ENVIRONMENTAL IMPACT STATEMENT

The New Primary School in Mulgoa Rise (SSD-11070211)

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Document status

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Approval for issue

Rob Dwyer 23 August 2021

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School Infrastructure NSW

C/o Colliers International

STATEMENT OF VALIDITY

This Environmental Impact Statement (EIS) has been prepared in accordance with Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.*

Environmental Assessment Prepared by:

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Address:	RPS Australia East Pty Ltd Unit 2A, 45 Fitzroy Street Carrington NSW 2294
In respect of:	SSD-11070211 The New Primary School in Mulgoa Rise

Applicant and Land Details:

Applicant:	NSW Department of Education – C/o Colliers International
Applicant Address:	Level 8, 259 George Street, Sydney NSW 2000
Land to be developed	1-23 Forestwood Drive, Glenmore Park (Lot 1663 DP 1166869)
Project:	The development of new public primary school to accommodate approximately 414 students including classrooms, open spaces and associated facilities.

I certify that I have prepared the contents of this Environmental Impact Statement and to the best of my knowledge, has been prepared as follows:

- In accordance with, and meet the minimum requirements of, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000*.
- All available information that is relevant to the environmental assessment of the development to which the statement relates; and
- To the best of my knowledge the information contained in this report is neither false nor misleading.

Robert Dwyer	Sam Mitchell	Christine Bower
23 Aug 2021	23 Aug 2021	23 Aug 2021

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EXECUTIVE SUMMARY

Preliminary

This Environmental Impact Assessment (EIS) has been prepared by RPS Australia East Pty Ltd (RPS) on behalf of the Department of Education NSW (the applicant) in support of a State Significant Development (SSD) Application (SSD-11070211) for the construction and operation of a New Public School (The New Primary School in Mulgoa Rise) at 1-23 Forestwood Drive, Glenmore Park.

The New Primary School in Mulgoa Rise is designed and will be built to significantly improve educational outcomes and address the capacity shortfall across the area for an approximate 414 students. The development will provide a significant new piece of social and educational infrastructure to the area. The new school will also provide Outside School Hours Care services to assist working families that commute and / or work extended hours.

This EIS should be read in conjunction with the Secretary's Environmental Assessment Requirements (SEARs) issued by the Department of Planning, Industry and Environment (DPIE) on 2nd December 2020 and attached at **Appendix A**, and the supporting technical documents provided at **Appendix D** – **Appendix DD**.

Site

The land is described as Lot 1663 DP1166869, Glenmore Park, has an area of approximately 3 hectares and is within the Local Government Area (LGA) of Penrith.

The site is a cleared rectangular greenfield site in a relatively new residential subdivision in Glenmore Park, known as Mulgoa Rise. The site is surrounded by a vacant site (to be a mixed-use commercial and residential precinct) to the north, Council playing fields to the east, and low-density residential dwellings to the west and south. The site sits on land above what was previously a quarry.

Proposed Development

The new primary school will accommodate approximately 414 students initially, with the expansion to 1000, student subject to separate planning approvals, as demand grows. Glenmore Park is a suburb experiencing significant urban and population growth. In response, the Department of Education (DoE) has proposed a new primary school with flexible learning spaces aimed at reducing pressure on surrounding local primary schools.

The new primary school will be a Core 21 school with 18 learning spaces (LS), plus 2 support classes. The development will also include a school hall, library, staff facilities, and administrative areas built to Core 35, allowing capacity for future expansion. A large assembly area, games court, shared sensory play area and playground will also form part of the development.

The new school will provide the surrounding community access to the school's core facilities and will also provide Outside School Hours Care services to assist working families who commute and / or work extended hours. It will also reduce travel time for students and parents and supports the use of active movement transport such as walking and bicycles.

Consultation

The project team has undertaken consultation with various agencies, government departments and other stakeholders, as well as the local community, as required by the SEARs. The issues discussed and raised during these consultations have been addressed as part of the proposal. Consultation and outcomes have been addressed in detail at Section 5 of the EIS and appended Community Consultation Summary Report at **Appendix I**.

Planning Framework and Assessment

The proposed development is classified as state significant development (SSD) on the basis that it falls within the requirements of Clause 15 of Schedule 1 of *State Environmental Planning Policy (State and Regional Development)* 2011 (SRD SEPP). The development is for the purpose of a new school and regardless of the capital investment meets the requirements of State Significant Development.

The project has been assessed in accordance with the requirements of Section 4.15(1) of the *Environmental Planning and Assessment Act 1979* (EP&A Act) and against the SEARs issued for the project.

The proposed development has been assessed against relevant strategic policies and planning controls and is found to be generally consistent with these, as detailed within Section 6 of this EIS.

Environmental impacts

This EIS provides an assessment of the environmental impacts of the proposed development in accordance with the SEARs and sets out the undertakings made by the applicant / proponent to avoid, minimise and manage impacts arising from the development. Key matters addressed within the EIS are summarised below and all environmental impacts are addressed within the EIS.

Transport and accessibility

The majority of students will visit the school by way of active transport. Pedestrian access to the site is encouraged due to the catchment nature of the school. The proposed car parking arrangements allow for 17 at grade parking spaces within the site. The anticipated demand for pick-up and drop-off for the school has been calculated to be around 40% students based on the target travel mode analysis.

The project has adopted an at-grade solution for pedestrian crossings which is considered to offer the best possible outcome for students while taking into consideration flooding advice received from the civil engineering team associated with the project.

Heritage

The site does not contain any structures or buildings of heritage significance.

Aboriginal Archaeology

An Aboriginal Cultural Heritage Assessment Report and notes an absence of Aboriginal objects and/or deposits or features of cultural and archaeological significance on the site and concludes that further investigation is not warranted, and works may proceed with caution. Ongoing consultation with the registered Aboriginal stakeholders will continue through the construction and operational phases of the development.

Biodiversity

A Biodiversity Development Assessment Report Waiver Request was prepared by Cumberland Ecology to address Item 11 of the SEARs for the proposed development. A BDAR waiver was granted by the Planning Secretary on 20 April 2021.

Flooding

The existing overland flow flooding along Darug Avenue and Deerubbin Drive governs the finished floor level of Buildings (1% AEP flood level plus 500mm freeboard) within the site. A flood water diversion wall is needed along the northern half of the western boundary of the site. It is recommended that a Flood Emergency Response Plan be prepared for the site.

Contamination

The site was rehabilitated (i.e., filled and grassed) between 2000 and 2007 and has remained vacant since. Investigations into contamination confirmed the site was largely unchanged. A Fill Import Protocol will be prepared to ensure that all materials imported to the site free of contamination and are aesthetically suitable.

An Unexpected Finds Protocol will be prepared to provide a procedure for managing contamination-related unexpected finds in the unlikely event they occur at the site during the proposed development works.

Suitability of the site

There are no known site conditions which would prevent the development including geotechnical conditions, contamination, flooding, biodiversity, Aboriginal cultural heritage, and historical archaeology.

Where there are environmental impacts, these can be sufficiently ameliorated through mitigation measures and design development.

The site is therefore suitable for the proposed development.

Public Interest

The New Primary School in Mulgoa Rise offers significant public benefits to the users of the school and broader community.

The proposed development will be Core 21 school with 18 learning spaces, plus 2 support classes. The development will also include a school hall, library, staff facilities, and administrative areas built to Core 35, allowing capacity for future expansion. A large assembly area, games court, shared sensory play area and playground will also form part of the development.

- Will provide permanent and state of the art teaching facilities for students.
- Will provide new buildings that will be sympathetic to the existing natural and built landscape and be designed to equivalent 4-star Green Star Design.
- Will generate 144 construction Full Time Equivalent (FTE) jobs during construction phase, and twenty-seven (27) additional jobs during the operational phase. Hence, these jobs, together with the value of the project, will stimulate the economy.

On balance, accounting for site suitability, environmental impacts, risk assessment and key benefits, the proposed development is in the public interest.

Given the above it is considered that the SSD Application has merit and can be supported by the Department of Planning, Industry and Environment and the Minister for Planning and Public Spaces.

Secretary's Environmental Assessment Requirements

The SEARs for the New Primary School in Mulgoa Rise were issued by the Department of Planning, Industry, and Environment (DPIE) on 2nd December 2020. This EIS addresses each of the SEARs.

The table below provides the SEARs issued for the project alongside a brief description of how the proposed development will achieve each requirement.

SEARs Requirement	Comment/Description
General Requirements	
The Environmental Impact Statement (EIS) must be prepared in accordance with, and meet the minimum requirements of, clauses 6 and 7 of Schedule 2 the *Environmental Planning and Assessment Regulation 2000* (the Regulation). Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development. In addition, the EIS must include: • an executive summary. • a complete description of the development, including: - the need for the development. - justification for the development. - suitability of the site. - alternatives considered. - likely interactions between the development and existing, approved and proposed operations in the vicinity of the site. - a description of any proposed building works. - a description of existing and proposed operations, including staff and student numbers, hours of operation, and details of any proposed before/after school care services and/or community use of school facilities. - site survey plan, showing existing levels, location and height of existing and adjacent structures / buildings and site boundaries. - a detailed constraints map identifying the key environmental and other land use constraints that have informed the final design of the development. - plans, elevations and sections of the proposed development. - cladding, window and floor details, including external materials. - a site plan showing all infrastructure and facilities (including any - infrastructure that would be required for the development, but the subject of a separate approvals process).	The EIS has been prepared in accordance with the Secretary's Requirements and meets the minimum requirements specified in Schedule 2 of the *Environmental Planning and Assessment Regulation 2000.* The EIS includes a comprehensive assessment of the environmental risks and impacts associated with the development. A CIV Report has been provided under separate cover.

SEARs Requirement	Comment/Description
- plans and details of any advertising/business identification signs to be installed, including size, location and finishes. - any staging of the development. - details of construction and decommissioning including timing. - an estimate of the new jobs that would be created during the construction and operational phases of the development along with details of the methodology to determine the figures provided. • a detailed assessment of the key issues identified below, and any other significant issues identified in the risk assessment, including: - a description of the existing environment, using sufficient baseline data and methodology to establish baseline conditions. - an assessment of the potential impacts of all stages of the development on all potentially impacted environments, sensitive receivers, stakeholders and future developments. The assessment must consider any relevant legislation, policies and guidelines. - consideration of the cumulative impacts due to other related development proposed or underway on the site, including development progressed under other assessment pathways and all other developments in the vicinity (completed, underway or proposed). - identification of all proposed monitoring or required changes to existing monitoring programs. - measures to avoid, minimise and if necessary, offset predicted impacts, including detailed contingency plans for managing any significant risks to the environment and triggers for each action. - details of alternative measures considered. • a consolidated summary of all the proposed environmental management and monitoring measures, identifying all commitments included in the EIS. • the reasons why the development should be approved and a detailed evaluation of the merits of the development, including consequences of not carrying out the development. The EIS must be accompanied by a report from a qualified quantity surveyor providing a detailed calculation of the capital investment value (CIV) (as defined in clause 3 of the Regulation) of the proposal, including details of all assumptions and components from which the CIV calculation is derived.	
Key Issues	
The EIS must address the following specific matters: **Statutory and Strategic Context** Address the statutory provisions contained in all relevant legislated and draft environmental planning instruments, including but not limited to: • State Environmental Planning Policy (State and Regional Development) 2011. • State Environmental Planning Policy (Infrastructure) 2007. • State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017. • State Environmental Planning Policy (Western Sydney Aerotropolis) 2020. • State Environmental Planning Policy No 64 – Advertising and Signage. • State Environmental Planning Policy No 55 – Remediation of Land. • Sydney Regional Environmental Plan No 20—Hawkesbury-Nepean River (No 2—1997).	Refer to Section 6.

SEARs Requirement	Comment/Description
• Draft State Environmental Planning Policy (Remediation of Land). • Draft State Environmental Planning Policy (Environment). • Draft State Environmental Planning Policy (Educational Establishments and Child Care Facilities). • Draft State Environmental Planning Policy (SEPP) for strategic conservation planning. • Penrith Local Environmental Plan 2010. Having regard to the relevant environmental planning instruments: • address the permissibility of the development, including the nature and extent of any prohibitions. • identify compliance with the development standards applying to the site and provide justification for any contravention of the development standards. • adequately demonstrate and document how each of the provisions in the listed instruments are addressed, including reference to necessary technical documents. Address the relevant planning provisions, goals and strategic planning objectives in all relevant planning policies including but not limited to the following: • NSW State Priorities. • State Infrastructure Strategy 2018 – 2038 Building the Momentum. • Future Transport Strategy 2056. • Crime Prevention through Environmental Design (CPTED) Principles. • Better Placed: An integrated design policy for the built environment of New South Wales (Government Architect NSW (GANSW), 2017). • Healthy Urban Development Checklist (NSW Health, 2009). • Draft Greener Places Design Guide (GANSW). • The Greater Sydney Region Plan - A Metropolis of Three Cities. • Sydney's Cycling Future 2013. • Sydney's Walking Future 2013. • Sydney's Bus Future 2013. • Western City District Plan. • Penrith Development Control Plan 2014. • Planning for a Brighter Future – Penrith Local Strategic Planning Statement 2020. • Draft Cumberland Plain Conservation Plan.	
2. Built Form and Urban Design • Address: - the height, density, bulk and scale, setbacks and interface of the development in relation to the surrounding development, topography, streetscape and any public open spaces. - design quality and built form, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, materials and colour palette. - how Crime Prevention through Environmental Design (CPTED) principles are to be integrated into development. - how good environmental amenity would be provided, including access to natural daylight and ventilation, acoustic separation, access to landscape and outdoor spaces and future flexibility. - how design quality will be achieved in accordance with Schedule 4 Schools – design quality principles of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 and the GANSW Design Guide for Schools (GANSW, 2018).	Refer to Section 4 and Appendix D Architectural Plans

SEARs Requirement	Comment/Description
- how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development. • Provide: - a detailed site and context analysis to justify the proposed site planning and design approach including massing options and preferred strategy for future development. - a visual impact assessment that identifies any potential impacts on the surrounding built environment and landscape including views to and from the site and any adjoining heritage items.	
3. Trees and Landscaping • Provide: - Where street trees are affected by the proposed development, an arboricultural impact assessment prepared by a Level 5 (Australian Qualifications Framework) Arborist, which details thew number, location and condition of trees to be removed or retained, includes detailed justification for each tree to be removed. - a detailed site-wide landscape strategy, that: o details the proposed site planting, including location, number and species of plantings, heights of trees at maturity and proposed canopy coverage. o considers equity and amenity of outdoor play spaces, and integration with built form, security, shade, topography and existing vegetation. o demonstrates how the proposed development would: – contribute to long term landscape setting in respect of the site and the streetscape. – mitigate the urban heat island effect and ensure appropriate comfort levels on-site. – contribute to objectives to increase urban tree canopy cover. - a detailed landscape plan prepared by a suitably qualified person.	Refer to Section 7.2 and Appendix F and Appendix EE.
4. Environmental Amenity Assess amenity impacts on the surrounding locality, including solar access, visual privacy, visual amenity, overshadowing, wind impacts and acoustic impacts. A high level of environmental amenity for any surrounding residential land uses must be demonstrated. • Provide: - shadow diagrams - a view analysis, where relevant, of the site from key vantage points and streetscape locations and public domain including photomontages or perspectives showing the proposed and likely future development. - an analysis of proposed lighting that identifies lighting on-site that will impact surrounding sensitive receivers and includes mitigation management measures to manage any impacts. - details of the nature and extent of the intensification of use associated with the proposed development.	Refer to Section 7.1 and Section 7.3 and Appendix D and Appendix E.
5. Transport and Accessibility Provide a transport and accessibility impact assessment, which includes, but is limited to the following: • analysis of the existing transport network to at least the existing or proposed enrolment boundary, including:	Refer to Section 7.4 and Appendix J.

SEARs Requirement	Comment/Description
- road hierarchy. - pedestrian, cycle and public transport infrastructure. - details of current daily and peak hour vehicle movements based on traffic surveys and / or existing traffic studies relevant to the locality. - existing transport operation for 1hr before and after proposed bell times such as span of service, frequency for public transport and school buses, pedestrian phasing for signals. - existing performance levels of nearby intersections utilising appropriate traffic modelling methods (such as SIDRA network modelling), including the Northern Road and Bradley Street intersection. • Details of the proposed development, including: - a map of the proposed access which identifies public roads, bus routes, footpaths and cycleways. - pedestrian site access and vehicular access arrangements, including for service and emergency vehicles and loading/unloading, including swept path analysis demonstrating the largest design vehicle entering and leaving the site and moving in each direction through intersections along the proposed transport routes. - pedestrian access arrangement to the adjoining Mulgoa Rise playing fields car park. - car and motorcycle parking, bicycle parking and end-of-trip facilities. - drop-off / pick-zone(s) and arrival/departure bus bay(s). - pedestrian, public transport or road infrastructure improvements or safety measures. - details of the catchment for the school and the likely distribution from the nearby existing public schools. • analysis of the impacts due to the operation of the proposed development, including: - proposed modal split for all users of the development including vehicle, pedestrian, bicycle riders, public transport, school buses and other sustainable travel modes. - estimated total daily and peak hour vehicular trip generation. - a clear explanation and justification of the: assumed growth rate applied. volume and distribution of proposed trips to be generate. Type and frequency of design vehicles accessing the site. - details of performance of nearby intersections with the additional traffic generated by the development both at the commencement of operation and in a 10-year time period (using SIDRA network modelling), including the Northern Road and Bradley Street intersection. - cumulative traffic impacts from any surrounding approved development(s), including the Planning Proposal for Glenmore Park Stage 3. - adequacy of pedestrian, bicycle and public transport infrastructure and operations to accommodate the development. - adequacy of car and motorcycle parking and bicycle parking provisions when assessed against the relevant car / bicycle parking codes and standards. - adequacy of the drop-off / pick-up zone(s) and bus bay(s), including assessment of any related queuing during peak-hour access.	

SEARs Requirement	Comment/Description
- adequacy of the existing / proposed pedestrian infrastructure to enable convenient and safe access to and from the site for all users. • measures to ameliorate any adverse traffic and transport impacts due to the development based on the above analysis, including: - travel demand management programs to increase sustainable transport (such as a School Transport Plan). - arrangements for the Travel Coordinator roles. - governance arrangements or relationships with state and local government transport providers to update roads safety. - infrastructure improvements, including details of timing and method of delivery. • a preliminary school transport plan detailing an operational traffic and access management plan for the site, pedestrian entries, the drop-off / pick-up zone(s) and bus bay(s). • analysis of the impacts of the traffic generated during construction of the proposed development, including: - construction vehicle routes, types and volumes. - construction program (duration and milestones). - on-site car parking and access arrangements for construction, emergency and construction worker vehicles. - cumulative impacts associated with other construction activities in the locality (if any). - road safety at identified intersections near the site due to conflicts between construction vehicles and existing traffic in the locality. - measures to mitigate impacts, including to ensure the safety of pedestrian and cyclists during construction. • a preliminary Construction Traffic and Pedestrian Management Plan.	
6. Ecologically Sustainable Development • Identify: - how ESD principles (as defined in clause 7(4) of Schedule 2 of the Regulation) would be incorporated in the design and ongoing operation phases of the development. - proposed measures to minimise consumption of resources, water (including water sensitive urban design) and energy. - how the future development would be designed to consider and reflect national best practice sustainable building principles to improve environmental performance and reduce ecological impact. This should be based on a materiality assessment and include waste reduction design measures, future proofing, use of sustainable and low-carbon materials, energy and water efficient design (including water sensitive urban design) and technology and use of renewable energy. - how environmental design will be achieved in accordance with the GANSW Environmental Design in Schools Manual (GANSW, 2018). • Provide: - an assessment against an accredited ESD rating system or an equivalent program of ESD performance. This should include a minimum rating scheme target level. - a statement regarding how the design of the development is responsive to the NARCliM projected impacts of climate change. - an Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.	Refer to Section 7.5 and Appendix K

SEARs Requirement	Comment/Description
7. Heritage • Identify any archaeological potential or archaeological significance on and adjacent to the site and the impacts the development may have on this significance. • Provide a statement of significance and an assessment of the impact on the heritage significance of the heritage items on and adjacent to the site in accordance with the guidelines in the NSW Heritage Manual (Heritage Office and DUAP, 1996) and Assessing Heritage Significance (OEH, 2015).	Refer to Section 7.6 and Appendix L.
8. Aboriginal Cultural Heritage • Provide an Aboriginal Cultural Heritage Assessment Report (ACHAR) that: - identifies and describes the Aboriginal cultural heritage values that exist across the site. - includes surface surveys and test excavations where necessary. - has been prepared in accordance with the Guide to investigating, assessing, and reporting on Aboriginal Cultural Heritage in NSW (OEH, 2011) and Code of Practice for Archaeological Investigations of Aboriginal Objects in NSW (OEH, 2010). - incorporates consultation with Aboriginal people in accordance with Aboriginal Cultural Heritage Consultation Requirements for Proponents (Department of Environment, Climate Change and Water, 2010). - documents the significance of cultural heritage values of Aboriginal people who have a cultural association with the land. - identifies, assesses and documents all impacts on the Aboriginal cultural heritage values. - demonstrates attempts to avoid any impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the ACHAR and EIS must outline measures proposed to mitigate impacts. - demonstrates attempts to interpret the Aboriginal cultural heritage significance identified into the development. • Any Aboriginal objects recorded as part of the Aboriginal Cultural Heritage Assessment Report must be documented and notified to the Aboriginal Heritage Information Management System (AHIMS) within Heritage NSW of the Department of Premier and Cabinet.	Refer to Section 7.7 and Appendix M.
9. Social Impacts • Provide a Social Impact Assessment prepared in accordance with the draft Social Impact Assessment Guideline 2020.	Refer to Section 7.8 and Appendix N.
10. Noise and Vibration • Provide a noise and vibration impact assessment that: - includes a quantitative assessment of the main noise and vibration generating sources during demolition, site preparation, bulk excavation and construction. - details the proposed construction hours and provide details of, and justification for, instances where it is expected that works would be carried out outside standard construction hours. - includes a quantitative assessment of the main sources of operational noise, including consideration of any public-address system, school bell, mechanical services (e.g. air conditioning plant), use of any school hall for concerts etc. (both during and outside school hours) and any out of hours community use of school facilities. - outlines measures to minimise and mitigate the potential noise impacts on nearby sensitive receivers.	Refer to Section 7.9 and Appendix 0.

SEARs Requirement	Comment/Description
- considers sources of external noise intrusion in proximity to the site (including, road rail and aviation operations) and identifies building performance requirements for the proposed development to achieve appropriate internal amenity standards. - demonstrates that the assessment has been prepared in accordance with polices and guidelines relevant to the context of the site and the nature of the proposed development.	
11. Biodiversity • Provide a Biodiversity Development Assessment Report (BDAR), that assesses the biodiversity impacts of the proposed development in accordance with the requirements of the Biodiversity Conservation Act 2016, Biodiversity Conservation Regulation 2017 and Biodiversity Assessment Method, except where a BDAR waiver has been issued in relation to the development or the development is located on biodiversity certified land. • Where a BDAR is not required, because a BDAR waiver has been issued, in relation to the development, provide: - a copy of the BDAR waiver and demonstrate that the proposed development is consistent with that covered in BDAR waiver. - an assessment of flora and fauna impacts where significant vegetation or flora and fauna values would be affected by the proposed development.	Refer to Section 7.10 and Appendix P.
12. Contributions • Identify: - any Section 7.11/7.12 Contribution Plans, Voluntary Planning Agreements or Special Infrastructure Contribution Plans that affect land to which the application relates or the proposed development type. - any contributions applicable to the proposed development under the identified plans and/or agreements. Justification is to be provided where it is considered that the proposed development is exempt from making a contribution. - any actions required by a Voluntary Planning Agreement or draft Voluntary Planning Agreement affecting the site or amendments required to a Voluntary Planning Agreement affected by the proposed development.	Refer to Section 7.11.
13. Staging • Assess impacts of staging where it is proposed and detail how construction works, and operations would be managed to ensure public safety and amenity on and surrounding the site.	Refer to Section 4.11.
14. Utilities • Prepare an Infrastructure Management Plan, in consultation with relevant service providers, to: - assess the impacts of the development on existing utility infrastructure and service provider assets surrounding the site. - identify any infrastructure upgrades required off-site to facilitate the development and any arrangements to ensure that the upgrades will be implemented on time and be maintained. - provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the development.	Refer to Section 7.11 and Appendix Q.

SEARs Requirement	Comment/Description
15. Stormwater Drainage • Provide: - a preliminary stormwater management plan for the development that: o is prepared by a suitably qualified person in consultation with Council, Sydney Water's Water Servicing Coordinator and any other relevant drainage authority. o details the proposed drainage design for the site including on-site detention facilities, water quality measures and the nominated discharge point. o demonstrates compliance with Council or other drainage authority requirements. • Where drainage infrastructure works are required that would be handed over to Council, provide full hydraulic details and detailed plans and specifications of proposed works that have been prepared in consultation with Council and comply with Council's relevant standards.	Refer to Section 7.12 and Appendix S.
16. Flooding • Identify any flood risk on-site in consultation with Council and having regard to the most recent flood studies for the development area and the potential effects of climate change, sea level rise and an increase in rainfall intensity. • Assess the impacts of the development, including any changes to flood risk onsite or off-site, and detail design solutions to mitigate flood risk where required.	Refer to Section 7.13 and Appendix T.
17. Soil and Water • Provide: - an assessment of potential impacts on surface and groundwater (quality and quantity), soil, related infrastructure and watercourse(s) where relevant. - details of measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust and fine particles. - an assessment of salinity and acid sulphate soil impacts, including a Salinity Management Plan and/or Acid Sulphate Soils Management Plan, where relevant.	Refer to Section 7.14 and Appendix U.
18. Waste • Identify, quantify and classify the likely waste streams to be generated during construction and operation. • Provide the measures to be implemented to manage, reuse, recycle and safely dispose of this waste. • Identify appropriate servicing arrangements (including but not limited to, waste management, loading zones, mechanical plant) for the site. • Provide a hazardous materials survey of existing aboveground buildings that are proposed to be demolished or altered.	Refer to Section 7.15 and Appendix W.
19. Contamination • Assess and quantify any soil and groundwater contamination and demonstrate that the site is suitable for the proposed use in accordance with SEPP 55. This must include the following prepared by certified consultants recognised by the NSW Environment Protection Authority: - Preliminary Site Investigation (PSI). - Detailed Site Investigation (DSI) where recommended in the PSI.	Refer to Section 7.16 and Appendix V.

SEARs Requirement	Comment/Description
- Remediation Action Plan (RAP) where remediation is required. This must specify the proposed remediation strategy. - Preliminary Long-term Environmental Management Plan (LEMP) where containment is proposed on-site.	
20. Aviation • Provide: - providing details of any existing or planned flight paths that may be impacted by the proposed development. - providing details of impact of the proposed development on Aviation and Airspace protection considering the Obstacle Limitation Surface (OLS) for the proposed Western Sydney Airport.	Refer to Section 7.17 and Appendix X.
Plans and Documents	
The EIS must include all relevant plans, architectural drawings, diagrams and relevant documentation required under Schedule 1 of the Regulation. Provide these as part of the EIS rather than as separate documents. Any plans and diagrams included in the EIS must include key dimensions, RLs, scale bar and north point. In addition to the plans and documents required in the General Requirements and Key Issues sections above, the EIS must include the following: • Architectural drawings showing key dimensions, RLs, scale bar and north point, including: - Section 10.7(2) and (5) Planning Certificates (previously Section 149(2) and (5) Planning Certificate). - Design report to demonstrate how design quality would be achieved in accordance with the above Key Issues including: o architectural design statement. o diagrams, structure plan, illustrations and drawings to clarify the design intent of the proposal. o detailed site and context analysis. o analysis of options considered to justify the proposed site planning and design approach. o summary of feedback provided by GANSW and NSW State Design Review Panel (SDRP) and responses to this advice. o summary report of consultation with the community and response to any feedback provided.	Contained throughout EIS and within Appendices.
• Geotechnical and Structural Report.	Refer to Appendix BB
• Accessibility Report.	Refer to Appendix Y
Consultation	
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups, relevant special interest groups, including local Aboriginal land councils and registered Aboriginal stakeholders and affected landowners. In particular, you must consult with: • the relevant Council. • Government Architect NSW (through the NSW SDRP process). • Transport for NSW. Consultation should commence as soon as practicable to inform the scope of investigation and progression of the proposed development. The EIS must describe and include evidence of the consultation process and the issues raised and identify where the design of the development	See Section 5 and Appendix I and Section 7.7 and Appendix M.

SEARs Requirement	Comment/Description
has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	
Further consultation after 2 years	
If you do not lodge a development application and EIS for the development within two years of the issue date of these SEARs, you must consult further with the Planning Secretary in relation to the preparation of the EIS. If any other significant issues are identified in the risk assessment, that are not identified in this SEARs, the Planning Secretary must be consulted in relation to the preparation of the EIS.	Acknowledged.
References	
The assessment of the key issues listed above must consider, but not be limited to, relevant guidelines, policies, and plans as identified.	Acknowledged.

1 INTRODUCTION

This Environmental Impact Statement (EIS) has been prepared by RPS Australia East Pty Ltd (RPS) on behalf of Department of Education NSW (the 'Applicant') in support of State Significant Development Application SSD-11070211 for the proposed development (the 'Proposal') of a New Public School (The New Primary School in Mulgoa Rise) at 1-23 Forestwood Drive, Glenmore Park as identified in **Figure 1.**

A Government election commitment in 2012 to build 190 new schools across the state, was implemented with the aim to address the issues of overcrowding and ensuring all students are given equal access to quality educational opportunities. School Infrastructure NSW has committed to building a new primary school at Mulgoa Rise, one of 4 new schools in the Glenmore Park Primary School Community Group (SCG).

The New Primary School in Mulgoa Rise is designed and will be built to significantly improve educational outcomes and address the capacity shortfall across the area for an approximate 414 students initially, with the expansion to 1000 as demand grows.

The site is a cleared rectangular greenfield site in a relatively new residential subdivision in Glenmore Park, known as Mulgoa Rise. The site is surrounded by a vacant site (to be a mixed-use commercial and residential precinct) to the north, Council playing fields to the east, and low-density residential dwellings to the west and south. The site sits on land above what was previously a quarry.

The site layout for the new school will see the buildings arranged along Deerubbin Drive and Darug Avenue, playground, shared sensory play area and assembly area within the site behind these buildings and a games court and staff car park on the eastern edge of the site. The school buildings have been designed with respect to the new educational standard of the Design for Manufacture and Assembly (DFMA) method of construction.

The school has been designed to facilitate future expansions should additional demand materialise. Considerations of investment options led to the following:

- Design of a school to facilitate a Core 21 school with 18 learning spaces (LS) + 2 support classes, with the selected core facilities at Core 35, for the Hall, Library, Staff facilities and Admin. This will accommodate an initial 414 students.
- A future development on the site, that does not form part of this application and not considered at this time, will complete the build to a Core 35, resulting in up to 44 learning spaces and 4 support classes.

The New Primary School in Mulgoa Rise will incorporate Best Practice Pedagogy for the Learning Spaces (LS), these will be fit-for-purpose, incorporate the use of technology and providing flexibility in design to allow for the delivery of modern pedagogies that are focused on creating learning environments that students may encounter in the workforce, where there is an enhanced focus on self-direction, self-reflection, evaluation and collaboration.

Glenmore Park and surrounding areas are undergoing significant housing development and population growth resulting from large infrastructure projects (Western Sydney Airport as an example). The increasing number of students have four schools located on the northern border of Glenmore Park, leaving more than a third having to travel larger distances to school from outside the catchment areas. The New Primary School in Mulgoa Rise will be closer to the current and projected demand growth. It will reduce travel time for students and parents and will support the use of active movement transport such as walking and cycling.

The New Primary School in Mulgoa Rise will provide the surrounding community access to the school's core facilities - the communal hall, the library and the outdoor sports court. The school will also provide Outside School Hours Care (OSHC) services to assist dual-working families with parents commuting and working long hours.

The construction of the New Primary School in Mulgoa Rise is a two-year program. Planning and Statutory approvals undertaken are to be undertaken through 2021, with construction commencing in late 2021 and the main build in 2022. This will see the doors open for students in January 2023.

Figure 1 Site Context

(Source SixMaps)

1.1 Purpose of this report.

The purpose of this EIS is to assess, and propose mitigation measures for, the environmental and social implications of proceeding with the development. This EIS has been prepared to meet the Secretary's Environmental Assessment Requirements (SEARs) for the proposed development, issued by the Department Planning, Industry, and Environment (DPIE) on 2 December 2020 as well as the recommendations of other consulted agencies and relevant stakeholders. The document has been prepared in accordance with the *Environmental Planning and Assessment Act, 1979* (EP&A Act) and the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation).

In addition to describing the Project, the EIS presents a comprehensive and focussed assessment of the associated planning and environmental issues to a level of detail commensurate with the scale of the

development, the characteristics and previous use of the site, and the legislative framework under which the development is to be assessed and determined. The matters dealt with in the EIS are presented in a manner that clearly addresses the specific requirements of the SEARs, as well as the requirements of other consulted government agencies and stakeholders.

1.2 The applicant.

The Department of Education is the largest provider of public education in Australia with responsibility for delivering high-quality public education to two-thirds of the NSW student population.

The NSW Department of Education is both the proponent and the owner of the land upon which the proposed new school is to be constructed.

1.3 Project site.

The site as identified in **Figure 1** and **Figure 2** is located within an urban release area in Glenmore Park (Mulgoa Rise), approximately 200 metres east of the Mulgoa Nature Reserve and has an area of approximately three (3) hectares. The site is located approximately 54.6 km west from the Sydney CBD. The closest town centre is Glenmore Park, which is located approximately 2.2km north-west of the site.

The site is located at 1-23 Forestwood Drive, Glenmore Park, NSW. The land is described as Lot 1663 DP1166869 within the Local Government Area (LGA) of Penrith.

On 8 May 2009, the *Penrith Local Environment Plan (Glenmore Park Stage 2) 2009* was adopted, which included rezoning of the site to R1 General Residential. The *Penrith Local Environment Plan (Glenmore Park Stage 2) 2009* was repealed in 2015 and provisions for the site incorporated into the *Penrith Local Environment Plan 2010* (PLEP 2010).

The site has been included in numerous development applications (DAs) between 2009 and 2012, with the most recent development consent involving the site, being DA12/0459, which was approved by Penrith City Council on 8 June 2012 for a Torrens Title Subdivision and 8 Residue Lots.

1.4 Approval pathway.

The development assessment and approval system in NSW is subject to Parts 4 and 5 of the EP&A Act. Division 4.1 of Part 4 provides for the assessment and determination of State Significant Development (SSD). Pursuant to Section 4.36 of the EP&A Act, projects are classified as SSD if they are declared to be such under the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP).

Under clause 15(1) of the SRD SEPP '*development for the purpose of a new school (regardless of the capital investment value)'* is categorised as State Significant Development (SSD).

The Proposal is for the construction of a new school with a CIV over $20 million and therefore meets the definition of SSD. The consent authority under section 4.5 of the EP&A Act is the Minister for Planning and Public Spaces or their delegate.

The Minister may delegate the consent authority function to the NSW Independent Planning Commission (IPC) in certain circumstances where there is objection from local government, or over 25 submissions are received during the EIS exhibition period.

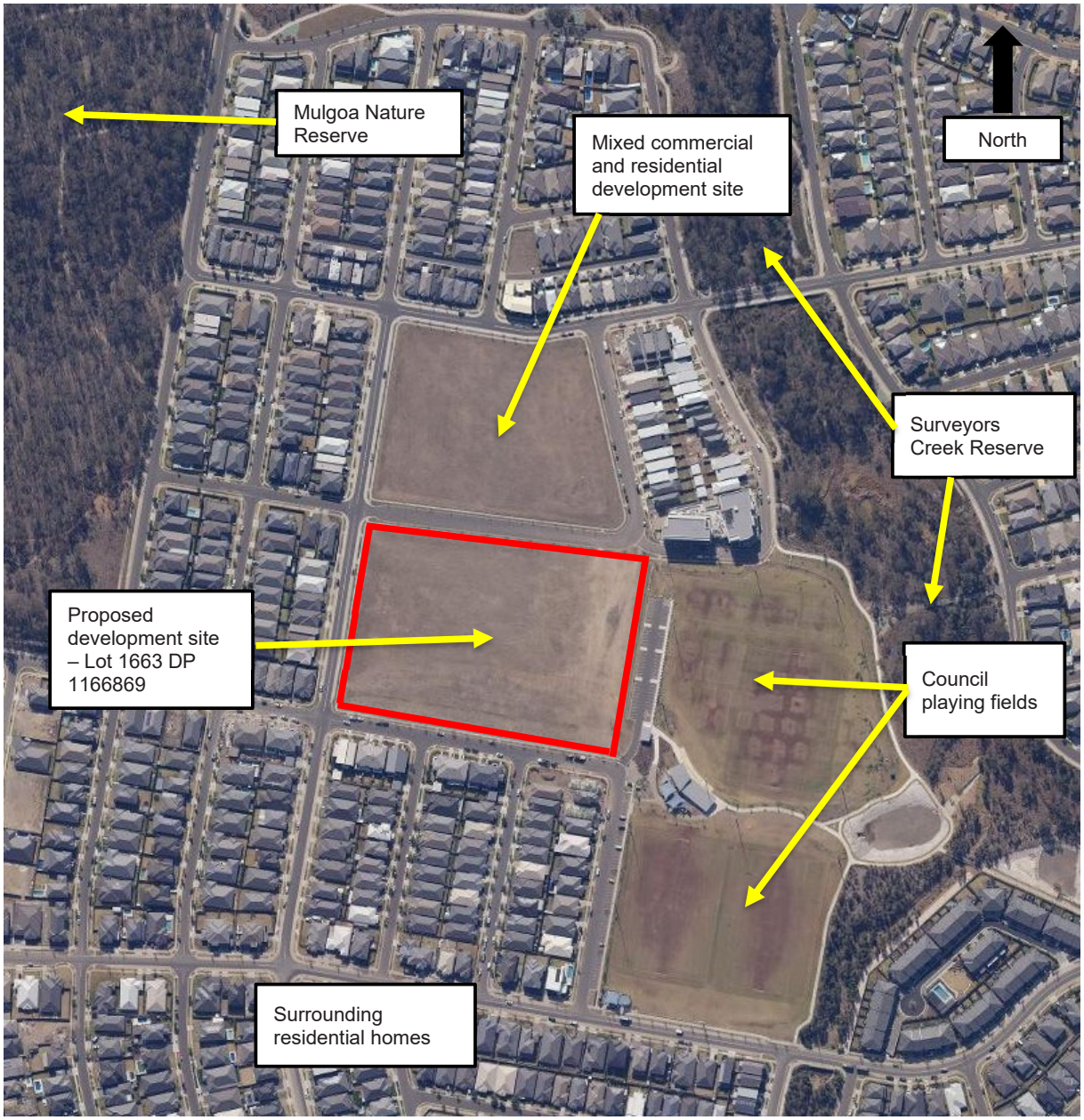

Figure 2 Site Location Plan

(Source SixMaps)

1.5 Report structure

The EIS is structured as follows.

- Executive Summary - Provides an overview of the entire EIS.
- Introduction – Provides an introduction to the project and provides background information.
- Section 2 – Provides a detailed description of the site and surrounding context, and summary of site constraints.
- Section 3 – Provides a description of the project need, justification and project alternatives.
- Section 4 – Provides a detailed description of the proposed development.

- Section 5 – Provides a description of the consultation undertaken for the project, including the consultation process, issues raised and how the design of the development has responded to these issues.
- Section 6 – Provides an assessment of the proposed development against relevant strategic and statutory planning controls.
- Section 7 – Provides an assessment of key issues and impacts generated by the proposed development.
- Section 8 - Environmental risk assessment.
- Section 9 – Provides recommended mitigation measures.
- Section 10 – Provides a justification for the project and conclusion.

The EIS should be read in conjunction with the SEARs attached at **Appendix A**, and the supporting technical documents provided at **Appendix D** – **Appendix HH**.

1.6 Project team.

Specialist consultants were engaged to assist with the preparation of this EIS as identified in **Table 1**.

Table 1 Specialist Consultants

Deliverable	Consultant
Environmental Impact Statement	RPS
Architecture	NBRS Architecture
Project Manager	Colliers International
Site Survey	LTS Surveyors
Quantity Surveyors Report	MBM
Design Analysis Report	NBRS Architecture
Landscape Plan	NBRS Architecture
Civil Drawings	Woolacotts
Structural Drawings	Woolacotts
Traffic Impact Assessment	PTC Consultants
Construction Traffic and Pedestrian Management Plan	PTC Consultants
Visual Impact Assessment	NBRS Architecture
Social Impact Assessment	RPS
Noise and Vibration Assessment	Pulse White Noise
ESD Statement	Norman, Disney & Young
Aboriginal Heritage Impact Assessment	Comber Consultants
Historic Heritage Impact Assessment	Comber Consultants
Geotechnical Report	JK Environments
Contamination Report	JK Environments
BDAR Waver Request	Cumberland Ecology
Infrastructure Management Plan	Norman, Disney & Young
Accessibility Report	BCA Logic
BCA Report	BCA Logic
Waste Management Plan	Richard Crookes
Surface Water, Flooding and Groundwater	Woolacotts
Aviation	AvLaw

1.7 Estimated capital investment value.

The estimated CIV for the proposed development is approximately $34 Million dollars. A CIV Report has been prepared by MBM and is included under separate cover.

2 SITE ANALYSIS

2.1 Subject site

The proposed development is located in the suburb Glenmore Park on a lot bounded by Deerubbin Drive to the north, Darug Avenue to the west, Forestwood Drive to the south, and Council sporting fields to the east. The site for the proposed development is legally described as Lot 1663 in Deposited Plan (DP) 1166869.

The site is located within the urban release area of Mulgoa Rise in the LGA of Penrith and is part of the Greater Penrith to Eastern Creek Growth Area. The site has an area of approximately 30,010m^2 and forms a rectangular shape. The site is situated approximately 54.6km west of the Sydney Central Businesses District (CBD), 6kms south of Penrith CBD, 26km northwest of Liverpool CBD, and 28km north of Camden.

The physical attributes of the site include:

- **Existing site** - Vacant, cleared area of land devoid of structures. No vegetation is present apart from exotic grasses established during subdivision development.
- **Gradient** - Falls from the southwest to the northeast consistently resulting in 6m height difference across the site.
- **Access** - The site's primary access is provided from Deerubbin Drive, however other access points are proposed from Darug Avenue and Forestwood Drive.
- **Total Site Area** - 30,010m^2 (or 3.001ha)

Plates 1 to **4** shows the site and surrounds.

Plate 1 View looking north-west across the development site from the corner of Forestwood Drive and Parkway Avenue, adjacent to carpark access to Mulgoa Rise Sporting Fields

Plate 2 **View looking north-east across the development site from the corner of Forestwood Drive and Darug Avenue**

Plate 3 **View looking south-east across the development site from the corner of Darug Avenue and Deerubbin Drive**

Plate 4 **View looking south-west across the development site from the corner of Deerubbin Drive and Glenholme Drive**

The site is zoned R1 General Residential under the PLEP 2010. The site is part of the Glenmore Park Stage 2 Precinct. Clause 7.16 of the PLEP 2010 (Glenmore Park Stage 2) provides specific development controls for land including the site. Of relevance to the proposed development is clause 7.16(5):

> *Despite any other provision of this Plan, development consent must not be granted for development on any of the land identified as "Glenmore Park Stage 2" on the Clause Application Map unless the consent authority is satisfied that-*
>
> > *(a) Extractive activities on the land have permanently ceased, and*
> >
> > *(b) The land has been adequately rehabilitated for the purpose of urban development*.

Given that there has been significant development within the area identified as Glenmore Park Stage 2, it can be concluded that extractive activities have permanently ceased and that the land has been adequately rehabilitated to the satisfaction of the consent authority (i.e. Penrith City Council).

2.2 Existing development

The existing site is a single allotment situated on a greenfield site zoned R1 General Residential. No existing buildings are present on the site. The land is vacant and cleared surrounded by low density residential housing towards the west and south as can be seen in **Figure 2**.

2.3 Topography

The gradient of the land falls from southwest to northeast, with an approximate 6m cross-fall.

The site is located in gently undulating plains within the meandering river systems of the Nepean River and its associated feeder streams. The site itself has a gentle slope towards the north-east at approximately 4-5 degrees. A Detailed Site Survey is contained in **Appendix B**.

2.4 Site access

As the site is currently undeveloped there is no formal vehicle access by way of a layover or driveway. However, the site is readily accessible from Forestwood Drive, Darug Avenue, and Deerubbin Drive.

2.5 Flora and fauna

A review of the NSW Biodiversity Values Map has identified that the site is not mapped as containing biodiversity values. The Section 10.7 Certificate for the site, contained in **Appendix C**, also indicates that the land:

- does not include or comprise critical habitat.
- is not in a conservation area.
- is not biodiversity certified land.
- is not a biodiversity stewardship site.

The site is located in close proximity to the Mulgoa Nature Reserve (175m to the west separated from the site by residential development) and Surveyors Creek (approximately 165m to the east separated from the site by Mulgoa Rise Playing Fields), both of which are mapped as containing biodiversity values.

Clause 7.9 of the Biodiversity Conservation Act 2016 requires that any State Significant Development application must be accompanied by a Biodiversity Development Assessment Report (BDAR) "*unless the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values*".

A Biodiversity Development Assessment Report (BDAR) Waiver Request was submitted to DPIE on 7 April 2021 by School Infrastructure NSW.

The BDAR Waiver Request was supported by information provided by Cumberland Ecology, dated 19th March 2021 that states the proposed works for the project site is not likely to have any significant impact on biodiversity values within the site.

A BDAR Waiver approval was granted by the Environment, Energy and Science Group (EESG) of DPIE on 15 April 2021. A copy of the BDAR Waiver Request prepared by Cumberland Ecology, together with a copy of the EESG correspondence is contained in **Appendix P**.

2.6 Heritage

2.6.1 European heritage

The project site was once part of the Sir John Jamison's Regentville Estate and was used for grazing or pasture until it was sold in 1842 and leased to various people. It appears that throughout this period it was only used for grazing.

In the early 1980s (post 1983) a shale and clay quarry was established on the site that was in operation until the early 2000s. In the 1980s and 1990s, the study area was completely quarried and subsequently remediated (backfilled) with various fills comprising mostly mottled clay (JK Geotechnics 2020).

As a result, the study area does not contain archaeological potential. Any ephemeral evidence of the former use of the site for grazing which may have existed would have been removed during quarrying.

Notwithstanding the above, a Historical Archaeological Assessment has been undertaken as part of this EIS and is discussed further in **Section 7.6**.

2.6.2 Aboriginal heritage

A search of the Aboriginal Heritage Information Management System (AHIMS) returned a result of zero Aboriginal sites recorded in or within 200 metres of the site. In addition, zero Aboriginal places have been declared in or within 200 metres of the site.

A preliminary review of background documentation for the site revealed the previous rezoning and subdivision applications have been the subject of Aboriginal heritage investigations. Planning material associated with later stages of the subdivision work (including the stage relating to the site) indicates that there are no Aboriginal sites or Potential Archaeological Deposit Sites (PADS) within the area.

Notwithstanding the above, an Aboriginal Cultural Heritage Assessment (including Aboriginal Consultation) has been undertaken as part of this EIS and is discussed further in **Section 7.7** and **Appendix M**.

2.7 Surrounding development

To the north and west of the development site are residential lands zoned as R1. To the east are playing fields (zoned RE1 Public Recreation) and to the north are lands reserved for the development of a shopping centre and associated services (zoned B2 Local Centre).

Relevant development approvals, other than residential development, surrounding the site include the following:

- **DA19/0348 - 90-98 Glenmore Ridge Drive, Glenmore Park** - Construction of a 4-storey mixed use development including one level of basement car parking and commercial tenancies to establish a new town centre, loft with mezzanine, child care centre for 112 children and 3 upper residential levels containing 147 apartments. This is the town centre development immediately to the north of the site on the opposite side of Deerubbin Drive.
- **DA13/0978** - for Glenmore Park Stage 2 Major Active Open Space Facility – Southern Playing Fields, two playgrounds and associated earthworks on the land zoned RE1 Public Recreation, located immediately to the east and south east of the site.

Surrounding site use and zoning is shown as **Figure 3**.

Figure 3 Surrounding Site Use and Zoning

2.8 Transport Infrastructure

2.8.1 Rail

The site is located 6km south of Penrith Station, and 6km southwest of Kingswood Station.

2.8.2 Bus services

The site is currently located in close proximity to several bus stops. The following bus services are listed below:

- Route 799 – Glenmore Park to Penrith via Regentville.
  - Stop 2745204 on Ridge Top Drive.
- Route 797 – Penrith to Glenmore Park (Loop Service).
  - Stop 274540 on Muru Drive.
- Route 794 – Glenmore Park to Penrith via The Northern Road.
  - Stop 2745235 on Darug Avenue fronting the project site.
- Route 781 – St Marys to Penrith via Glenmore Park.
  - Stop 274541 on Surveyors Creek Road.

2.8.3 Bicycle

The existing layout of the precinct promotes cycling generally with convenient, safe connections and wide road structure throughout the local area. There is a dedicated cycleway that connects directly with the adjacent Council sporting fields, refer to **Figure 4**.

Figure 4 Surrounding Cycleways

3 PROJECT NEED AND ALTERNATIVES

3.1 Project need

A Government election commitment in 2012 to build 190 new schools across the state, was implemented with the aim to address the issues of overcrowding and ensuring all students are given equal access to quality educational opportunities. Schools Infrastructure NSW (SI NSW) has committed to building a new primary school at Mulgoa Rise, one of 4 new schools in the Glenmore Park Primary School Community Group (SCG).

The new primary school at Mulgoa Rise is to be designed and built to significantly improve educational outcomes and address the capacity shortfall across the area for an approximate 414 students initially, with the expansion to 1000 as demand grows. Glenmore Park is a suburb experiencing significant urban and population growth. In response, the Department of Education (DoE) has proposed a new primary school at Mulgoa Rise with flexible learning spaces aimed at reducing pressure on surrounding local primary schools.

The Glenmore Park SCG is undergoing significant housing development and population growth resulting from large infrastructure projects, including the Western Sydney Airport. The increasing number of students have only the four schools located on the northern border of the SCG, leaving more than a third having to travel larger distances to school from outside the catchment areas. A new school in Mulgoa Rise will reduce travel time for students and parents and supports the use of active movement transport such as walking and bicycles.

3.2 Alternatives considered

A Final Business Case (FBC) was prepared by SINSW to seek Treasury NSW's approval and the release of funding for the new school at Mulgoa Rise, as identified in the 2019/20 budget state budget. The investment options considered in the FBC considered both non-capital (i.e., demand management-based solutions) and capital solutions. The long list and short list of options were assessed to determine the extent to which they address the service need.

Five (5) short-listed options were agreed by DoE and SINSW as the options to move forward for Cost Benefit Analysis (CBA). A brief description of the options considered are listed provided below:

- **Option A1:** Upgrade Glenmore Park PS adding 12 LS (net 3 LS and 9 demountable buildings replaced) with no upgrades to core facilities.
- **Option A2:** Upgrade Glenmore Park PS adding 20 LS (net 11 LS + 9 demountable buildings replaced) and upgrades to core facilities.
- **Option B1:** Add a new school at Mulgoa Rise with Core 14 Leaning Spaces (14 LS and 2 support classes + selected core facilities at Core 35 Hall Library and Staff/Admin).
- **Option B2:** Add a new school at Mulgoa Rise with Core 21 learning spaces adding 20 LS (18 LS + 2 support + classes selected core facilities at Core 35 Hall Library and Staff/Admin).
- **Option C:** Add a new Core 35 school at Mulgoa Rise (44 LS+ 4 support classes with core facilities Hall, Library and Staff/Admin).

CBA for the short-listed options was developed in accordance with the NSW treasury CBA guidelines for school infrastructure and industry best practice and concluded that Option B2 as the Preferred Option. The additional advantages of the Preferred Option over the other short-listed options are:

- The Benefit-Cost Ratio (BCR) of the Preferred Option was the highest BCR of the 3 new school options, which means that the total benefits outweigh the total costs.
- The new school is located in Mulgoa Rise, closer to the current and projected demand growth. This reduces travel time for students and parents and supports the use of transport requiring active movement.
- The new school has been master planned to a Core 35 school supporting the goal of building larger schools on a small site.
- Building a new school minimises disruption to school operations across the region.

- The new school provides eighteen (18) fit for purpose learning spaces and two (2) support classes in the SCG providing for best practice pedagogy.
- Building the new school core facilities as Core 35 and learning spaces as a Core 21 addresses future proof considerations, mitigates the identified upward demand risk and delays or avoids additional interventions in the region of the new school in the near future.
- The new school provides Out of School Hours Care (OSHC) services in an area of need and provides the community access to the school's core facilities such as the communal hall, library and outdoor sports court.
- The Preferred Option is endorsed by the Director, Educational Leadership, it meets the operational requirements, an election commitment and stakeholders' expectations.

3.3 Consequence of not carrying out the development

The consequences of not carrying out the development is a reiteration of the project needs for the proposed development referred at **Section 3.1** and **Section 3.2**, that:

- The development is part of a government election commitment in 2012 to build 190 new schools across the state, was implemented with the aim to address the issues of overcrowding and ensuring all students are given equal access to quality educational opportunities.
- Schools Infrastructure NSW has committed to building a new primary school at Mulgoa Rise, one of 4 new schools in the Glenmore Park Primary SCG.
- The Glenmore Park SCG is undergoing significant housing development and population growth resulting from large infrastructure projects (Western Sydney Airport as an example). The increasing number of students have only the four schools located on the northern border of the SCG, leaving more than a third having to travel larger distances to school from outside the catchment areas.
- With the new school located in Mulgoa Rise, it will be closer to the current and projected demand growth. This will reduce travel time for students and parents and supports the use of active movement transport requiring i.e., walking and bicycles.
- The new school will provide the surrounding area community access to the school's core facilities - the communal hall, library and outdoor sports court. The school will also provide Outside School Hours Care (OSHC) services to assist dual-working families with parents commuting and working long hours.

4 PROPOSED DEVELOPMENT

4.1 Overview

The proposed development involves the construction and operation of a new primary school that will initially accommodate 414 students, with the ability to be expanded to 1000 students when demand requires, which would be subject of a separate planning approval process.

This application will facilitate a Core 21 school with 18 learning spaces (LS), plus 2 support classes. The development will also include a school hall, library, staff facilities, and administrative areas built to Core 35, allowing capacity for future expansion. A large assembly area, games court, shared sensory play area and playground will also form part of the development.

The new school will provide the surrounding community access to the school's core facilities and will also provide Outside School Hours Care services to assist working families that commute and work extended hours.

The school is proposed to be open for students in Term 1 of 2023.

This EIS seeks consent for the following key components of the new Primary School in Mulgoa Rise.

- General learning areas.
- Multipurpose communal hall.
- Covered Outdoor Learning Areas (COLA).
- Administration area.
- Staff area including amenities.
- Student amenities.
- Library.
- Canteen.
- Storage.
- Assembly Area.
- Games Court.
- Shared sensory play area.
- Landscaping.
- Pedestrian circulation.
- Pedestrian access points.
- Internal open space.
- Staff car park with access off Forestwood Drive.
- Bike and scooter parking.
- Bus zone and drop off/pick spaces.
- Pedestrian crossings on Forestwood Drive, Darug Avenue, and Deerubbin Drive.
- Waste collection area.
- Connection of site services, including gas, potable water, sewer, power (including a new sub-station), and the NBN.

A Site Plan Overlay is provided as **Figure 5** and a Site Analysis Plan is provided as **Figure 7**. The full Architectural Drawing set is provided as **Appendix D**.

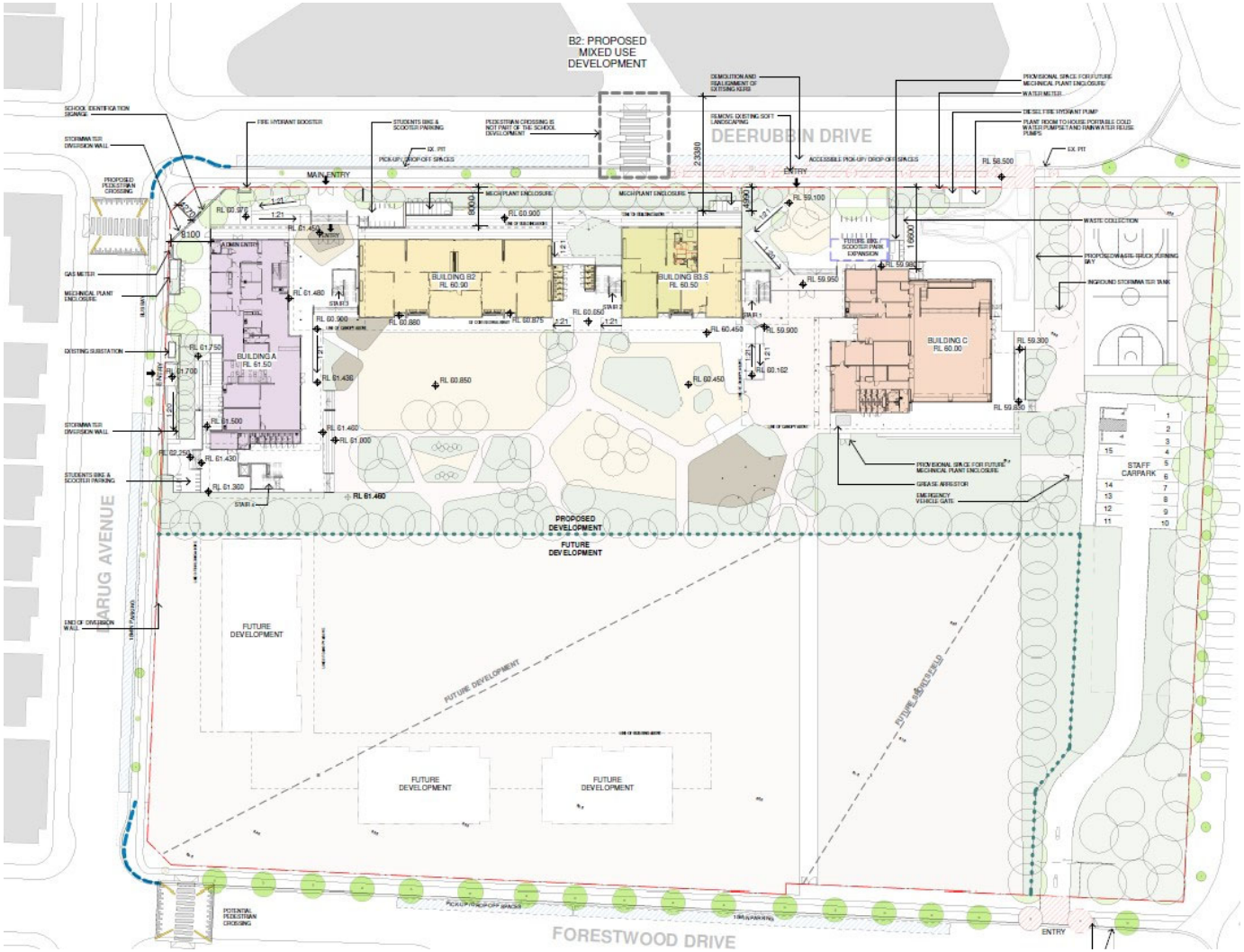

Figure 5 Site Plan Overlay

Figure 6 Site Analysis Plan

4.2 Building design philosophy

An Architectural Design Statement has been prepared by NBRS Architecture and is contained in **Appendix E**. This identifies the education and design principles that form the foundation of the design.

The site narrative draws on the preliminary research into the history of the locality, where Darug Nation and Gandangara Nation boundaries intersect, and the area is recorded as a meeting point for the two clans.

The site layout arranges two learning villages around the assembly area as a meeting point. This area was known as a fertile land providing abundance of waterways, a source of food for the region.

The landscape design intent is to respond to the texture and colour of the surrounding natural landscape where the Blue Mountains meet the Nepean Plains. This is mostly evident in the material selection, textures and native plant selection.

4.3 Built form and urban design

The school buildings are located on the site along Deerubbin Drive to the north and Darug Avenue to the west to form a positive street scape along the town centre, to maximise consolidated play space for the school and to avoid potential flooding along the southern and eastern boundaries.

The community focussed functions, library and hall, are located to the northern portion of the site to facilitate the potential for community uses in conjunction with the proposed mixed-use development across Deerubbin Drive. The library and administration building, located in the north-west corner, is the urban marker to the site and will create a clear entry statement for the school. The hall has direct connection to adjacent sporting fields and the school's outdoor play area.

The building volumes are articulated and separated to relate to the suburban setting, also providing a good opportunity for good daylighting and natural ventilation. The articulated building volumes allow for the ability to stage the delivery while limiting the impact on the operation of the school.

All buildings but the hall are two-stories high with outdoor covered walkways connecting them on both levels with a photovoltaic array (solar panels) located to the roof of Building A.

4.3.1 School buildings

Four multi-purpose school buildings are proposed as part of the development. These buildings include:

- Block A – will be a 2-storey building that will house administrative activities for the school, staff amenities, and the school library. The ground floor (GF) will accommodate the entry vestibule, administrative areas, Principal and Deputy Principal offices, interview/meeting rooms, special programs rooms, withdrawal room, sick bay, toilets, and the ground floor component of the library. The second floor (L1) will accommodate the staff room and kitchenette, staff toilets, a resource storeroom, special programs rooms, and the upper stair component of the library.
- Block B2 – will be a 2-storey building that will accommodate teaching homebases, shared learning areas, withdrawal rooms, and student toilets. The ground floor (GF) will contain 6 x homebases, 2 x shared learning areas, 2 x withdrawal rooms, and student amenities. The second floor (L1) will have 6 x homebases, 2 x shared learning areas, 2 x withdrawal rooms, and a learning common area.
- Block B3 - will be a smaller 2-storey building compared to B2 that will accommodate teaching homebases, shared learning areas, withdrawal rooms, and student toilets. The ground floor (GF) will contain 4 x homebases, 1 x shared learning area, 2 x withdrawal rooms, and student amenities. Similarly, the second floor (L1) will have 4 x homebases, 1 x shared learning area, 2 x withdrawal rooms, and student toilets.
- Block C – will be a single storey building that will accommodate a communal hall, canteen, OSHC kitchenette and office, canteen storeroom, PE/sports storeroom, performance storeroom, garden maintenance storeroom, cleaner's storeroom, and toilets.

Architectural drawings provided as **Appendix D** show the floor plans for each building.

4.3.2 Open space and amenities

The proposed school buildings are generally arranged along the western and northern boundaries of the site and open towards a central open-air assembly area that is connected via pathways and undercover walkways. Internal circulation paths provide connectivity to the communal hall, playing fields, games court, site entry points, and staff car parking. A large 400m^2 COLA (Covered Outdoor Learning Area) is also provided on the southern side of the communal hall.

4.3.3 Site and parking facilities

The proposed school layout provides a northern connection to the proposed shopping and commercial space in the north, connection to the residential areas in the west and south, and direct connection with the Mulgoa Rise playing fields to the east for additional recreational space. The school has also been designed in consideration of community use of both the library and communal hall for external functions.

The servicing of the site, including sub-station and booster pumps, have been designed to ensure code compliance and well screened to achieve high design quality. The waste pad is positioned away from the learning areas and adjacent to the staff car park to ensure easy access by the garbage truck and to reduce potential interaction with students. Adjacent is the proposed 17 space carpark with access from Forestwood Drive.

4.3.4 Building height

The built form of the proposed development varies, with one (1) and two (2) storey buildings. The maximum building height proposed is 10.4m for Blocks A, B2, and C. The building's height allows for configuration of the school's facilities including teaching rooms, outdoor learning areas, and recreation space while being sympathetic to the height of neighbouring residential properties.

4.3.5 Building setbacks

The school is adequately set back from the site boundaries respecting existing development of the surrounding neighbourhood. A minimum building setback of 4,990mm to the northern edge of Building B3 is provided along the northern site boundary and a minimum of 8.100mm setback is provided along the western boundary of the site.

The buildings are setback a sufficient distance to not impact the surrounding residential properties via shadowing or be impacted by future shadowing from the 4-storey mixed use development proposed by others to the north. The modelled shadowing impacts are illustrated in **Figure 7** to **Figure 9**.

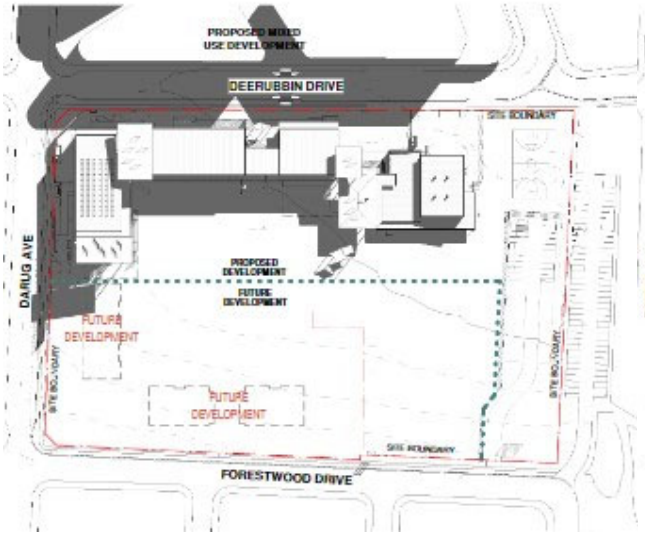

Figure 7 Shadow diagram 21 June 9AM

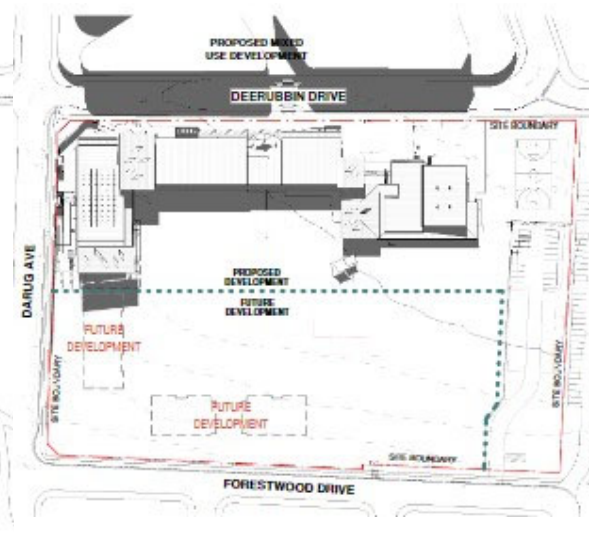

Figure 8 Shadow diagram 21 June 12PM

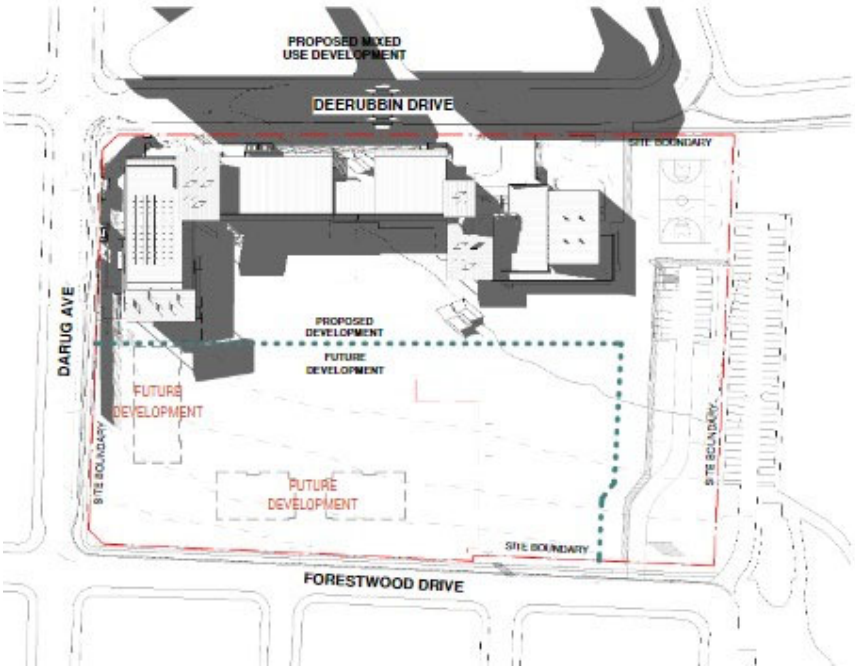

Figure 9 Shadow diagram June 21 3PM

4.3.6 Crime prevention through design

Sight lines into and along the street frontages have been considered to prevent unsighted locations in and around the school. The primary entry on Deerubbin Drive is carefully located to achieve passive surveillance from the mixed-use development across the road, be close to the bus stop and be directly adjacent to the administration building allowing for monitoring of people entering and exiting the premises.

The school is master planned with the potential to be a community asset. The capability for the community to have a sense of ownership of this development will provide an opportunity for the community to protect and the asset, which will potentially reduce the likelihood of damage and vandalism. Reducing damage and vandalism to the school. The school and associated shared uses will increase the casual surveillance of the street and therefore assist in providing increased safety. The lighting levels throughout the school will be designed to facilitate safe after-hours shared use.

The manner in which the proposed design responds to the four (4) CPTED principles is discussed in further detail in **Section 6.3.4** and in the CPTED report located in **Appendix DD**.

4.3.7 Design quality

The proposed design has followed the schools design quality principles outlined in Schedule 4 of the *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017* and the GANSW Design Guide for Schools (GANSW, 2018). This is outlined in the Architectural Design Statement contained in **Appendix E**.

Figure 10 Aerial view from the corner of Deerubbin Drive and Darung Avenue.

Source: NBRS Architecture

4.3.8 Material and finishes

The materiality and finishes are illustrated in the Architectural Plans contained in **Appendix D** and the Architectural Design Statement contained in **Appendix E**. The buildings have been designed with respect to the new educational standard of the DFMA (Design for Manufacture and Assembly) method of construction. Each volumetric building section will be constructed in steel frame and wrapped in the combination of the following external cladding materials:

- Prefinished metal cladding.
- Colour through Fibre Cement Cladding.
- Prefinished aluminium cladding.
- Prefinished fibre cement soffit lining.
- Prefinished Metal Soffit Lining with interlocking panels.
- Prefinished Aluminium Wall Cladding Trim.

The proposed materiality will display a combination of natural finishes and neutral colour palette with external features to compliment the outdoor surroundings and enhance the connection to the natural environment. Materials and finishes are designed to complement the landscape and provide clear wayfinding with examples provided in **Figure 11**.

Figure 11 Material Palette Board for External Finishes

4.3.9 Ecologically sustainable development

The school site is, approximately, rectangular in shape and with north facing orientation. Where practicable, this orientation provides the opportunity to arrange the school buildings in North-South facing orientation so to optimise passive solar design potential.

The new school has also adopted ecologically sustainable design principles as illustrated in **Figure 12** below.

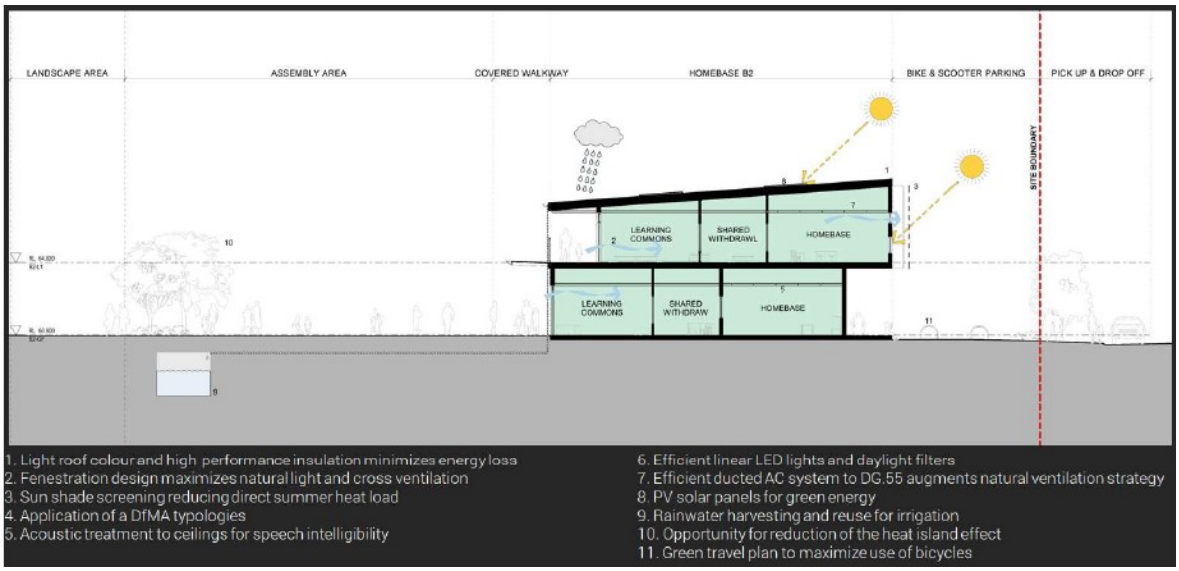

Figure 12 ESD Principles for MRPS

The school buildings are arranged to anchor at the corner of Darug Ave and Deerubbin Drive to buffer noise transmission from inside the school ground. Additionally, the Hall (Building C) has been oriented towards the mixed-use development on the opposite side of Deerubbin Drive so to keep adequate distance from local residences.

Further details on Ecologically Sustainable Development (ESD) for the proposed development are located in **Section 7.5**.

4.4 Signage

The proposed signage associated with the development provides site and building identification in addition to wayfinding at the school. Main school signage will be located on the corner of Darug and Deerubbin Drive on the fence structure and on the external wall of Block C facing Deerubbin Drive. Digital electronic LED signage will be mid-block, adjacent to the main pedestrian entrance to the school on Deerubbin Drive.

Plans and details of the proposed signage to be installed, including size, location and finishes are located in **Appendix D**. Examples of proposed signage are outlined in **Figure 13**, noting that the name of the school as illustrated is indicative only.

4.5 Landscaping

Landscape Plans have been prepared by NRBS Architecture and are contained in **Appendix F** with an extract provided at **Figure 14**. The landscape plan aims to create a meeting place for students and local communities which celebrates the original characters and culture of the land, encourages active and passive recreations as well as knowledge sharing beyond the classroom. Four (4) landscape design principles (based on Education SEPP Design Quality Principles and Educational Facilities Standard and Guidelines), are set as the foundation of the concept design to provide diverse learning opportunities and help facilitate the educational outcomes.

- Identity
  - Promote a strong identity of place through an understanding of the site's local context.
  - Respect and respond to the school context using design languages inspired by the site.
  - Use materials that are unique and responsive to the site context and environment.
- Inclusive and Accessible
  - Ensure the landscape design presents an accessible, inclusive, and welcoming environment, both physically and culturally.
  - Create a safe and pleasant environment which encourages outdoor learning and activities.
  - Equal access is considered for all users and is structured to provide clear circulation and connections between buildings.
- Sustainable and Connected
  - Provide connections to the natural environment that enhance learning through senses.
  - Ensure the landscape design is well integrated with the architectural proposals.
  - Planting selections are responsive to local environment, with opportunities provided for learning and shade. Harmful and irritant plant species will be avoided.
  - 1 in100 year flood event is taken into consideration when designing and striving to achieve a sustainable and safe landscape.
- Programmable Spaces
  - Outdoor spaces are designed with flexibility, with open space reserved for gathering and events.
  - Encourage outdoor group learning and interaction by creating a variable space options, both opened and enclosed.
  - Active and passive play areas are provided to cater for different users.
  - Spaces that can accommodate flexible functions and programmes.

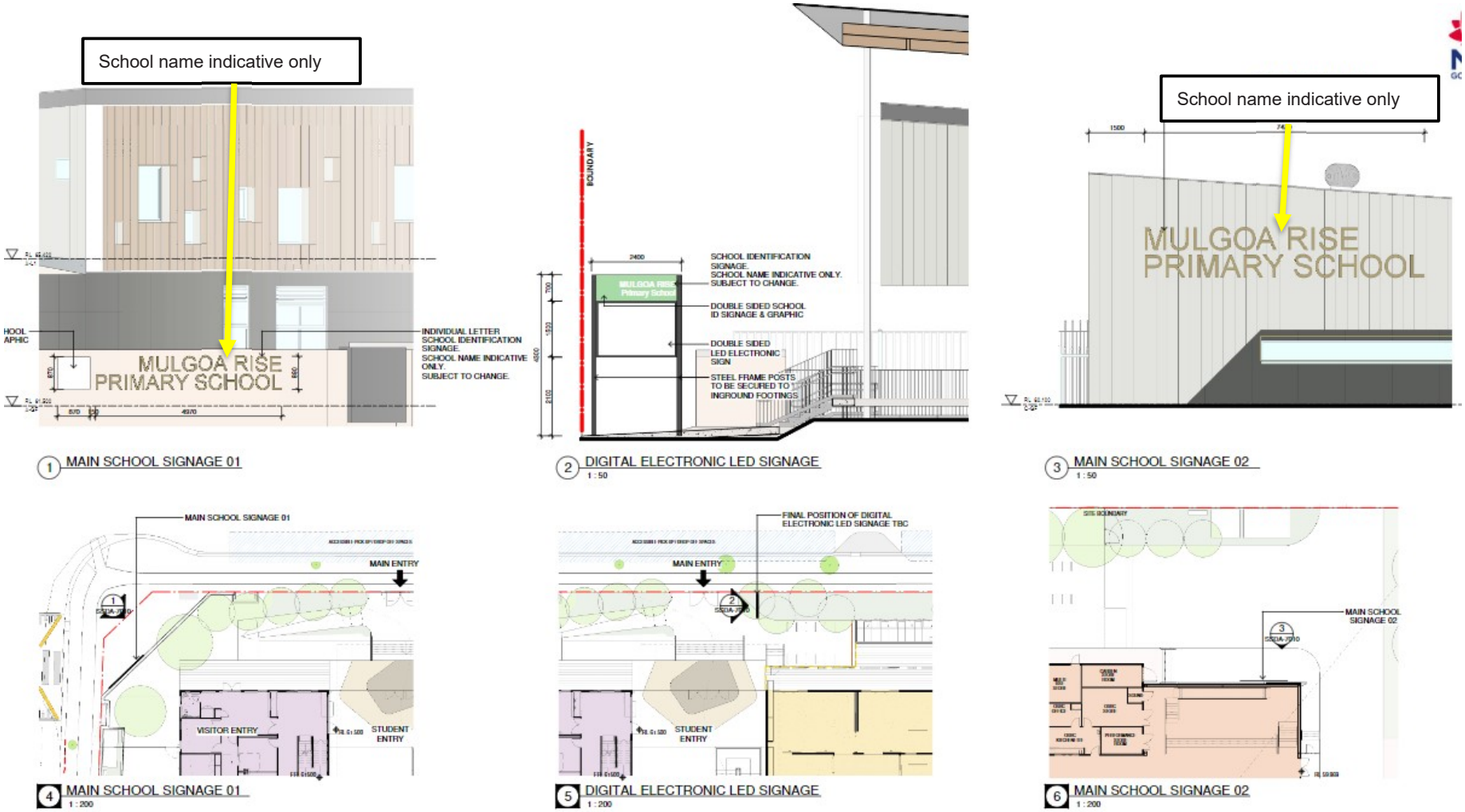

Figure 13 Examples of proposed signage

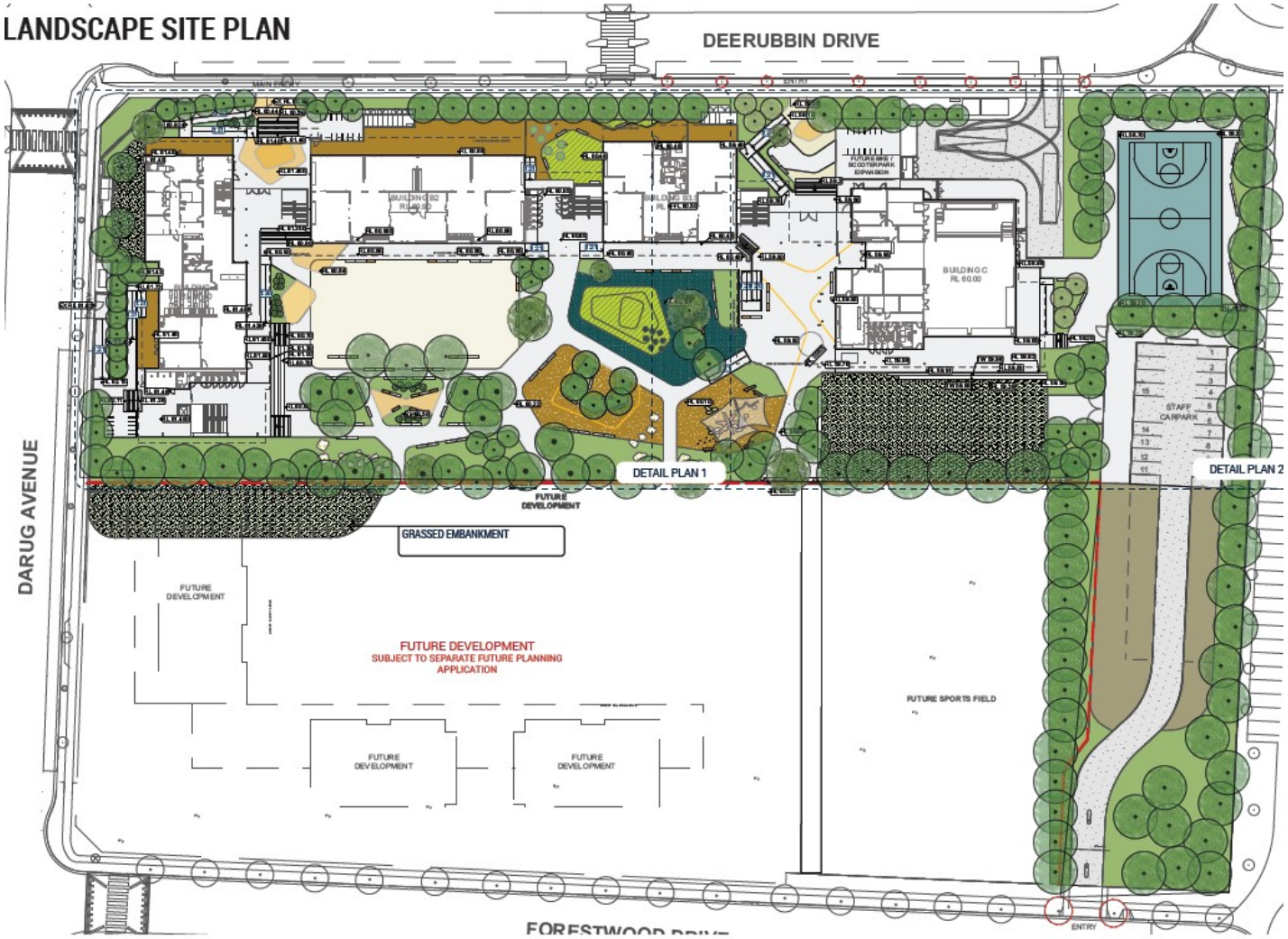

Figure 14 Landscape Design Plan Overview

4.6 Lighting

Aligning the school to the north and west roads provides a good opportunity to receive natural light into the home bases and school facilities optimising passive solar design potential. An external lighting and lighting control strategy has been prepared in consultation with the appointed electrical engineer for the project.

The proposed lighting consists of security lighting to provide low illumination levels to pathways and a new car park. The design will be completed in accordance with "*AS1158:2020 Lighting for the roads and public spaces*" and "*AS4282.2019 – Control of the obtrusive effects of outdoor lighting*." The extent of external lighting is provided in Architectural Design Statement contained in **Appendix E**.

In accordance with "*AS4282.2019 – Control of the obtrusive effects of outdoor lighting*" lighting installation must not provide adverse effects to surrounding properties. The mitigation of any adverse effects from outdoor lighting will be managed through the use of:

- Selection of luminaires with tight beam control.
- Where applicable Luminaires are to be mounted on adjustable brackets.
- Luminaires that are dimmable.
- Where applicable glare shields such as back shields or louvres.
- The use of timers to automatically turn off or dim lighting system as required.

4.7 Employment

The proposed development will generate 144 FTE jobs during construction phase, and 27 additional jobs during the operational phase. This is reflected in the CIV Report which is provided under separate cover.

4.8 Transport and accessibility

Bus routes provide access to neighbouring suburbs and Penrith Train Station. The cycleways and pathways throughout Glenmore Park give the opportunity for walking and cycling to school. This has informed the selection of the entry locations, building address and the supply and location of bicycle parking.

The proposed design provides adequate entry points and connections along the site boundaries, including:

- Two pedestrian entries are located on Deerubbin Drive. The main entry to the school is at the N-W corner of the site in proximity to the reception in the administration block. The secondary entry is near the hall to allow community access to it after hours.
- One pedestrian entry is located on Darug Ave in proximity to the support unit drop-off and the public bus stop.
- One pedestrian entry is located on Forestwood Drive to support the drop-off zone located along this road.
- One vehicle dedicated entry is proposed for this site. It is located at the SE corner of the site and will cater for entry to staff parking, waste collection area and emergency vehicle parking.

4.9 Site services

The project can be adequately serviced by power, telecommunications, water, sewer and gas services. No external infrastructure upgrades have been identified as required to service this development. It is noted that formal applications to relevant authorities for site servicing / supply can only be made after development consent for SSD-11070211 has been granted.

An existing substation is located on the site as an easement on Darug Avenue and will be readily available to service providers during construction and ongoing operation of the site.

4.10 Stormwater management

A stormwater management system has been developed to accommodate the development works resulting in the increased impervious areas, as well as comply with Council's requirement. Stormwater runoff from all pervious and impervious surfaces within the proposed development will generally be collected by an in-ground pit and pipe gravity pipe system. The in-ground pit and pipe system has been sized to accommodate the 5% AEP (20-year ARI) storm flows for the site.

During construction, erosion and sediment control measures will be provided in accordance with the requirements of "Managing Urban Stormwater Soils and Construction, 4th Edition (Blue Book)". These measures will include silt fences on the low side of the site, silt traps at stormwater pits and a construction exit to remove silt from vehicles before they leave the site. Dust control measures will also be provided.

4.11 Construction sequence

The project will be delivered in a single stage with the construction of a Core 21 school with 18 learning spaces (LS) + 2 support classes, with the selected core facilities at Core 35, for the Hall, Library, Staff facilities and Admin. Construction is expected to be broadly sequenced as follows:

- Earthworks – levelling and cut / fill activities.
- General Construction – footings, services, DfMA and conventional construction for buildings and covers.
- Landscaping – garden bed formation, planting, turfing, irrigation, and associated landscape features.

4.12 Construction hours and duration

The construction of the new school will be delivered for operation on Day 1, Term 1 2023. The proposed development will be undertaken during the following standard construction hours:

- Monday to Friday 7am to 6pm; and
- Saturday 7am to 5pm.

Work outside of these hours (including night work) will occur on an as necessary basis. In these occurrences, the immediately affected residents and businesses will be notified of works prior to commencement.

4.13 Construction environmental management plan

During construction, environmental safeguards referred to in this EIS shall be implemented. A Construction Environmental Management Plan (CEMP) will be prepared to ensure that all mitigation measures / safeguards are implemented, and that construction impacts on the locality are managed.

4.14 School operations

The new school at Mulgoa Rise is expected to facilitate 414 students and approximately 24 staff. The school is expected to operate between 6.30 am till 6.30 pm, Monday to Friday. Additional activities or events may be held after 6.30pm at the school utilising the hall up to 10pm.

The school will provide vacation care during school holiday shutdown periods.

4.15 Accessibility and BCA

An Access Assessment Report has been prepared by BCA Logic and is contained in **Appendix Y** and provides an assessment of the project with respect to achieving compliance with the Building Code of Australia (BCA) and the Disability Discrimination Act (and Disability Standards) (DDA), within the project scope.

A Building Code of Australia (BCA) Assessment Report has been prepared by BCA Logic and is contained in **Appendix Z.** This document provides an assessment of the architectural design drawings against the

Deemed-to-Satisfy provisions of the *Building Code of Australia 2019* (BCA 2019*)*, Volume 1 Amendment 1. The BCA Assessment Report confirms that the proposed development will accord with the relevant principles and provisions of the BCA 2019 subject to the installation of nominated fire safety systems and compliance with conditions of consent.

Subject to addressing the actions identified, BCA Logic confirm that the project documentation provides appropriate accessibility, capable of complying with the BCA & Disability (Access to Premises – Buildings) Standards 2010 and the objectives of the DDA.

5 CONSULTATION

In accordance with the SEARs issued for the project (Page 12 – Consultation), consultation was undertaken with relevant local and State authorities, service providers, and other stakeholders.

5.1 Council and agency consultation

5.1.1 Penrith City Council

A pre-lodgement development application meeting was held with Penrith City Council (Council) on 25 March 2021 to advise on key consideration and submission documentation for the SSDA application. Councils considered the proposal to provide positive educational opportunities for the local community and the design rationale and positioning of the development form on the site was generally supported. Council provided several notes outlining key matters for consideration in the finalisation of the design package. These notes were considered during preparation of application documentation for lodgement with the Department and are summarised below and in the GANSW & PCC Comment Register contained in **Appendix I.**

5.1.2 Transport for NSW

A Transport Working Group was established with TfNSW and Council with the following points discussed.

- A discussion with the bus operator was held during a Transport Working Group. Ideal options for bus connectivity for the project were presented upon which possible changes were discussed. These changes were implemented for the purpose of the target scenario transport mode analysis
- It has been voiced that an analysis of zebra crossing warrants needs to be undertaken, which has been addressed in **Section 7.4**.
- A 40% driving mode share can in principle be accepted, if it can be demonstrated that appropriate measures will be implemented to support this.

5.2 Local Aboriginal Land Council

An ACHAR has been prepared and is contained in **Appendix M**. The ACHAR included consultation with relevant special interest groups, including Aboriginal land Councils and registered Aboriginal stakeholders with an interest in the proposed development. Preliminary consultation with Aboriginal Education Consultative Group (AECG (Durag)) has informed the design: specifically, regarding the use and integration of the aboriginal enterprise for learning outcomes, wayfinding and integrating Aboriginal artwork into the architecture.

5.3 Government Architect NSW

The project was presented to the Government Architect NSW (GANSW) on 10 March 2021 with feedback provided on 26 March 2020. The design review session presented the strategy for achieving design excellence, in accordance with Schedule 4, School design quality principles of *State Environmental Planning Policy (Education and Child Care Facilities) 2017* (Education SEPP). Design feedback is summarised in **Table 2** below.

Table 2 GANSW Recommendations and Responses

Design Feedback Comments	Design Feedback Response
Masterplan and Landscape	
The masterplan is a reasonable approach to the project and is supported. The preferred masterplan option, as sketched, has a clarity and openness that creates more considered outdoor spaces between the classrooms than the developed scheme. Consider how these qualities can be reincorporated into the preferred masterplan option.	Outdoor spaces & Outdoor learning areas have been included in the design.

Design Feedback Comments	Design Feedback Response
The 1:100 flood level is driving the overall planning of the scheme and these constraints need to be interrogated to ensure the optimal plan for the school. Clearly indicate these constraints on the masterplan and clarify which classrooms are required to be raised, providing information on how level changes will be mitigated and the location of existing stormwater pits.	Noted. 500mm freeboard is applicable under all buildings. The overland flow path has been established in collaboration with the Civil Eng. Refer to Civil Engineer report. Location of existing stormwater pits please refer to relevant civil drawings."
There are inconsistencies between the landscape plan and the masterplan. The landscape plan shows more generous outdoor spaces and has more flowing paths than is suggested by the rigid modules of the architectural plans. Provide revised plans that resolve and clearly illustrates these conditions.	Noted. The landscape plan is an updated to address more organic design with inclusion of several break-out and shaded areas. Please refer appended revised landscape plan.
It is understood that these buildings will be delivered through the DFMA model and will therefore incorporate design elements common to many schools across the State. Illustrate techniques to contextualise and provide individual character to the buildings and overall school grounds. The landscape design in particular should be utilised to soften the modules and provide connections to outdoor areas.	The project individuality design response is in the interior and landscape design. The landscape design provides clear structure & connections to outdoor spaces and links between buildings. Trees with mass planting located within the courtyard and around the buildings are proposed to soften the building edges.
The school is located on a greenfield site in a new suburb which presents the opportunity for it to act as a landmark within this new community. The hall should be set forward in relation to the homebases as a public asset as well as to anchor the school.	The Hall is a single storey building with voluminous interior catering for multipurpose use eg. sports, performances etc. The design intents to utilise the 2 storey buildings, Building A, B2 & the Entry Canopies along Deerubbin Drive & Darug Ave to create sizeable landmark & presence of the school within the new community. The Hall is centrally located in responding to the school courtyards & outdoor play areas.
Consider the different character of the adjoining streets and how the school edge should respond to these. Deerubbin Drive is proposed as an urban edge with mixed used development and the street edge created by the hall and the homebases can be brought forward to respond to this condition. Darug Ave is more suburban in character and the proposed setback along this edge supports this condition. Provide street sections demonstrating how the school buildings respond to their adjoining context	The two-storey construction of Mulgoa Rise Public School and the future Commercial Development will be complementary in scale and complete the streetscape along Deerubbin Drive. Along Deerubbin Drive, medium to large canopy trees with understorey planting are proposed as a privacy screening between homebases and mixed-use development. Medium sized shrubs are used to soften the interface of school security fence and footpath. Darug Avenue, a lusher and a landscaped setback is proposed as a landscape buffer between residential and school buildings. The school buildings & structures are well setback from the site boundary to respect the proportion and scale so to enhance pedestrian friendly suburbia neighbourhood street. Please refer to Visual Impact Statement and site section for reference
The community access to facilities is supported. Indicate on the masterplan which zones are accessible to the public after hours	Facilities accessible for after school hours use are noted on "Site Circulation, Security and Fence Plan"
The space between homebases in the masterplan marked as a 'green spine' will have little solar access as it is on the southern side, consider the amenity and function of this space. Provide solar access diagrams for the outdoor spaces at morning, lunch and after school times	The ‘green spine’ will offer intimate courtyard space with seating spaces for smaller group gathering/ outdoor classroom. This courtyard will feature planting selection that are suitable for use in a south-facing courtyard.
As this site is located in western Sydney it can experience varying climatic changes, illustrate how the outdoor assembly area is proposed to be used in extreme weather days	Large canopy trees are proposed to provide spots of shade and protective areas for small gathering. The project aims to meet 40% canopy coverage when matured as per the recommended guidelines.
The carpark and waste disposal area appear very loosely planned and oversized for their function. Establish if the waste area requires a full turning circle and develop this area to incorporate more efficient space planning,	Car park and waste collection entry is positioned to provide optimum number of continuous pick up and drop off bays to the west of the carpark crossover. The layout of carpark & bin enclosure considers:

Design Feedback Comments	Design Feedback Response
minimising impervious ground surfaces and maximising landscaping	– Staff safety by separating car park & waste collection area. – Avoid pockets of areas with low supervision. – Well screened car park & waste collection by using native trees and ground cover grasses to provide a softened and hardy southern landscaped edge.
Clarify if there is a bicycle and/or pedestrian pathway along Surveyor's Creek and how this will link into the school, illustrating bicycle parking areas and their architectural treatment	Refer to traffic engineer's report for the extent of existing bike path connectivity
Look at the opportunity to include more landscaping to be delivered as part of Stage 1. Clarify how the zone marked for Stage 2 is to be used at Stage 1	The scope of landscape work is limited to stage 1 area only. Stage 2 will remain vacant to provide flexibility during the construction of stage 2 buildings. Stage 2 is not considered as part of this application.
Explore opportunities for early planting to establish landscape during an early phase of site works and before the school modules are constructed	Establish planting at an early stage is not recommended, as there will be large machinery operating on site that can damage the installed planting stock
The swale and the bridge shown in the landscape design for Stage 2 are supported. The concept of the swale can be used to inform more of the physical decisions on the site for both stages	Noted. Where appropriate, the concept of the swale will be considered
Clarify the proposed landscape will achieve 40% tree canopy cover in line with State targets, noting that carparking spaces should be included in site calculations	The breakdown of 40% tree canopy cover is stated in the Urban Design report.
Provide detail as to the type of fencing to be used. Use built form as an alternative barrier and street edge where possible	A combination of masonry & metal fencing will be used at the perimeter of the site. Please refer to Landscape drawings for the extent & types of fences.
The drop off and pick up arrangement along three roads are quite complex and will have a significant impact on surrounding uses. Provide information and modelling to support this approach and illustrate how impacts are to be mitigated	Refer to the traffic engineer's report for the South/ North catchment analysis that influences the proposed parent's pickup-drop off routes.
Aboriginal Cultural Heritage	
The Indigenous landscaping components should be considered as an integrated whole rather than a discrete element of the landscape design	Noted. The landscape design is Inspired by the site history and cultural background of Mulgoa Rise where two indigenous nations intersect. The landscape design of Mulgoa Rise Public School aims to create the 'meeting place' for students and local communities that celebrates the original characters and culture of the land, encourages active and passive recreations as well as knowledge sharing beyond the classroom.
The bush tucker garden should be developed in consultation with local aboriginal groups. Further consider how planting can bring back the native species and work to heal country and restore the endemic Cumberland Plain	Bush tucker garden is to be developed. Planting selection is driven by native species and where appropriate, endemic species will be used to contribute to healing the country and restoring the Cumberland Plain landscape
The importance of water to the local Aboriginal culture and the presence of watercourses on the site can inform the design. This was a rich and fertile area due to the presence of water on the site. Consider how this can inform a living cultural practice at the school, for example around the care of waterways, growing and preparation of food, etc	Subject to detailed design.
Architectural Expression	
Consider opportunities as to how the DfMA can be used to create an individualised response and built character that is specific to Mulgoa Rise. As the site used to be a quarry consider how this history can be brought into the design of the school and the landscape	"The project individuality design response is in the interior and landscape design. The landscape design provides clear structure and connections to outdoor spaces and links between buildings. Trees with mass planting located within the courtyard and around the buildings are proposed to soften the building edges."

Design Feedback Comments	Design Feedback Response
Provide diagrams and sections illustrating how the edges of the school will incorporate shade and seating areas. Show sun angles	Publicly accessible seating areas are provided in the external forecourts of Deerubbin Drive Entries.
Where classrooms are elevated show compliant ramps and walkways on the plan. Provide accurate sections through the site indicating floor levels of the schools and the spaces between	Level changes are mitigated by using 1:20 grade walkways. Refer to architectural plans.
More details are required on the architectural expression to the school including materiality. The awning elements to the pathways as well as to the COLA require further detail and illustration	Refer to the 4 artist impression renders included in the architectural drawing set
Sustainability and environmental aspects	
Illustrate solar access and daylighting into the classrooms.	Refer to the Architectural Design Report
Explore opportunities for each classroom to have mixed mode system advising occupants on the optimal method of passive climate control.	Will be considered during the detailed design stage
Clarify the quantify of how the ESD goals are to be achieved. Show where the water tanks, PVC etc are located and indicate environmental performance outcomes to be achieved.	Refer to the site ESD Statement and Architectural Design Plans. The water tank is proposed to be located south-east of the Hall under the outdoor play area.

Further details of the GANSW advice and recommendations can be found in the Architectural Design Statement contained in **Appendix E**.

5.4 Service providers

An Infrastructure Management Plan has been prepared by Norman Disney and Young (NYD) and is contained in **Appendix Q**. Consultation with the following service providers has occurred and will continue through the development and construction process.

- Sydney Water.
- Jemena.
- Ausgrid.
- NBN and Telstra.

5.5 Community consultation

Community consultation will occur through the exhibition of the SSDA and through the construction and operational phases and incorporate the feedback received into the designs and studies lodged with the SSDA. A Community Engagement Plan has been prepared by SI NSW and outlines the communication and engagement tools and activities that will be utilised during the construction and operational phases. A copy of the Community Engagement Plan is contained in **Appendix I**.

6 STATUTORY AND STRATEGIC PLANNING CONTEXT

6.1 Legislation

6.1.1 EP&A Act 1979

The proposed development is consistent with the objects of the EP&A Act, in particular:

- Promotes social welfare of the community.
- Promotes the sustainable management of built and cultural heritage and
- Promotes good design and amenity of the built environment.

The proposed development is consistent with Division 4.7 of the EP&A Act, particularly for the following reasons:

- The development promotes education services and stimulates social welfare of the community and
- The development has been evaluated and assessed against the relevant heads of consideration under Section 4.15(1).

6.1.2 EP&A Regulation 2000

The EIS has addressed the criteria within Clause 6 and Clause 7 of Schedule 2 of the EP&A Regulation.

6.1.3 Biodiversity Conservation Act 2016

The *Biodiversity Conservation Act 2016* (BC Act) seeks to maintain a healthy and resilient environment for the greatest well-being of the community, now and into the future, consistent with the principles of ecological sustainable development. The provisions provide a guideline to maintaining and conserving biodiversity on a state scale.

Section 7.9 of the BC Act indicates that there are some circumstances in which the Planning Agency Head and the Environment Agency Head will determine that a proposed development is not likely to have a significant impact on biodiversity values and as such, a Biodiversity Development Assessment Report (BDAR) is not required to be prepared.

A BDAR Waiver was granted by the Environment, Energy and Science Group (EESG) of DPIE on 15 April 2021. A copy of the BDAR Waiver Request prepared by Cumberland Ecology, together with a copy of the EESG correspondence is included in **Appendix P**.

6.1.4 National Parks and Wildlife Act 1974

The objects of the NP&W Act are the conservation of nature and the conservation of objects, places or features (including biological diversity) of cultural value within the landscape, fostering public appreciation, understanding and enjoyment of nature and cultural heritage and their conservation, and providing for the management of land reserved under this Act in accordance with the management principles applicable for each type of reservation.

An ACHAR has been prepared and is contained in **Appendix M**. The ACHAR notes an absence of Aboriginal objects and/or deposits or features of cultural and archaeological significance on the site and concludes that further investigation is not warranted and works may proceed with caution.

6.1.5 Heritage Act 1977

The study area was a former quarry and no buildings have been constructed on the site in the past. A Statement of Heritage Impact has been prepared and is contained in **Appendix L**. The Statement concludes that the study area does not contain any significant historical archaeological features or relics.

6.2 Environmental planning instruments

In accordance with Item 1 of the SEARs, the following statutory policies have been considered in the assessment of the proposal:

- *State Environmental Planning Policy (State and Regional Development) 2011.*
- *State Environmental Planning Policy (Infrastructure) 2007.*
- *State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017.*
- *State Environmental Planning Policy (Western Sydney Aerotropolis) 2020.*
- *State Environmental Planning Policy No 64 – Advertising and Signage.*
- *State Environmental Planning Policy No 55 – Remediation of Land.*
- *Sydney Regional Environmental Plan No 20 – Hawkesbury-Nepean River (No 2-1997).*
- Draft *State Environmental Planning Policy (Remediation of Land).*
- Draft *State Environmental Planning Policy (Environment).*
- Draft *State Environmental Planning Policy (Educational Establishments and Child Care Facilities).*
- Draft *State Environmental Planning Policy (SEPP) for strategic conservation planning.*
- *Penrith Local Environmental Plan 2010.*

The relevant controls contained within the statutory planning policies listed above are discussed in detail below.

6.2.1 State Environmental Planning Policy (State and Regional Development) 2011

State Environmental Planning Policy (State and Regional Development) 2011 identifies development types that are of state significance, state significant infrastructure and critical State significant infrastructure and development that is regionally significant. The proposed development is defined as 'Educational Establishments' under the *Schedule 1* of the SEPP:

(1) Development for the purpose of a new school (regardless of the capital investment value).

(2) Development that has a capital investment value of more than $20 million for the purpose of alterations or additions to an existing school.

(3) Development for the purpose of a tertiary institution (within the meaning of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017), including associated research facilities, that has a capital investment value of more than $30 million.

The development is for the purpose of a new school (regardless of the capital investment) and meets the requirements of State Significant Development.

6.2.2 State Environmental Planning Policy (Infrastructure) 2007

The requirements for educational buildings under the *State Environmental Planning Policy (Infrastructure) 2007* have been superseded by the Education SEPP. The provisions have been addressed in the above section.

6.2.3 State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017

The Education SEPP provides state-wide planning controls for educational establishments. The Education SEPP came into force on 1 September 2017 and replaces the education provisions in the *State Environmental Planning Policy (Infrastructure (2007)*.

Development for the purpose of a school must consider the following in accordance with Clause 35(6) for the proposed to be permitted with consent:

(6) Before determining a development application for development of a kind referred to in subclause (1), (3) or (5), the consent authority must take into consideration—

(a) the design quality of the development when evaluated in accordance with the design quality principles set out in Schedule 4, and

(b) whether the development enables the use of school facilities (including recreational facilities) to be shared with the community.

Pursuant to Clause 35(6), the design principles are outlined in Schedule 4 of the Education SEPP and are to be considered against the proposed school development. The proposed development responds to the design quality principles as detailed in **Table 3** below.

Table 3 Schedule 4 Schools: Design Quality Principles

Design Quality Principles	Compliance
Principle 1 – Context, Built Form and Landscape	The proposed development has been designed to incorporate the rich historic and local context on the land. The natural environment, water catchment and indigenous history has informed the landscape design, wayfinding approach for the school and natural material palette selected for the school. The main functions of the Administration, Library and Hall are designed to front Deerubbin Drive to create a street edge building with clearly defined entry points. This urban design element, along with the tree planting, are the elements that create a positive streetscape. The main guiding principle for the landscape design is to provide a variety of external spaces that respond to the buildings, topography and orientation linked by the site narrative. The overall form, site layout and landscape approach ensure that negative impacts for the neighbours have been mitigated.
Principle 2 – Sustainable, Efficient and Durable	The proposed school is designed with regard to the principles of environmentally sustainable development. The building orientation, sun shading and passive thermal design elements are the first step to creating a sustainable building. This is further enhanced by the inclusion of a rainwater tank to be used for irrigation, solar power and the selection of long lasting, low maintenance materials. The structural system for the buildings is a mixture of concrete frame and steel framing. The benefit of these systems is that the internal walls are non-loading bearing allowing for reconfiguration in the future if deemed necessary. The buildings have been optimised to facilitate good daylighting and natural ventilation. The ESD report, refer to **Appendix K**, that forms part of this submission, outlines these ideas in more detail including energy conservation, water conservation and other sustainability initiatives
Principle 3 – Accessible and Inclusive	The site has been designed to provide an accessible ground plane with the main premise such that the buildings are all served by ramps and/or lift. The design of the open space aims to provide walkway transitions between the various areas. This creates equitable access for all users. The site layout is clear and simple, promoting easy and direct circulation. This will be enhanced by clear wayfinding signage. The signage strategy is included in Section 4.4 of this report. The layout of the various functions that can be used by the community have been designed so as to facilitate secure after hours use. The Hall and library are located at the street edge with clearly defined entries to allow easy access by the community. The open play fields are located on the east of the site and have direct access to Mulgoa Rise Fields located to the east.
Principle 4 – Health and Safety	The proposed school design ensures that natural light, ventilation & acoustics are used to create healthy and safe learning/teaching environments. The school site is to be fenced at the boundary as the perimeter security. The landscaping of the site and the articulation of the fence assists with integrating the fence into the site and public domain. The school has a main entry on Deerubbin Drive that is clearly identified. There are multiple secondary entry and exit points that are needed to manage the large student numbers on the site. These points are secure

Design Quality Principles	Compliance
	and are open at the start and end of the day only. During school hours, it is understood that these gates will be locked to ensure that all visitors and students enter and leave via the main entry during school hours.
Principle 5 – Amenity	The layout of the school has been designed to ensure engaging and pleasant spaces with consideration of surrounding amenities. The objective is to provide a variety of teaching and learning spaces that have access to natural light and ventilation and have good internal acoustics to facilitate comfortable learning environments. The typical learning clusters contain four homebases, a combined practical activity area with a shared learning common. This is complemented on site by special programs rooms, learning spaces within the library and facilities for special needs students. In addition, a range of outdoor learning and play spaces are provided with the aim to encourage learning from the natural environments and the buildings themselves. Some spaces are designed to be multipurpose to cater for a range of school uses as well as community use. This includes the Hall and playing fields. The layout of the school provides a perimeter street edge building that encloses the main outdoor activities. This has the benefit of protecting the amenity of the local neighbourhood and the safety of the students.
Principle 6 – Whole of Life, Flexible and Adaptive	The design of the site is based on the urban design and sustainability principles described in the points above. The key factors that ensure a building can be used well into the future are; • Long lasting, low maintenance materials to ensure its use stands up to the impacts associated with school buildings, • Framed construction that allows the internal walls to be reconfigured in the future to adapt to future learning requirements and finally, Providing a variety of learning spaces that have good amenity for the use by teachers, students & community. All the homebases are accessible to a shared practical activities area. Learning spaces also have sliding door connections between them to encourage future focussed teaching & learning modes.
Principle 7 – Aesthetics	The proposed school is designed to provide an articulated and dynamic built form. The buildings are designed to clearly articulate entry points, reinforcing connection to the neighbourhood and its wider context. The learning buildings have an articulated façade that provides a subtle playfulness towards the street. This is accentuated with the use of accent colours that are drawn from the colours derived by the research in preparing the site narrative. These ideas, combined with the passive environmental principles described above, produces an aesthetic that is both dynamic yet responsive to climate and context. The combination of the building forms and landscape setting will provide a sense of identity for the neighbourhood.

6.2.4 State Environmental Planning Policy (Western Sydney Aerotropolis) 2020.

The *Western Sydney Aerotropolis SEPP* applies to the site area. As the proposal is for an educational establishment, it is considered noise-sensitive development. Due to the location of the site being a minimum 30km from the airport and the existing built form, it is not considered that the development will be subject to the impacts of aircraft noise.

An Aeronautical Impact Assessment has been prepared and is contained **Appendix X** along with a Noise and Vibration Impact Assessment Report contained in **Appendix O**.

6.2.5 State Environmental Planning Policy No. 64 – Advertising and Signage

The *State Environmental Planning Policy No. 64 – Advertising and Signage* applies to all signage that can be displayed with or without development consent and is visible from any public place or public reserve.

Details of the proposed signage is found in **Section 4.4**, the Architectural Plans contained in **Appendix D** and the Architectural Design Statement in **Appendix E**.

6.2.6 State Environmental Planning Policy No. 55 – Remediation of Land

The *State Environmental Policy No 55 – Remediation of Land* (SEPP 55) provides a state-wide planning approach to the remediation of contaminated land. Contaminated land is defined in SEPP 55 and the EP&A Act as:

> *Contaminated land means land in, on or under which any substance is present at a concentration above the concentration at which the substance is normally present in, on or under (respectively) land in the same locality, being a presence that presents a risk of harm to human health or any other aspect of the environment.*

Pursuant to Clause 7(1) of SEPP 55, consent authority must not grant consent to a development application unless it has considered whether the land is contaminated.

The site is former quarry that was backfilled with fill material as part of rehabilitation works in the late 90s' to early 2000. A Detailed Site Investigation was undertaken by JKE Environmental (JKE) in November 2020 and is located in **Appendix V**.

6.2.7 Sydney Regional Environmental Plan No 20 – Hawkesbury-Nepean River (No 2-1997)

The site is located within the Hawkesbury-Nepean River catchment. Pursuant to Part 2 of this plan, the proposed development contains appropriate measures to mitigate the impacts of the development on the water quality, aquaculture, recreation, and tourism. The proposed development includes suitable measures for the implementation of sediment and erosion control and stormwater management to protect water quality.

6.2.8 Draft State Environmental Planning Policy (Remediation of Land)

DPIE is currently undertaking a review of SEPP 55 (Draft SEPP 55) and has publicly exhibited a proposed new Remediation of Land SEPP. DPIE will identify further steps in consultation and plan making which will include further consultation with stakeholders.

New provisions that may be gazetted in the new Remediation of Land SEPP include:

- Requiring all remediation works to be carried out without development consent to be reviewed and certified by a certified contaminated land consultant.
- Categories remediation work based on the scale, risk and complexity of the work.
- Require environmental management plans relating to post-remediation management of sites or ongoing operation, maintenance and management of on-site remediation measures (such as containment cell) to be provided to Council.

Draft SEPP 55 contains similar content that is not dissimilar to the gazetted SEPP 55. The proposal aligns with the aims and objectives of Draft SEPP 55. Refer to the Detailed Site Investigation contained at **Appendix V**.

6.2.9 Draft State Environmental Planning Policy (Environment)

The Draft SEPP (Environment) is a proposed new SEPP that will form part of the broader land use planning framework in NSW. The proposed new SEPP aims to deliver a planning framework that simplifies the planning rules for a number of water catchments, waterways, urban bushland, and Willandra Lakes World Heritage Property. Changes proposed include consolidating the following seven existing SEPPs:

- State Environmental Planning Policy No. 19 – Bushland in Urban Areas.
- State Environmental Planning Policy (Sydney Drinking Water Catchment) 2011.
- State Environmental Planning Policy No. 50 – Canal Estate Development.
- Greater Metropolitan Regional Environmental Plan No. 2 – Georges River Catchment.
- Sydney Regional Environmental Plan No. 20 – Hawkesbury-Nepean River (No.2-1997).
- Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005.

- Willandra Lakes Regional Environmental Plan No. 1 – World Heritage Property.

As noted in **Section 6.2.7**, the site is located within the Hawkesbury-Nepean River catchment. The Draft SEPP (Environment) will not have an effect on the proposed development with appropriate mitigation measures to be implemented for protection of water catchments, waterways, urban bushland during construction and operation of the school.

6.2.10 Draft State Environmental Planning Policy (Educational Establishments and Child Care Facilities)

The proposed amendments are aimed at clarifying the operation and usability of the Education SEPP, as well as addressing community feedback regarding the impact of childcare centre developments in the general residential zone. Some of the significant amendments that are proposed include:

- Part-time use of an existing community building for out of school hours care is permissible where the land use is permissible.
- Increasing the maximum number of storeys of buildings that are allowed to be constructed by or on behalf of a public authority without development consent within an existing school, tertiary institution or TAFE from one to two storeys.

The proposed amendments will not have any material impact on the proposed development.

6.2.11 Draft State Environmental Planning Policy for strategic conservation

Through strategic conservation planning, the NSW Government has developed a conservation plan for Western Sydney to help meet the future needs of our community while protecting threatened plants and animals in the long term.

The Draft Cumberland Plain Conservation Plan (Draft CPCP) is one of the largest strategic conservation plans to be undertaken in Australia and is the first strategic biodiversity certification to be undertaken under the *Biodiversity Conservation Act 2016*.

The Draft CPCP will contribute to the Western Parkland City by supporting the delivery of housing, jobs and infrastructure while protecting important biodiversity such as threatened plants and animals.

The Draft CPCP will deliver on commitments and a series of planned and managed actions designed to improve ecological resilience and function, and offset biodiversity impacts from housing and infrastructure development. Taking a landscape-scale approach to conservation and assessment will deliver the greatest safeguards for Western Sydney's natural environment over the long term.

Due to the minimal biodiversity impacts of the proposed development identified through the BDAR Waiver, the proposed development is not expected to be impacted by the Draft CPCP.

6.2.12 Penrith Local Environmental Plan 2010

The PLEP 2010 is the relevant planning instrument to the site. The parcel of land has been assessed against the relevant controls for the site in **Table 4**.

Table 4 Penrith LEP 2010 Compliance Table

Clause	Comment	Complies
2.1 Land Zones		
R1 General Residential	Zone Objectives: • To provide for the housing needs of the community. • To provide for a variety of housing types and densities. • To enable other land uses that provide facilities or services to meet the day to day needs of residents. • To ensure that a high level of residential amenity is achieved and maintained.	The proposed development is located within a new suburb and provides an educational facility for the local community. Whilst the proposed development does not provide housing it does provide educational facilities needed by the community. The proposed development will provide contemporary and functional spaces that

Clause	Comment	Complies
	• To ensure that new development reflects the desired future character and dwelling densities of the area.	will continue to meet the day to day needs of students and the community. The inclusion of an educational facility within the community will increase the amenity of the locality through the delivery of services and encourage active transport. The proposed development will contribute to the character and identity of the surrounding residential areas. It is considered that the proposal is therefore consistent with the objectives of the R1 General Residential zone.
4.3 Height of Buildings		
The Height of Building on any land is not to exceed the maximum height shown for the land on the Height of Building Map	The site has a maximum building height requirement of 15m. The proposed design (10.4m) does not exceed the maximum height requirement.	Yes
4.4 Floor Space Ratio		
	Not applicable under Penrith LEP.	N/A
5.10 Heritage Conservation		
	The site has been historically quarried for clay and shale and has been backfilled. The heritage impact assessment did not retrieve any evidence of heritage significance at the site.	N/A
Part 6 Urban release areas		
	The site has been identified as within the Glenmore Park urban release area. As the development does not require subdivision the Clause does not apply in this instance.	N/A
7.1 Earthworks		
	The earthworks required for the proposed development are not likely to have any detrimental effect on soil stability or existing drainage patterns in the locality.	Yes.
7.2 Flood planning		
	The site is located on flood prone land and has been appropriately designed to meet the minimum finished floor level in the flood management plan.	Yes.
7.16 Glenmore Park Stage 2		
	The proposal will ensure that the transition of lot sizes between the urban areas of Glenmore Park, the surrounding rural landscape and the adjoining Mulgoa Nature Reserve is not overdeveloped. Existing extractive industries have ceased.	Yes.

6.3 Strategic

In accordance with Item 1 of the SEARs, relevant strategic planning policies are addressed below in assessment of the proposed development:

- NSW State Policies
- State Infrastructure Strategy 2018 – 2038 Building the Momentum

- Future Transport Strategy 2056
- Crime Prevention Through Environmental Design (CPTED) Principles
- Better Placed: An integrated design policy for the built environment of New South Wales (Government Architect NSW (GANSW), 2017).
- Healthy Urban Development Checklist (NSW Health, 2009).
- Draft Greener Places Design Guide (DPIE, 2020).
- The Greater Sydney Region Plan – A Metropolis of Three Cities.
- Sydney's Cycling Future 2013.
- Sydney's Walking Future 2013.
- Sydney's Bus Future 2013.
- Western City District Plan.
- Penrith Development Control Plan 2014.
- Planning for a Brighter Future – Penrith Local Strategic Planning Statement 2020.
- Draft Cumberland Plain Conservation Plan.

6.3.1 NSW State Priorities

The NSW State Priorities is the State Government's plan to guide policy and decision making across the State. The proposed development at the site is consistent with key objectives contained within the proposal, including:

- **Building Infrastructure** – Key metropolitan, regional and local infrastructure projects to be delivered on time and on budget

The proposal will deliver a high-quality education facility for students within the Penrith area. The new development will provide additional educational capacity for primary school aged students in the new urban development of Glenmore Park. The development will create jobs, deliver a vital piece of community infrastructure and provide education facilities beyond the capacity of the previous site.

- **Improving education results** – Increase the proportion of public-school students in the top two NAPLAN bands (or equivalent) for literacy and numeracy by 15% by 2023, including through state-wide rollout of Bump it Up.

The proposed development provides programming for local primary school students. The school will offer engaging educational training to improve numeracy and literacy outcomes.

6.3.2 State Infrastructure Strategy 2018- 2038 Building the Momentum

The *State Infrastructure Strategy 2018-2038 Building the Momentum* is a 20- year strategy that sets out infrastructure NSW 's advice on the current state of NSW's infrastructure and the priorities within the next 20 years. Their strategic objective for education in NSW is to deliver infrastructure to keep pace with increased student numbers and provide modern, digitally enabled learn environments for all students.

This strategy acknowledged NSW's population is forecast to grow to over 12 million by 2056. To support this growing population, supporting infrastructure such as schools are required for a fast-growing population. It is projected that nearly 200,000 more students will be enrolled into public schools by 2036.

The proposed development is consistent with the State infrastructure Strategy through:

- Delivering school infrastructure to keep pace with student numbers.
- Providing modern learning environments.

6.3.3 Future Transport Strategy 2056

The Future Transport Strategy 2056 outlines a 40-year framework for customer mobility in NSW. The strategy presents directions and outcomes for transportation networks to provide an integrated system for the state.

This strategy identifies that importance of access for children to school. The strategy emphasises the safety of customers as a priority, safe behaviours with children and the education of children to utilise active travel and public transport.

The proposed development is consistent with the Strategy by providing increased educational student capacity in the Penrith area.

6.3.4 Crime Prevention Through Environmental Design (CPTED) Principles

The Crime Prevention Through Environmental Design (CPTED) guidelines are prepared by the NSW Police in conjunction with the DPIE. CPTED principles offer a straightforward approach to the '*planning, design and structure of cities and neighbourhoods.'* CPTED aims to create a perception that the costs of committing crime is greater than the likely benefits. This can be conducted by applying the following strategies to limit crime associated with the development. These strategies have been outlined in **Table 5**.

Table 5 CPTED Principles Assessment

Principle	Commitment
Territorial Re-enforcement	The Site is oriented with frontage access to Deerubbin Drive to the north, Darug Avenue to the west. In accordance with SINNSW security requirements the site will contain boundary fencing along the perimeter to delineate private and public space. The front entry points will be clearly marked by identification signage.
Surveillance	The proposed development emphasises strong passive surveillance with its clear circulation paths, internally and externally. The design includes provisions for: • Alarm systems • Fencing. • Appropriate external lighting.
Access Control	Access to the site is controlled through the proposed fencing and limited access points. The fences will be constructed of optically permeable materials in accordance with the Education Facilities Standards and Guidelines (EFSG).
Space/ Activity Management	Space and activity management is achieved through the arrangement of the buildings and proposed uses for each building. The buildings face the site internally and provide passive surveillance to the site boundaries. During school operation, students will be contained within the interior of the site.

A CPTED Assessment prepared by NBRS Architecture is contained in **Appendix DD**.

6.3.5 Better Placed: An integrated design policy for the built environment of New South Wales (Government Architect NSW (GANSW), 2017)

Better Placed (ANSW, 2017) is an integrated design policy that seeks to create a clear approach for places where we work. Live and play, ensuring the importance of good design as the centre of all development processes. New development can improve quality of life for people and enhance the environment. The design of buildings, place and space that supports inclusiveness, connectivity and diversity is important to provide optimal opportunity and reduce social disparity.

The design of the proposed development will provide a vibrancy to the neighbourhood and ensures it provides a welcoming and accessible environment. The proposed development will be designed to be practical and purposeful, resulting in better learning and teaching outcomes, and increased productivity.

The project team have had consultation meetings with the Government Architect through the development of the project. These consultation meetings have shaped and guided the design. Consultation with the Government Architect is further explained in **Section 5.3** of this EIS.

6.3.6 Healthy Urban Development Checklist (NSW Health, 2009)

The Healthy Urban Development Checklist (NSW Health) outlines the development provisions to support sustainable and healthy outcomes for the community. In order to accommodate for population growth, communities need access to social infrastructure, education, employment, housing, air quality and health care.

The proposed development promotes the checklist's 11 themes through the design and function of the site. The proposed development supports the themes of the Checklist, including;

- Healthy eating.
- Physical activity.
- Housing.
- Transport and connectivity.
- Quality employment.
- Community safety and security.
- Open space and natural features.
- Social infrastructure.
- Social cohesion and connectivity.
- Environment and health.
- Environmental sustainability and climate change.

The proposed development aims to provide quality amenity and wellbeing of students and staff, through extensive landscape, high-quality architectural design and the incorporation of CPTED principles.

6.3.7 Draft Greener Places Design Guide (GANSW)

The Draft Greener Places policy provides information on how to design, plan and implement green infrastructure in urban areas throughout NSW. The draft guide provides strategies, performance criteria and recommendations to assist planning authorities, and design and development communities to deliver green infrastructure.

The Greener Places Design Guide has three main objectives:

- Open space for Recreation: green infrastructure for people.
- Urban tree canopy; green infrastructure for adaptation and resilience and
- Bushland and waterways: green infrastructure for habitat and ecological health.

The Draft Greener Places Policy has guided the delivery of green infrastructure of the site together with the NSW Educational Facilities Standards and Guidelines (EFSG). Consultation has been undertaken with the Government Architect and will continue to ensure that the project will deliver and provide the required green infrastructure for the site.

6.3.8 The Greater Sydney Plan - A Metropolis of Three Cities

The Greater Sydney Region Plan, A Metropolis of Three Cities aims to rebalance growth and deliver benefits to residents across Greater Sydney through implementing appropriate infrastructure, productivity and liveability guidelines.

Between 2016 and 2036, the population of infants aged 0-4 years is projected to increase by 85,000, with 333,000 more children and young people aged 5-19 than today. This strategy acknowledges there is an increase in number of children across the region, leading to pressure for access to education services. The proposed development addresses the relevant objectives of this plan below.

- Objective 1: The proposed development will support the three cities through delivering education infrastructure in Western Sydney. This will support the population growth in the area, and across the region.
- Objective 2: The proposed development will accommodate the growing population of children and respond to the residential and employment growth in Penrith.
- Objective 3: The proposed development is responded to the future needs of social and school infrastructure in Greater Sydney. It will provide a modern, and innovative learning space that will respond to the needs of a young growing population.
- Objective 5: Collaboration between the government, agencies and community stakeholders has been undertaken to reflect the communities changing needs.
- Objective 6: The proposed development supports this objective, providing a service and infrastructure to meet the significant increase in young children. Schools are essential infrastructure, and this development will support young families.
- Objective 7: The proposed development will contribute to a more healthy, resilient and socially connected community. It is well placed to support a vibrant neighbourhood.
- Objective 14: The proposed development provides safe walking and cycling links to the new school and encourages children to be more active through incidental exercise. As it is already close to established bike paths, residential development and bus routes, students and teachers will be encouraged to use these for active and public transport. In result, this will reduce car use and congestion on the roads.

6.3.9 Sydney's Cycling Future 2013.

Sydney's Cycling Future 2013 encourages the use of bicycle transport as an active transport mode within Sydney. The existing bicycle network provides alternative transport for school students and promoting sustainable transport. Mulgoa Rise Public School is to provide ample bicycle storage and connection to future cycleways to increase participation in bicycle transport infrastructure.

A Green Travel Plan accompanies the Transport and Accessibility Impact Assessment prepared by PTC Consultants in **Appendix J** and details the initiatives to promote alternate modes of transportation.

6.3.10 Sydney's Walking Future 2013.

Sydney's Walking Future 2013 promotes walking as an effective means of transport by encouraging the investment in creating more convenient, permeable, and safer walking networks.

Mulgoa Rise Public School is located in a new urban release area with general residential (R1) parcels surrounding the site. The proposed school encompasses connected and open walkways providing safe access for students to and from school. Direct circulation and compressed and open areas at the site aid in wayfinding.

The proposed development supports Safety Around Schools Program by providing a safe environment for young pedestrians, focusing on the visibility of school zone signage.

A Green Travel Plan is contained in **Appendix J.**

6.3.11 Sydney's Bus Future 2013.

Sydney's Bus Future 2013 plan seeks to deliver a simpler and more efficient bus services to cater to the current and future growth of Greater Sydney. The Transport and Accessibility Impact Assessment prepared by PTC Consultants is located in **Appendix J**. Local and regional bus services are to be developed within the Glenmore Park precinct, where the school is located. The school design is well integrated to accommodate active transport links within the vicinity to the site.

The Green Travel Plan contained in **Appendix J** will promote walking and cycling to the school with the implementation of a range of short-term, medium and long-term strategies including programmes for pedestrian safety, bike club, buddy systems and discounted bas travel.

6.3.12 Western City District Plan

The Western City District Plan, updated in March 2018, includes a range of priorities and actions to appropriately support the strategic growth of Sydney's Western City District. The Western City District Plan (Greater Sydney Commission) identifies the following:

- Within the next 20 years to 2036, an increase of 24,950 children aged four or younger is projected, with approximately twenty percent of this growth to be located in the Penrith LGA.
- The Department of Education estimates an extra 77,978 students will need to be accommodated in both government and non-government schools in the district by 2036.

In order to accommodate the growing population of students by 2036, it is necessary to provide school infrastructure capable of servicing this population. The Western City District Plan has identified this as a priority:

> *Planning for new schools, and the use of existing schools, must respond to growth and changing demand in innovative ways such as more efficient use of land contemporary design, greater sharing of spaces and facilities, and flexible learning spaces. Safe walking and cycling links to schools encourage young people to be more active and better connect schools with local communities.*

As outlined in Planning Priority W3, facilities such as schools can be the focus of neighbourhoods. School design must consider how it contributes vibrancy to a neighbourhood, and how it can provide safe and easy access for children. The proposed development is designed to provide safe and easy access for all users.

6.3.13 Penrith Development Control Plan 2014

Penrith Development Control Plan 2014 (PDCP 2014) consists of the local development controls for the Penrith LGA. The proposed development has been assessed against the relevant controls for the site in **Table 6**.

Table 6 Penrith DCP 2014 Compliance Table

Clause	Comment	Complies
Part C1: Site Planning and Design principles		
A comprehensive site plan is to be provided with regard for existing natural constructed and other features of the site.	The development has been appropriately sited on the parcel and is well integrated to the local environment. Architectural Plans have been provided in **Appendix D**. The site analysis has been provided in **Section 2** *Site and Surrounding Context* of this document.	Yes
C2 Vegetation management		
	A biodiversity waiver has been granted for the development and is found in **Appendix P.**	Yes
C3 Water management		
	A stormwater management plan has been prepared for the proposed development found under **Appendix S.**	Yes
C4 Land management		
	Proposed construction and land management activities have been detailed in the Construction Management Plan contained in **Appendix CC**.	Yes
C5 Waste management		
	A Construction Waste Management Plan and a Operation Waste Management Plan have been prepared and are contained in **Appendix W**. Construction and operational works will conform to the proposed safe management of waste.	Yes
C6 Landscape Design		
A landscape plan is required for the development.	Landscape Plans are contained in **Appendix F** and a Landscape Design Statement in **Appendix G**. The Landscape Plans show the retention of much of the natural environment	Yes.

Clause	Comment	Complies
	as possible with regard for the surrounding environment designed into the built form.	
C7 Culture and Heritage		
	A Statement of Heritage Impact is contained in **Appendix L** and an Aboriginal Cultural Heritage Assessment Report is contained in **Appendix M**.	Yes
C8 Public Domain		
	The development has been well integrated to promote pedestrian traffic.	Yes.
C9 Advertising and Signage		
	The proposed signage associated with the development provides internal site and building identification in addition to wayfinding. Details for signage is found in **Section 4.4** and the Architectural Plans contained in **Appendix D**.	Yes.
C10 Transport, Access, and Parking		
	Consultation with Transport for NSW has been undertaken for the development and will guide the proposal in terms of parking and site access, the Transport and Accessibility Impact Assessment by PTC Consultants provides further detail under **Appendix J.**	Yes.
C12 Noise and Vibration		
	A Noise and Vibration Assessment has been completed by Pulse White Noise Acoustics and is contained in **Appendix O**.	Yes

6.3.14 Planning for a Brighter Future – Penrith Local Strategic Planning Statement 2020

Planning priority 1 – Align development, growth and infrastructure - The proposal provides high quality social infrastructure to accommodate for the growing demands of the Penrith LGA

Planning priority 6 – Ensure our social infrastructure meets the changing needs of our communities – The school is able to accommodate 414 primary school students and provide recreational opportunities for the surrounding community outside of school operating hours.

Planning Priority 7 – Enrich our places – The proposal will encourage more walkable connections to the community and provides a well- designed built environment for residents to enjoy.

Planning priority 10: Provide a safe, connected and efficient local network supported by frequent public transport options – The development will promote active transport to and from the site through the inclusion of safe walkways and bicycle infrastructure. Buses will service the site.

Planning Priority 16: Protect and enhance our high value environmental lands – The site is located in close proximity to Mulgoa Nature Reserve. The proposal will incorporate Environmentally Sensitive Design (ESD) principles to reduce the impact on the surrounding sensitive ecological areas.

Planning priority 19 – Create an energy, water and waste efficient city – The proposal will incorporate ESD principles into the fabric of the built form in order to protect the surrounding landscape and mitigate the urban heat island effect.

Planning Priority 20 – Manage flood risk – A Flood Impact Assessment has been prepared for the proposal and details the mitigation strategies to reduce the risk of flood impacts on the school. The Flood Impact Assessment is contained in **Appendix T**.

6.3.15 Draft Cumberland Plain Conservation Plan

The Cumberland Plain Conservation Plan is one of the largest strategic conservation plans to be undertaken in Australia and is the first strategic biodiversity certification to be undertaken under the *Biodiversity Conservation Act 2016*.

The Plan will contribute to the Western Parkland City by supporting the delivery of housing, jobs and infrastructure while protecting important biodiversity such as threatened plants and animals.

The Plan will deliver on commitments and a series of planned and managed actions designed to improve ecological resilience and function, and offset biodiversity impacts from housing and infrastructure development. Taking a landscape-scale approach to conservation and assessment will deliver the greatest safeguards for Western Sydney's natural environment over the long term.

The site is currently vacant, with natural grassland and a few trees bordering the perimeter of the site, most notably along the southern portion of the site. The proposed development will provide extensive landscaping.

7 IMPACT ASSESSMENT, MITIGATION, AND MANAGEMENT

This section assesses those matters as required under Section 4.15(1) of the EP&A Act and responds to the matters for consideration set out in the SEARs. The mitigation measures at Section 8 complement the findings of this section.

7.1 Built form and urban design

7.1.1 Built form and scale

The buildings at the new primary school at Mulgoa Rise are mostly of two (2) storey construction except for Building C being a single storey. The scale of the two (2) storey buildings are sympathetic to the future four (4) storey mixed used development and the surrounding residences. The highest building / structure across the site is at RL 72.0m, an approximately 11m tall structure as shown in **Figure 15**.

Figure 15 View of at the corner of Darug Avenue and Deerubbin Drive

The site layout for the new school will see the buildings arranged along the north and west roads, playground, and courts through the middle and the staff carpark positioned on the northern border as demonstrated in **Figure 16.**

The building volumes are articulated and separated to relate to the suburban setting, also providing a good opportunity for good daylighting and natural ventilation. The design is based on the masterplan that includes potential future expansion. The complete masterplan comprises of:

- Admin and library block on the prominent NW corner.
- Hall block is located to the east, connecting to the school sports field as illustrated in **Figure 17**.
- Homebase blocks (Learning Blocks), each includes a minimum of 4 home bases per level and associated Shared Practical Activity Area. All are two storeys high with covered walkways connecting all blocks on both levels. Only two Learning Blocks will be constructed in the initial development of the school.
- Main gathering / assembly space will be located to the east of the Administration and Library building. This assembly area will connect the proposed learning blocks and the future learning blocks.

Figure 16 Aerial impression of the site arrangement

- Outdoor play area is in the centre of the site and allows acoustic protection for surrounding land uses and privacy for students.
- Pick-up and drop-off facilities will be provided along the three bounding streets, Deerubbin Drive, Darug Ave and Forestwood Drive.
- Pedestrian entries are from all three streets, with a main entry located at the NW corner near the administration area.
- Vehicular entry to the site is a single entry from Forestwood Drive.
- High level canopy structures provide sheltered outdoor areas between the buildings.

Figure 17 Perspective from the open play area and the multipurpose hall

The school is adequately set back from the site boundaries to respect the suburban proportion of the surrounding neighbourhood as outlined in **Section 4.3.5**. All buildings but the Multipurpose Hall are two-storey high with connecting outdoor covered walkways on both levels. Each volumetric building section of the DfMA buildings will be constructed in steel frame and wrapped in a combination of the following external cladding materials:

- Prefinished metal cladding.
- Colour through Fibre Cement Cladding.
- Prefinished aluminium cladding.
- Prefinished fibre cement soffit lining.
- Prefinished Metal Soffit Lining with interlocking panels.
- Prefinished Aluminium Wall Cladding Trim.

The site narrative draws on the preliminary research into the history of the locality, where Darug Nation and Gandangara Nation boundaries intersect, and the area is recorded as a meeting point for the two clans. The site layout arranges the two learning villages around the assembly area as a meeting point.

7.1.2 CPTED Assessment

A CPTED Assessment has been prepared by NBRS Architecture and is contained in **Appendix DD**.

CPTED is a crime prevention strategy that focusses on the planning, design and structure of cities and neighbourhoods. It reduces opportunities for crime by using design and place management principles that prevent the likelihood of essential crime ingredients (law, offender, victim or target, opportunity) from intersecting in time and space.

The CPTED Assessment outlines the design elements and CPTED principles included in the proposed development that will deter unsocial and criminal behaviour from the site. The design elements are outlined in **Table 7** to **Table 9**.

Table 7 Natural Surveillance

Performance Criteria	Design Requirements	Purpose/Explanation	Example	Project Strategies
A. Avoid blind corners				
Avoid blind corners in pathways, stairwells and carparks	Pathways should be direct. All barriers along pathways should be permeable.	Blind corners or concealed areas make people feel uneasy and unsafe. Not knowing 'what is around the next corner' can discourage genuine users of a space to use and maximise it.	Consideration of blind corner in design creates concealed areas from view of approaching passers.	Pathways, stairwells, hallways and carpark are designed to be open and not enclosed to minimise any blind corners.
B. Communal Areas				
Provide natural surveillance for communal and public areas	Position active uses or habitable rooms with windows adjacent to main communal/ public areas. Communal areas and utilities should be easily seen. Where elevators or stairwells are provided, open style or transparent materials are encouraged on doors and/or walls of elevators/ stairwells.	In this instance, natural surveillance serves two main purposes: Makes legitimate users of a space feel safe as they are not alone, in a secluded area. There is always the potential for someone to say 'help' if need be. Deters illegitimate users as their presence in and misuse of the space will be rapidly noticed.	All communal or public areas for people to gather in are positioned adjacent to highly active walkways or buildings. Windows or half height glazed partitions exist along the majority of corridors and walkways.	Communal/ Public areas are designed either open or have display panels at doors to provide natural surveillance. For example, enclosed airlocks with glazed curtain walls to allow visibility from surrounding buildings. All home base and withdrawal rooms have display panelled doors for teacher's monitoring.

Performance Criteria	Design Requirements	Purpose/Explanation	Example	Project Strategies
	Waiting areas and entries to elevators / stairwells should be close to areas of active uses and should be visible from the building entry. Seating should be located in areas of active uses.			
C. Entry Points				
Provide entries which are clearly visible	Entrances should be at prominent positions. Design entrances to allow users to see in before entering.	Prominent entrance allow: Natural surveillance from street Users to feel safe and to easily access the area. Emergency services to access the property rapidly	The prominence of entry to the facility and the individual buildings are delineated by large entryways and sliding glass doors. Glazed doors allow users to see in before entering. Emergency services can access the site through the frontage to DeerubbinDrive.	Signage provided at site entrances, exits and throughout school in accordance with EFSG Guidelines policy.
D. Fencing				
Fence design should maximise natural Surveillance from the street to the building and from the building to the street and minimise opportunities for intruders to hide.	Front fences should be predominantly open in design (eg pickets and wrought iron) or low in height. A sense of privacy can be increased by light coloured fencing. High solid front fences should have open elements above 1m.	Although high fences may provide privacy, they restrict natural street surveillance from potential intruders. Fencing below one meter, or open design fencing allows for adequate privacy and adequate levels of natural surveillance.		Fencing used throughout school will screen service areas such as waste collection bays, services equipment bays and surrounding playground areas do not provide opportunities for entrapment and lack of surveillance from other areas.
E. Lighting				
Ensure lighting does not produce glare or dark shadows. Entrances, exits, service areas, pathways, car parks etc. should be well lit after dark when they are likely to be used	Use diffused flood lights and/or movement sensitive lights. Direct these lights towards access / egress routes to illuminate potential offenders, rather than towards buildings or resident observation points. Lighting should have a wide beam of illumination, which reaches to the beam of the next light, or the perimeter of the site or area being traversed.	Adequate lighting is essential in making people feel safe and in deterring illegitimate users. Allows people to see what is ahead. Encourages legitimate users to use a facility after daylight hours; their presence will deter potential illegitimate users. Allows natural surveillance after daylight hours Facilitates formal surveillance (by Police or security patrols).	Lighting installed to enhance natural surveillance and provide an appropriate level of visibility at night.	External lighting will be provided in accordance with Australian Standards. All walkways, pathways and car park areas will be well lit in Accordance with Australian Standards.

Performance Criteria	Design Requirements	Purpose/Explanation	Example	Project Strategies
	Avoid lighting spillage onto neighbouring properties as this can cause nuisance and reduce opportunities for natural surveillance. As a guide, the areas should be lit to enable users to identify a face 15m away. Use energy efficient lamps /fittings. /Switches to save energy.			
F. Mixed Land Uses				
Where permitted, provide appropriate mixed uses within buildings to increase opportunities for natural surveillance	Locate shops and businesses on lower floors and residences on upper floors. In this way, residents can observe the businesses after hours while the residences can be observed by the businesses during business hours. Incorporate car wash services, taxi ranks and shop kiosks etc within car parks. Include shop kiosks and restaurants etc within parks. Refer to the relevant planning instrument for permissible uses in the zone of the property. Some uses may require rezoning.	Mixed land uses allow for natural surveillance of areas across a range of various days/hours (ie weekday or weekend, AM or PM).		No Mixed Use on site. However, the school is located directly opposite a future mixed used development along Deerubbin Drv. Create strong linkages with the wider pedestrian and land use network supporting surveillance over the site to minimise illegitimate/antisocial activities. Include new access points at street frontage to create better levels of active and passive surveillance during both day and night times.
G. Security				
Security grilles, shutters and doors should allow natural observation of the street and be sympathetic to the architectural style of the building Use security hardware and/ or human measures ONLY where required to reduce opportunities for unauthorised access	Security grilles and security doors should be permeable. Avoid solid shutters on front windows and doors. Install quality locks on external windows and doors. Install viewers on entry doors. If security grilles are used on windows they should be openable from inside in case of emergencies. Ensure skylights and/or roof tiles cannot be readily removed or opened from outside. Consider monitored alarm systems. Provide lockable gates on side and rear access ways.	Traditional security related equipment will help make a space more difficult for intruders to break into, however its overuse may impinge on adequate levels of natural surveillance. Traditional security related equipment will help make a space more difficult for intruders to break into, however its overuse may impinge on adequate levels of natural surveillance. Traditional security systems can be very effective in reducing illegitimate access. It is important however to be reasonable and not over secure a location as this	Main entry doors should be fitted with a door viewer and door chain.	EFGS requires school site to be entirely enclosed as illustrated on site security drawing shown in the report. The detailed security measures for the specific site is still to be determined in consultation with SINSW. The approach is to prohibiting access to potential concealment spaces such as school carparks and playgrounds areas outside of operating hours. All security grilles, shutters and doors in the new works to allow natural

Performance Criteria	Design Requirements	Purpose/Explanation	Example	Project Strategies
	Consider building supervisors or security guards	may make genuine users feel unsafe and even restrict legitimate access.		observation of the street. All security hardware are used as per the EFSG required level of security for each room and space.

Table 8 Access Control

Performance Criteria	Design Requirements	Purpose/Explanation	Proposed	Project Strategies
A. Building Identification				
Ensure buildings are clearly identified by street number.	Street/building numbers should be at least 7cm high and positioned between 0.6m and 1.5m above ground level on the street frontage. Street/building numbers should be made of durable materials, preferably reflective or luminous, and unobstructed. Location maps and directional signage should be provided for larger development.	Clear building identification prevents unintended access and assists persons trying to find the building - particularly emergency vehicles in an urgent situation.	School identification signs will be provided at site entrances, exits and throughout school appropriate to location and in accordance with the EFSG signage policy.	School identification signs will be provided at site entrances, exits and throughout school appropriate to location and in accordance with the EFSG signage policy.

Table 9 Ownership

Performance Criteria	Design Requirements	Purpose/Explanation	Examples	Project Strategies
A. Maintenance				
Create a 'cared for' image	Ensure the speedy repair or cleaning of damaged or vandalised property. Provide for the swift removal of graffiti. Provide information advising where to go for help and how to report maintenance or vandalism problems.	Research indicates that well maintained and 'cared for' properties are less likely to experience crime.	DoE employs maintenance staff who will maintain the property on a regular basis.	The proposal will utilise construction materials which are robust and where appropriate adopt anti-graffiti surfaces.
B. Materials				
Use materials which reduce the opportunity for vandalism	Strong, wear resistant laminate, impervious glazed ceramics, treated masonry products, stainless steel materials, anti-graffiti paints and clear over sprays will reduce the opportunity for vandalism. Flat or porous finishes should be avoided in	A reduction in vandalism through careful selection of materials will contribute to beautifying and maintaining an area. This will reduce expenditure on unscheduled maintenance.	Anti-graffiti products will be used where an opportunity is provided.	The proposal will utilise construction materials which are robust and where appropriate adopt anti-graffiti surfaces.

Performance Criteria	Design Requirements	Purpose/Explanation	Examples	Project Strategies
	areas where graffiti is likely to be a problem. External lighting should be vandal resistant. High mounted and/or protected lights are less susceptible to vandalism. Communal/ street furniture should be made of hard-wearing vandal resistant materials and secured by sturdy anchor points or removed after hours.			
C. Spaces				
Spaces should be clearly defined to express a sense of ownership and reduce illegitimate use/entry.	Physical and/or psychological barriers (eg fences, gardens, lawn strips, varying textured surfaces) can be used to define different spaces.	The definition of clear boundaries allows: people to know when they are trespassing on private property. Passers-by to clearly identify when someone is trespassing and illegally using the premises.	Create boundaries between private space and public space	Physical and/or psychological barriers (eg fences, gardens, lawn strips, varying textured surfaces) can be used to define different spaces.
D. Pride and Involvement				
Encourage design that promotes pride and a sense of place for community	Encourage community involvement in design, volunteer management and maintenance of areas and community use of areas.	A sense of community pride in a particular area will help maintain an area. Identify and report any problems. Identify illegitimate behaviour.	DoE employ maintenance staff who maintain and monitor the property.	Design of the project improves access to functional areas. COLAs & Hall will give well sheltered assembly areas for school during wet weathers.
E. Site & Building Layout				
Ensure clear sight lines throughout the parking area Design car parks to allow for natural surveillance	Avoid large expanses of car parks. Where large expanses of car parks are proposed, provide surveillance such as security cameras. Access to lifts, stairwells and pedestrian pathways should be clearly visible. Avoid hidden recesses. Locate disabled parking spaces in highly visible and convenient areas. Locate car parks in areas that can be observed by adjoining uses	Whilst car parks can be areas with large flows of traffic, there is rarely people sitting in their cars with the opportunity to observe any suspicious behaviour (unlike in an office or commercial environment). In order to facilitate natural surveillance, it is important to ensure that clear sight lines (ie. Not blocked by blind corners, buildings or landscape) are incorporated to its design.		The school buildings to ensure high levels of active and passive surveillance over the new works. Furthermore, the new works to street frontage will ensure that a high level of surveillance is maintained outside school grounds
F. Carpark Security				
Provide security to monitor access to area.	Use security devices (eg intercom or remote lock facility) where appropriate. For large developments, locate a	It is important to reduce opportunity for unauthorised access without affecting legitimate users. Due to		The new works will be designed to avoid the creation of potential

Performance Criteria	Design Requirements	Purpose/Explanation	Examples	Project Strategies
	help point on each parking level and/or allocate security staff. For a multi level car park, use only a limited area of the car park outside peak hours. Consider the installation of boom gates or similar devices at entrances and exits of the car park.	the ongoing flow of people/traffic through car parks it is very difficult to identify legitimate users from trespassers.		concealment spaces. The school security to be determined, to prohibiting access to potential concealment spaces such as school carparks and playgrounds areas outside of operating hours. Vegetation utilised comprises low shrubs and high canopy planting to reduce vegetation concealment areas. Fencing used throughout the school to screen service areas such as waste collection bays, services equipment bays and surrounding playground areas do not provide opportunities for entrapment and lack of surveillance from other areas.
Site and Carpark Layout				
Ensure ease of access and safety within the car park Clearly distinguish between private and public space	Minimise the number of entry and exit points. Pedestrian corridors should be created for large developments. Where possible, locate entry/ exit points in close proximity and close to the car park operator or shops, cafes etc. Staff car park should be separated and secured	At the best of times, car parks are places where people can feel unsafe. The site and building layout should be aware of this fact and ensure that all entry/exit points are easily accessible, well signed, lit and designed in line with strategies outlined within Sections 1.1, 1.2 and 1.3 of the document. This is particularly relevant for staff car parks, which are often used outside of regular business hours.		The proposed car park is an open air parking space offering good natural surveillance. The locations of the car parking area, which is within school grounds, is fenced off ensure a high level of surveillance over the car park is maintained. No items that could block vision for vehicles or pedestrians or allow concealment of people or hazardous items at these entry points will be included.

7.1.3 Visual impacts

Visual impacts of the development were considered in the Architectural Design Statement located in **Appendix E**. Views have been identified from different vantage points to assess the visual impact of the proposal on the surrounding heritage items and adjoining properties. The vantage points have been displayed with the proposed development overlayed to depict the perceived impacts.

Central to the assessment of visual impact is the criteria of sensitivity, magnitude of change, consistency with applicable and relevant planning instruments and consideration of residual impact. The visual impact of the proposed development will result in minor changes from the surrounding context. However, the school will create an overall positive visual impact to the surrounding neighbourhood and will complete the precinct development. Perspective examples of the school development within the precinct are illustrated in **Figure 18** to and **Figure 22**.

Figure 18 Proposed view from Deerubbin Drive Looking East

Figure 19 Proposed view from Deerubbin Drive looking south-west

Figure 20 Darug Avenue looking south

Figure 21 Forestwood Drive looking west

Figure 22 Corner of Forestwood Drive and Darug Avenue

7.2 Trees and landscaping

7.2.1 Methodology

In response to item 3 of the SEARs landscape design plans were prepared by NBRS Architects providing a detailed site-wide landscaping strategy. In addition, an Arboricultural Impact Assessment Report (AIAR) was prepared by a Level 5 (Australian Qualifications Framework) Arborist from Sturt Noble Arboricultural Consulting. The landscape design plans are located in **Appendix F** and AIAR is located in **Appendix EE**.

The AIAR was prepared detailing the number, location, and condition of trees to be removed and retained as part of the proposed activity. Each of the trees assessed was allocated a Sustainable Retention Index Value (SRIV) that is based on their health, vigour, structure and age class.

7.2.2 Existing environment

The site is currently an unoccupied grassed field surrounded by newly constructed housing and other similar fields awaiting development. Each street is bordered by street trees on either side. The site has a slight fall towards the north-east corner. Tree specimens on site generally receive full sun exposure.

The site is made up of shallow to moderately deep hard setting clay soils over Wianamatta Shale that are common in Western Sydney on the Cumberland Lowlands. These areas tend to be gently undulating with no shale outcrops unless soils have been removed.

Forty-six (46) trees are located in the road reserve surrounding the proposed development footprint and were surveyed as part of the assessment. The trees consist of two (2) different species of newly planted exotic street trees.

7.2.3 Assessment

Landscape Design Strategy

Key levels (RLs), proposed shade structures, proposed materials and finishes, outdoor learning and play spaces, sports courts, and planting zone plan and planting schedule with locations of trees and planting types are outlined in the landscape design plans in **Appendix F**.

The landscape design intent is to respond to the texture and colour of the surrounding natural landscape where the Blue Mountains meet the Nepean Plains. This is most evident in the material selection, textures and native plant selection.

Medium to large canopy trees are proposed to target the canopy coverage requirement. The proposed canopy coverage when matured is to demonstrate the 40% canopy coverage requirement for the 4 Star Green Star rating.is outlined in **Figure 23**.

A mass open play area (a playing field) on a school site contributes to skewed area calculation of actual canopy coverage within the landscaped area. Thus, the following diagrams & table demonstrate how a 40% canopy coverage requirement is achievable in the context of a school site when measured to exclude the open playing field.

Equity and amenity of outdoor play spaces are provided with equal access for different users. In addition, outdoor spaces are clearly structured to link the built forms, where appropriate, either artificial (covered walkways) or natural shade (tree canopies).

The proposed design aims to encourage a reinstated native landscape environment to provide habitat for native flora and fauna. Along the streets adjacent to the site, with a majority of native trees (medium to large sized) and shrubs are proposed to soften the interface of street and school boundaries, and to ameliorate the views of any elevated walkways from streets.

Figure 23 **Tree Canopy Coverage** (Source: NBRS Architectural Design Report)

Mitigation of the urban heat island effect and ensuring appropriate comfort levels on-site are maintained are outlined below:

- The urban heat island effect is minimised by providing natural shade of large canopy trees.
- The use of planting coverage of grasses and groundcovers to minimise the use of hard surface pavement.
- Dark coloured pavement is avoided where possible.
- Shade structures are proposed to assist with the comfortable use of outdoor space e.g. COLA.

Arboricultural Impact Assessment Report

Forty-six (46) trees have been considered on the site as part of this assessment and their locations are shown in **Appendix EE**. These trees are juvenile street trees all of which are exotic species (Chinese Elm and Manchurian Pear).

The site is known as a brownfield site which consists of man-made landscape. The anticipated site preparation works will include removal of eight (8) street trees along Deerubbin Drive in preparation for civil work and kerb modification works and the removal of two (2) street trees on Forestwood Drive in preparation for site vehicular entry work.

The trees to be removed are likely to provide minimal contribution to local amenity following assessment through the SRIV.

With implementation of tree protection measures it should be possible to retain all other trees adjacent to the developed site. The plans show that other thirty-nine (39) of trees on Councils' verge are proposed to be retained and protected.

7.2.4 Mitigation measures

The following mitigation measures are proposed:

- A site-specific Tree Protection Plan (TPP) is prepared to guide the construction process.
- Tree protection zones are recommended for all trees within the site that are to be retained.
- Tree protection fencing is to be utilised to protect trees to be retained during construction.
- If trees display signs of stress or deterioration, remedial action shall be taken to improve the health of the impacted tree.

7.3 Environmental amenity

7.3.1 Solar access and overshadowing

The buildings are well spaced and aligned to the north and west roads to enable adequate sunlight to enter into the courtyards, even during winter. The school buildings are well set back from Deerubbin Ave. The setback clears the school buildings off the potential overshadowing from the proposed mixed-use development to the north as illustrated in the shadow diagrams contained in **Appendix D**.

7.3.2 Privacy

The building height, scale and orientation of the buildings contribute to the visual privacy of the site. The build height is in reflective of the surrounding residential properties preventing impacts from direct overlooking. Outdoor play areas are located in the centre of the site and allows for acoustic protection and privacy for students. The proposed boundary landscaping will provide additional privacy for both students and surrounding residents.

7.4 Transport and accessibility

7.4.1 Methodology

A Transport and Traffic Assessment (TTA) has been prepared by PTC and is contained in **Appendix J**. The TTA has been prepared in response to Item 5 of the SEARs and has been developed to assess and address the traffic and transport impacts of the proposed development. The TTA covers the following areas.

- Road hierarchy.
- Pedestrian, cycle and public transport infrastructure.
- Details of current daily and peak hour vehicle movements based on traffic surveys and / or existing traffic studies relevant to the locality.
- Site access.
- Car parking.
- Public and active transport.
- Pick-up and drop-off.
- Service vehicles and loading.
- Traffic generation.
- Travel mode analysis.

The TTA also includes a preliminary School Transport Plan and a Preliminary Construction Traffic and Pedestrian Management Plan.

The TTA was prepared in the context of and with the knowledge of a variety of relevant documents including:

- Australian Standards, including but not limited to:

- AS2890 – Parking facilities.
- Austroads Guidelines, including but not limited to:
- Guide to Road Design.
- Guide to Road Safety.
- Guide to Traffic Management.
- RMS Guides to Traffic Generating Developments, including:
- Roads and Maritime Service Trip Generating Surveys – Schools – Analysis Report (GTA, 25 August 2014).
- Road User Space Allocation Policy (TfNSW, January 2021).

The TTA was prepared and discussed with both Penrith City Council and Transport for NSW (TfNSW) during ongoing liaison through a Transport Working Group (TWG) for the project. The TWG has met on multiple occasions to refine the project transport strategy during this period in response to feedback received.

7.4.2 Existing environment

The site is a greenfield site that has yet to be developed. The site has a frontage to Deerubbin Drive to the north, Forestwood Drive to the south and Darug Avenue to the west. To the east of the site are Council sports grounds with an adjoining carpark.

Current access arrangements promote active transport through the adjacent catchment area. There are no existing bus routes servicing the area nor train lines. It is not expected that students will be travelling from outside the catchment area to attend the school.

A rail line is proposed between St. Mary's and Western Sydney Airport. The project will not have a direct impact on the proposed school site, although it may serve potential teachers and staff who live outside Glenmore Park and Penrith.

The proposed new school is located in Mulgoa Rise, students residing in this developing suburb will live closer to, which will reduce travel times and support the use of active transport.

The main roads connecting the school to the public road network are (as shown in **Figure 24**):

- Glenmore Ridge Drive
- Deerubbin Drive.
- Darug Avenue.
- Forestwood Drive.
- Bradley Street.

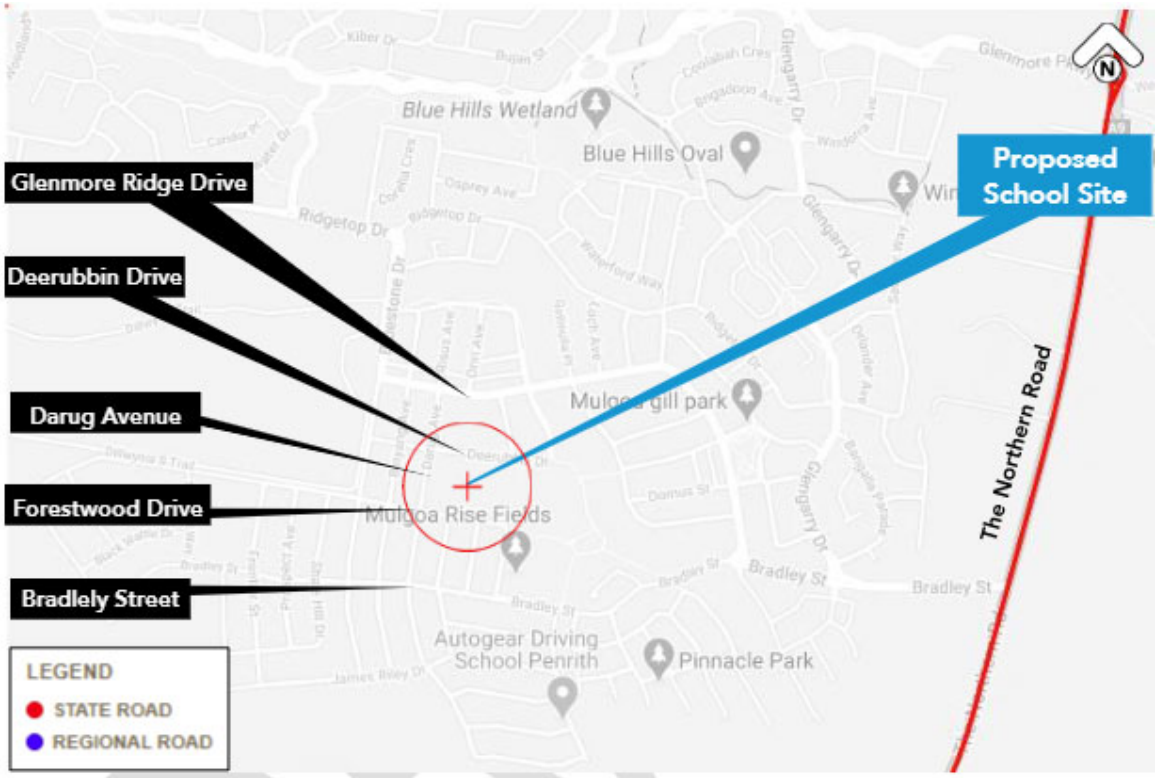

Figure 24 Surrounding Road Network (Source: RMS Road Hierarchy)

Traffic count surveys were undertaken to determine the surrounding road network serving the new School. Survey data indicated that the peak period for the network is between 7:45am – 8:45 am and 4:45pm to 5:45 pm. The network peak during the afternoon does not coincide with a general school peak.

7.4.3 Assessment

The majority of students will visit the school by way of active transport. Pedestrian access to the site is encouraged due to the catchment nature of the school.

Future Traffic Conditions

The proposed development traffic distribution has been estimated based on student residential data. Currently, these students travel to other nearby schools; however, these students are expected to enrol in the proposed School in the future. The following estimation is made for the student trip distribution (as shown in **Figure 25**):

- 30% student travel via Glenmore Ridge Drive East.
- 30% student travel via Glenmore Ridge Drive West.
- 2% student travel via Risus Avenue North.
- 13% student travel via Forestwood Drive West.
- 25% student travel via Darug Avenue South.

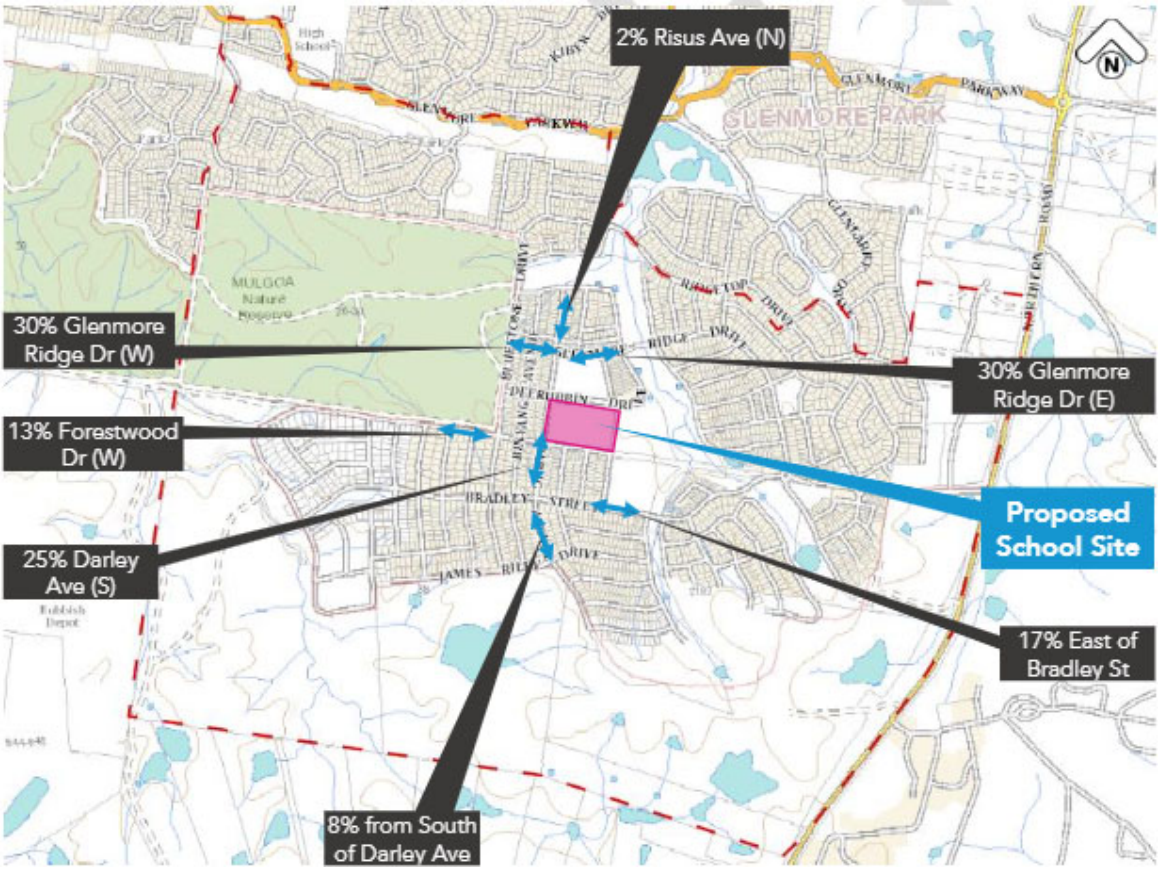

Figure 25 Estimated Traffic Distribution for Students

Table 10 provides the results of SIDRA modelling of the surrounding intersections for all modelling scenarios with a comparison of the network operation.

Table 10 SIDRA Modelling Results for pre and post- development

Intersection	Time	Scenario	LoS	Delay (s) [21]	Highest DoS (v/s)	Highest Q95 (m)
Glenmore Ridge Dr / Glenholme Dr	AM Peak	Existing	A	5.2	0.055	0.4
		Future Base (FB)	A	5.5	0.077	1.1
		FB + Development	A	6.1	0.124	2.7
		FB + 10 Yrs Backgr. Growth	A	5.5	0.077	1.1
		FB + 10 Yrs Backgr. Growth + Devel.	A	6.1	0.124	2.7
	PM Peak	Existing	A	5.1	0.049	0.5
		Future Base (FB)	A	5.4	0.073	0.8
		FB + Development	A	5.8	0.109	2.7
		FB + 10 Yrs Backgr. Growth	A	5.4	0.073	0.8
		FB + 10 Yrs Backgr. Growth + Devel.	A	5.8	0.109	2.7
Glenmore Ridge Dr / Darug Ave / Risus Ave	AM Peak	Existing	A	5.9	0.070	2
		Future Base (FB)	A	6.9	0.105	2.4
		FB + Development	A	7.6	0.179	5.2
		FB + 10 Yrs Backgr. Growth	A	7.9	0.162	4.9
		FB + 10 Yrs Backgr. Growth + Devel.	A	8.7	0.258	8.1
	PM Peak	Existing	A	5.8	0.076	2.3
		Future Base (FB)	A	6.4	0.108	2.8
		FB + Development	A	7.1	0.148	4.1
		FB + 10 Yrs Backgr. Growth	A	7.4	0.178	6.3
		FB + 10 Yrs Backgr. Growth + Devel.	A	8.2	0.200	7.0
Darug Ave / Deerubbin Dr	AM Peak	Existing	A	5.3	0.058	0.8
		Future Base (FB)	A	5.5	0.069	1.5
		FB + Development	A	5.6	0.145	3.8
		FB + 10 Yrs Backgr. Growth	A	6.5	0.125	1.8
		FB + 10 Yrs Backgr. Growth + Devel.	A	6.5	0.165	4.3
	PM Peak	Existing	A	5.2	0.039	0.5
		Future Base (FB)	A	5.3	0.044	0.9
		FB + Development	A	5.4	0.116	2.9
		FB + 10 Yrs Backgr. Growth	A	6.1	0.096	1.1
		FB + 10 Yrs Backgr. Growth + Devel.	A	6.3	0.134	3.4

Intersection	Time	Scenario	LoS	Delay (s) [21]	Highest DoS (v/s)	Highest Q95 (m)
Darug Ave / Forestwood Dr	AM Peak	Existing	A	4.1	0.047	0.4
		Future Base (FB)	A	4.4	0.057	0.4
		FB + Development	A	4.7	0.080	1.6
		FB + 10 Yrs Backgr. Growth	A	5.2	0.113	0.5
		FB + 10 Yrs Backgr. Growth + Devel.	A	5.6	0.136	1.9
	PM Peak	Existing	A	4.1	0.042	0.3
		Future Base (FB)	A	4.2	0.048	0.3
		FB + Development	A	4.5	0.058	1.5
		FB + 10 Yrs Backgr. Growth	A	5.0	0.104	0.4
		FB + 10 Yrs Backgr. Growth + Devel.	A	5.3	0.104	1.8
Bradley St / Parkway Ave	AM Peak	Existing	A	5.4	0.081	0.3
		Future Base (FB)	A	5.7	0.098	0.3
		FB + Development	A	6.0	0.098	1.6
		FB + 10 Yrs Backgr. Growth	A	5.7	0.098	0.3
		FB + 10 Yrs Backgr. Growth + Devel.	A	6.0	0.098	1.6
	PM Peak	Existing	A	5.6	0.107	0.6
		Future Base (FB)	A	5.7	0.113	0.6
		FB + Development	A	6.0	0.125	2.0
		FB + 10 Yrs Backgr. Growth	A	5.7	0.113	0.6
		FB + 10 Yrs Backgr. Growth + Devel.	A	6.0	0.125	2.0
Forestwood Dr / Site Driveway	AM Peak	Existing	A	4.6	0.009	0
		Future Base (FB)	A	4.6	0.009	0
		FB + Development	A	4.9	0.040	0.5
		FB + 10 Yrs Backgr. Growth	A	4.6	0.009	0
		FB + 10 Yrs Backgr. Growth + Devel.	A	4.9	0.040	0.5
	PM Peak	Existing	A	4.7	0.009	0
		Future Base (FB)	A	4.7	0.009	0
		FB + Development	A	4.8	0.038	0.5
		FB + 10 Yrs Backgr. Growth	A	4.7	0.009	0
		FB + 10 Yrs Backgr. Growth + Devel.	A	4.8	0.038	0.5

Car Parking

The proposed car parking arrangements allow for 17 at grade car parks. The parking spots have been assessed against the requirements of AS2890.1:2004, with reference to Class 1A (employee) facilities. The Class 1A facilities are to provide the following dimensions (90-degree angle parking):

- Car Spaces: 2.4m x 5.4m.
- Aisle Width: 5.8m.

All general car parking spaces have been individually assessed and found to meet the minimum requirements.

Car Pick up and drop off

The general pick-up and drop-off for the school has been calculated to be around 40% students based on the target travel mode analysis. The number of required pick-up spaces is calculated as:

- 12 “Pick up and drop off” spaces during peak times along Deerubbin Drive and 12 spaces during peak times along Forrestwood Drive.
- 14 15-minute parking spaces during peak pick up and drop off times along Darug Avenue and 16 15-minute parking spaces during peak times along Deerubbin Drive.
- 8 Assisted pickup and drop off spaces for disabled students along Derrubbin Drive.
- All pick-up and drop-of spaces are provided along the frontage as shown in **Figure 26**.

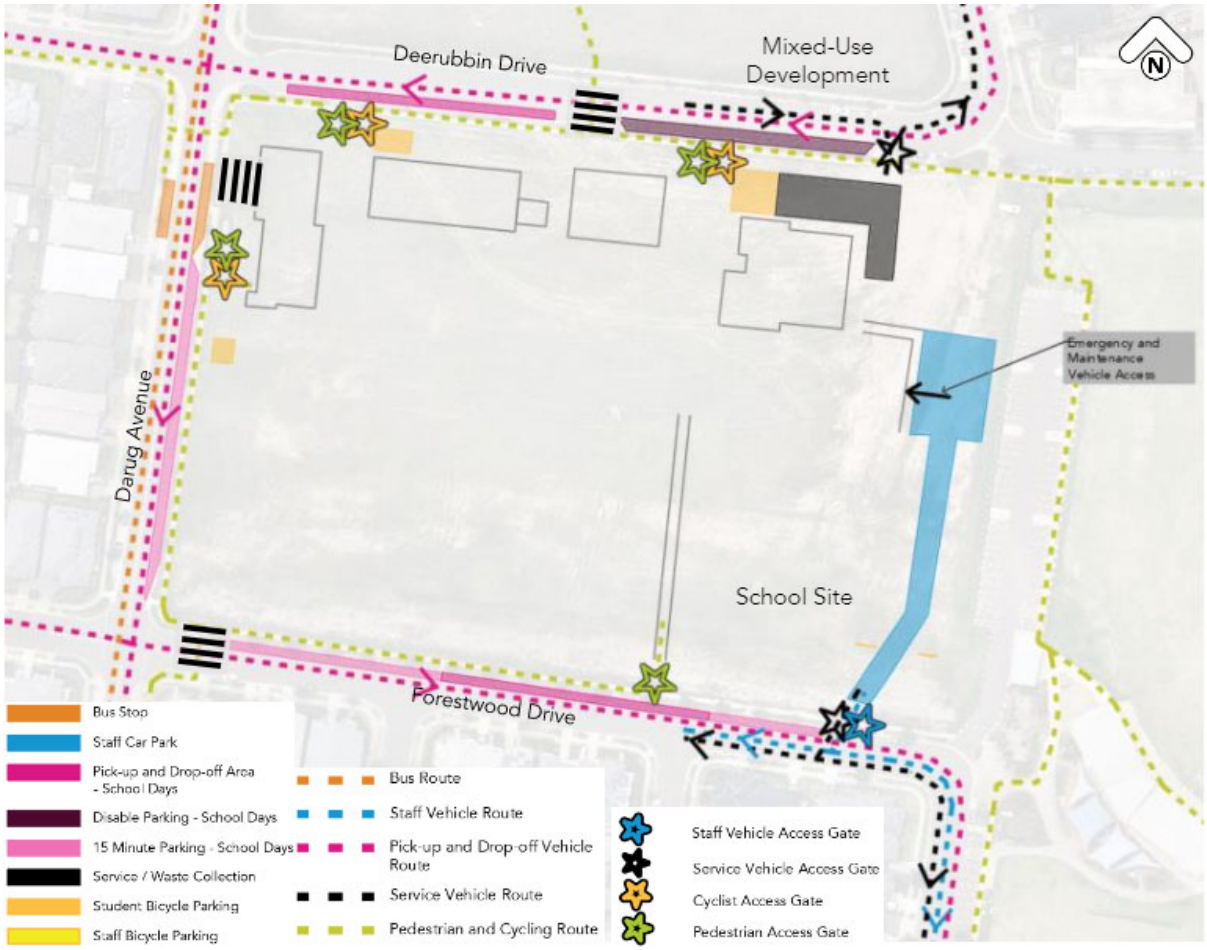

Figure 26 Proposed pick-up and Drop- off locations

Bus Stops

There are existing bus stops provide on either side of Darug Avenue, south of Darug Avenue/ Deerubbin Drive intersection. Given the proposed public transport mode share target of 10%, it is anticipated that approximately 40 students will require bus transportation. The bus services will cater to students residing outside of comfortable walking and cycling catchment and by parents for their onward journey to work.

7.4.4 Mitigation measures

Measures to ameliorate adverse traffic impacts have been identified in the TTA and are outlined below.

School Transport Plan

The TTA has outlined a School Transport Plan (STP) to promote active transport to the site, support mode shares and sustainable management of the transport needs of staff and students to the development. This is to be reviewed regularly and updated as required, the plan includes the following measures:

Information campaigns to educate staff and students on available alternate travel methods to and from the site including end-of-trip facilities ad safe routes to surrounding neighbourhoods.

Reduced car parking, by limiting the car parking spaces staff are more likely to engage in active and public transport options. This is considered to result in reduced traffic congestion.

Preliminary Construction Traffic and Pedestrian Management Plan

A draft Construction Traffic and Pedestrian Management Plan (CTPMP) has been prepared as part of the TTA. It discusses the management of construction vehicles and activities and requires an investigation of the local traffic and safety conditions throughout the construction process.

A detailed CTPMP will be prepared by the builder with consideration of all final design selections.

A CTPMP is to be developed to satisfy the duties of various work health and safety legislation, regulations and codes of practice including those from SafeWork NSW. Traffic Guidance Scheme (TGS) will also need to be developed in association with a final CTPMP for the future site to demonstrate the traffic control procedures to be implemented. These must be developed in accordance with Transport for NSW and the relevant Australian Standards.

Zebra Crossing Design

Ideally all crossings along a school frontage road would be raised and constructed with build outs to prioritise students, reduce the number of lanes students need to cross and act as traffic calming devices. It is understood from a civil design perspective, any raised facilities installed within the surrounding roads will have a negative impact on the 1 in 100 years flood levels. The project has adopted an at-grade solution which is considered to offer the best possible outcome for students while taking into consideration advice received from the civil engineering project team.

7.4.5 Conclusion

The TTA analysed the proposed development and found the following.

- Forecast additional vehicle traffic volumes are low and can be comfortably accommodated in the local and state road network while sustaining good levels of intersection performance.

7.5 Ecologically sustainable evelopment

7.5.1 Methodology

An Ecologically Sustainable Development (ESD) Statement (**Appendix K**) was prepared by Norman Disney and Young (NDY) to address Item 6 of the SEARs for the proposed development. In addition to the ESD Statement an Integrated Water Management Report (**Appendix R**) was prepared by Woolacotts Consulting Engineers (Woolacotts) and a Climate Change Adaptation Plan (**Appendix FF**) was prepared by NDY.

These documents address how the project's specific sustainability initiatives satisfy the relevant SEARs for ESD, the Government Architect NSW (GANSW) Environmental Design in Schools requirements, and the Educational Facilities Standards and Guidelines (EFSG) requirements.

NDY has been engaged to assess the projected impacts of climate change on the proposed development, based on predicted climate change models, through an assessment against an accredited ESD rating system. The ESD report examines the following:

- This engagement included a Climate Adaptation Workshop and risk assessment undertaken as per AS 5334-2013 and Green Star Design & As Built v1.3 requirements. Expected impacts from climate change were identified with reference made to both CSIRO projections for the East Coast (South) sub-cluster and the NSW Government's NSW and ACT Regional Climate Modelling (NARCliM) projections.
- The proposed development has been benchmarked against a 4 Star Green Star and As Built v1.3 'in principle' rating system. The 4 Star Green Star system is deemed to represent Australian Best Practice Development and was prepared by Norman Disney and Young (NDY) and located in **Appendix K.**

7.5.2 Existing environment

The proposed development is located within the National Construction Code (NCC) Sydney West (climate zone 6) characterised as having mild temperate conditions, associated with:

- High diurnal ranges inland and four distinct seasons.
- Summer and winter that can exceed human comfort range, while spring and autumn are ideal for human comfort.
- Mild to cool winters with low humidity.
- Hot to very hot summers, with moderate humidity.

The climate zone boundaries are also aligned with local government areas and are therefore subject to change from time to time. The site provides ample opportunity to utilise ESD best practices to maximise the efficiency of the proposal.

7.5.3 Assessment

NDY as ESD consultants have been actively engaged on the project from schematic design. The ESD principles embedded in the proposed design generally satisfy the sustainable design elements in the EFSG.

Sustainability principles are embedded in the proposed NSMR design. Outcomes of the sustainability principles will include energy and water efficiency, resilience to future climate impacts, high indoor environment quality, materials selection, and comfort and wellbeing for staff and students occupying the facilities. **Table 11** outlines the ESD principles incorporated as part of the design process.

Table 11 ESD principles for the proposed development

ESD Requirements	Proposed Compliance Strategy
Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Regulation) would be incorporated in the design and ongoing operation phases of the development.	**The Precautionary Principle** The design has been reviewed against holistic sustainability principles to ensure a high ecologically sustainable design (ESD) outcome is achieved. Sustainability measures have been incorporated, spanning across the project's design, construction and operations, based around the core principles of: • Efficient use of resources (energy, water and materials) • Enhancing indoor environment quality and occupant comfort • Minimising ecological impacts. A climate change risk assessment has been completed to assess the anticipated impacts of climate change and implement design strategies to mitigate these impacts. **Inter-Generational Equity** Student and staff health will be considered through the incorporation of Indoor Environmental Quality design features such as daylight and glare analysis for natural lighting, best practice lighting, indoor air quality, thermal comfort assessment, acoustic design, and responsible material selection to reduce internal pollutants and resource depletion for future generations. **Conservation of Biological Diversity & Ecology** The proposed design will consider design strategies to minimise the urban heat island effect and improve ecological value of the site. Access to views will be considered to increase student engagement with the natural environment. **Improved Valuation, Pricing and Incentive Mechanisms** Total cost of operation will be reduced through sustainable considerations to reduce energy, water and waste requirements, taking into consideration whole-of-life costing. The project will ensure sustainable principles are extended to include value for money, fit for purpose, long term reliability/resilience and flexibility. Designing with the long-term operation of the building in mind will create further buy in and cooperation from the operating stakeholders. Strategies to reduce operational waste will be considered such as the development of an operational waste management plan and separation of waste streams.
Detail proposed measures to minimise consumption of resources, water (including water sensitive urban design) and energy.	The development has been designed in line with the following sustainability frameworks: • Benchmarked against a 4 Star Green Star 'in principle' rating, corresponding to an Australian Best Practice Development • EFSG strategy aligned with the current Schedule v8.

ESD Requirements	Proposed Compliance Strategy
Detail how the future development would be designed to consider and reflect national best practice sustainable building principles to improve environmental performance and reduce ecological impact.	General ESD principles have been adopted for the project, with a focus on conservation of resources and future resilience. The proposed design includes sustainability initiatives relating to: • **Management:** preliminary consideration of the building design and its resilience to climate change impacts, commissioning and tuning, metering and monitoring to capture consumption trends, building information to facilitate operator understanding, and separation of waste streams (e.g. to facilitate reuse, recycling, composting and overall reduction of waste to landfill). • **Indoor Environment Quality:** passive design analysis in early design phase, preliminary daylight and glare analysis for natural lighting, energy-efficient best-practice lighting, thermal comfort assessment, acoustic design, and responsible material selection to reduce indoor pollutants. • **Energy:** the building will comply with NCC 2019 Section J minimum requirements, passive design features including high performing building fabric and integrated shading to reduce mechanical energy consumption, high efficiency air conditioning and LED lighting, climate projections analysed to support an adaptable and climate responsive design, solar PV on roof spaces to reduce grid energy consumption, high performance building sealing, and minimum energy efficiency targets for appliances. • **Transport:** to encourage active and public transport, bicycle parking for staff and students as well as change facilities for staff are provided to the development. • **Water:** selection of water efficient sanitary fixtures, fittings (high WELS ratings), and appliances, water meters installed for monitoring, waterwise landscaping principles, and rainwater collection from the roof and stored for use on-site. • **Materials:** a significant portion of construction waste generated from the demolition works will be reused or recycled, to limit the amount of waste going to landfill. Strategies to reduce natural resource consumption (e.g. exposed services or prefabricated components) will also be considered in developed design. Low-carbon products and materials to be specified. • **Land Use & Ecology:** proposed design will include light coloured roof, integrated shading and overhangs, landscaping, and the minimization of hardscaping where possible to minimise the urban heat island effect and improve ecological value of the site. • **Emissions:** landscaping and rainwater harvesting will be implemented to support Water Sensitive Urban Design and limit stormwater pollutants leaving the site; and high efficiency lighting and appropriate light zoning will reduce light pollution. These initiatives relate to ESD benefits over the entire lifecycle of the project; from construction through to ongoing operation of the MRPS site.
The GANSW Design Guide for Schools and the Environmental Design in Schools Manual address the environmental and passive design elements in schools, including those related to: • Context built form and landscape. • Sustainable, efficient, and durable. • Accessible and inclusive. • Health and safety. • Amenity. • Whole of life, flexible and adaptive Aesthetics.	The project has adopted environmentally conscious design initiatives including air quality, ventilation, natural lighting, thermal comfort, and acoustic performance to benefit teacher wellbeing and student attentiveness, attendance, and overall performance. The ESD principles embedded in the proposed design satisfy the environmental and passive design elements in the GANSW Environmental Design in Schools Manual and the GANSW Design Guide for Schools. The project will incorporate passive design elements, systems with high energy and water efficiency, and technology to ensure that the development is both sustainable and durable. Likewise, the spaces are designed with inclusivity and accessibility in mind through good indoor environment quality, lighting design, acoustic design, and thermal comfort initiatives; this will, in turn, provide healthy environments with high levels of amenity for students and staff. Furthermore, renewable energy technologies, high performance building facades, and sustainable product selection on the project support the development's aims to reduce impact on natural resources, whilst maintaining a flexible and adaptive design.
Integrated Water Management Plan detailing any proposed alternative water supplies, proposed end uses of potable and non-potable water, and water sensitive urban design.	**Rainwater Reuse** It is proposed to provide a rainwater collection and reuse tank to collect clean rainwater for toilet flushing and irrigation of landscaping subject to project requirements.

ESD Requirements	Proposed Compliance Strategy
	Erosion and Sediment Control The quality of stormwater runoff from the site will be improved using water sensitive urban design (WSUD) principles such as: • Grassed swales. • Open turf areas. • All grated inlet pits will have gross pollutant traps, to remove gross pollutants prior to site discharge. • Collection, reuse, and bypass of clean roof water (subject to project requirements). The above proposed treatment devices are incorporated within the system design to achieve an overall increase of stormwater quality.

7.5.4 Mitigation easures

The proposed design for the MRPS development incorporates sustainability measures that have far reaching benefits from the perspective of energy, water, and waste reduction; as well as providing good indoor environment quality, thermal comfort and visual comfort. These are expected to have a positive impact on the health and wellbeing of the students and staff occupying the building. There are no further mitigation measures required for ESD.

7.5.5 Conclusion

Preliminary consideration of the proposed development has been undertaken to assess how the proposed design is responsive to future climate impacts by undertaking a climate change risk assessment with regard for energy, water, and waste reduction. Commitment to adopting Green Star ‘management’ credits across the development where feasible provides resilience to future climate change. The proposed development has been well designed to provide indoor environmental quality, thermal comfort and visual comfort resulting in a positive impact on the health and wellbeing of students and staff occupying the building.

7.6 Heritage

7.6.1 Methodology

A Statement of Heritage Impact (SHI) was completed by Comber Consultants to address Item 7 of the SEARs for the proposed development. The SHI is located in **Appendix L**.

The assessments were undertaken to ensure that historical archaeology will not be adversely impacted upon by the proposal and was prepared in accordance with the NSW Heritage Manual, Archaeological Assessments, 1996 and Assessing Significance for Historical Archaeological Sites and ‘Relics’, 2009.

7.6.2 Existing environment

Historical analysis identified that from 1804 to 1849 the study area formed part of pasture lands within the Regentsville Estate. It was later subdivided on a number of occasions from 1849 to the early 1980s and continued to be used for grazing. In the early 1980s the whole of study area was quarried for clay and shale and then backfilled in the early 2000’s. The site is currently grassed with no structures present on site.

7.6.3 Assessment

The assessment of the site concluded the following:

- The whole of the study area, together with its surroundings, was quarried for clay and shale and then backfilled and that the site does not contain any buildings or other evidence of occupation.
- Any ephemeral evidence of the former use of the site for grazing which may have existed would have been removed during quarrying.

- Aboriginal and non-Aboriginal archaeological assessments of the study area were undertaken in October 2020 which assessed the site as not containing the potential to contain relics or Aboriginal objects (Garbov,2020:20).
- Aboriginal consultation indicates that the site does not contain Aboriginal cultural values.
- A search of the relevant heritage registers indicates that there are no heritage items listed for non-Aboriginal heritage values in a 2.5 km radius around the study area. Therefore, the proposal will not impact upon heritage items within the vicinity of the study area and that there are no significant views or vistas.
- That the site does not contain heritage significance.

7.6.4 Mitigation measures

As the site does not contain any heritage significance there is no objection to the proposal in respect of heritage. No further assessment or specific mitigation measures are required. Permits under sections 60 and 140 of the Heritage Act 1974 or under Part 6 of the National Parks & Wildlife Act 1974 are not required.

7.7 Aboriginal cultural heritage

7.7.1 Methodology

An Aboriginal Cultural Heritage Assessment Report (ACHAR) was completed by Comber Consultants to address Item 8 of the SEARs for the proposed development. The ACHAR is located in **Appendix M**.

The assessment was undertaken to ensure that Aboriginal archaeology and cultural heritage would not be adversely impacted upon by the proposal and was prepared in accordance with the Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW. The assessment was conducted in three stages, being background research, field survey and report preparation.

7.7.2 Existing environment

The Darug people are the traditional owners of the main east-west ridge of the Blue Mountains, the northern Blue Mountains and the Cumberland Plain in which the study area is located, refer to **Figure 27.**

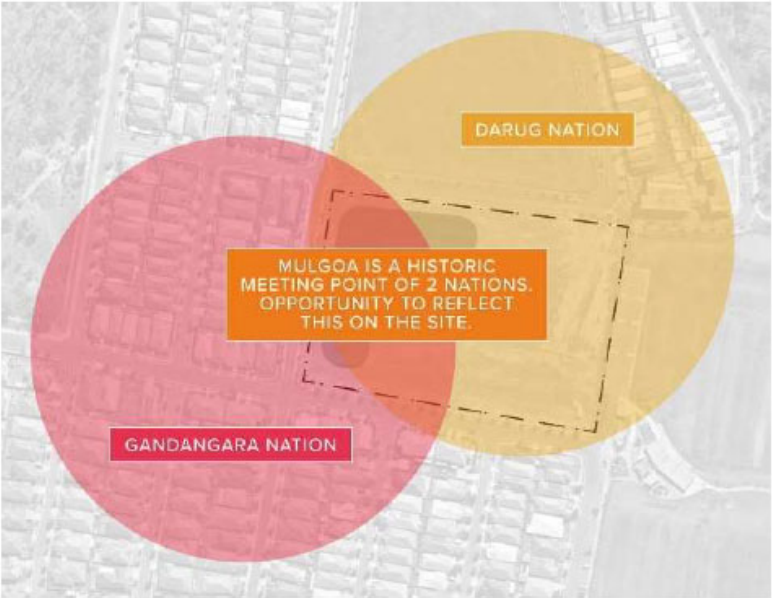

Figure 27 Historic meeting point of Gandangara Nation and Darug Nation

As noted in **Section 6.6.2** historical analysis identified that the study area from 1804 to the early 1980s was used as pastoral land and for grazing. In the early 1980s the whole of study area was quarried for clay and

shale and then backfilled (rehabilitated) in the early 2000's. The site is currently grassed with no structures present on site.

7.7.3 Assessment

No previous archaeological surveys have been identified for the study area. The AHIMS search of the study area (9 September 2020) included a 1km buffer, with no sites were shown as having been recorded within the boundaries of the study area. This is consistent with the absence of archaeological survey prior to significant disturbance of the site. The site is not a registered Aboriginal place.

As noted above, study area has been subjected to extensive quarrying and filling. Although it is possible that a low density of artefacts may once have existed on the property, due to the extensive disturbance, it is not predicted that any Aboriginal objects will be located on the property.

Due to the lack of evidence of Aboriginal occupation on the site and the extensive quarrying and filling of the study area, the proposed construction of a school on this site would have no impact on Aboriginal objects.

7.7.4 Mitigation measures

Due to the extensive disturbance on the site no specific mitigation measures are required. However, in the unlikely event that an Aboriginal object was identified during construction works, those works must cease immediately in the vicinity of that object and further advice sought from the consultant.

7.8 Social impacts

7.8.1 Methodology

A Social Impact Assessment (SIA) was completed by RPS Group (RPS) to address Item 9 of the SEARs for the proposed development. The SIA is contained in **Appendix N** and was prepared by experienced town planners in accordance with the Social Impact Assessment Guidelines, State significant projects, October 2020. The social locality of the project and SIA was determined upon review of Australia Bureau of Statistics (ABS) data as follows.

- Glenmore Park SSC 2016 statistical area.
- Local Study Area "the locality Glenmore Park SSC 2016 Census Data. ABS 2016 data, and ABS estimated projections for 2018 are used for this SIA. This information is used for data comparison purposes and consideration of community issues.
- NSW Bureau of Crime Statistics and Research for the overall Penrith LGA.

7.8.2 Existing environment

The existing social baseline is summarised in **Table 12** below.

Table 12 Existing Social Baseline

Item	Baseline Data
Population and people	• There were 23,004 people in Glenmore Park. Growth in the locality has increased significantly since 2011 with the resident population increasing by approx. 3000 people. • The median age of people was 32 years. • 81.8% of people only spoke English at home.
Income and Employment	• 13,145 people who reported being in the labour force. • 65.4% were employed full time, 26.5% were employed part-time and 3.9% were unemployed.
Education	• 32.9% of people were attending an educational institution. Of these, 33.5% were in primary school, 26.0% in secondary school and 19.3% in a tertiary or technical institution

Item	Baseline Data
Transport	• At the time of the 2016 census, residents of Glenmore Park travel predominantly to work via car as a driver or passenger (73.8%). The rest travel via public transport or worked from home.
Family and Community	• Household compositions were 88.6% family households, 10.1% single person households and 1.3% group households. • Median weekly rent was $450 and median monthly mortgage repayments was $2,167. These medians were both higher than the NSW and Australian values.
Socio-Economic Indexes for Areas (SEIFA) Disadvantage[1]	• SEIFA Index of Disadvantage is 1069 which is one of the highest scoring (the least disadvantaged) state decile distribution of scores for Relative Socio-Economic Disadvantage (IRSD).
Crime	• Overall, the crime statics for the Penrith LGA are considered stable from comparison with the past 2 years of data.

[1]Refer to Appendix N for description of the SEIFA index and IRSD.

7.8.3 Assessment

The SIA concluded that the negative social impacts are primarily associated with the construction phase of the project both directly and as a result of cumulative construction works. The associated negative impacts include:

- Privacy, peace, and quiet enjoyment for neighbours and the local area, particularly changes to people's daily lives and activities.
- How people get around if traffic/parking demands or noise levels increase.

Several positive social impacts were identified during the assessment including:

- Equity of access to education and associated services for different social and cultural groups.
- Enhancement of public space.
- Changes to environmental values, visual landscape, aesthetic values, and amenity.
- Improvement of community cohesion, identity, and sense of place.

7.8.4 Mitigation measures

Key mitigation measures to reduce the social impact of the project include, undertaking regular community consultation, facilitating channels for complaints and feedback, implementing traffic management plans to reduce access and safety issues, and reducing construction impacts through a construction environmental management plan. Following the review of social impacts identified during this assessment there are no unreasonable social impacts that would preclude approval of the project.

7.9 Noise and vibration

7.9.1 Methodology

Pulse White Noise Acoustics Pty Ltd (PWNA) was engaged to prepare an assessment of noise and vibration relating to the construction and operation of the proposed development and address the requirements of Item 10 of the SEARs Noise and Vibration. Assessment of the school has considered the following:

- NSW Noise Policy for Industry 2017 (NSW Environment Protection Authority (EPA).
- Interim Construction Noise Guideline (Department of Environment and Climate Change, 2009).
- Assessing Vibration: A Technical Guideline 2006 (Department of Environment and Conservation, 2006).

Additional standard and guidelines are referenced, comprising:

- Protection of the Environment Operations Act 1997, NSW Environment Protection Authority (POEO).
- Noise Guideline for Local Government, NSW Environment Protection Authority 2013 (NGLG).

- AS 2021:2015 Acoustics - Aircraft Noise Intrusion - Building Siting and Construction.

A long-term unattended survey of background noise levels was conducted at a location close to the site boundary (front yard of residence of 30 Forestwood Drive, Glenmore Park) from 17 March 2021 to 30 March 2021, using a 01dB noise logger. Additionally, attended measurement has been carried out near the university student accommodation on 3 March 2021.

In addition, measurements were conducted to establish the operational acoustic criteria for the future mixed-use development to be located at 90-98 Glenmore Ridge Drive.

Measurement locations and the complete Noise and Vibration Assessment Report is contained in **Appendix O.**

7.9.2 Existing environment

The proposed site is currently vacant urban land with surrounding properties being essentially flat land as well. The nearest noise affected receivers to the proposed development are as follows.

- Residences which are located along the western and southern property boundaries. Residences along the western property boundary are situated across Darug Avenue and those along the southern property boundary are located across Forestwood Drive.
- A future mixed-use development which will be located across Deerubbin Drive (i.e. 90-98 Glenmore Ridge Drive), along the northern property boundary.
- Residences which are also situated along Deerubbin Drive, to the north-east and north-west from the site.
- Along the eastern property boundary: Active recreation areas (i.e. Mulgoa Rise Fields), and areas dedicated to environmental conservation.

The noise levels measured at the logger location (30 Forestwood Drive, Glenmore Park) have been used to assess the noise impact of the proposed development to the nearest noise affected receivers above. The time periods used are in accordance with those recommended in the NSW Environment Protection Authority's (EPA) Noise Policy for Industry (NSW NPI). The measurement results are presented in **Table 13** and in **Table 14**.

Table 13 Measured ambient noise levels at 30 Forestwood Drive

Measurement Location	Daytime 7am to 6pm		Evening 6pm to 10pm		Night time 10pm to 7am	
No. 30 Forestwood Drive Glenmore Park	LA90	LAeq	LA90	LAeq	LA90	LAeq
	34 dBA	52 dBA	34 dBA	50 dBA	32 dBA	49 dBA

Notes

1. For Monday to Saturday, Daytime 7:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 7:00 am. On Sundays and Public Holidays, Daytime 8:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 8:00 am.
2. The LA90 noise level is representative of the "average minimum background sound level" (in the absence of the source under consideration), or simply the background level.
3. The LAeq is the energy average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.

Table 14 Measured ambient noise levels at 90-98 Glenmore Ridge Drive

Measurement Location	Daytime 7am to 6pm		Evening 6pm to 10pm		Night time 10pm to 7am	
Southern property boundary at 90-98 Glenmore Ridge Drive	LA90	LAeq	LA90	LAeq	LA90	LAeq
	43 dBA	51 dBA	38 dBA	47 dBA	33 dBA	46 dBA

Notes

4. For Monday to Saturday, Daytime 7:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 7:00 am. On Sundays and Public Holidays, Daytime 8:00 am – 6:00 pm; Evening 6:00 pm – 10:00 pm; Night-time 10:00 pm – 8:00 am.
5. The LA90 noise level is representative of the "average minimum background sound level" (in the absence of the source under consideration), or simply the background level.
6. The LAeq is the energy average sound level. It is defined as the steady sound level that contains the same amount of acoustical energy as a given time-varying sound.

7.9.3 Assessment

The expected noise and vibration sources associated with the development of the Site are listed below. Vibration was considered as part of the assessment for the construction sources only as no operation sources are expected to give rise to perceptible vibration levels at residential receivers.

Construction

The proposed development will be undertaken during the following standard construction hours.

- Monday to Friday 7am to 6pm.
- Saturday 7am to 5pm.

Work outside of these hours (including night work) will occur on an as necessary basis. In these occurrences, the immediately affected residents and businesses will be notified of works prior to commencement.

The expected noise and vibration sources for construction are listed below:

- Site Preparation.
- Bulk Excavation.
- Construction.

Noise criteria applicable to the project site with respect to construction activities have been derived considering the 'Interim Construction Noise Guideline' (ICNG). The ICNG defines noise management levels of "Noise Affected" and "Highly Noise Affected" for the purpose of managing construction noise.

Residential receivers will be noise affected by construction activities.

As a result, conceptual management procedures should be considered and further developed into a detailed construction noise and vibration management plan (CNVMP).

Due to the absence of information regarding vehicular traffic movements related to construction activities a traffic survey should be undertaken to confirm the expected traffic volumes generated by the construction activities to establish that they do not exceed the recommended maximum growth of 60% relative to the existing traffic volumes. This assessment can be conducted as part of the construction traffic management plan.

The CNVMP should also consider vibration impact onto the nearest affected locations including the validation of safe working distances prior to starting vibration intensive tasks.

Operation

With respect to operational noise, noise emissions from the following sources have been considered.

- Mechanical Services.
- Playgrounds.
- Public Address System and School Bell.

- Operational procedures.
- Mechanical Services.
- Carpark noise emissions.
- Noise impact on local roads

The school is expected to operate between 6.30 am till 6.30 pm, Monday to Friday. Additional activities or events may be held after 6.30pm at the school utilising the hall up to 10pm, with events past 10pm being infrequent.

External and Internal Noise Emissions – Building Services

Conceptual treatments have been provided for outdoor plant items. These treatments include solid screens and recommended operational times and limiting sound power levels.

Mechanical / AC ventilation system will need to be designed to achieve the internal noise level criteria established.

Emergency plant will be designed to comply with the internal noise level criteria discussed in standard AS/NZS 1668.1:2015.

Mechanical plant should be resiliently mounted. Vibration isolation mounts and supports should be designed to achieve compliance with vibration criteria.

Outdoor noise emissions – playgrounds

Noise emissions from proposed outdoor playgrounds at nearest affected residences were found to be compliant with the noise emission target.

Outdoor noise emissions – Public Address System

The outdoor PA system will be designed so noise emissions from the PA system do not exceed the intrusiveness criteria listed in the Noise and Vibration Assessment Report. Noise emissions should be obtained under free-field conditions, excluding any noise reflections from walls or vertical structures.

It is also advised that outdoor PA system should not operate during the night-time period (i.e. between 10:00 pm and 7:00 am) and outside school opening hours (i.e., between 6:30 pm and 6:30 am).

Building Envelope Constructions

To achieve compliance with the operational criteria conceptual treatments and performance requirements for building envelope constructions have been provided within the Noise and Vibration Assessment Report. These conceptual treatments are to be further developed during detailed design stages.

Operational Procedures

Operational procedures have been recommended for the extended hours of 6:30 pm to 10 pm. Events which take place outside standard school hours (though likely to be infrequent) should be conducted indoors in the library spaces of Building A, and in the Communal Hall on Building C.

The following operational procedures are recommended in relation to these events:

- Only speeches and similar events should be conducted in the library spaces. No musical events are recommended in this space.
- Events which take place outside standard school hours (though likely to be infrequent) - all external windows and doors should be kept closed in the library spaces in Building A, and in the Communal Hall, Building C. These include the vertical bifold doors in the Communal Hall.

Carpark Noise Emissions

Noise emissions from vehicular activities in the carpark are unlikely to exceed the relevant operational criteria during the proposed operational hours. These noise emissions are unlikely to cause sleep disturbance and sleep awakening events at the nearest residences.

Waste collection should be conducted between 7:00 am and 6:00 pm.

Noise Impact on Local Roads

The noise emissions from vehicular activities on local roads, which are related to the use of the school, are found to be within the relevant noise criteria for local roads.

Additionally, it has been found that noise emissions from short term vehicular events are unlikely to cause sleep disturbance and sleep awakening at the nearest residences

7.9.4 Mitigation measures

The following mitigation measures are recommended.

Construction

- The contractor should develop a construction noise and vibration management plan (CNVMP) in order to implement mitigation measures to manage the noise and vibration impact onto the potentially affected receivers.
- As part of the CNVMP a detailed construction program should be provided which should include the following:
  - Schedule of construction activities (classified into scenarios if applicable).
  - List of construction equipment per activity.
  - Location of construction equipment.
  - Duration of construction activities, as well as proposed construction hours.
- The contractor should, where reasonable and feasible, apply best practice noise mitigation measures. These measures include the following:
  - Maximising the offset distance between plant items and nearby noise sensitive receivers.
  - Preventing noisy plant working simultaneously and adjacent to sensitive receivers.
  - Minimising consecutive works in the same site area.
  - Orienting equipment away from noise sensitive areas.
  - Carrying out loading and unloading away from noise sensitive areas.
- On-site monitoring be conducted to attest this impact and propose mitigation measures as construction activities develop.
- The contractor should take reasonable steps to control noise from all plant and equipment. Examples of appropriate noise control include efficient silencers and low noise mufflers.
- The contractor should apply all feasible and reasonable work practices to meet the NMLs and inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels, duration of noise generating construction works, and the contact details for the proposal. A potential approach would be to schedule a respite period after continuous construction activity or undertaking high noise generating works to less sensitive times.
- An assessment of road traffic noise generated by light and heavy vehicle movements which are associated with the development construction is to be undertaken. For this purpose, a traffic study report shall estimate the relevant traffic flows and assess the predicted road traffic noise levels in accordance with the criteria discussed in the Noise and Vibration Assessment Report.
- Any vibration generating plant and equipment is to be located in areas within the site in order to lower the vibration impacts.
- Investigate the feasibility of rescheduling the hours of operation of major vibration generating plant and equipment.
- Identify other vibration sensitive structures such as tunnels, gas pipelines, fibre optic cables, Sydney Water retention basins. Specific vibration goals should be determined on a case-by-case basis by an acoustic consultant which is to be engaged by the construction contractor.

- It is advised to conduct attended measurements of vibration generating plant at commencement of works to confirm compliance with vibration criteria discussed in Noise and Vibration Assessment Report. Measurements should be conducted at the nearest affected property boundary. If possible, measurements will also be used to validate the safe working distances advised in the Noise and Vibration Assessment Report.
- Use lower vibration generating items of construction plant and equipment, that is, smaller capacity plant.
- Minimise conducting vibration generating works consecutively in the same area (if applicable).
- Schedule a minimum respite period prior to long continuous activities.
- Use only dampened rock breakers and/or “city” rock breakers to minimise the impacts associated with rock breaking works.
- Deliveries should be undertaken, where possible, during standard construction hours.
- Maximise hammer penetration (and reduce blows) by using sharp hammer tips. Keep stocks of sharp profiles on site; and monitor the profiles in use.
- It is advised that mobile plant and trucks operating on site for a significant portion of the project are to have reversing alarm noise emissions minimised. This is to be implemented subject to recognising the need to maintain occupational safety standards.
- A complaint response procedure should be implemented. Information to be gathered as part of this process should include location of complainant, time/s of occurrence of alleged noise or vibration impacts (including nature of impact particularly with respect to vibration), perceived source, prevailing weather conditions and similar details that could be utilised to assist in the investigation of the complaint. All resident complaints will be responded to in the required timeframe and action taken recorded.

Operation

The following design measures should be considered as part of the detailed design stage and mitigations may include the following:

- Mechanical plant installation locations and the positioning of external air duct paths (such as inlets and outlets) near the property boundary should be limited, as far as practicable.
- Plant room walls should achieve a minimum airborne sound insulation performance of Rw 45 -50. Whenever possible, the plant rooms should only be accessible from inside the building.
- If airflow paths are required to/from outside (such as outside air, exhaust air, relief air, etc) these paths should be fully ducted and include minimum 50 mm thick internal insulation; and / or include acoustic louvres. When the extent of ductwork is not sufficient for treatment, then rectangular silencers may be required (this especially applies to fans and AHUs).
- Ornamental louvres should generally only be considered if they are blanked off with FC sheeting or plant room external walls (subject to further Detailed Design acoustic assessment).
- All plant room walls and roof / ceiling to be internally lined with insulation, which in combination with insulation facing, should achieve a minimum noise reduction coefficient (NRC) rating of 0.8.
- AHUs and FCUs should include return air / outside air plenums which are in internally lined with minimum 50 mm thick insulation.
- Variable speed drives should be implemented whenever possible.
- Reduce the number of operational plant items between 6:00 pm and 7:00 am (and during the night-time period generally).
- Outdoor units and other plant items to be screened from direct line of sight to the affected residences (depending on their locations).
- Mechanical / AC ventilation system should be designed to achieve the internal noise level criteria discussed in Section 3.5.2 of the Noise and Vibration Assessment Report.
- Emergency plant should be designed to comply with the internal noise level criteria discussed in standard AS/NZS 1668.1:2015 (refer to Section 3.5.3 of the Noise and Vibration Assessment Report).

- Mechanical plant should be resiliently mounted. Vibration isolation mounts and supports should be designed to achieve compliance with vibration criteria discussed in Section 3.8 of the Noise and Vibration Assessment Report.
- The outdoor PA system should be designed so noise emissions from the PA system do not exceed the intrusiveness criteria listed in Table 4 of the Noise and Vibration Assessment Report. Noise emissions should be obtained under free-field conditions, excluding any noise reflections from walls or vertical structures.
- The PA system should not operate during the night-time period (i.e. between 10:00 pm and 7:00 am) and neither outside school opening hours (i.e. between 6:30 pm and 6:30 am).
- To achieve compliance with the operational criteria discussed in Section 3 of the Noise and Vibration Assessment Report, conceptual treatments and performance requirements for building envelope constructions have been provided in Section 5.5 Noise and Vibration Assessment Report. These conceptual treatments are to be further developed during detailed design stages.
- After 10:00 pm, events should be conducted indoors in the library spaces of Building A, and in the Communal Hall of Building C.
- Only speeches and similar events should be conducted in the library spaces. No musical events are recommended in this space.
- Events which take place outside standard school hours (though likely to be infrequent) - all external windows and doors should be kept closed in the library spaces in Building A, and in the Communal Hall, Building C. These include the vertical bifold doors in the Communal Hall.
- Waste collection should be conducted between 7:00 am and 6:00 pm.

7.10 Biodiversity

7.10.1 Methodology

A Biodiversity Development Assessment Report (BDAR) Waiver Request was prepared by Cumberland Ecology to address Item 11 of the SEARs for the proposed development. The Biodiversity Development Assessment Report Waiver Request and associated approval documents are located in **Appendix P**.

Section 7.9 of the NSW *Biodiversity Conservation Act 2016* (BC Act) requires all development applications for SSD to be accompanied by a BDAR unless both the Planning Agency Head and the Environment Agency Head determine that the proposed development is not likely to have any significant impact on biodiversity values as defined under the BC Act and the Biodiversity Conservation Regulation 2017 (BC Regulation).

A BDAR Waiver may be applied for future development at the subject site if biodiversity values will not be significantly impacted. Assessment of the BC Regulation biodiversity values was undertaken via the following methodology:

- Database analysis - searches were conducted to identify threatened species, populations, that occur within the locality (5 km) using the NSW Office of Environment and Heritage (OEH) BioNet Atlas database (OEH 2020).
- GIS Mapping - to identify whether any vegetation communities were present on or nearby the subject site.
- Site Inspections - Cumberland Ecology visited the subject site on Tuesday, 23 2020. The subject site was inspected by traversing the subject land to verify existing vegetation mapping with reference to threatened ecological communities (TECs) known to occur within the locality completing the following:
  - Random Meander Surveys.
  - BAM Plot Survey.
  - Fauna Habitat Assessment.
- Completion of a Biodiversity Values Assessment.

7.10.2 Existing environment

The subject site is surrounded by recent residential development to the south and west, by vacant land to the north and sports fields to the east. Intact native vegetation is located within Mulgoa Nature Reserve approximately 200m to the west. Riparian vegetation associated with Surveyors Creek is located within Surveyors Creek Nature Reserve approximately 200m to the west of the subject site. This reserve includes revegetation plantings. This vegetation (including revegetation plantings) has connectivity to Mulgoa Nature

Reserve approximately 450m north-west of the subject site. Inspection of these reserves indicates that Mulgoa Nature Reserve contains good quality Cumberland Plain Woodland, which listed as a critically endangered ecological community under the BC Act, while Surveyor's Creek Reserve contains River Flat Eucalypt Forest, which is listed as an endangered ecological community under the BC Act.

The subject site is not located within any of the Sydney Region Growth Centres and is not subject to active Biocertification under the State Environmental Planning Policy (Sydney Region Growth Centres) 2006.

7.10.3 Assessment

The redevelopment of subject site is highly unlikely to have significant impacts upon defined biodiversity values as a result of the proposed project involving the construction of a new primary school. The project is anticipated to impact on exotic grassland that does not conform to any recognised PCT. This area of vegetation may comprise potential and very marginal aerial foraging habitat only within the broad habitat ranges of highly mobile native fauna including threatened species such as the Grey-headed Flying Fox, Microchiropteran bats and owl species.

When assessing impacts to potentially occurring threatened species from the project there is limited justification for considering impacts to threatened species with the detail required under the BAM. The project may result in a small reduction of very marginal foraging habitat for highly mobile, aerial threatened species. When assessing impacts likely from the project in its current form, there is very little likelihood of significant impacts to threatened species.

On the basis of our investigations, it was concluded by Cumberland Ecology that the preparation of a BDAR was not necessary, due to the low likelihood of impacts to biodiversity. Therefore, it was recommended that a waiver for the preparation of a BDAR be sought from the Department of Planning and Environment for the proposed project at Mulgoa Rise, constituting SSD.

A BDAR waiver was granted by the Planning Secretary on 20 April 2021. The delegated "Environment Agency Head" in the Environment, Energy and Science Group (EESG) of the Department has also granted a waiver in a letter dated 15 April 2021. Copies of the BDAR waiver approval letters are located in **Appendix P**.

7.10.4 Mitigation measures

No further biodiversity mitigation measures are required for the proposed activity. It should be noted that amendments to the development may require a further waiver to be sought and issued.

7.11 Penrith Section 7.12 Contributions Plan

Local infrastructure contributions are legislated under the provisions of Section 7.12 of the EP&A Act and authorise Penrith City Council to levy a monetary contribution, if it so wishes, which is used towards the provision of public amenities and services.

Clause 4.33 of the EP&A Act refers to the determination of Crown development applications whereby:
(1) A consent authority (other than the Minister) must not—

(a) refuse its consent to a Crown development application, except with the approval of the Minister, or

(b) impose a condition on its consent to a Crown development application, except with the approval of the applicant or the Minister.

(2) If the consent authority fails to determine a Crown development application within the period prescribed by the regulations, the applicant or the consent authority may refer the application—

(a) to the Minister, if the consent authority is not a council, or

(b) to the applicable Sydney district or regional planning panel, if the consent authority is a council.

2A) A Crown development application for which the consent authority is a council must not be referred to the Minister unless it is first referred to the applicable Sydney district or regional planning panel.

(3) An applicable Sydney district or regional planning panel to which a Crown development application is referred may exercise the functions of the council as a consent authority (subject to subsection (1)) with respect to the application.

(4) A decision by a regional panel in determining a Crown development application is taken for all purposes to be the decision of the council.

(5) If an applicable Sydney district or regional planning panel fails to determine a Crown development application within the period prescribed by the regulations, the applicant or the panel may refer the application to the Minister.

(6) The party that refers an application under this section must notify the other party in writing that the application has been referred.

(7) When an application is referred under this section to an applicable Sydney district or regional planning panel or the Minister, the consent authority must, as soon as practicable, submit to the panel or the Minister—

(a) a copy of the development application, and

(b) details of its proposed determination of the development application, and

(c) the reasons for the proposed determination, and

(d) any relevant reports of another public authority.

(8) An application may be referred by a consent authority or applicable Sydney district or regional planning panel before the end of a relevant period referred to in subsection (2) or (5).

On this basis the consent authority has no power to issue a refusal or issue an approval subject to conditions of consent to which the Department of Education does not agree. The limitation on the power to impose a condition of consent extends to the consent authority's ability to require contributions to be paid, including contributions pursuant to sections 7.11 and 7.12.

DPIE Planning Circular D6 represents the consistently held view that the Department of Education, as a Crown authority, provides critical community infrastructure and that to levy any developer contribution on provision of public education facilities increases the cost of such infrastructure for all taxpayers in the State. The currency of circular D6 is confirmed in the draft development contributions practice note from July 2005

which states that, *"The current limitation on imposition of levies on crown developments as outlined in circular D6… remain in force."*

The Draft Local development contributions guidelines for Penrith Council outline the best practice approach to development contributions for the public sector. The Penrith Contributions Plan states the education establishments are exempt from contributions under this plan.

The Department of Industry, Environment and Planning (DPIE) has not required development contributions for recent school development including Alexandra Park Community School (SSD 8373), Parramatta West Public School (SSD 8790), Jordon Springs public School (SSD 9354) or Fort Street Public School (SSD 10340). It is therefore submitted that the contributions will not be required to be paid in this instance.

7.12 Utilities

7.12.1 Methodology

An Infrastructure Management Plan and Statement was prepared by Norman Disney Young (NDY) to address Item 14 of the SEARs for the proposed development. The Infrastructure Management Plan is contained in **Appendix Q**.

The Infrastructure Management Plan outlines the outcomes of initial Authority consultation, to determine the capacities of existing services and utilities available for the proposed development. The pan is intended to provide sufficient information to demonstrate servicing can be provided to support the proposed development.

7.12.2 Existing environment

The proposed site is currently vacant, bounded by Deerubbin Drive, Darug Avenue and Forestwood Drive. An overview of the existing infrastructure available at the site is as follows:

- Potable water services - The site has frontage to the Sydney Water Corporation (SWC) DN150 uPVC water main within Deerubbin Drive.
- Sewer drainage services - The site has frontage to DN225 private sewer main terminating at the north-east of the site.
- Natural Gas Supply - Gas is available to the school along two boundaries:
  - Daurug Avenue (110PE 210kPa); and
  - Forestwood Drive (32NY 210kPa).
- The site has an existing Endeavour Energy substation (29097) located off Darug Avenue which currently supplies residential street load. The substation has a capacity of 315kVA with an estimated current connected load of 188.5kVA.
- Communication Services - There is an existing Telstra/NBN pit at the front of Building A on Darug Avenue.

7.12.3 Assessment

The building characteristics for the proposed development are as noted below:

- Building A: Two storey school administration, office and library building
- Building B2 & B3: Two storey teaching buildings housing classrooms
- Building C: Cafeteria and Hall
- Site elements: New COLA, play spaces, sports court and playing field and car park

The maximum infrastructure utility demands for the proposed development are outlined in **Table 15** below.

Table 15 Infrastructure Demands

Services	Unit	Maximum Demand	Remarks
Electricity	KVA	454	Based on AS3000
Potable Water	kL/day	12.0 17.2	Average Peak
Sewer Drainage	kL/day	9.6	Average
Fire Hydrant	L/s	20	AS2419.1-2005
Fire Sprinklers	No sprinklers required		
Fire Drenchers	No sprinklers required		
Natural Gas	MJ/h	800	F&B, Domestic Hot Water Plant

KVA = kilovolt-amperes
L/s = Litres per second
FU = fixture unit
MJ/h = Megajoules per hour

As there are no existing buildings on the site, there are no particular staging requirements for the infrastructure works.

7.12.4 Mitigation measures

A new potable water connection shall be made to the existing Sydney Water potable water main located within Deerubbin Drive with new authority meter and backflow prevention device. A pressure and flow application has been received which indicated insufficient pressure and flow for firefighting services and a fire booster pump will be required.

The sewer drainage from the site is to be connected to the existing sewer main in Deerubin Drive. The 225mm authority sewer mains appear to have sufficient capacity to service the proposed buildings. A separate sanitary plumbing and drainage system will be provided to connect all fittings and fixtures in canteen into the Trade Waste system. All wastewater from canteen will be conveyed to a 2000L grease arrestor and the treated effluent will discharge into the adjacent private gravity sewer line. A trade waste agreement will need to be agreed with Sydney Water.

Gas will be connected to the supply in Darug Avenue and extended to a new boundary meter and regulator. An application will be lodged with Jemena for connection once the development application is approved.

The existing substation has insufficient capacity to service the school site and it is proposed to replace this substation with a larger substation capable or servicing both the current connected load plus the school load. The existing substation will be replaced with a new 1000kVA substation which will service both the existing 188.5kVA load as well as the additional 545kVA school load.

A 40kW photovoltaic (PV) solar power grid-connect rooftop system shall be provided to offset power consumption costs at the school. The PV system will require approval from Endeavour Energy, an application to connect the PV system will be required detailing the installed system.

It is proposed to use this existing pit as the connection point to the NBN network. New NBN/Telstra pits and lead-in conduits will be terminated in a new main communications room located in Building A.

The approval pathways, timelines and funding responsibilities of the different authority approvals required for the development are detailed in **Appendix Q**. The project can be adequately serviced by power, telecommunications, water, sewer, and gas services.

7.13 Stormwater drainage

Item 15 of the SEARs requires the EIS to provide:

- A preliminary stormwater management plan for the development that:
  - Is prepared by a suitably qualified person in consultation with Council, Sydney Water's Water Servicing Coordinator and any other relevant drainage authority.
  - Details the proposed drainage design for the site including on-site detention facilities, water quality measures and the nominated discharge point.
  - Demonstrates compliance with Council or other drainage authority requirements.
  - Stormwater plans detailing the proposed methods of drainage without impacting on the downstream properties.
  - Where drainage infrastructure works are required that would be handed over to Council, provide full hydraulic details and detailed plans and specifications of proposed works that have been prepared in consultation with Council and comply with Council's relevant standards.

7.13.1 Methodology

A Concept Stormwater Management Report has been prepared by Woolacotts Consulting Engineers to identify the stormwater and flood management requirements for the proposed schematic design and meet the above-mentioned requirements of Section 15 of the SEARS. The Concept Stormwater Management Report is contained in **Appendix S** and is summarised below.

- Desktop investigation - A review of available data and detailed survey was undertaken to identify the existing levels and features on-site.
- Site investigation - A site investigation was undertaken to ground truth the survey and observe the existing vegetation on-site, likely soil composition and hydraulic controls.
- Concept design - A concept stormwater design for the subject site was formulated based on the plans provided. This included allowance for water sensitive urban design features, on-site retention and reuse and drainage infrastructure.
- MUSIC modelling - A Model for Urban Stormwater Improvement Conceptualisation (MUSIC) has been developed as a conceptual design tool for the purpose of estimating generated pollution within the

catchment area. The model has been used to demonstrate the performance of implemented stormwater quality improvement systems.

7.13.2 Existing environment

The total existing site area is approximately 3 hectares based on the surveyed site boundaries. The site grades gently from ahigh point at the south-west corner, to a low point in the north-east corner. An existing grassed batter (approximately 1V:10H) is located along the southern site boundary. Remaining gradients within the site, from the toe of the batter to the north-west corner of the site, varies between 1% to 4%.

7.13.3 Assessment

A stormwater management system has been developed to accommodate the development works resulting in the increased impervious areas, as well as comply with Council's requirement. Stormwater runoff from all pervious and impervious surfaces within the proposed development will generally be collected by an in-ground pit and pipe gravity pipe system. The in-ground pit and pipe system has been sized to accommodate the 5% AEP (20-year ARI) storm flows for the site.

The site is located outside of Penrith City Council's identified On-Site Detention areas within the Stormwater Drainage Guideline for Building Developments. Thus, OSD is not required for the proposed development. This has been confirmed in previous email correspondence between ACOR and Penrith city Council. It has been further confirmed with Penrith City Council that the downstream receiving stormwater system (both minor and major) has sufficient capacity to convey unattenuated flows from the site.

Water sensitive urban design principles have also been incorporated into the stormwater drainage design. The proposed stormwater drainage system has been designed to incorporate treatment devices that ensure the quality of discharged water meets the requirements.

7.13.4 Mitigation measures

During construction, erosion and sediment control measures will be provided in accordance with the requirements of "Managing Urban Stormwater Soils and Construction, 4th Edition (Blue Book)". These measures will include silt fences on the low side of the site, silt traps at stormwater pits and a construction exit to remove silt from vehicles before they leave the site. Dust control measures will also be provided.

Ongoing management and maintenance of the stormwater system inclusive of the pits, pipes, and detention tank are required to form part of the school's maintenance schedule. The periodic cleaning of the system to remove rubbish and debris is recommended to be undertaken at 6-month intervals and following any storm greater than the 10% AEP event.

7.14 Flooding

7.14.1 Methodology

A Flood Impact Assessment (FIA) was prepared by Woolacotts Consulting Engineers (Woolacotts) to address Item 16 of the SEARs for the proposed development and is contained in **Appendix T**. The FIA involved the following tasks:

- Assessing the flood risk on-site taking into account the effects of climate change, sea level rise and an increase in rainfall intensity.
- Flood risk consultation with Penrith City Council.
- Assessing the impacts of the development, including any changes to flood risk onsite or off-site, and propose design solutions to mitigate flood risk where required.
- Preparation of two-dimensional flood modelling.

7.14.2 Existing environment

The site grades gently from a high point in the south-west corner, to a low point in the north-east corner. An existing grassed batter (approximately 1V:10H) is located along the southern site boundary. Remaining gradients within the site, from the toe of the batter to the north-west corner of the site, varies between 1% to 4%. The site is surrounded on the northern, western, and southern boundaries by roads offering limited channel stormwater drainage. Correspondence with Penrith City Council revealed that The Site is not flood affected by riverine flooding by the 1% Annual Exceedance Probability (AEP) design storm event.

7.14.3 Assessment

Preliminary site investigations indicated that a large external catchment area was directed towards The Site. Due to the sizeable frontage of The Site, in combination with the limited channel capacity of the surrounding roadways, the investigations indicated that there was potential for overland flow flooding to be directed through The Site.

Based on the above investigations, Woolacotts engaged GRC Hydro to undertake two-dimensional overland flow flood modelling of the proposed development using Tuflow analysis software. A summary of the results of this modelling is provided below:

- The Tuflow modelling indicated that the Site is subjected to overland flow flooding during the 1% Annual Exceedance Probability (AEP) storm event (**Figure 28**) and Probable Maximum Flood (PMF) event.
- During the 1% AEP storm event, overland flow flooding occurs in the north-western corner and eastern portion of The Site. This flooding is shallow (less than 300mm) and has a hazard classification of H1, which is the lowest level of hazard and is generally safe for people, vehicles, and buildings.
- The 1% AEP rainfall intensity was increased by 10%, in accordance with the Australian Rainfall and Runoff Guidelines 2019 (ARR,2019), to account for climate change. This resulted in an increase of peak water levels by 0.1 m. Based on this assessment it is concluded that the climate change scenario does not have any significant effect on flood risk at the site.
- The 1% AEP flood level impact that compared the changes in flood levels between existing and the proposed conditions is shown in **Figure 29** .

7.14.4 Mitigation measures

Minimum Floor Levels

According to Council requirements, the Finished Floor Levels (FFL) must be located 500mm above the 1% AEP flood level.

The overland flow flooding along Darug Avenue and Deerubbin Drive governs the FFL of Buildings (1% AEP flood level plus 500mm freeboard).

The flood contours for Deerubbin Drive (along the northern site boundary) vary from 61.0m to 59.5m AHD. This results in a minimum FFL of 61.5m AHD for Building A, 60.9m AHD for Buildings B2 and B3, and 60.10m AHD for Building C. This is summarised in **Table 16** below.

Table 16 Minimum Floor Level Information

Building	A	B2 and B3	C
Design flood level (1% AEP)	61.0m AHD	60.4m AHD	59.6m AHD
Freeboard	0.5m	0.5m	0.5m
Flood Planning Level (FPL)	61.5m AHD (1% AEP + 0.5m Freeboard)	60.9m AHD (1% AEP + 0.5m Freeboard)	60.1m AHD (1% AEP + 0.5m Freeboard)

For Darug Avenue, the flood contours (along the western site boundary) vary from 64.5m to 61.0m AHD. To maintain an FFL of 61.5m AHD for Building A, a diversion wall is needed along the northern half of the western boundary. Refer to the Civil Engineering Report located in **Appendix AA** for more information.

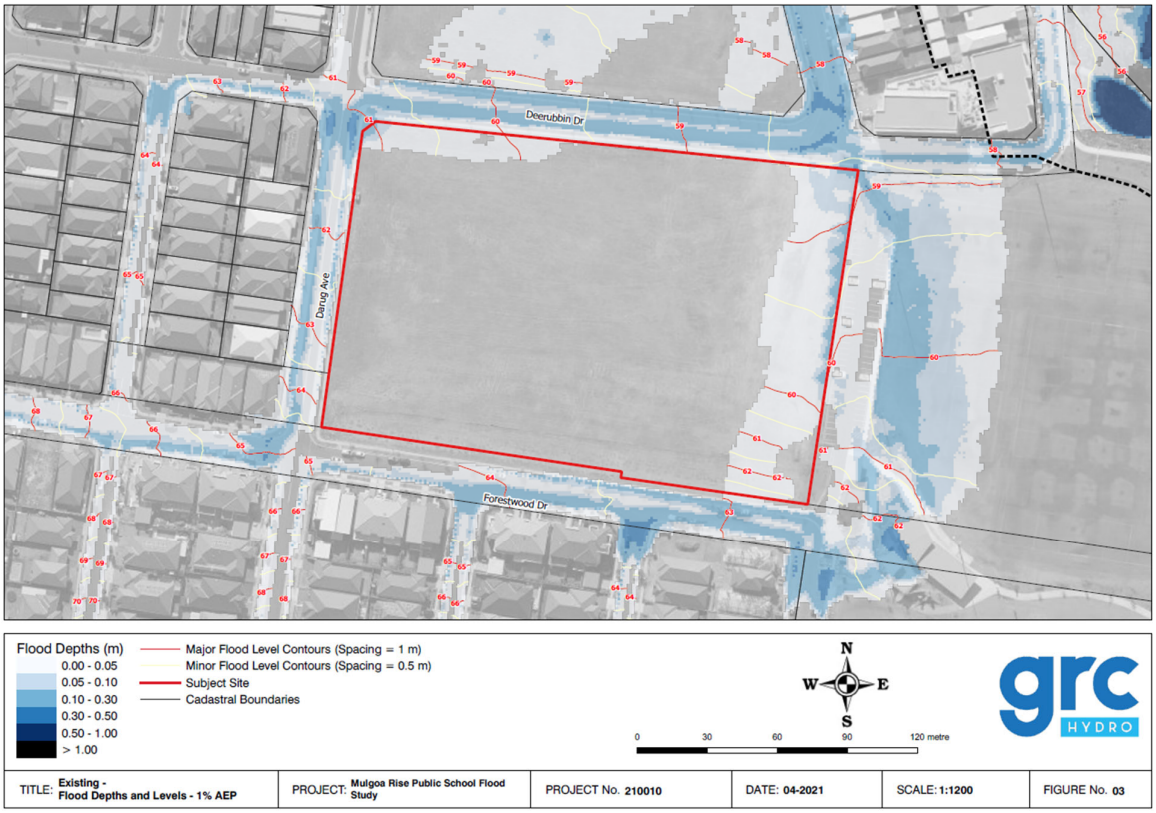

Figure 28 1% Pre-development flood mapping (extract from FIA)

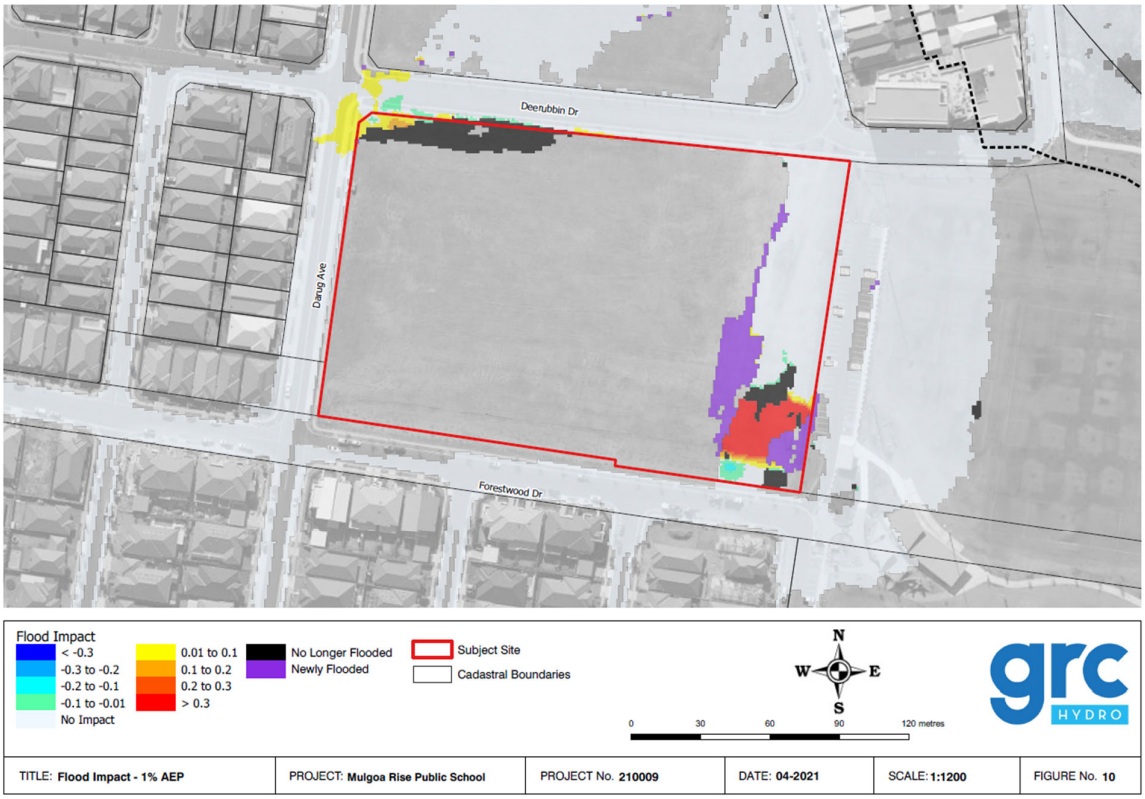

Figure 29 1% Post-development flood mapping (extract from FIA)

Proposed raised threshold / blisters

The provision of raised thresholds / blisters along Darug Avenue, Deerubbin Drive and Forestwood Drive would result in additional depth of flooding entering the site and neighbouring properties and will impact the required building FFLs.

The project has adopted an at-grade solution which is considered to offer the best possible outcome for students while taking into consideration advice received from the civil engineering project team.

Flood Response

The two main responses to a flood emergency include evacuation or Shelter in Place. Evacuation involves moving to an area that is outside the reach of floodwaters, while Shelter in Place refers to staying within the building until floodwaters have receded and it is safe to leave. The appropriate flood response is typically provided in a Flood Emergency Response Plan. It is recommended that a Flood Emergency Response Plan be prepared for this project.

7.15 Soil and water

7.15.1 Methodology

A Soil and Water Assessment (SWA) was prepared by Woolacotts Consulting Engineers (Woolacotts) to address Item 17 of the SEARs for the proposed development. The SWA involved the following tasks:

- Assess potential impacts on surface and groundwater, soil, related infrastructure, and watercourses.
- Detail measures and procedures to minimise and manage the generation and off-site transmission of sediment, dust, and fine particles; and
- Assess of salinity and acid sulphate soil impacts.

Soil and water information relating to the Site has been obtained from the following documents:

- JK Geotechnics – Supplementary Geotechnical Investigation, Ref: 33177PN2rpt, Dated 16 November 2020
- JK Environments – Preliminary Site Investigation (PSI) - Contamination, Ref: E33177PArpt, Dated 3 June 2020
- JK Environments – Detailed Site Investigation (DSI), Ref: E33177Prpt3-DSI, Dated 5 November 2020
- JK Environments – Salinity Assessment and Salinity Management Plan, Ref: E33177Prpt4-SAL, Dated 5 November 2020

7.15.2 Existing environment

The site is currently vacant with short to medium grass cover throughout and previously formed part of a quarry that was rehabilitated by backfilling with fill material. The fill material is a clayey fill material with gravel inclusions, which is well compacted but there are pockets which are poorly compacted in the in the area proposed for the two-storey home base building B2. Rock was encountered at the base of the fill material at depths varying from 11.2m to 14.5m.

Groundwater seepage was encountered during auger drilling at depths between 3.8m and 9.0m. On completion of the drilling, standing groundwater was recorded at depths between 1.3m and 5.0m in the boreholes. 24 hours after the drilling, a standing groundwater level of 2.3m deep was recorded.

JK Environments (JKE) undertook a DSI of the site following the outcomes of the PSI. Based on the findings of the investigation, JKE concluded that the site is suitable for the proposed development. Remediation and/or further investigation is not considered to be required based on the information and data collected and evaluated by JKE.

7.15.3 Assessment

The proposed development will potentially impact the Site's soil and water during the construction of the building foundations, external pavements, car parks and landscaped areas. Potential impacts include the

erosion of soils and sedimentation getting into watercourses and the management of saline soils / groundwater.

The Salinity Assessment and Salinity Management Plan prepared by JKE indicated the following:

- Most of the surficial samples from the Site were non-saline.
- The subsurface samples were slightly saline to moderately saline.
- There was no obvious pattern of increasing salinity with depth or specific areas of increased salinity within the Site.
- Laboratory results indicated that the groundwater is saline.
- The soil pH and acid sulphate test results indicate that the soils are non-aggressive towards buried concrete and mildly aggressive towards buried steel.
- The groundwater pH and chloride results indicate that the groundwater is non-aggressive towards buried steel and concrete.

7.15.4 Mitigation measures

During construction, erosion and sediment control measures are to be provided in accordance with the requirements of “Managing Urban Stormwater Soils and Construction, 4th Edition (Blue Book)”. These measures will include silt fences on the low side of the site, silt traps around new and existing stormwater pits and a sedimentation basin.

Other measures to be provided on site during construction include construction exits for all vehicles leaving the site, and revegetation of the site as soon as practicable. Erosion control measures must be inspected and maintained after each rain event and at intervals not exceeding two weeks. Additional mitigation measures are outlined in the Erosion and Sediment Control Plan located in the Stormwater Management Plan (**Appendix S**).

With respect to the management of saline soils / groundwater, a Salinity Management Plan (SMP) has been produced and is located in **Appendix S**.

7.16 Waste

7.16.1 Methodology

An Operational Waste Management Plan (OWMP) and a Construction Waste Management Plan (CWMP) were prepared by EcCell Environmental Management (EcCell) to address Item 18 of the SEARs and are contained in **Appendix W**. In preparation of the OWMP and CWMP the following waste specific guidelines were considered:

- NSW Environment Protection Authority (EPA) Waste Classification Guidelines 2014.
- NSW EPA’s Better Practice Guidelines for Waste Management and Recycling in Commercial and Industrial Facilities 2012.
- NSW EPA’s Waste Avoidance and Resource Recovery (WARR) Strategy 2014-21 with expected future guidelines to replace this during the construction and operation phases of the development.

7.16.2 Existing environment

The site is currently vacant and is generally well grassed with trees along the southern, eastern, and northern boundaries. The subsurface consists of fill material deposited as part of the rehabilitation works completed following closure of the former quarry to which the site is situated over. There are currently no structures on site and the need for a hazardous materials survey is not required.

7.16.3 Assessment

The NSW EPA Waste Classification Guidelines (NSW EPA, 2014a) groups wastes that pose similar risks to the environment and human health, as defined in the Protection of the Environment Operations Act 1997.

The primary waste streams expected to be generated and corresponding EPA classifications for the ongoing operation and construction of the development are summarised in the sections below.

Site preparation and Construction

Waste streams expected to be generated during the construction phase of the developments as outlined in **Table 17** below and in the CWMP.

Table 17 Construction Waste Generation Streams and Estimated Volumes

Material Type	Estimated Volume			On-Site Treatment Method	Off-Site Treatment Method
	Reuse	Recycle	Disposal		
Concrete Brick Block – work and Tiles		157 m^3		Co-mingled Bins	Crushed for road base
Metals		82 m^3		Co-mingled Bins	Scrap metal dealer for smelting
Timber off-cuts		170 m^3		Co-mingled Bins	Recycled for chips and mulch
Cardboard		137 m^3		Co-mingled Bins	Recycled into cardboard
Plasterboard		160 m^3		Co-mingled Bins	Recycled as soil conditioner
Plastics, packaging, paint drums, and containers		62 m^3	24 m^3	Co-mingled Bins	Styrene and plastic to landfill and Paint drums nested and recycled
Pallets and Reels	60 units			Separated onsite	Returned to the supplier
Liquid Waste			16 m^3	Separated onsite	Transferred to licenced landfill
General Waste			143 m^3	Co-mingled Bins	Transferred to licenced landfill
Sub Total	**NB: 60 units**	**768 m^3**	**183 m^3**		
Total		**951 m^3**		**Plus, an additional 60 pallets (single units returned to suppliers for reuse)**	

As the contracts for all contractors have not been let there are still those including the waste contractor to be advised (TBA). All waste will be co-mingled and taken for off-site separation and reuse or recycling except pallets and reels.

Earthworks for the site will involve benching and grading of the site areas for new building pads and carparking facilities. Preliminary cut and fill estimates for the works were calculated as being a cut of 1000m^3 and fill of 2500m^3. The estimates indicate that the approximately 1500m^3 of fil will need to be imported onto the site for construction. As such, no excavated material is expected to be exported from site.

Operation

The NSW Waste Classification Guidelines (NSW, EPA 2014a) groups wastes that pose similar risks to the environment and human health, as defined in the *Protection of the Environment Operations Act 1997*. Waste streams and classifications expected to be generated during the operational phase of the developments as outlined in the OWMP:

- General solid waste (putrescible) – food and garden organics etc.
- General solid waste (non-putrescible) – Metals, Plastics, Paper, Cardboard etc.
- Potentially hazardous waste – chemical liquids, solid waste, batteries, printer cartridges, e-waste etc.

As there is no reference in Penrith Development Control Plan 2014 C5 Waste Management for waste strategies for schools, a desktop assessment of waste generated from similarly structured schools with a variety of student numbers to provide indicative waste volumes, was conducted. The following waste generation estimates were calculated as outlined in **Table 18** below.

Table 18 Operational Waste Generation Streams and Estimated Volumes

Material Type	Weekly Vol. (L)	Bin Volume (L)	# Bins	Bin Size (m^2)
Paper Cardboard	1484	3000	1	2.5
Comingled	1662	660	3	3.48
Soft Plastics	1602	660	3	3.48
Organics	297	120	3	0.81

Material Type	Weekly Vol. (L)	Bin Volume (L)	# Bins	Bin Size (m^2)
Return & Earn*	178	240	1	0.43
General	2196	3000	1	2.5
			Circulation Space	4
			Total Area Required	**16.7**

*Return & Earn Recyclable waste should not be stored in the waste storage area due to the threat of theft and trespass. This is to be stored in a separate lockable, secure, and accessible area within the school grounds.

Areas for storage and collection of the applicable waste streams will be provided and marked out on a concrete waste pad. The waste pad area is estimated to be a minimum of 17m^2 to accommodate all bins and containers, for all applicable waste streams, for at least one collection cycle.

7.16.4 Mitigation measures

Construction

All waste will be removed by a licensed waste contractor using 15m bins on site during construction. The construction waste will be removed when bins are full and within the construction site hours to reduce disturbance of the neighbours.

There will be a designated waste storage area for the disposal and storage of construction waste prior to collection. This area will be located conveniently for the construction work team to use the bins as well as for waste contractors to collect. The waste storage area will be dynamic and will change over the life cycle of the development. Other requirements include:

- The routes for movement of waste between work site and waste storage area are to be kept obstruction-free.
- The routes for movement of bins and waste between storage and collection points are marked in the site drawing and will be kept obstruction-free (if waste is moved between the waste storage area(s).
- The waste bin collection point provided will be accessible for waste collection vehicles as shown in **Figure 30**. There are no obstructions to turning or reversing, pulling up vehicles and lifting bins.
- Access for waste collection vehicles will not be compromised by construction-related activities vehicles or other consequences of construction staging.
- All waste not being reused on site will be removed during, or at the completion of, the construction stage.
- No waste will be left on site unless it is part of valid reuse on site, which is integral to and in place in the design.
- In order to manage noise levels, collection of waste from the construction site will only occur during hours approved for construction work.
- All vehicles entering or leaving the site must have their loads covered.
- All vehicles, before leaving the site, to be cleaned of dirt, sand and other materials, to avoid tracking these materials onto public roads.
- At the completion of the works, the work site is left clear of waste and debris.

Operation

It is anticipated that mobile garbage bins (MGBs) will be utilised within the school and a combination of MGBs suitable to use for waste streams and separation will be used. The western area of the carpark has been nominated as the waste collection point as shown in **Figure 30**. The appointed waste contractors will collect each waste stream from the loading bay at nominated times in accordance with the relevant waste contract using standard plant and equipment. The waste collection truck will schedule collection out of school hours to reduce any risk from the truck and bin movements to the school and lower the risk for surrounding residents.

Schools must use Contract 9698 in buy.NSW website. This contract is mandatory and covers waste management services (bins, collection, transport, processing, treatment and disposal). Waste streams include general waste, organic, grease trap, recycling, secure destruction and clinical.

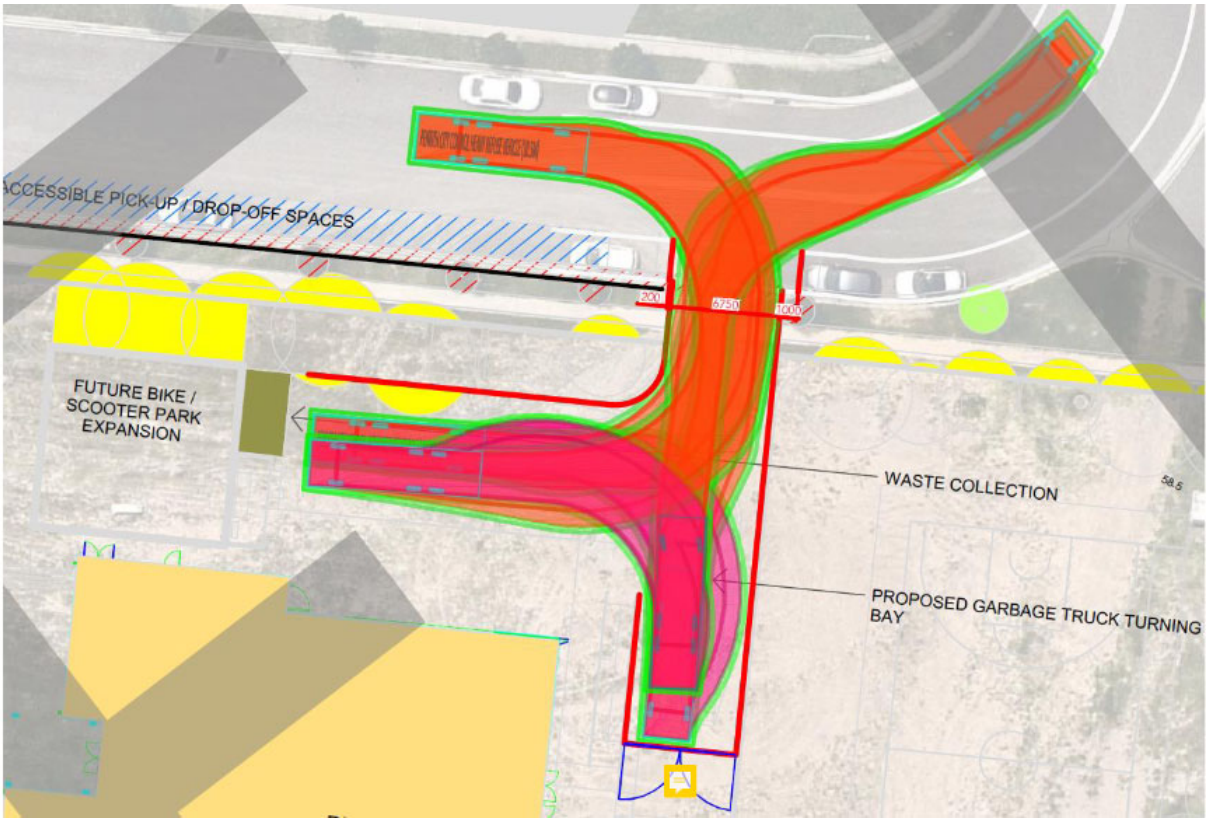

Figure 30 Proposed waste storage area and swept paths (source OWMP)

7.17 Contamination

7.17.1 Methodology

A Detailed Site Investigation (DSI) was prepared by JK Environments (JKE) to address Item 19 of the SEARs for the proposed development. The DSI is located in **Appendix V**. JKE have previously undertaken a Preliminary Site Investigation (PSI). An addendum to the PSI and DSI has also been prepared by JKE and is also contained in **Appendix V**.

The primary aim of the investigation was to characterise the soil and groundwater contamination conditions in order to establish whether remediation is required. A secondary aim of the investigation was to provide preliminary waste classification data for off-site disposal of soil waste which may be generated during the proposed development works.

The objectives were to:

- Supplement the PSI data via an additional soil and groundwater investigation.
- Assess the potential risks posed by contamination to the receptors identified in the Conceptual Site Model (CSM).
- Provide a preliminary waste classification for the in-situ soil.
- Assess whether the site is suitable or can be made suitable for the proposed development (from a contamination viewpoint).
- Assess whether further intrusive investigation and/or remediation is required.

7.17.2 Existing environment

The scope of work included a review of the PSI prepared by JKE, soil sampling from 13 boreholes and 10 test pits, and groundwater sampling from three monitoring wells installed at the site. The PSI indicated that the site has historically been used for grazing, though extractive activities (quarrying) occurred between 1986 and 2000. The site was rehabilitated (i.e., filled and grassed) between 2000 and 2007 and has remained vacant since. Recent site inspection by JKE (23 July 2021) identified non-friable asbestos containing material (ACM) at the ground surface in the north-eastern/eastern sections of the site.

7.17.3 Assessment

The DSI identified fill across the site from depths of approximately 11.2m below ground level (BGL) to 14.2mBGL, underlain by siltstone bedrock. The fill typically comprised silty clay with inclusions of gravels indicative of natural clay and ripped bedrock used in a controlled filling exercise to rehabilitate the former quarry. Ash, and building rubble (bricks, steel, plastic, glass, terracotta, tile fragments) were encountered to a lesser extent, in minor quantities in fill. No stained soils or offensive odours were encountered during the investigation.

The laboratory analysis detected concentrations of heavy metals, total recoverable hydrocarbons (TRH) and polycyclic aromatic hydrocarbons (PAHs) within the fill. All of the detected concentrations were below the respective human health and ecological-based site assessment criteria (SAC). The contaminant concentrations reported in soils were not considered to pose a risk under the proposed land use scenario.

Based on the soil results, the fill was assigned a preliminary waste classification of general solid waste (non-putrescible). The majority of the fill was also considered likely to meet the requirements for classification as Excavated Natural Material (ENM). Further sampling and analysis are required to confirm these classifications.

Concentrations of arsenic, nickel and zinc were detected in the groundwater collected from one location and exceeded the ecological-based SAC and were relatively consistent with the results obtained during the PSI. Overall, the minor elevations of these heavy metals in groundwater were assessed not to pose an unacceptable risk under the proposed land use scenario.

Based on the findings of the PSI and DSI reporrts, JKE concluded that the site is suitable for the proposed primary school development. However, due to the identification of non-friable ACM at the ground surface in the north-eastern/eastern sections of the site during the recent JKE site inspection, further work will be required to address this unexpected find and confirm that the site is suitable for the proposed development from a contamination viewpoint.

7.17.4 Mitigation measures

JKE recommend the following to mitigate risks from ACM and to verify the CSM relating to the potential extent of the asbestos impact:

- The site is to be secured by appropriate fencing to eliminate unauthorised access.
- A suitably qualified contractor/consultant is to undertake an ‘emu pick’ to remove any visible fragments of ACM/fibre cement from the ground surface in the north-eastern/eastern areas of the site (in accordance with the relevant codes of practice). Any fragments must be double bagged and disposed of lawfully as asbestos waste. A waste disposal docket is to be provided to the client to demonstrate compliance.
- Following the pick, a suitably qualified environmental consultant (e.g. a Licensed Asbestos Assessor) is to carry out a surface inspection and provide an asbestos clearance certificate.
- Subsequently, asbestos quantification sampling is to occur to verify the removal of the ACM and to confirm that impacts do not extend beneath the surface. This is to involve bulk sampling/screening utilising the same field methods as documented in the DSI. We recommend that sampling occurs on a 12m grid spacing and that samples be collected from the surface (0-0.05m depth interval) and from the subsurface at depths of approximately 0.5m and 1m, whilst ensuring that all district fill profiles down to the termination depth of the investigation are sampled/screened. These details should be outlined in a Sampling, Analysis and Quality Plan (SAQP) prior to the commencement of the investigation and the SAQP should be approved by the site auditor.

- A Supplementary Asbestos Investigation Report is to be prepared presenting the results of the investigation, along with a discussion/assessment of risk and any recommendations.

JKE recommend that the following documents be prepared for inclusion into the sites Construction Environmental Management Plan (CEMP).

- Fill Import Protocol (FIP) - prepared to ensure that all materials imported to the site (i.e. road-base and gravel, sandstone, general fill, topsoil, mulch etc) are free of contamination and are aesthetically suitable; and
- Unexpected Finds Protocol (UFP) – prepared to provide a procedure for managing contamination-related unexpected finds in the unlikely event they occur at the site during the proposed development works.

7.18 Aviation

7.18.1 Methodology

An Aeronautical Impact Assessment (AIA) was prepared by Avlaw Pty Ltd (Avlaw) to address Item 20 of the SEARs for the proposed development and is located in **Appendix X**. The assessment was undertaken following the below regulations, standards, and guidelines:

- International Civil Aviation Organisation (ICAO) Standards and Recommended Practices (SARPs)
- Western Sydney Airport (WSA) Obstacle Limitation Surfaces (OLS)
- Part 12 of the Airports Act 1996 (Act) and the Airports (Protection of Airspace) Regulations 1996 (Regulations)

7.18.2 Existing environment

The development will consist of one single story building, three connecting two story buildings and four covered outdoor areas the site. The proposed maximum building height is 71.295m AHD, with all plant and ancillary features captured within this height. Only mobile cranes will be used during construction and temporary crane activity will reach a maximum height of 96.5m AHD for MC1, 144.5m AHD for MC2, 170.5m AHD for MC3, and 209.5m AHD for MC4. The site is currently vacant.

7.18.3 Assessment

The assessment found that the critical (i.e. lowest) prescribed airspace protection surface covering the site is the Outer Horizontal Surface of the Western Sydney Airport Obstacle Limitation Surfaces (OLS) at a height of 230.5m AHD. This surface will not be penetrated either permanently by the building development, or temporarily by the four mobile construction cranes, meaning no controlled activity approval will be required. Although no controlled activity approvals are required for the development to proceed, cranes that are 110m or more AGL do trigger the requirement to notify the Civil Aviation Safety Authority (CASA), which means the tallest of the four mobile cranes that will used during construction will meet the criteria.

An assessment of the proposed development against prescribed airspace and helicopter operations at the Nepean Hospital Helipad, or helicopter operations in close vicinity of the site, has concluded that the building and cranes will not adversely impact on these activities.

7.18.4 Mitigation measures

The conclusion of this AIA is that no applications seeking aviation approvals for the building and associated cranes is required. The rationale for this is that the buildings and cranes will not penetrate any protected airspace or defined flight operational surfaces and therefore, will not adversely affect the safety, efficiency, or regularity of operations of aircraft (aeroplane and helicopters).

7.19 Accessibility

An Access Assessment Report was prepared by BCA Logic Pty Ltd (BCA Logic) as requested within the project SEARs. The report provides an assessment of the architectural design drawings for the new school at Mulgoa Rise, against the Deemed-to-Satisfy provisions of the provisions relating to Access for Persons with a Disability.

The Accessibility Design review provides a compliance overview of the project with respect to achieving compliance with the Building Code of Australia (BCA) and the Disability Discrimination Act (and Disability Standards) (DDA), within the project scope.

Subject to addressing the actions identified, BCA Logic confirm that the project documentation provides appropriate accessibility, capable of complying with the BCA & Disability (Access to Premises – Buildings) Standards 2010and the objectives of the DDA.

7.20 Site suitability

There are no known site conditions which would prevent the development including geotechnical conditions, contamination, flooding, biodiversity, bush fire and Aboriginal cultural heritage and historical archaeology.

The site is a cleared vacant brownfield site with no visible existing natural habitats of flora and fauna, the development presents the opportunity to reinstate native habitats within the landscape design.

Whilst the proposed development will require minor infrastructure upgrades to improve connectivity and safety for vehicles and pedestrians, in general the increase in traffic will not generate impacts that cannot be appropriately managed.

The impacts on surroundings during construction and operation are not significant and can be adequately ameliorated. Where there are environmental impacts, these can be sufficiently ameliorated through mitigation measures and design development.

The site is therefore suitable for the proposed development.

7.21 Cumulative Impacts

Cumulative impacts are those impacts likely to arise from the interaction of the proposed development and associated operations with other significant projects and activities in the area. The impacts may be caused by both construction and operational activities and can result in a greater impact to the surrounding area than would be expected if each project was undertaken in isolation.

This assessment is in accordance with the requirement to consider “any cumulative environmental effect with other existing or likely future activities” in Section 82(2)(o) of the EP&A Regulation.

The Penrith City Council DA Tracker and DPIE’s Major Projects website do not identify any completed, underway or proposed developments in the immediate vicinity of the project site at the time of writing, other than a mixed-use development planned for land on 90-98 Darug Drive. The design and assessment has taken into consideration development of this site.

Through its innovative and responsive design, the project has sought to avoid, minimise and mitigate potential impacts on environmental values within the site through a risk-based approach.

7.22 Public interest

The New Primary School in Mulgoa Rise offers significant public benefits to the users of the school and broader community.

The proposed development will be Core 21 school with 18 learning spaces, plus 2 support classes. The development will also include a school hall, library, staff facilities, and administrative areas built to Core 35, allowing capacity for future expansion. A large assembly area, games court, shared sensory play area and playground will also form part of the development.

- Will provide permanent and state of the art teaching facilities for students.

- Will provide new buildings that will be sympathetic to the existing natural and built landscape and be designed to equivalent 4-star Green Star Design.
- Will generate 144 construction FTE jobs during construction phase, and 27 additional jobs during the operational phase. Hence, these jobs, together with the value of the project, will stimulate the economy.

On balance, accounting for site suitability, environmental impacts, risk assessment and key benefits, the proposed development is in the public interest.

Given the above it is considered that the SSD Application has merit and can be supported by the Department of Planning, Industry and Environment and the Minister for Planning and Public Spaces.

8 ENVIRONMENTAL RISK ASSESSMENT

The assessment of the key issues in Section 7 have been identified in the below risk assessment using *Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools*. The Risk Assessment Matrix illustrates how the residual environmental impacts of a proposal are assigned. It provides an indicative ranking of potential residual impacts after the mitigation measures are implemented as follows:

The significance of impact is assigned a value between 1 and 5 outlined in:

- The receiving environment
- The level of understanding of the type and extent of impacts
- The likely community response to the environmental consequence of the project.

The manageability of environmental impact is assigned a value between 1 and 5 based on:

- The complexity of mitigation measures
- The known level of performance of the safeguards proposed.
- The opportunity for adaptive management.

The sum of the values assigned provides an indicative ranking of potential residual impacts after the mitigation measures are implemented as per **Figure 31** below.

Significance of impact	Manageability of impact				
	5 Complex	4 Substantial	3 Elementary	2 Standard	1 Simple
1 – Low	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)	2 (Low)
2 – Minor	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)	3 (Low)
3 – Moderate	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)	4 (Low/Medium)
4 – High	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)	5 (Low/Medium)
5 – Extreme	10 (High)	9 (High)	8 (High/Medium)	7 (High/Medium)	6 (Medium)

Figure 31 Risk assessment matrix

In accordance with the SEARs, the ERA addresses the following significant risk issues:

- The adequacy of baseline data.
- The potential cumulative impacts arising from other developments in the vicinity of the site.
- Measures to avoid, minimise, offset the predicted impacts where necessary involving the preparation of detailed contingency plans for managing any significant risk to the environment.

Table 19 sets out the risk assessment performed for the project.

Table 19 Risk Assessment

Item	Phase	Potential Environmental Impacts	Proposed Mitigation Measures and/or Comment	Significance of Impact	Manageability of impact	Residual impact
Built Form and Urban Design	O	• Visual impact of the development • Visual impact of the development when viewed from surrounding development	• Incorporating appropriate measures to minimise visual impact of development.	O-2	O-2	O-4 (low/medium)
Surrounding Environmental Amenity	O	• Impact on privacy of neighbouring properties • Potential overshadowing of neighbouring properties	• The building has been designed to ensure minimal overshadowing of neighbouring properties. • Design inputs have been applied to ensure maximum privacy on neighbouring properties.	O-2	O-2	O-4 (low/medium)
Transport and Accessibility	C + O	• Increase in construction traffic on local roads. • Increase in traffic and parking on local roads	• Ensure appropriate road/street signs are displayed. • A Construction Traffic Management Plan is to be followed during the construction phase of the project to minimise traffic impacts arising from construction traffic. • The existing public roads will not be adversely impacted, and parking is allocated via on-site parking areas.	C-3 O-4	C-2 O-3	C-5 (low/medium) O-3 (medium/high)
Noise and Vibration	C + O	• Increased noise and vibration • Increased noise levels of the school	• Following Construction Noise and Vibration mitigation measures as per the Conditions of Consent • Appropriate selection of activity within hours of construction and operation	C-3 O-1	C-2 O-2	C-5 (low/medium) O-3 (low)
Flooding	O	• Risk to life and property damage	• Flood mitigation through design	O-4	O-3	O-7 (medium/high)

Item	Phase	Potential Environmental Impacts	Proposed Mitigation Measures and/or Comment	Significance of Impact	Manageability of impact	Residual impact
Contamination	C	• Exposure to contamination or cross contamination of site.	• Implementation of recommendations of the detailed site investigation. • Unexpected finds protocol	C-3	C-2	C-5 (low/medium)

Key: C – Construction / O – Operation

9 MITIGATION MEASURES

A range of mitigation measures are proposed to reduce the potential environmental and social impacts of the proposed development. **Table 20** provides a summary of the mitigation measures proposed to be undertaken as part of the proposed development.

Table 20 Mitigation Measures

Item	Mitigation Measures
Trees	• A site-specific Tree Protection Plan (TPP) is prepared to guide the construction process. • Tree protection zones are recommended for all trees within the site that are to be retained. • Tree protection fencing is to be utilised to protect trees to be retained during construction. • If trees display signs of stress or deterioration, remedial action shall be taken to improve the health of the impacted tree.
Transport and Accessibility	• Prior to the commencement of operation, a School Transport Plan must be submitted to the satisfaction of the Planning Secretary. • Prior to commencement of construction a final Construction Traffic and Pedestrian Management Plan must be submitted to the satisfaction of the Planning Secretary.
Aboriginal Cultural Heritage	• In the unlikely event that an Aboriginal object is identified during construction works, those works must cease immediately in the vicinity of that object and further advice sought from the consultant.
Noise and Vibration	<u>Construction</u> • The contractor should develop a construction noise and vibration management plan (CNVMP) in order to implement mitigation measures to manage the noise and vibration impact onto the potentially affected receivers. • As part of the CNVMP a detailed construction program should be provided which should include the following: ➢ Schedule of construction activities (classified into scenarios if applicable). ➢ List of construction equipment per activity. ➢ Location of construction equipment. ➢ Duration of construction activities, as well as proposed construction hours. • The contractor should, where reasonable and feasible, apply best practice noise mitigation measures. These measures include the following: ➢ Maximising the offset distance between plant items and nearby noise sensitive receivers. ➢ Preventing noisy plant working simultaneously and adjacent to sensitive receivers. ➢ Minimising consecutive works in the same site area. ➢ Orienting equipment away from noise sensitive areas. ➢ Carrying out loading and unloading away from noise sensitive areas. • On-site monitoring be conducted to attest this impact and propose mitigation measures as construction activities develop. • The contractor should take reasonable steps to control noise from all plant and equipment. Examples of appropriate noise control include efficient silencers and low noise mufflers. • The contractor should apply all feasible and reasonable work practices to meet the NMLs and inform all potentially impacted residents of the nature of works to be carried out, the expected noise levels, duration of noise generating construction works, and the contact details for the proposal. A potential approach would be to schedule a respite period after continuous construction activity or undertaking high noise generating works to less sensitive times. • An assessment of road traffic noise generated by light and heavy vehicle movements which are associated with the development construction is to be undertaken. For this purpose, a traffic study report shall estimate the relevant traffic flows and assess the predicted road traffic noise levels in accordance with the criteria discussed in the Noise and Vibration Assessment Report. • Any vibration generating plant and equipment is to be located in areas within the site in order to lower the vibration impacts.

Item	Mitigation Measures
	• Investigate the feasibility of rescheduling the hours of operation of major vibration generating plant and equipment. • Identify other vibration sensitive structures such as tunnels, gas pipelines, fibre optic cables, Sydney Water retention basins. Specific vibration goals should be determined on a case-by-case basis by an acoustic consultant which is to be engaged by the construction contractor. • It is advised to conduct attended measurements of vibration generating plant at commencement of works to confirm compliance with vibration criteria discussed in Noise and Vibration Assessment Report. Measurements should be conducted at the nearest affected property boundary. If possible, measurements will also be used to validate the safe working distances advised in the Noise and Vibration Assessment Report. • Use lower vibration generating items of construction plant and equipment, that is, smaller capacity plant. • Minimise conducting vibration generating works consecutively in the same area (if applicable). • Schedule a minimum respite period prior to long continuous activities. • Use only dampened rock breakers and/or “city” rock breakers to minimise the impacts associated with rock breaking works. • Deliveries should be undertaken, where possible, during standard construction hours. • Maximise hammer penetration (and reduce blows) by using sharp hammer tips. Keep stocks of sharp profiles on site; and monitor the profiles in use. • It is advised that mobile plant and trucks operating on site for a significant portion of the project are to have reversing alarm noise emissions minimised. This is to be implemented subject to recognising the need to maintain occupational safety standards. • A complaint response procedure should be implemented. Information to be gathered as part of this process should include location of complainant, time/s of occurrence of alleged noise or vibration impacts (including nature of impact particularly with respect to vibration), perceived source, prevailing weather conditions and similar details that could be utilised to assist in the investigation of the complaint. All resident complaints will be responded to in the required timeframe and action taken recorded. <u>Operation</u> • Mechanical plant installation locations and the positioning of external air duct paths (such as inlets and outlets) near the property boundary should be limited, as far as practicable. • Plant room walls should achieve a minimum airborne sound insulation performance of Rw 45 -50. Whenever possible, the plant rooms should only be accessible from inside the building. • If airflow paths are required to/from outside (such as outside air, exhaust air, relief air, etc) these paths should be fully ducted and include minimum 50 mm thick internal insulation; and / or include acoustic louvres. When the extent of ductwork is not sufficient for treatment, then rectangular silencers may be required (this especially applies to fans and AHUs). • Ornamental louvres should generally only be considered if they are blanked off with FC sheeting or plant room external walls (subject to further Detailed Design acoustic assessment). • All plant room walls and roof / ceiling to be internally lined with insulation, which in combination with insulation facing, should achieve a minimum noise reduction coefficient (NRC) rating of 0.8. • AHUs and FCUs should include return air / outside air plenums which are in internally lined with minimum 50 mm thick insulation. • Variable speed drives should be implemented whenever possible. • Reduce the number of operational plant items between 6:00 pm and 7:00 am (and during the night-time period generally). • Outdoor units and other plant items to be screened from direct line of sight to the affected residences (depending on their locations). • Mechanical / AC ventilation system should be designed to achieve the internal noise level criteria discussed in Section 3.5.2 of the Noise and Vibration Assessment Report. • Emergency plant should be designed to comply with the internal noise level criteria discussed in standard AS/NZS 1668.1:2015 (refer to Section 3.5.3 of the Noise and Vibration Assessment Report).

Item	Mitigation Measures
	• Mechanical plant should be resiliently mounted. Vibration isolation mounts and supports should be designed to achieve compliance with vibration criteria discussed in Section 3.8 of the Noise and Vibration Assessment Report. • The outdoor PA system should be designed so noise emissions from the PA system do not exceed the intrusiveness criteria listed in Table 4 of the Noise and Vibration Assessment Report. Noise emissions should be obtained under free-field conditions, excluding any noise reflections from walls or vertical structures. • The PA system should not operate during the night-time period (i.e. between 10:00 pm and 7:00 am) and neither outside school opening hours (i.e. between 6:30 pm and 6:30 am). • To achieve compliance with the operational criteria discussed in Section 3 of the Noise and Vibration Assessment Report, conceptual treatments and performance requirements for building envelope constructions have been provided in Section 5.5 Noise and Vibration Assessment Report. These conceptual treatments are to be further developed during detailed design stages. • Any events occurring outside of standard school hours should be conducted indoors in the library spaces of Building A, and in the Communal Hall of Building C. • Only speeches and similar events should be conducted in the library spaces. No musical events are recommended in this space. • Events which take place outside standard school hours (though likely to be infrequent) - all external windows and doors should be kept closed in the library spaces in Building A, and in the Communal Hall, Building C. These include the vertical bifold doors in the Communal Hall. • Waste collection should be conducted between 7:00 am and 6:00 pm
Utilities	• A new potable water connection shall be made to the existing Sydney Water potable water main located within Deerubbin Drive with new authority meter and backflow prevention device. • The sewer drainage from the site is to be connected to the existing sewer main in Deerubin Drive. • All wastewater from canteen will be conveyed to a 2000L grease arrestor and the treated effluent will discharge into the adjacent private gravity sewer line. A trade waste agreement will need to be agreed with Sydney Water. • A 40kW photovoltaic (PV) solar power grid-connect rooftop system shall be provided to offset power consumption costs at the school. The PV system will require approval from Endeavour Energy, an application to connect the PV system will be required detailing the installed system.
Stormwater Drainage	• Ongoing management and maintenance of the stormwater system inclusive of the pits, pipes, and detention tank are required to form part of the school's maintenance schedule. The periodic cleaning of the system to remove rubbish and debris is recommended to be undertaken at 6-month intervals and following any storm greater than the 10% AEP event.
Flooding	• A flood water diversion wall shall be constructed along the northern half of the western boundary of the site. • A Flood Emergency Response Plan be prepared.
Soil and Water	• During construction, erosion and sediment control measures are to be provided in accordance with the requirements of "Managing Urban Stormwater Soils and Construction, 4th Edition (Blue Book)". These measures will include silt fences on the low side of the site, silt traps around new and existing stormwater pits and a sedimentation basin. • Other measures to be provided on site during construction include construction exits for all vehicles leaving the site, and revegetation of the site as soon as practicable. • Erosion control measures must be inspected and maintained after each rain event and at intervals not exceeding two weeks. Additional mitigation measures are outlined in the Erosion and Sediment Control Plan located in the Stormwater Management Plan (Appendix S).
Waste	• All waste will be removed by a licensed waste contractor using 15m bins on site during construction. • There will be a designated waste storage area for the disposal and storage of construction waste prior to collection.

Item	Mitigation Measures
	• The routes for movement of waste between work site and waste storage area are to be kept obstruction-free. • The routes for movement of bins and waste between storage and collection points are marked in the site drawing and will be kept obstruction-free (if waste is moved between the waste storage area(s). • The waste bin collection point provided will be accessible for waste collection vehicles as shown in Figure 30. There are no obstructions to turning or reversing, pulling up vehicles and lifting bins. • Access for waste collection vehicles will not be compromised by construction-related activities vehicles or other consequences of construction staging. • All waste not being reused on site will be removed during, or at the completion of, the construction stage. • No waste will be left on site unless it is part of valid reuse on site, which is integral to and in place in the design. • In order to manage noise levels, collection of waste from the construction site will only occur during hours approved for construction work. • All vehicles entering or leaving the site must have their loads covered. • All vehicles, before leaving the site, to be cleaned of dirt, sand and other materials, to avoid tracking these materials onto public roads. • At the completion of the works, the work site is left clear of waste and debris.
Contamination	<u>ACM</u> • The site is to be secured by appropriate fencing to eliminate unauthorised access. • A suitably qualified contractor/consultant is to undertake an 'emu pick' to remove any visible fragments of ACM/fibre cement from the ground surface in the north-eastern/eastern areas of the site (in accordance with the relevant codes of practice). Any fragments must be double bagged and disposed of lawfully as asbestos waste. A waste disposal docket is to be provided to the client to demonstrate compliance. • Following the pick, a suitably qualified environmental consultant (e.g. a Licensed Asbestos Assessor) is to carry out a surface inspection and provide an asbestos clearance certificate. • Subsequently, asbestos quantification sampling is to occur to verify the removal of the ACM and to confirm that impacts do not extend beneath the surface. This is to involve bulk sampling/screening utilising the same field methods as documented in the DSI. We recommend that sampling occurs on a 12m grid spacing and that samples be collected from the surface (0-0.05m depth interval) and from the subsurface at depths of approximately 0.5m and 1m, whilst ensuring that all district fill profiles down to the termination depth of the investigation are sampled/screened. These details should be outlined in a Sampling, Analysis and Quality Plan (SAQP) prior to the commencement of the investigation and the SAQP should be approved by the site auditor. <u>Other</u> • A Fill Import Protocol be prepared to ensure that all materials imported to the site (i.e. road-base and gravel, sandstone, general fill, topsoil, mulch etc) are free of contamination and are aesthetically suitable. • An Unexpected Finds Protocol be prepared to provide a procedure for managing contamination-related unexpected finds in the unlikely event they occur at the site during the proposed development works.

10 JUSTIFICATION AND CONCLUSION

This EIS has been prepared for a new primary school in Mulgoa Rise, Glenmore Park. The New Primary School in Mulgoa Rise is designed and will be built to significantly improve educational outcomes and address the capacity shortfall across the area for an approximate 414 students.

The New Primary School in Mulgoa Rise will be located at 1-23 Forestwood Drive, Glenmore Park, NSW. The site is located within an urban release area in Glenmore Park (Mulgoa Rise), approximately 200 metres east of the Mulgoa Nature Reserve and has an area of approximately three (3) hectares. The site is devoid of significant vegetation.

The EIS has been prepared in accordance with the SEARs issued by DPIE on 2nd December 2020, Schedule 2 of the EP&A Regulation, and Section 4.15(1) of the EP&A Act. It includes assessment of the proposal against the relevant strategic and statutory planning framework, undertakes a merit assessment of the environmental impacts including assessment of site suitability, a risk assessment, and an evaluation of the public interest.

Having regard to the above, the carrying out of the project is justified for the following reasons:

- The assessment of the proposed development has demonstrated that the new primary school will not generate environmental impacts that cannot be appropriately managed and is consistent with the relevant planning controls for the site.
- The development will provide a significant new piece of social and educational infrastructure to the area. The school will also provide Outside School Hours Care services to assist working families that commute and / or work extended hours.
- The new school will reduce travel time for students and parents and supports the use of active movement transport such as walking and bicycles.
- The proposed development allows for the provision of new teaching and educational facilities that meet the requirements for the proposed uses, whilst not resulting in any significant adverse impacts on the site or surrounding uses.
- The proposed development is consistent with the principles of ecological sustainable development as defined by Schedule 2(7)(4) of the EP&A Regulation 2000.
- The proposed works for the project are anticipated to create 144 jobs during the construction phase and 27 full time jobs during the operational phase.
- The proposed upgrade works will not result in any adverse traffic impacts on the surrounding road network, and parking demand associated with the proposed development can be accommodated.

On balance, accounting for site suitability, environmental impacts, risk assessment and key benefits, the proposed development is in the public interest.

Given the above it is considered that the SSD Application has merit and can be supported by the Department of Planning, Industry and Environment and the Minister for Planning and Public Spaces.

Appendix A
Secretary's Environmental Assessment Requirements

Appendix B
Detailed Site Survey

Appendix C
Section 10.7(2)(5) Planning Certificate

Appendix D
Architectural Plans

Appendix E
Architectural Design Statement

Appendix F
Landscape Plans

Appendix G
Landscape Design Statement

Appendix H
Visual Impact Assessment

Appendix I
Community Engagement Plan

Appendix J
Transport and Accessibility Impact Assessment

Appendix K
ESD Report

Appendix L
Statement of Heritage Impact

Appendix M
Aboriginal Cultural Heritage Assessment Report

Appendix N
Social Impact Assessment

Appendix O
Noise and Vibration Impact Assessment

Appendix P
BDAR Waiver

Appendix Q
Infrastructure Management Plan

Appendix R
Integrated Water Management Plan

Appendix S
Stormwater Management Plan

Appendix T
Flood Impact Assessment

Appendix U
Surface and Groundwater Assessment

Appendix V
Detailed Site Investigation (Contamination)

Appendix W
Waste Management Plans

Appendix X
Aeronautical Impact Assessment

Appendix Y
Access Assessment Report

Appendix Z
BCA Assessment Report

Appendix AA
Civil Engineering Report

Appendix BB
Geotechnical Investigation

Appendix CC
Construction Management Plan

Appendix DD
CPTED

Appendix EE
Aboricultural Impact Assessment Report

Appendix FF
Climate change adaption report