DA 8137 (MOD 3) – Storage of Lithium Ion Batteries (Class 9 DG) At Mayfield

Modification Report

Port of Newcastle Operations Pty Ltd

16 July 2024

→ **The Power of Commitment**

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Abbreviations

Term	Definition
AEP	Annual Exceedance Probability
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
CLM Act	*Contaminated Land Management Act 1997* (NSW)
CSMP	Contaminated Site Management Plan
DPE	NSW Department of Planning and Environment
DPHI	Department of Planning, Housing and Infrastructure
EP&A Act	*Environmental Planning and Assessment Act 1979* (NSW)
EPA	NSW Environment Protection Authority
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
EPL	Environment Protection Licence
HDC	Hunter Development Corporation
LEP	Local Environmental Plan
LHRS	Lower Hunter Regional Strategy
LiB	Lithium Ion Battery
HIPAPs	Hazardous Industry Planning Advisory Papers
MCP	Mayfield Concept Plan
NCC	Newcastle City Council
NEM	National Electricity Market
NES	National Environmental Significance
M4	Mayfield Berth No 4
OEMP	Operational Environmental Management Plan
OSOM	Oversize and/or Over mass
PHA	Preliminary Hazard Assessment
PMF	Probable Maximum Flood
POEO Act	*Protection of the Environment Operations Act 1997* (NSW)
PON	Port of Newcastle Operations Pty Ltd
REZ	Renewable Energy Zone
SDS	Safety Data Sheet
SEE	Statement of Environmental Effects
SEPP	State Environmental Planning Policy
SMS	Stormwater Management Strategy
TfNSW	Transport for NSW
TfNSW	Transport for NSW
VOC	Volatile organic compounds

Executive summary

This Modification Report has been prepared by GHD Pty Ltd (GHD) on behalf of the Port of Newcastle Operations Pty Ltd (PON) to support an application to modify the existing consent (DA 8137) to allow for storage of lithium-ion batteries at the open-air cargo storage facility on part of the former BHP steelworks site at Mayfield, New. South Wales (NSW).

The proposal site is located on hardstand area that is currently used for the storage of a range of freight and cargo. The use of the area was approved under DA 8137. Two requests for modification of DA 8137 have been submitted. Modification 1, approved in June 2020, allowed for the loading, and unloading area of the Mayfield Cargo Storage Facility to be expanded from 12 hectares to 18.6 hectares, and includes provision for the loading and unloading of freight from the site. A second modification (MOD 2), approved on 8 February 2024, to modify the requirements of MOD 1 to isolate the un-remediated area of the site from use by fencing it off, and completing remediation at the time this area is to be used for port related activities.

PON is now seeking to further modify DA 8137 to allow for the import, storage, and export of lithium-ion batteries for use in renewable energy projects proposed for the region.

The proposed modification is consistent with the previously approved Mayfield Concept Approval (09_0096), the approved development consent (DA 8137) and subsequent modifications. The hours of operation, staffing requirements, and services and utilities proposed remain the same as per the original development consent. Accordingly, any environmental effects from the proposed modification are likely to be negligible.

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1. Introduction

This Modification Report has been prepared by GHD Pty Ltd (GHD) on behalf of the Port of Newcastle Operations Pty Ltd (PON) to support an application to modify the existing consent (DA 8137) to allow for the import, temporary storage, and export of lithium-ion batteries (the proposal), which are classified as Class 9 Dangerous Goods. The proposal would be located on land leased by Port of Newcastle in an established cargo storage area on the former BHP steelworks site at Mayfield, New. South Wales (NSW). The location of the Port of Newcastle is identified in Figure 1.1.

The proposal would be located at the Mayfield cargo storage facility, which provides for the storage of a range of freight and cargo including, but not limited to; wind turbine components, large industrial and mining components, luxury boats, electrical transformers and related machinery, general cargo such as farm machinery, excavators, and construction machinery, breakbulk (e.g., steel or timber products) and containerised cargo.

The original development consent (DA 8137) approved the use of the existing hardstand area for port-facilities for the unloading, storage, and transportation of freight on the site. The development consent was subject to a number of operational conditions, which included noise limits, safety measures and traffic management. These required the preparation of an Operational Environmental Management Plan (OEMP) to manage these conditions. The Mayfield Cargo Storage Area forms part of the Mayfield Concept Plan Area.

Modification 1, approved in June 2020, allowed for the loading, and unloading area of the Mayfield Cargo Storage Facility to be expanded from 12 hectares to 18.6 hectares, and includes provision for the loading and unloading of freight from the site.

Modification 2, approved on 8 February 2024, was prepared to permit operation to occur on the already remediated portions of the site following Site Auditor approval. PON proposed that the currently uncapped area will remain un-remediated until it is more economic for the Proponent to remove the legacy BHP6 Berth and remediate the uncapped area.

This proposed third modification (MOD 3) proposes to gain approval for the receival, temporary storage and exportation of lithium-ion batteries, including exportation of Australian manufactured batteries, at Mayfield Cargo Storage Area.

The proposed modification is consistent with the previously approved Mayfield Concept Approval (09_0096), the approved development consent (DA 8137) and subsequent modifications. The hours of operation, staffing requirements, and services and utilities proposed remain the same as per the original development consent.

1.1 The Proponent

The Port of Newcastle is managed and developed by Port of Newcastle Investments (trading as PON) under a 98-year lease from the NSW Government which commenced on 30 May 2014. PON is responsible for various port functions including:

– Vessel scheduling
– Trade development
– Cruise ships
– Dredging and survey, wharf, and berth services
– Planning and environmental management
– Property management, port development and maintenance of major port assets

PON shareholders are The Infrastructure Fund and China Merchants Group, each owning 50 per cent. These shareholders have a strong, global track record in managing large infrastructure assets. PON is committed to the long-term development of the port and works closely with stakeholders and employees to plan and bring to fruition projects such as the proposal.

The proponent of the proposal is PON. PON would lease or license the site, or portions of it, to customers who are seeking to store project cargos in accordance with the requirements of PON and the recommendations of this Modification Report as applicable.

1.2 The Proposal

DA 8137 was issued in 2017 for the use of the existing hardstand area as port facilities for the storage of freight, including the loading and unloading of freight on the site. Full details of the approved project are outlined in the *Statement of Environmental Effects, Cargo Storage Facility* (AECOM, 2016).

Full details of the first modification (MOD 1) for use of the site as a project cargo facility, which was granted on 23 June 2020, are outlined in the *Statement of Environmental Effects Consent Modification, Cargo Storage Facility* (Aurecon, 2019). Details of the second modification (MOD 2) are outlined in the *Modification Report* (GHD). MOD 2was approved on 8 February 2024.

PON is now seeking to further modify DA 8137 to allow for the import, storage, and export of lithium-ion batteries. Initially, these battery cells will then be transported to the Waratah Super Battery site for installation. Once the Waratah Super Battery project is complete, import, export and storage of lithium-ion batteries for other battery projects could be accommodated at the Mayfield Cargo Storage Area.

These changes to DA 8137 will form the third modification (MOD 3).

1.3 Purpose of this report

This Modification Report has been prepared to support the proposed modification to DA 8137 to allow for the import/export and storage of lithium-ion batteries.

The proposal activities are anticipated to have minimal environmental impact and as such a modification under the provisions of section 4.55(2) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) is being pursued. The Modification Report has been prepared to address the matters for consideration under section 4.55(2) of the EP&A Act and has considered the provisions of other relevant legislation and environmental planning instruments. It assesses the potential environmental impacts of the proposal and recommends mitigation measures to minimise impacts and protect the environment where possible.

This Modification Report considers the environmental impacts associated with the import/export and storage of lithium-ion batteries under the proposed modification to DA 8137.

The Modification Report is structured as follows:

– Section 1 – provides an introduction to the Modification Report.
– Section 2 – locates the site and provides information on the existing environment of the proposal site and surrounds.
– Section 3 – describes the proposed development.
– Section 4 – assesses the proposal against the requirements of relevant legislation and environmental planning instruments.
– Section 5 – provides an assessment of the consultation conducted in relation to the proposed modification.
– Section 6 – describes the prioritisation of issues relating to the proposal.
– Section 7 – provides the environmental impact assessment of activities relating to the proposal.
– Section 8 – summarises mitigation measures suggested for the proposal.
– Section 9 – provides a conclusion to the Modification Report.

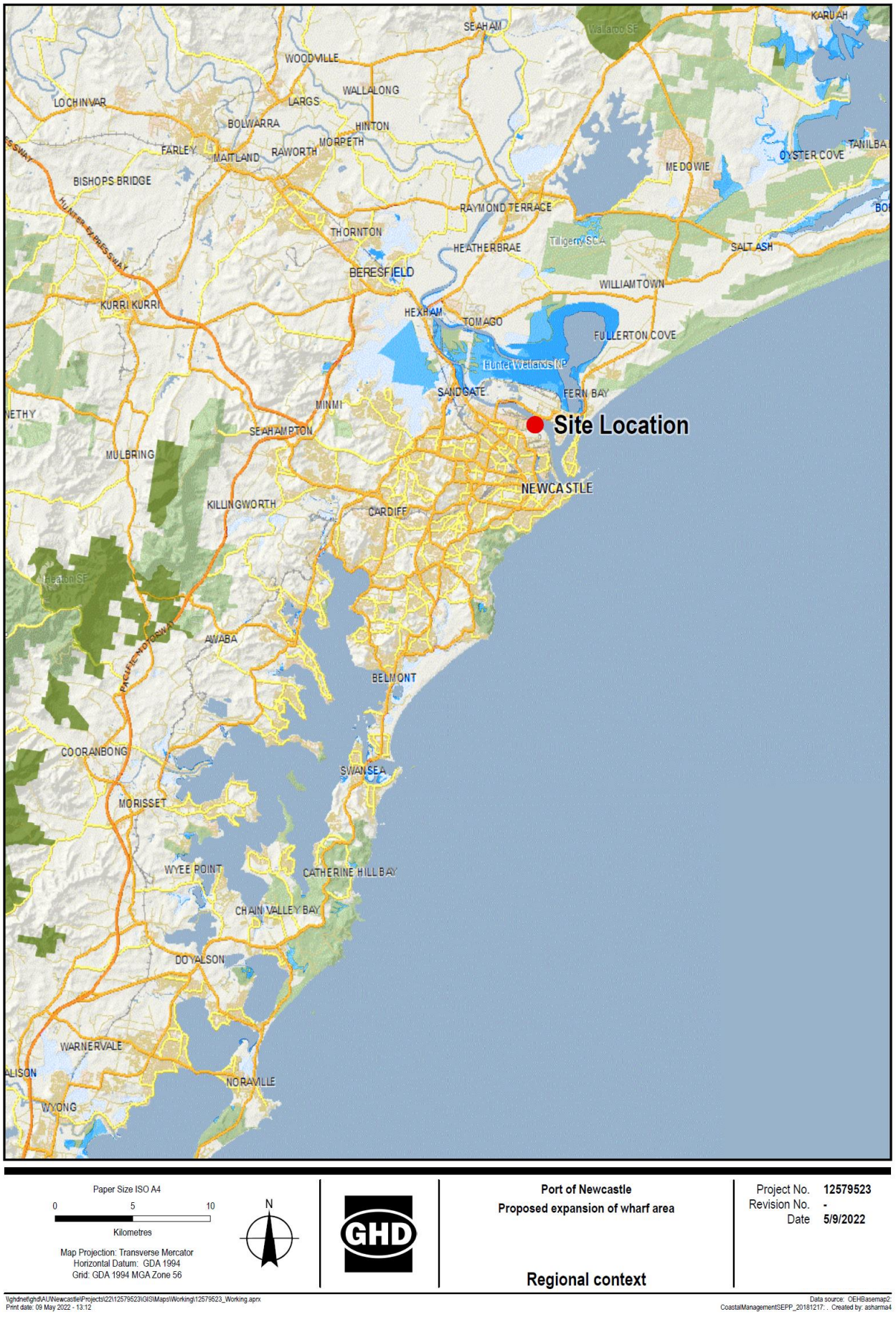


Figure 1.1 Regional context

1.4 Scope and limitations

This report: has been prepared by GHD for Port of Newcastle Operations Pty Ltd and may only be used and relied on by Port of Newcastle Operations Pty Ltd for the purpose agreed between GHD and Port of Newcastle Operations Pty Ltd as set out in Section 1.3 of this report.

GHD otherwise disclaims responsibility to any person other than Port of Newcastle Operations Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

2. Proposal area

2.1 Site description

The area (the proposal site) for battery storage is located within the suburb of Mayfield on the south arm of the Hunter River. The lots have been leased to PON from its owner the Port of Newcastle Lessor Ministerial Holding Corporation. The proposed battery storage area is located on hardstand within existing storage areas.

The site is zoned SP1 – Special Activities under the *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP). The proposal site has direct access to the southern arm of the Hunter River and consists of hardstand areas. The proposal site is currently being used as a port facility for the storage of freight, including the loading and unloading of freight on the proposal site under an approved development consent for the Mayfield cargo storage facility and temporary use of the land within the proposed expansion area.

Adjoining land uses are generally industrial in nature and support port related activities. The nearest residential area is approximately 800 metres south-west of the proposal site in the suburb of Mayfield East.

2.2 Site history

2.2.1 Steelworks closure and remediation

The BHP Steelworks operated on land with frontage to the south arm of the Hunter River from 1915 to 1999. In July 2002, ownership of that part of the former steelworks site known as the Closure Area was transferred to the NSW Government. In March 2007, the Hunter Central Coast Development Corporation (HCCDC) (formerly the Regional Land Management Corporation Pty Ltd) was formed by the NSW Government to manage the day-to-day activities of former BHP land and other Crown lands in the lower Hunter region, including remedial and redevelopment works for the Closure Area site (SKM, 2004).

On 14 June 2001, under former section 21 of the *Contaminated Land Management Act 1997* (CLM Act), the NSW Environment Protection Authority (EPA) declared the Closure Area site to be a remediation site. A Remediation Action Plan was prepared by SKM (2004) to address legacy contamination issues associated with soils and groundwater. Voluntary Remediation Agreement No 26025 for the remediation of the site was issued by the EPA on 30 August 2005. HDC undertook to fulfil these remediation commitments. In March 2008, a Contaminated Site Management Plan (CSMP) for the Closure Area was prepared by HDC. The CSMP provided a common framework to be applied across the whole of the site for the design, implementation, completion, use and maintenance of remediation and project works. HDC completed the remediation works in two stages between 2008 and 2011. Following the completion of the remediation works, the site was capped and returned to a hardstand area with minimal infrastructure in anticipation of future development for port and related industries.

Following a handover in ownership to the former Newcastle Port Corporation (NPC), a Concept Plan application for the future strategic development of the former BHP steelworks site was approved by the Minister for Planning in July 2012. The Concept Plan Approval (09_0096) made provision for the future development of part of the former BHP Steelworks site for a range of industrial and port related uses.

The voluntary remediation agreement (VRA) was repealed by the EPA in 2018 and replaced by Ongoing Maintenance Order No. 20142802 which works with the adopted 2016 CSMP to manage contamination issues on the site.

2.2.2 Mayfield Concept Plan

Concept Plan (MP09_0096) was approved by the Minister under then section 75M of the EP&A Act on 16 July 2012 to enable development within the remediated portion of the Closure Area. The MCP area covers 90 hectares of port-side land to be developed for land-based port facilities serving a mix of cargo types. The Concept Plan also includes supporting road and rail infrastructure to service the port facilities.

2.2.3 Adjoining development

The proposal site is located in the cargo storage area. It is surrounded by land which also forms part of the former BHP Steelworks and has been remediated. To the north of the proposal site is the former Koppers pipe gantry and the Hunter River. On the opposite side of the Hunter River, are the coal loading facilities of the Newcastle Coal Infrastructure Group (NCIG).

To the southeast of the proposal site lies more open hardstand area and M4. M4 is a general-purpose common user berth, is 265 metres in length and has an adjoining hardstand area. It is expected the batteries being stored as part of the proposal would be imported or exported through M4 Berth. M4 Berth operates in accordance with development consent DA 293-08-00, as modified; and Environmental Protection Licence (EPL) 13181 for shipping in bulk.

To the south of the proposal site is a vacant parcel of land managed by Property NSW. This area is predominately grassed open area with sporadic tree cover.

To the west of the proposal site lies the Stolthaven Bulk Fuel terminal which currently stores approximately 130 megalitres of combustible fuels. Beyond the fuel terminal is the Infrabuild (formerly known as OneSteel) industrial complex.

3. Proposed development

3.1 Proposed site operations

This section describes how the approved project and proposed modification would operate.

3.1.1 Site layout

The proposal site is located within the larger PON landholdings known as the port lease area. The proposal site is situated in the Port of Newcastle lease area within the industrial suburb of Mayfield North, approximately 5 kilometres north-west of the Newcastle central business district. PON currently operates 20 berths and has total land holdings of 792 hectares, including 200 hectares of vacant port land. The proposal site is located adjacent to berth areas along the Hunter River and is currently used for storage of freight, including the loading, and unloading of freight.

The proposal site is located on sealed areas within the existing cargo storage area. Figure 3.2 shows the proposed total area which could be utilised for storage, shaded in purple. There will be no designated set position for the units so as to allow for them to be stored/moved around other cargo as needed to meet site requirements. The storage area would be up to 10,000 m^2 to contain 600 units depending on their final capacity, technology, and dimensions. The battery storage area will be a sub-section of the existing general cargo storage area. When being utilised for batteries, they will be stored separately to general cargo. Batteries may be stored for up to 12 months as required by projects to allow for time differences between manufacturer, transport by sea, individual project site readiness and overland transportation.

3.1.2 Typical operation

Lithium-ion batteries would arrive via cargo ships to M4. Batteries would be unloaded via crane which is expected to typically be either ship mounted cranes or PONs mobile harbour cranes and trucked the short distances across PON owned and managed land, to the proposal site where a forklift or stacker unloader would be used to place the batteries in their final storage locations depending on the manner in which the units are delivered. Units would be stacked one unit high. Units may be 3 metres to 5 metres high depending on the manufacturer's individual unit specifications. For example, standalone units or in shipping containers. The batteries each come as a self-contained unit (refer Figure 3.1) and are fully enclosed and contained therefore they do not require any physical barriers or bunding during storage. Lithium-ion batteries proposed to be imported/exported under the proposal are classified as Class 9 Dangerous Goods under the Australian Dangerous Goods Code (ADG). If any batteries are identified as being damaged or potentially compromised, they would each be managed individually in accordance with the relevant Safety Data Sheet (SDS) (refer Appendix A). The batteries are freighted and stored at a low charge reducing the potential for any hazardous scenarios to eventuate. The proposal is expected to receive up to 300 units per month.

Following temporary storage onsite, trucks would be used to transport the batteries off site to projects were they are required. The typical destinations for the batteries include (but are not limited to) the Renewable Energy Zones (REZ), standalone grid scale battery energy storage system (BESS) projects such as EnergyCo's Waratah Super Battery or other smaller scale BESS's such as for individual business or industrial sites. It should be noted that the receipt, storage, installation, and operation of the BESS systems on third party sites are subject to separate approvals obtained by individual proponents for those projects.

During times where lithium-ion batteries are not required for import or export, PON would utilise the area for storage of freight as currently approved. PON would also potentially store batteries prior to export, where possible.

In the event of an incident or emergency at the site, whether related directly to the batteries or otherwise, PON would implement their relevant protocols as identified in the *Operational Environmental Management Plan, Mayfield Cargo Storage Facility Rev 3.0* (PON, June 2024) (OEMP) or as updated and in force at the time of operation. Section 4.3 of the OEMP includes emergency response protocols to be implemented in the event of emergency and Section 5.0 includes communications protocols for advising emergency services, EPA the community and others. Appendix E to the OEMP details the emergency management protocols specifically for the Mayfield Cargo Storage Facility.

In the event of a battery related fire the OEMP would be enacted and Fire and Rescue NSW (FRNSW) would be contacted (Triple zero called) to assist. PON consulted with FRNSW regarding any additional or battery specific protocols that should be incorporated into the OEMP. FRNSW indicated there are no specific fire fighting requirements that need to be implemented. Refer to FRNSW correspondence attached at Appendix B.

Figure 3.1 Example battery unit

Figure 3.2 M4 and Mayfield cargo area site plan

3.1.3 Staffing and equipment

Indicative staffing for operation of the proposal is detailed in Table 3.1. The proposal would not involve construction of structures or earthworks, and therefore construction staffing and equipment is not considered.

Table 3.1 Indicative staff and equipment requirements

Proposal Stage	Staff
Incoming (transfer of batteries from M4 to the site)	– 2 x truck drivers – 6 x staff to manage loading and unloading of trucks/vehicles (reach stacker, boom lift or similar) – 2 x forklift operators – 1 x supervisor (light vehicle) – 1 x security (light vehicle)
Storage	– 1 x security
Outgoing (loading of trucks for transport of batteries from the site to their destination	– 1 x truck driver – 2 x forklift operators – 1 x supervisor – 1 x security

Staffing requirements peak around key events such as the arrival of a ship. Additional staff are required during ship unloading to allow for efficient unloading and to minimise time at berth. During outgoing transport, it is anticipated that trucks would enter the proposal site on a staggered basis for loading and then onward transport, accordingly fewer staff would likely be required onsite.

All shipping movements, berthing and unloading would be undertaken in accordance with PONs established management systems which have been developed in consultation with the Port Authority of NSW and the Harbour Master.

3.1.4 Operating hours

The site has approval to operate 24 hour per day seven days per week. The proposed modification would not change this arrangement.

3.1.5 Transport and access

Traffic enter the M4 area via Selwyn Street which intersects at a signalised four-way intersection with Industrial Drive via George Street. From the eastern end of Selwyn Street PON operates an internal access road which provides access to M4 and the general proposal area. Traffic would also exit the proposal site via the traffic loop southeast of M4 and then onto PON internal roads and Selwyn Street.

On leaving the port precinct vehicles carrying batteries would travel on Industrial Drive (A43) which is an approved B-Double route with no restrictions. From their vehicle then have access to State and National Highways which provide access to the expected destinations such as:

– The New England REZ via the New England Highway
– The Central-West Orana REZ via the New England and Golden Highways
– Sydney Metropolitan region and southern NSW via the M1 Motorway

Batteries may also be supplied to a range of grid and smaller scale projects across NSW.

The proposal would not result in a total number of additional trucks however truck movements would be arranged by campaign with the total number of peak hour vehicles not expected to exceed the number approved in the original development application.

3.1.6 Services

No service or utility connections are proposed as part of the proposal. The site would remain as an open hardstand storage area. As there would be no connections to any utilities or services as part of this proposal, no further consideration of the MCP *Utilities Infrastructure Plan* (AECOM, 2015) is required.

3.2 Need for the Proposal

A key component of the transition to renewable energy sources in NSW is the ability to store energy during times where energy cannot be effectively produced. Battery storage systems are a key piece in the renewable energy makeup, providing firming capacity and reducing the likelihood of energy shortages and rolling blackouts. The announcement of several grid-scale battery projects and REZ's opens the development pipeline for renewable energy technology, of which batteries will play a large role in. The transition towards renewable energy generation is leading to increased demand for batteries across NSW, not just in REZ's.

With the increase in renewable energy sources and the REZ developments, the Commonwealth and NSW governments have also coupled to deliver the Capacity Investment Scheme (DCCEEW, 2023) which aligns with NSW's Electricity Infrastructure Roadmap (NSW Government, 2020). Amongst the aim of the Capacity Investment Scheme is the drive to support energy storage (including through large scale lithium-ion batteries) installation as part of renewable generation project across NSW. The energy storage is required to counter the intermittent nature of renewable generation and store energy so that it is dispatchable when needed by the network. A detailed analysis of the range of other government strategies the proposal supports is provided in Section 4.3.

Lithium-ion batteries are not currently manufactured locally and require importation. Future domestic production may also support future export from PON. PON is an ideal place for import/export, due to the existing infrastructure at the site and connection to freight routes which importantly connect to REZ including the Hunter REZ, New England REX, and Central-West Orana REZ, as well as excellent connection to the NSW transmission network generally where other BESS systems may be installed. The proposal would allow for the import, export, and storage of these batteries, so that as development in the renewable energy sector continues within the Hunter region batteries are available for installation, preventing delays in projects coming online.

3.3 Consideration of alternatives

Various industries such as the construction and mining industry are often required to import or export large pieces of equipment and dangerous goods. Key requirements for the importation of these objects are:

– Access to a deep-water channel and berth
– Access to a berth with landside design capacities to manage large and heavy loads
– Available land adjoining the berth for use as a laydown area
– Connection to the arterial road network to enable land transportation

The Mayfield location is able to satisfy all of these needs. It is accordingly ideally suited for the land side storage and management of these goods.

3.3.1 Alternative ports

Potential alternative ports for the temporary storage of lithium-ion batteries include:

– Sydney (Port Jackson or Port Botany)
– Port Kembla
– Port of Brisbane

These ports are not considered to provide appropriate alternatives to the proposal for the following reasons:

– There are land availability constraints due to the large area of land required for the storage of dangerous goods and the availability of such sites at other ports.

– Transporting project cargos in metropolitan areas would cause issues with needing to transport project cargos through built-up and congested areas.
– Alternatives may be significant distances from end markets leading to potentially increased transport costs.

3.3.2 Alternative sites

Several alternative locations exist in and around the Port of Newcastle which could be used for the establishment of a cargo storage facility, for example at Carrington and on Kooragang Island. However, none of the alternative sites can provide the combination of access to a heavy lift berth and the deep-water channel, access to a significant area of established hardstand and access to key transport routes.

3.3.3 Do nothing

A do-nothing option would not allow the import of lithium-ion batteries at PON. This would mean that this cargo would need to be imported or exported elsewhere across the state, or even interstate, leading to potential project delays which may have significant consequences on the National Electricity Market (NEM) as coal fired power stations are decommissioned. Importing these batteries though other ports would also require more transport, which would lead to longer transport routes, increased cost, and potential for increased transport risk.

4. Legislation and regulation

4.1 Existing approvals

The existing approvals relating to the proposal site are as follows:

– DA 8137 was issued in 2017 (including a modification) for use of the existing hardstand area as port facilities for the storage of freight, including the loading and unloading of freight on the site.
– DA 293_ 08_00 was granted in 2001 (including nine modifications) for Stage 1, being the remediation of the Closure Area and the development of a Multi-Purpose Terminal comprising a container terminal and a general cargo handling facility and associated road, rail and wharf infrastructure and dredging of the south arm of the Hunter River.
– Mayfield Concept Approval (MCA) 09_0096 was issued in 2012 (including two modifications) for the redevelopment of 90 hectares of port-side land in Mayfield, for land-based port facilities serving a mix of cargo types. The Concept Plan also includes supporting road and rail infrastructure to service the port facilities.

4.1.1 Previous modifications to DA 8137

DA 8137 was issued in 2017 to use the existing hardstand area as port facilities for the storage of freight, including the loading and unloading of freight on the site. MOD1 was granted on 23 June 2020 to:

– Increase the site area to expand the loading and unloading area of the Mayfield cargo storage facility from 12 hectares to 18.6 hectares.
– Include Roll-on Roll-off (RORO) as a permitted cargo type.

Full details of MOD 1 are outlined in the *Statement of Environmental Effects Consent Modification, Cargo Storage Facility* (Aurecon, 2019).

Under this modification it seeks to remove conditions requiring remediation prior to use - isolate the un-remediated area by fencing it off - and utilising the approved expansion area for the storage of general cargo including wind turbines and blades.

4.1.2 Previous modifications to DA 293_08_00

DA 293_08_00 works in combination with DA 8137 to allow for the delivery of cargo by ship, temporary storage, handling, and onward transport by road, of cargos at Mayfield for PON. As such, previous modifications to DA 293_08_00 are considered below.

Nine modifications have been granted to DA 293_08_00 including MOD 7 which facilitated alterations to, and the temporary relocation of the General Cargo Handling Facility (GCHF), refurbishment of the existing wharf and a change in site access. The most notable of which was MOD7 as it refurbished M4 berth which is the subject of this Modification Report. This is discussed in further detail below.

MOD7 was approved on 21 November 2008 for the alterations to, and temporary relocation of, the cargo storage facility, refurbishment of the existing wharf and a change in site access from Crebert Street to Selwyn Street.

This modification involved:

– Refurbishment of the former BHP wharf (now known as M4 berth).
– Construction of approximately 1.2 hectares of hardstand. This includes the wharf apron and one hectare of hardstand. The balance of the eight hectares has not yet been developed.
– Construction of the M4 access road linking the M4 berth and Selwyn Street.

The land adjoining the proposal site is currently used in accordance with DA293-08-00 MOD7. The modification application which was prepared by GHD in 2022 for this was withdrawn. Based on the wording of the relevant condition, PON requested DPHI (previously DPE) to extend the temporary period by a further five years, which was agreed to.

Other modifications to DA 293_08_00 are detailed in Table 4.1.

Table 4.1 Previous modifications to DA293_08_00

Modification	Date Issued	Detail
DA293_08_00 (MOD1)	29 June 2001	Timing of establishment of a Community Consultative Committee
DA293_08_00 (MOD2)	13 August 2001	Excision of heritage areas from the development area
DA293_08_00 (MOD3)	15 February 2002	Protection of fig trees and noise monitoring requirements
DA293_08_00 MOD-77-7-2003(MOD4)	16 September 2003	Burial of Blast Furnace No.1 slag stump
DA293_08_00 MOD-60-4-2005 (MOD5)	15 September 2005	Land description, soil capping, hours of operation, groundwater management, stormwater, capping exemptions, and transport infrastructure
DA293_08_00 MOD-64-7-2007-1 (MOD6)	21 August 2007	Alteration of the alignment of the railway lines and relocation of two major stormwater drainage lines
DA293_08_00 MOD-56-7-2008-1 (MOD7)	21 November 2008	Alterations to, and temporary relocation of the GCHF, refurbishment of the existing wharf and a change in site access from Crebert Street to Selwyn Street
DA293_08_00 MOD-06-02-2009 (MOD8)	30 March 2009	Minor change to the rail line layout
DA293_08_00 (MOD9)	29 August 2013	Noise limits applying to the operation of the MPT at specific locations

Some minor maintenance works have been carried out.

4.2 Local plan

4.2.1 Newcastle Local Environmental Plan 2012

The proposal site is located within the Newcastle local government area which is generally subject to the provisions of the *Newcastle Local Environmental Plan 2012* (LEP 2012). However, the proposal site is located within the Port of Newcastle Lease Area, as detailed in *State Environmental Planning Policy (Transport and Infrastructure) 2021* (Transport and Infrastructure SEPP). As the Transport and Infrastructure SEPP applies to the port area (refer to Section 4.4.2) the LEP 2012 does not apply to the proposal and no further consideration of the LEP 2012 is required. Subsequently no further consideration of the Newcastle Development Control Plan 2012 is required.

4.3 Strategic context

4.3.1 Port Master Plan 2040

The Port Master Plan 2040 (PON, 2018) is a strategic blueprint for the region and underlines significant investment opportunities that will support the prosperity and diversification of the Newcastle and Hunter economies into the future.

As a global gateway for New South Wales, PON enjoys significant competitive advantages. It is already a major seaport with connectivity to a world-class national rail and heavy vehicle road system, a shipping channel that is currently only operating at 50 per cent capacity and supported by developable, vacant portside land.

To this end, the PON has embarked on an ambitious diversification strategy. Whilst coal exports provide a stable foundation for growth, this Plan is driven by the need to grow and diversify to meet the demands of customers and the containerisation of some trades.

This Plan is supported by the proposal as it is aligned with the objectives of growth as well as meeting future demands for imports from emerging sectors such as grid scale batteries supporting the renewable energy transition.

4.3.2 NSW Freight and Ports Plan 2018-2023

The NSW Freight and Ports Plan 2018-2023 (NSW Government, 2018) is a call to action for government and industry to collaborate on clear initiatives and targets to make NSW freight task more efficient and safer.

The Plan prioritises:

– Economic growth
– Efficiency, connectivity, and access
– Capacity
– Safety
– Sustainability

The proposal is strongly aligned with all of these objectives. By permitting the import of lithium-ion batteries to support grid scale battery projects, the proposal would support the future demands for imports from growing sectors which has important implications for sustainability.

4.3.3 NSW Climate Change Policy Framework

The NSW Government has released the NSW Climate Change Policy Framework (NSW Government, 2016), which commits NSW to the aspirational objectives of achieving net zero emissions by 2050 and helping NSW to become more resilient to a changing climate.

The policy framework defines the NSW Government's role in reducing carbon emissions and adapting to the impacts of climate change. The Net Zero Plan Stage 1: 2020–2030 (Net Zero Plan) outlines how the NSW Governments climate change objectives will be achieved and is released in stages to enable evolving technologies to be incorporated into future stages and to allow for continual improvement over time with the aim of achieving net zero emissions by 2050.

Net Zero Plan Stage 1: 2020-2030

The Net Zero Plan outlines four key priorities in regard to emission reductions to 2030. These are:

– Drive uptake of proven emission reduction technologies
– Empower consumers and businesses to make sustainable choices
– Invest in the next wave of emissions reduction innovation
– Ensure the NSW leads by example

Key to achieving the aims of the Net Zero Plan is the continued rollout of renewable energy projects to allow consumers to make sustainable power provider choices to help decarbonise energy production. As one of three global ports in NSW and the one with the most capacity to accommodate the storage of lithium-ion batteries, the PON is a strategic piece in the implementation of this plan.

4.3.4 Hunter Regional Plan 2041

The Hunter Regional Plan 2041 (DPE, 2022) sets the strategic land use framework for continued economic growth and diversification in one of Australia's most diverse and liveable regions, with the aim to unlock sustainable growth opportunities and investments.

The proposal aligns with Objective 1 (Diversifying the Hunter's mining, energy, and industrial capacity) and Objective 7 (Reach net zero and increase resilience and sustainable infrastructure) of the plan by supporting the development of renewable energy industries as coal fired power stations in the region are decommissioned.

4.3.5 Greater Newcastle Metropolitan Plan 2036

The Greater Newcastle Metropolitan Plan 2036 (DPE, 2018) plan positions Greater Newcastle as being an emerging hub for lifestyle and environmental resilience. Transitioning to a service, creative and knowledge city will better equip Greater Newcastle to be able to adapt to changing global environmental priorities and needs.

Four key priorities have been identified:

– Create a workforce skilled and ready for the new economy
– Enhance environment, amenity, and resilience for quality of life
– Deliver housing close to jobs and services
– Improve connections to jobs, services, and recreation

The proposal aligns with Strategy 3 as it would increase domestic and global trade capabilities at the Port. The proposal would also align with Strategy 15, as it would support grid-scale battery projects within the region to move the city to a Carbon Neutral position by 2050.

4.4 New South Wales legislation

4.4.1 Environmental Planning and Assessment Act 1979

The EP&A Act and *Environmental Planning and Assessment Regulation 2021* (EP&A Regulation) provide the framework for environmental planning in NSW and include provisions to ensure that proposals which have the potential to impact the environment are subject to detailed assessment and provide opportunity for public involvement. This development application would be assessed by DPHI under Part 4 of the Act.

The EP&A Act requires a proposed development to be assessed against matters for consideration included in section 4.55(2). Table 4.2 below summarises the consistency of the proposed modification with section 4.55(2) of the EP&A Act.

Table 4.2 Summary – compliance with section 4.55 (2) of the EP&A Act

Matter for consideration	Consistency
(2) Other modifications. A consent authority may, on application being made by the applicant or any other person entitled to act on a consent granted by the consent authority and subject to and in accordance with the regulations, modify the consent if –	The Proponent is a person that is legally entitled under the EP&A Act to apply for a modification to the consent.
(a) it is satisfied that the development to which the consent as modified relates is substantially the same development as the development for which consent was originally granted and before that consent as originally granted was modified (if at all), and	An assessment has been undertaken to determine whether the development as modified will be substantially the same as the development originally approved. The proposal is consistent with the existing consent as it would involve storage of materials. A hazard assessment has been completed to account for the risk associated with storing lithium-ion batteries, finding that risk is acceptable providing the mitigation measures are implemented. The environmental assessment confirms that the proposed modification will have minimal environmental impact and there will be no land use changes to the proposal site. On that basis, the proposed modified development will be substantially the same development as the development for which the consent was originally granted.

Matter for consideration	Consistency
(b) it has consulted with the relevant Minister, public authority, or approval body (within the meaning of Division 4.8) in respect of a condition imposed as a requirement of a concurrence to the consent or in accordance with the general terms of an approval proposed to be granted by the approval body and that Minister, authority or body has not, within 21 days after being consulted, objected to the modification of that consent, and	The modification will be consulted with the relevant approval bodies, Minister, and public authority. Consultation is further detailed in Section 5.
(c) it has notified the application in accordance with –	
(i) the regulations, if the regulations so require, or	The proposal will be conducted in accordance with regulations.
(ii) a development control plan, if the consent authority is a council that has made a development control plan that requires the notification or advertising applications for modification of a development consent.	A development control plan is not relevant to this proposal (the Transport and Infrastructure SEPP is presently the applicable environmental planning instrument).
(d) It has considered any submissions made concerning the proposed modification within the period prescribed by the regulations or provided by the development control plan, as the case may be.	The proponent will respond to any submissions received during the assessment period.

4.4.2 State Environmental Planning Policy (Transport and Infrastructure) 2021

The Transport and Infrastructure SEPP repeals the former *State Environmental Planning Policy (Three Ports) 2013* under which DA 8137 was originally approved. The provisions of Chapter 5 of the Transport and Infrastructure SEPP, relating to the Three Ports sites, were further modified on 8 July 2022.

The proposal is a modification to an existing development consent. The permissibility of this modification has been considered below to ensure that full compliance with the Transport and Infrastructure SEPP is maintained.

Permissibility

Pursuant to the Transport and Infrastructure SEPP the site is zoned SP1 special activities. The objectives of this zone, prohibited development and development permissible with and without consent are defined below:

Zone SP1 Special Activities

1 Objectives of zone

- *To provide for special land uses that are not provided for in other zones.*
- *To provide for sites with special natural characteristics that are not provided for in other zones.*
- *To facilitate development that is in keeping with the special characteristics of the site or its existing or intended special use, and that minimises any adverse impacts on surrounding land.*
- *To maximise the use of waterfront areas to accommodate port facilities and industrial, maritime industrial, freight and bulk storage premises that benefit from being located close to port facilities.*

- *To enable the efficient movement and operation of commercial shipping and to provide for the efficient handling and distribution of freight from port areas through the provision of transport infrastructure.*
- *To provide for port related facilities and development that support the operations of Port Botany, Port Kembla, and the Port of Newcastle.*
- *To facilitate development that by its nature or scale requires separation from residential areas and other sensitive land uses.*
- *To encourage employment opportunities.*

2 Permitted without consent

Jetties; Moorings; Roads

3 Permitted with consent

Capital dredging; Environmental facilities; Environmental protection works; Food and drink premises; Maintenance dredging; Navigation and emergency response facilities; Neighbourhood shops; Port facilities; Wharf or boating facilities; Any other development not specified in item 2 or 4

4 Prohibited

Agriculture; Air transport facilities; Airstrips; Amusement centres; Animal boarding or training establishments; Artisan food and drink industries; Camping grounds; Caravan parks; Cemeteries; Centre-based child care facilities; Commercial premises; Community facilities; Correctional centres; Crematoria; Early education and care facilities; Eco-tourist facilities; Educational establishments; Entertainment facilities; Exhibition homes; Exhibition villages; Extractive industries; Farm buildings; Forestry; Function centres; Funeral homes; Health services facilities; Highway service centres; Home businesses; Home occupations; Home occupations (sex services); Industrial retail outlets; Mortuaries; Open cut mining; Places of public worship; Recreation facilities (indoor); Recreation facilities (major); Recreation facilities (outdoor); Registered clubs; Residential accommodation; Respite day care centres; Restricted premises; Rural industries; Sex services premises; Tourist and visitor accommodation; Veterinary hospitals; Wholesale supplies

The proposal would be of a type characterised as *port facilities,* being "*facilities on land in the Lease Area used in connection with the carrying of freight and persons by water from one port to another for business or commercial purposes, and includes … facilities for the loading or unloading of freight onto or from vessels and freight receival, processing, land transport and storage facilities*". The land use is permissible with consent in the SP1 zone.

The proposed modification would be consistent with the existing site operations. The proposal is consistent with the objectives of this zoning in that the proposal will expand the freight handling capacity of the port. In this manner, the proposal clearly satisfies the objective of the zone to “maximise the use of waterfront areas to accommodate port facilities and industrial, maritime industrial, freight and bulk storage premises that benefit from being located close to port facilities”.

4.4.3 State Environmental Planning Policy (Resilience and Hazards) 2021

State Environmental Planning Policy (Resilience and Hazards) 2021 (Resilience and Hazards SEPP) contains provisions which require consideration against three primary areas, being:

– Contamination
– Hazardous and offensive development
– Coastal protection

Each of these is discussed further below as they relate to the proposal.

Contamination

The Resilience and Hazards SEPP provides a state-wide planning approach for the remediation of contaminated land. Clause 7 of the SEPP requires a consent authority to consider whether the land is contaminated and whether it is suitable (or can be made suitable) for the proposed development. A CSMP has been developed for the entire former BHP Steelworks Site, which forms part of the VRA prepared under the *Contaminated Land Management Act 1997*.

The site was subject to for remediation works outlined within the VRA, including capping, of the area prior to use as a cargo storage area. The proposed modification does not propose any intrusive ground works or activities that would impact the capping. The VRA was repealed by the EPA in 2018 and replaced by Ongoing Maintenance Order No. 20142802 which works with the adopted 2016 CSMP to manage contamination issues on the site.

Hazard Risk

Chapter 3 of the Resilience and Hazards SEPP aims to regulate the determination of development applications to carry out development for the purposes of a potentially hazardous industry or potentially offensive industry. The proposal would see the import or export of lithium-ion batteries, which are classified as Class 9 Dangerous Goods. To assess if the proposed modification is potentially hazardous, preliminary hazard analysis (PHA) has been undertaken in accordance with the DPE Hazardous Industry Planning Advisory Papers (HIPAPs) No.4 and No.6, as well as *Applying SEPP 33, Hazardous and Offensive Development Application Guidelines* (DoP, 2011). The findings of this assessment are summarised in Section 7.1 and in full in Appendix A.

Coastal Protection

It is noted that Chapter 2 of the Resilience and Hazards SEPP does not apply in the Lease Area (see clause 2.5).

4.4.4 Protection of the Environment Operations Act 1997

The *Protection of the Environment Operations Act 1997* (POEO Act) prohibits any person from causing pollution of waters or air and provides for penalties for air, water, and noise pollution offences.

Schedule 1 of the POEO Act identifies 'scheduled activities' that are required to be licensed by the Environment Protection Authority (EPA).

PON currently operates M4 in accordance with Environment Protection Licence (EPL) 13181 for the scheduled activity shipping in bulk. Whilst M4 does not form part of the proposal site, batteries being stored in the proposal site would likely be imported, or possibly exported, through M4 in accordance with the requirements of EPL 13181. PON may also utilise other berth facilities within the Port of Newcastle for the transfer of materials.

PON does not propose to undertake any activity as part of this proposal that:

– Would be classified as a new scheduled activity, or
– Would exceed the scheduled activity thresholds as detailed in EPL 13181

The storage of lithium-ion batteries would not fall within the scope of clause 9 (chemical storage) of Schedule 1 of the POEO Act, given batteries are defined under the *Australian Code for the Transport of Dangerous Goods by Road & Rail* (The Code) as an Article. This is because as batteries are a finished product, not a chemical substance being stockpiled or otherwise stored. Reference is made to clause 9 of Schedule 1:

> *POEO Act – Schedule 1:*
>
> > *9 Chemical storage*
> >
> > *1 - This clause applies to the following activities—*
> >
> > *general chemicals storage, meaning the storage or packaging in containers, bulk storage facilities or stockpiles of any* ***chemical substance*** *classified as a dangerous good in the* ***Transport of Dangerous Goods Code****, other than the following—*
> >
> > *(a) petroleum or petroleum products,*
> >
> > *(b) radioactive substances within the meaning of the Protection from Harmful Radiation Act 1990.*

The Code generally refers to dangerous goods as either substances or articles, for instance section 3.1.1.2 of the Code states:

> *Where a **substance or article** is specifically listed by name in the Dangerous Goods List, it must be transported in accordance with the provisions in the List which are appropriate for that **substance or article**.*

While “substance” is not defined in the Code, the Code does define “article” as follows:

> ***Article*** means a **manufactured item**, other than a fluid or particle, that:*
>
> *is formed into a particular shape or design during manufacture; and*
>
> *(b) has hazard properties and a function that are wholly or partly dependent on the shape or design – and includes automotive and marine batteries and **other large batteries** such as those used in telecommunications facilities, small and other assorted batteries, aerosols, gas-filled lighters, seat belt pre-tensioners and refrigerating machines.*

As a result, the lithium-ion batteries are not considered a “chemical substance” for the purposes of the POEO Act, and their storage is therefore not a scheduled activity under the POEO Act. The modification does not trigger the need for an EPL.

4.5 Commonwealth legislation

4.5.1 Environment Protection and Biodiversity Conservation Act 1999

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) requires the approval of the Commonwealth Minister Environment and Energy for actions that may have a significant impact on matters of national environmental significance (MNES).

The EPBC Act lists eight matters of NES that must be addressed when assessing the environmental impacts of a proposal. These matters are:

– World heritage properties
– National heritage places
– Ramsar wetlands of international significance
– Threatened species and ecological communities
– Migratory species
– Nuclear actions (including uranium mining)
– Commonwealth marine areas
– Great Barrier Reef Marine Park
– A water resource in relation to coal seam gas development and large coal mining development

Other matters protected under the EPBC Act include the protection of the environment where proposed activities are located on Commonwealth land. The proposal would not impact on any matters NES and is not located on Commonwealth land. Accordingly, no further consideration of the EPBC Act is considered necessary.

4.6 Mayfield Concept Plan Approval 09_0096

The MCP was approved under the former Part 3A (now repealed) of the EP&A Act by the Minister for Planning on 16 July 2012. Clause 3B of Schedule 2 of the *Environmental Planning and Assessment (Savings Transitional and Other Provisions) Regulation 2017* relevantly provides that "*a consent authority must not grant consent under Part 4 for the development unless it is satisfied that the development is generally consistent with the terms of the approval of the concept plan"*. This Modification Report considers the relevant requirements of the MCP approval, specifically the conditions listed in Table 4.3. The development as modified will be generally consistent with the MCP.

Table 4.3 Relevant Conditions of the Mayfield Concept Plan

Condition	Response
2.1 Under section 75P(2)(c) of the Act, the following environmental assessment requirements apply with respect to future development that is subject to Part 4 (other than complying development) or Part 5 of the Act:	-
(c) details of the consultation process and outcomes with relevant stakeholders, including with (but not limited to):	-
(i) Government authorities, such as DP&I, OEH, EPA, DPI, Transport for NSW, HDC and Council. (ii) Service and infrastructure providers, such as ARTC, RailCorp, Ausgrid, Hunter Water Corporation and Jemena. (iii) Special interest groups and the public, including adjoining and affected landowners.	Consultation outcomes and details are provided in Section 5.
(d) an updated environmental assessment of relevant statutory matters and Issue Specific requirements for construction and operation (including cumulative impacts of existing and approved development on the site and on adjoining sites) and the identification of relevant avoidance, mitigation, and management measures to address associated impacts.	An environmental assessment is provided in Section 7. Cumulative impacts and mitigation measures are discussed in Section 7.7 and Section 8 respectively.
(e) a Transport Assessment that assesses the transport, access and traffic impacts from projects associated with this Concept Plan. The assessment shall:	Traffic impacts are discussed in Section 7.2.
(i) Consider the transport limits and objectives of the Concept Plan, including the objective of not exceeding the total truck movement limits identified in requirement 2.3	The proposal is consistent with the limits and objectives of the Concept Plan. The proposed movements do not exceed the total truck movement limits as detailed in Section 7.2.2.
(ii) Consider freight volume forecasts and transport demand	Freight volumes are discussed in Section 7.2.2.
(iii) Consider the Transport Infrastructure Strategy (if required) and identified infrastructure, service improvements or management measures (if identified)	Infrastructure and service improvements have been considered in Section 7.2.2 and 7.2.3.
(iv) Consider the traffic performance and functionality of the local, regional, and State road network and site access, including the consideration of development within the vicinity of the Concept Plan site (including connecting road networks) and the cumulative impacts from adjoining development	Traffic performance and functionality is assessed in Section 7.2.2.
(v) Consider rail impacts associated with the Proposal, including network capacity and the availability of rail access and paths, rail operations on the Port Waratah and Bullock Island loops, and rail access and interface agreements	This proposal will not have any impacts on rail services or infrastructure.
(vi) Consider the Transport Monitoring and Review results undertaken as a requirement of this approval	PON would continue to undertake reporting as required by the MCP *Traffic Monitoring and Review Plan.*

Condition		Response
(vii)	Identify rail and road infrastructure requirements, including those specified in this approval and the corresponding exceptions	No adjustments to road and rail infrastructure would be required under the proposal.
(viii)	Identify traffic management measures consistent with the requirements of the Traffic Management Plan required under this approval	Traffic management measures are suggested in Section 7.2.3.
(ix)	Identify rail service and infrastructure changes and upgrades, and initiatives to facilitate an increased rail share of freight movements	This proposal will not have any impacts on rail services or infrastructure. No service or infrastructure changes are proposed.
(x)	Consider construction traffic routes and associated traffic impacts, including capacity constraints, changes to access and safety impacts, and	No construction activities are proposed.
(xi)	Include consideration of relevant road and rail design standards including but not limited to Austroads Guide to Road Design 2009 (with Transport for NSW supplements), Australian Standards, and Newcastle Development Control Plan 2005 – Element 4.11 (Subdivision).	The modification would utilise existing vehicle sizes with no addition deign required. No further assessment of any design requirements is necessary.

5. Consultation

5.1 Consultation during modification application

5.1.1 Department of Planning, Housing, and Infrastructure

PON briefed DPHI on the proposed modification in late 2023. Initial comments received on the draft proposal documentation are listed in Table 5.1 along with how they have been addressed.

Table 5.1 Proposal risk assessment

DPHI comment	Response
Details of the proposal, including duration of battery storage, stacking height of lithium-ion battery units, bunding of battery storage areas to capture runoff from fire-fighting liquids and chemicals, type, and material of barriers/structures to isolate the battery storage areas from other project cargo storage and whether the proposal will be operated by the Port of Newcastle or another party.	Details of the proposed are provided in Section 3 of this modification report.
Traffic and Transport – an assessment of traffic generated by the existing Facility as modified, and the proposal and compliance with freight traffic movements specified in Condition 2.3 of the Mayfield Concept Plan.	An assessment of the modifications potential traffic impacts are contained in Section 7.2 of this report. Overall the project is expected to have a negligible impact on traffic.

Several comments were received from DPHI in relation to the draft PHA. These are detailed and addressed in full in Appendix A.

5.1.2 City of Newcastle Council

An email was sent to City of Newcastle Council (Council) outlining the proposed development. A telephone call was received from Council raising no issues at this point in time, however reserved the right that representation may be made during the application referral process. Initial issues considered where flooding, contamination, and traffic generation – none of which appear to be of concern.

5.1.3 Community liaison group

An email was sent to the Port of Newcastle Community Liaison Group outlining the proposed development. One email response was received from a representative of Stolthaven requesting a copy of the application be made available. Arrangements have been put in place, forwarding a copy of the application's modification report at time of submission to DPHI.

5.1.4 Fire and Rescue NSW

PON emailed Fire and Rescue NSW on 6 September 2023 to inform them about the proposal and seek advice if there were any special requirements for storage of lithium-ion batteries.

Advice from Fire and Rescue NSW was received on 7 September 2023. Fire and Rescue NSW advised that primary risk associated with the storage of discharged batteries is a chemical spill if they are compromised in transit. It was also advised that the batteries be stored away from potential ignition sources. Consideration of the potential hazards associated with the batteries is provided in Section 7.1. Fire and Rescue NSW confirmed that there were no specific requirements from their agency. FRNSW correspondence it attached at Appendix B.

6. Prioritisation of issues

An assessment of potential environmental impacts associated with the proposal has been undertaken based on existing data and knowledge of the proposal site and preliminary desktop investigations. A risk analysis was undertaken to rank these issues according to the level of environmental risk or potential impact to the community. This was then used to inform the appropriate level of impact assessment undertaken in Section 7.

6.1 Risk matrix

Potential impacts are ranked according to the risk matrix (refer to Table 6.1) as being High, Medium, Low or Very Low (negligible) risk to the environment. This risk assessment has been undertaken by undertaking a high-level review of the potential unmitigated impacts of the proposal, therefore likelihood of occurrence and the consequences if they occurred. This rating is then used to determine the level of assessment for each environmental aspect.

Potential consequences:

1. Broad scale environmental impact
2. Regional environmental impact
3. Local environmental impact
4. Minor environmental impact
5. Insignificant environmental impact

Likelihood of adverse impact:

A. Almost certain
B. Likely
C. Possible
D. Unlikely
E. Rare

Table 6.1 Risk matrix

	Likelihood of adverse impact					
Potential Consequences		A	B	C	D	E
	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

6.2 Risk analysis

The rating and prioritisation of potential environmental effects related to the proposal is provided in Table 6.2. This rating allows the prioritisation of issues for assessment and does not consider the application of mitigation measures to manage environmental effects. In all cases, appropriate and proven mitigation measures would be used to minimise and manage potential impacts identified in this risk analyses. These measures are described throughout Section 7 of this Modification Report.

Table 6.2 Proposal risk assessment

Environmental Aspect	Potential Environmental Issue	Consequence	Likelihood	Rating
Hazard and risk	Hazards associated with receival and storage of lithium-ion batteries (for example, fire)	2	C	Medium
Noise	Noise impacts including noise generated during 24-hour operations	3	E	Medium
Surface Water	Impact to Hunter River because of spills, leaks, or other discharge of any materials to the catchment	4	E	Low
Air Quality	Vehicle emissions during operation and potential for dust generation	4	E	Low
Traffic	Traffic impacts on the road network due to truck movements generated by the proposal	4	E	Low
Waste management	Waste generation, management, and disposal	4	E	Very low
Visual and lighting	Visual impact and potential light spill from temporary lighting	4	E	Very low
Social and economic	Impacts on the local community due to the operation of the site and potential flow on economic impact	4	E	Very low
Aviation safety	The impact of cranes or other tall equipment	5	E	Very low

6.3 Key environmental issues

Based on the risk analysis presented above, the key factors and aspects requiring more detailed assessment within this Modification Report include:

– Hazard and risk
– Noise
– Surface water
– Air quality
– Traffic

Environmental aspects identified as having a medium to low potential of impacts are addressed in Sections 7.2 to Section 7.5. Other aspects predicted to have a very low impact are addressed in Section 7.6.

7. Environmental impact assessment

7.1 Hazard and risk

A Hazard Assessment has been prepared to assess if the proposal is potentially hazardous or potentially offensive in accordance with the *Applying SEPP 33, Hazardous and Offensive Development Application Guideline*s (DoP, 2011).

The Hazard Assessment is summarised in this section and presented in full in Appendix A.

7.1.1 Methodology

The methodology used to undertake the hazard assessment is summarised below and presented in full in Appendix A.

A 'hazardous industry' is one in which when all locational, technical, operational, and organisational safeguards are employed, continues to pose a significant risk, as per the requirements of Resilience and Hazards SEPP. A 'potentially offensive industry' is one which would, in the absence of safeguards, emit a polluting discharge which would cause a significant level of offence. The following tasks were undertaken to determine if the proposal is classified as a 'potentially hazardous industry' or a 'potentially offensive industry':

– Risk screening, concentrating on the storage of specific dangerous goods classes that have the potential for offsite effects.
– Hazard identification via a desktop assessment, documenting possible incidents that could be generated by the proposal.
– Undertaking a Preliminary Hazard Assessment (PHA) if the development is classified as potentially hazardous.

A summary of the assessment is presented in the subsequent sections.

7.1.2 Background

The proposal site currently provides for the storage of a range of freight and cargo including, but not limited to:

– Wind turbine components (blades, nacelles)
– Large industrial and mining components
– Luxury boats
– Electrical transformers and related machinery
– General cargo such as farm machinery
– Excavators and construction machinery
– Breakbulk (e.g. steel or timber products)
– Containerised cargo

No dangerous goods are currently stored within the proposal site.

Dangerous goods screening

A summary of the dangerous goods proposed to be stored onsite under the proposal is presented in Table 7.1.

Table 7.1 Dangerous goods proposed to be stored on site

Chemical/ product	UN #	DG class	Packing group	Expected storage quantity	SEPP (Resilience and Hazards) combined storage threshold	Exceedance of SEPP (Resilience and Hazards) threshold
Lithium-Ion Batteries	3480	9	N/A (contained units)	600 units	N/A	Pass (excluded)

The dangerous good screening indicate that the proposed storage of lithium-ion batteries does not exceed the thresholds within the Resilience and Hazards SEPP as there currently is no threshold for Class 9 dangerous goods. The proposed modification is therefore not considered a 'potentially hazardous or potentially offensive industry' and a PHA is not required.

Transport Screening

The hazard assessment considered the transport and storage of lithium-ion batteries, regardless of coming into site for export or imported by ship and then not trucks, and screened proposed quantities and traffic movements against criteria presented in *Applying SEPP 33: Hazardous and Offensive Development Application Guidelines.* This assessment is summarised in Table 7.2.

Table 7.2 Transport screening

DG Class	Chemical/ product	Combined quantity	Combined transport movements	Transport movements threshold	Exceedance of Applying SEPP 33 threshold
9	Lithium-Ion Batteries (incoming – via ship)	200 units	24 per annum (2 shipments per month)	>1,000 per annum	Does not exceed threshold
9	Lithium-Ion Batteries (outgoing – via truck)	2 units	38 per week (150 trucks per month)	>60 per week	Does not exceed threshold

The proposal does not exceed the thresholds outlined in *Applying SEPP 33: Hazardous and Offensive Development Application Guidelines* and is therefore not considered a 'potentially hazardous' or 'potentially offensive' industry'.

Summary of other emissions from potentially hazardous materials

The storage of lithium-ion batteries would not generate emissions, noise, or vibration.

7.1.3 Impact assessment

The results of the dangerous goods and transport screening indicate that the project does not exceed any of the thresholds, so the modification is not considered 'potentially hazardous'. However, based on industry knowledge of battery storage technology and the associated fire risk, a PHA was prepared. A Level 2 (semi-qualitative) PHA was undertaken due to the medium potential for harm generated by the proposal.

Hazard identification

Hazards associated with the proposal (and mitigation measures to reduce risk) are presented in Table 7.3.

Table 7.3 Hazard identification

Hazard Scenario	Causes	Consequence	Potential for Off Site Impact	Mitigation measures
Vehicle interactions within the project area	Vehicle movements in vicinity of personnel	Personal injury	No	– Prepare traffic management plan including standard traffic rules and signage – Implement site speed limits – Provide designated pedestrian areas for construction and operation – Driver competency
Natural hazards	Flooding, earthquake, lightning, bushfire	Personal injury Asset Damage	No	Prepare emergency management plan
Mechanical damage of lithium-ion Battery units	Rapid heating of individual cells (e.g. lack of venting, thermal runaway reactions) Vehicle impact into batteries Unloading/loading of batteries	Personal injury / fatality Asset Damage	Yes	– Ensure batteries are Quality Assured to ISO 9001, AS/ NZS 5139 and prevailing battery manufacturing standards – Install bollards around batteries at truck loading area – Batteries to be stored as per supplier's specifications – Implement a regular inspection regime for the battery units (checking for visible impact damage) – Prepare emergency management procedure

Hazardous materials

Lithium-ion batteries are classified as Class 9 dangerous goods and are the only material with the potential to cause off-site impacts from a hazardous event. Construction of lithium-ion batteries can vary; however all types have potential for rapid heating, or thermal runaway, causing subsequent fire and explosion. There are several causes of thermal runaway, however as the lithium-ion batteries would not be operation under the proposal, the ability for rapid heating is due to a latent battery fault or damage.

Consequence determination

A summary of the predicted radiant heat from thermal runaway hazard scenarios is presented in Table 7.4.

Table 7.4 Summary of heat radiation consequences

Release Scenario	Maximum Distance Downwind of Release to Heat Radiation		
	4.7 kW/m^2 (heat radiation level that can cause injury)	12.6 kW/m^2 (heat radiation level that can cause fatality)	23 kW/m^2 (heat radiation level that can cause property damage)
Single container battery thermal runaway	4.2 m	2.0 m	0.95 m

Offsite health effects from smoke in the event of a battery fire, which could include small quantities of fluorinated hydrocarbons or hydrofluoric acid are considered low given the lack of combustible material available for a prolonged fire event and the low residential density in the area. It is noted that the neared sensitive received is approximately 800 metres from the proposed battery storage location.

Risk assessment

The risk criteria for land use and safety planning within HIPAP 4 (DoP, 2011) include onsite and offsite fatality values, as well as offsite injury and property damage values. The HIPAP 4 fire and explosion risk criteria are summarised in Table 7.5.

Table 7.5 HIPAP 4 Risk Criteria

Impact	Onsite Criteria	Offsite Criteria
Fatality (12.6 kW/m^2 & 21 kPa)	5.00 x 10^{-05}	1.00 x 10^{-06}
Serious injury (4.7 kw/m^2 & 7 kPa)	–	5.00 x 10^{-05}
Property damage (23 kw/m^2 & 14 kPa)	–	5.00 x 10^{-05}

Calculations for the frequency of fatality, injury and property damage for a thermal runaway event are detailed in Table 7.6.

Table 7.6 Risk criteria compliance for thermal runaway events

Event	Frequency per year	Interval years	Compliance
OFFSITE property damage	0	0	Complies
OFFSITE serious injury	0	0	Complies
OFFSITE fatality	0	0	Complies
ONSITE fatality	7.5 x 10^{-06}	132,670	Complies

Based on the PHA, the proposal is not expected to generate offsite impacts. The of injury, fatality or property damage from the proposal is negligible and complies with HIPAP 4. The nearest offsite facility, Stolthaven, is approximately 160 metres away from the proposed battery storage area. At this distance radiation from any fire would be negligible. Coupled with the highly unlikely chance of an incident occurring the risk of injury, fatality or property damage is negligible and complies with HIPAP 4.

The onsite fatality risk also complies with HIPAP 4.

7.1.4 Mitigation measures

The PHA concluded that the risk arising from the proposal would not exceed the individual fatality or injury risk criteria specified in HIPAP No. 4. Therefore, the project does not pose any significant risk or offence. The PHA recommends the following mitigation measures to further reduce the risks associated with the proposal:

– Lithium-ion batteries will be stored as per manufacturer specifications.
– Shipping manifest to include lithium-ion batteries state of charge, which should be limited to a maximum of 30 per cent.
– Installation of bollards around vehicle movement routes.
– The location of the lithium-ion battery storage area will be at least three metres from other general cargo.
– Separation distances between lithium-ion battery units will be at least one metre, based on preliminary radiant heat contours for property damage.
– The lithium-ion battery unit storage area will be protected from flooding/storm surge, based on the annual exceedance probability for the area.
– The lithium-ion battery units will be regularly inspected for signs of damage, such as visible impacts, hissing, leaking, and smoking.
– A protocol will be developed for managing damaged batteries that will include the following actions:
    - Immediately place it in an area away from flammable materials if any sign of damage is present.
    - Before moving a damaged battery, wait a period to observe if there is any smoke, as this may be an indication that a thermal reaction is in progress. A damaged battery should also be monitored after isolation for evidence of smoke, flame, or signs of heat.

– Develop a battery fire emergency response procedure that should include the following actions:
    - Follow manufacturer's guidance on how to extinguish small battery fires, which could include using dry chemical extinguishers, foam fire extinguishers, powdered graphite, dirt, or sand. If the fire of a burning lithium-ion battery cannot be extinguished, allow the container to burn out on its own in a controlled and safe manner, using water to cool the outside unit.
    - Exclusion of potential ignition sources in a three metres zone around lithium-ion battery storage area.
    - A regular review and test of the battery fire emergency response procedure to ensure relevance.
– Ensure batteries are Quality Assured to ISO 9001, AS/ NZS 5139 and prevailing battery manufacturing standards.

7.2 Traffic

7.2.1 Background

The Mayfield site currently operates under planning approvals DA 8137, SSD 7065 and DA293-08-00 and the overarching Mayfield Concept Plan (MCP).

Mayfield Concept Plan

Schedule 3 Condition 2.3 of the Mayfield Concept Approval states that projects associated within the MCP shall not exceed the total truck movement limits shown in Table 7.7. These are reported on a bi-monthly basis.

Table 7.7 MCP truck movement limits

Total truck movements per annum	Total truck movements per day	Total truck movements in peak periods
462,104	1,268	95

A truck movement is counted as a one-way trip. Accordingly, a truck arriving at site to load cargo and then exiting the site is counted as two movements. Currently only two projects are operational within the MCP, the Mayfield Cargo Storage Facility (MCSF) and the Stolthaven Mayfield Terminal (SMT).

DA8137

The proposal site is located with DA 8137. It is permitted to operate 24 hours a day, 7 days a week with conditions on noise, minor improvements to Selwyn Street, and the development of an Operational Environmental Management Plan (OEMP). The OEMP includes the requirement to:

– Detail measures to manage traffic in accordance with the MCP Traffic Management Plan.
– Include details of a reporting program to be provided annually to PON that is prepared in accordance with the MCP's Traffic Monitoring and Review Plan. The traffic monitoring program shall include details of traffic movements to and from the site (during peak periods and daily volumes), including along Selwyn Street.

DA293-08-00

DA293-08-00 covers the Multi-Purpose Terminal at the Mayfield site. This consent requires various management plans including an OEMP and a Traffic Management Plan describing:

– Truck movements into and out of the site will be steady throughout normal business hours at around 5 to 10 truck movements per hour, peaking at up to 15 to 20 truck movements per hour in line with normal traffic peak hours. When ships are being unloaded or loaded directly onto road transport this may be up to 35-40 truck movements per hour.
– At Year 10, peak vehicle movements on a day when a ship is at the berth, including personnel vehicles, may total 800 vehicle movements per day.
– Establishes the heavy vehicle route and sets performance measures for operations by stevedores.

The traffic volumes described in the OEMP and Traffic Management Plan are expected volumes and not agreed limits.

Existing traffic movements

The traffic movements on the Mayfield site are primarily generated from Mayfield Cargo Storage Facility (DA 8137) and the Stolthaven Mayfield Terminal (SSD 7065). The data for each site has been drawn from:

– Stolthaven Annual Review 2022 (GHD, 2023b)
– Mayfield Concept Plan Approval 09_0096 Bi-Monthly Traffic Report (July and August 2023) (Port of Newcastle, 2023)

Table 7.8 includes the expected worst case traffic movements from the project combined with those from Stolthaven compared to the Concept Plans truck movement limits. The total number of truck movements is well within the MCP truck movement limitations as shown in Table 7.8.

Table 7.8 Truck movements on Mayfield Site

Source	Total truck movements per annum	Total truck movements per day	Total truck movements in peak periods
Stolthaven Mayfield Terminal	39,506	108	<20
Mayfield Cargo Storage Facility (as approved)	74,991	206	12
Total	**114,497**	**314**	**<32**
MCP truck movement limits	**464,104**	**1,268**	**95**
Proportion of MCP approval limit*	**25%**	**25%**	**33%**

7.2.2 Impact assessment

Traffic would enter the proposal site via existing routes approved for the site as described in Section 3.1.5. During unloading, traffic would be confined within the Mayfield site as trucks move between M4 and the proposal site. When transport from the proposal site to projects is required, several batteries per load may be transported (depending on battery technology, type and therefore dimensions and weight) generating approximately 150 truck movements per month. Conservatively, the proposal is expected to generate no more than five truck movements during morning and afternoon peak periods.

Truck movements generated for the transport of batteries would not be continuous. They would occur over a campaign when a given project requires them to be delivered to site. Typically battery delivery to a project site would be timed to be close to their scheduled installation to minimise the need for onsite temporary storage and double-handling. Therefore trips are generally staggered and do not result in a short term high volume of movements that may generate traffic problems.

As a result of the storage of batteries, other cargos could not otherwise be stored in the same area on the proposal site. This means that traffic generated by the movement of other cargos would be replaced with vehicle movements associated with battery units resulting in a negligible net change in overall vehicle movements from the proposal site. The total number of truck movements would still be well within the MCP truck movement limits as shown in Table 7.9.

Table 7.9 Truck Movements on the Mayfield Site with Proposed Modifications

Source	Total truck movements per annum	Total truck movements per day	Total truck movements in peak periods
Existing truck movements	**114,497**	**314**	**<32**
Additional truck movements	18,000	5	5
Total	**116,297**	**319**	**<37**
MCP truck movement limits	**462,104**	**1,268**	**95**
Proportion of MCP Approval Limit	**25%**	**25%**	**39%**

This traffic impact assessment shows that the proposal can be accommodated well within the Mayfield Concept Plan truck movement limits. Transport of lithium-ion batteries to sites around NSW would occur via approved Transport for NSW (TfNSW) heavy vehicle approved routes. Risk has been assessed in the PHA, which is summarised in Section 7.1 and presented in full in Appendix A.

7.2.3 Mitigation measures

The proposal would generate a small number of traffic movements, which would be within the limits of the existing MCP. As such, no noticeable changes to traffic are anticipated to occur. Mitigation measures suggested below are currently implemented as part of existing site operations. These would remain unchanged and would apply to a wider area if the proposal were to be approved.

Mitigation measures are as follows:

– Minimise heavy vehicle movements during peak times
– Require heavy vehicle movements to occur on approved routes to prevent movements through residential areas
– Prevent heavy vehicle movements on residential streets
– Require that the appropriate permits are obtained for the haulage of oversized or over mass loads and that the requirements of these permits (e.g. vehicle escorts) are fully implemented
– Undertake reporting as required by the MCP *Traffic Monitoring and Review Plan*

7.3 Noise

7.3.1 Background

The proposal site is located on the former BHP steelworks site in Mayfield North, adjacent to the Hunter River, approximately 5 kilometres north-west of Newcastle CBD. The nearest residential areas to the site are located to the south-west of the Facility site at Mayfield, with the closest receivers in Crebert Street, approximately 800 metres southwest of the proposal site. The receivers on Crebert Steet include an aged care facility and a school. There is substantial industrial development to the north, east and south of the proposal site, including coal storage and shipping, manufacturing, and chemical production. The proposal site is also located near Industrial Drive, which is a main arterial road and approved B-double route connecting industrial facilities in Mayfield and Carrington to major transport routes.

Operational noise sources

The site provides for the storage of a range of freight and cargo. Freight is unloaded from ships via cranes and lifting devices at M4 or other berths at the Port and then transported via truck to the proposal site. Distribution of cargo is then via truck to its final destination. Cargo may also be trucked from its point of origin to the storage facility for consolidation and export via M4, or another berth within the Port.

General day-to-day activities, include moving or stacking of cargo. Plant and machinery used include reach stackers and forklifts for unloading, moving, stacking, and loading cargo.

Operations at the site consist of the following activities:

– Internal private access roads:
  - Moving trucks, idling trucks
  - Light vehicles
– Industrial noise sources:
  - Reach stackers
  - Forklifts
  - Mobile harbour cranes

The operational hours for the existing facility are Monday to Sunday, 24 hours per day.

Operational noise limits

Section B2 of the Development Consent (DA 8137) presents the operational noise limits that apply to the Facility and are reproduced in Table 7.10.

Table 7.10 Operational noise limits

No.	MCP Receiver	Location	Day	Evening	Night		
			$L_{Aeq\ (15min)}$	$L_{Aeq\ (15min)}$	$L_{Aeq\ (15min)}$	$L_{Aeq\ (9hr)}$	$L_{A1\ (11min)}$
R1	A	1 Arthur Street, Mayfield	35	35	35	35	46
R2	B	2 Crebert Street, Mayfield	39	39	39	35	51
R3		24 Crebert Street, Mayfield	40	39	39	35	52
R4	C	32 Elizabeth Street, Carrington	35	35	35	35	41
R5	D	186 Fullerton Road, Stockton	35	35	35	35	40

Section B2 of the Development Consent (DA 8137) presented sleep disturbance criteria which are also provided in Table 7.10 as the L_{A1} criteria.

Mayfield concept plan noise quota

Condition B3 of the Development Consent (DA 8137) provides the following with respect to MCP noise quota:

> *"B3. The Applicant must:*
>
> *a. ensure noise from the site does not exceed the noise quotas provided by the PON in accordance with the Site Noise Model; and*
>
> *b. comply with the directions of the PON in relation to the management of noise from the Site."*

Amenity noise requirements – Mayfield Concept Plan

As the Facility is located within the MCP area, it is also subject to the noise requirements of the concept approval (09_0096MOD 2) (MCP approval). Conditions 2.16 to 2.20 of the MCP approval outlines the operational noise and vibration requirements related to projects sites that are situated with the MCP area.

Condition 2.17 sets out noise limits for the cumulative noise impact of all projects associated with MCP. The MCP approval aims to address the cumulative noise impacts from all sites that will operate within the MCP area. It aims to prevent any individual site being designed to use up all of the MCP approval noise limits, which will then result in all other developments having overly stringent noise requirements, and development in other areas of the MCP being constrained. PON has developed an approach for addressing the cumulative noise impacts by allocating noise quota to individual sites within the MCP area, in order for the entire site once fully developed to meet the overall noise limits set out in the MCP Approval.

PON has developed a Cumulative Environmental Noise Management Tool (CENMT), which includes the development of a Site Noise Model as required by Condition 2.16 to address those matters listed in Condition 2.19.

Existing, specific amenity noise quota derived using the MCP CENMT are presented in Table 7.11.

Table 7.11 Summary of MCP noise quota for existing Cargo Storage Facility

Location	Cargo Storage Facility specific MCP noise quota, $L_{Aeq, period}$, dB(A)		
	Day (7:00 am to 6:00 pm)	Evening (6:00 pm to 10:00 pm)	Night (10:00 pm to 7:00 am)
A – 1 Arthur Street, Mayfield	51	40	34
B – 2 Crebert Street, Mayfield	51	41	34
C – 32 Elizabeth Street, Carrington	46	33	34
D – 186 Fullerton Road, Stockton	45	27	27

Should there be any inconsistencies between the noise levels prescribed in DA 8137 and MCP 09_0096, then MCP 09_0096 prevails to the extent of that inconsistency.

7.3.2 Impact assessment

The proposal would take place within the existing cargo storage areas and utilise existing infrastructure at the Port. Noise sources generated by the proposal are considered below:

– Shipping noise – the proposal would not change the nature of shipping noise generated at Mayfield Berth 4. Only a single ship at a time will still be able be dock at the berth at a given time to import/export cargoes including the batteries.
– Dockside handling – the handing and movement of battery units to their storage location will use existing equipment which currently services existing cargos at the proposal site, including forklifts, stacker unloaders and cranes. The modification would not result in the introduction or any new noise sources as part of dockside operations.
– Storage – The battery units will not generate any noise during storage.
– Transport – The transport of batteries will require the use of similar equipment to dockside handling to place the units on trucks, and then the movement of truck offsite. This equipment is consistent with existing site operations and is not considered an introduction of any new noise sources.

The overall noise impact potential from the proposed modification is considered negligible.

7.3.3 Mitigation measures

No changes to the types of activities currently undertaken at the proposal site are proposed rather it is simply an addition to the type of cargo proposed to be stored. As such, no significant changes to noise are anticipated to occur. Mitigation measures suggested below are currently implemented. These would remain unchanged and would apply to a wider area if the proposal were to be approved. Mitigation measures are as follows:

– Site establishment activities will only be undertaken during standard working hours as detailed in the EPA's *Interim Construction Noise Guidelines* (ICNG, 2009).
– Standard reasonable and feasible noise management measures as detailed in the ICNG will be suitable for the management of potential site establishment noise.
– Equipment will be fitted with broadband reversing alarms where practical.

7.4 Surface water

7.4.1 Background

The proposal site is currently a fully sealed hardstand area that was constructed as part of the remediation works to prevent infiltration of surface water into soils. Surface water runoff is directed via overland flow to the MCP drainage system along the northern boundary. Runoff entering this culvert is then transferred by an underground pipe and discharged directly into the Hunter River. A small portion of the site also drains towards the west via sheet flow into the MCP Western Truck Drain which then connects directly to the Hunter River.

The MCP Stormwater Management System (SMS) (AECOM, 2015) indicates that the proposal site is not subject to flooding from either an oceanic flooding event, or Hunter River Flooding under with the one per cent Annual Exceedance Probability or Probably Maximum Flood scenarios. Accordingly, no consideration of the potential mobilisation of project cargos because of flooding is required.

7.4.2 Impact assessment

The scope of the proposal is to receive and store lithium-ion batteries within an existing storage area. No changes to existing drainage infrastructure are proposed. The storage of lithium-ion batteries may result in some changes to surface water flow paths during heavy rainfall, however impacts would not be significant. The proposal site is also sealed, minimising the risk of erosion. The proposal site is not susceptible to flooding, therefore no consideration of the potential mobilisation of lithium-ion batteries because of flooding is required.

The use of plant and machinery to load and unload the lithium-ion batteries generates potential for leaks and spills of hydrocarbons to occur, for example from hydraulic line breaks or fuel spills if an accident were to occur.AS these activities are consistent with those currently undertaken on the site the modification is not considered to result in any increased risk compared to current operations. The lithium-ion batteries proposed to be imported/exported contain electrolyte that can pose risk to surface water quality. The batteries are shipped as sealed units, and under normal conditions do not leak or discharge. If the units are damaged during unloading or transport however, there is potential for leaks of hazardous chemicals to occur. To manage this, spill kits will be installed at the proposal site. The storage site will also be regularly inspected to ensure that spills and leaks have not occurred. Stormwater monitoring also occurs on a quarterly basis for a range of parameters including oil and grease and heavy metals under the MCP, which would provide a measure of operational environmental performance.

The MCP SMS details requirements for tenants of the Mayfield Concept Plan area. The MCP SMS requires individual operations within the MCP area to prepare a Construction Environmental Management Plans (CEMP) for their construction activities. However, as no construction activities or disturbance of soil is required to complete the proposal, a CEMP is not required. The existing operational management plan for the proposal site and for M4 would be updated to consider the import/export of lithium-ion batteries.

7.4.3 Mitigation measures

The proposal would have a negligible impact on surface water flows, with runoff proposed to be directed to the established MCP drainage network. The primary risk generated by the proposal is associated with contamination. Mitigation measures to reduce the risk of surface water contamination that will be implemented are:

- Installation of spill kits to manage potential leaks or spill from site plant or equipment. The spill kits will be required to have dry sand, chalk powder ($CaCO_3$) or vermiculite to address spills.
- Lithium-ion batteries will be inspected prior to storage to confirm that they are not damaged or leaking.
- Regular inspections of stored batteries will be undertaken. If leaking batteries are identified, leaks will be contained immediately and reported to regulatory authorities.
- The OEMP for the site and for M4 will be updated to include the import/export and storage of lithium-ion batteries.

7.5 Air quality

7.5.1 Background

The proposal site is currently maintained as an open hardstand area for storage of bulk cargo. The wider area is industrial, with the main activities being coal handling and export, petroleum storage, manufacturing, shipping, and heavy vehicle transport. Due to its close coastal location, sea spray is also a characteristic of the air quality environment. These factors combine to generate a relatively high level of background particulate matter in Newcastle.

As the Proposal site is located within the MCP area consideration is required of the:

– MCP Site Air Quality Model
– MCP Air Quality Monitoring Program

These plans require consideration of existing air quality emissions not only from the proposal site but also the wider MCP area. The main sources of air emissions at the proposal site are associated with the Stolthaven Bulk Fuel Terminal. There are also eight soil vapor sampling wells present across the site. PON has carried out periodic monitoring of these wells to determine hazard potential. The results of the most recent monitoring are detailed in Robert Carr and Associates (RCA) *Report Compiled for Port of Newcastle Operations Detailing Benzene Vapour Sampling October 2016.* The monitoring results indicated that volatile hydrocarbon levels were below the limit of reporting.

7.5.2 Impact assessment

The primary sources of emissions generated by the proposal would be from combustion emissions from trucks, vehicles, and plant such as forklifts. These emissions include both products of combustions such as oxides of carbon and nitrogen, as well as particulate matter. This is consistent with current operations on the site. Given the heavy industrial nature of the surrounding environment, the small fleet associated with the proposal would not have a significant impact on air quality. Once placed within the storage area, the lithium-ion batteries would not generate any emissions. The proposal is also unlikely to have a cumulative impact with other operations in the MCP.

As the proposal site is currently a sealed hardstand area and would remain so for the duration of the proposal, no dust generation from exposed soils would occur. Due to the nature of the proposal, there are no significant emissions sources proposed. As there is limited potential for air emissions to occur there is no requirement and would be no benefit from modelling proposal emissions through the *Mayfield Concept Plan Site Air Quality Model.* Similarly, no additional monitoring requirements would be required as part of the *Mayfield Concept Plan Air Quality Monitoring Program.*

7.5.3 Mitigation measures

The proposal would have a negligible impact on air quality within the local area. The proposal would not trigger the need for any additional monitoring or management measures to be incorporated into the MCP operational site management required under the *Mayfield Concept Plan Air Quality Monitoring Program.* Mitigation measures suggested below are currently undertaken at the site. These would remain unchanged and would apply to a wider area if the proposal were to be approved.

Mitigation measures are as follows:

– All vehicles required by the operation will be maintained in good working order to minimise the potential for excess emission.
– Where plant or equipment that is idling for prolonged periods, it would be switched off.

7.6 Other matters

The proposal will not include any changes to the current activities on the proposal site. Likely environmental impacts for other environmental matters are anticipated to be very low. These matters are detailed in Table 7.12.

Table 7.12 Other Environmental Impact Considerations

Environmental Matter	Impact Assessment
Visual and lighting	The existing site is a sealed hardstand area with no distinguishing features, building or infrastructure, currently used for storage of bunk cargo such as blades for wind turbines. The surrounding area is industrial in nature and visually screened by surrounding land uses and tree plantings along Industrial Drive which provides visual separation from the nearest residential areas which is over 800 m away.

Environmental Matter	Impact Assessment
	The proposal does not include any permanent infrastructure or tall structures. Some temporary lighting may be required. Temporary lighting would be comparable to other floodlighting in the vicinity (e.g. M4 lighting) which has negligible impact on residents. The following measures would be implemented to control potential light spill: – Lighting would be temporary and only operated on an as needs basis during operations. – Lighting equipment would be located at the periphery of the site and directed inwards and downwards. – Where relevant lighting would be operated in accordance with *Australian Standard 4282 Control of the Obtrusive effects of outdoor lighting*. Due to the offset distances to the nearest sensitive receivers, surrounding development and vegetation there are no visual corridors to or through the site which the proposal may impact upon.
Waste	There may be small amounts of packaging waste generated during unpacking of the lithium-ion batteries. There may also be material used to pack the battery units into the ships. This material is known as 'dunnage' and typically include pieces of wood placed to minimise cargo movement during shipping. This material may be able to be reused during the storage, otherwise it would be classified as per the Waste Classification Guidelines (EPA, 2014) are recycled of (as appropriate) or disposed of. PON has established management practises in place for the management of any materials coming off ships in accordance with Commonwealth Department of Agriculture Fisheries and Forestry quarantine requirements. Following unloading of cargo from the ship and placement at the proposal site, ongoing waste is not anticipated to be generated.
Social and economic	The Proposal would be undertaken to service a supply chain need for the wider region. Lithium-ion batteries play a key component in the development of the renewable energy network within the Hunter Region and beyond. Several grid-scale battery projects have already been announced as part of the Hunter REZ. Currently, there are no options for storage of lithium-ion batteries, meaning they are imported/exported on an 'as needs' basis for projects. Importing lithium-ion batteries on an 'as needs' basis is subject to global supply chains, which can be unreliable and cause project delays. The proposal would enable for the import/export and storage of lithium-ion batteries so that the risk of delay to projects would be reduced. In this manner, the proposal would indirectly support economic benefits generated though the implementation of these projects. The Proposal does not seek to modify land use as the Proposal site is currently used for storage of materials. As detailed in this Modification Report the Proposal can be undertaken within minimal impact to the environment or community so overall the Proposal is considered to have a positive social and economic benefit.
Aviation safety	The proposal Area is located within the 15-kilometre distance area from the Newcastle (Williamtown) Airport. In accordance with the Civil Aviation Safety Authority (CASA) Advisory Circular *AC139-08(0)-Reporting of Tall Structure* any permanent or temporary structure 30 metres or taller within 15 kilometres of the airport requires reporting and approval from the airport. The proposal would not require new permanent or temporary structures, and therefore would not generate impacts to aviation safety.

7.7 Cumulative impacts

The proposal seeks to utilise an additional existing hardstand area for the receival and storage of lithium-ion batteries to occur. No permanent buildings or infrastructure changes are proposed.

The proposal is located within and industrial area with numerous existing industrial land uses. This Modification Report has sought to assess the potential impacts of the existing land uses to capture potential cumulative impacts from multiple customers operating across the site.

Given that the proposal area would only be used occasionally and in a manner consistent with existing operations on the site, the potential for any additional cumulative impacts to occur as a result of the modification is considered negligible.

8. Summary of mitigation measures

Table 8.1 below provides a summary of mitigation and management measures proposed to mitigate the impacts of the Proposal.

Table 8.1 Mitigation measures

Environmental Matter	Proposed Management Measures
Hazard and risk	– Lithium-ion batteries will be stored as per manufacturer specifications. – Shipping manifest to include lithium-ion batteries state of charge, which should be limited to a maximum of 30 per cent. – Installation of bollards around vehicle movement routes. – The location of the lithium-ion battery storage area will be at least three metres from other general cargo. – Separation distances between lithium-ion battery units will be at least one metre, based on preliminary radiant heat contours for property damage. – The lithium-ion battery unit storage area will be protected from flooding/storm surge, based on the annual exceedance probability for the area. – The lithium-ion battery units will be regularly inspected for signs of damage, such as visible impacts, hissing, leaking, and smoking. – A protocol will be developed for managing damaged batteries that will include the following actions: • Immediately place it in an area away from flammable materials if any sign of damage is present. • Before moving a damaged battery, wait a period to observe if there is any smoke, as this may be an indication that a thermal reaction is in progress. A damaged battery should also be monitored after isolation for evidence of smoke, flame, or signs of heat. – Develop a battery fire emergency response procedure that should include the following actions: • Follow manufacturer's guidance on how to extinguish small battery fires, which could include using dry chemical extinguishers, foam fire extinguishers, powdered graphite, dirt, or sand. If the fire of a burning lithium-ion battery cannot be extinguished, allow the container to burn out on its own in a controlled and safe manner, using water to cool the outside unit. • Exclusion of potential ignition sources in a three metres zone around lithium-ion battery storage area. • A regular review and test of the battery fire emergency response procedure to ensure relevance. – Ensure batteries are Quality Assured to ISO 9001, AS/ NZS 5139 and prevailing battery manufacturing standards.
Traffic	– Minimise heavy vehicle movements during peak times. – Require heavy vehicle movements to occur on approved routes to prevent movements through residential areas. – Prevent heavy vehicle movements on residential streets. – Require that the appropriate permits are obtained for the haulage of oversized or over mass loads and that the requirements of these permits (e.g. vehicle escorts) are fully implemented. – Undertake reporting as required by the MCP *Traffic Monitoring and Review Plan*.
Noise	– Site establishment activities will only be undertaken during standard working hours as detailed in the EPA's *Interim Construction Noise Guidelines* (ICNG, 2009). – Standard reasonable and feasible noise management measures as detailed in the ICNG will be suitable for the management of potential site establishment noise. – Equipment will be fitted with broadband reversing alarms where practical.

Environmental Matter	Proposed Management Measures
Surface Water	– Installation of spill kits to manage potential leaks or spill from site plant or equipment. The spill kits will be required to have dry sand, chalk powder (CaCO3) or vermiculite to address spills. – Lithium-ion batteries will be inspected prior to storage to confirm that they are not damaged or leaking. – Regular inspections of stored batteries will be undertaken. If leaking batteries are identified, leaks will be contained immediately and reported to regulatory authorities. – The OEMP for the site and for M4 will be updated to include the import/export and storage of lithium-ion batteries.
Air Quality	– All vehicles required by the operation will be maintained in good working order to minimise the potential for excess emission. – Where plant or equipment that is idling for prolonged periods, it would be switched off.
Visual and lighting	– Lighting would be temporary and only operated on an as needs basis during operations. – Lighting equipment would be located at the periphery of the site and directed inwards and downwards. – Where relevant lighting would be operated in accordance with Australian Standard 4282 Control of the Obtrusive effects of outdoor lighting.
Waste	– Waste material to be classified as per the Waste Classification Guidelines (EPA, 2014).

9. Conclusion

PON is seeking to modify DA 8137 to allow for storage of lithium-ion batteries, which are classified as Class 9 Dangerous Goods.

The proposal site is situated within the Mayfield Concept Plan Area which is an existing hardstand area directly adjoining the south arm of the Hunter River. The site was historically used for heavy industrial purposes and sits within a wider industrial setting. The site has a hardstand area and is close to Mayfield Berth No. 4 with deep channel access, making it a key place to store imported, or exporting, lithium-ion batteries for use within renewable energy projects proposed for the region.

This Modification Report has demonstrated that that the proposed modification is consistent with the existing approved project DA 813, as modified, and presents negligible material change to impacts. The key issues of hazard and risk, traffic, noise, surface water and air quality have been assessed and shown to the suitably managed using standard and proven management measures. The proposal would have social and economic benefits as it would form a key part of the materials supply chain for renewable energy projects. The proposal has also shown to be consistent with, and supporting the delivery of, key strategic land use planning and energy transition policies. For these reasons, the modification merits approval.

10. Reference list

AECOM, 2015, Mayfield Concept Plan Stormwater Management System

AECOM, 2016, *Statement of Environmental Effects, Cargo Storage Facility, Mayfield*

Aurecon, 2019, *Statement of Environmental Effects, Development Consent Modification. Mayfield Cargo Storage Facility*

GHD, 2023a, *Statement of Environmental Effects, Modification to expand wharf area*

GHD, 2023b, *Stolthaven Annual Review 2022*

NSW Department of Planning (DoP). 2011. *Applying SEPP 33: Hazardous and Offensive Development Application Guidelines*

NSW Department of Planning (DoP). 2011. *Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning*

NSW Department of Planning. (DoP). 2011. *Hazardous Industry Planning Advisory Paper No 6 – Guidelines for Hazard Analysis*

Port of Newcastle, 2023, Mayfield Concept Plan Approval 09_0096 Bi-Monthly Traffic Report (July and August 2023)

Appendices

Appendix A

Preliminary Hazard Analysis

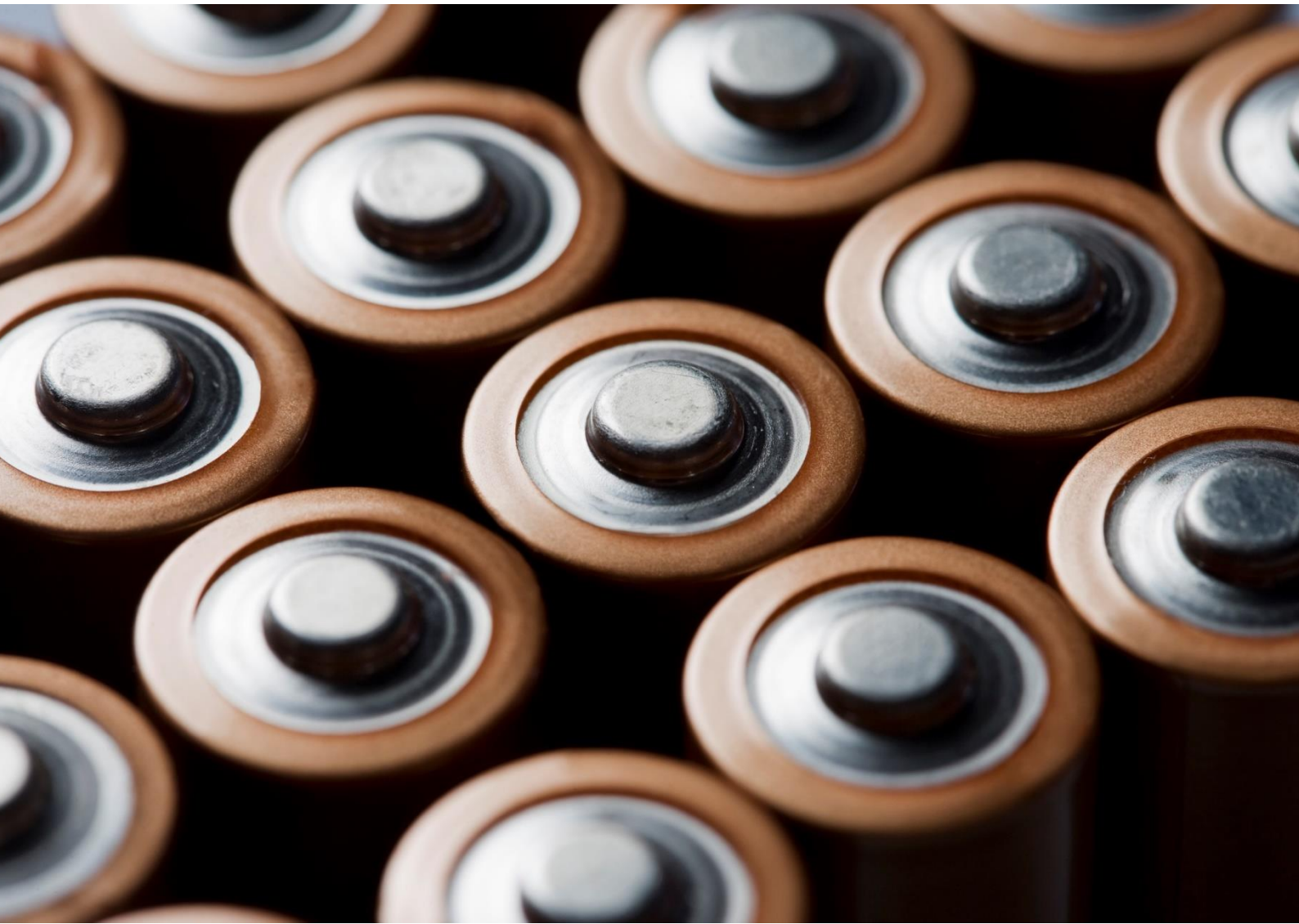
Preliminary Hazard Analysis

Battery import project

Port of Newcastle Operations Pty Ltd

17 June 2024

→ **The Power of Commitment**



Project name	PON Battery import					
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1. Introduction

1.1 Background

Port of Newcastle (PON) are proposing to modify its Development Application (DA) (DA 8137) to allow storage of imported lithium-ion battery (LiB) containers prior to being transported to various locations for installation into battery energy storage systems (BESS). As part of the DA modification application, a preliminary risk screening, as dictated by the *State Environmental Planning Policy (Resilience and Hazards) 2021* (SEPP (Resilience and Hazards)) and a modification report is required.

1.2 Purpose of this report

PON have engaged GHD Pty Ltd (GHD) to undertake a preliminary risk screening and, if required, the corresponding Preliminary Hazard Analysis (PHA) as per SEPP (Resilience and Hazards), to determine if the proposed storage of LiB containers at the Mayfield Cargo Storage Facility is 'potentially hazardous of offensive'.

This report is to provide sufficient information and assessment of risks to show that the modification satisfies the risk management requirements of the Council and the NSW Department of Planning, Housing and Infrastructure (DPHI) to prevent or mitigate any identified impacts, including human health, the environment and property. By demonstrating that the residual risk levels are acceptable in relation to the surrounding land use, and that risk will be appropriately managed, the requirements under the SEPP (Resilience and Hazards) and the planning development will be met.

1.3 Scope and limitations

SEPP (Resilience and Hazards) presents a systematic approach to planning and assessing proposals for potentially hazardous or offensive development for the purpose of industry or storage.

For development proposals classified as a 'potentially hazardous or offensive industry' the policy establishes a comprehensive test by way of a PHA to determine the risk to people, property and the environment at the proposed location and in the presence of controls.

The scope of this report includes the interactions between the introduction of the storage of LiB containers within the Mayfield Cargo Storage Facility. Excluded is any identification or assessment of hazards and risks associated with current operational activities at Mayfield Berth 4 beyond the LiB container storage and associated interactions. Whilst Mayfield Berth 4 also handles combustible liquids and two types of dangerous goods (ammonium nitrate and explosives) only one ship at a time berths at Mayfield Berth 4 meaning there would be no berth side interaction of LiB with other dangerous good at Mayfield Berth 4.

Additionally, this report: has been prepared by GHD for Port of Newcastle Operations Pty Ltd and may only be used and relied on by Port of Newcastle Operations Pty Ltd for the purpose agreed between GHD and Port of Newcastle Operations Pty Ltd as set out in section 1.2 of this report.

GHD otherwise disclaims responsibility to any person other than Port of Newcastle Operations Pty Ltd arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report (refer Section 1.2 of this report). GHD disclaims liability arising from any of the assumptions being incorrect.

GHD has prepared this report on the basis of information provided by Port of Newcastle Operations Pty Ltd and others who provided information to GHD (including Government authorities)], which GHD has not independently verified or checked beyond the agreed scope of work. GHD does not accept liability in connection with such unverified information, including errors and omissions in the report which were caused by errors or omissions in that information.

If this report is required to be accessible in any other format, this can be provided by GHD upon request and at an additional cost if necessary.

1.4 Assumptions

The following assumptions have been made in the preparation of this report:

- Dangerous good quantities provided are true and correct at the time of the screening.
- The chemical data (UN number, dangerous goods classification) was based on available Safety Data Sheets (SDS) and are referenced in Section 6.1.
- All plant and equipment items are installed and operated in accordance with appropriate Australian Standards, codes, and guidelines.
- Dangerous goods are stored in accordance with the Australian Dangerous Goods Code (ADG Code), relevant standards and guidelines, even if not a licensable quantity.
- All equipment and systems are designed to be inherently safe.
- All equipment is maintained and operated as designed.

Any changes to the assumptions used in this report should result in a review of the screening process and update as required.

2. Legislation and policy context

2.1 State Environmental Planning Policy (Resilience and Hazards)

The NSW Department of Planning and Environment consolidated the state environmental planning policies (SEPPs) in December 2021, for introduction in March 2022. As a result, the previously named *SEPP 33 – hazardous and offensive development provisions* have been transferred to SEPP (Resilience and Hazards). No policy changes have been made. The SEPP consolidation does not change the legal effect of the SEPPs being repealed and section 30A of the *Interpretation Act 1987* applies to the transferred provisions, meaning the transfer does not affect the operation or meaning of the SEPP provisions.

The NSW Department of Planning and Environment, *Applying SEPP 33: Hazardous and Offensive Development Application Guidelines,2011* (Applying SEPP33), continues to provide the process for assessing if developments are potentially hazardous or offensive, including threshold levels that trigger the potentially hazardous or offensive status. Applying SEPP 33 is the main guidance document that has been followed for this report.

2.2 Hazardous Industry Planning Advisory Paper No 4

The Department of Planning and Environment, NSW, 2011, *Hazardous Industry Planning Advisory Paper No 4 – Risk Criteria for Land Use Safety Planning* (HIPAP No 4) sets out risk criteria for industries that are considered hazardous to comply to. This document is used when Applying SEPP 33 indicates a development is potentially hazardous.

2.3 Hazardous Industry Planning Advisory Paper No 6

The Department of Planning and Environment, NSW, 2011, *Hazardous Industry Planning Advisory Paper No 6 – Guidelines for Hazard Analysis* (HIPAP No 6) lists the process required for undertaking a PHA. This document is used when Applying SEPP 33 indicates a development is potentially hazardous.

3. Methodology

The method to determine whether a project is deemed potentially hazardous or potentially offensive and the required follow up assessments is provided in Table 3.1.

Table 3.1 SEPP (Resilience and Hazards) method for potentially hazardous or offensive industries

Issue	Methodology to determine if potentially hazardous/ offensive	Follow up assessment if confirmed as potentially hazardous/ offensive industry
Potentially hazardous industry	Applying SEPP 33 risk screening process	PHA is required
Potentially offensive industry	Review of potential impacts to the amenity of the site or discharges, such as emissions (e.g. noise, air)	Meeting any licencing requirements issued by relevant authorities e.g. NSW Environmental Protection Agency (EPA) is required

The Applying SEPP 33 process is discussed in Sections 3.1 to 3.3.

3.1 Risk screening

Applying SEPP 33 relates to any project which falls under the policy's definition of 'potentially hazardous industry' or 'potentially offensive industry'.

A 'hazardous industry' is one in which when all locational, technical, operational, and organisational safeguards are employed, continues to pose a significant risk, as per the requirements of SEPP (Resilience and Hazards). A 'potentially offensive industry' is one which would, in the absence of safeguards, emit a polluting discharge which would cause a significant level of offence.

SEPP (Resilience and Hazards) requires a screening process be undertaken. The overall risk screening process, as outlined in Applying SEPP 33 is summarised in Figure 3.1.

The risk screening process concentrates on the storage of specific dangerous good classes that have the potential for significant off-site effects. Specifically, the assessment involves the identification of classes and quantities of all dangerous goods to be used, stored, or produced on site with an indication of storage locations. The quantities of dangerous goods are then assessed against the Applying SEPP 33 threshold quantities. If any of the Applying SEPP 33 threshold quantities are exceeded, then that the project is potentially hazardous, then a PHA is required.

If the project is potentially offensive, after considering the quantity and nature of any discharges and the significance of the offence likely to be caused, having regard to surrounding land use and the proposed controls, then additional controls are required.

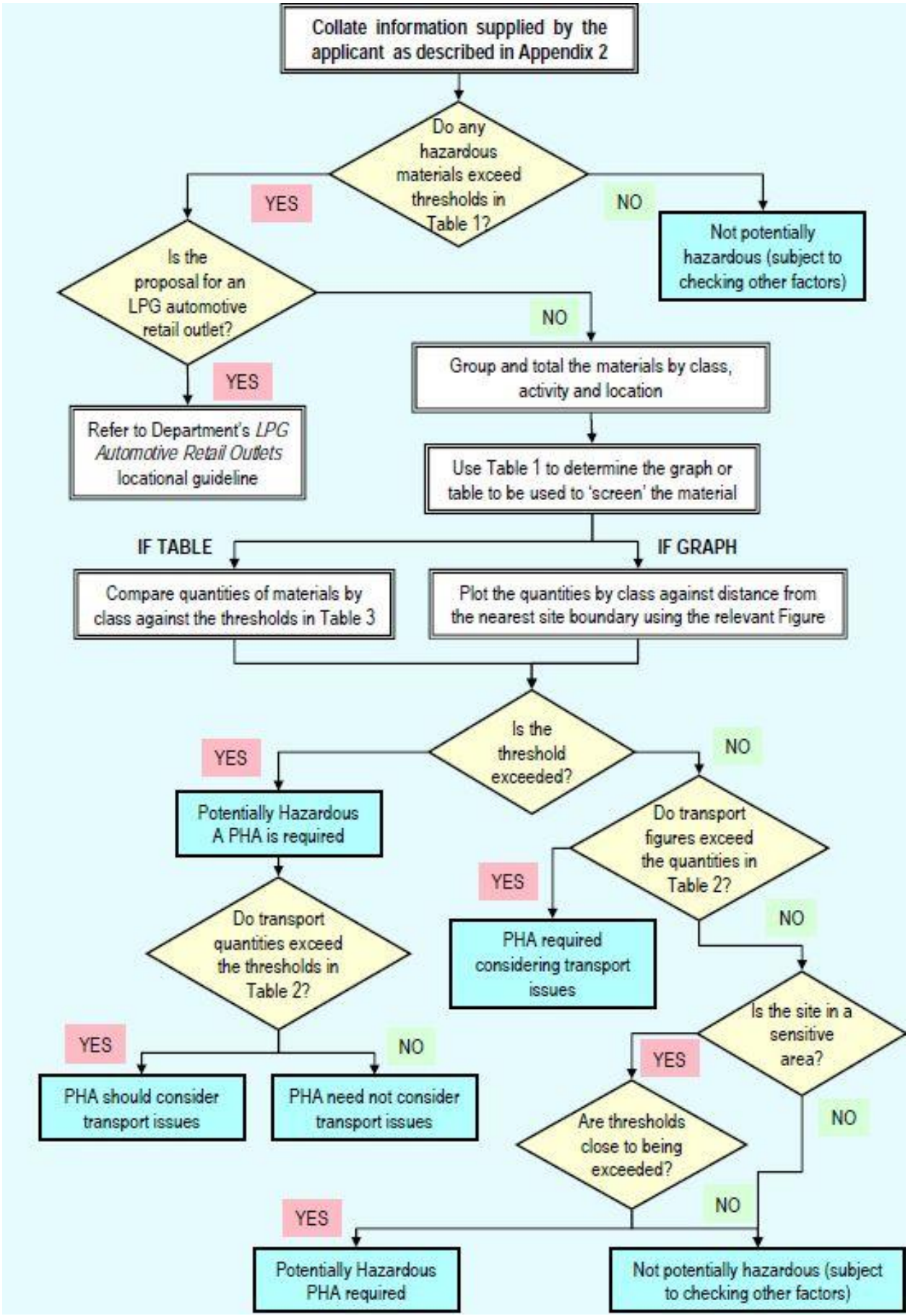

Figure 3.1 SEPP (Resilience and Hazards) risk screening process

3.2 Hazard identification

Following screening, Applying SEPP 33 requires a determination of whether the proposal poses significant risk or offence. This requires identification of potential hazards to highlight any risks associated with the interaction of the proposal (as a whole) with the surrounding environment (i.e. a systematic process to identify any potential off-site impacts).

The hazard identification (HAZID) process is a desktop assessment and involves documenting possible events that could lead to a possible off-site incident. The assessment then lists the potential causes of the incident, as well as identification of operational and organisational safeguards to prevent the incidents from occurring or mitigate their impact. The HAZID process identifies the scenarios relevant to the PHA, should it be required.

3.3 Preliminary hazard analysis

For a development proposal classified as 'potentially hazardous', a PHA is required to determine the risk to people, property, and the environment at the proposed location and in the presence of controls. Criteria of acceptability are used to determine if the development proposal is classified as a 'hazardous industry'. If this is the case, the development proposal may not be permissible within most industrial zonings in NSW.

The PHA identifies the potential hazards, analyses these hazards in terms of their impact to people and the environment and their likelihood of occurrence, quantifies the resulting risk to surrounding land uses and assess the risk to demonstrate that the proposal will not impose an unacceptable level of risk.

Applying SEPP 33 identifies three levels of PHA. If a PHA is required, a judgement of the level of risk associated with the proposal is determined using the results of the screening and HAZID stages.

The three levels of PHA are:

– Level 1 – if low potential for harm is identified, a qualitative PHA is completed.
– Level 2 – if medium potential for harm is identified, a semi-quantitative PHA is completed.
– Level 3 – if high potential for harm is identified, a quantitative PHA is completed.

3.4 DPHI consultation

During the early phases of the project a draft report was provided to DPHI for review. A response was received from DPHI which is attached at Appendix D. Details of how DPHI comments have been addressed are provided in Table 3.2.

Table 3.2 DPHI consultation comments

DPHI comment	Response
The report refers to Mayfield Berth 4 as the location for the storage of lithium-ion batteries. This is incorrect and the report should be amended to refer to the Mayfield Cargo Storage Facility for the temporary storage of the batteries.	Report has been updated throughout to clarify reference to Mayfield Berth 4 versus the Mayfield Cargo Storage Facility.
Section 1.3 of the report refers to scope and limitations of the hazard assessment. The department is unclear about scope exclusion as it is stated "The scope of this report includes the interactions between the introduction of the storage of LiB containers within Mayfield Berth 4. Excluded is any identification or assessment of hazards and risks associated with current operational activities at Mayfield Berth 4 beyond the LiB container storage". This appears to exclude an assessment of the potential conflict of loading and unloading at Mayfield Berth 4 with the proposed storage at the Mayfield Cargo Storage Facility. The department requires the hazard assessment to assess the risk of potential incidents at Mayfield Berth 4 (which currently handles combustible liquids and 2 types of Dangerous Goods (ammonium nitrate and explosives) impacting the proposal site or an incident occurring at the proposal location affecting combustible liquids and dangerous goods at Mayfield Berth 4.	Potential interaction with other cargos on Mayfield Berth 4 is addressed in Section 4.0.

DPHI comment	Response
Table 5 of the report presents the results of the hazard identification and proposed safeguards. Row three of the Table identifies mechanical damage of lithium-ion batteries as a potential hazard. The department considers that the loading and unloading of project cargo in the Mayfield Cargo Storage Facility may result in impact collision with stored batteries. These operations should be identified as a potential hazard battery storage.	Table 5 has been updated and this confirmed that the potential hazards associated with loading and unloading have been addressed in this report.

4. Existing environment

The Mayfield Cargo Storage Facility is in the Port of Newcastle (refer Figure 4.1). The site provides for the storage of a range of freight and cargo including, but not limited to; wind turbine components, large industrial and mining components, luxury boats, electrical transformers and related machinery, general cargo such as farm machinery, excavators and construction machinery, breakbulk (e.g. steel or timber products) and containerised cargo.

The original development consent (DA 8137) approved the use of the existing hardstand area for port-facilities for the unloading, storage and transportation of freight on the site. The Mayfield Cargo Storage Facility forms part of the Mayfield Concept Plan Area. Subsequent modifications were undertaken due to growth in the capacity requirements for the PON's freight storage needs. The modification expanded the area approved for the storage and handling of cargos.

Neither the original development proposal or subsequent modifications sought approval for the import, storage on-site or export of any cargos classified as dangerous or hazardous under the Australian Dangerous Goods Code. As a result, no dangerous goods are currently moved through the area of concern. Whilst Mayfield Berth 4 handles combustible liquids and two types of dangerous goods (ammonium nitrate and explosives) only one ship at a time berths at Mayfield Berth 4 meaning there would be no berth side interaction of any dangerous good at Mayfield Berth 4. No storage of combustible liquids or dangerous goods occur at the Mayfield Cargo Storage Facility. Transportation routes of combustible liquids or dangerous goods from Berth 4 off site do not intersect the Mayfield Cargo Storage Facility.

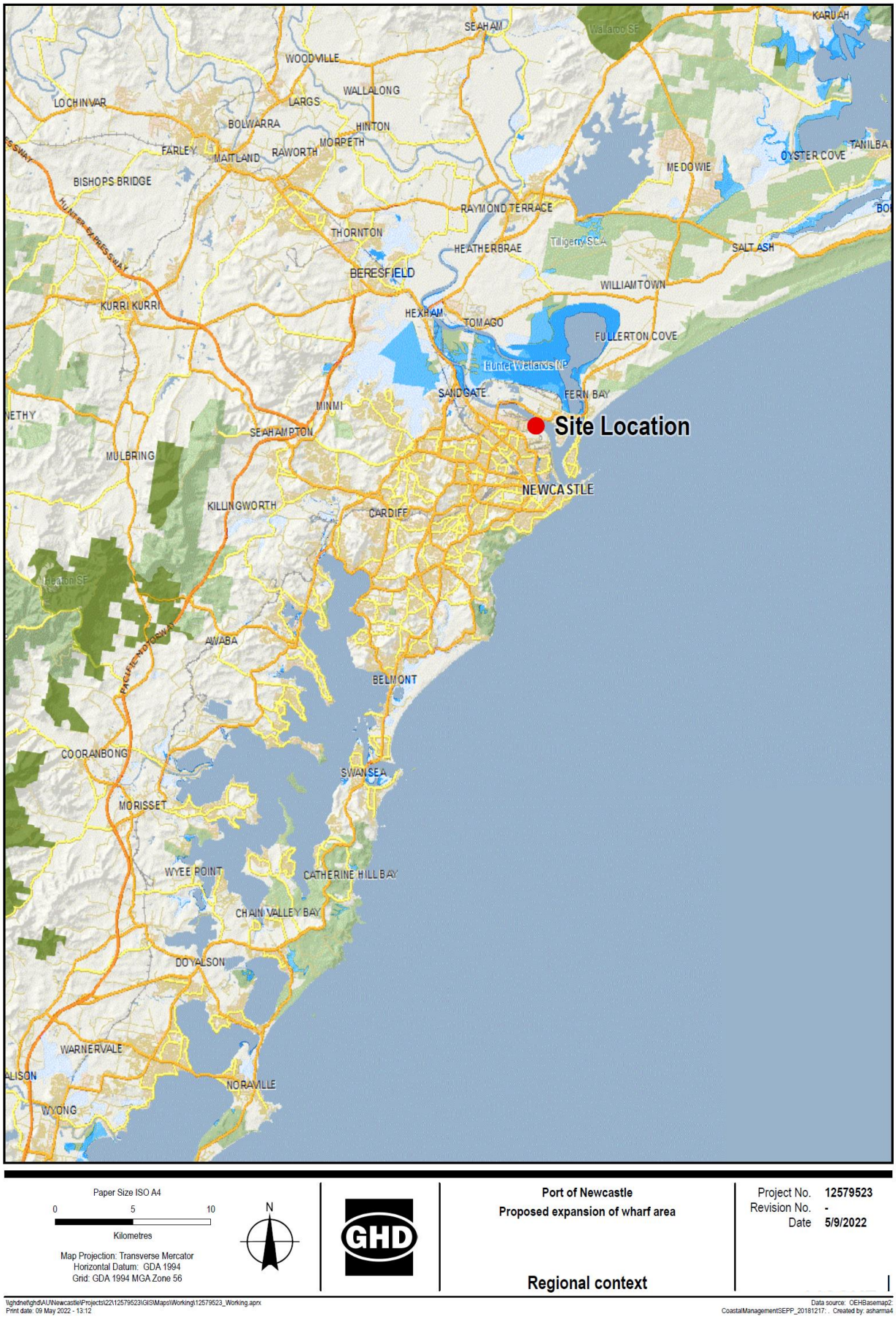

Figure 4.1 Regional site context

Figure 4.2 Mayfield Cargo Storage Facility modification showing lithium-ion battery unit storage

5. Modification description

PON are proposing to import or export LiB units via ship and store the units in an approximate 10,000 m^2 area at Mayfield Cargo Storage Facility, as shown in Figure 4.2, within the Port of Newcastle. The 10,000 m^2 area can store up to 600 units. The LiB units will then be transported to their ultimate installation location. LiB will be brought to the storage area prior to moving them to Mayfield Berth 4 for loading onto a ship. The result is that there will be a continual turnover of LiB units as they will be shipped in and trucked out. The cargo will be received and managed as follows:

– Discharged from ship to truck.
– Truck to storage area.
– Forked off truck for storage.
– Forked onto truck for transport offsite.

An example of a LiB unit is shown in Figure 5.1.

Figure 5.1 An example of a lithium-ion battery unit

6. Risk screening and emissions

6.1 Dangerous goods screening

A dangerous good is a substance or article that poses a risk to people, property, or the environment. Each class represents a different type of dangerous good. Some classes are divided into packing groups (PG), where PG I substances present a high level of danger, PG II substances present a medium level of danger, and PG III substances present a low level of danger. A summary of the different DG classes is shown in Table 6.1.

Table 6.1 Dangerous good classes as per ADG Code

DG Class	Packing Group	Description
1.1	N/A	Substances and articles which have a mass explosion hazard
1.2	N/A	Substances and articles which have a projection hazard but not a mass explosion hazard
1.3	N/A	Substances and articles which have a fire hazard and either a minor blast hazard or a minor projection hazard or both but not a mass explosion hazard
1.4	N/A	Substances and articles which present no significant hazard
1.5	N/A	Very insensitive substances which have a mass explosion hazard
1.6	N/A	Extremely insensitive articles which do not have a mass explosion hazard
2.1	N/A	Flammable gases
2.2	N/A	Non-flammable, non-toxic gases
2.3	N/A	Toxic gases
3	I, II, or III	Flammable liquids
4.1	I, II, or III	Flammable solids, self-reactive substances and solid desensitised explosives
4.2	I, II, or III	Substances liable to spontaneous combustion
4.3	I, II, or III	Substances which in contact with water emit flammable gases
5.1	I, II, or III	Oxidising substances
5.2	I, II, or III	Organic peroxides
6.1	I, II, or III	Toxic substances
6.2	I, II, or III	Infectious substances
7	N/A	Radioactive material
8	I, II, or III	Corrosive substances
9	I, II, or III	Miscellaneous dangerous goods and articles

A summary of the dangerous goods proposed to be stored onsite during operation of the proposed modification is shown in Table 6.2, including whether the dangerous goods exceed the SEPP (Resilience and Hazards) threshold.

Table 6.2 Dangerous goods proposed to be stored on site

Chemical/ product	UN #	DG class	Packing group	Expected storage quantity	SEPP (Resilience and Hazards) combined storage threshold	Exceedance of SEPP (Resilience and Hazards) threshold
Lithium-Ion Batteries	3480	9	N/A (contained units)	600 units	N/A[1]	Pass (excluded)

[1] Class 9 Miscellaneous DGs are considered to pose little threat to people or property and have no threshold limit within the Applying SEPP 33 risk screening process.

The dangerous good screening indicate that the proposed LiB storage does not exceed the thresholds within the SEPP (Resilience and Hazards). The proposed modification is therefore not considered a ‘potentially hazardous industry’ and a PHA is not required.

Any change to the proposed LiB unit inventory will require a review of this assessment.

6.2 Transportation screening

This Applying SEPP 33 transport screening relates to the carriage of dangerous goods to and from the port. Table 6.3 shows the transport screening for the operation of the proposal. This includes the expected vehicle movements of each dangerous good class and the vehicle movement thresholds according to Applying SEPP 33.

The LiB units will be transported to Mayfield Berth 4 at least fortnightly by sea freight. Transport from the port to their final location will occur via trucks (two LiB units per truck), with 300 units requiring movement off site per month.

Table 6.3 Transport screening

DG Class	Chemical/ product	Combined quantity	Combined transport movements	Transport movements threshold	Exceedance of Applying SEPP 33 threshold
9	Lithium-Ion Batteries (incoming – via ship)	200 units / ship	24 per annum (2 shipments per month)	>1,000 per annum	Does not exceed threshold
9	Lithium-Ion Batteries (outgoing – via truck)	2 units / truck	38 per week (150 trucks per month)	>60 per week	Does not exceed threshold

The transport screening indicate that the proposed LiB storage does not exceed the thresholds within the SEPP (Resilience and Hazards). The proposed modification is therefore not considered a ‘potentially hazardous industry’ and a PHA is not required.

Any change to the frequency of LiB container deliveries to Berth 4 will require a review of this assessment.

6.3 Screening results

According to Applying SEPP 33, if any of the screening thresholds are exceeded then the proposed development should be considered a ‘potentially hazardous industry’ and a PHA is required.

The results of the dangerous goods and transport screening indicate that the project does not exceed any of the thresholds, so the modification is not considered ‘potentially hazardous’. However, based on industry knowledge of battery storage technology and the associated fire risk, a PHA has been prepared.

6.4 Summary of emissions

The nature of LiB storage is not pre-disposed to emissions. Given they are connected during storage, there is no noise or vibration emitted. Based on this, the modification would not release a quantity of pollutant emissions to be considered ‘potentially offensive’.

7. Preliminary hazard analysis

Whilst the results of the SEPP (Resilience and Hazards) risk screening indicate that a PHA is not required, due to the known fire risk associated with LiB, a PHA has been prepared. It is considered that there is a medium potential for harm, and a Level 2 PHA is appropriate. A Level 2 PHA uses a semi-qualitative approach based on comprehensive hazard identification to demonstrate that the activity does not pose a significant risk.

7.1 Hazard identification

The results of the hazard identification are provided in Table 7.1, including safeguards. The safeguards are required to ensure the risk scenarios that were identified are contained or at least controlled to an acceptable level.

Table 7.1 Hazard identification

"	Causes	Consequence	Potential for Off Site Impact	Identified / Recommended Safeguards
Vehicle interactions within the project area	Vehicle movements in vicinity of personnel	Personal injury	No	Prepare traffic management plan including standard traffic rules and signage Implement site speed limits Provide designated pedestrian areas for construction and operation Driver competency
Natural hazards	Flooding, earthquake, lightning, bushfire	Personal injury Asset Damage	No	Prepare emergency management plan
Mechanical damage of lithium-ion Battery units	Rapid heating of individual cells (e.g. lack of venting, thermal runaway reactions) Vehicle impact into batteries during unloading/loading of general cargo Unloading/loading of batteries resulting in impacts between battery units or with other stored cargos[1]	Personal injury / fatality Asset Damage	Yes	Ensure batteries are Quality Assured to ISO 9001, AS/ NZS 5139 and prevailing battery manufacturing standards Install bollards/protective barriers around batteries at truck loading area Batteries to be stored as per supplier's specifications Implement a regular inspection regime for the battery units (checking for visible impact damage) Prepare emergency management procedure

1 – As no other DGs are currently permitted to be stored at the Mayfield Cargo Storage Facility no further consideration of battery interactions with other DGs have been considered.

7.2 Hazardous materials

7.2.1 Lithium-ion batteries

LiB are regulated as Class 9 Miscellaneous dangerous goods and are the only material with the potential to cause off-site impacts from a hazardous event.

LiBs contain electrolyte and lithium in various forms, along with other metals. LiBs use an intercalated lithium compound as one electrode material, compared to the metallic lithium used in a non-rechargeable lithium battery. The electrolyte, which allows for ionic movement, and the two electrodes are the constituent components of a LiB cell.

There are different electrolyte chemistries that can be used in LiBs. The main types of LiBs currently seen are:

– Lithium Nickel Manganese Cobalt Oxide (NMC)
– Lithium Nickel Cobalt Aluminium Oxide (NCA)
– Lithium Iron Phosphate (LFP)
– Lithium Cobalt Oxide (LCO)
– Lithium Manganese Oxide (LMO)
– Lithium Titanate (LTO)

All LiB types have potential for rapid heating, or thermal runaway, within a cell and subsequent fire and explosion.

7.2.2 Hazard scenarios

The key hazard for LiBs is thermal runaway. There are several causes of thermal runaway, however for this modification, as the LiBs are not connected, only stored, the ability for rapid heating is due to a latent battery fault or damage. These scenarios will be further analysed.

7.3 Consequence determination

Table 7.2 summarised the conditions used in the consequence determination.

Table 7.2 Consequence Assumptions

Parameter	Value	Comment
Surrounding air temperature	22 °C	Average outside air temperature for Newcastle [2]
Assumed average container surface temperature during thermal runaway reaction	660 °C	Trigger temperature for thermal runaway is lower (about 70-80 °C) The individual cells may exceed 600 °C [3] 660 °C is melting point of aluminium[4] and conservatively assumed to be equal to the external surface temperature
Height of battery	3.26 m	Assumed height of LiB [5]
Length of battery	2.44 m	Assumed length of LiB [5]

7.3.1 Results

A summary of the determined heat radiation consequences is provided in Table 7.3. The radiated heat distances are relevant for all three thermal runaway hazard scenarios. These distances do not extend beyond the Mayfield Cargo Storage Area boundary. Details of the calculations are in Appendix A.

Table 7.3 Summary of heat radiation consequences

Release Scenario	Maximum Distance Downwind of Release to Heat Radiation		
	4.7 kW/m^2 (heat radiation level that can cause injury)	12.6 kW/m^2 (heat radiation level that can cause fatality)	23 kW/m^2 (heat radiation level that can cause property damage)
Single container battery thermal runaway	4.2 m	2.0 m	0.95 m

[2] Bureau of Meteorology website, summary statistics for Newcastle Nobbys Signal Station AWS, accessed November 2023 **Climate statistics for Australian locations (bom.gov.au)**
[3] Tesla, 2017, Lithium-ion battery emergency response guide – Tesla Powerpack system, Powerwall and sub-assembly, all sizes, pgs 7 and 9
[4] DNV-GL, 2020, McMicken Battery Energy Storage System Event Technical Analysis and Recommendations Issue A
[5] ATS Projects, Typical Transport Configuration drawing, 20221103-001, s-310 Rev A and PON shipping manifest

Offsite health effects from smoke in the event of a battery fire, which could include small quantities of fluorinated hydrocarbons or hydrofluoric acid are considered low given the lack of combustible material available for a prolonged fire event and the low residential and industrial (e.g. Stolthaven) density in the area. As detailed in Figure 4.2, the nearest offsite facility, Stolthaven, is approximately 160 metres away from the proposed battery storage area. At this distance radiation from any fire would be negligible.

7.3.2 Separation distances

Adequate clearance between battery units is a critical consideration for an electrically connected BESS design when considering escalation/propagation of a fire from a single unit to neighbouring units. There are international guidelines and standards that provide recommended separation distances for BESS design, some of which are also relevant to LiB unit storage. While each of these documents should be read individually for context, below is a list of relevant standards.

1. NFPA855 - Standard for the Installation of Stationary Energy Storage Systems (2023)
2. FM Global Property Loss Datasheets – Lithium-ion Battery Storage Systems (5-33) (2023)
3. UL9540 – Standard for Energy Storage Systems and Equipment (2023)

Table 7.4 is shown to demonstrate high level requirements from these standards.

Table 7.4 BESS separation distance guidelines

Standard/ Code	Separation distance reference
NFPA 855 – Standard for the Installation of Stationary Energy Storage Systems 2023	0.9 m to adjacent indoor racks 3 m from buildings, boundary, hazardous or combustible materials 3 m clearance of combustible vegetation
UL 9540 – Standard for Safety of Energy Storage Systems and Equipment 2023 UL 9540A (Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems)	UL 9540 – refers to NFPA 855 (reduced distances require a large-scale fire test via valid thermal testing process) UL 9540A – Testing regime dependent
FM Global DS 5-33 – Data sheet (Electrical Energy Storage Systems) 2023	1.5m (LFP)[6] or 4.0m/2.4m (NMC)[7] between BESS units 2.7 m from combustible elements

7.4 Likelihood estimation

The likelihood of the thermal runaway scenario resulting in a fatality or injury was determined using the calculations shown in Table 7.5. The assignment of the frequency and probability values has been made based on industry failure frequencies, specialist risk management judgement and the quantified consequences.

It is important to note that the determination of ‘absolute values’ for assigned probabilities is less important than consistently using ‘comparative’ or ‘relative’ values. The overall aim is to provide a ranking to compare with risk criteria.

A summary of the frequency of thermal runaway due to storage is shown in Table 7.5.

Table 7.5 Thermal runaway frequency

Scenario	Frequency per year	Interval years
Latent manufacturing fault leading to thermal runaway and fire (per annum)	9.0×10^{-5}	11,111
Impact during transportation movement leading to thermal runaway and fire (per annum)	1.80×10^{-2}	56
Combined site frequency for thermal runaway events	1.81×10^{-2}	55

[6] “on sides that contain access panels, doors or deflagration vents”
[7] Depending on fire rating of wall construction (1-hour)

7.5 Risk assessment

The risk criteria for land use and safety planning within HIPAP 4 (Department of Planning, 2011) include onsite and offsite fatality values, as well as offsite injury and property damage values. The HIPAP 4 fire and explosion risk criteria are summarised in Table 7.6.

Table 7.6 HIPAP 4 Risk Criteria

Impact	Onsite Criteria	Offsite Criteria
Fatality (12.6 kW/m^2 & 21 kPa)	5.00 x 10^{-05}	1.00 x 10^{-06}
Serious injury (4.7 kw/m^2 & 7 kPa)	–	5.00 x 10^{-05}
Property damage (23 kw/m^2 & 14 kPa)	–	5.00 x 10^{-05}

Calculations for the frequency of fatality, injury and property damage for a thermal runaway event are detailed in Appendix B and summarised in Table 7.7.

Table 7.7 Risk criteria compliance for thermal runaway events

Event	Frequency per year	Interval years	Compliance
OFFSITE property damage	0	0	Complies
OFFSITE serious injury	0	0	Complies
OFFSITE fatality	0	0	Complies
ONSITE fatality	7.5 x 10^{-06}	132,670	Complies

There are no expected offsite impacts given the proposed location of the LiB unit storage and buffer distances between the site and sensitive receptors. As detailed in Figure 4, the nearest offsite facility, Stolthaven, is approximately 160 metres away from the proposed battery storage area. At this distance radiation from any fire would be negligible. Coupled with the highly unlikely chance of an incident occurring the risk of injury, fatality or property damage is negligible and complies with HIPAP 4. The onsite fatality risk also complies with HIPAP 4.

8. Recommendations

8.1 Management of hazards

Following the hazard identification shown in Section 7, there are controls that should be enacted to manage hazards in line with the relevant legislative requirements. A detailed discussion of the management of key hazards is provided in the following sections.

It is recommended that a battery storage management plan be developed and implemented to capture the following key battery safety requirements (Occupational Safety and Health Administration, 2019, Battery University, 2017 and Tesla, 2017):

- LiB units will be stored as per manufacturer specifications.
- Shipping manifest to include LiB state of charge, which should be limited to a maximum of 30%.
- Installation of bollards/protective barriers around vehicle movement routes.
- The location of the LiB storage area should be at least 3 m from other general cargo and dangerous good transportation routes, based on NFPA 855.
- Separation distances between LiB units should be at least 1 m, based on preliminary radiant heat contours for property damage.
- The LiB unit storage area should be protected from flooding/storm surge, based on the annual exceedance probability for the area.
- Regularly inspect LiB units for signs of damage, such as visible impacts, hissing, leaking, and smoking.
- Develop a protocol for managing damaged batteries that should include the following actions:
  - Immediately place it in an area away from flammable materials if any sign of damage is present.
  - Before moving a damaged battery, wait a period of time to observe if there is any smoke, as this may be an indication that a thermal reaction is in progress. A damaged battery should also be monitored after isolation for evidence of smoke, flame, or signs of heat.
- Develop a battery fire emergency response procedure that should include the following actions:
  - Follow manufacturer's guidance on how to extinguish small battery fires, which could include using dry chemical extinguishers, foam fire extinguishers, powdered graphite, dirt, or sand. If the fire of a burning lithium-ion battery cannot be extinguished, allow the container to burn out on its own in a controlled and safe manner, using water to cool the outside unit.
  - Exclusion of potential ignition sources in a 3 m zone around the LiB storage area.
  - A regular review and test of the battery fire emergency response procedure to ensure relevance.

9. Conclusions

This report addressed the hazards and risks associated with the storage LiB units at Mayfield Cargo Storage Facility.

The PHA involved a preliminary risk screening of the proposed modification in accordance with the requirements of SEPP (Resilience and Hazards). While the results of the dangerous goods and transport screening indicated that the project does not exceed any of the thresholds within the SEPP requirements, due to the potential for fire associated with the LiB units, the project was considered "potentially hazardous".

The initial hazard identification process considered hazards during storage. Fire started because of thermal runaway is considered a plausible event and may pose off-site impacts. Given the port location of the site, it is considered that there is a medium potential for harm from BESS fires, and a Level 2 PHA is an appropriate level of examination and has been included in this report. A Level 2 PHA uses a semi-qualitative approach based on comprehensive hazard identification to demonstrate that the activity does not pose a significant risk.

Based on the information provided by PON and the assessment as outlined in the PHA, it was determined that the risk arising from LiB unit thermal runaway fire scenarios does not exceed the individual fatality or injury risk criteria specified in the NSW Department of Planning 2011 publication HIPAP No. 4 – Risk Criteria for Land Use Safety Planning. Therefore, the project does not pose any significant risk or offence.

It is recommended that management procedures and safeguards as listed in Section 8 be implemented to incorporate practices that will prevent risk scenarios occurring.

Any changes to the assumptions used in this report should result in a review of the PHA and update as required.

10. References

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UL, 2023. UL 9540 – Standard for Safety of Energy Storage Systems and Equipment

11. Abbreviations

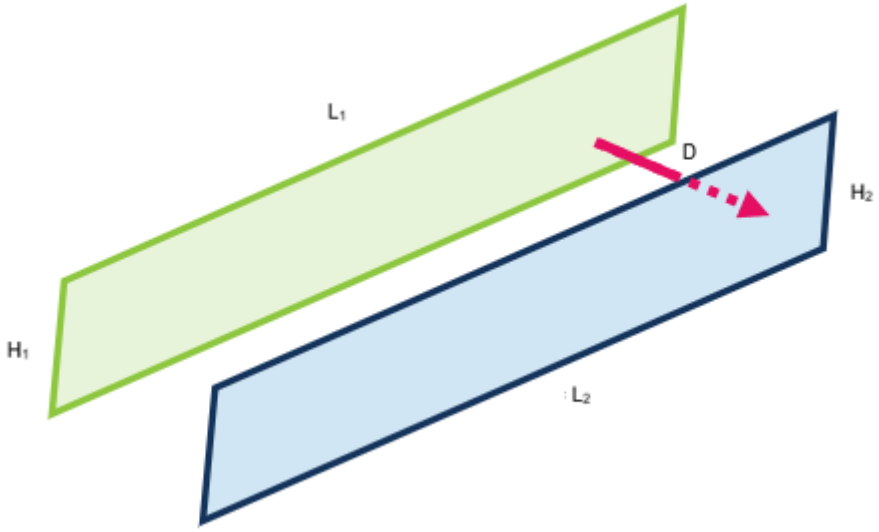
Abbreviation	Description
AHD	Australian Height Datum
AS	Australian Standard
AS/NZS	Australian and New Zealand Standard
BESS	Battery Energy Storage System
°C	Degrees Celsius
DG	Dangerous Good
EP&A Act 1979	Environmental Planning and Assessment Act 1979
g	Gram
GHD	GHD Pty Ltd
HAZID	Hazard Identification
HIPAP	Hazardous Industry Planning Advisory Paper
ISO	International Organisation for Standardisation
kg	Kilogram
kL	Kilolitre
km	Kilo metre
kWh	Kilowatt hour
kW/m^2	Kilowatt per square meter
L	Litre
LFP	Lithium Iron Phosphate
LiB	Lithium-Ion Battery
m	Meter
m^3	Cubic meter
NMC	Lithium Nickel Manganese Cobalt Oxide
NSW	New South Wales
PHA	Preliminary Hazard Analysis
PON	Port of Newcastle
SDS	Safety Data Sheets
SEE	statement of environmental effects
SEPP	State Environment Planning Policy

Appendix A

Consequence calculation summary

Radiation between parallel surfaces

It was estimated that the heat experienced between a battery container outer surface and another battery container or a person in range during a thermal runaway fire, can be estimated by two plates. Given the battery containers are stationary and pose an escalation point, the radiated heat is calculated between two battery containers. This calculation estimated the net radiant heat exchanged between two plates using the diagram below.



Description	Symbol	Value	Units	Reference
Height of LiB unit	$H_1 = H_2$	3.25	metre	ATS Projects, Typical Transport Configuration drawing, 20221103-001, s-310 Rev A
Length of LiB	$L_1 = L_2$	2.8	metre	ATS Projects, Typical Transport Configuration drawing, 20221103-001, s-310 Rev A
Temperature of runaway reaction	T_1	933	Kelvin	Melting point of aluminum as referenced by DNV-GL McMicken Battery Energy Storage System Event Technical Analysis and Recommendations and conservatively assumed to be equal to the external surface temperature as requested by DPHI
Atmospheric temperature	T_2	295	Kelvin	Assumption
Distance between points of interest	D	Values provided over page	metre	Iteratively adjusted to get HIPAP 4 heat flux impact

The heat radiation *q* from one plate to the other is calculated as:

$$q = \sigma \times VF_{(1-2)} \times A \times (T_1^4 - T_2^4)$$

Where

$\sigma = 56.69 \times 10^{-9}$ = average Stefan-Bolzmann constant

A = area of plate 1 = $L_1 \times H_1$

T_1 is the plate 1 temperature

T_2 is the plate 2 temperature

$VF_{(1-2)}$ = view factor from plate 1 to plate 2 (also known as radiation shape factor, angle factor, and configuration factor)

$VF_{(1-2)} = (a + b + c – d) \times e$

Where:
$a = \ln[(1+y^2)(1+z^2)/(1+y^2+z^2)^{0.5}]$

$b = z[(1+y^2)^{0.5}]\text{atan}[z/(1+y^2)^{0.5}]$

$c = y[(1+z^2)^{0.5}]\text{atan}[y/(1+z^2)^{0.5}]$

$d = z[\text{atan}(z)] + y[\text{atan}(y)]$

$e = 2/(\pi yz)$

Where *y* and *z* are defined as:
$y = L_1 / D$
$z = H_1 / D$

Heat flux = q/A

Heat flux	Units	Distance (D)	Units	Reference
4.7	– kW/m^2	4.5	m	HIPAP 4 heat radiation level that can cause injury
12.6	– kW/m^2	2.15	m	HIPAP 4 heat radiation level that can cause fatality
23.0	– kW/m^2	1.0	m	HIPAP 4 heat radiation level that can cause property damage

References

Holman, J.P., Heat Transfer, 7th ed., McGraw Hill Book Company, New York, 1990. p. 385 - 405

Appendix B

Likelihood calculation summary

The frequencies of all hazard scenarios are calculated in the following section. The expected frequency is needed to enable a calculation of the risk. The scenarios are:

1. Latent battery failure caused by a manufacturing fault
2. Thermal runaway caused by transportation impact

Frequency and risk results

The results of the frequency analysis for the three scenarios are summarised below**.**

Latent battery failure

Value	Parameter	Value	Reference
A	Total number of battery units	600	Modification storage specification
B	Manufacturing fault rate (failure per battery per year)	1/10,000	Assumed – includes battery faults
C	Latent battery failure frequency (per year)	0.006	Calculated = A*B
D	Percentage of faults leading to thermal runaway	30 %	Conservative professional estimation
E	Effectiveness of fusible separators in preventing thermal runaway	95 %	Conservative professional estimation
F	Thermal runaway from latent battery failure frequency (per year)	9.0×10^{-05}	Calculated = C*D*(1-E)
G	Thermal runaway from latent battery failure (years)	11,111	Calculated = 1/F

Transportation damage

Value	Parameter	Value	Reference
H	Transportation movements	2	From ship to shore, onto truck
I	Total number of unit movements	1,200	Calculated = A*H
J	Impact rate (human error per movement per year)	0.003	Assumed from Human Error Assessment & Reduction Technique (HEART) Generic Task Type Classification for shift or restore system, with procedures
K	Impact damage frequency (per year)	3.6	Calculated = I*J
L	Percentage of damage leading to thermal runaway	10 %	Conservative professional estimation
M	Effectiveness of fusible separators in preventing thermal runaway	95 %	Conservative professional estimation
N	Thermal runaway from impact frequency (per year)	0.018	Calculated = K*L*(1-M)
O	Thermal runaway from impact (years)	56	Calculated = 1/N

Total frequency for a thermal runaway event

Value	Parameter	Value	Reference
P	Combined thermal runaway frequency (per year)	0.0181	Calculated = N+F
Q	Combined thermal runaway events (years)	55	Calculated = 1/P

Risk assessment results – onsite

		Value	Reference
R	Frequency of thermal runaway event (per annum)	0.0181	Calculated = P
S	Probability of person impacted	1/24	Assumed – using consequence combined with someone present for an hour every day
T	Probability impact results in fatality	1/100	Professional estimation
U	Probability impact results in injury	5/10	Professional estimation
V	Probability impact results in property damage	5/10	Professional estimation
W	Frequency of fatality (per annum)	7.5×10^{-06}	Calculated = R*S*T
X	Frequency of injury (per annum)	3.8×10^{-04}	Calculated = R*S*U
Y	Frequency of property damage (per annum)	9.0×10^{-03}	Calculated = R*V

Risk assessment results – offsite

		Value	Reference
Z	Frequency of thermal runaway event (per annum)	0.0181	Calculated = P
AA	Probability of person and or property impacted	0	Assumed – using consequence and proposed location of BESS
AB	Frequency of fatality (per annum)	0	Calculated = Z*AA
AC	Frequency of injury (per annum)	0	Calculated = Z*AA
AD	Frequency of property damage (per annum)	0	Calculated = Z*AA

Appendix C

Example lithium-ion battery safety data sheet

ENERGIZING A NEW WORLD

EXIDE TECHNOLOGIES

SAFETY DATA SHEET

LITHIUM ION BATTERIES UN3480

1. Identification of Product and Company

Product Name:	**LITHIUM - ION BATTERY**
Other names:	LFP, $LiFePO_4$, NMC, NiMnCo, Lithium Ion Battery.
Trade names:	Sonnenschein Module Pro Sonnenschein Lithium, Sonnenschein Lithium Material Handling Batteries, Sonnenschein@home Lithium, Light Traction Block, Light Traction Block v2, , Equipment Li-Ion
Use:	Lithium Ion batteries for the Motive and Network Power markets including electric forklifts, mobility, rail, telecommunications, utilities, renewables, mining, remote area power and standby power applications.
Supplier:	GNB Industrial Power
ABN:	84 093 272 005
Street Address:	135 Nancy Ellis Leebold Drive Bankstown NSW 2200
Telephone Number:	(02) 9722 5700
Emergency Telephone Numbers:	Australia: 1800 033 111 (ALL HOURS) New Zealand: 0800 734 607 (ALL HOURS) Ixom Emergency Response Service

2. Hazards Identification

Lithium Ion batteries are classified as an article and are not hazardous when operated in accordance with the manufacturers recommendations. When used in accordance with recommendations, the electrode materials and liquid electrolyte are non-reactive provided that the cell enclosure and the seals remain intact. Battery cells are designed to withstand temperatures and pressures encountered during normal use. As a result, during normal use, there is no physical danger of ignition, explosion or hazardous material leakage. The potential for exposure should not exist unless the battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused or damaged.

2.1 Classification of the substance or mixture

Not classified as hazardous according to Safe Work Australia criteria.

2.2 Label elements

No signal word, pictograms, hazard or precautionary statements have been allocated.

2.3 Other Hazards

- When recharging batteries, never use chargers which are unsuitable for the battery type.
- Do not short-circuit batteries.
- Do not inflict mechanical damage (puncturing, deforming, disassembling etc.).
- Do expose to heat or incinerate them.
- Keep batteries away from small children.
- Always store batteries in a dry and cool place.
- Contact with leaking battery substances may pose a danger to personal health and the environment. For this reason, when coming into contact with batteries with a conspicuous appearance (leaking substances, deformed, discoloured, dented or the like), adequate PPE and breathing protection is required. Lithium

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batteries can, for example, react very strongly in combination with fire. This can result in battery components being ejected with considerable force.

2.4 Handling and operational safety

Lithium batteries are always to be handled in accordance with the manufacturer's specifications. This is true particularly for complying with the limits for maximum current load, charging and end-point voltages, and mechanical and thermal loads.

Usually product packages are marketed that have already been matched. Such products are not to be modified or tampered with, since that could result in substantial safety hazards. Use only the charging process tailored to the respective cell type of a rechargeable battery.

2.5 Danger

As with other batteries, so also for lithium batteries it is true that even when thought to be discharged, they can still represent a source of danger. They can deliver a very high short-circuit current, however, even in the state of the minimum permitted end-point voltage lithium batteries with a high voltage (over 75 Volts) can pose a danger of a lethal electric shock.

For most products, deep discharge beyond the documented limits leads to permanent damage. Deep-discharged lithium batteries are no longer permitted to be re-charged or operated.

In all cases, avoid excessive charging voltages and overcharging. This can lead directly to critical situations, but also have a negative impact on battery life.

3. Composition and Information on the main Ingredients

3.1 Battery Cells

The following components are found inside the sealed Li-ion cell. Cells have been further combined as larger battery modules and systems using mechanical parts.

Component	Chemical name	CAS number
Cathode Lithium-Metal oxide	LFP: Lithium Iron Phosphate	15365-14-7
	NMC: Lithium Nickel Manganese Cobalt oxide	182442-95-1
Anode	Graphite	7782-42-5
Binder	Polyvinylidene difluoride	24937-79-9
Electrolyte	Ethyl acetate	141-78-6
	Ethylene carbonate	96-49-1
	Dimethyl carbonate	616-38-6
Cu	Copper	231-159-6
Al	Aluminum	231-072-3

3.2 Li-ion cell chemistry

The following Li-Ion cell chemistries are available from Exide:

LFP: $LiFePO_4$, Lithium Iron Phosphate
NMC: NiMnCo, Lithium Nickel Manganese Cobalt

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Trade name	Cathode	
	LFP	NMC
Sonnenschein Lithium	X	
Sonnenschein Lithium Material Handling Batteries		X
Sonnenschein@home Lithium		X
Light Traction Block		X
Light Traction Block v2	X	
Equipment Li-Ion	X	
Sonnenschein Lithium Module Pro	X	

3.2 Battery Management System (BMS)

Electronic Components
Contactor

3.3 Battery Tray (where applicable)

Steel

4. First Aid measures

When handled and stored in accordance with the manufacturer's recommendations, lithium batteries are not hazardous The chemicals listed in item 3 are enclosed in a sealed housing so that they cannot escape during normal use. The following measures are only applicable if exposure has occurred to the components when a battery leaks, is exposed to high temperatures or is mechanically, electrically or physically abused or damaged.

INGESTION: If the contents have been ingested, rinse mouth out with water. If swallowed, Do NOT induce vomiting. Seek medical advice immediately as urgent hospital treatment is likely to be required. For advice, contact a Poisons Information Centre (Phone Australia 131 126; New Zealand 0800 764 766) or a doctor at once. If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

EYE: If the contents come into contact with the eyes, hold eyelids apart and flush the eye immediately with large amounts of running water. Continue flushing for at least 15 minutes or until advised to stop by a Doctor. Check for contact lenses. If there are contact lenses, these should be removed after several minutes of rinsing by the exposed person or medical personnel if it can be done easily. As the content is rated as Causes severe eye damage, after flushing, immediately call a Poisons Information Centre (Phone Australia 131 126; New Zealand 0800 764 766) or doctor/physician.

SKIN CONTACT: If skin or hair contact has occurred with the contents, remove any contaminated clothing and footwear, wash skin or hair thoroughly with soap and water. As the product is rated as a Corrosive that Causes severe skin burns, after flushing, immediately call a Poisons Information Centre (Phone Australia 131 126; New Zealand 0800 764 766) or doctor/physician.

INHALATION: If affected by content vapours, remove the patient from further exposure into fresh air, if safe to do so. If providing assistance, avoid exposure to yourself - only enter contaminated environments with adequate respiratory equipment. Once removed, lay patient down in a well-ventilated area and reassure them whilst waiting for medical assistance. If not breathing, provide artificial respiration and seek immediate medical assistance. If unconscious, place in a recovery position and seek immediate medical assistance. As the electrolyte is corrosive and decomposition may cause corrosive and toxic vapours, if the person has inhaled vapours and is having difficulty breathing, immediately call a Poisons Information Centre (Phone Australia 131 126; New Zealand 0800 764 766) or doctor/physician.

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5. Firefighting measures

5.1 EXTINGUISHING MEDIA:

SUITABLE MEDIA: Use extinguishing media appropriate for surrounding fire. Use carbon dioxide, dry chemical or water fog. If batteries are involved in a fire and the hazard situation is unclear, only extinguish with dry chemical extinguishers.

UNSUITABLE MEDIA: Do not use water or foam extinguishers on ruptured batteries. Confining or smothering the fire is recommended as reaction of the materials with water may produce flammable and explosive hydrogen gas as well as corrosive hydrogen fluoride gas. Hydrofluoric acid can cause severe chemical burns, is extremely reactive and is toxic by all routes of exposure.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE:

COMBUSTION HAZARDS: Combustion and thermal degradation of the battery may produce hazardous fumes of lithium, cobalt and manganese, hydrofluoric acid, hydrogen and oxides of carbon as well as smoke and irritating vapours.

5.3 ADVICE FOR FIREFIGHTERS:

FIRE: Electrolyte leakage or battery container rupture is possible under the conditions experienced in a fire. Keep fire exposed surfaces, etc. cool with water spray.

HAZCHEM CODE: 4W.

EXPLOSION: Closed containers may explode, burst, rupture or vent when exposed to high temperatures

PROTECTIVE EQUIPMENT: In the event of a fire, wear full protective clothing and self-contained breathing equipment with full-face piece operated in the pressure demand or other positive pressure mode.

6. Measures to be taken in case of accidental release

If the battery housing is damaged, electrolyte can leak. For small spills seal batteries in an airtight plastic bag, having added dry sand, chalk powder (CaCO3) or vermiculite. Traces of electrolyte can be soaked up with dry paper towels. When doing so, prevent direct contact with skin by wearing PVC safety gloves. Thoroughly rinse with water.

If mists or vapours are generated, an approved inorganic vapours and gases/acid gases/particulate respirator is required. For large battery spill scenarios, or in confined spaces, a full chemically resistant body-suit with self-contained breathing apparatus is required. For an incident involving more than one or two modules, only trained personnel should deal with leaking battery incidents.

Ventilate area to dissipate vapours and extinguish and/or remove all sources of ignition. Never enter a spill area unless you know the vapours have dissipated to make the area safe. Stop the leak if safe to do so. Avoid contact with the spilled material.

In the event of a spill or accidental release, notify the relevant authorities in accordance with all applicable regulations. Do not allow batteries or electrolyte to enter drains, surface water, sewers or watercourses - inform local authorities if this occurs

7. Handling and Storage

7.1 Handling

Under normal operating conditions where the battery remains intact, it is not hazardous.

- Do not open the battery.
- Do not crush, disassemble, drop or solder.
- Incorrect handling can lead to explosion or fire.

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- Protect the battery from rain
- Do not immerse in liquids or pressure wash
- Effectively prevent a short circuit of the battery poles by using suitable insulation. (e.g.: taping the terminals with insulation tape).
- Do NOT use, charge or discharge damaged, defective or deformed batteries.

7.2 Storage

Lithium batteries are preferably stored at room temperature and in a dry location (for details, refer to the manufacturer's specifications concerning the storage temperature range); large temperature fluctuations are to be avoided. (For example, do not store in the vicinity of heating elements, do not expose to sunshine for long periods). If substances leak out due to damage or improper handling, be sure to comply with the manufacturer's instructions. This particularly includes the use of personal safety equipment.

8. Exposure limits and personal protective equipment

Lithium batteries are articles from which no substance is released when operated, handled and stored in accordance with the manufacturers recommendations

Skin protection: Not necessary under normal conditions.
Hand Protection: Wear nitrile, neoprene, PVC or natural rubber gloves when handling an open or leaking battery.
Eye protection: Not necessary under normal conditions.
Respiratory protection: Not necessary under normal conditions. In the event battery case ruptured inside an enclosed space, use a self-contained breathing apparatus.
Ventilation: Not necessary under normal conditions

9. Physical and Chemical properties

Appearance: Manufactured sealed battery unit

Colour: Various.

Odour: n.a. If leaking smells of medical ether

pH: n.a.

Flash point: n.a.

Flammability: n.a.

Density: n.a.

Solubility in Water: n.a

Stability: stable

10. Stability and Reactivity

Chemical Stability: The product is stable when operated, handled and stored in accordance with the manufacturers recommendations.

Conditions to avoid:
- Do not open the battery.
- Do not crush, disassemble, drop or solder.
- Incorrect handling can lead to explosion or fire.
- Protect the battery from rain

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• Do not immerse in liquids or pressure wash
• Effectively prevent a short circuit of the battery poles by using suitable insulation. (e.g.: taping the terminals with insulation tape).
• Do NOT use, charge or discharge damaged, defective or deformed batteries.
• Comply with the voltage limits defined for the battery during discharge and charge. If the limits are exceeded, the battery may burst or even explode

Hazardous decomposition Products: Exposure to fire may cause emission of flammable and highly toxic gases.

Reactivity: n.a

11. Toxicological Information

11.1 Acute toxicity
The product is stable when operated, handled and stored in accordance with the manufacturers recommendations. Unbroken cells or batteries do not represent toxicity hazard.

11.2 Irritation and corrosion
Risk of thermally or electrically abuse causing cells to rupture. Electrolyte is corrosive. It causes chemical burns on contact with skin. Inhalation of fine mist or vapors is irritating to the respiratory system. Prolonged contact with the skin or mucous membranes may cause irritation.
● Sensitization: No information is available at this time.
● Carcinogenicity: No information is available at this time.
● Reproductive toxicity: No information is available at this time.
● Teratogenicity: No information is available at this time.
● Mutagenicity: No information is available at this time

12. Ecological Information

12.1 Eco-toxicity
Not applicable for undamaged product.

12.2 Persistence and degradability
Not applicable

12.3 Bio-accumulative potential
Not applicable

12.4 Mobility in soil
Not applicable

12.5 Results from PBT –and vPvB assessment
Not applicable

12.6 Other adverse effects
In case of an accident emissions may be harmful to environment

13. Disposal Considerations

In accordance with EU Battery Directive and the respective national legislation, Lithium-Ion batteries are labelled with a crossed-oust dust bin together with the ISO return/recycling symbol.

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The symbol reminds the end user that batteries are not permitted to be disposed of with household waste, but must be collected separately.

Do not incinerate.
Dispose of in accordance with appropriate local regulations
Recycle or reuse where possible. Contact your state EPA or the manufacturer for additional information.

14. Transport Information

Road and Rail Transport

Classified as Dangerous Goods by the criteria of the Australian Dangerous Goods Code (ADG Code) for Transport by Road and Rail; DANGEROUS GOODS.

UN No: 3480
Proper Shipping Name: LITHIUM ION BATTERIES (including lithium ion polymer
Class-primary 9
Packing Group:
Special Provisions: 188, 230 310 348 376 377 384 387 390
Hazchem Code: 4W

Marine Transport

Classified as Dangerous Goods by the criteria of the International Maritime Dangerous Goods Code (IMDG Code) for transport by sea; DANGEROUS GOODS.

UN No: 3480
Proper Shipping Name: LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Class-primary 9
Packing Group:
Special Provisions: 188 230 310 348 376 377 384 387 390
Hazchem Code: 4W

Air Transport

Classified as Dangerous Goods by the criteria of the International Air Transport Association (IATA) Dangerous Goods Regulations for transport by air; DANGEROUS GOODS.

UN No: 3480
Proper Shipping Name: LITHIUM ION BATTERIES (including lithium ion polymer batteries)
Class-primary 9
Packing Group:
Special Provisions: A88, A99, A154, A164, A181, A182, A183, A185, A201, P965, P966, P967, P968, P969, P970
Hazchem Code: 4W

To assist shippers in understanding the complete requirements related to the transport of lithium batteries, including packing instructions, IATA has prepared the updated Lithium Battery Guidance Document https://www.iata.org/contentassets/05e6d8742b0047259bf3a700bc9d42b9/lithium-battery-guidance-document.pdf

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15. Regulatory Information

Poison schedule: A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications: Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.
The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes: None allocated
Risk phrases: None allocated
Safety phrases: None allocated
Inventory Listings: AUSTRALIA: AICS (Australian Inventory of Chemical Substances)
All components are listed on AICS, or are exempt.

16. Other Information

16.1 Safety Data Sheet

The European Directive 91/155/EEC which described the requirements for Material Safety Data Sheets had been repealed by the Regulation concerning the Registration, Evaluation, Authorization and Restriction of Chemicals on June 1st, 2007 (REACH-Regulation 1907/2006/EC, Art. 31). The requirement to publish a Safety Data Sheet applies to all suppliers of substances and preparations.

As already defined under the former Directive there is no requirement to develop and maintain a Safety Data Sheet for products such as Batteries.

16.3 General

The information given above is provided in good faith based on existing knowledge and does not constitute an assurance of safety under all conditions. It is the user's responsibility to observe all laws and regulations applicable for storage, use, maintenance or disposal of the product. If there are any queries, the supplier should be consulted.

However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

Date of preparation: March 2022 **Date of last Review:** March 2022

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Appendix D

DPHI Correspondence

Department of Planning and Environment

Our ref: DA8137 Mod 3

Mr Phillip Carroll
Planning Advisor
Port of Newcastle
Level 4, 251 Wharf Road
Newcastle NSW 2300

14 December 2023

Mayfield Cargo Storage Facility DA 8137 Mod 3 – Proposed Lithium-ion Battery Storage

Dear Mr Carroll

I refer to your email of 30 November 2023 and accompanying letter about a proposal to store lithium-ion batteries at the Mayfield Cargo Storage Facility. The email included a hazard assessment of the proposal.

The department has reviewed the battery storage proposal and requires the Statement of Environmental Effects (SoEE) for the proposal to assess the following additional issues:

1. Details of the proposal, including duration of battery storage, stacking height of lithium-ion battery units, bunding of battery storage areas to capture runoff from fire-fighting liquids and chemicals, type and material of barriers/structures to isolate the battery storage areas from other project cargo storage and whether the proposal will be operated by the Port of Newcastle or another party.
2. Traffic and Transport – an assessment of traffic generated by the existing Facility as modified, and the proposal and compliance with freight traffic movements specified in Condition 2.3 of the Mayfield Concept Plan.

In relation to the report titled Hazard Assessment Battery Import Project prepared by GHD dated 16 November 2023, the following comments are made:

1. The report refers to Mayfield Berth 4 as the location for the storage of lithium-ion batteries. This is incorrect and the report should be amended to refer to the Mayfield Cargo Storage Facility for the temporary storage of the batteries.
2. Section 1.3 of the report refers to scope and limitations of the hazard assessment. The department is unclear about scope exclusion as it is stated "The scope of this report includes the interactions between the introduction of the storage of LiB containers within Mayfield Berth 4. Excluded is any identification or assessment of hazards and risks

associated with current operational activities at Mayfield Berth 4 beyond the LiB container storage". This appears to exclude an assessment of the potential conflict of loading and unloading at Mayfield Berth 4 with the proposed storage at the Mayfield Cargo Storage Facility. The department requires the hazard assessment to assess the risk of potential incidents at Mayfield Berth 4 (which currently handles combustible liquids and 2 types of Dangerous Goods (ammonium nitrate and explosives) impacting the proposal site or an incident occurring at the proposal location affecting combustible liquids and dangerous goods at Mayfield Berth 4.

3. Table 5 of the report presents the results of the hazard identification and proposed safeguards. Row three of the Table identifies mechanical damage of lithium-ion batteries as a potential hazard. The department considers that the loading and unloading of project cargo in the Mayfield Cargo Storage Facility may result in impact collision with stored batteries. These operations should be identified as a potential hazard battery storage.

It is requested that consultation be undertaken with the relevant agencies, including Transport for NSW, Environment Protection Authority, Fire and Rescue NSW and City of Newcastle, and the Community Consultative Committee (CCC). The outcomes of the engagement must be reported and addressed in the SoEE.

If you have any questions on the above, please contact Michael Young on (02) 9274 6437.

Yours sincerely

Glenn Snow
Director
Transport and Water Assessments

ghd.com

The Power of Commitment

Appendix B

FR NSW Correspondence

Simon Murphy

From: Philipp Bourquin <Philipp.Bourquin@portofnewcastle.com.au>
Sent: Wednesday, 10 July 2024 1:48 PM
To: Alicia Marix-Evans
Subject: FW: Waratah Super Battery Project in Colongra NSW

Best regards,

Philipp Bourquin
Senior Manager Operations

PORT of NEWCASTLE

MOB: 0402059770

Address: Level 4, 251 Wharf Road Newcastle NSW 2300
Email: Philipp.Bourquin@portofnewcastle.com.au
Website: www.portofnewcastle.com.au

From: Brian Smart <Brian.Smart@fire.nsw.gov.au>
Sent: Thursday, September 7, 2023 11:31 AM
To: Philipp Bourquin <Philipp.Bourquin@portofnewcastle.com.au>; Geoffrey Hillard <Geoffrey.Hillard@fire.nsw.gov.au>
Subject: RE: Waratah Super Battery Project in Colongra NSW

Hi Phillip, Geoff,

I have spoken to our specialists who confirmed that as the batteries have limited charge the risk is primarily that of a chemical spill should they be compromised in transit. The SDS has the required actions in this instance. The only other thing I would add is to suggest storage away from any external potential ignition source and that mitigation strategies be in place to reduce this risk. Aside from that there are no specific requirements, and I am aware that our Major Hazards Team have been in touch with the project manager.
As this is a developing field, I have also ensured that any future doctrine that we as an organisation develop will be shared for awareness.

Regards

Brian.

SUPERINTENDENT BRIAN SMART
ZONE COMMANDER
NEWCASTLE/LAKE MACQUARIE

M: 0488 248 058
E: brian.smart@fire.nsw.gov.au
www.fire.nsw.gov.au

From: Geoffrey Hillard <Geoffrey.Hillard@fire.nsw.gov.au>
Sent: Wednesday, September 6, 2023 3:54 PM
To: Brian Smart <Brian.Smart@fire.nsw.gov.au>
Cc: Peter Nies <Peter.Nies@fire.nsw.gov.au>; Christopher Forster <Christopher.Forster@fire.nsw.gov.au>; Peter Markham <Peter.Markham@fire.nsw.gov.au>; Andrew Dunkin <Andrew.Dunkin@fire.nsw.gov.au>
Subject: Fw: Waratah Super Battery Project in Colongra NSW

Brian I had a call from Phillip today in regard to the storage of these lithium batteries at their Mayfield storage yard.He wanted to know are there any extra precautions that they need to take to store them , especially in the quantity they have .Could you call him and offer any advice. I have included the four MN1 Inspectors in this email.

Regards Geoff

STATION OFFICER GEOFFREY HILLARD
Hazmat Station Officer B Platoon
Newcastle Hazmat | Fire and Rescue NSW
E: geoffrey.hillard@fire.nsw.gov.au
T: 02 49272535
44 union St | 2300

www.fire.nsw.gov.au

From: Philipp Bourquin <Philipp.Bourquin@portofnewcastle.com.au>
Sent: Wednesday, 6 September 2023 3:18 PM
To: Geoffrey Hillard <Geoffrey.Hillard@fire.nsw.gov.au>
Subject: Waratah Super Battery Project in Colongra NSW

CAUTION: This email originated from outside of Fire and Rescue NSW. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Hi Geoff,

As discussed, the Port of Newcastle has been approached to receive and store super batteries for the Waratah Super Battery project at Colongra.
Attached is some information regarding the batteries which are DG UN3536.
The logistics company managing the import and transportation to Colongra have requested some storage at the Port of Newcastle (Mayfield Storage Area). Shipments would be received (approx. 150 units) and then trucked over time to site, hence a quantity of approx. 300-400 batteries may be stored at the port at any one time – and turned over as trucks remove from site and more shipments received.
For reference, I have included a photo below showing the approximate area (red circle) where we would store the batteries. Also below is some further information regarding the project and cargo details.
We seek your guidance on whether there would be any special requirements for storage, and if so, what those requirements may be? We have been advised the batteries would be discharged.
Your assistance is greatly appreciated.

https://powin.com/waratah-super-battery-announcement/

https://www.energyco.nsw.gov.au/projects/waratah-super-battery

Cargo Details :

Volume:		37,546	CBM				
Weight:		24,600,960	KGS				
Commodity:		Battery Energy Storage System					
Cargo Details			# Units	Length (m)	Width (m)	Height (m)	Weight (mt)
	COLLECTION SEGMENTS	General Cargo	288	2.442	2.232	3.259	5.5
	ENERGY SEGMENTS	Haz Cargo - Class 9 UN: 3480 Lithium Ion Batteries	2592	2.442	1.572	3.259	8.88

Cargo technical drawings & photos as attached.

** Please note all Lithium Batter cells have been vapour seal locked and will require small

Operations Period : Nov 2023 – August 2024
Expected 2 vessels per month for discharge.
140-150 Units per Vessel (subject to change & variation)
Mayfield 4 Berth

Best regards,

Philipp Bourquin
Senior Manager Operations

PORT of NEWCASTLE

MOB: 0402059770

Address: Level 4, 251 Wharf Road Newcastle NSW 2300
Email: Philipp.Bourquin@portofnewcastle.com.au
Website: www.portofnewcastle.com.au

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