calendar days in advance of any anticipated disruptions. - Notifications will detail the nature of the upcoming works (e.g. traffic changes, night works, or activities likely to exceed noise criteria) and will be distributed through letterbox drops, targeted email mailing lists, or published updates on the project website, ensuring transparency and adequate time for community preparation.	Construction

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	NV7	The design of the Project shall incorporate 5m high noise walls as shown in figure 7-1 within the NVIA in Appendix G to reduce noise levels as much as is practical. The design shall include an absorptive lining with a minimum thickness of 100mm to further reduce operational noise levels	Operation
	NV8	During detailed design, silencers shall be integrated into the equipment.	Operation
	NV9	Operational noise monitoring program will be implemented within three months of the Project commissioning to validate the noise modelling predictions and confirm compliance with applicable noise criteria.	Operation
Visual	V1	Prior to construction, site hoarding will be installed to the south and east Site boundaries, to reduce the visibility of construction activity.	Pre-construction, construction and operation
	V2	The area of construction disturbance will be limited including where possible, earthworks, storage and laydown areas to be located in cleared or otherwise disturbed areas away from public interfaces and entrance to the Site.	Pre-construction
	V3	All site lighting shall be designed to minimise glare and spill into adjacent residential and public areas. Lighting design shall be designed in accordance with the requirements of Australian Standard AS 4282–1997 Control of the Obtrusive Effects of Outdoor Lighting.	Construction
	V4	- To better integrate with the surrounding landscape, the noise walls will be constructed in a muted industrial palette with further consideration of finishes and construction materials including: – painted wall with stencilled artwork or mural, with anti-graffiti finish; and/or – finished with a recycled plastic sheath with a recessive colour and texture, to deter graffiti	Construction
	V5	- The following landscaping is recommended where feasible and practical: – layered, canopy screen planting buffer using native species to the east boundary, at a mature height of 5-6m, to views from residential dwellings to the north and from Guildford West Sportsground to the south; and – native planting at a mature height of 3 m, to the north and northeast property boundary, to soften the impact of the walled lengths from residential dwellings to the north, providing a beneficial visual buffer to the Project and beneficial streetscape appearance of the Project.	Construction
Traffic	TR1	Prior to construction, a Construction Traffic Management Plan (CTMP) shall be prepared and implemented prior to the commencement of works. The CTMP must be prepared in consultation with Cumberland Council and Transport for NSW. The CTMP will outline access arrangements, construction worker parking for up to 40 FTEs during construction period, heavy and OSOM vehicle movements, emergency access, and coordination with relevant authorities. It will be supported by a Traffic Guidance Scheme specifying traffic control measures to ensure safety for all road users, including during required vehicle access manoeuvres requiring full width of the road (less than five minutes) or crossing pedestrian paths.	Pre-construction
	TR2	All OSOM and heavy vehicle movements must comply with National Heavy Vehicle Regulator (NHVR) and Transport for NSW access requirements, including obtaining relevant permits and approvals.	Pre-construction, Construction
	TR3	All OSOM movements must be scheduled outside peak traffic periods (5:30am-9:00am and 5:00pm-6:00pm) on weekdays.	Construction
	TR4	Public notification shall be given prior to any road or footpath closures to local residents, Cumberland Council, and emergency services.	Pre-construction, Construction

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	TR5	- During detailed design, a construction workers parking strategy shall be developed, and included in the CTMP, by the contractor to: - identify and coordinate public transport (such as bus) and carpooling options; and - identify suitable worker off-site parking arrangements or parking locations surrounding the Site to avoid impact to the existing on-street parking.	Detailed design
	TR6	- Heavy vehicle movements to and from the Project area will be scheduled to minimise traffic disruption to the surrounding road network. This may include, but is not limited to: - scheduling the movement of construction material, equipment and waste to occur outside of peak periods where practical; and - scheduling heavy vehicle deliveries to be evenly dispersed as far as practical to minimise convoying or platoons and queuing outside the Project area or on the road network.	Pre-construction
	TR7	The Proponent shall undertake a dilapidation survey to assess any impact for the road verge at the site's frontage. This will inform appropriate mitigation measures to prevent any damage during vehicle access manoeuvres or to ensure rectification post-construction if required.	Pre-construction Construction
	TR8	A sequences construction approach, progressing from south to north of the Site, should be considered during construction planning. This approach may reduce safety risks associated with vehicle movements and help minimised the number of complex manoeuvres required for heavy and OSOM vehicles access the site.	Pre-construction Construction
	TR9	Public roads and Crown roads will not be obstructed by any materials, vehicles, skip bins or the like, under any circumstances.	Construction, operation and decommissioning
	TR10	All vehicles transporting loose materials will have the entire load covered and/or secured to prevent any large items, excess dust or dirt particles depositing onto the roadway during travel to and from the Project area.	Construction and decommissioning
	TR11	Affected parties including emergency services will be notified in advance of any disruptions to traffic and restriction of access impacted by Project activities.	Construction, operation and decommissioning
Social Impact	S1	An updated Community and Stakeholder Engagement Plan (CSEP) will be implemented to provide timely and accurate information about the Project to the community.	Pre-construction
	S2	Early and ongoing community and stakeholder engagement in accordance with the Communications and Stakeholder Engagement Action Plan (CSEAP) and CSEP to inform the community of Project updates.	Pre-construction Construction
Hazards	PH1	- The recommendations from Section 7 of the PHA (refer to Appendix L) will be implemented during detailed design development, including: - general BESS system design recommendations such as security measures, safety and protection systems and temperature control; - lithium-ion battery design and commissioning considerations; and - minimum separation distance requirements for the BESS.	Detailed design
	PH2	During detailed design, operational and emergency readiness will be managed under a comprehensive Safety Management System, supported by a Fire Safety Study and an Emergency Response Plan developed in line with FRNSW and HIPAP guidance.	Detailed design

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	PH3	Prior to construction, construction risks will be mitigated through the CEMP, which shall include spill response protocols, safe storage of hazardous materials and staff training.	Pre-construction
	PH4	During construction, consultation with cybersecurity experts will be conducted to implement appropriate security measures for the computer control systems.	Construction
	PH5	In accordance with HIPAP 1, a Fire Safety Study, which includes full scale fire testing and plume modelling will be completed to verify minimum operational separation thresholds for spacing of the individual BESS units on the Site in addition to assessing off site risk.	Detailed design
	PH6	During construction, temporary bollards will be installed around Jemena's Cathodic Protection post to protect the asset, while maintaining uninterrupted access for Jemena at all times.	Construction
	PH7	- Whilst it was identified with the pipeline operator (i.e. Jemena) that the Project would result in no hazards impacting the pipeline operation, in accordance with standard mitigation measures: - in case of any major changes to the Project, consultation with Jemena would be undertaken; and - where incidents involving gas mains (such as fire, smoke and rupture) occur for the Project, the response may include: - shutting down the BESS (construction and/or operation); and - using a deluge system/cooling water on BESS units to prevent thermal runaway.	Detailed design
Flood	HF1	Site filling will be used to establish a graded foundation to elevate sensitive infrastructure and equipment to 21.2m AHD (1% AEP level + 0.5m freeboard) to meet flood immunity requirements in accordance with recognised best-practice flood risk management.	Construction
	HF2	The CEMP and OEMP will include emergency management procedures aligning with established flood warning systems and local flood planning frameworks.	Detailed design
Contaminated Land	C1	Prior to construction, an Unexpected Finds Protocol will be developed to provide guidance in the event unexpected contaminants are identified during construction works. The protocol will outline processes and responsibilities and provide guidance to workers to manage potential contamination risks.	Pre-construction
Surface and Groundwater	SG1	A Soil and Water Management Plan (SWMP) shall be prepared and implemented as part of the CEMP. The SWMP will identify all reasonably foreseeable risks relating to soil erosion and water pollution during construction and describe how these risks would be managed. This includes consideration of stockpile locations and management. Stockpile locations should avoid western edge of property boundary which drains towards Prospect Creek.	Pre-construction and construction
	SG2	- Erosion and Sediment Control Plans (ESCPs) shall be developed and implemented in consultation with a Suitable Qualified Professional in Erosion and Sediment Control (CPESC) for earthworks requiring sedimentation basins due to the extent of exposed soil. - The plan will detail the processes, responsibilities, and measures to manage potential soil and water quality impacts in accordance with the principles and requirements in: <i>Managing Urban Stormwater – Soils and Construction, Volume 1</i> (Landcom, 2004) and <i>Volume 2A</i> (DECC, 2008a) and <i>Volume 2C</i> (DECC, 2008b) commonly referred to as the 'Blue Book' <i>Best Practice Erosion and Sediment Control</i> (IECA, 2008) Confirmation of whether sedimentation basins are to be utilised as a mitigation measure during construction would be confirmed during development of the ESCP.	Pre-construction and construction

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	SG3	The Operational Water Management Plan (OWMP) (to be developed under the Operational Environmental Management Plan) must outline and define, operation, monitoring and maintenance of stormwater treatment assets throughout the operation of the BESS.	Operation
	SG4	An Emergency Spill Procedure (as part of the Operational Water Management Plan (OWMP)) will be created to dictate actions if a spill is to occur during construction. A separate decommissioning plan will be developed which would include emergency spill procedures for the operational and decommissioning phase.	Pre-construction and construction
	SG5	Firewater storage will provide upstream of all discharge points to contain the maximum expected firewater. This storage will contain the water quality treatment train and will provide a dual function of fire water management and improvement of stormwater quality. A shut off, single direction valve will be included to capture and store firefighting water so that any chemicals of concern are captured and disposed of to an appropriate facility.	Pre-construction
	SG6	A water quality treatment train will be included in the detailed design and implemented during construction to address the changes in pollutant loads generated by the increased impervious area within the Project Area. Water quality measures (cartridge filters) shall be provided upstream of all discharge points to achieve pollution reduction targets specified in DCP, BBWQIP and consent conditions.	Pre-construction
	SG7	Stormwater infrastructure should be designed to the sufficient rainfall event and in consideration of existing infrastructure to avoid unnecessary impacts to the existing network.	Pre-construction
	SG8	Stockpiles must be sited outside of overland flow paths and a suitable distance away from drainage channels.	Pre-construction and construction
	SG9	- The fire water retention basin will be fully lined in accordance with relevant Australian Standards and manufacturer specifications. Sealing will be achieved using an impermeable liner system or concrete to prevent infiltration of fire-fighting water and any associated contaminants to underlying soils and groundwater. - The basin must be maintained to ensure liner integrity is preserved for the life of the development, with inspections undertaken following any fire event and repairs completed promptly where defects are identified.	Detailed design, operations
	SG10	Alternative construction methodologies will be investigated and implemented as required to minimise impacts to GDEs if identified to be directly impacted during detailed design.	Pre-construction and construction
	SG11	A dewatering management plan will be developed if excavation works during construction are anticipated to intercept groundwater. This will be ascertained at detailed design stage. This should be in accordance with the <i>Water Management Act 2000</i> and may require further approvals depending on the scale of dewatering required. Should dewatering be required groundwater monitoring will be undertaken for the duration of the dewatering.	Pre-construction and construction

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Heritage (non-Aboriginal)	HH1	■ In the event that object(s) which are suspected of being a find/relic(s) are encountered during construction, then the Historical Unexpected Finds Procedure located in Appendix A of the SOHI (Aurecon, 2026) will be followed. A summary of the protocol is as follows: a. A non-Aboriginal (historic) heritage awareness induction is to be provided to all contractors prior to construction works commencing. A heritage consultant is to present the training to ensure that all contractors are aware of the history of the Project site, likely historical archaeological find types, statutory obligations and what to do following the discovery of unexpected historic heritage finds. b. Cease any further excavation or ground disturbance, in the area of the find(s): i. the discoverer of the find(s) will notify machinery operators in the immediate vicinity of the find(s) so that work can be temporarily halted, and ii. the site supervisor and the Principal will be informed of the find(s). c. Do not remove any find(s) or unnecessarily disturb the area of the find(s). d. Ensure that the area of the find(s) is adequately marked as a no-go area for machinery or further disturbance, and that the potential for accidental impact is avoided. e. Note the location and nature of the finds, and report the find to: i. relevant project personnel responsible for project and construction direction and management, and ii. report the find to the Heritage NSW.	Construction
Aboriginal Heritage	AH1	■ The protocols for the unanticipated discovery of archaeological material and suspected human remains presented within Appendix 2 of the ACHAR (refer to Appendix P) will be adopted and complied with during construction activities involving ground surface disturbance and excavation.	Construction
	AH2	■ A copy of the final report will be submitted to the Environment and Heritage Group of the NSW Department of Climate Change, Energy, the Environment and Water for registration on the AHIMS database.	Detailed design
Waste	W1	■ The Waste Management Plan (as updated by the Contractor) will be implemented as part of the CEMP.	Pre-construction and construction
	W2	■ The resource management hierarchy principles established under the WARR Act of avoid, reduce, reuse, or recycle with disposal as the last resort will be applied to construction, operation and decommissioning of the project.	All
	W3	■ All waste will be assessed, classified, managed, and disposed of in accordance with the Waste Classification Guidelines (NSW EPA 2014). Waste will be appropriately transported, stored and handled according to their waste classification and in a manner that prevents pollution of the surrounding environment. This includes waste from HV equipment, decommissioned batteries and contaminated water in the fire water retention bunding.	All
	W4	■ No, or limited, soil is expected during development. However, if waste soils are generated from excavation of the Project, they will be considered in accordance with appropriate legislation and reused where considered suitable from both a contamination and geotechnical perspective.	Construction
	W5	■ A decommissioning waste management plan shall be prepared in advance of decommissioning to manage decommissioning waste.	Operation and decommissioning