COUNCIL ASSESSMENT REPORT

Panel Reference	PPSHCC-69				
DA Number	DA2021/00007				
LGA	Newcastle				
Proposed Development	Proposed Battery Storage Facility (Electricity generating works)				
Street Address	27D Riverside Drive Mayfield West				
Applicant/Owner	Precinct Capital Pty Ltd				
Date of DA lodgement	5 January 2021				
Total number of Submissions	N/A – The application did not require notification in accordance with City of Newcastle's Community Participation Plan (CPP).				
Number of Unique Objections					
Recommendation	Approved				
Regional Development Criteria (Schedule 7 of the SEPP (State and Regional Development) 2011	Pursuant to Schedule 7 of the State Environmental Planning Policy (State and Regional Development) 2011, the application is referred to the HCCRPP as the development has a capital investment value of more than \$5 million and falls under Clause (5) <i>Private infrastructure</i> <i>and community facilities over \$5 million</i> as an <i>electricity generating</i> <i>works</i> .				
	The application submitted to Council nominates the capital investment value of the project as approximately \$ 28.6 million.				
List of All Relevant Section 4.15 (1)(a) Matters	 Environmental planning instruments: s4.15(1)(a)(i) State Environmental Planning Policy (State and Regional Development) 2011 State Environmental Planning Policy (State Significant Precincts) 2005 State Environmental Planning Policy (Infrastructure) 2007 State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 State Environmental Planning Policy No 33—Hazardous and Offensive Development State Environmental Planning Policy No. 55 - Remediation of Land State Environmental Planning Policy (Coastal Management) Newcastle Local Environmental Plan 2012 Development Control Plan: 4.15 (1)(a)(iii) Newcastle Development Control Plan 2012 Section 7.12 Newcastle Local Infrastructure Contributions Plan 2019 (Update December 2020) City of Newcastle's Community Participation Plan 2019 				
List all documents submitted with this	Appendix A - Conditions of consent Appendix B - Documents submitted with the application				

Yes

report for the Panel's consideration	Appendix C - External Referral Comments
Report prepared by	City of Newcastle (CN)
Report date	06 September 2021

Summary of s4.15 matters

Have all recommendations in relation to relevant s4.15 matters been summarised in the Executive Summary of the assessment report?

Yes	Legislative clauses requiring consent authority satisfaction			
	Have relevant clauses in all applicable environmental planning instruments where the consent authority must be satisfied about a particular matter been listed, and relevant recommendations summarized, in the Executive Summary of the assessment report?			
	e.g. Clause 7 of SEPP 55 - Remediation of Land, Clause 4.6(4) of the relevant LEP			
Not	Clause 4.6 Exceptions to development standards			
applicable	If a written request for a contravention to a development standard (clause 4.6 of the LEP) has been received, has it been attached to the assessment report?			
Not	Special Infrastructure Contributions			
applicable	Does the DA require Special Infrastructure Contributions conditions (S7.24)?			
	Note: Certain DAs in the Western Sydney Growth Areas Special Contributions Area may require specific Special Infrastructure Contributions (SIC) conditions			
Yes	Conditions			
	Have draft conditions been provided to the applicant for comment?			
	Note: in order to reduce delays in determinations, the Panel prefer that draft conditions, notwithstanding Council's recommendation, be provided to the applicant to enable any comments to be considered as part of the assessment report			

ASSESSMENT REPORT AND RECOMMENDATION

EXECUTIVE SUMMARY

Development application (DA2021/00007) has been lodged with the City of Newcastle, seeking consent for the erection of an *electricity generating works* involving a 'battery storage facility' which will storage and resupply power to the electrical grid at 27D Riverside Drive, Mayfield West.

The proposed battery system will comprise of a 28MW lithium-ion battery energy storage facility using one of three different battery options. The three options involve containerized batteries, Tesla Megapack or a 'generic' battery system similar to the Tesla Model.

The operation of the battery storage facility will not require permanent staff to be present on the site, with all maintenance and operational management undertaken by contractors. The operation and maintenance of the proposal would only generate the need for two full time staff.

The development application is reported to the Hunter and Central Coast Regional Planning Panel in accordance with Part 4 and Schedule 7 of the *State Environmental Planning Policy* (*State and Regional Development*) 2011, as the development has a capital investment value of more than \$5 million and falls under Clause (5) *Private infrastructure and community facilities over \$5 million* as an *electricity generating works*. The nominated capital investment value of the project is \$28.6 million.

Permissibility

The applicable planning instrument is Newcastle Local Environmental Plan 2012 (NLEP 2012) and the subject site is zoned IN1 – General Industrial.

The proposal constitutes an *electricity generating works* under Division 4 State Environment Planning Policy (Instructure) 2007, as defined below: -

"electricity generating works has the same meaning as it has in the Standard Instrument. Note—

The term **electricity generating works** is defined by the Standard Instrument as follows **electricity generating works** means a building or place used for the purpose of—

- (a) making or generating electricity, or
- (b) electricity storage."

The proposal is permissible with consent as *electricity generating works* under Clause 34(1) within Division 4 of State Environment Planning Policy (Instructure) 2007.

Integrated Development

The proposal does not constitute integrated development under Section 4.46 of the EPA Act, 1979.

Other external referrals

The application was referred to Transgrid, Ausgrid, SafeWork for NSW, Sydney Trains and Australian Rail Track Corporation (ARTC). Ausgrid and ARTC provided advice indicating that they were satisfied subject to conditions. Transgrid, Sydney Trains and SafeWork for NSW raised no issues.

Consultation

The application did not require notification in accordance with City of Newcastle's Community Participation Plan (CPP).

Pre-conditions to granting development consent

The following legislative clauses apply to the development proposal which require the consent authority satisfaction prior to the granting of development consent:

- Part 4 'Regionally significant development' and Schedule 7 of State Environmental Planning Policy (State and Regional Development) 2011 – The development is for electricity generating works over \$5 million in value (CIV \$28.6million). The HCCRPP is the relevant determining authority.
- Clause 7 'Contamination and remediation to be considered in determining development application' of *State Environmental Planning Policy 55 – Remediation of Land –* The site is contaminated and part of a estate wide remediation strategy for 'Steel River'. CN is satisfied that the development site will be suitable for the proposed development.
- Clause 7 of State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

 Clause 7 provides that a person must not clear vegetation in any non-rural area of the State without the authority confirmed by a permit granted by the council. The application does not involve tree removal.
- Clause 15 'Development in coastal zone generally development not to increase risk of coastal hazards' of *State Environmental Planning Policy (Coastal Management)* 2018 (CM SEPP): Clause 15 specifies that development consent must not be granted to development on land within the coastal zone unless the consent authority is satisfied that the proposed development is not likely to cause increased risk of coastal hazards on that land or other land. The proposed development is located within the middle of an existing industrial estate and, due to its siting, is not considered likely to cause increased risk of coastal hazards.
- Clause 16 'Development in coastal zone generally coastal management programs to be considered' CM SEPP: Clause 16 prescribes that development consent must not be granted to development on land within the coastal zone unless the consent authority has taken into consideration the relevant provisions of any certified coastal management program that applies to the land. There are no applicable coastal management programs which apply to the subject site.
- Clause 2.3 'Zone objectives and Land Use Table' of Newcastle Local Environmental Plan 2012 (NLEP2012) – The development site is zoned IN1 – General Industrial and the proposal is not permissible within this zone as a *electricity generating works* (It's permissibility being via the iSEPP as discussed above within the report).
- Clause 5.10(4) 'Heritage conservation' NLEP2012 Clause 5.10(4) specifies that the consent authority must, before granting consent, consider the effect of the proposed development on the heritage significance of the heritage item or heritage conservation area concerned. The subject site is located within the vicinity of a listed heritage item, as detailed within the report below, and it is considered that the proposed development does not impact the heritage significance of the item.
- Clause 6.1(3) 'Acid Sulfate Soils' Clause 6.1(3) specifies that development consent must not be granted for the carrying out of works under the clause unless an acid sulfate soils management plan has been prepared and provided to the consent authority. A report prepared by RCA Australia confirms that notwithstanding the Class 2 potential Acid Sulfate Soils (PASS) classification of site, it is unlikely that any PASS would be encountered until a depth of 11 metres due to historic filling and remediation.

• Clause 6.3(3) 'Earthworks' provides several matters that the consent authority must consider prior to granting development consent to earthworks. The matters listed under cl.6.3(3) have been considered during the assessment and the proposed works are acceptable.

Key Issues

The key issues considered during the assessment relate to:

- Hazards associated with the operation of battery storage facilities
- Visual appearance of the proposal

RECOMMENDATION

That DA2021/00007 for of an *electricity generating works* involving a 'battery storage facility' which will storage and resupply power to the electrical grid at 27D Riverside Drive, Mayfield West (Lot 1102 and Part Lot 1101 within Lot 12 DP 280089) be approved subject to the conditions in **Appendix A**.

1. INTRODUCTION

This report provides a detailed overview of the development proposal for an *electricity generating works* involving the erection of 28Mw lithium-ion battery storage facility and associated landscaping at 27D Riverside Drive, Mayfield West.

Pursuant to Schedule 7 of the State Environmental Planning Policy (State and Regional Development) 2011, the application is referred to the RPP as the development has a capital investment value of more than \$5 million and falls under Clause (5) *Private infrastructure and community facilities over \$5 million* as an *electricity generating works*. The application submitted to Council nominates the capital investment value of the project as approximately \$28.6 million.

2. BACKGROUND

The development site is located at 27D Riverside Drive, Mayfield West. It is noted that while the subdivision that approves these allotments has been determined (DA2006/2076.02) it has not been registered. The site is currently relatively flat, except for the western most portion which slopes downhill, as a result of recent engineering works as part of the subdivision approval for the site. Similarly, the site is clear of any vegetation as a consequence of these engineering works.

The development application was lodged with CN on 11 January 2021. On 14 April 2021, a briefing of the application was provided to the Hunter and Central Coast Regional Planning Panel (HCRPP).

It is noted that the proposal was initially lodged including two options for battery storage systems involving i) the Tesla Megapack system and ii) the containerised system). The applicants subsequently requested that a third battery storage system be also considered allowing for a generic brand of batteries which would be installed with a design similar to the Megapack system.

Battery storage systems are relatively new technology within Australia. The applicants have provided the details below regarding similar systems which have been approved within NSW:

Name	Application	Capacity	LGA	Approval Date
Hume Battery Energy Storage System	SSD-10460	20MW / 40 MWh	Albury City Council	21/01/2021
Wallgrove Battery energy Storage System	See Link to <u>TransGrid</u> and <u>ARENA</u>	50 MW / 75MWh	Western Sydney Regional Organisation of Councils	2020
Sapphire WF Battery Energy Storage System	SSD-8643	50 MW / 100 MWh	Inverell Shire Council	16/08/2018
Hay SF Battery Energy Storage System	SSD-8113- Mod-2	29 MW / 29 MWh	Hay Shire Council	03/05/2021
Culcairn SF Battery Energy Storage System	SSD-10288	100 MW / 200 MWh	Greater Hume Shire Council	25/03/2021
Quorn Park SF Battery Energy Storage System	SSD-9097	20MW / 20 MWh	Parkes Council	16/07/2020
New England SF Battery Energy Storage System	SSD-9255	200 MW / 400 MWh	Uralla Shire Council	09/05/2020
Tamworth SF Battery Energy Storage System	SSD-9264	19 MW / 19 MWh	Tamworth Regional Council	30/11/2020
Wellington SF Battery Energy Storage System	SSD-8573	25 MW / 100 MWh	Dubbo Regional Council	03/03/2020
Jindera SF Battery Energy Storage System	SSD-9549	30 MW / 60 MWh	Greater Hume Shire Council	22/12/2020

It should be noted that the Hume Battery and Wallgrove Battery Energy Storage Systems are the only two 'standalone' utility-scale batteries that have been approved in NSW to date. The design of these batteries is similar to the proposed Steel River Battery. There are several other similar battery projects that have been approved and are co-located with either wind or solar farms.

3. SITE DESCRIPTION

The subject site is described as approved Lot 1102 and Part Lot 1101 within Lot 12 DP 280089, 27D Riverside Drive, Mayfield West. It is advised that while the subdivision that approves these allotments has been determined (DA2006/2076.02) it has not as yet been registered.

The subject site has a frontage of 56.05 metres to the future extension of Riverside Drive and is irregular in shape. The site has side boundaries of 103.935m and 127.9m with a rear boundary of 52.52 metres. The overall site area is 5986m². The site is completely clear of vegetation and relatively level until the western portion at the rear which slopes downhill. This is due to the recent engineering works undertaken as part of the approved subdivision.

The subject site is within an approved industrial subdivision located at the north-western end of the 'Steel River Estate'. To the southwest is Maitland Road and further north western is a rail line servicing freight movements to Kooragang Island (e.g. coal). There is also a high voltage transmission line located from the southwest to north west of the site. Currently, around the existing site there is no real development as this stage of the subdivision is not as

yet approved and engineering works towards allowing the subdivision to be registered as still in progress.

4. PROPOSAL

Development application (2021/00007) has been lodged with the City of Newcastle, seeking consent for the erection of an *electricity generating works* involving 'battery storage facility' which will storage and resupply power to the electrical grid.

The proposed development involves the installation of 28MW lithium-ion battery energy storage facility which will connect to the local Ausgrid 33kV electrical distribution network.

The overall system will comprise of lithium-ion battery system with a bi-directional (charge and discharge) power conversion system and site controller. The system is highly modular and based on individual smaller power blocks to achieve the required system size. Each battery pack is comprised of thousands of smaller lithium-ion cells which are fully enclosed (within a climate controlled HVAC system) connected together to form an integrated system.

There are three alternate battery model options for installation

- i. Modular cubical cabinets (similar to the Megapack system) that are installed in an array around an inverter pack as illustrated in Figure 1 below); and
- ii. Containerised modules (containerised system) that have been preassembled in modified shipping containers prior to transport to site as illustrated in Figure 2 below, and
- iii. Modular cubical cabinets similar to the Megapack system described at point i) but using a 'generic' battery brand as yet to be determined at this stage.

Figure 1 Indicative image of a Megapack system





Figure 2 – Indicative image of containerised modules

The operation of the battery storage facility will not require permanent staff to be present on the site, with all maintenance and operational management undertaken by contractors. The operation and maintenance of the proposal would only generate the need for two full time staff.

Refer to Appendix B for a copy of the plans and elevations of the proposal.

5. PLANNING ASSESSMENT

5.1 Environmental Planning and Assessment Act 1979 (EP&A Act)

5.1.1 Section 4.5 – Regional Planning Panels (RPP)

The application is referred to the Hunter and Central Coast Regional Planning Panel in accordance with Schedule 7 of the *State Environmental Planning Policy (State and Regional Development) 2011*, as the development has a capital investment value of more than \$5 million and falls under Clause (5) *Private infrastructure and community facilities over \$5 million* as an *electricity generating works*.

The application submitted to Council nominates the capital investment value of the project as \$28.6 million.

5.1.2 Section 4.10 – Designated Development & Section 4.46 – Integrated Development

Designated Development (Section 4.10)

Schedule 3 of the *Environmental Planning and Assessment Regulations,* 2000 details what constitutes *designated development.*

The proposed development does not meet the criteria for an *Electricity generating stations* as detailed under Clause 18 of Schedule 3 as extracted below.

"18 Electricity generating stations

(1) Electricity generating stations, including associated water storage, ash or waste management facilities, that supply or are capable of supplying—

(a) electrical power where-

(i) the associated water storage facilities inundate land identified as wilderness under the Wilderness Act 1987, or

(ii) the temperature of the water released from the generating station into a natural waterbody is more than 2 degrees centigrade from the ambient temperature of the receiving water, or

(b) more than 1 megawatt of hydroelectric power requiring a new dam, weir or inter-valley transfer of water, or

(c) more than 30 megawatts of electrical power from other energy sources (including coal, gas, wind, bio-material or solar powered generators, hydroelectric stations on existing dams or cogeneration).

(2) This clause does not apply to power generation facilities used exclusively for stand-by power purposes for less than 4 hours per week averaged over any continuous 3-month period."

Integrated Development (Section 4.46)

The proposal does not constitute integrated development under Section 4.46 of the EPA Act, 1979. Notably, the proposal does not trigger any requirement for an Environment Protection Licence under Schedule 1 of the Protection of the Environment Operations Act 1997.

5.1.3 Section 4.15(1) Evaluation

The application has been assessed having regard to the relevant matters for consideration under the provisions of Section 4.15(1) of the Environmental Planning and Assessment Act 1979, as detailed hereunder.

5.1.3.1 The provisions of any environmental planning instrument

State Environmental Planning Policy (State and Regional Development) 2011

This policy sets out the functions of regional panels in determining applications for regional development. Clause 20 of the SEPP requires the Regional Planning Panel to be the determining authority for development included in Schedule 7 of State Environmental Planning Policy (State and Regional Development) 2011.

Pursuant to Schedule 7 of the State Environmental Planning Policy (State and Regional Development) 2011, the application is referred to the RPP as the development has a capital investment value of more than \$5 million and falls under Clause (5) *Private infrastructure and community facilities* over \$5 million as an *electricity generating works*. The application submitted to Council nominates the capital investment value of the project as approximately \$ 28.6 million.

State Environmental Planning Policy (State Significant Precincts) 2005

This policy aims to facilitate the development, redevelopment or protection of important urban, coastal and regional sites of economic, environmental or social significance to the State and/or State significant precincts.

The subject site is not within an area which is affected by this Policy.

State Environmental Planning Policy (Infrastructure) 2007

State Environmental Planning Policy (Infrastructure) 2007 (ISEPP) was introduced to facilitate the delivery of infrastructure across the State by improving regulatory certainly and efficiency.

The proposal constitutes an *electricity generating works* under Division 4 State Environment Planning Policy (Instructure) 2007, as defined below: -

"electricity generating works has the same meaning as it has in the Standard Instrument. Note—

The term **electricity generating works** is defined by the Standard Instrument as follows **electricity generating works** means a building or place used for the purpose of—

(a) making or generating electricity, or

(b) electricity storage."

The proposal is permissible with consent as *electricity generating works* under Clause 34(1) within Division 4 of State Environment Planning Policy (Instructure) 2007.

Clause 45 - Development impacted by an electricity tower, electricity easement, substation, power line

Clause 45 of the ISEPP requires certain development applications to be referred to the relevant electricity supply authority, further that any concerns raised by the electricity supply authority are to be considered as part of the assessment.

The proposal was referred to Transgrid and Ausgrid due to the nearby high voltage powerlines and the provisions Clause 45 of the ISEPP. Transgrid provided no and Ausgrid has raised no objections as detailed within **Appendix C.**

Clause 85 - Development adjacent to rail corridors

The proposal was also referred to Australian Rail Track Corporation (ARTC) under clause 85 - *Development adjacent to rail corridors*. ARTC considered that the proposal was acceptable subject to conditions as detailed within **Appendix C**.

State Environmental Planning Policy No 33—Hazardous and Offensive Development

This policy provides provisions to address and reduce the impacts of hazardous and offensive development.

The proposed battery storage facility does not strictly trigger the requirement for a Preliminary Hazard Assessment (PHA) under the Department of Planning Industry and Environment's (DPIE) Applying SEPP 33 Guidelines as a hazardous development.

Notwithstanding this, the applicant's consultants ARUP have prepared a Preliminary Hazard Assessment (PHA) under the terms of SEPP 33 in accordance with the NSW DPIE's Multilevel Risk Assessment and Hazardous Industry Planning Advisory Papers (HIPAPs) No. 4 – Risk Criteria for Land Use Safety Planning [2] and No. 6 – Hazard Analysis [3] so to address the potential risks of the proposed development.

Battery Systems

Two types of battery solutions are currently being considered for the site based on lithium-ion battery technology:

- Modular cubical cabinets (which could be the Tesla Megapack system or another similar generic battery system) that are installed in an array around an inverter pack (see Figure 3 below).
- Containerised modules (containerised system) that have been preassembled in modified shipping containers prior to transport to site (see Figure 4 below).



Figure 3 Indicative Tesla Megapack (example modular/cabinet unit)

Figure 4 Indicative arrangement of containerised module



PHA Assessment

A PHA has been submitted with the application (prepared by ARUP). An amended PHA (prepared by ARUP) was submitted on 3 June 2021. As the final battery technology has not yet been chosen for the site, the hazards were considered for both modular/cabinet and containerised solutions.

The hazard assessment considered and assessed the following key risks associated with the proposed development:

- Security breach leading to injury The proposed risks will be acceptable with the inclusion of security fencing, CCTV and regular inspections to monitor breaches.
- *Electrocution from an electrical facility* The risks will be acceptable where electrical assets are installed in accordance with AS 3000: Electrical Installations and appropriately qualified maintenance personnel being employed.
- Injury to construction or operations personnel To ensure risks during construction/operation of the facility are acceptable it is recommended that a detailed *Work, Health and Safety* plan is undertaken.
- Exposure to dangerous goods during a site emergency Considering the nature of the lithium-ion battery technology used, to minimize the risks, it will be necessary to undertake a site-specific Emergency Management Plan, include appropriate signage and labelling to identify site-specific hazards and ensure that emergency response workers are to be made aware of the response requirements.
- Release of firewater runoff The release of contaminated firewater, following extinguishment of a fire event, needs to be contained via permanent bunding or a temporary bunding system. Having regard to the nature of the proposal being an open site, as opposed to housed within a building, it is considered that a permanent bunding system would be inappropriate and, as such, a temporary bunding system would form part of the required Emergency Management Plan.
- *Battery fire* A fire could credibly form in a lithium-ion battery system because of a thermal runaway in one or more cells or from an external source such as a fire at the facility.

The risk assessment has tested the combined worst-case scenario of the battery management system failing, the fire suppression system failing, and all associated doors left open. The assessment found that where the recommended separation distances detailed below are adopted, the risks for fires associated with the proposed battery systems would be acceptable. The recommended distances include internal batteries separations and external setbacks to boundaries, each being intentionally conservative.

• *Battery explosion* - Flammable vapours may accumulate in the battery unit. This could result in a confined vapour cloud explosion (VCE) occurring. It is advised that at high temperatures (100C plus) the battery cells are designed to vent so to release internal gas pressure. It is estimated that the proposed 40 foot container could accumulate a vapor cloud of 800 litres. The gas composition will vary depending on the battery brand used but typically consists of ethylene and carbon monoxide (i.e. approximately 64% and 35% by mass respectively).

The assessment found that where the recommended separation distances, as detailed below, are adopted, combined with explosion venting or prevention systems, the risks for explosions associated with the proposed battery systems would be acceptable. The recommended distances include internal batteries separations and external setbacks to boundaries, each being intentionally conservative.

The PHA indicates that without any controls or mitigation measures a 24-metre separation distance would be required. The hazard assessment makes various recommendation

summarised as below to address the risks. The resultant risk contours for the development are shown on drawings DA01 Revision 9 and DA06 Revision 9.

- i) Designed with means to safely vent or prevent an explosion
- ii) The containerized batteries shall be separated from one another by not less than 3.25 m end to end and not less than 3 m side to side, and separated from the site boundary by not less than 10 m.
- iii) The modular/cabinet batteries (e.g., Tesla Megapack) shall be separated from one another by not less than 2 m end to end and not less than 5 m side to side, and separated from the site boundary by not less than 10 m.
- iv) Provision of fire test report in accordance with UL9504A
- v) Provision of fire suppression systems with includes potential explosion hazards

It is further noted that where specific test data exist, the recommended separation distances between units provided may be varied, such as the Tesla Megapack can be separated be 6 inches (155 mm) side-to-side or back-to-back (i.e. the sides of the unit without doors) as demonstrated by fire testing performed using the UL9504A Test Method.

The submitted PHA, and revised PHA dated June 2021 (the revised report providing detailed assessment of the Tesla Megapack option), has been assessed by both CN and the DPIE's Hazards Section. In addition, SafeWork for NSW were consulted in terms of the proposal and no concerns were raised.

The two main hazards that were identified as having the potential to cause offsite impacts; battery fire and battery explosion, were carried forward for quantitative consequence analysis. On initial assessment by the Technical Specialists (Hazards) from the NSW DPIE provided relevant comment on the Statement of Environmental Effects, PHA and recommended conditions of consent for the project.

The DPIE Hazards found the Applicant had verified that the proposed containizers battery systems meet the required separation distances. These separation distances proposed are appropriate and would minimise risk to surrounding land use.

However, a similar level of analysis was not adopted to assess the separation distance between battery modules. It was identified that further hazard assessment and associated separation distances were required for the modular design.

Additional information was requested and a further revised PHA (03 June 2021) was provided. The response also contained amended development plans including new layouts for battery containers (Drawing DA01CGA Engineering Solutions dated 14 December 2020) and the modular battery system based on separation distances for Tesla Megapack (Drawing DA06).

The final selection of the battery storage technology has not been made and the PHA has undertaken assessment of separation distances for battery containers, Tesla Megapack batteries and generic battery modules.

A site layout plan demonstrating that the 'generic' battery modules system can meet required separation distances and setbacks) has not been provided but conditions have been recommended to address this option. A decrease in the number of non-Tesla branded battery modules may be necessary if the required Final Hazard Analysis, as detailed below, cannot demonstrate that the approved setbacks are sufficient for any generic battery system proposed.

On 14 July 2021, the following advice was provided by the DPIE (Hazards Team):

- 1. The battery energy storage system shall not exceed a delivery capacity of 30 MW and shall be installed and operated in a manner consistent with the Preliminary Hazard Analysis of 3 June 2021.
- 2. The battery energy storage system shall be either containerised (*Drawing DA01*) or modular (*Drawing DA06*). If the battery modules, other than Tesla Model 1462965-XX-Y Megapack, are chosen as the final design for this development, at least one month prior to installation of the battery modules, the Applicant shall prepare and have approved by Council a Final Hazard Analysis of the development, consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 6, 'Hazard Analysis' and Multi-level Risk Assessment, and consider recent developments in research and standards for battery energy storage systems.

<u>Note:</u>

With respect to condition 2 above, the Final Hazard Analysis should consider standards and codes such as and not limited to NFPA 855, AS 5139, IEC 62897, UL 9540, FM Global DS 5-33. The PHA should verify that the proposed BESS capacity would be able to fit within the land area designated for the Battery Energy Storage System (BESS) while taking into account separation distances between the BESS sub-units (racks, modules, enclosures, etc.) ensuring that a fire from a sub-unit do not propagate to neighbouring sub-units and the overall BESS and other on-site or off-site receptors, ensuring fire safety.

Where testing of the BESS unit (container or cabinet) has been undertaken in accordance with UL9540A, the UL9540A test report should be submitted where separation distances are based on the results of this report.

3. Prior to commissioning of the development, the Applicant shall develop and implement a comprehensive Emergency Plan and detailed emergency procedures of the development. The plan shall be consistent with the Department of Planning's Hazardous Industry Planning Advisory Paper No. 1, '*Emergency Planning*'.

As such, the proposed development is acceptable providing that the recommendations in the amended PHA, as detailed above, and consent conditions are incorporated into any consent granted.

State Environmental Planning Policy No.55 (Remediation of Land) (SEPP No.55)

This policy requires consideration to be given to previous uses on the site and whether the site needs to be remediated for future uses. Clause 7(1) (b) and (c) of SEPP No.55 require that where land is contaminated, Council must be satisfied that the land is suitable in its contaminated state or will be suitable after remediation for the purpose for which the development is proposed.

The proposal has been assessed by the Environmental Protection Officer and is acceptable in terms of the requirements of SEPP 55 and land contamination as detailed below.

The site being part of the 'Steel River' estate, has been subject of a detailed investigation and a remediation action plan that approved remediation of the overall Steel River precinct. URS Australia Pty Ltd has developed, as part of this previous approval, a set of protocols for verifying remediation and validation of each allotment. The proposal has met these requirements of the remediation strategy, outlined below.

The site is suitable for commercial/industrial development, provided that the development is conducted in accordance with the Site Development Guidelines, Site Management Plan, and relevant Environmental Management Plans.

The project will involve minor earthworks such as ground levelling, construction of the driveway and landscaping (the majority of earthworks already being undertaken as part of the approved subdivision). The following controls and consideration will ensure that the development is designed, constructed, and otherwise carried out to comply with the Contamination Guidelines to preserve the integrity of the Remediation Strategy of the Steel River precinct.

A Site Management Plan was prepared by RCA dated 27 November 2020 which gives information on site procedures during the building phase, including consideration of contaminated soil.

Contamination Certificates A and B have been provided. Certificate C will be required prior to Construction Certificate. Certificate D will confirm the construction has been completed with regard to the remediation strategy and will be required prior to occupation. It is considered that the proposal has addressed the provisions of SEPP 55 and is satisfactory subject to the conditions recommended within **Appendix A** for the the management of the site.

State Environmental Planning Policy (Coastal Management)

State Environmental Planning Policy – Coastal Management aims to protect and manage the New South Wales coast and foreshores and requires certain development applications in sensitive coastal locations to be referred to the Director-General for comment.

The subject site is located within the coastal environment area under the provisions of Clause 13 of the SEPP.

The proposed development in this location will not have any impacts on the foreshore or coastal environments being part of an existing approved subdivision, and, as such the application is acceptable under this policy. The current proposal will not further increase the impacts in the area and it is noted that this general area has been highly disturbed by industrial development in excess of 50 years.

State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017

The State Environmental Planning Policy (Vegetation in Non-Rural Areas) 2017 (Vegetation SEPP) is one of a suite of Land Management and Biodiversity Conservation (LMBC) reforms that commenced in New South Wales on 25 August 2017.

The proposed development is part of an existing approved subdivision and the existing area has predominantly been devoid of vegetation/trees, and, as such the application is acceptable under this policy.

Other State Environmental Planning Policies

The proposal is not contrary to the provisions of any other relevant State Environmental Planning Policy.

Regional Environmental Plan

There are no regional environmental plans that are relevant to this proposal.

Newcastle Local Environmental Plan 2012 (NLEP 2012)

Clause 2.3 Land Use Table - Zoning

The site is zoned IN1 – General Industry under the Newcastle LEP 2012. The proposed development is defined as an *electricity generating works* under the LEP and is not listed as permissible in the zone. The proposal gains its permissibility under the iSEPP (i.e. Cl 34(1))

as discussed above. Notwithstanding this, the development is considered to be acceptable in terms of the objectives of the IN1 zone.

Clause 4.3 Height of Buildings

The Height of Buildings Map does not provide for any height standards within the IN1 zone.

Clause 4.4 Floor Space Ratio

There is no maximum floor space ratio development standard applicable within the IN1 zone.

Clause 5.10 Heritage Conservation

The site is located approximately 100 m from the Heritage Item I291 known as the former Migrant Camp. The subject site is not identified as containing any items of Aboriginal or European Heritage Significance.

Clause 5.10(4) requires the consent authority must consider the effect of the proposed development on the heritage significance of an item including those items within the vicinity of the site.

The applicants have provided a Statement of Heritage Impact prepared by Eikos Environment and Heritage which has demonstrated that the proposal will have sufficient separation not to have any impact on the heritage significance of the item.

Clause 6.1 Acid Sulfate Soils

The subject site is identified as containing Class 2 Acid Sulphate Soils (ASS). The applicants sought advice from RCA Australia regarding potential Acid Sulfate Soils and which indicated that Acid Sulfate Soils would not be encountered within the upper 2m of the site and unlikely until depths of up to 9m at the site based on the current, pre-subdivision works levels. It is considered that the proposal is acceptable in terms of Acid Sulphate Soils.

5.1.3.2 Any draft environmental planning instrument that is or has been placed on public exhibition

There are currently several draft environmental planning instruments that are, or have been placed on public exhibition. However, the exhibited draft environmental planning instruments are not relevant to the application.

5.1.3.3 Any development control plan (and section 94 plan)

The main planning requirements of relevance in the Newcastle Development Control Plan 2012 (DCP) are discussed in detail below.

3.13 – Industrial Development

The subject site is part of the 'Steel River Estate' and is to be assessed having regard to the Strategic Impact Assessment Study (SIAS) which sets out both design and environmental requirements for the estate.

The proposal broadly meets the requirements of the SIAS achieving the 20% landscape area for the site and maintaining the front, side and rear setbacks. The proposal is acceptable having regard to the existing remediation scheme for land contamination and acoustic impacts.

Visually the outcomes of the proposal are adequate considering the unique nature of the proposal. The visual impacts are assessed in detail within the report below in Section 5.1.3.7

The proposed fencing 3.0 metre in height is greater than that which would otherwise be allowed for typical industrial developments within the estate (typically 1.8-2.0m) but this acceptable in this instance having regard to the nature of the facility and the greater safety/risk issues to be addressed.

4.10 - Flood Management

This site is not affected by flooding.

4.04 - Safety and Security

The development is acceptable having regards to Crime Prevention Through Environmental Design (CPTED) principles including surveillance, access control, territorial reinforcement and space management.

The proposal will incorporate both CCTV and lighting to address CPTED principles for the site.

The entire site perimeter will be surrounded with a 3 metre high chainmesh fence including barbwire at the top. The proposed fencing is comparable with other electricity generating works such as substations which need to ensure that access is strictly restricted for safety and vandalism purposes.

4.05 Social Impact

It is considered that the proposal will have positive social & economic impacts via the investment of \$28 million in the Newcastle Local Government Area and the introduction of new innovative technology. The proposal will generate approximately 20 jobs during construction and 2 full time jobs for operation/maintenance of the facility.

Overall, it is considered that the proposal is acceptable having regard to social and economic impacts.

5.01 Soil Management

A Sediment and Erosion Management Plan has been submitted with the application to minimise sediments being removed from the site during the construction period. A condition has been placed on the consent to ensure such measures are in place for the entire construction period.

5.02 - Land Contamination

Land contamination has been assessed under the SEPP 55 discussion above. The site is suitable for the proposed development.

5.05 and 5.07 Heritage Items and Heritage Conservation Areas

Refer to clause 5.10 LEP discussion above.

7.02 - Landscape, Open Space and Visual Amenity

The applicants have submitted a landscape plan by Terras Landscape Architects which provides for a combination of small trees, shrubs and ground covers along the side boundaries and street front. The rear of site (western boundary) is a combination of decorative stone and grasses.

The landscape design, and the width of the boundary landscape screens, is dependent on meeting the required setbacks to address the risks from battery fires and explosions. It is further noted that the landscape plan has been modified to avoid any conflict with easements at the rearmost portions of the site. Overall, it is considered that landscape design is acceptable.

7.03 Traffic, Parking and Access

The proposed development is acceptable in terms of traffic, access and parking impacts as detailed below.

Vehicular Access, Driveway Design and Crossing Location

Vehicle access is proposed from Riverside Drive via 2 separate driveways each providing for entry and exit as required. Swept turning paths have been provided to demonstrate that a 12.5m ridged truck can enter the site and leave the site in a forward direction.

Parking Demand

No permanent parking is proposed on site only access by servicing and delivery vehicles.

7.06 Stormwater

The proposal has been assessed by the Senior Development Officer and is acceptable in terms of stormwater impacts as detailed below.

It is proposed to provide a gravel hardstand within the site which will be pervious with no formal onsite drainage system proposed. It is proposed to grade the site to ensure major flows are conveyed to Riverside Drive and the inter allotment drainage system at the rear of the site. A condition is proposed to require final details at the Construction Certificate stage.

7.08 Waste Management

The proposal will not generate any real need for the collection of waste during operation. There will be no permanent staff on site and any waste generated from the maintenance of the facility would be removed by staff (i.e. contractors) as part of the maintenance.

Community Participation Plan

The application was not required to be notified under the provisions of the Community Participation Plan.

Newcastle's Section 7.12 Local Infrastructure Contributions Plan 2019

The application attracts a Section 7.12 Contribution pursuant to section 4.17 of the *Environmental Planning and Assessment Act 1979* and the City of Newcastle's Section 7.12 Local Infrastructure Contributions Plan 2019. A contribution of 1% of the cost of development is recommended with **Appendix A**, in accordance with clause 25J of the *Environmental Planning and Assessment Regulation 2000*

5.1.3.4 Planning agreements

No planning agreements are relevant to the proposal.

5.1.3.5 The regulations (and other plans and policies)

The application has been considered pursuant to the provisions of the *Environmental Planning* and Assessment Act and Regulation 2000.

Hunter Regional Plan

The Hunter Regional Plan provides an overarching framework to guide land use plans, development proposals and infrastructure funding decisions. The NSW Government's vision for the Hunter is to be the leading regional economy in Australia with a vibrant new metropolitan city at its heart.

To achieve this vision the Government has set four goals for the region:

- The leading regional economy in Australia
- A biodiversity-rich natural environment
- Thriving communities
- Greater housing choice and jobs

It is considered that the proposal is consistent with the Plan.

5.1.3.6 Coastal management plan

No Coastal Management Plan applies to the site or the proposed development.

5.1.3.7 The likely impacts of the development, including environmental impacts on both the natural and built environments, and social and economic impacts in the locality

Acoustic Impacts

A Noise Impact Assessment (NIA) of the proposed battery storage development was prepared by Spectrum Acoustics dated November 2020.

The NIA found no exceedance of relevant noise criteria at any industrial or residential receiver. The EH team considers the likelihood of noise impact on industrial or residential neighbours is low as indicated by the results of the NIA and the location is at the western extremity of the Steel River estate.

The cumulative noise level from operation has been considered a constant noise source and is predicted to be well below the Strategic Impact Assessment Study of 48 dB(A) (day) and 30 dB(A) (night) at the nearest residential receiver.

Construction is expected to be for a duration of approximately 3 months with approximately 90 truck movements. It is estimated that 20 of these will occur over a couple of days during peak construction. Therefore, it is recommended that the deliveries of battery cells, racks etc. are undertaken during daytime hours only. Construction noise is not expected to be significant enough to require the preparation of a Construction Environmental Management Plan.

The NIA found no exceedance of relevant noise criteria at any industrial or residential receiver. The EH team considers the likelihood of noise impact on industrial or residential neighbours is low as indicated by the results of the NIA and the location is at the western extremity of the Steel River estate.

The proposal is acceptable subject to the conditions recommended within Appendix A

Lighting Impacts

The applicants have submitted an obtrusive lighting report which has demonstrated that the facility is compliant with Australian Standard '*AS4242: Control of obtrusive effects of outdoor lighting*' and this was inclusive of assumed future development on the surrounding sites by industrial proposals.

Visual Appearance, bulk and scale

The character, bulk and scale of the proposal is acceptable having regard to the intended industrial nature of the site and area. The applicants have submitted a visual impact assessment (VIA) which includes photomontages from possible public view lines along Maitland Road (i.e. east bound traffic) to the site to address concerns raised in regard to the visual appearance of the proposal.

The proposed battery systems, being either a containerised unit or battery module system, are not overly visually attractive of themselves. Notwithstanding this, it is also noted that the systems at their highest would be approximately 3.0metres in height. Due to the recommended setbacks required to address risks associated with the proposal, there is a need to maintain open setbacks immediately around the battery system units such that no landscaping can occur within 10 metres of the battery systems. Furthermore, larger growing trees are not considered to be appropriate in this respect.

The VIA shows that the combination of distance, approximately 150-190m, with the existing topography and proposed landscape screening, that the proposal would be of an acceptable impact. It is further noted that the Maitland Road is an 80 kilometre zone and, as such, the views to this area would be shorter duration "glimpses".

The VIA provided photomontages show that, with the combination of the proposed landscape screening, the proposed battery systems will not have a major visual impact (see Figures 5, 6, 7, 8 and 9 below). Importantly, it is advised that the adjoining industrial sites, especially to the north, northeast and east of the subject site, will allow industrial buildings to be developed which will typically be in the range of 8-12 metres in height, based on the development within the existing estate, and once this further occurs it is expected that the current proposal will be even less noticeable.

It is further advised that alternatives of proposing screen walls or faux buildings were considered but deemed unacceptable as these would have had greater impacts than the measures adopted. The walls/faux buildings would have had to maintain the 10 metre separations from the battery systems for safety/risks, resulting in these structures being closer to the side boundaries (3.0 metres or less) when compared to the normal requirement of 6.0 metres and resulting in greater visual impacts.

Overall, the proposal is acceptable in terms of visual appearance impacts.



Figure 5 – Viewpoints 1 and 2 from Maitland Road.



Figure 6 – View point 1 without landscaping

Figure 7 - View point 1 with landscaping



Figure 8 – View point 2 without landscaping



Figure 9 - View point 2 with landscaping



5.1.3.8 The suitability of the site for the development

The subject site suited for the proposed development being within an industrial estate and adjacent high voltage powers lines appropriate for co-locating the battery storage facility.

5.1.3.9 Any submissions made in accordance with this act or the regulations

The application was not required to be notified under the provisions of the Community Participation Plan.

5.1.3.10 The public interest

The development is in the public interest and will allow for the orderly and economic development of the site within an industrial estate. The provision of battery storage systems to supplement the electricity grid will increasingly be considered an essential part of the system especially as greater reliance is placed on alternative energy forms such as solar power.

6. CONCLUSION

The proposal is acceptable against the relevant heads of consideration under Section 4.15(1) of the *Environmental Planning and Assessment Act 1979.*

7. RECOMMENDATION

A. THAT the Hunter and Central Coast RPP, as the consent authority, approve development consent to DA for the Proposed Battery Storage Facility (Electricity generating works) at 27D Riverside Drive, Mayfield, pursuant to Section 80 of the EP&A Act subject to the conditions in Appendix A.