SUSTAINABILITY

STEENSEN VARMING

New High School for Jordan Springs (JSHS) – REF Sustainability Report

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1.0 Introduction and declaration

This report has been prepared by Steensen Varming to accompany a Review of Environmental Factors (REF) for the Department of Education (DoE) for the construction and operation of the New High School for Jordan Springs (the **activity**) to be located between Armoury Road and Infantry Street in Jordan Spring, NSW (the **site**), under Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act) and State Environmental Planning Policy (Transport and Infrastructure) 2021 (SEPP TI).

This document has been prepared in accordance with the Guidelines for Division 5.1 assessments – Consideration of environmental factors for health services facilities and schools, October 2024 (the Guidelines) by the Department of Planning, Housing and Infrastructure.

The ESD design strategies for this activity have been developed in accordance with the following guidelines and standards:

- Government Resource Efficiency Policy (GREP)
- Sustainable Buildings State Environmental Planning Policy (SEPP 2022)
- School Infrastructure New South Wales (SINSW) Educational Facilities Standards & Guidelines (EFGS v2.0)
- National Construction Code of Australia (NCC 2022)
- NSW Environmental Planning and Assessment Regulation 2021
- Green Star Buildings V1

1.1 Documentation Review

The following plans/ reports identified in Table 1 have been reviewed to inform the assessment contained within this report:

Table 1: REF Requirements and Relevant Responses and References

Discipline	Document name	Revision	date
Architecture	SD issued for Tender	A	25/10/24
Mechanical	SD issued for Tender	A	15/11/24
Electrical & Lighting	SD issued for Tender	A	15/11/24
Biodiversity Constraints Report	Biodiversity Constraints DD – New high school at Jordan Springs – GHD – DDWO05725-23	Final	05/02/24

1.2 Proposed Activity Description

The proposed activity for the construction and operation of the New High School for Jordan Springs (JSHS) is proposed to have a capacity of 1,000 students and 80 staff to meet forecast enrolment demand associated with population growth in Jordan Springs and Ropes Crossing. The school will provide permanent General Learning Spaces (GLS), Support Learning Spaces (SLS), staff facilities and a library across three (3), three storey buildings, a single storey hall, half playing field, three

(3) outdoor sport courts, 72 operational at grade parking spaces (including two (2) accessible spaces), 100 bicycle spaces and landscaping.

Public domain works and the off-site OSD Basin are to be constructed by others under separate planning pathways.

1.3 Proposed Activity Scenarios

The project scope of works includes two (2) scenarios, to allow construction and operation of the school, with (Scenario 1 – preferred option) or without (Scenario 2 – Interim Solution) the public domain works, and permanent off-site basin being constructed by others under a separate planning pathway.

1.3.1 Scenario 1 – Preferred Option - Road Network completed and permanent OSD Basin Constructed

External works undertaken by others to facilitate Scenario 1

- Construction of Park Edge Road;
- Any adjustments to Infantry Street;
- Kiss and drop zone along Park Edge Road;
- Support kiss and drop zone located along Infantry Street; and
- Construction and operation of permanent OSD Basin off site.

Note – Scenario 1 is not to proceed if external works undertaken by others is not completed.

Scenario 1

- Construction and Operation of the New High School for Jordan Springs, including:
  - Decommissioning of existing on-site OSD basin;
  - Demolition of roads and associated services within the site boundary;
  - Tree removal within the site boundary
  - Earthworks;
  - Three (3) multi-storey classroom buildings;
  - One (1) school hall;
  - Three (3) outdoor sport's courts;
  - One (1) sport's field;
  - 72 at grade car parking spaces, including two (2) accessible parking spaces, and waste services, accessed via Park Edge Road;
  - 100 bicycle parking spaces across the site; and
  - Landscaping.

1.3.2 Scenario 2 - Interim Solution - Road network not completed, Permanent OSD Basin not constructed.

Scenario 2 - Stage 1

- Construction and operation of a temporary on-site OSD Basin;
- Construction and operation of the New High School for Jordan Springs, including;

- Demolition of roads and associated services within the site boundary;
- Tree removal within the site boundary
- Earthworks;
- Three (3) multi-storey classroom buildings;
- One (1) sport's field;
- Temporary carpark - 72 at grade car parking spaces, including two (2) accessible parking spaces and waste services, located on the northwest corner of the site, accessed off Armoury Road;
- 100 bicycle parking spaces across;
- Temporary Kiss and drop facilities on Armoury Road; and
- Associated landscaping.

Scenario 2 - Stage 2

Stage 2 is not to be undertaken until the temporary on-site OSD basin under stage 1 works is completed and operational.

Decommissioning of existing on-site OSD basin, prior to the following works being undertaken:

- 72 at grade car parking spaces, including two (2) accessible parking spaces, and waste services, located on the southeast corner of the site. This car park cannot be constructed until the decommissioning of the existing OSD basin is completed and will be non-operational with no road connection until completion of Scenario 2 – Stage 3;
- One (1) school hall;
- Three (3) outdoor sport's courts; and
- Associated landscaping.

External works undertaken by others to facilitate Stage 3

- Construction of Park Edge Road;
- Any adjustments to Infantry Street;
- Kiss and drop zone along Park Edge Road;
- Support kiss and drop zone located along Infantry Street; and
- Construction and operation of OSD Basin off site.

Note – Scenario 2 - Stage 3 is not to proceed until the external works undertaken by others have been completed.

Scenario 2 - Stage 3

- Connection of the southeast carpark to Park Edge Road;
- Rectification works along Armoury Road to remove temporary kiss and drop facilities and cross over for temporary carpark;
- Demolition of temporary carpark, once permanent car park is operational; and
- Decommissioning of temporary OSD basin.

Figure 1: Site Plan New High School for Jordan Springs. Source: djrd Architects, JSHS-DJRD-00-00-DR-A-0101(A)_SITE PLAN, 20/11/2024.

2.0 Activity Site

The project site is located on the corner of Armoury Road and Infantry Street in Jordan Springs and is legally described as part of Lots 2 and 3 in DP 1248480.

Figure 2 provides an aerial photograph of the project site, outlines the boundaries of
the project site (in red) and the boundaries of Lots 2 and 3 in DP 1248480 (in blue).

Figure 2: Aerial Photograph for activity site

The activity site is within the Central Precinct of the St Mary's Release Area in the Penrith Local Government Area.

2.1 Need for Activity

As part of the NSW Government's plan to rebuild public education, the 2024-25 Budget is delivering record education funding, for new and upgraded schools in Western Sydney. This targeted investment will ensure growing communities get access to a world class public education.

This project will deliver a new high school for the growing communities in Jordan Springs and Ropes Crossing. The New High School for Jordan Springs (JSHS) is planned to cater for 1000 students with approximately 36 teaching spaces.

2.2 Other approvals

External works and construction of the off-site OSD Basin are to be constructed by others.

3.0 REF Reporting Requirements & Responses

This section addresses the REF requirements issued for the project as well as the requirements of the Sustainable Buildings SEPP 2022. Furthermore, it presents the EFSG Requirements and the targeted Green Star Buildings credits. The requirements and the associated responses are outlined along with corresponding references to sections both within this report and in relevant reports.

3.1 Response to Section 171 of the EP&A Regulation 2021

The following environmental factors have been specified in Review of Environmental Factors under Section 171 of the EP&A Regulation 2021.

3.1.1 Relevant environmental factors

Table 2: Summary of Relevant Section of the Part 5 Guidelines and EP&A Regulation

Regulation / Guideline Section	REF Requirement	Response	Report Section
the environmental impact on the community	Other environmental impacts (social, economic or cultural) on the community.	To provide world class education for growing communities.	Refer to **Section 2.1**
the environmental impact on the ecosystems of the locality	Impact on the existing and future ecosystem (flora, fauna, habitats, biodiversity, ecological integrity, biological diversity, connectivity/fragmentation, air, water including hydrology, soil)	The site is located on the biodiversity certified land and the project team is preparing an ecological statement to address alignment with relevant measures.	Refer to **Section 4.2**
Risk to the safety of the environment	Whether the activity will have adverse environmental impacts (flood or stormwater runoff, storm surge, bushfire, ongoing maintenance of landscaping within the Asset Protection Zone, contamination leak, wind speeds, extreme heat, urban heat, climate change adaptation) on the surrounding area, particularly in sensitive environmental, cultural areas or residential neighbourhoods.	Climate Change Adaptation and Risk Assessment has been conducted to incorporate design measures for resilience.	Refer to **Section 4.3**
Reduction in the range of beneficial uses of the environment	No specific factors – to be assessed by the determining authority if relevant	Mitigation measures	Refer to **Section 5**
Pollution of the environment	Any pollution during construction and post construction e.g. air (including odours and greenhouse gases); water (including runoff patterns, flooding or tidal regimes, water quality health); soil (including	90% of the construction and demolition waste is to be diverted from landfill. Environmental management plan to cover the scope of construction activities.	**Section 4.9** Minimization of waste

Regulation / Guideline Section	REF Requirement	Response	Report Section
	contamination, erosion, instability risks) noise and vibration (including consideration of sensitive receptors); light pollution; waste, including hazardous waste Dangerous goods and hazardous materials associated with the development (i.e. labs)	Environmental management system in place to manage impacts of construction activities on the site. Responsible procurement of environmentally friendly materials.	**Section 4.10** Embodied Carbon emissions reduction
Environmental problems associated with the disposal of waste	Environmental problems of waste during and after construction (left over construction materials, and personnel waste), transport and disposal of waste, ongoing use and eventual decommission of the development Cumulative impacts from waste	Construction and Operational waste management strategies	Refer to **Section 4.9**
Increased demands on resources (natural or otherwise) that are, or are likely to become, in short supply	No specific factors – to be assessed by the determining authority if relevant	Optimization of façade to promote day-light and natural ventilation to reduce cooling load demand. M&E design strategies and equipment efficiency to reduce energy demand. Net-zero by 2050 Goal Provision of PV panels to generate green power for the activity.	**Section 4.4** Passive Design **Section 4.5** Reduction in demand for electricity **Section 4.6**Energy Efficiency

3.2 Project response to Section 3.2 (1) of the SEPP (Sustainable Buildings) 2022

This section has been prepared to address the relevant requirements outlined in Chapter 3.2 (non-residential activity) of the State Environmental Planning Policy (Sustainable Buildings) 2022. The following table summarises the requirements:

Table 3: Project response to SEPP Sustainable buildings 2022

Clause No.	SEPP SB (2022) Chapter 3.2 Requirement	Report Reference
3.2 (1)	(a) the minimisation of waste from associated demolition and construction, including by the choice and reuse of building materials	Refer to **Section 4.9**: Minimisation of waste
3.2 (1)	(b) a reduction in peak demand for electricity, including through the use of energy efficient technology	Refer to **Section 4.5**: Reduction in peak demand for electricity
3.2 (1)	(c) a reduction in the reliance on artificial lighting and mechanical heating and cooling through passive design	Refer to **Section 4.4**: Passive design
3.2 (1)	(d) the generation and storage of renewable energy	Refer to **Section 4.6**: Energy efficiency

3.2 (1)	(e) the metering and monitoring of energy consumption	Refer to **Section 4.7**: Metering and monitoring
3.2 (1)	(f) the minimisation of the consumption of potable water	Refer to **Section 4.8**: Potable water consumption
3.2 (2)	The embodied emissions attributable to the development have been quantified	Refer to **Section 4.10:** Embodied emissions

3.3 Green Star Scorecard

The project will be targeting a formal Green Star Certification, under the Green Star Buildings v1. In alignment with NSW GREP, the project will target a 5 Star Rating.

To achieve the targeted rating the project must achieve a total of 35 points plus at least 5 buffer points within the rating tool. The table below provides a summary of the Green Star points currently targeted per category. Please note, that Points Targeted possibly will be revised during the Detailed Design (DD) Stage.

Table 4: Summary of GS points at Schematic Design Stage

Category	Points Available	Minimum Requirements	Points Targeted	Stretch points	Required Points for 5 Star
Total	**116**	**15**	**42**	**17**	**35 (+ 10 buffer)**
Responsible	**17**	**3**	**8**	**1**	
Healthy	**14**	**4**	**11**	**1**	
Resilient	**8**	**1**	**4**	**1**	
Positive	**30**	**4**	**8**	**0**	
Places	**8**	**1**	**4**	**4**	
People	**9**	**1**	**5**	**3**	
Nature	**14**	**1**	**2**	**4**	
Leadership	**16**	**0**	**0**	**3**	

Refer to Appendix B for a full Green Star Register Scorecard at SD Stage.

3.4 Project response to EFSG Requirements

The latest Educational Facilities Standards and Guidelines (EFSG) 2.0 standards and guidelines do not provide an updated ESD schedule. The project commitments have been checked for compliance using EFSG ESD Schedule V9. An overlap with has been observed between EFSG and the Green Star Buildings Rating requirements. Hence, if any requirements not covered in Green Star shall be addressed separately. Within the EFSG there are some mandatory requirements and some recommended ones, the project will meet all mandatory ones and will aim to comply with as many as possible from the recommended ones.

The following table identifies and addresses the sustainability strategy and requirements under EFSG which do not overlap with Green Star Buildings V1 system.

Table 5: EFSG ESD Schedule V9

Sustainable Strategy	Requirements	Response
Build Resilience	**Weather Protection** Circulation areas provided between administrative, staff and all student spaces (except Agriculture), should be protected from sun, rain and unfavourable winds.	The proposed site layout plans show well-lit, and weather protected building access provided between buildings 01, 02 &03. A connected circulation space needs to be provided for Expanded Hall block.
Consume Responsibly	**Building Flexibility** Position structural members considering the future flexibility of the structure. Avoid ad hoc placing of columns internally, giving preference to uniformity in layout. Design all internal walls as non-load bearing to enable future flexibility.	The project follows Hub Layout design strategy to allow for future flexibility & uniformity. The future expansion plan provided complies with the layout requirement.
Consume Responsibly	**Trade waste** Arrestors for acid, grease, plaster and clay of adequate capacity must be installed to treat wastewater from science laboratories, kitchens, art rooms and canteens as required in DG52.	Design details such as drawings or letter from Hydraulic Engineer confirming the trade waste arrestors shall be installed to treat wastewater from cafes, kitchens art rooms and laboratories.
Foster Connections	**Open play space** Open play space must be provided for students to access during recess, lunch breaks and for outdoor learning. Open play space can be comprised of: Paved and grassed areas Rooftops and terraces Covered outdoor areas The designated open play space must be easily monitored and managed by school staff. Where a joint use agreement can be negotiated with a local council or landowner, the required play space can be located off-site, providing the facilities are o In close proximity to the school o Easily accessible o Safe and secure Designs must aim to achieve a minimum of $10m^2$ per student. Where this figure is not achievable the proposed m^2 per student of the completed project must not be less than the existing m^2 per student currently on the site.	The proposed stage 01 drawings show the provision of open play spaces including multi-sports courts, sports field and grassed area within the project boundary. The requirement to achieve a minimum of $10m^2$ per student has been confirmed in proposed open play space calculations drawing dated 23 August 2024.
Unlock Human Potential	**Noise emission (to the environment)** Generally, noise emission to the environment from mechanical services noise sources (such as air conditioners) are the subject of a development consent conditions. In NSW the development consent conditions will refer to the	The acoustic consultant has issued the relevant acoustic design consideration for external noise intrusion and noise emission from M&E equipment to demonstrate compliance.

Sustainable Strategy	Requirements	Response
	Industrial Noise Policy (INP) or Local Council requirement. Where no condition regarding noise sources exists for a school development, noise emission from such sources should be designed, in-principle, to satisfy the requirements of the Industrial Noise Policy.	
Unlock Human Potential	**Fly free indoors** Fly screening must be provided in all schools to the doors, windows and other openings in food preparation, biology, and non-water-closet toilet spaces or where specifically nominated in the EFSG. Schools in localities where fly incidence constitutes a health hazard (especially trachoma or other nuisance) will require fly screens to all opening sashes.	To be incorporated in the architectural design at the discretion of SINSW.
Unlock Human Potential	**Pesticide free environments** Schools must be designed, constructed and maintained, without using chemicals for termite and other pest control. No chemical pesticides and vermicide to be used. Preventive treatments to be by physical means and careful design to minimise risk	Declaration and documentation to be provided by head contractor that no pesticides or termites shall be used in the construction stage. For maintenance scope, which is on-going operational requirement, the implementation shall be followed by SINSW Asset Maintenance Unit (AMU).

4.0 Sustainability Approach

The sustainability requirements for the New High School for Jordan Springs including the EP &A Regulation 2021, SEPP (Sustainable Buildings), EFSG, and Green Star Buildings v1 have been reviewed to compile a sustainability approach in consultation with the SINSW Sustainability team. Based on the Schematic Design inputs from various disciplines (primarily architectural, mechanical, electrical and lighting), relevant design documentation and reports to support these strategies have been developed and shared with the design team to inform the requirements for the following Detailed Design Stage and subsequent Construction Stage, where it will be the responsibility of the contractor to implement the targeted strategies.

4.1 Overview of key ESD strategies

- **Optimised Indoor Environmental Quality (IEQ)**
  Design high quality spaces to promote comfortable and productive learning environments, while supporting the functional demand of the building, i.e., a learning / teaching environment. Key design emphasis is on providing optimised Indoor Environmental Quality (IEQ) and occupant comfort, including optimised indoor air quality, thermal, acoustic, and visual comfort. This is achieved through a high level of internal natural daylight and ventilation within the proposed buildings.

- **High-performance building envelope**
  Incorporate a high-performance building envelope, to ensure energy efficiency as well as occupant comfort (including thermal, visual, and acoustic comfort). This is demonstrated by adopting a 20% improvement of the DTS requirement of Section J as a project requirement.

- **Incorporate passive design**
  Incorporate appropriate passive design strategies, such as improved fabric thermal performance and active design strategies that include low energy active systems (mechanical and lighting systems) to ensure a low-energy and low-maintenance design outcome. A fabric-first approach was discussed with the Architecture team to optimize the window-to-wall ratio to enhance the daylight penetration and thermal performance of the façade and assist with natural ventilation design. Daylight Assessment and Section J DTS Assessment were conducted to analyse the façade performance.

- **Water Sensitive Urban Design**
  Adopt Water Sensitive Urban Design (WSUD) principles that include rainwater reuse for landscape irrigation, planting of low water species and stormwater management.

- **Minimise construction and operational waste**
  Adopt practices to minimise construction and operational waste including recycling of construction and operational waste. This includes consideration for use of modular and prefabricated components in design, selection of recycled and reprocessed materials, returning package to the supplier, purchasing policies and auditing/ monitoring for the same.

- **Sustainable material selection and waste handling**
  Utilise environmentally preferable materials, such as low carbon concrete and steel, selection of sustainable materials with low VOC's and formaldehyde content and have their Environmental Product Declaration (EPD) certificates.

This has been further detailed in the Upfront Carbon Consultant Advice Note issued to the project team.

The following diagram shows the key ESD strategies and a site analysis for JSHS:

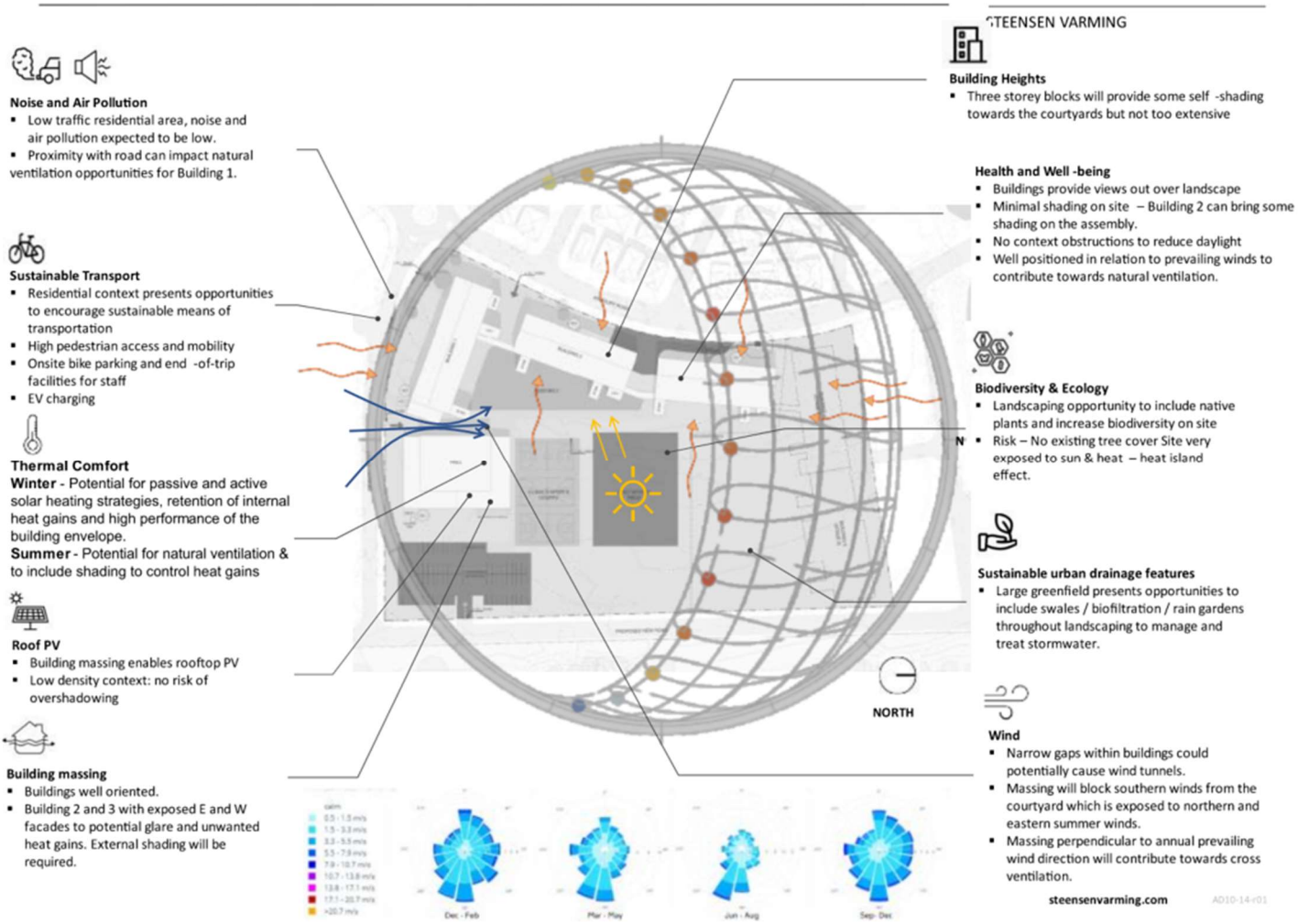

Figure 3: Key ESD considerations and site analysis

4.2 Impact on Biodiversity

Based on the Biodiversity Constraints Report. the site is primarily comprised of re-established grassland, new roads and a detention dam. Pre-clearance native vegetation has been replaced by a cover crop of exotic species designed to stabilise the site post broad scale land clearing. This provides minimal habitat for any native species, and no habitat resources of relevance for predicted threatened species. The subject site is considered to have a low biodiversity constraint to further development. Development of the subject site is unlikely to require a detailed biodiversity assessment in line with the Biodiversity Assessment Methodology (BAM) or biodiversity offsets under the NSW Biodiversity Offsets Scheme (BOS).

The landscape strategy, guided by **Green Star Credit 35 (Impact to Nature),** has been developed to enhance the environmental performance of the land to meet or improve beyond its existing condition, including integration of native plant species and incorporation of water sensitive urban design features to passively manage storm water across the site and enhance biodiversity.

4.3 Resilience

In accordance **with Green Star Credit 16 (Climate Change Resilience), Credit 17 (Operations Resilience) and Credit 18 (Community Resilience)**, the project has identified and developed strategies to increase the resilience of the proposed activity in response to potential risks arising from climate change.

The latest available climate models show that in the coming decades, NSW is projected to experience the following:

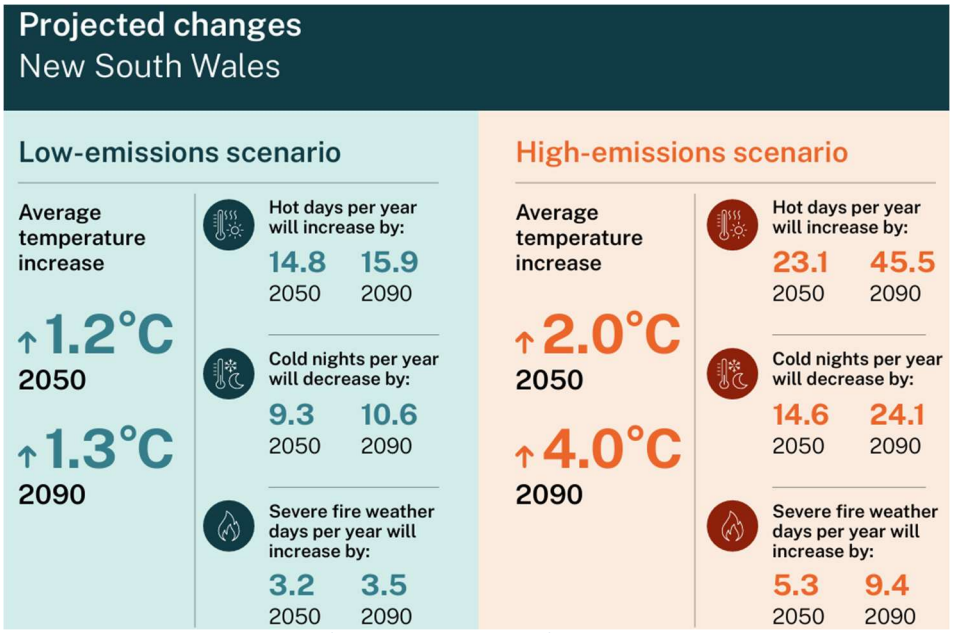

Figure 4: Summary diagram of climate projections for NSW. Source: NARCLiM 2 Climate Change Snapshot / NARCliM2-Snapshot-NSW.pdf

The below climatic variables have been considered to develop a resilience strategy for the school:

- Temperature
- Precipitation
- Fire weather/Bushfires
- Drought
- Flood
- Solar Radiation
- Relative Humidity
- Evapotranspiration
- Soil Moisture
- Wind
- Sea-level rise
- Cyclones

A Climate Change Workshop was conducted during the early design stage to discuss the Climate Change impacts/risks on the design and to assess how the design and services strategy will respond to future expected climate conditions or develop risk mitigation strategies. This has been detailed in a Climate Change adaptation Plan by Steensen Varming.

The table below summarises the list of climate change risks and a review of how the design has addressed these risks based on the discussions at the Climate Change workshop held on 20.4.23. The climate change risks/ impacts in the table below is gathered from Adapt NSW and Steensen Varming has developed the responses against each upon discussion with all the design consultants during the climate change workshop held.

Table 6 List of climate change risks and design responses

Climate Impact	Risk	Response / Design Considerations
Increase in **hailstorms**	Blocking gutters / Damage to buildings / Injury to visitors	**Passive design optimisation** to reduce impact of extreme temperatures
Increase in **extreme hot days and average temperatures**	Stress on electricity network / **blackouts** Increased **internal temperatures** Greater **energy consumption** Higher **peak loads** Accelerated **degradation of materials.**	**Redundancy** built into cooling capacity. **Durable materials** selection **Mechanical System** to be able to respond to extreme temperatures.
Increased **drought duration**	Restrictions to **water supply** **Damage to landscape** and higher maintenance costs	**No water-based heat rejection** to be used **On-site efficiency measures** to reduce potable water demand **Drought resistant planting** selection
Increased **fire weather**	**Smoke from bushfires** causing health impacts **Damage to powerlines** impact supply	**Back-up power** systems & **onsite generation** **Filtration** for air intakes into buildings.
Increased **rainfall variability** **And flooding**	**Damage to buildings**, landscape, and infrastructure. **Flooding impacts**	**Sustainable urban drainage** features will capture, treat, store stormwater, and reduce outflow. **Predictive / forecast management** of water storage
Increased **storm intensity**	Blowing debris causing property damage and safety risks Interruption of waste collection services	**Durability** of materials selection **Predictive management** planning in even of large storm events

Source: AdaptNSW and Steensen Varming

The following key climate change risk mitigation strategies are considered for New High School for Jordan Springs:

- Passive Design Optimisation: Increased thermal performance of the building envelope/ Shading / Air tightness / Heat recovery / etc.
- Designed for natural ventilation and good air flow in indoor and outdoor areas (all classrooms and staff spaces) to allow for some increase in temperatures during peak times while maintaining comfortable conditions. The design is aligned with the acoustic performance requirement as explained in the Acoustic Report dated 12.12.24
- Active design systems: Increase in plant capacity in buildings to accommodate higher ambient temperatures.
- Landscape strategy to include provision of trees, planting and covered walkways for shading and to connect outdoor spaces with buildings and use of soft landscape, hardscaping and roofing materials with high Solar reflectance index (SRI) to reduce the heat island effect and improve outdoor thermal comfort.
- Reduced stormwater runoff through rainwater harvesting from roofs and selection native species with low irrigation (potable water) demands. The temporary car park in Scenario 2 – stage 1 and 2 was assessed and no further impacts were identified.
- As part of the community resilience initiative, under the 'Share Our Space' program launched by SINSW, if needed, the schools could serve as a place of refuge in case of a natural calamity.

4.4 Passive design

In accordance with the **Green Star Credit 11 (Light Quality), Credit 15 (Connection to Nature), and Credit 10 (Clean Air)** the following passive design initiatives are considered for JSHS based on a combined assessment of the daylight conditions and views in key spaces of the Group 1 Schools presented in the SINSW Group 1 Schools Daylight Report:

- Considering the Activity is for a new school, glazing has been strategically placed in spaces which can allow for more relaxed environmental conditions and that can benefit from access to daylight, views and natural ventilation;
- Where required the windows are designed to have appropriate shading or be of high performance to control heat gains and glare.

The buildings' daylight, view and external glare control strategy will be described in detail at Detailed Design stage.

Following the compliance criteria for **Green Star Credit 22 (Energy Use)** the following is considered for JSHS based on a combined energy assessment for the Group 1 Schools presented in the SINSW Group 1 Schools SD Energy Report:

- The building fabric is designed to achieve 20% improvement over the minimum deemed to satisfy (DTS) façade performance requirements under NCC 2022 Section-J. A Section-J assessment report has been prepared by Steensen Varming and shared with the design team.

Following the compliance criteria for **Green Star Credit 3 (Verification and Handover)** the following should be resolved at a later stage:

- The building will be tested for airtightness and the testing to be completed by the Head Contractor. This will ensure a well-constructed façade and will prevent unwanted heat transfer to the exterior.

Following the compliance criteria for **Green Star Credit 11 (Light Quality)** the following should be resolved at a later stage:

- Occupancy sensors should be considered for all non-critical spaces, to ensure the artificial lighting system is only activated when the space is occupied and remain turned off at all other times.

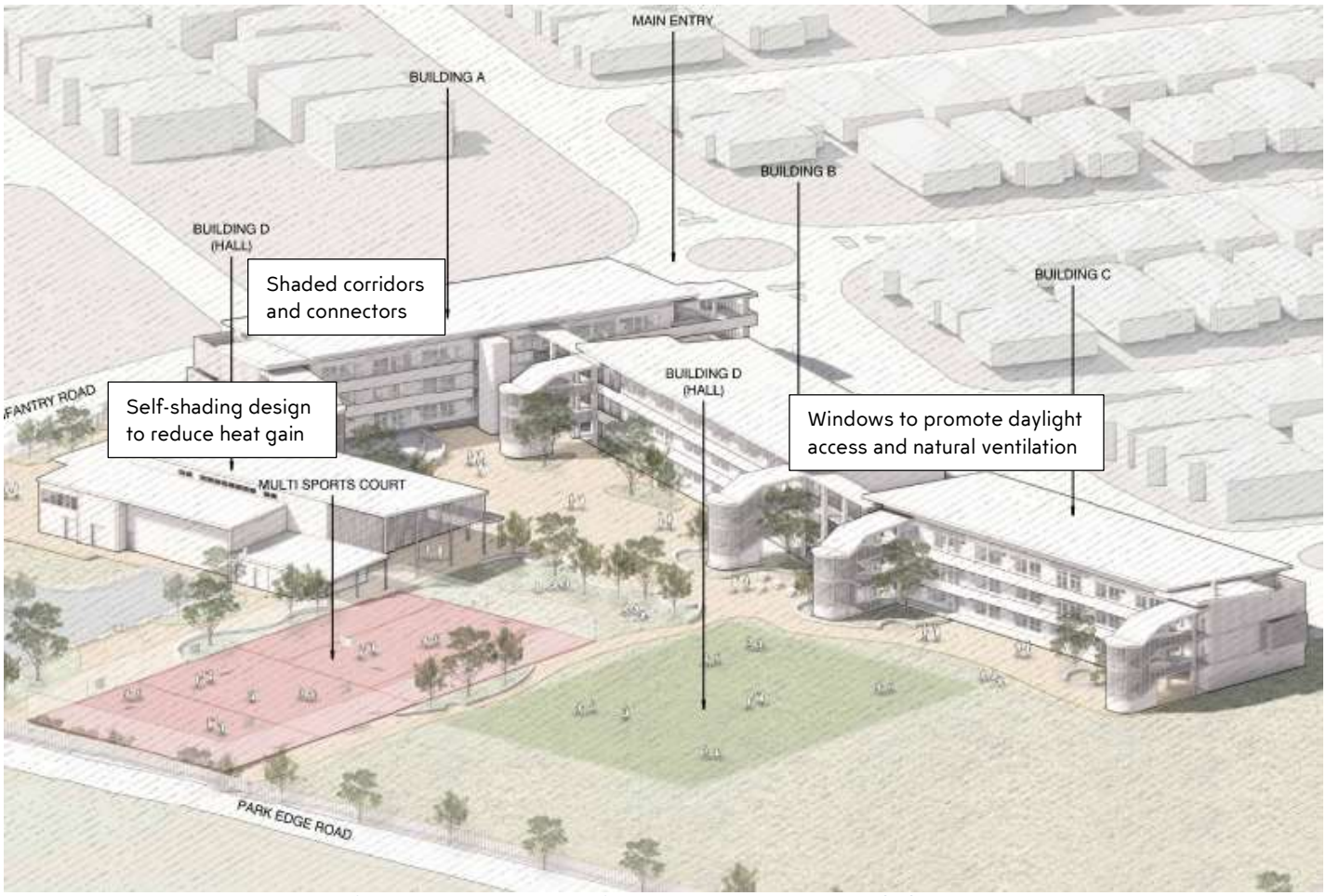

Figure 5: Passive design strategies for the New High School for Jordan Springs (date: 15/11/24)

4.5 Reduction in peak demand for electricity

The following energy efficient design features should be considered in the design, to reduce peak demand for electricity as according to **Green Star Credit 20 (Grid Resilience) and Green Star Credit 22 (Energy Use),** and will be specified at a later stage:

- The mechanical ventilation system applies CO_2 monitoring in all spaces to activate the fans upon exceedance of the CO_2 threshold. This approach works in conjunction with the natural ventilation strategy in providing a high level of indoor air quality and a smooth transition between natural and mechanical ventilation, leading to reduced energy consumption.
- All the air-conditioning systems utilise push-buttons with a run-on timer for activation and de-activation of the air-conditioning in all spaces. This ensures that the air-conditioning is only activated when desired by the users and the run-on timer ensures the system deactivates after a set period (typically 2 hours).

- In addition to the Passive Infrared (PIR) Occupancy sensors, the lighting system applies daylight sensors to adjust the artificial lighting to the required levels.
- Electric lighting is designed to be comprised of high efficiency LED (Light Emitting Diode) technology and to include occupancy sensors where possible.
- An Energy Monitoring System (EMS) will be applied to monitor the energy usage across the project. The energy and water usage data are available to staff and can be used to inform the students thereby assisting in them understanding of their consumption patterns, leading to improved, more resource-conscious user behaviour.
- Provision for a 99kW Photovoltaic on Building-A for on-site renewable energy generation has been included in the project. Refer to Figure 6.

Furthermore, the following strategies currently considered in the project design contributes towards reducing the peak demand:

- Passive strategies contribute to lower cooling loads.
- The project is complying with a minimum 20% improvement over NCC 2022 Section-J energy efficiency requirements.

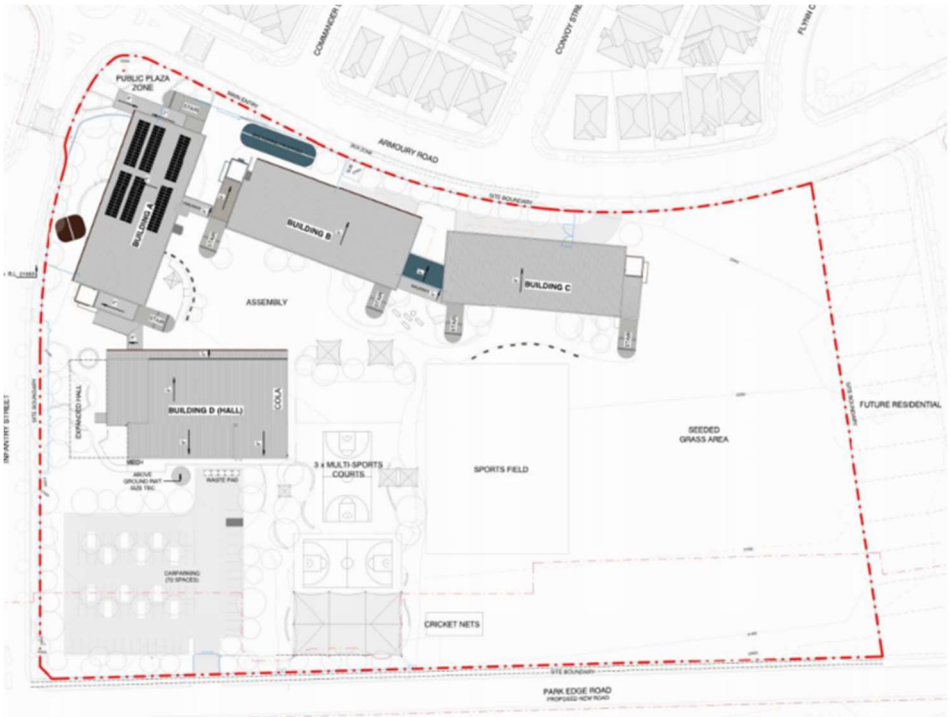

Figure 6: Provision of Solar Panels to provide renewable energy for JSHS

4.6 Energy efficiency

Aligning with the NSW Government commitment to achieving net-zero emissions by 2050 and halving emissions by 2030, the activity is designed to endeavour for optimized energy efficiency and reduction in GHG emissions.

The proposed approach to sustainability and energy related systems is based on applying an “energy hierarchy” methodology.

This methodology has the reduction of energy use as its priority, and then seeks to meet the remaining energy demand by the most efficient means available, before the inclusion of on-site generation and procurement of green power.

Figure 7: Energy Hierarchy

The following initiatives are considered for the project's energy generation and storage capabilities and is presented in a combined energy assessment for the Group 1 Schools (SINSW Group 1 Schools SD Energy Report):

- Currently, a 99kW PV system has been incorporated into the design. Further, a spatial allowance will be made in the architectural design of each building, to ensure an area of at least 20% of the roof space is available for PV installation. This is in accordance with the minimum deemed-to-satisfy (DTS) requirements of NCC Section-J.
- The main switchboard will be designed in accordance with NCC 2022 Section-J requirements, to allow for PV and future battery installation.

4.7 Metering and Monitoring of Energy Consumption

The following initiatives will be considered, to enable metering and monitoring of energy consumption of the project, as according to **Green Star Credit 3 (Verification and Handover**):

- A BMS system as per NCC requirements will be included in the project.
- Project significant energy uses will be monitored via the proposed sub metering BMS to understand energy usage and distribution. This will also assist in target-based approach to reduce operational energy consumption in the future by capturing the main guzzlers.

Documentation will be provided by Head Contractor at a later stage.

4.8 Minimise Potable Water Consumption

The following hierarchy, alongside the Green Star Buildings and Educational Facilities Standards & Guidelines (EFSG), has been considered as the basis of water strategies implemented in the design of New High School for Jordan Springs:

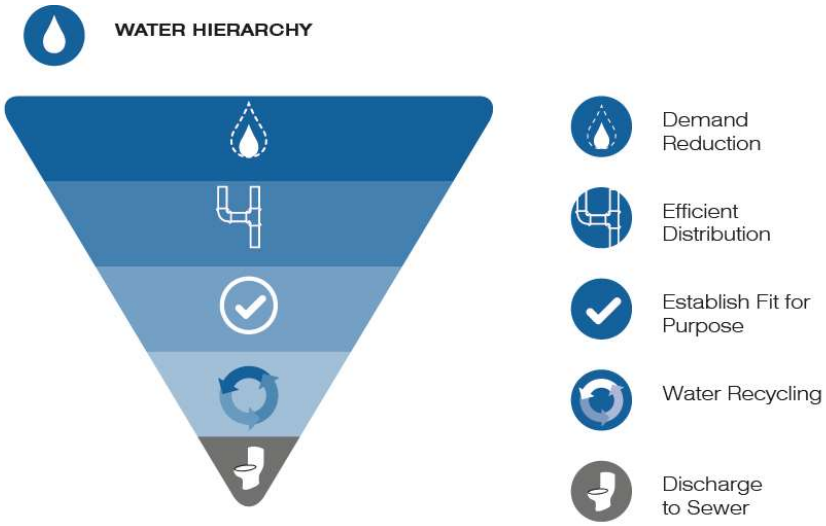

Figure 8: Water Hierarchy

The following initiatives should be considered in the design and documented at a later stage to minimise the project's potable water consumption as according to **Green Star Credit 25 (Water Use)**:

- Water efficient fixtures and fittings, such as taps, showerheads, toilets, zip taps, dishwashers etc certified under the WELS rating scheme will be specified for the project.
- Rainwater harvesting, 2 tanks of 20kL each have been incorporated in the current design and the rainwater collected will be reused for landscape irrigation.
- Efficient water management through an automatic water meter monitoring system will be installed.

4.9 Minimisation of waste

Addressing **Green Star Credit 2 (Responsible Construction)** the activity is targeting the following waste-related ESD strategies for the contractor to implement during construction:

- The builder or head contractor will be contractually required to have an environmental management system in place to manage impacts of construction activities on the site.
- The builder or head contractor will develop and implement an environmental management plan to cover the scope of construction activities.
- The builder diverts at least 90% of construction and demolition waste from landfill.

For operational waste management, the activity shall endeavour to implement guidelines provided in the SINSW Waste Handbook. The project will be designed for the collection of separate waste streams and the design will ensure safe and efficient access to waste and storage areas for both maintenance staff and waste collection contractors.

4.10 Embodied Emissions Reporting

As part of the Sustainable Buildings SEPP, a NABERS Embodied Emissions Material form is required to be prepared by the quantity surveyor for the project and will be

submitted as a stand-alone document, post-approval as a part of the mitigation measures.

The embodied emissions material form would disclose the quantities and types of materials proposed for the project to inform on the amount of embodied emissions attributable to the activity.

To support a reduction in the embodied emissions for the project, the following recommendations are to be considered during the procurement process by the Head Contractor:

- Material reduction through efficient design layouts, structure and façade.
- Prioritising prefabricated and modular components
- Reviewing materials and substituting with lower carbon alternatives where possible
- Sourcing of local products and implementing 'Responsible Procurement' policies as guided by Green Star
- Substitution of raw materials with recycled or reclaimed alternatives
- Design for disassembly & repurposing of demolition waste

Figure 9: Material selection strategies

5.0 Mitigation Measures

The table below shows the key mitigation measures for the sustainability requirements of the activity and at what stage the measure is to be resolved:

Table 7: Key Mitigation Measures for the activity

PRE-CONSTRUCTION		
Mitigation Number/ Name	**Mitigation Measure**	**Reason for Mitigation Measure**
Formal Green Star Certification / Green Star Buildings v1 / 5 Star	A holistic approach to sustainability must be implemented, by addressing the requirements from Green Star Buildings framework, which is representative of an Industry Best-practice outcome.	To ensure the environmental performance and Indoor Environmental Quality of the building performs beyond the minimum regulatory compliance standard and achieves a high-performance outcome.
Passive design	The final building design must achieve high levels of daylight and natural ventilation.	To reduce operational energy consumption, and also contribute towards reduction of Greenhouse Gas Emissions.
Reduction in energy demand	The following strategies must be incorporated: Air Conditioning systems must utilise push-buttons with a run-on timer for activation and de-activation of the air-conditioning in all spaces. LED lighting fixtures must be provided with Passive Infrared Occupancy sensors. Sub-meters must be provided for monitoring and preparing targeted approach for future optimization.	To reduce the energy demand and move towards the Department of Education's Net-Zero Energy target.

CONSTRUCTION		
Mitigation Number/ Name	**Mitigation Measure**	**Reason for Mitigation Measure**
On-site renewable energy generation	A 99kW Photovoltaic system must be incorporated in the design.	To enable the project to contribute towards the Department of Education's Net-Zero Energy target.
Minimise potable water consumption	Certified WELS rated water fixtures to reduce wastage of water. Rainwater tanks (2x20kL each) must be installed for enabling rainwater harvesting, to reduce the load on potable water demand.	To reduce the stress on natural resources and water demand.
Embodied Reporting	▪ Must implement environmentally friendly materials and responsible procurement to reduce the stress on virgin materials. ▪ Must divert 90% of the construction waste from landfill	To align with Sustainable Buildings SEPP and Green Star guidelines to drive a sustainable design and operational building.
OPERATION		
Mitigation Number/ Name	**Mitigation Measure**	**Reason for Mitigation Measure**
Formal Green Star Certification / Green Star Buildings v1 / 5 Star	For operations, meter, measure and monitor the building performance to address the requirements from Green Star Buildings framework, which is representative of an Industry Best-practice outcome.	The environmental performance and Indoor Environmental Quality (IEQ) of the building must be maintained to perform beyond the minimum regulatory compliance standard and achieve a high-performance outcome. Conduct post-occupancy audits as part of facilities management to monitor building performance.
Embodied Reporting	Potential waste streams that would occur during the operational stage must be identified, and a 'reduce-reuse-recycle' strategy must be implemented.	To align with Sustainable Buildings SEPP and Green Star guidelines to drive sustainable operation of the building.

6.0 Evaluation of Environmental Impacts

To support the sustainability targets for the project, a Green Star Pre-Assessment has been carried out. At this stage, a rating of 5 Stars is targeted through the Green Star Buildings tool. The associated requirements are addressed in the current design and expected to be implemented during the construction phase. The outcome of this process will ensure that the environmental impacts associated with the proposed activity are mitigated.

In conclusion, based on the identification of potential issues, and an assessment of the nature and extent of the impacts of the proposed activity, it is determined that:

- The extent and nature of potential impacts are low and will not have significant impact on the locality, community and/or the environment.
- Potential impacts can be appropriately mitigated or managed to ensure that there is minimal impact on the locality, community and/or the environment.

7.0 Appendices

7.1 Appendix A: Net-Zero Energy Statement

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STEENSEN VARMING

Mechanical and Electrical Services Schematic Design - Net Zero Energy Statement

New High School for Jordan Springs, NSW

Sydney, 16th December, 2024
Ref. No. 237220 CER S00 [00]

Chris Arkins
Director

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This Net Zero Energy Statement accompanies an Environmental Impact Statement (EIS) pursuant to Part 5 of the Environmental Planning and Assessment Act 1979 (EP&A Act), in support of a Review of Environmental Factors (REF) Application for the proposed Jordan Springs High School located on the corner of Armoury Road and Infantry Street in Jordan Springs, NSW, 2747.

This Net Zero Energy Statement has been prepared to address the relevant requirements under the NSW Sustainable Buildings State Environmental Planning Policies (SB SEPP) Section 3.4, and as defined under Section 35C of the Environmental Planning and Assessment Regulation 2021 (EP&A).

This statement addresses the Secretary's Environmental Assessment Requirements (SEARs) issued for the project, notably:

Ref. No.	SEARs Requirement	Section of Statement where response is provided
SEAR 8	If Chapter 3 of SEPP (Sustainable Buildings) 2022 applies:	
	- provide a net zero statement (as defined in section 35C of the EP&A Regulation) that includes:	- This Net Zero Energy Statement addresses this item
	- evidence of how the development will either be fossil fuel-free after the occupation of the development commences or transition to be fossil fuel-free by 1 January 2035.	- This Net Zero Energy Statement addresses this item
	- details of any renewable energy generation and storage infrastructure implemented and any passive and technical design features that minimise energy consumption.	- This Net Zero Energy Statement does not address this item.
	- estimations of annual energy consumption for the building (if available)	- A preliminary energy modelling was conducted, and Energy Modelling Report was prepared by Steensen Varming at Schematic Design stage. As the design progresses into Detailed Design phase, another iteration of energy modelling will need to be conducted to analyse system performance and energy efficiency achieved.

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We note that Steensen Varming are only engaged up to the completion of the Schematic design phase.

The following initiatives have included in the design; however, it remains the responsibility of the appointed design and construct contractor to ensure these initiatives are designed in detail and implemented during the construction phase.

While the mechanical and electrical services have been designed to be fossil fuel-free by way of being all-electric systems, it remains the responsibility of Schools Infrastructure to procure 100% renewable electricity in enabling a net zero emissions operation. This is in accordance to the NSW Department of Education's commitment to sustainability and net zero emissions in operation as per goal-5 of their "Our 9 goals to 2030" initiative.

On-site Fossil Fuel Usage

The mechanical and electrical services strategy for the proposed activity has been designed to be all-electric from day 1 of its operation.

The electrical services design incorporates electric power outlets to serve the following equipment (provided by others) - domestic hot water heaters, kitchen equipment and science Bunsen burners.

Although the current directive is to move all schools to electric, there is ongoing review on the Bunsen burners and VET stovetops. The current direction under consideration with SINSW is to provide electric Bunsen burners with a backup of bottled gas in case the school is unable to procure electric burners. It is noted that the SINSW will have to purchase offsets equivalent to the usage of gas on site to be able to attain 100% net zero emissions in operation.

This allows the project to be capable of operating at net zero emissions once 100% renewable electricity is procured by Schools Infrastructure NSW, in line with the 1 January 2035 target, set out in Section 35C(2)(b) of the EP&A Regulation 2021.

Passive Design Features

The following passive design features have been integrated in order to minimise energy consumption.

- The buildings' orientation is considerate of the site's constraints, solar pathway, and overall functionality requirements.
- The shading strategy has been developed in respect to the buildings' orientation and to minimise energy consumption and glare risk, while maximising daylight ingress and as a result reducing the use of artificial lighting, use of cooling, and these systems' energy consumption.
- The façade has been designed in considerations of;
    - Abundant daylight to all spaces to improve visual comfort and in minimising the use of artificial lighting. Detailed daylight simulations have been undertaken as part of the Environmental Sustainability Design (ESD) scope of works, to document daylight compliance with regulations and Green Star certification.
    - Efficient natural ventilation for all teaching spaces to improve thermal comfort, indoor air quality, and to reduce the use of mechanical ventilation and cooling systems, thereby reducing energy consumption.
    - The natural ventilation to the teaching spaces is provided through the use of louvres, windows, and doors, with an effective opening area of minimum 6.25% of the floor area.

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- Compliance with the Section J requirements of the National Construction Code (NCC) 2022.

Technical Design Features

The following technical design features have been integrated into the design in order to minimise energy consumption.

- The air-conditioning system is a variable refrigerant type of system which is considered the most suitable solution for a school building, and which delivers good efficiencies, particularly at lower thermal loads.
- The mechanical ventilation system applies CO_2 monitoring in all spaces to activate the fans upon exceedance of the CO_2 threshold. This approach works in conjunction with the natural ventilation strategy in providing a high level of indoor air quality and a smooth transition between natural and mechanical ventilation, leading to reduced energy consumption.
- All the air-conditioning systems utilise push-buttons with a run-on timer for activation and de-activation of the air-conditioning in all spaces. This ensures that the air-conditioning is only activated when desired by the users and the run-on timer ensures the system deactivates after a set period (typically 2 hours).
- The lighting fixtures are highly efficient LED (Light Emitting Diode) technology.
- The lighting system applies passive infrared (PIR) sensors for all spaces to ensure the artificial lighting system is only activated once the space is occupied, and to ensure that the system is deactivated shortly after de-occupation of the space.
- In addition to the above, the lighting system applies daylight sensors to adjust the artificial lighting to the required levels.
- An Energy Monitoring System (EMS) will be applied to monitor the energy usage across the project. The energy and water usage data are available to staff and can be used to inform the students thereby assisting in their understanding of their consumption patterns, leading to improved, more resource-conscious user behaviour.

Renewable Energy Generation and Storage

The following initiatives have been implemented for the project's energy generation and storage capabilities.

- A 99-kW rated rooftop photovoltaic (PV) system has been designed to provide a portion of the project's electricity usage. The PV system is located on the roof of Building A.
- Furthermore, a spatial allowance has been made to ensure a total of 20% of the roof space (including the above) is available for future PV installation, on each building.
- The main switchboard has been designed to allow for future battery installation.

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Estimated Energy Consumption & GHG Emissions

Estimated energy consumption is not yet available for the project. Detailed energy modelling shall be undertaken by responsible parties as the design progresses, to help inform the design and its targeted Green Star requirements, as well as verify the design for regulatory compliance. This will include an estimation of PV-solar electrical contribution to the site and an estimation of grid-purchased electricity and associated direct and indirect emissions.

Chris Arkins
Director
BEng Mechanical, Accredited Green Star Professional, FIEAust, EngExec, CPEng, NER, APEC Engineer, IntPE(Aus), FCIBSE

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Evidence

The following evidence has been provided to demonstrate electricity as the fuel source for mechanical services.

Document Reference Number	Description
JSHS-ME-SD-SPC-Part B - Schematic Design Report & Mechanical System Descriptions -A-	Excerpt from Mechanical Design Report outlining the HVAC system description, as being all-electric. Domestic hot water usage. No gas usage.

Excerpt from the Mechanical System Descriptions report.
Reference: 'JSHS-ME-SD-SPC-Part B - Schematic Design Report & Mechanical System Descriptions -A-'
Date: 15/11/2024
Revision: A
Author: Alan Sharkey, Senior Associate, Steensen Varming

Systems	System selection Description
Air conditioning systems	**Admin office areas**: Ducted type VRF or Cassette type VRF reverse cycle heat recovery air conditioners providing simultaneous heating and cooling. Subject to compliance with acoustics. **General Learning spaces and library:** Ducted type VRF reverse cycle heat recovery air conditioners providing simultaneous heating and cooling. **High heat Load rooms/ Communications rooms:** Dedicated DX air conditioning split systems
Heating only systems	**Gym, Hall, OSCH and Canteen:** Electric radiant panel heaters. **Disabled Toilet**: Electric heaters.
Mechanical Ventilation systems	**Admin, learning spaces** Outside air will be generally ducted locally from the façade to internal fan coil units. A dedicated outside air supply grilles will be provided adjacent to indoor cassette type units when the flow rate is above 20 l/s due to the limitations of the direct duct connected size. **The gymnasium** will be provided a mechanical ventilation to comply with acoustic boundary conditions during amplified music operation (to be confirmed with site acoustic services consultant). This can be omitted if found not to be required. **Main switch rooms, Toilets, Changing areas, Stores, First aid, Communications rooms, Kitchen hoods, Fume cupboards, and the like:** Mechanical ventilation systems will be provided in accordance with AS1668.2.
Natural ventilation	Natural ventilation must be provided in addition to mechanical ventilation to all learnings spaces, admin areas and the hall. The windows/louvres will be manually operated except for any high-level openings in the hall or other applciations. Opening must be based on the effective opening areas and not the structural openings, as per DG55 requirements.
Smoke management systems	Smoke extract systems will be provided to stage where applicable.
BMS/Controls	The BMS will consist, of a virtual network on the SINSW LAN, LED traffic light digital controllers, 2 X weather and VOC stations, CO2 monitoring sensors, VOC sensors in selected areas, faults and alarms from all major plant and equipment. A laptop shall be required to enable early commissioning of the system should the network not be unavailable at the time. Any MCC's and VSD's mounted externally must be suitably protected from rain ingress. (The Energy metering and monitoring system forms part of the electrical package).

7.2 Appendix B: Green Star Scorecard

New High School for Jordan Springs

16/12/2024

	Summary			Categories	Points Available	Minimum Expectations (No Points)	Points Targeted	Stretch Points (TBC)
	Registering from	2023		Responsible	17	3	8	1
	Net zero carbon in operations targeted	Yes		Healthy	14	4	11	1
ME	Minimum Expectations (ME) - Met	Yes		Resilient	8	1	4	1
CA	Credit Achievement (CA) - Total Ppoints	50		Positive	30	4	6	0
EP	Exceptional Performance (EP) - Total Points	7		Places	8	1	4	4
	Core points targeted	40		People	9	1	5	3
	Leadership points targeted	0		Nature	14	1	2	4
	Total points targeted	40		Leadership	16	0	0	3
	Green Star rating targeted	5 Star		Total	**116**	**15**	**40**	**17**

Category	Credit	Credit No.	ME / CA / EP	Points Available	Points Targeted (5 Star + Buffer)	Stretch Points TBC	Total Points	Risk (L/M/H)
Responsible	**Industry Development**	**1**	CA	1	**1**	**0**	1	L
Responsible	**Responsible Construction**	**2.1**	ME	-	0	0	Nil	M
Responsible	**Responsible Construction**	**2.2**	CA	1	**1**	**0**	1	M
Responsible	**Verification and Handover**	**3.1**	ME	-	0	0	Nil	M
Responsible	**Verification and Handover**	**3.2**	CA	1	**1**	**0**	1	M
Responsible	**Responsible Resource Management**	**4**	ME	-	0	0	Nil	L
Responsible	**Responsible Procurement**	**5**	CA	1	**1**	**0**	1	L
Responsible	**Responsible Structure**	**6.1**	CA	3	**3**	**0**	3	H
Responsible	**Responsible Structure**	**6.2**	EP	2	**0**	**0**	0	H

Category	Credit	Credit No.	ME / CA / EP	Points Available	Points Targeted (5 Star + Buffer)	Stretch Points TBC	Total Points	Risk (L/M/H)
Responsible	**Responsible Envelope**	**7.1**	CA	2	**0**	**0**	0	H
Responsible	**Responsible Envelope**	**7.2**	EP	2	**0**	**0**	0	H
Responsible	**Responsible Systems**	**8.1**	CA	1	**0**	**0**	0	H
Responsible	**Responsible Systems**	**8.2**	EP	1	**0**	**0**	0	H
Responsible	**Responsible Finishes**	**9.1**	CA	1	**1**	**0**	1	H
Responsible	**Responsible Finishes**	**9.2**	EP	1	**0**	**1**	1	H
Healthy	**Clean Air**	**10.1**	ME	-	0	0	Nil	L
Healthy	**Clean Air**	**10.2**	CA	2	0	0	0	H
Healthy	**Light Quality**	**11.1**	ME	-	0	0	Nil	M
Healthy	**Light Quality**	**11.2**	CA	2	**2**	**0**	2	L
Healthy	**Light Quality**	**11.3**	EP	2	**2**	**0**	2	H
Healthy	**Acoustic Comfort**	**12.1**	ME	-	0	0	Nil	L
Healthy	**Acoustic Comfort**	**12.2**	CA	2	**2**	**0**	2	L
Healthy	**Exposure to Toxins**	**13.1**	ME	-	0	0	Nil	L

Category	Credit	Credit No.	ME / CA / EP	Points Available	Points Targeted (5 Star + Buffer)	Stretch Points TBC	Total Points	Risk (L/M/H)
Healthy	**Exposure to Toxins**	**13.2**	CA	2	**2**	**0**	2	H
Healthy	**Amenity and Comfort**	**14**	CA	2	**2**	**0**	2	H
Healthy	**Connection to Nature**	**15.1**	CA	1	**1**	**0**	1	M
Healthy	**Connection to Nature**	**15.2**	EP	1	**0**	**1**	1	H
Resilient	**Climate Change Resilience**	**16.1**	ME	-	0	0	Nil	L
Resilient	**Climate Change Resilience**	**16.2**	CA	1	**1**	**0**	1	L
Resilient	**Operations Resilience**	**17**	CA	2	**2**	**0**	2	M
Resilient	**Community Resilience**	**18**	CA	1	**0**	**1**	1	H
Resilient	**Heat Resilience**	**19**	CA	1	**1**	**0**	1	M
Resilient	**Grid Resilience**	**20**	CA	3	**0**	**0**	0	H
Positive	**Upfront Carbon Emissions**	**21.1**	ME	-	0	0	Nil	L
Positive	**Upfront Carbon Emissions**	**21.2**	CA	3	**3**	**0**	3	L
Positive	**Upfront Carbon Emissions**	**21.3**	EP	3	**0**	**0**	0	H
Positive	**Energy Use**	**22.1**	ME	-	0	0	Nil	L

Category	Credit	Credit No.	ME / CA / EP	Points Available	Points Targeted (5 Star + Buffer)	Stretch Points TBC	Total Points	Risk (L/M/H)
Positive	**Energy Use**	**22.2**	CA	3	**3**	**0**	3	M
Positive	**Energy Use**	**22.3**	EP	3	**0**	**0**	0	H
Positive	**Energy Source**	**23.1**	ME	-	0	0	Nil	L
Positive	**Energy Source**	**23.2**	CA	3	**0**	**0**	0	L
Positive	**Energy Source**	**23.3**	EP	3	**0**	**0**	0	M
Positive	**Other Carbon Emissions**	**24.1**	CA	2	**0**	**0**	0	L
Positive	**Other Carbon Emissions**	**24.2**	EP	2	**0**	**0**	0	m
Positive	**Water Use**	**25.1**	ME	-	0	0	Nil	L
Positive	**Water Use**	**25.2**	CA	3	**0**	**0**	0	m
Positive	**Water Use**	**25.3**	EP	3	**0**	**0**	0	H
Positive	**Life Cycle Impacts**	**26**	CA	2	**0**	**0**	0	H
Places	**Movement and Place**	**27.1**	ME	-	0	0	Nil	L
Places	**Movement and Place**	**27.2**	CA	3	**0**	**3**	3	m
Places	**Enjoyable Places**	**28**	CA	2	**2**	**0**	2	L

Category	Credit	Credit No.	ME / CA / EP	Points Available	Points Targeted (5 Star + Buffer)	Stretch Points TBC	Total Points	Risk (L/M/H)
Places	**Contribution to Place**	**29**	CA	2	**2**	**0**	2	L
Places	**Culture, Heritage and Identity**	**30**	CA	1	**0**	**1**	1	H
People	**Inclusive Construction Practices**	**31.1**	ME	-	0	0	Nil	L
People	**Inclusive Construction Practices**	**31.2**	CA	1	**1**	**0**	1	L
People	**Indigenous Inclusion**	**32**	CA	2	**2**	**0**	2	H
People	**Procurement and Workforce Inclusion**	**33.1**	CA	2	**0**	**2**	2	M
People	**Procurement and Workforce Inclusion**	**33.2**	EP	1	**0**	**0**	0	H
People	**Design for Inclusion**	**34.1**	CA	2	**2**	**0**	2	L
People	**Design for Inclusion**	**34.2**	EP	1	**0**	**1**	1	H
Nature	**Impacts to Nature**	**35.1**	ME	-	0	0	Nil	L
Nature	**Impacts to Nature**	**35.2**	CA	2	**0**	**0**	0	H
Nature	**Biodiversity Enhancement**	**36.1**	CA	2	**2**	**0**	2	H
Nature	**Biodiversity Enhancement**	**36.2**	EP	2	**0**	**2**	2	H
Nature	**Nature Connectivity**	**37**	CA	2	**0**	**0**	0	H

Category	Credit	Credit No.	ME / CA / EP	Points Available	Points Targeted (5 Star + Buffer)	Stretch Points TBC	Total Points	Risk (L/M/H)
Nature	**Nature Stewardship**	**38**	CA	2	**0**	**0**	0	L
Nature	**Waterway Protection**	**39.1**	CA	2	**0**	**2**	2	M
Nature	**Waterway Protection**	**39.2**	EP	2	**0**	**0**	0	H