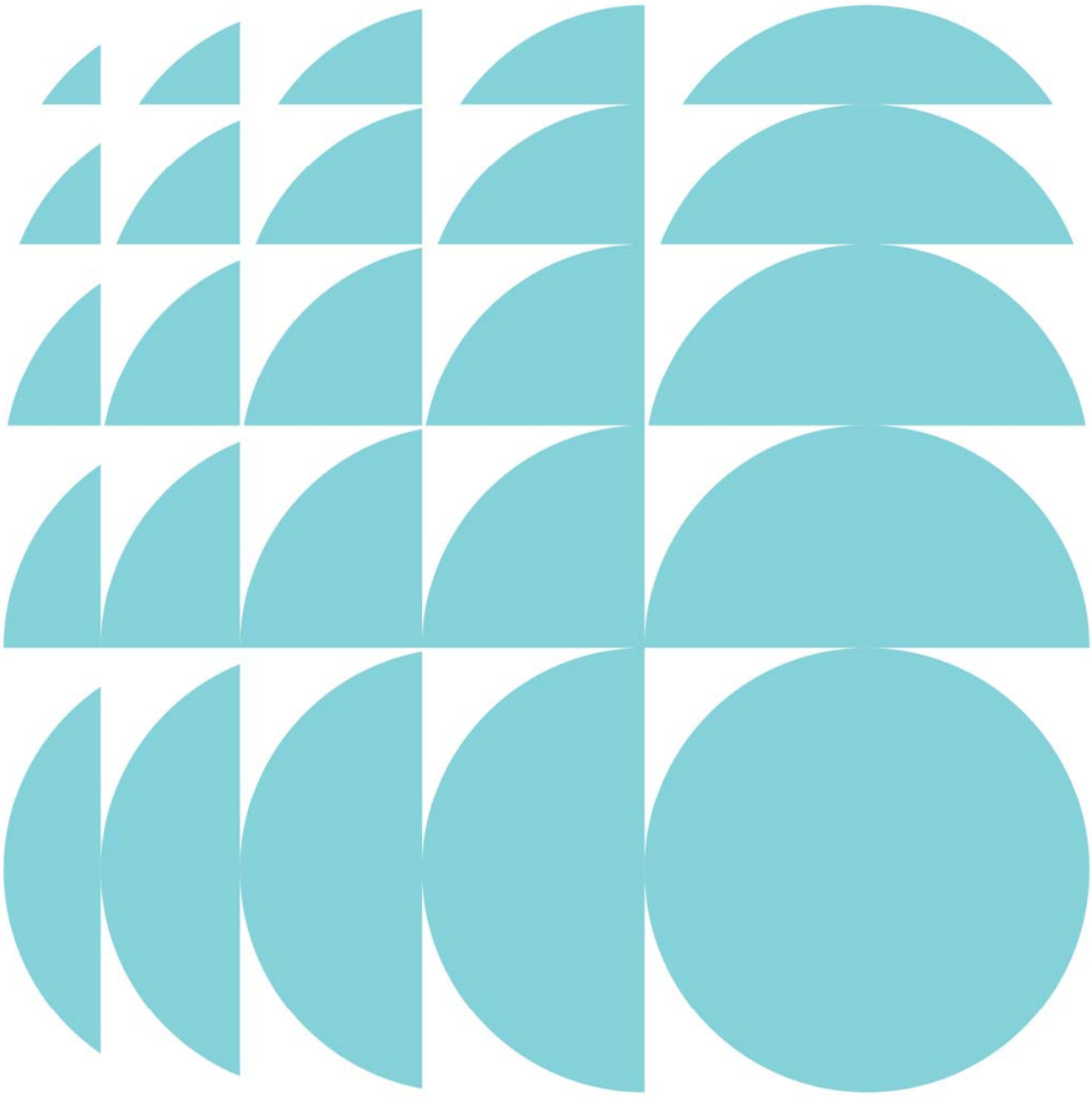
ETHOS URBAN

Environmental Impact Statement

Loreto Normanhurst
91 - 93 Pennant Hills Road, Normanhurst
Concept Plan and Detailed Stage 1 Works
State Significant Development (8996)

Submitted to Department of Planning and Environment
On behalf of Loreto Normanhurst

18 June 2019 | 17074



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VERSION NO.	DATE OF ISSUE 16/01/2019	REVISION BY	APPROVED BY
1	16/01/2019	JM	BT/ MR
2	18/06/2019	JM	BT/MR

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Development Application Details	
Applicant name	Jacquie McCann, Loreto Normanhurst
Applicant address	91 – 93 Pennant Hills Road, Normanhurst
Land to be developed	Loreto Normanhurst Campus
Proposed development	Concept Proposal for Loreto Normanhurst including detailed consent for the first stage of works (Stage 1).
Prepared by	
Name	Belinda Thomas
Qualifications	BPlan, UNSW
Address	173 Sussex Street, Sydney
In respect of	State Significant Development - Development Application
Certification	
	I certify that I have prepared the content of this EIS and to the best of my knowledge: it is in accordance with 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 the information contained in the statement is neither false nor misleading.
Signature	
Name	Belinda Thomas
Date	18/06/2019

Executive Summary

Purpose of this Report

This submission to the Department of Planning and Environment (the Department) comprises an Environmental Impact Statement (EIS) for a staged State Significant Development Application (SSDA) within the meaning of Section 4.22 of the *Environmental Planning and Assessment Act 1979* (EP&A Act). This SSDA relates to the concept proposal for a new campus wide masterplan for the existing Loreto Normanhurst school campus at 91 – 93 Pennant Hills Road, Normanhurst. As part of this application, detailed consent is also sought for Stage 1 works, including a new boarding house facility pursuant to Section 4.22(3)(b) of the EP&A Act.

This application is based on the concept masterplan and the detailed design drawings, prepared by Allen Jack and Cottier Architects (AJ+C) (**Appendix A**), and the technical consultant reports outlined at **Table of Contents**.

Under the State Environmental Planning Policy (State and Regional Development) 2011 (SEPP SRD), development relating to an existing school that has a Capital Investment Value (CIV) of more than $20 million is SSD for the purposes of the EP&A Act. As the proposed Concept Development will have a CIV $129,802,054, the concept proposal and Stage 1 works are SSD.

A request for the issue of Secretary's Environmental Assessment Requirements (SEARs) was sought on 18 December 2018 . Accordingly, the SEARs (8896) were issued on 12 January 2018. This submission is in accordance with the Department's guidelines for SSD applications lodged under Part 4 of the EP&A Act, and addresses the issues raised in the SEARs.

Overview of the Project

This application sets out a new campus masterplan for the school that will guide and shape the development of the school for the next 30 years. This SSDA also includes detailed plans for Stage 1 works, including a new boarding house facility (Stage 1 works). Accordingly, consent is sought for the following:

- The concept masterplan, including:
  - Establishment of 10 new building envelopes across the site for education and ancillary uses including student accommodation;
  - Increase of the student number cap by 850 students from 1150 to 2000 students;
  - Provision of open space and landscape design;
  - Provision of new pedestrian and circulation arrangements, and
  - Associated car parking provision.
- Detailed consent for Stage 1 works, being:
  - Construction of a new 3 to 6 storey boarding house to accommodate up to 216 boarders.
  - Excavation works to accommodate partially underground carpark and dock facilities within the proposed footprint of the new boarding house facility;
  - Demolition works to the maintenance building located between Mary Ward and existing dining room building as well as the Loreto Community House and associated works to make good;
  - Landscaping works including tree removal and replenishment as well as the landscaping upgrade of internal road network, pedestrian spaces and loading dock to reinforce the heritage context; and
  - Augmentation of connection of services and utilities infrastructure.

The Site

Loreto Normanhurst is located in the suburb of Normanhurst on the North Shore, approximately 20km north of Sydney City. The site is within the jurisdiction of Hornsby Shire Local Government Area (LGA).

The site comprises the Loreto Normanhurst campus in its entirety at 91 – 93 Pennant Hills Road, Normanhurst. The campus consists of 13.02 ha of land. The northern part of the site accommodates much of the school's existing built

form, while the rear extent contains the school's sporting fields and portion of ecologically sensitive remnant vegetation.

The site is located 750m (walking distance) south of the Normanhurst Railway Station and is bound by Pennant Hills Road to the north, Mount Pleasant Avenue to the east, Osborn Road to the west and general residential land to the south.

Background to the Development

Need for a Campus Masterplan

Loreto Normanhurst is an independent, Catholic day and boarding school for girls from Years 5 to 12. The existing school campus was established in 1897 and has evolved in an organic and ad-hoc manner across the span of a 120 years.

A new campus wide planning approach offers the opportunity to strategically review and plan for the future in a sustainable and efficient manner such that the school's unique aesthetic and ecological values are best preserved. The preparation of a campus wide masterplan is also consistent with the 'Loreto Normanhurst 2016 - 2020 Strategic Plan' which identified the need for a broader strategic plan to coordinate renewal and orderly development in a feasible and staged manner.

In response to this, the school commissioned a competitive selection process. In October 2016, AJ+C was selected as the preferred architect from the selective process, and engaged to develop a masterplan for Loreto Normanhurst. The preparation of the masterplan has since undergone lengthy design reviews, and is informed by the broader project team, in addition to the information gained from the several consultation and engagement sessions conducted with School's students, staff, management and stakeholders.

Early Learning Centre

A separate DA (D/1227/2018) was submitted to Hornsby Shire Council on 23 November 2018 for an 80 place Early Learning Centre (ELC) building and the DA is currently under assessment. The ELC building is consistent with the overall concept masterplan, and was prepared concurrently with the final preferred campus masterplan. However, to meet the School's operational timeline requirements for the ELC, a separate application was seen as the appropriate pathway to progress the approval to allow the building to be built, fit out and operational by 2021.

Planning Context

Section 6.0 of the EIS considers all applicable legislation in detail. The proposal is consistent with the requirements of all relevant State Environmental Planning Policies (SEPPs). The site is zoned R2 Low Density Residential under the Hornsby Local Environmental Plan 2013 (HLEP). The proposal is permissible with consent and meets the objectives of the subject zone. A Clause 4.6 request has been prepared (**Appendix X**) to address the height of buildings variation proposed.

Environmental Impacts and Mitigation Measures

This EIS provides an assessment of the environmental impacts of the project in accordance with the SEARs and sets out the undertakings made by Loreto Normanhurst to manage and minimise potential impacts arising from the development.

Conclusion and Justification

The EIS addresses the requirements of the SEARs. The proposal provides a new 30 year masterplan that will guide future development of the campus, and deliver a new boarding house development and associated landscaping works as part of the Stage 1 works. The concept proposal benefits from the holistic consideration of the site, and developing a masterplan framework that will facilitate strategic and orderly future development of the campus commensurate to the school's growth strategy and anticipated increase in school enrolments within the Hornsby Local Government Area (LGA) and nearby suburbs. Importantly, it will sustainably develop the campus by protecting the aesthetically unique and sensitive areas of the campus and intensifying the site's key opportunity areas.

The new boarding facility is well designed, and the massing and scale has been modulated to allow for the retention of key trees on the site and respond to the topography of the site. The relocation of loading from the centre of the

site to the new boarding house, and associated landscaping works will improve pedestrian safety within the School, increase the deep soil area, reinforce the heritage significance of this area and significantly improve the amenity of the campus.

As discussed in **Section 9.0**, the development is justified on the basis that it will offer additional positive social, economic and ecological benefits.

As outlined under **Section 6.0**, all anticipated impacts arising from the development have also been considered and the potential impacts of the development are either acceptable or can be managed in accordance with the mitigation measures identified under **Section 7.0** and **Section 8.0**. Given the overall merits of this proposal, the proposed development warrants approval by the Minister for Planning or delegate.

1.0 Introduction

This Environmental Impact Statement (EIS) is submitted to the Department of Planning and Environment (DPE) pursuant to Part 4 of the *Environmental Planning and Assessment Act 1979* (EP&A Act) in support of an application for staged State Significant Development (SSD).

Development for the purposes of an existing school with a capital investment value of more than $20 million, is identified in Schedule 1 of *State Environmental Planning Policy (State and Regional Development) 2011* and is therefore declared to be SSD for the purposes of the EP&A Act.

The report has been prepared by Ethos Urban on behalf of Loreto Normanhurst, and is based on the concept masterplan and the detailed boarding house plans provided by AJ+C (see **Appendix A**) and other supporting technical information appended to the report (see Table of Contents).

This EIS has been prepared in accordance with the requirements of Part 4 of the EP&A Act, Schedule 2 of the *Environmental Planning and Assessment Regulation 2000* (EP&A Regulation), and the SEARs for the preparation of the EIS, which are included at **Appendix B.** This EIS should be read in conjunction with the supporting information and plans appended to and accompanying this report.

1.1 Overview of Proposed Development

- The concept masterplan, including:
  - Establishment of 10 new building envelopes across the site for education and ancillary uses including student accommodation;
  - Increase of the student number cap by 850 students from 1150 to 2000 students;
  - Provision of open space and landscape design;
  - Provision of new pedestrian and circulation arrangements, and
  - Associated car parking provision.
- Detailed consent for Stage 1 works, being:
  - Construction of a new 3 to 6-storey boarding house to accommodate up to 216 boarders.
  - Excavation works to accommodate partially underground carpark and dock facilities within the proposed footprint of the new boarding house facility;
  - Demolition works to the maintenance building located between Mary Ward and existing dining room building as well as the Loreto Community House and associated works to make good;
  - Landscaping works including tree removal and replenishment as well as the landscaping upgrade of internal road network, pedestrian spaces and loading dock to reinforce the heritage context; and
  - Augmentation of connection of services and utilities infrastructure.

1.2 Background to the Development

Established in Normanhurst in 1897, Loreto Normanhurst is an independent, Catholic day and boarding school for girls from Years 5 to 12. The School is governed by a School Board and the Institute of the Blessed Virgin Mary (Loreto Sisters). The Normanhurst site contains the junior and senior school campuses.

Loreto Normanhurst is in need of redevelopment to upgrade and provide quality boarding facilities, to improve access arrangements to bring them into line with current accessibility standards, and to improve movement and spatial relationships whilst focusing on the future growth of the school ensuring that it remains appropriate into the future. The staged redevelopment will increase the student population from 1150 to 2000 students by 2047, with additional students in Kindergarten to Year 4. It is anticipated that the development will be delivered in separate stages, over a period of up to 30 years.

In addition to seeking approval for building envelopes and a maximum student cap of 2000 students as part of the Concept SSD for the Masterplan, the DA will also seek consent for the first stage of the detailed works for a new boarding facility and demolition to the maintenance buildings between the Mary Ward Building and the dining room.

A separate DA (D/1227/2018) was submitted to Hornsby Shire Council on 23 November 2018 for an 80 place Early Learning Centre (ELC) building and the DA is currently under assessment. The ELC DA seeks to increase the student cap from 1,150 to 1,230 to support the increased number of students proposed as part of that DA. The ELC building is consistent with the overall concept masterplan and was prepared concurrently with the final preferred campus masterplan. However, to meet the School's operational timeline requirements for the ELC, a separate application was seen as the appropriate pathway to progress the approval to allow the building to be built, fitout and operational by 2021.

1.3 Objectives of the Development

As previously mentioned, the existing Loreto Normanhurst school campus was established in 1897 and has developed and evolved in an ad hoc manner. The underlying intent of this application is to provide a new masterplan framework that can guide and facilitate renewal and future development of the School in an orderly and organised manner. The masterplan also offers the opportunity to review the existing layout of the school campus, improve circulation, functionality and efficiency of the campus. As such the project is underpinned by the desire to:

- Develop a new strategic masterplan that can guide future development of the school in an orderly and organised manner;
- Develop a framework that will strategically guide future development and renewal commensurate to the school's anticipated growth strategy;
- Protect, preserve and retain areas of unique ecological and aesthetic qualities, while identifying opportunity areas that can appropriately accommodate the additional density;
- Upgrade and improve student and staff learning/teaching facilities on campus; and
- Holistically review opportunities to improve connectivity, accessibility and legibility across the existing campus.

1.4 Analysis of Alternatives

Strategic need for the proposal

As previously discussed in **Section 1.2**, the school is in need of redevelopment to improve the out-dated and inefficient teaching spaces, to replace the old boarding facilities, provide improved learning facilities and spaces that will reflect contemporary learning models, and improve connectivity and accessibility within the existing campus.

The proposed development will enable Loreto Normanhurst to continue to provide high standards of education for young women and provide world class education that complements the Loreto Normanhurst vision.

Three options are available to Loreto Normanhurst in responding to the redevelopment of their facilities. These are discussed in the section below.

Alternative Options

Option 1 – The proposal

Option 1 involves undertaking the proposed development as outlined in this SSDA (refer to **Section 3.0** and **Section 4.0** of this report). The proposal includes a new concept masterplan as well as detailed plans for Stage 1 works. The masterplan will provide a new 30 year framework that will guide future renewal and upgrades across the campus. The masterplan will essentially improve connectivity and access within the campus, provide additional education floor space in line with the School's growth strategy and protect the heritage, ecology and aesthetically significant qualities of the campus.

Option 1 is consistent with the strategic planning directions of the Greater Sydney Region Plan and the North District Plan which identify a 20% increase in school enrolments by 2036 within the North District area of Sydney, particularly in early education and childcare. This proposal also seeks to add a new primary school component comprising Kindergarten to Year 4 classes. The overall proposal aims to increase the student capacity by 850 students by 2047.

Option 2 – Do Nothing

Under the 'Do Nothing' scenario no additional facilities or spaces are provided, and the campus operates in a business as usual scenario. This option does not provide a desirable outcome as it fails to adequately plan for future growth and educational needs. It also contradicts the aims and objectives of the School's Strategic Plan that seeks to strategically plan for growth, and provide innovative new spaces, contemporary learning facilities and improved campus environments for students and staff.

Importantly, this option is also inconsistent with broader strategic planning policies and directions in the Greater Sydney Region Plan and the North District Plan which encourage existing schools to strategically plan for growth.

Option 3 – Alternative Designs

Alternative site layout and built form arrangements were tested during the preliminary design phase (refer to Design Report at **Appendix A**). The masterplan as set out under this application was identified as the preferred option on the basis that it provides the best outcome to appropriately accommodate anticipated growth and mitigate adverse environmental impacts.

The proposal provides a new concept masterplan. In this regard, it identifies opportunity areas and outlines building envelopes which will be subject to further built form testing at detailed design stage. The masterplan, itself has been subject to several design iterations and is an outcome of robust design testing and careful consideration of the site's distinct characteristics and context.

The Stage 1 detailed design plans set out under this SSDA is consistent with the concept masterplan and the design principles. The detailed design of the boarding house facility is designed as a linear built form to reduce tree impacts. The relocation of the boarding uses from a central location to the eastern end of the campus will provide positive outcome from a servicing perspective. Additionally, it will appropriately separate the boarding uses from the teaching and administrative facilities located centrally on campus.

1.5 Secretary's Requirements

In accordance with Section 4.39 of the EP&A Act, the Secretary of the Department of Planning and Environment issued the requirements for the preparation of the EIS on 12 January 2018. A copy of the Secretary's Environmental Assessment Requirements (SEARs) is included at **Appendix B**.

Table 1 provides a detailed summary of the individual matters listed in the SEARs and identifies where each of these requirements has been addressed in this report and the accompanying technical studies.

Table 1 Secretary's Requirements

Requirement	Location in Environmental Assessment
GENERAL	
The Environmental Impact Statement (EIS) must address the *Environmental Planning and Assessment Act 1979* and meet the minimum form and content requirements in clauses 6 and 7 of Schedule 2 the Environmental Planning and Assessment Regulation 2000. Notwithstanding the key issues specified below, the EIS must include an environmental risk assessment to identify the potential environmental impacts associated with the development.	Environmental Impact Statement
Where relevant, the assessment of the key issues below, and any other significant issues identified in the risk assessment, must include: • adequate baseline data; • consideration of potential cumulative impacts due to other development in the vicinity (completed, underway or proposed); and • measures to avoid, minimise and if necessary, offset the predicted impacts, including detailed contingency plans for managing any significant risks to the environment.	**Section 5.0 – Section 10.0**
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 Environmental Planning and Assessment Regulation 2000) of the	**Appendix N**

Requirement	Location in Environmental Assessment	
proposal, including details of all assumptions and components from which the CIV calculation is derived; • an estimate of the jobs that will be created by the future development during the construction and operational phases of the development; and • certification that the information provided is accurate at the date of preparation.		
KEY ISSUES	**Report / EIS**	**Technical Study**
Concept Proposal		
1. Statutory and Strategic Context Address the statutory provisions contained in all relevant environmental planning instruments, including: • Biodiversity Conservation Act 2017; • State Environmental Planning Policy (State & Regional Development) 2011; • State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017; • State Environmental Planning Policy No.55 – Remediation of Land; • State Environmental Planning Policy No.64 – Advertising and Signage; and • Hornsby Local Environmental Plan 2013. Permissibility Detail the nature and extent of any prohibitions that apply to the development. Development Standards Identify compliance with the development standards applying to the site and provide justification for any contravention of the development standards.	**Section 6.0**	
2. Policies Address the relevant planning provisions, goals and strategic planning objectives in the following: • NSW State Priorities; • A Plan for Growing Sydney; • NSW Long Term Transport Masterplan 2012; • draft Future Transport Strategy 2056 and supporting plans; • Sydney's Cycling Future 2013; • Sydney's Walking Future 2013; • Sydney's Bus Future 2013; • Crime Prevention Through Environmental Design (CPTED) Principles; • Healthy Urban Development Checklist, NSW Health; • Greater Sydney Commission's Draft North District Plan; and • Hornsby Development Control Plan 2013.	**Section 6.0**	
3. Operation • Provide a detailed justification of suitability of the site to accommodate the proposal. • Provide details of the proposed school operations, including staff and student numbers, school hours of operation, and operational details of any potential before/after school care and community use of the school.	**Section 6.0 and Section 3.4**	
4. Built Form and Urban Design • Provide detailed site and context analysis, including a building envelope study, to justify the proposed site planning, built form and design approach. • Develop in discussion with the Government Architect NSW a design report that establishes design guidelines and development parameters, and includes diagrams, illustrations and drawings to clarify the design intent of the proposal that clearly demonstrates how design quality will be achieved through future stage(s) in accordance with Schedule 4 Schools – Design Quality Principles of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017. • Describe the design process leading to the Concept Proposal. • Provide a detailed site-wide landscape strategy, including opportunities to retain existing trees on the site. • Detail of the master plan approach which demonstrates how this and the anticipated separate staged development application(s) respond to the Design Quality Principles of the Education SEPP. • Site and context analysis that demonstrates at least three possible approaches to the site planning that consider entrances, drop-offs, building zones, carparking, open spaces and tree canopy.	**Section 3.1**	**Appendix A**

Requirement	Location in Environmental Assessment	
• Site and context plans that demonstrate opportunities for active transport strategies and linkages with existing, proposed and potential footpaths and bicycle paths and public transport links. • Site plans and operational statement demonstrating an indicative afterhours and community use strategy. • A report tabling how the proposal responds to and upholds the Design Guide for Schools and the Design Quality Principles as per Schedule 4 of the Education SEPP.		
5. Environmental Amenity • Assess amenity impacts on the surrounding locality, including solar access, acoustic impacts, visual privacy, view loss, overshadowing and wind impacts. • Identify any proposed use of the school outside of school hours (including weekends) and assess any resultant amenity impacts on the immediate locality and proposed mitigation measures. • Detailed outline of the nature and extent of the intensification of use associated with the increased floor space, particularly in relation to any proposed increase in staff and student numbers.	**Section 6.0**	**Appendix A**
6. Staging Provide details regarding the staging of the proposed development.	**Section 3.3.3**	
7. Transport and Accessibility Prepare a transport and accessibility impact assessment, which details, but not limited to the following: • accurate details of the current daily and peak hour vehicle, public transport, pedestrian and cycle movement and existing traffic and transport facilities provided on the road network located adjacent to the proposed development; • an assessment of the operation of existing and future transport networks including the bus network and their ability to accommodate the forecast number of trips to and from the development; • details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips based on surveys of the existing and similar schools within the local area; • the adequacy of public transport, pedestrian and bicycle networks and infrastructure to meet the likely future demand of the proposed development; • the impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site in consultation with Roads and Maritime Services and Transport for NSW and identify measures to integrate the development with the transport network; • details of any upgrading or road improvement works required to accommodate the proposed development; • details of travel demand management measures to minimise the impact on general traffic and bus operations and to encourage sustainable travel choices and details programs for implementation, including the preparation of a Green Travel Plan; • the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for upgrading or road improvement works, if required. Traffic modelling is to be undertaken using, but not limited to, SIDRA network modelling for current and future years; • the proposed active transport access arrangements and connections to public transport services; • the proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones; • measures to maintain road and personal safety in line with CPTED principles; • proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance; • proposed number of on-site car parking spaces and corresponding compliance with existing parking codes and justification for the level of car parking provided on-site; • details of emergency vehicle access arrangements; • an assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures;	**Section 6.6**	**Appendix S**

Requirement	Location in Environmental Assessment	
• service vehicle access, delivery and loading arrangements and estimated service vehicle movements (including vehicle type and the likely arrival and departure times); Relevant Policies and Guidelines: • Guide to Traffic Generating Developments (Roads and Maritime Services) • EIS Guidelines – Road and Related Facilities (DoPI) • Cycling Aspects of Austroads Guides • NSW Planning Guidelines for Walking and Cycling • Austroads Guide to Traffic Management Part 12: Traffic Impacts of Development • Standards Australia AS2890.3 (Bicycle Parking Facilities).		
8. Noise and Vibration Identify and provide a quantitative assessment of the main noise and vibration generating sources during construction and operation, including consideration of any public-address system, school bell and use of any school hall for concerts etc. (both during and outside school hours). Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land. • Relevant Policies and Guidelines: • Noise Policy for Industry 2017 (EPA) • Interim Construction Noise Guideline (DECC) • Assessing Vibration: A Technical Guideline 2006 • Development Near Rail Corridors and Busy Roads – Interim Guideline (Department of Planning 2008).	**Section 6.7** and **Section 6.14.1**	**Appendix F**
9. Ecologically Sustainable Development (ESD) • Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design and ongoing operation phases of the development. • Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy.	**Section 3.8** and **Section 4.12**	**Appendix J**
10. Social Impacts Include an assessment of the social consequences of the schools' relative location.	**Section 9.1**	
11. Heritage The EIS should identify any listed or potential heritage items within the redevelopment area. If any listed or potential heritage items, including archaeological resources, are likely to be affected, a Heritage Impact Statement (HIS) must be prepared in accordance with the guidelines in the NSW Heritage Manual.	**Section 6.4**	**Appendix L**
12. Aboriginal Heritage • Identify, describe and document the Aboriginal Cultural Heritage values that exist across the whole area that will be affected by the development, which may include the need for surface survey and test excavation. The identified of Aboriginal Cultural Heritage values should be guided by the Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECC, 2011) and consultation with OEH Regional Officers. • Where Aboriginal Cultural Heritage values are identified, consultation with Aboriginal people must be undertaken and documented in accordance with the Aboriginal cultural heritage consultation requirements for proponents 2010 (DECCW). The significance of cultural heritage values for Aboriginal people who have a cultural association with the land must be documented in the EIS. • The EIS must demonstrate attempts to avoid impact upon cultural heritage values and identify any conservation outcomes. Where impacts are unavoidable, the EIS must outline measures proposed to mitigate impacts. Any objects recorded as part of the assessment must be documented in the EIS. Please note the Due Diligence assessment process is not appropriate to address the requirements for Aboriginal Cultural Heritage assessment.	**Section 6.5**	**Appendix T**
13. Utilities • Prepare an Infrastructure Management Plan in consultation with relevant agencies, detailing information on the existing capacity and any augmentation requirements of the development for the provision of utilities including staging of infrastructure.	**Section 6.17** and **Section 6.12**	**Appendix O/ Appendix Y** and **Appendix I**

Requirement	Location in Environmental Assessment	
• Prepare 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.		
14. Contributions Address Council's Section 94 Contribution Plan and/or details of any Voluntary Planning Agreement, which may be required to be amended because of the proposed development.	**Section 6.19**	
15. 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. Relevant Policies and Guidelines: • Managing Land Contamination: Planning Guidelines - SEPP 55 Remediation of Land (DUAP).	**Section 6.10**	**Appendix U**
16. Drainage Detail drainage associated with the proposal, including stormwater and drainage infrastructure. Relevant Policies and Guidelines: • Guidelines for development adjoining land and water managed by DECCW (OEH, 2013).	**Section 6.11**	**Appendix I**
17. Flooding Assess any flood risk on site (detailing the most recent flood studies for the project area) and consideration of any relevant provisions of the NSW Floodplain Development Manual (2005), including the potential effects of climate change, sea level rise and an increase in rainfall intensity.	**Section 6.12**	**Appendix I**
18. Bush fire Address bushfire hazard and prepare a report that addresses the requirements for Special Fire Protection Purpose Development as detailed in Planning for Bush Fire Protection 2006 guidelines.	**Section 6.13**	**Appendix R**
19. Waste • Identify, quantify and classify the likely waste streams to be generated during construction and operation and describe 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.	**Section 4.11** and **Section 6.14.3**	**Appendix P**
20. Biodiversity • Biodiversity impacts related to the proposal and the preparation of a Biodiversity Assessment are to be addressed in accordance with the requirements of the Biodiversity Conservation Act 2016.	**Section 6.8**	**Appendix Q**
Stage One		
The EIS/s for the construction works must address the following specific matters:		
1. Operation • Provide details of how the school will continue to operate during construction activities, including proposed mitigation measures.	**Section 6.14.4**	
2. Built Form and Urban Design • Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development. • Address the height, density, bulk and scale, setbacks of the proposal in relation to the surrounding development, topography, streetscape and any public open spaces. • Develop in discussion with the Government Architect NSW a design report that includes diagrams, illustrations and drawings to clarify the design intent of the proposal that clearly demonstrates how design quality will be achieved through this and future stage(s) in accordance with Schedule 4 Schools – Design Quality Principles of State Environmental Planning Policy (Educational Establishments and Child Care Facilities) 2017 (Education SEPP). • Address design quality, with specific consideration of the overall site layout, streetscape, open spaces, façade, rooftop, massing, setbacks, building articulation, and materials and Crime Prevention Through Environmental Design Principles.	**Section 4.0**	**Appendix A**

Requirement	Location in Environmental Assessment	
• Provide a visual impact assessment that identifies any potential impacts on the surrounding built environment and adjacent heritage items including the provision of photomontages of the development from a range locations. • Detail how services, including but not limited to waste management, loading zones, and mechanical plant are integrated into the design of the development.		
3. Environmental Amenity • Detail amenity impacts including acoustic impacts. A high level of environmental amenity for any surrounding residential land uses must be demonstrated. • Detail any proposed use of the school grounds out of school hours (including weekends) and any resultant amenity impacts on the immediate locality and proposed mitigation measures.	**Section 6.0**	
4. Transport and Accessibility • A Transport Impact Assessment must be prepared that assesses the transport impacts of the proposed stage one works within the context of the assessment undertaken for the Concept Development Application. • Detail access arrangements for construction and measures to mitigate any associated pedestrian, cyclist or traffic impacts, including the preparation of a preliminary Construction Traffic and Pedestrian Management Plan (CTPMP) to demonstrate the proposed management of impact. The CTPMP should also consider cumulative impacts associated with other construction activities and assess road safety at any key intersections subject to heavy vehicle movements and high pedestrian activity. In relation to construction traffic: • assessment of cumulative impacts associated with other construction activities (if any); • an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity; • details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process; • details of anticipated peak hour and daily construction vehicle movements to and from the site; • details of access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle; • details of temporary cycling and pedestrian access during construction; • details of proposed construction vehicle access arrangements at all stages of construction; and • traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact. Relevant Policies and Guidelines: • Guide to Traffic Generating Developments (Roads and Maritime Services).	**Section 6.6.2 and Section 6.14.2**	**Appendix S**
5. Noise and Vibration Identify and provide a quantitative assessment of the main noise and vibration generating noise sources and activities during construction and operation. Outline measures to minimise and mitigate the potential noise impacts on surrounding occupiers of land. Relevant Policies and Guidelines: • Noise Policy for Industry 2017 (EPA) • Interim Construction Noise Guideline (DECC) • Assessing Vibration: A Technical Guideline 2006.	**Section 6.7.1** and **Section 6.15.1**	**Appendix F**
6. Ecological Sustainable Development • Detail how ESD principles (as defined in clause 7(4) of Schedule 2 of the Environmental Planning and Assessment Regulation 2000) will be incorporated in the design and ongoing operation phases of the development. • Include a description of the measures that would be implemented to minimise consumption of resources, water (including water sensitive urban design) and energy. • Demonstrate that the development has been assessed against a suitably accredited rating scheme to meet industry best practice.	**Section 4.12**	**Appendix J**

Requirement	Location in Environmental Assessment	
7. 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. Relevant Policies and Guidelines: • Managing Land Contamination: Planning Guidelines - SEPP 55 Remediation of Land (DUAP).	**Section 6.10.2**	**Appendix U**
8. Waste • Identify, quantify and classify the likely waste streams to be generated during demolition, construction and operation and describe 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.	**Section 4.11**	**Appendix P**
9. Construction Hours Identify proposed construction hours and provide details of the instances where it is expected that works will be required to be carried out outside the standard construction hours.	**Section 4.7**	**Appendix F**
Consultation		
During the preparation of the EIS, you must consult with the relevant local, State or Commonwealth Government authorities, service providers, community groups and affected landowners. In particular, you must consult with: • Government Architect NSW; • Hornsby Shire Council; • Transport for NSW (TNSW); and • Roads and Maritime Services (RMS) Consultation with TNSW and RMS should commence as soon as practicable to agree the scope of investigation. The EIS must describe the consultation process and the issues raised, and identify where the design of the development has been amended in response to these issues. Where amendments have not been made to address an issue, a short explanation should be provided.	**Section 5.0**	**Appendix W**

2.0 Site Analysis

2.1 Site Location and Context

Loreto Normanhurst is located within the suburb of Normanhurst and is within Sydney's Upper North Shore. It is located approximately 750m south of the Normanhurst Railway Station, 3km south of Hornsby and 25km north of Sydney CBD. The school is within the Hornsby Shire Council Local Government Area (LGA). The locational context of the site is illustrated at **Figure 1**.

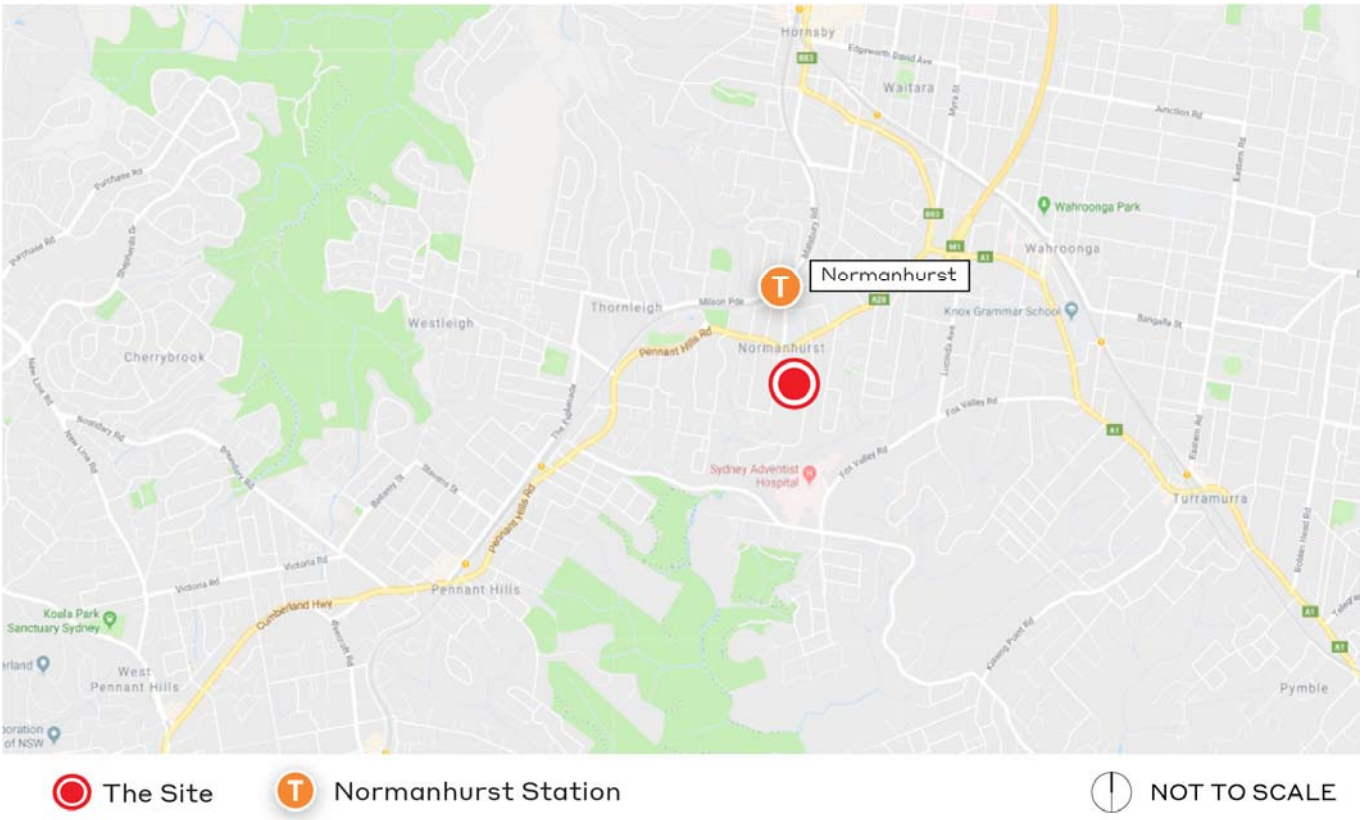

Figure 1 Location context plan

Source: Google Maps & Ethos Urban

2.2 Site Description

The campus itself is bound by Pennant Hills Road (to the north), Osborn Road (to the west) and Mount Pleasant Avenue (to the east). Detached dwellings on individual residential lots abut the southern boundary of the site. An aerial photograph of the site is provided at **Figure 2** below.

2.2.1 Existing Development

The site comprises the existing campus grounds of the Loreto Normanhurst school at 91 – 93 Pennant Hills Road, Normanhurst. The northern part of the site accommodates much of the school's existing built form, while the southern extent of the campus comprises the school's open sporting fields and includes an area of remnant bushland vegetation. The ecology and biodiversity of the site is discussed at **Section 2.2.5** of this report. Photographs of existing campus buildings are provided at **Figure 3** to **Figure 5** and a site map of school campus is provided at **Figure 6**.

2.2.2 Existing School Capacity and Operation

The formal school hours are 8:20am to 3:15pm, Monday to Friday. The school reception is open from 7:30 am to 5pm. The campus remains open outside of these hours for boarders and staff living on campus (the existing boarding school is open 24 hours/7 days a week) during term time.

The school is generally closed on weekends with the exception of the boarding school (during the school term), the oval car park and some sporting facilities used for Saturday sport, in particular the aquatic centre (Saturday only) and the tennis courts.

The school gates generally close at the end of the day with the exception of oval car park and the Admin car park which closes at 9pm during the school term. The School currently accommodates 1100 students, of which 155 are boarders and employs 300 staff.

2.2.3 Legal Description and Ownership

The campus comprises several allotments, the legal descriptions of which are provided in **Table 2** below. The campus has a site area of approximately 13.02ha. The site in its entirety is owned by the Trustees of the Loreto Property Association.

Table 2 Legal Description

Address	Lot	Plan
16 Mount Pleasant Avenue	Lot 5	DP 1218765
	Lot 16	DP 6612
30 – 62 Mount Pleasant Avenue	Lots 20 – 23 and 25 – 36	DP 6612
	Lot 1	DP 34834
91 – 93 Pennant Hills Road	Lot 1	DP 114580
	Lot 3	DP 1217496
	Lot 1 – Lot 3	DP 1218765
	Lot B	DP327538
24 – 28 Mount Pleasant Avenue	Lot 1	DP 809066
6 Mount Pleasant Avenue	Lot C	DP 366271
14 Mount Pleasant Avenue	Lot 4	DP1218765
89 Pennant Hills Road	Lot 1	DP136156

Figure 2 Aerial map
Source: AJ+C Architects

View of internal Mary Ward Building courtyard (left image); View of the Chapel building located to the north of the existing campus (right image)

Figure 3 Existing campus development

View of the existing student boarding house building located centrally within the campus (left image); view of the Gonzaga Barry Centre building (right image)

Figure 4 Existing campus development

View looking north toward the campus built form from the school's open sporting fields (left image); View of the sporting fields and bushland vegetation to the south of the campus (right image)

Figure 5 Existing campus development

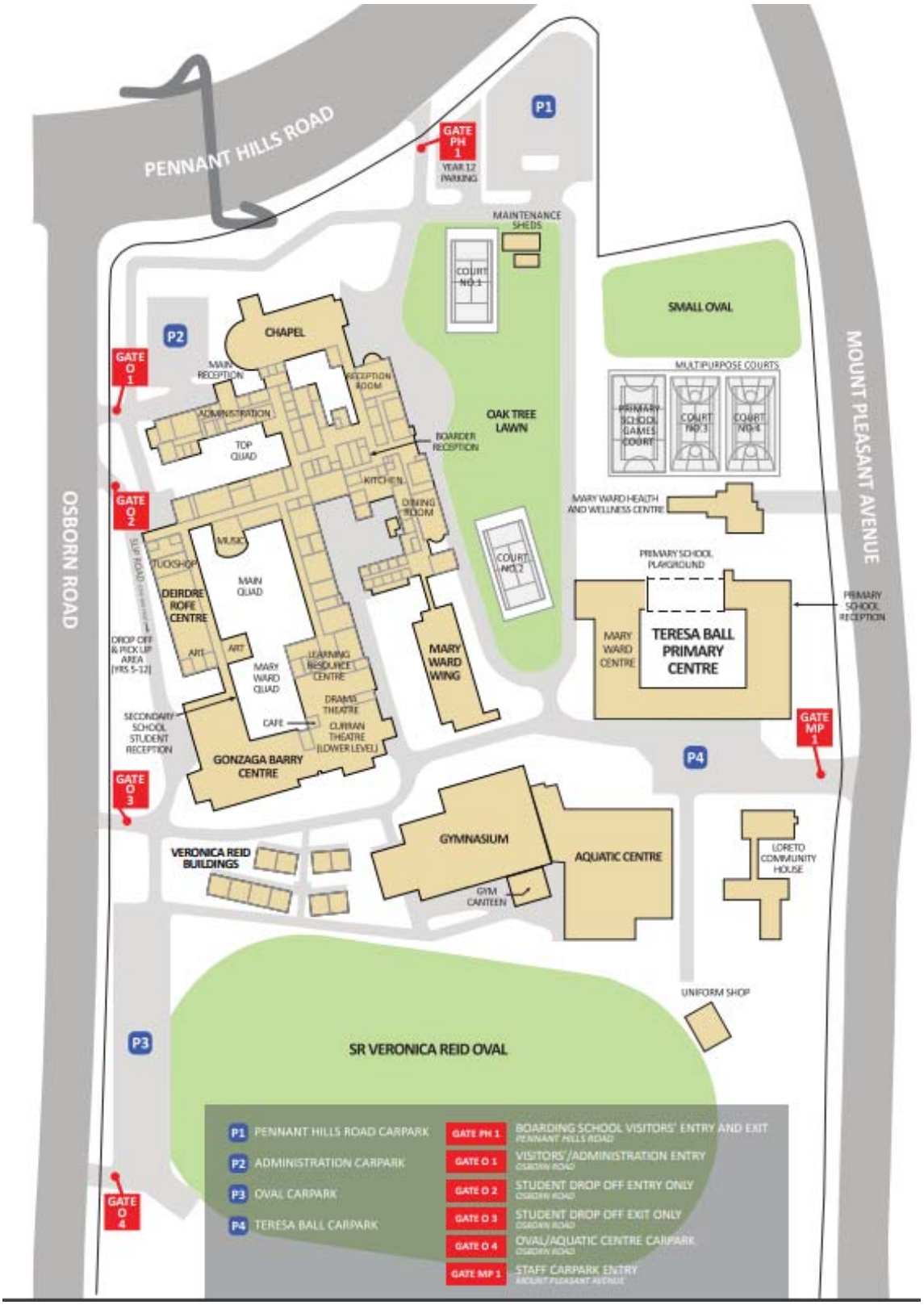

Figure 6 **Existing site layout map**

Source: *Loreto Normanhurst School website*

2.2.4 Heritage

The Loreto Convent group, grounds, gates and cemetery are listed as items of local heritage significance under Schedule 5 of the HLEP 2013. The Loreto Convent (the original section and gate) and Loreto Convent Cemetery are also classified by the National Trust of Australia (NSW). These heritage items are listed as item 607 at **Figure 7**.

The site is also identified as having local archaeological significance under the HLEP 2013. For reference, an extract of the HLEP 2013 heritage map is provided below. This is listed as item A60 within **Figure 7** below.

Heritage items in the vicinity of the school campus include the locally significant dwelling house at 4 Mount Pleasant Avenue (shown as item 603 at **Figure 7**) and the State heritage listed 'Gilligaloola' and garden at 82 Pennant Hills Road (shown as item 606 at **Figure 7**).

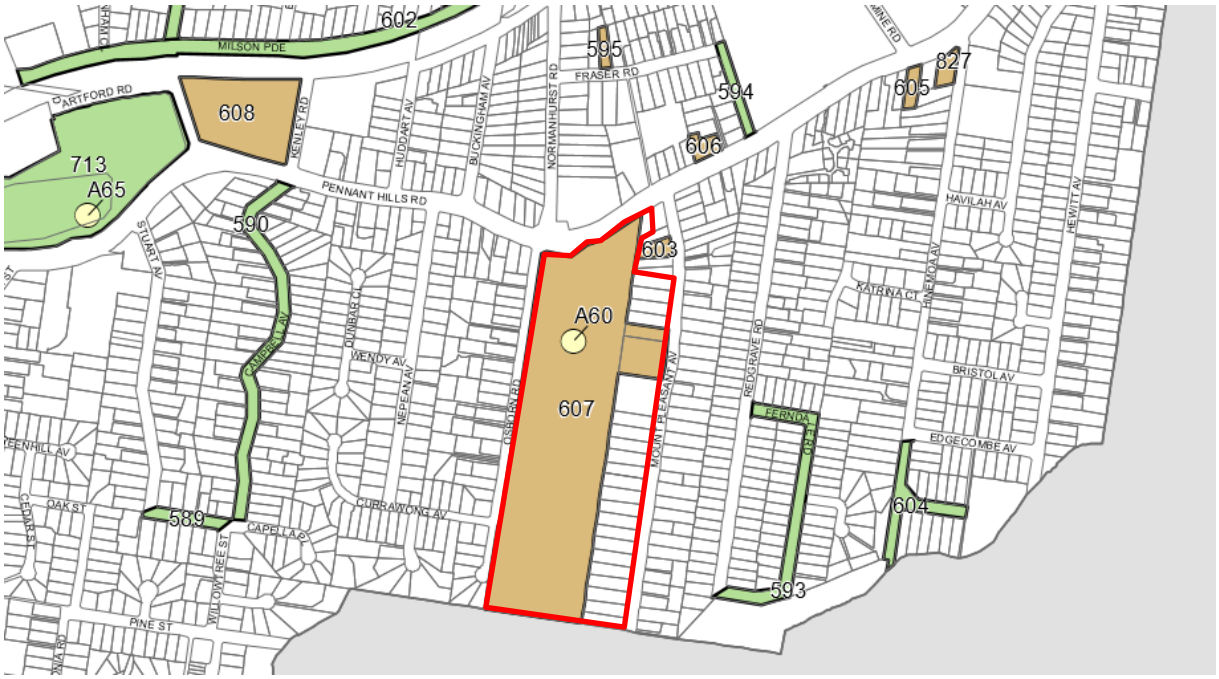

Figure 7 Heritage context

Source: Hornsby LEP 2013

2.2.5 Topography and Vegetation

Topography

The gradient of the site falls downward from Pennant Hills Road in the north to the southern, rear boundary by approximately 20m. The slope of the site is gradual from north to south. The existing north eastern built areas (Boarding House and Mary Ward Building) of the campus sit at a higher ground level, with the land falling away (downward) towards the eastern and western edges.

Vegetation

As illustrated in **Figure 8**, the southern part of the site contains bushland comprising remnant vegetation that is identified to contain ecologically endangered vegetation communities such as the Sydney Turpentine Ironbark Forest (STIF). The STIF vegetation communities are identified as critically endangered under the *Environmental Protection and* endangered under the *Biodiversity Conservation Act 2016*.

Clusters of the Sydney Blue Gum High Forest (SBGF) vegetation community is mainly identified within the northern part of the site, along the site's eastern and western edges (refer to **Figure 8**). These species are identified as critically endangered vegetation communities under the *Environmental Protection and Biodiversity Conservation Act 1999* and the *Biodiversity Conservation Act 2016*. It is however noteworthy, that in this instance, much of the SBGF observed on the site are native planted species, with remnant vegetation limited to two isolated points along the northern and western periphery of the site (shown as Vegetation Zone 1 in **Figure 8**).

Both STIF and SGHF are also listed as serious and irreversible impacts entities under the Office of Environment and Heritage bionet web platform. Refer to the BDAR report at **Appendix Q** for further details.

Figure 8 **Vegetation communities**

Source: *Ecological Australia*

2.2.6 Bushfire Prone Land

The southern part of the site is also identified as bush fire prone land. As shown at **Figure 9**, the bush fire prone land falls within the categories of 'Vegetation Category 1' land and 'Vegetation Buffer 100m to 30m' land.

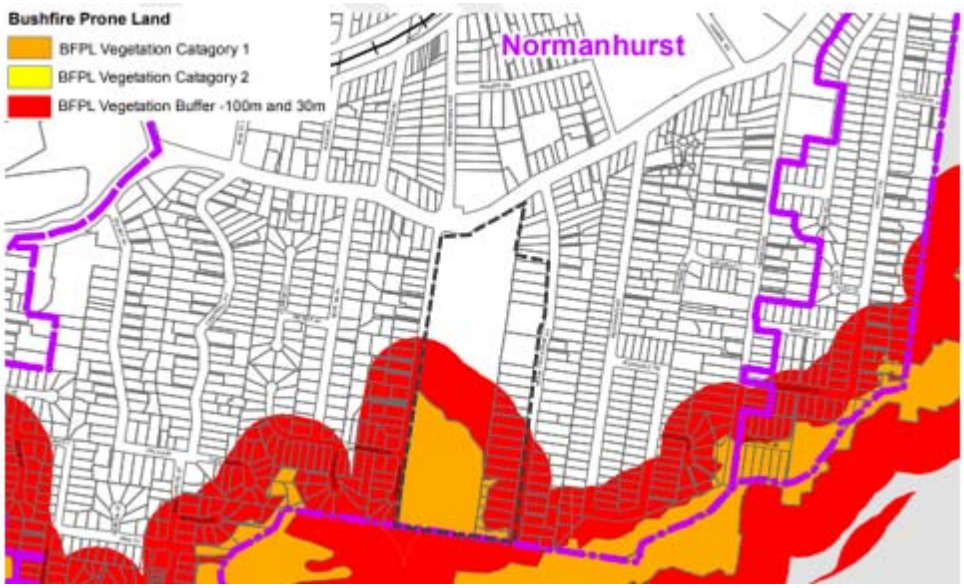

Figure 9 **Bushfire prone lane map**

Source: *Hornsby Shire website*

2.3 Geotechnical Conditions

The 1:100,000 Geological Series Sheet 9130 'Sydney' indicates that the site is underlain by Ashfield Shale comprising "black to dark grey shale and laminite". Geotechnical site investigations carried out by JK Geotechnics (see **Appendix K**) found some fill profile underlain by residual silty clay transitioning to weathered siltstone bedrock from depths ranging from about 1m to 3.5m. Ground water levels were measured at 7.2m and 6.6m below ground level near the existing Loreto Community House building (eastern edge of the campus).

2.3.1 Pedestrian and Vehicular Site Access and Parking

The site is accessible via six pedestrian access gates, one from Mount Pleasant Avenue, one from Pennant Hills Road and four from Osborn Road. The main pedestrian entrances are from Pennant Hills Road and Osborn Road. Other informal entries also exist along Mount Pleasant Avenue. **Figure 10** identifies the existing gate entries.
The existing site accommodates four formal vehicular entrances and at grade car parks, that are located near the main gate entries. The car parks are located near the Pennant Hills Gate, the Osborn Road entry, between Osborn Road entries Gate 4 and 5, and near Mount Pleasant Avenue Gate 6.

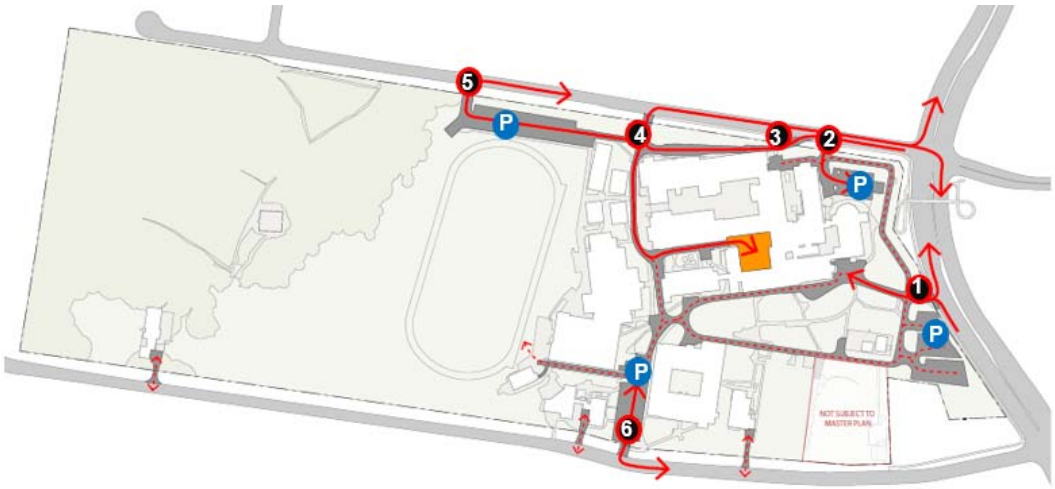

Figure 10 Existing entry and access gates

Source: Base image, AJ+C Architects

2.4 Public Transport

The site is in close proximity to several public transport options as described below.

2.4.1 Railway Station

The Normanhurst Railway Station is located 750m to the north of the site, via Normanhurst Road. The station connects to the T1 Northern line which services several neighbouring suburbs including Hornsby, Thornleigh, Pennant Hills, Beecroft and Cheltenham, as well as key interchange stations such as Epping, Strathfield and Central Station.

2.4.2 Bus

The site is also serviced by several bus routes that connect the site to neighbouring suburbs. Route 589 and Route 587 run between Hornsby Station Interchange, Thornleigh Station and Sydney Adventist Hospital or Waitara Station respectively via the site. Route M60 runs between Hornsby and Parramatta.

2.5 Surrounding Development

The campus is generally surrounded by low density residential dwellings, to the south (immediately contiguous to the site), to the east (across Mount Pleasant Avenue) and to the west (across Osborn Road) of the site. To the north west, across Pennant Hills Road is the Normanhurst Public School and to the north east is the Church of the Latter Day Saints at 94 Pennant Hills Road. Further north east, across Pennant Hills Road is Normanhurst Boys High School.

The surrounding street and streetscape context is illustrated in **Figure 11** and **Figure 12**.

Figure 11 Pennant Hills Road

Source: AJ+C Architects

Figure 12 4 Mount Pleasant Avenue

Source: AJ+C Architects

3.0 Concept Proposal

Section 4.22 of the EP&A Act relates to concept development applications. A concept development application is one that sets out a concept proposal for the development of a site, and for which detailed proposals for separate components of the development or parts of the site are the subject of subsequent development applications.

The proposed concept proposal establishes the planning and development framework as the basis for the design of the future buildings, and against which to assess the future detailed development applications. As previously noted, and detailed in Section 4.0, this SSD includes a Concept DA as well as the first stage of detailed works.

This concept masterplan articulates what the proponent is seeking to achieve for future development and sets the broad parameters for the redevelopment of the Loreto Normanhurst campus. The Concept Masterplan has an indicative delivery timeframe of 30 years, however the timeframe for delivery will ultimately be determined by the school's operational requirements, the provision of funding, community consultation and obtaining the necessary building approvals.

This Section details the overarching principles which have underpinned the concept masterplan, and provides a description of the proposed envelopes, the indicative staging of the proposed works, the overall concept landscape strategy, and the access and servicing strategy for the broader campus. Broadly, the Concept Masterplan seeks approval for:

- Establishment of 10 new building envelopes across the site for education and ancillary uses including student accommodation;
- Increase of the student number cap by 850 students from 1150 to 2000 students;
- The open space and landscape design;
- Pedestrian and circulation arrangements; and
- Associated car parking provision.

The Concept Proposal is shown at **Figure 13**.

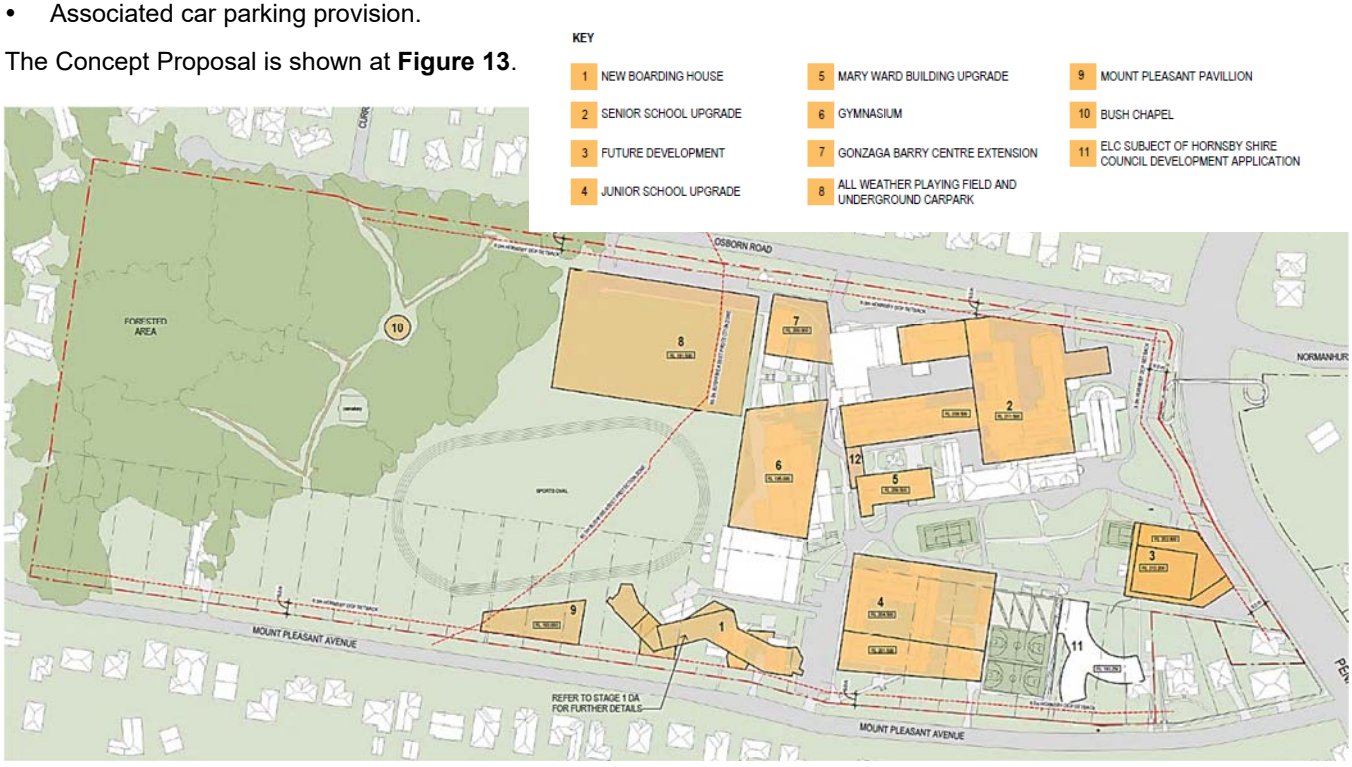

Figure 13 **Proposed 2047 Masterplan**

Source: *AJ+C Architects*

3.1 Design Principles / Urban Design Framework

Following a detailed analysis of the site and the outcomes of continued consultation with the school community, a series of urban design principles have been developed for the Concept Proposal which respond to the various constraints and opportunities which have been identified. These are summarised below:

Heritage and Landscape

The concept masterplan will improve the legibility of the existing heritage within the site. This is achieved by removing boarding functions from within the heritage buildings to make them usable and accessible to a broader range of people. The relocation of the boarding function allows for the demolition of later additions which detract from and negatively impact the heritage buildings. Conversion of the internal roads to pedestrian spaces and the proposed landscape upgrade of these spaces and the current loading dock, will improve the grounds of the school and also the context in which the heritage gardens and buildings currently reside.

Specifically, the future design of buildings will:

- Take into account the topography of the site by improving the connection between the lower portion (the playing fields, sports facilities and bushland) and the upper portion (primary and secondary school buildings and administration) of the site.
- Introduce a more open landscaped connection from the secondary school buildings to the west of the gymnasium and an improved landscaped connection between the aquatic centre and the proposed boarding facility.
- Increase the site's ability to provide diverse and functional teaching spaces and more accessible recreational spaces for students.
- Future development will take advantage of natural light and ventilation, particularly with regard to passive climate control and harnessing the natural features of the site.
- Development on street frontages is to be carefully considered to provide a sensitive and appropriate response for the educational facility within the context.

Sustainability and Wellbeing

All future development will employ ESD technology wherever suitable. The concept masterplan proposes a rethinking of the existing buildings to free up space for growth within the existing fabric with minimal refurbishment. This enables for more efficient reuse and retention of the existing fabric and ensures its long-term functionality and suitability for future expansion of the school population.

The future design of buildings will allow:

- Each future development will employ ESD technology wherever suitable.
- The masterplan proposes a systematic rethinking of the programmatic function of existing buildings to free up space for growth within the existing fabric with minimal refurbishment.

Accessibility and Way-finding

The concept masterplan was developed with accessibility in mind. Strategies to accommodate additional lifts and improved way-finding have been incorporated throughout the masterplan. The concept masterplan will incorporate:

- An accessibility strategy which will increase the accessibility of the boarding school facilities and adjacent landscape areas, making it universally inclusive for a diverse community of users.
- Way-finding within the site will be improved through architectural way-finding strategies as the masterplan develops.
- The main reception area will be relocated within the heritage buildings of the school (as the architectural language of these buildings suggests the main entry it is logical to place it there). This relocation and upgrade

will create a logical and more visible place of arrival, within the landmark building of the school, marking the entry point for a reception.

- Boarding reception will be located within the Stage One proposed boarding facility which will have its own street address and front door making it easier for families to find the boarding facility and visit their children.

Safety and Security

The concept masterplan removes vehicles from within the school grounds – restricting vehicular use within the school to buggies used by the maintenance crew. This will remove the current conflict of vehicles driven by members of the public and pedestrians within the site. The masterplan proposes a solution to security and safety by distinguishing zones. Specifically, the concept masterplan will allow for the creation of:

- Distinct functional precincts which denote particular parts of the site for particular uses and clarify reception points.
- A clear hierarchy of privacy controlled by fencing, boarding is private (accessed only by staff, students and families with express permission), general school buildings are semi-private (accessed by staff, students and by visitors to reception or for events), the oval, swimming pool and event spaces are semi-public (accessed by users engaged with activities or part of the local community).

Views and Beauty

Due to the scale and steep topography of the site, development situated within the site has limited to nil impact on the visual or environmental amenity of surrounding residents. Nevertheless, the visual impact of development will be considered in future buildings through:

- Development on the periphery of the site to take into account the visual and environmental amenity of neighbours.
- The relocation of boarding to Mount Pleasant Avenue ensures improved amenity for boarding students in a more homely environment, distinct from school buildings enabling students to engage in a home life which is separate from school.
- Mount Pleasant Ave is also a residential street, characterised by homes which is a more suitable location for the Boarding House than within the educational fabric of the site. This part of the site is also further away from Pennant Hills Road and therefore is acoustically more suitable for this noise sensitive use.
- The masterplan also allows for increased storage and the removal of unsightly functions, such as waste, from visible parts of the site. This will increase the amount of outdoor landscaped space within the site and improve the visual amenity of the site.

Spatial Organisation, Adaptive Re-use and Architectural Future Proofing

The masterplan approach has included a systematic review of all existing spaces within the school in relation to their current use, their potential future uses and the appropriateness of the space for those uses. While some existing spaces may not be ideal, a critical approach has been taken to understand how these existing spaces can be refurbished or upgraded to make them appropriate for current and future needs.

The key features that will be incorporated into the future development include:

- Considering the impact and whole-of-life of the built fabric of the site, the adaptive reuse of existing fabric has generally taken precedence wherever possible. As such, the functional reprogramming of existing buildings has reduced the need for new buildings required to accommodate future expansion.
- Where new buildings are required, these parts of the masterplan have been allocated and designed to consider the flexibility or multi-purpose potential for each space to ensure it can adapt to meet future needs.

Contextual and Functionally Appropriate Design

The concept masterplan proposes envelopes that do not rigidly impose only one possible design solution. Flexible envelopes allow for a variety of possible forms to be considered on the site. The Concept Masterplan proposes that:

- The masterplan fitting diagrams set a baseline response to the proposed use and arrangement on the site which will guide future design.

- Aesthetic choices have been indicated in the Design Report which are sympathetic and complementary to existing features within the site and neighbouring context.
- Precedent imagery included in the masterplan will act as a guide for future development and represents the recommended formal, stylistic and aesthetic approach for future projects.

3.2 Numerical Overview

The key numeric development information is summarised in **Table 3**.

Table 3 Key development information

Component	Proposal
Site area	13.02 ha
Maximum Height • Building 1 • Building 2 • Building 3 • Building 4 • Building 5 • Building 6 • Building 7 • Building 8 • Building 9 • Building 10	 • 22.0 metres • 20.0 metres • 21.4 metres • 13.3 metres • 20.6 metres • 13.1 metres • 18.2 metres • 3.0 metres • 11.2 metres • No structures proposed
Boundary Setbacks • North (Pennant Hills Road) • East (Mount Pleasant Avenue) • West (Osborn Road)	The primary setbacks are as follows: • 9 metres • 8 metres • 8 metres
Proposed Car spaces for new development	Car parking to be provided in accordance with Hornsby DCP controls. These rates are set out in Table 1C.2.1(d) of the Hornsby DCP as follows: • 1 space per full time teacher; and • 1 space per 2 students of driving age.

3.3 Proposed Building Envelopes

The proposed building envelopes set the maximum horizontal and vertical parameters for future buildings within the Loreto Normanhurst campus. These envelopes are detailed within the Architectural Plans prepared by AJC and included as **Appendix A**. The proposed building envelopes, indicative land uses and staging strategies for the Concept Proposal are described in the following Section.

3.3.1 Land Uses

Building Envelope 1

Building Envelope 1 includes the Boarding House and associated works that are included as part of the Stage 1 detailed DA (refer to **Section 4**).

Specifically, works within Building Envelope 1 comprise:

- Boarding accommodation with dining, park, dock and commercial kitchen;
- Excavation works to accommodate partially underground carpark and dock facilities within the proposed footprint of the new boarding house facility;
- Demolition works to the maintenance buildings between Mary Ward and existing dining room building and associated works to make good existing; and
- Landscaping works.

Building Envelope 2

Building Envelope 2 is located in the north-western corner of Loreto Normanhurst and maintains a direct frontage to Osborn Road. The large envelope will facilitate the redevelopment of a number of secondary school buildings. The indicative works associated with the various aspects within the Building Envelope 2 can be identified as follows:

- Secondary School
  - Connection between Mary Ward courtyard and north quad;
  - Relocate main reception;
  - Relocate staff and administration;
  - Increase interface between staff and students; and
  - Third Storey addition to 'Science' block.
- Project C - Arrival and Main Visitor Entrance
  - Relocate entry to new widened opening between 1897 Building and current boarding dining room;
  - Demolish and widen entry with new glazed opening constructed within heritage constraints;
  - Demolish level 5 toilet block; and
  - Lightweight cantilever awning/entry.
- Project D - Reception
  - Direct visual and physical connection between reception and administration;
  - Generous naturally lit reception desk, waiting and office areas with gallery and display areas;
  - Semi-public access to special function areas;
  - Waiting areas connected directly to verandah and new landscaped courtyards to the south; and
  - Reception to incorporate small teaching areas for casual interaction between staff, students and the wider community.
- Project E - Learning Resource Centre (LRC) Expansion
  - Increase the floor area of the LRC by adding a 'pigeon loft' roof addition.
- Project F - Deirdre Rofe extension
  - Three storey extension adjacent to Deirdre Rofe building and additional third storey to the science wing.
- Project G - Theology Centre
  - Generous space with approximately 6 general learning spaces across two storeys.

Building Envelope 3

Building Envelope 3 is located directly adjacent to Pennant Hills Road and comprises a new six storey educational building. Indicative works associated within Building Envelope 3 comprise:

- Up to 6 storey development envelope to be sought for future development;
- Possible uses to be considered include:
  - Multi-function hall;
  - Sports hall;
  - Music and drama centre;
  - Year 11 and 12 school and study facilities; and
  - Multi-storey school extension.
- Underground parking to be included in development.

Building Envelope 4

Building Envelope 4 will provide additional education floor area to allow Loreto Normanhurst to accommodate years Kindergarten – 4. The indicative works required for the expansion of the junior school within Building Envelope 4 include:

- School expansion to accommodate years K-4;
- Current health centre building to be repurposed as Primary;
- Separate common rooms for Years K-2 and Years 3-4; and
- Shared underground car parking.

Building Envelope 5

Building Envelope 5 comprises the upgrade to the Mary Ward Building following the relocation of the current boarding facility. Indicative works within Building Envelope 5 comprise:

- Facility to be upgraded to be inclusive incorporating lift access and accessible classrooms;
- Basement area teaching spaces to be upgraded;
- Ground floor teaching spaces to be upgraded; and
- Conversion of upper levels that currently house boarders accommodation.

Building Envelope 6

Building Envelope 6 seeks approval for an envelope for the development of a future gymnasium. Indicative works associated with the development of Building Envelope 6 comprise:

- 3 multi-purpose courts;
- Generous central lobby + circulation space to comfortably connect upper school campus level and playing fields and reconnect sporting precinct;
- Additional large function rooms;
- 2-3 sports/PDHPE learning spaces;
- Oversized storage facility and potential stacked seating;
- Upper or lower level stadium seating; and
- Incorporate large cafe and viewing platforms overlooking the grounds.

Building Envelope 7

Building Envelope 7 forms an extension to the Performing Arts Centre located along the western boundary of the Loreto Normanhurst campus. The indicative works associated with Building Envelope 7 comprise:

- 300 seat theatre with wings and semi-fly tower;
- 4-8 class rooms with emphasis on drama and sustainability; and
- Terraces and bleacher seating between Mary Ward Quad and new all-weather playing field.

Building Envelope 8

Building Envelope 8 proposes to provide for improved sporting facilities within the existing open space adjacent to Osborn Road. Car parking facilities will be provided beneath the sporting facility to allow for the most efficient use of space. Indicative works within Building Envelope 8 comprise:

- Full size hockey/soccer field;
- Stadium, bench and bleacher seating to be provided;
- Car park incorporating 200 car parking spaces including accessible spaces;
- Motorbike parking and space for 200 bicycles; and

- Underground buggy tunnel to connect maintenance to school campus.

Building Envelope 9

Building Envelope 9 seeks to develop sporting facilities adjacent to the mains sports oval. These facilities and uses will be located within a stadium that overlooks the main sports oval and running field. The indicative works within Building Envelope 9 comprise:

- Stadium overlooking running field;
- Multi-use conference room;
- Flexible teaching and learning areas;
- Weights room/gym;
- Ecology studies; and
- Small dock area and 11 car spaces.

Building Envelope 10

Building Envelope 10 is a bush chapel that is located within the middle of the southern portion of the Loreto Normanhurst school site, amongst the Blue Gum High Forest. The purpose of the bush chapel is to provide an outdoor learning space for students focusing on faith based and ecological studies.

Works within Building Envelope 10 comprise:

- Bush chapel;
- Ecologically sensitive design, avoiding impact on endangered species;
- Subject to ecology study, endeavour to reinstate creek within the 1943 glade and introduce connection between existing pathways with a low-impact bridge;
- Investigate opportunities for elevated walkways and adventure sports facilities;
- Re-purpose the Principal's Residence as a Bush Research Centre and investigate opportunities for garden and crop research; and
- Seek way to increase ecological value of bush including; increasing habitat opportunities for endangered species, eradicate invasive species and increase native biodiversity.

3.3.2 Gross Floor Area

No cap on Gross Floor Area (GFA) is proposed as part of the Concept Masterplan. Rather the bulk and scale of the future built form will be set by the approved building envelopes, heights, setbacks and landscaping requirements. It is noted that there is no floor space ratio (FSR) that applies to the site under the Hornsby LEP.

3.3.3 Indicative Staging Strategy

An indicative staging plan has been developed for the Concept Masterplan. It is envisaged that the development will be delivered across ten stages across a thirty year timeframe. Detailed consent is sought for the Boarding House and associated works on land adjacent to Mount Pleasant Avenue as part of the Stage 1 Works. The remaining nine envelopes are anticipated to be delivered separately over time depending on the school's needs and funding.

At this time, Stage 1 works have been largely defined (to be completed by approximately 2027), while the timing of later stages of the concept masterplan (through to approximately 2047) remain to be finalised.

An indicative staging strategy over 10 and 30 year timeframes has been incorporated into the Architectural Plans (**Appendix A**) and is illustrated in **Figure 14** below. It is noted that consent is not sought for the approval of the staging plan, which will be subject to change according to the needs of the School over time.

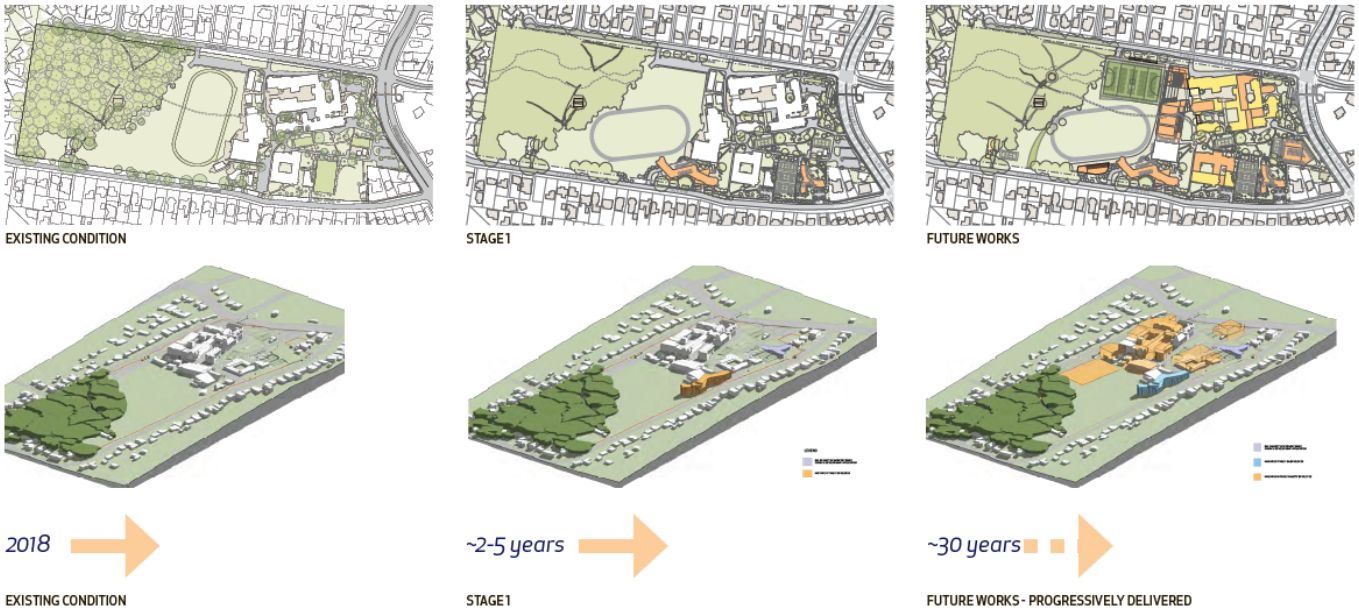

Figure 14 Broad Staging Strategy

Source: AJ+C Architects

3.4 Operation

Student and Staff Numbers

Loreto Normanhurst currently caters for years 5 – 12, with a total of 1,100 students enrolled and approximately 300 staff. The school's capacity is regulated by Condition 65 of DA/1277/2004/C which set a cap of 1,150 pupils when the consent was modified on the 27th July 2011.

The Concept Masterplan seeks to increase the school's capacity up to 2,000 students, which is an increase of 770 students in addition to the 80 place Early Learning Centre for which approval is sought separately under a standalone DA that is currently under assessment at Hornsby Shire Council (DA/1227/2018). A proportional increase of 77 staff is anticipated to support the increase in student numbers. It is widely acknowledged that there is growing pressure on existing schools to meet the demands of population growth, particularly in areas like Sydney's Upper North Shore.

Hours of Operation and Community Use

The school will continue to operate in accordance with the existing formal hours of operation outlined in **Section 2.2.2**. The community use of recreational areas within the school site will continue to operate in a similar manner to that currently allowed by the school (refer to **Table 4**).

In addition to the uses discussed in the table below, the school campus grounds are also generally open for neighbours and residents to use the campus grounds to walk their dog or for a casual walk / run. The school's sporting fields such as the outdoor tennis courts are also informally open for residents to use. The library is currently not open to the public and will remain for school use only.

Table 4 Community uses of the school facilities

Facility	Community Use	Timings	Change
Aquatic Centre	Accessible for public swimming lessons	• Monday, Wednesday or Friday: 5:30 am to 7:00 am and 3:30 pm to 6:30 pm • Tuesday and Thursday: 3:30pm to 8:00pm • Saturday: 5:30 am to 7:00 am and 1:00 pm to 5:00 pm	No change is proposed to the operation or use of existing facility location under the concept proposal. Additional details will be provided as part of the relevant future application stage if changes are proposed.
Gym Facility	Hornsby Basketball use the basketball court	• Monday to Thursday: 5:30 pm to 9:45 pm (during the school term)	No change is proposed to the operation or use of existing facility location under the concept proposal. Additional details will be provided as part of the relevant

Facility	Community Use	Timings	Change
		• Tuesday and Thursdays only: 6:45 pm to 9:45 pm (outside of the school term)	future application stage if changes are proposed.

3.5 Open Space and Landscaping

The Concept Masterplan has identified a number of site wide landscaping improvements that will be incorporated into all future detailed DAs. These include:

- Reduction in road widths within the campus;
- Creation of new pathways;
- Upgrade landscape surfaces and reduce bitumen;
- Replace all bitumen roadways with landscaping and paving within the school grounds and limit vehicular access to small service buggies only;
- Car park access, buses and trucks to be kept to the periphery of the site along Osborn Road and Mount Pleasant Avenue;
- Majority of parking to be underground except for small drop-off areas. Implement a long-term plan for car-use reduction.
- Underground car parks to be designed for future functionality with access to daylight and ventilation. Where possible, high ceiling levels are to be incorporated into designs; and
- Every effort is to be made to create attractive connected green spaces between all areas of the school campus.

Figure 15 and **Figure 16** provide a comparative analysis between the existing and proposed landscaping, demonstrating the commitment for increased landscaping and open space across the Loreto Normanhurst campus.

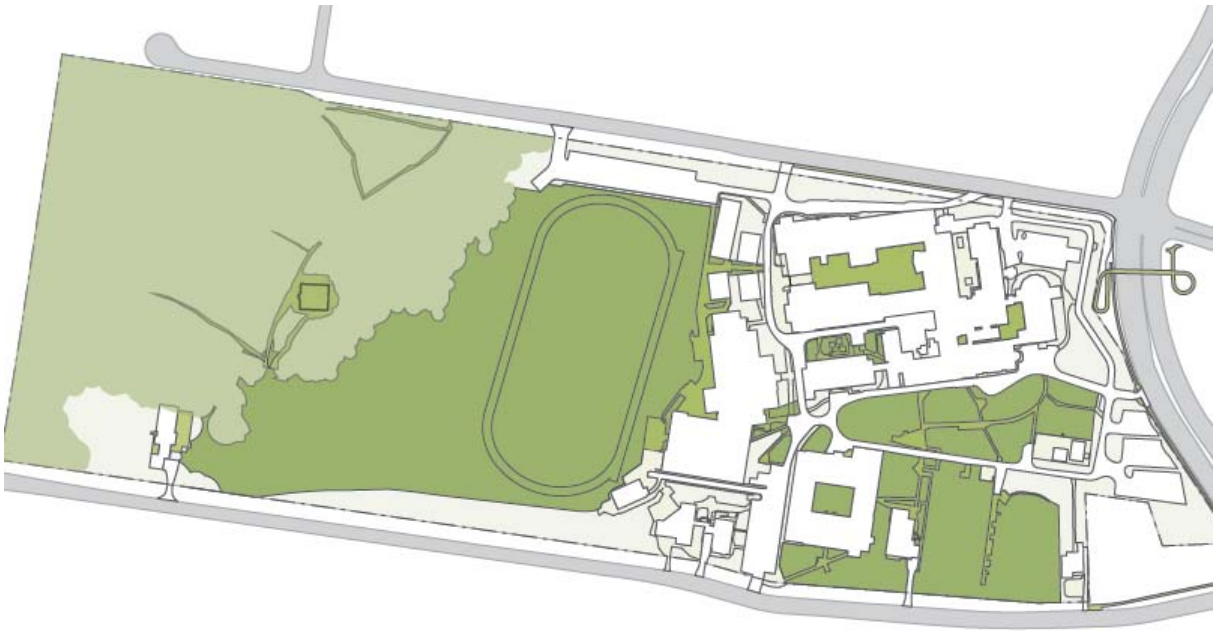

Figure 15 Existing Open Space Site Plan

Source: AJ+C Architects

Figure 16 Proposed Open Space Masterplan 2047

Source: AJ+C Architects

3.6 Pedestrian Access

No changes are proposed to the pedestrian access to the site. Pedestrian access will continue to be provided by footpaths along Mount Pleasant Avenue, Pennant Hills Road and Osborn Road. There is also a pedestrian bridge over Pennant Hills Road, which provides access from the Loreto Normanhurst frontage across to Normanhurst Road providing a safe route from the School across Pennant Hills Road towards Normanhurst Station.

3.7 Vehicular Access, Parking and Servicing

A Transport Assessment Report has been prepared by Ason Group (**Appendix S**). This report assesses the vehicular access, parking and servicing requirements for the school as it increases in student numbers across the timeframe of the Concept Masterplan. It establishes two timeframes for determining access and parking requirements with an estimation that by 2027 the Stage 1 works will be complete, while the timing of later stages of the concept masterplan (through to approximately 2047) remain to be finalised.

3.7.1 Vehicular Access

The proposed Concept Masterplan will develop site access that will:

- Limit vehicles to the edge of the site;
- Provide for secure entries with after hours access limited to the sports precinct;
- Internal pathways are to be pedestrian only with provision for vehicular access in exceptional circumstances; and
- Reduce conflict between cars and pedestrians.

3.7.2 Car Parking

For the purposes of developing a parking requirement, the assessment methodology allocates 37additional staff members for the increase of 370 students by 2027; and an additional 40 staff by 2047. As such, the additional parking requirement would be:

- 37 additional staff parking spaces by 2027; and
- 40additional staff parking spaces by 2047.

With regard to student parking, it is expected that the increase in students as part of the Master Plan Stage 1 works would largely be across the earlier school years (i.e. Kindergarten to Year 4). As such, there is unlikely to be any significant additional student parking requirement, as only Year 12 students are permitted to drive to the School. It is noted that pick-up / drop-off facilities will need to be reviewed to provide additional queuing capacity.

The location and design of car parking will occur as follows:

- The Teresa Ball Car Park would be removed with commensurate parking to be provided as basement parking under the new boarding house;
- Car Park 1 would be replaced with basement parking in a similar location;
- All underground car park areas are to be designed to accommodate future re-purposing and to have a minimum 2700mm floor to ceiling clearances; and
- New underground car parking facilities are to be integrated into major works as part of a number of stages.

3.7.3 Loading and Servicing

The existing loading dock is to be relocated as part of the new boarding house facilities; The proposed loading dock is designed to accommodate a 6.4 metre Small Rigid Vehicle.

3.7.4 Active Travel Plans

It is proposed that a Green Travel Plan (GTP) will be prepared by Loreto Normanhurst to guide future development of the site. The primary objectives of the GTP will be to:

- Reduce the environmental footprint of the School;
- Promote the use of ‘active transport’ modes such as walking and cycling, particularly for short-medium distance journeys;
- Reduce reliance on the use of private vehicles for all journeys; and
- Encourage a healthier, happier and more active social culture.

3.8 Environmentally Sustainable Development

An ESD report has been prepared by Arup, and is included at **Appendix J**. ESD principles will be incorporated into the future detailed design, construction and operation of the school. The key sustainability opportunities that have been identified for Loreto Normanhurst are as follows:

- Energy and carbon;
- Water;
- Materials and waste;
- Indoor environment;
- Community and education; and
- Wellbeing and fitness.

The specific measures that will be incorporated into the detailed design of future buildings will include:

- Active
  - Rainwater collection;
  - Water treatment;
  - Photo-voltaic units;
  - Bio-digester and tri-gen;
  - Containment of natural watercourse under oval to reduce flooding issues on playing field;
- Passive

- Building upgrades to improve insulation / reduce heat loss;
- Upgrades to improve shading / reduce solar gain;
- Building design to take advantage of natural ventilation opportunities and passive cooling opportunities;

- Teaching and Learning
  - Eco-centre and biology lab;
  - Ecology teaching and chapel space in the bush;
  - Bush research centre;
  - Ecology observation learning space.

3.9 Services and Utilities

The proposed envelopes sought under the Concept Proposal may require services and utilities in the surrounding area to be relocated, altered, augmented or protected in order to implement the envisaged development. Those items that will be subject to impacts or upgrades will be set out as part of the future application(s) once the detailed design is resolved.

4.0 Detailed Stage 1 Works

This Section of the report provides a description of the proposed detailed Stage 1 works. Architectural Drawings are included at **Appendix A**.

The application seeks approval for the following works:

- Construction of a new 3 to 6 storey boarding house to accommodate up to 216 boarders.
- Excavation works to accommodate partially underground carpark and dock facilities within the proposed footprint of the new boarding house facility;
- Demolition works to the maintenance building located between Mary Ward and existing dining room building as well as the Loreto Community House and associated works to make good;
- Landscaping works including tree removal and replenishment as well as the landscaping upgrade of internal road network, pedestrian spaces and loading dock to reinforce the heritage context;
- Kerb upgrades along the Mount Pleasant Avenue and construction of two vehicular driveways; and
- Augmentation of connection of services and utilities infrastructure.

A photomontage of the new student boarding facility is shown at **Figure 17**.

View looking east from the school campus

Figure 17 Render of the boarding house facility

Source: AJ+C Architects

4.1 Key Urban Design Principles

The Stage 1 design principles are consistent with the Concept Proposal principles as follows:

- Heritage and Landscape: Deliver a building that complements the heritage and landscape setting of the campus;
- Sustainability and Well Being: Create a high-quality development that integrates environmentally sustainable design features;

- Accessibility and Way Finding: Improve accessibility, wayfinding and legibility on campus by relocating residential uses away from educational uses, and improving pedestrian connectivity and circulation between the Stage 1 site and the broader campus;
- Safety and Security: Design a building that prioritise safety and security, and minimises opportunities for crime or vandalism;
- Views and Beauty: Create a built form that is reflective of the unique aesthetic qualities of Loreto Normanhurst campus and protects important views;
- Spatial Organisation Adaptive reuse and Architectural Future Proofing: Design a student boarding house facility with a functional and adaptable floor plate; and
- Contextual and Functionally Appropriate Design: Design a new residential building on the eastern end of the campus that is contextually designed for its setting, topography and surrounding character.

4.2 Numerical Overview

The key numeric development information is summarised in **Table 5**.

Table 5 Key numericals

Component	Proposal
Student beds	216
Maximum Height – Top of Building (RL)	RL 203.8m
Maximum Height – Top of Parapet (RL)	RL 201.90m
Maximum Height (Storeys)	3 storeys (northern elevation) 5 – 6 storeys (southern elevation)
Setbacks	Minimum of 6 metres
Proposed Car Spaces	42 car parking spaces

4.3 Demolition, Tree Removal and Excavation

4.3.1 Tree Removal

As part of the Stage 1 works, a total of 78 trees are recommended for removal, of which 72 are to be replaced with new trees (refer to Landscape Plans at **Appendix D** or **Section 4.9**). A tree survey plan identifying trees for removal is provided as part of the Arborist Statement (**Appendix G**) prepared by Earthscape Horticultural Services. For reference, an excerpt of the tree survey is provided at **Figure 18**.

Figure 18 Tree removal plan

Source: Earthscape Horticultural Services

4.3.2 Demolition and Excavation

Demolition works proposed as part of the Stage 1 works will be carried out in accordance with demolition Plan at **Appendix A**. For reference, an excerpt of the demolition plan is shown at **Figure 19**. Key works include:

- Demolition of the existing single storey Loreto Community House building located along the eastern edge of the site;
- Demolition of the existing maintenance building located between the Mary Ward Building and the existing Boarding House;
- Demolition of existing asphalt and bitumen surfaces as shown in the Stage 1 demolition plan, including:
  - the at grade car park (north of the Loreto Community House);
  - the internal road to Mary Ward Building; and
  - The bitumen/asphalt pavement surfaces between the Mary Ward Building and the Curran Theatre Building/Learning Resource Centre; and
- Relocation of the demountable uniform shop building.

To accommodate two subterranean basement levels for the new boarding house facility, excavation works are also necessary up to a depth of 6m below ground level. Some additional excavation may be necessary to accommodate lift pits.

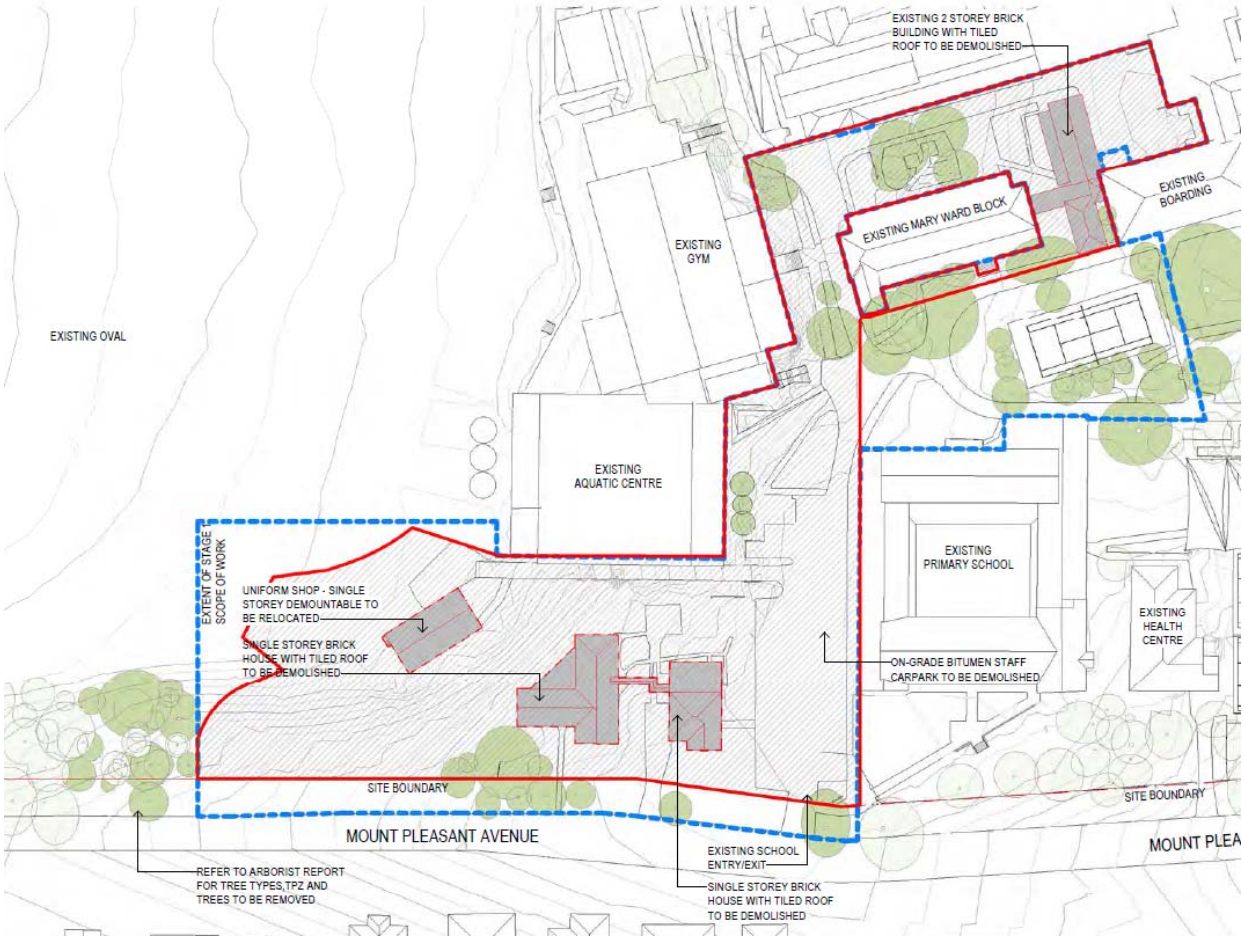

Figure 19 **Demolition plan**

Source: *AJ+C Architects*

4.4 Remediation works

As identified under the Contamination Report, prepared by Environmental Investigation Services (at **Appendix U**), further investigation is required to fully characterise the site and determine potential contamination within the footprint of the existing Loreto Community House. It is noted that this can only be carried out post demolition of the

existing building. To this end, a Remediation Action Plan framework is provided for the Stage 1 works area and outlines the intended remediation strategy for the site should the further investigation works reveal the need for remedial action. The contamination strategy for the Stage 1 works area is discussed in more detail in **Section 6.11** of this report.

4.5 Urban Design and Built Form

4.5.1 Built Form

The boarding house is designed as a single curvilinear building that appropriately transitions in height in response to the sharp fall of the site. The massing and built form has been modulated to allow for the retention of key trees and reduce its scale on Mount Pleasant Avenue.

4.5.2 Building Height

As shown in **Figure 20**, the Boarding House has been designed to follow the topography of the site. As such, the building steps with the fall of the land. The building presents a three storey façade to the north and due to the natural fall of the site appears as a part 5 and part 6 storey development at the south western elevation (internal elevation).

When viewed from Mount Pleasant Avenue (east elevation), the building appears as a low scale, part three and part 4 storey, development (refer to **Figure 20**). Two additional storeys are accommodated at the south western elevation owing to the dip in the land by approximately 10m, resulting in a part 5 and part 6 storey building at this end (refer to the south eastern elevation at **Figure 20**).

The topmost point of the building, being the top of the roof access stairs, sits at RL 203.8m, which is approximately 12.5m from the ground level at Mount Pleasant Avenue, and 22.9m from the ground level at the south western corner of the site.

East elevation view

South western elevation (internal view from campus grounds)

Figure 20 Building elevations

Source: AJ+C Architects

4.5.3 Basement and Ground Level Interface

A part of the Basement Level 1 (at the south western corner) sits above the ground level. This portion of the basement accommodates some boarding house amenities such as the gym, laundry room and mud room. The Basement Level 1 interface is designed to overlook the campus and addresses the street. However, for access control purposes, entry to the gym is limited from within the boarding facility. Access to the mud room is provided from ground level (at the south western corner). A floor plan of the Basement Level 1 is provided at **Figure 21**.

The ground level (Level 1) comprises some boarding rooms, shared amenities, a kitchen, a double height internal dining area and an outdoor dining terrace area (refer to **Section 4.9.1** for landscaping details of the outdoor dining area). Access to Level 1 is provided via several building entries along the eastern (via the outdoor oval terrace) and western elevation (via the front garden). The main building entry is located on Mount Pleasant Avenue elevation at Level 3 (refer to **Section 4.5.4**). An excerpt of the Level 1 floor plan is provided at **Figure 22**.

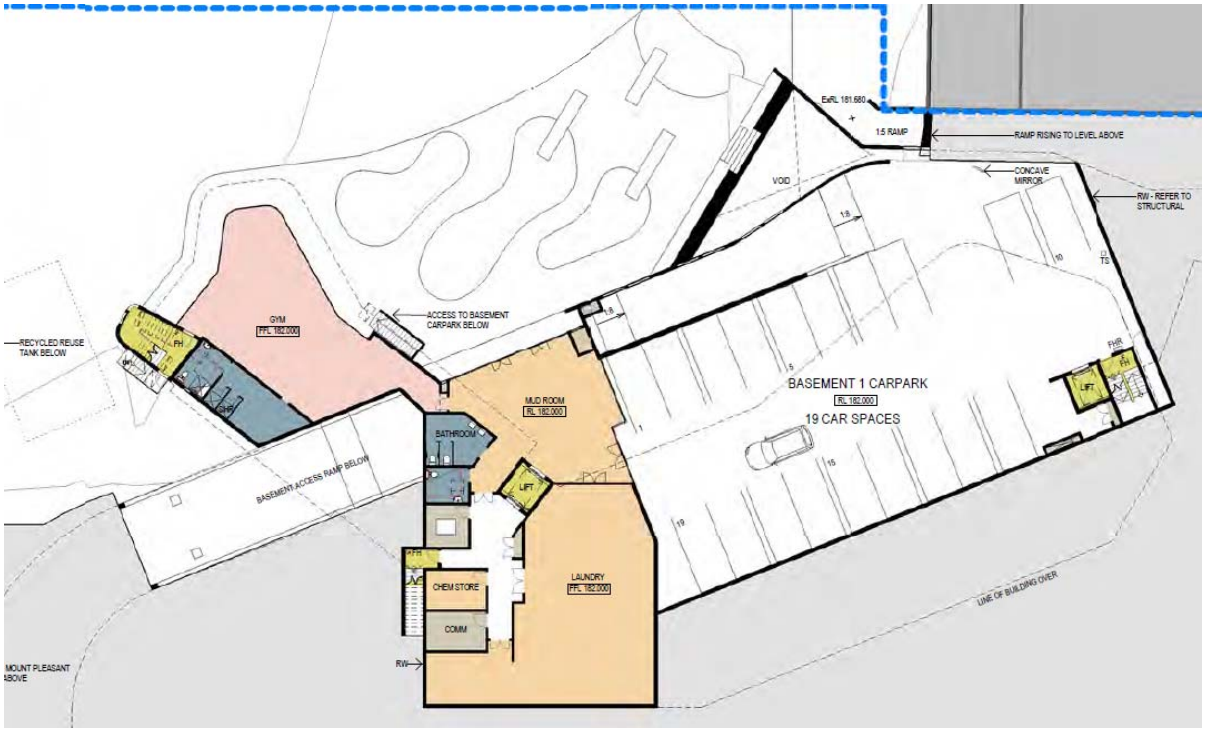

Figure 21 Floor plan layout (Basement Level 1)

Source: AJ+C Architects

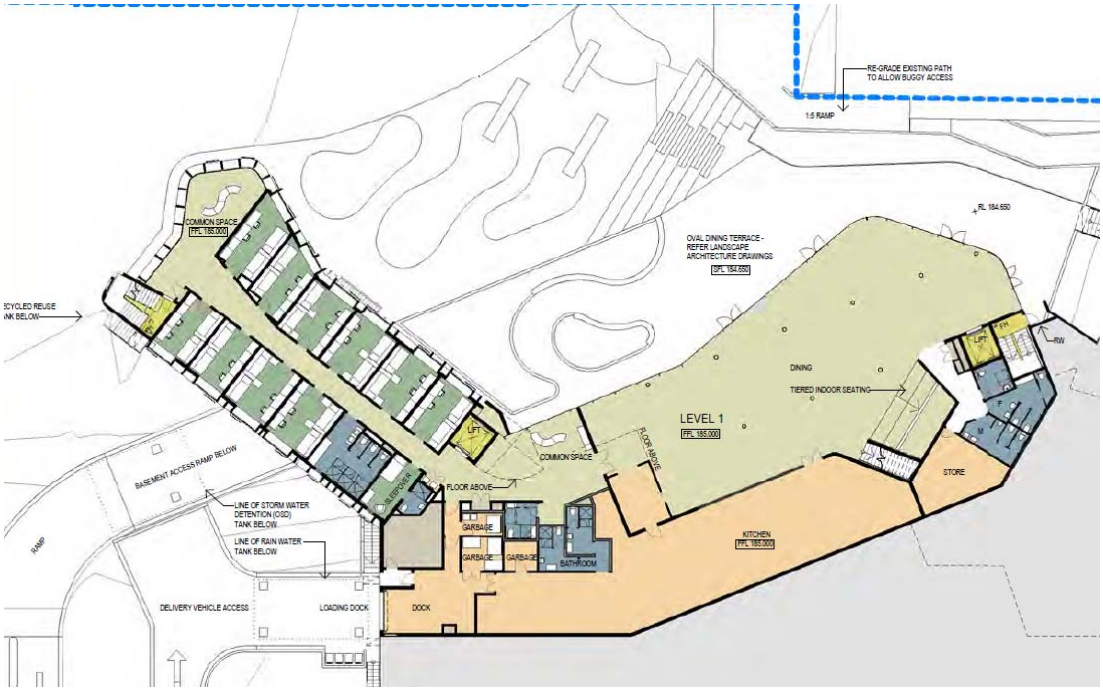

Figure 22 Floor plan layout (Level 1)

Source: AJ+C Architects

4.5.4 Upper Levels (Level 2 and above)

The upper levels primarily accommodate the student boarding rooms, shared student amenities and ancillary spaces such as the common room (Level 2) and accessible rooftop terraces at Level 3 and Level 5 (refer to **Section 4.9.1** for landscape details).

The main building entry is provided from Mount Pleasant Avenue at Level 3. Level 3 also accommodates the reception and waiting area, a family lounge area and other student amenities such as a wellness centre and an outdoor accessible roof garden (refer to **Section 4.9.1** for landscape details). An excerpt of the Level 3 floor plan is provided at **Figure 23**.

Level 3 also contains three double storey apartments for staff accommodation purposes. The apartments are oriented to address the street and are designed to each have individual street addresses with separate entries. The apartments are also internally accessible from within the boarding facility.

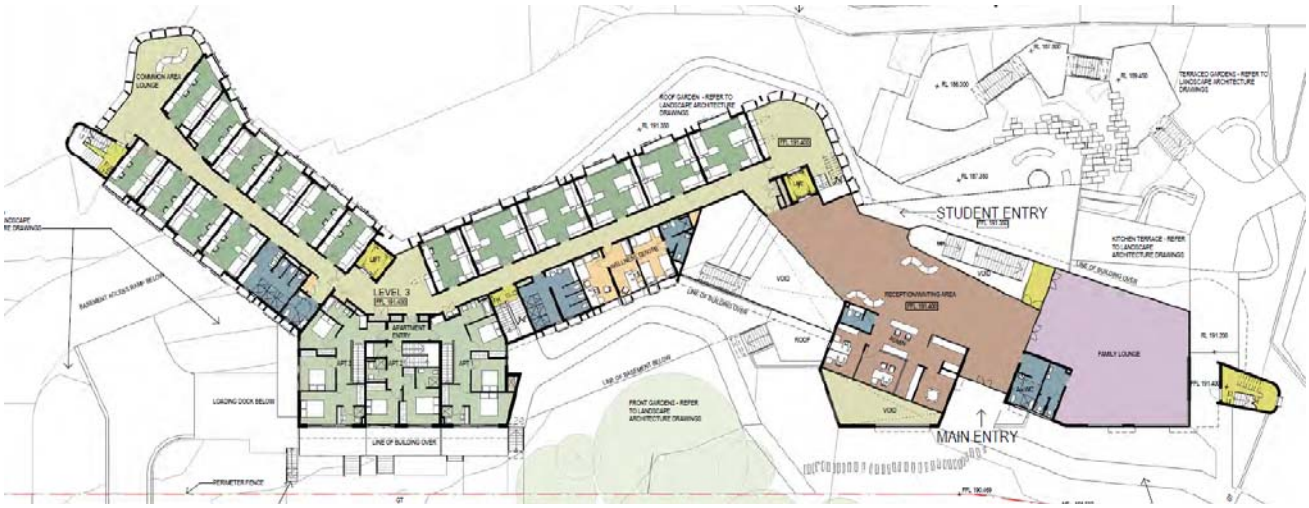

Figure 23 Floor plan (Level 3)

Source: AJ+C Architects

4.6 External Finishes Schedule

Materials and external finishes have been selected carefully to complement the heritage setting of the broader campus. Materials include:

- Recycled clay bricks;
- Textured bricks and glazing for the base building;
- Vertical blades to articulate the building; and
- Light weight cladding (light brown/bronze).

4.7 Construction Hours of Work

Standard construction hours of work are proposed as follows:

- Monday to Friday: 7am – 6pm;
- Saturday: 8am – 1pm; and
- Sundays or public holidays: No work

Occasional construction activity may be carried out outside of the above nominated hours of work for special deliveries, tower crane installation, hoarding removal and services cutovers.

4.8 Access, Parking and Servicing

4.8.1 Pedestrian Access

A number of pedestrian accessways and entries are provided to the boarding school facility. The main entry is provided on Level 3 (at grade) from Mount Pleasant Avenue whilst the main student entry is located along the western elevation at Level 3 (via the garden plaza pedestrian link). All pedestrian access points are access controlled for security purposes.

4.8.2 Vehicular Access and Parking

The basement vehicular entry is provided from Mount Pleasant Avenue. Two way traffic flow is provided from the basement levels to Mount Pleasant Avenue. A traffic signal system and convex mirrors is proposed to be installed to ensure the safety of vehicles travelling between the basement levels.

Car parking is distributed across Basement Level 1 (19 spaces) and Basement Level 2 (23 spaces). Collectively, a total 42 car parking spaces, is proposed of which 1 space is provided as a disabled car parking space. The basement configuration and layout are designed to meet relevant Australian Standards (AS2890.1 for car parking areas and AS2890.6 for accessible (disabled) parking). The staff parking spaces shall be designed to meet a Class 1A parking space.

4.8.3 Servicing Strategy

The services vehicular entry is provided from Mount Pleasant Avenue, to the north of the vehicular basement entry. The services vehicle access is designed to meet the requirement of Australian Standards 'Off-street commercial vehicle facilities' (AS 2890.2). The services vehicle access will be used by waste servicing vehicles and all delivery vehicles to access the loading dock (Level 1). The entry is designed to allow a Small Rigid Vehicle (6.4m long) to enter and exit the site in a forward direction. The services entry has a minimum bay width of 3.5m. Refer to **Section 4.11** for waste servicing strategy

4.9 Landscaping Works

Detailed landscaping works are provided for the Stage 1 works under this application. Specifically, this includes:

- works around the proposed boarding house facility;
- a new landscaped Garden Plaza; and
- A new outdoor courtyard area near the Mary Ward Building.

Landscape plans for the Stage 1 work area, including an indicative planting schedule, have been prepared by Oculus and is provided at **Appendix D**. An overview of the proposed landscaping works is discussed below.

4.9.1 Boarding House Facility

The landscape works proposed around the new boarding house facility aims to significantly improve the amenity and setting of this part of the campus. The works will increase the overall extent of deep soil area on campus and create new meaningful, functional and well-designed outdoor areas that can be used for social activities and interaction, relaxation and self or group learning spaces. As illustrated in **Figure 24**, a total of eight landscaped zones are proposed as part of the new landscape setting of the boarding facility.

Figure 24 **Landscape proposal around the new boarding house facility**

Source: *Oculus*

Key features of each zone are briefly discussed below.

- **Zone 1 Front Gardens**: This zone serves an interface between the site's eastern boundary and the new boarding house facility. This zone:
  - is designed to create an inviting entrance with pedestrian entries and accessways from Mount Pleasant Avenue.
  - serves as a buffer zone between the boarding house facility and Mount Pleasant Avenue.
- **Zone 2 Kitchen Terrace**: This zone is located to the north of the new boarding house facility. Distinguishing features of this space include:
  - sculptural elements;
  - floral feature planting; and
  - interspersed outdoor seating areas.

  The natural topography of the site is retained in this zone and stairs and ramped gradients are provided to navigate this zone.
- **Zone 3 Terraced Gardens**: This zone is located to the west of the new boarding facility. This zone is a transitionary space that connects the Oval Dining Terrace (Zone 5) and the Kitchen Terrace (Zone 3). The zone comprises a curated landscape walk with sculptural features and integrated terraced seating areas. The space is designed with potential to serve as an outdoor classroom space.
- **Zone 4 Sunken Garden**: This zone is located to the north west of the new boarding house facility next to the Terraced Gardens (Zone 3). A defining feature of this space is the fire pit. This space is created to provide an outdoor social space for students of the boarding house facility with sculpted mounding and a sandstone escarpment/ amphitheatre space.
- **Zone 5 Oval Dining Terrace**: This area comprises land to the south west of the new boarding facility and overlooks the sporting fields to the south of the campus. The lower deck of this zone seeks to provide a look out space with:
  - adaptable furniture;
  - small feature trees for shade;
  - sculptural raised planting beds with integrated seating decks/bleachers; and
  - break out spaces for group activities.

  The upper deck comprises raised planters, integrated counter top tables and seating. The upper deck serves as an outdoor dining area.

Figure 25 Views of the oval dining terrace

Source: Oculus

- **Zone 6 Garden Plaza**: The Garden Plaza serves as a transition/pedestrian link between the new boarding facility and the rest of the school buildings to the north. It comprises large angular laws areas, wide paths for circulation and some breakout spaces for individual relaxation or group activities.

Figure 26 Views of the pedestrian link and garden plaza

Source: Oculus

- **Zone 7 Roof Terrace**: This zone comprises outdoor seating area, an outdoor kitchen and raised buffer planting beds.
- **Zone 8 Extensive Roof Garden**: This zone is designed largely as a non-accessible green roof.

4.9.2 Mary Ward Courtyard

This space is designed as a formalised landscaped courtyard comprising breakout spaces with outdoor seating areas for relaxation, an outdoor food hall area, raised planter beds, lawns and trees for shade and shelter, refer to **Figure 27** and **28**. A unique feature of this space is the water feature located centrally within the courtyard.

Figure 27 Mary Ward courtyard landscape proposal

Source: Oculus

Figure 28 Mary Ward elevational courtyard landscape proposal

Source: Oculus

4.9.3 Deep Soil

The Stage 1 works significantly increase the percentage of deep soil area of the site. As shown in **Figure 29**, the building and basement footprint is consolidated. Importantly, the proposal replaces previously sealed asphalt surfaces, including the at grade car parking area with landscaping.

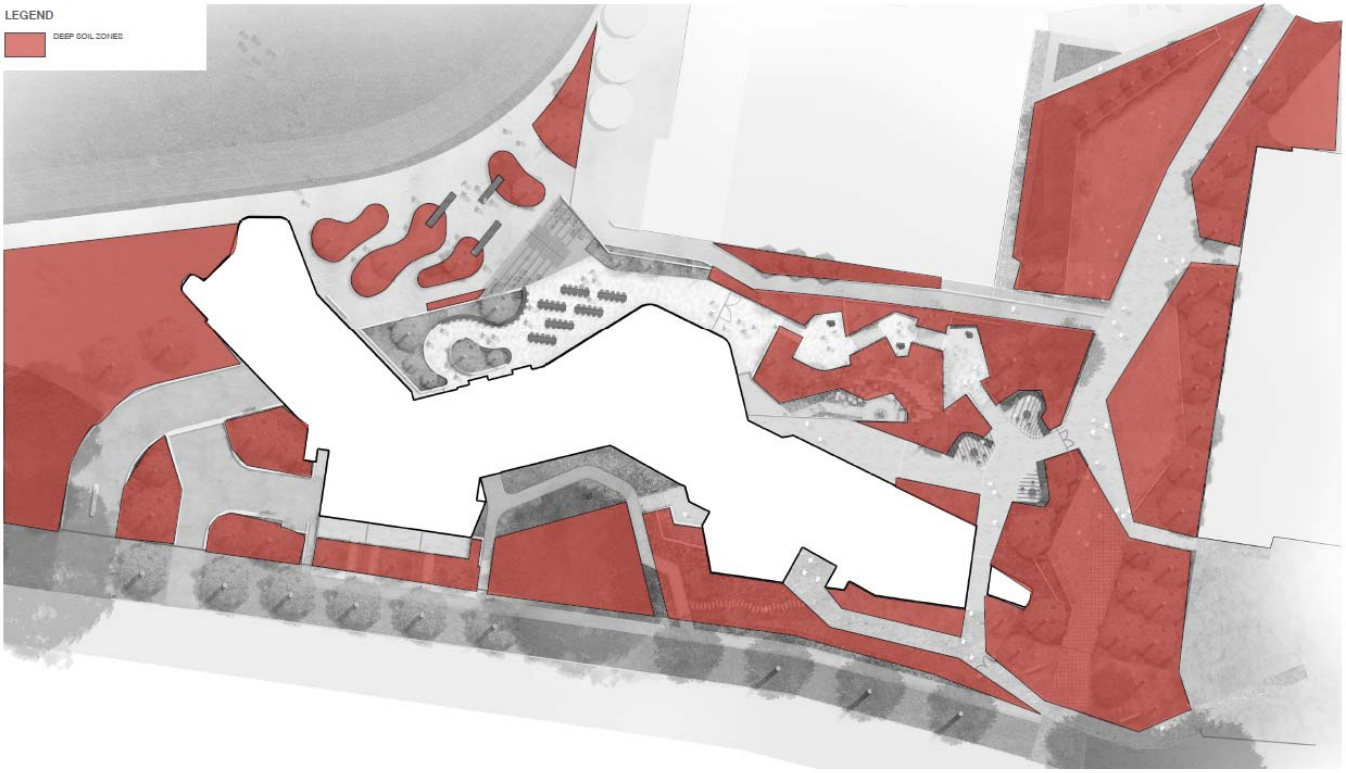

Figure 29 Deep soil areas

Source: Oculus

4.9.4 Kerb Works

Some public domain upgrades are proposed as part of the Stage 1 works. To facilitate site access/exit for construction vehicles, some of the existing kerbing and footpath along Mount Pleasant Avenue will need to be removed. Accordingly, as part of the Stage 1 construction work, reconstruction of the kerb and footpath is also proposed.

4.10 Utilities and Infrastructure

A new kiosk substation is proposed to supply the additional electrical demand required for the boarding facility in addition to meeting future energy demands of the campus. The kiosk is proposed to be located at grade near the existing primary school within the Garden Plaza area. Refer to **Section 6.18** of this report for an overview of the other utilities and infrastructure services connections or extensions necessary to support the Stage 1 works.

4.11 Waste Management

A Waste Management Plan prepared by Foresight Environmental is provided with this application at **Appendix P**. Waste and recyclables generated within the kitchen facilities within the boarding house are to be kept separate from those generated by the general use of the students within the boarding house. Primary waste streams and the quantity of waste to be generated from each stream is identified in **Table 6**.

Organic waste from the kitchen will be managed by the liquid composter within the kitchen.

Table 6 Operational waste types and servicing requirements

Stream	Bin Requirements	Frequency of Collection	Waste Room Area
Kitchen			
Genera Waste	1 x 1100L	Twice weekly	1.69m^2
Cardboards	1 x 660L	Twice weekly	1.05m^2
Comingled Recycling	1 x 660L	Once weekly	1.05m^2
Total	3 bins		5.67m^2 (recommended room size)
Boarding House			
General Waste	1 bin x 1100L	Once weekly	1.69m^2
Comingled Recycling	2 bin x 240L	Twice weekly	0.85m^2
Total	3 bins		3.81m^2 (recommended room size)
Boarding House (staff accommodation)			
General Waste	2 bin x 240L	Once weekly	0.85m^2
Comingled Recycling	2 bin x 240L	Once weekly	0.85m^2
Total	4 bins		2.56m^2 (recommended room size)

Waste Rooms

As shown in **Figure 30**, two separate waste storage rooms (kitchen and boarding house), of a sufficient size to accommodate the required waste bins, are provided within Basement Level 1 of the boarding house facility. The rooms are located in proximity to the loading dock provided at this level. A separate liquid composter room is also provided at Basement Level 1.

The waste rooms will be designed in accordance with relevant Australian Standards for ventilation (AS 1668.2-2002), vermin protection and with access to water supply.

Waste Servicing

Boarding House waste is to be collected via the loading dock at basement 1 level which can be accessed from Mount Pleasant Avenue. The swept path analysis demonstrates that a small rigid vehicle (SRV) can adequately access the site (refer to **Figure 30**).

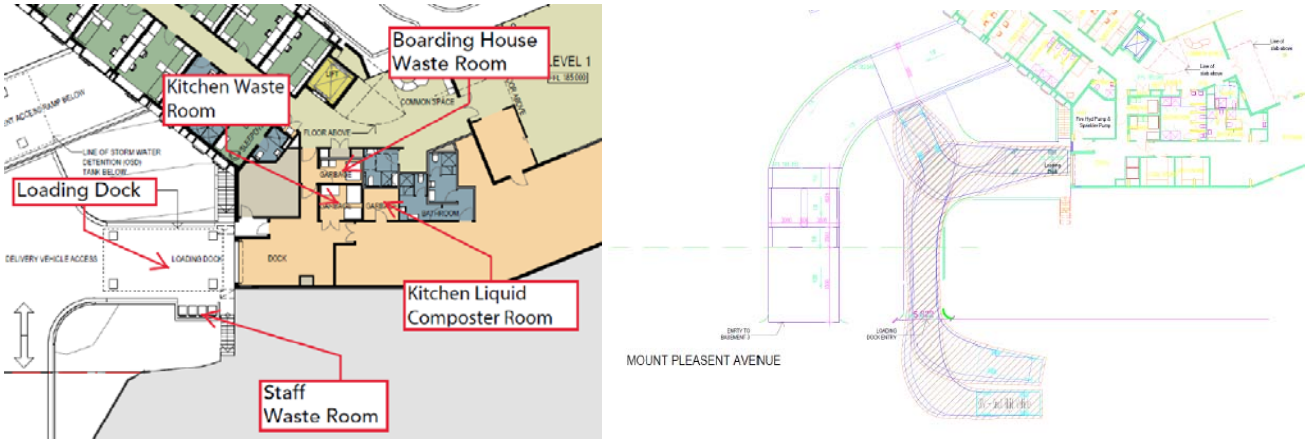

Figure 30 Waste servicing strategy

Source: Forseight Environmental

4.12 Ecologically Sustainable Development

As previously discussed in **Section 3.8** of this report, an ESD strategy has been prepared for by Arup (refer to **Appendix J**). The aim of the strategy is to ensure that sustainability initiatives inform the early design of all future buildings. A building specific strategy has also been provided for the boarding house facility design in accordance with the overarching ESD strategy for the campus. The following specific ESD measures are proposed for the new development:

- A minimum 5 star green star As Built rating under the Green Star and As Built v1.2 tool;
- Minimise operational energy demand through passive building design measures (external shading), use of low energy lighting fixtures, high efficiency cooling and heating plants and energy monitoring and metering;
- Use of water efficient fixtures (5 Star taps, urinals and dishwashers, 4 Star toilets and clothes washing machines and 3 Star showers) that will meet or exceed WELS ratings;
- Photovoltic solar cells are proposed to be installed on the roof level of the building;
- A 120 kilolitre watertank will be installed within the building and capture the report; and
- Encourage staff and students to opt to use sustainable travel options by promoting the Green Travel Management Plan (refer to **Appendix S**).

5.0 Consultation

In accordance with the SEARs issued for this project, consultation was undertaken with relevant public authorities, the community and Council.

A summary of the consultation undertaken to-date with Council, the community and relevant agencies is provided below. Several consultants have undertaken additional consultation with relevant parties during the preparation of their reports.

5.1 Community Consultation

Ethos Urban's consultation approach was based on extensive experience designing and delivering strategic communication and consultation processes for a variety of projects.

The consultation program was designed to be practical and effective in capturing valuable feedback, mitigating risks, and highlighting key benefits of the project. The transparent and comprehensive engagement process was:

- **Accessible** –consultation sessions were held at the School as it is a central location to local interested stakeholders;
- **Engaging** – it motivated participation, particularly for time poor people by offering a variety of sessions at different times;
- **Respectful, genuine and constructive** – Loreto Normanhurst is committed to contributing positively to the Normanhurst community and working closely with all stakeholders to ensure the best outcomes for everyone; and
- **Inclusive** – groups such as parents and the local community were strategically targeted.

5.2 Letterbox Drop

A postcard was delivered to 1,500 surrounding residents and landowners within a 500m radius of the school on Friday 26 October 2018. This provided local stakeholders with information about the proposed development. The postcard also invited those interested to attend a community information session where they would be able to meet the project team and ask questions about the proposed development. A copy of the postcard can be found in **Appendix W** and a map of the distribution range can be found in **Appendix W.**

5.3 Newspaper Advert

An advertisement was placed in the Hornsby Advocate on Thursday 25 October 2018 advertising the Community Information Sessions. A copy of the advertisement can be found in **Appendix W.**

5.4 Parents Presentation and Community Information Sessions

On 27th August 2018 Loreto Normanhurst held a presentation with local residents from 6:30pm. The project team that attended comprised only of representatives from the school. 30 neighbours attended the presentation to learn about the concept masterplan**.**

Additionally:

- A Parents Presentation session was held on Tuesday 30 October 2018 from 7pm-8:30pm. 11 interested parents attended the presentation.
- The first Community Information Session was held on Wednesday 31 October 2018 from 6:30pm-8pm. 11 members of the community attended this session.
- The second Community Information Session was held Saturday 3 November 2018 from 1pm-3pm. 11 members of the community attended this session.
- At all three session there were representatives from the project team available to answer any questions and record feedback. Technical experts included:
    - Allen Jack + Cottier (Architects)

- Ason Group (Traffic)
- Ethos Urban (Planning and Engagement)

A copy of the display boards can be found in **Appendix W.**

5.5 Feedback Mechanisms

Information session attendees were encouraged to complete a feedback form however none were completed. Project consultants took notes of conversations had with attendees to record the issues raised.

An email address has been established to provide an avenue for community enquiries throughout the consultation process, however no emails have been received to date. Community feedback received about the proposal is summarised in **Table** 7**7**.

Table 7 Community feedback

Aspect	Issue	Response
Parking	Request for more stringent parking restrictions along Osborn Rd to cater for greater number of cars	• Additional off-street parking facilities form part of the Masterplan, and is intended to provide surplus parking as to accommodate any increase in parking demands from school patrons and staff. This will ensure cars are parked off the street and provide additional capacity for on street parking. • 200-300 space car parking on-site is designed to absorb any extra-curricular or weekend demands.
	Parking will become more difficult for residents and users of Mt Pleasant Ave	
	Concern over parking space allowance for swimming pool	
Traffic	Concern that extra staff cars will cause further backlog during peak hour	• Refer to Transport Assessment Report (**Appendix S**) for traffic mitigation measures. • Further traffic assessments are being conducted to access both existing and future conditions to form part of the wider impacts from North Connex. • No new vehicular trips would be generated on Mount Pleasant Avenue as a result of the proposal, with the additional parking required to be provided in a consolidated car park accessed off Osborn Road. Additional traffic would be associated with the Early Learning Centre DA. • RMS has considered adding a new set of traffic lights along Mt Pleasant Road but was rejected due the close proximity between Mt Pleasant Ave and Osborn Road. • The Masterplan consolidates the number of access points for vehicular traffic, thereby improving pedestrian connections.
	Major concern over traffic delays and safety along Mt Pleasant Ave and Osborn Rd	
	Concern over traffic impact of drop-off and pick-up zones	
	Request to widen the entry to Osborn Road and for turning dedication to improve the flow of traffic	
	Traffic impact from Mt Pleasant Ave to Pennant Hills Rd	
	Signalise the Mt Pleasant Ave and Pennant Hills Rd intersection	
	Installation of a speed bump within the school grounds to reduce the speed of exiting vehicles	
	Management of construction traffic	
	Safety of school children walking along the footpaths	

Aspect	Issue	Response
		• All access points will be reviewed and designed in accordance with Australian Standards. • Construction will be subject to a Construction Traffic Management Plan as part of the SSDA. The applicants' history of modification work has set a precedent for trucks/ construction vehicles to park on site. • The school is surrounded by footpaths designed to Australian Standards and already afford excellent pedestrian infrastructure, including an overbridge to avoid street traffic on Pennant Hills Road.
Potential benefits	The benefits derived from the project will only affect future students and reap no benefit for current students	• It is critical Loreto Normanhurst respond to the growing demands on schools to accommodate more students inline with Sydney's increasing population, whilst also providing high quality educational outcomes. If the school were not to plan for the future, there would not be intergenerational equity or sustainable development.
Environment	Request to prune trees along Osborn Road to reduce the risk of them falling during high winds.	• Tree pruning is not a requirement of the SSDA, nor does it fall under the applicants jurisdiction.

5.6 Council Engagement

Hornsby Shire Council has been notified of the proposal. Council is also currently assessing the Early Learning Centre facility DA which forms a part of the concept masterplan. As part of this process, Council is aware of the concept masterplan framework and intent of the school to increase student capacity by an additional 850 students by 2047.

The School and the project team are also proposed to meet with Council to present the overall masterplan and Stage 1 works as set out under this SSDA.

5.7 Other Agency Feedback

Additional consultation was carried out with the following agencies in accordance with the SEARs. The feedback received from each agency is summarised in the Table below.

Table 8 Summary of Issues Raised and Response

Key Issue	Response
Government Architect NSW	
GA NSW did not have any issues with the proposal.	N/A
DPE	
Request for acoustic report that will consider boarding house and impact on residents.	A construction and operational noise assessment have been undertaken by Wilkinson Murray consultants. Their assessment, findings and recommendations have been set out in a Construction and Operation Noise Report. Refer to **Appendix F** or **Section 6.7** of this report.
Design needs to consider design quality principles.	The design principles under SEPP education have been considered by the proposal. Refer to the Design Report at **Appendix A**.
Design must consider pedestrian circulation across site and its relation to public transport network.	Design considers pedestrian circulation in relation to public transport network. Refer to the Design Report at **Appendix A**.
How will security and spaces be managed, and how will it work with neighbours and community uses.	Security and space management has been considered. Refer to the Design Report at **Appendix A**. Further a CPTED assessment has also been undertaken for Stage 1 works (boarding house development). Refer to **Section 6.19**.
Needs to be an Aboriginal cultural heritage report.	An Aboriginal Heritage Assessment Report prepared by Ecological Australia is provided with this application. Refer to **Section 6.5**.

5.8 Roads and Maritime Services

Ason Group on behalf of the proponent has notified and consulted Roads and Maritime Service (RMS). RMS preference was to meet after Christmas or after the lodgement of the application, as it would allow RMS to review all documentation and provide an informed decision as to whether a meeting is warranted. Further, EMME data from RMS' Strategic Travel Model was requested for accurate modelling of future traffic conditions (30 year scenario) in the locality, particularly considering the opening of the Northconnex.

The proposed development will be placed on public exhibition for 30 days in accordance with clause 83 of the *Environmental Planning and Assessment Regulation 2000*. During the public exhibition period Council, State agencies and the public will have an opportunity to make submissions on the project.

6.0 Environmental Assessment

This section of the report assesses and responds to the environmental impacts of the proposed DA. It addresses the matters for consideration set out in the SEARs (see **Section 1.5**). The Mitigation Measures at **Section 7.0** complement the findings of this section.

6.1 Compliance with Relevant Strategic and Statutory Plans and Policies

The legislation, strategies, planning instruments, and policies which are relevant to the proposed development are listed below and are addressed in the following sections.

- NSW State Priorities;
- A Metropolis of Three Cities – the Greater Sydney Region Plan;
- North District Plan;
- Future Transport Strategy 2056;
- State Infrastructure Strategy 2018 – 2038 Building Momentum;
- Better Placed An integrated design policy for the built environment of New South Wales (GANSW, 2017);
- State Environmental Planning Policy (State and Regional Development) 2011;
- State Environmental Planning Policy 55 – Remediation of Land (SEPP 55);
- SEPP 64 – Advertising and Signage
- State Environmental Planning Policy (Educational Establishments and Child Care Facilities 2017);
- State Environmental Planning Policy (Infrastructure) 2007;
- State Environmental Planning Policy – Hazardous and Offensive Development;
- Draft State Environmental Planning Policy (Remediation of Land);
- Hornsby Local Environmental Plan 2013;
- Hornsby Shire Council's Section 7.12 Development Contribution Plan 2014 – 2024;
- Hornsby Development Control Plan 2013;
- Sydney's Cycling Future 2013;
- Sydney's Walking Future 2013;
- Sydney's Bus Future 2013;
- Healthy Urban Development Checklist, NSW Health;
- Crime Prevention Through Environmental Design (CPTED) Principles;
- Biodiversity Conservation Act 2016; and
- Heritage Act 1977

6.1.1 Relevant EPIs, Policies and Guidelines

The relevant strategies, environmental planning instruments, policies and guidelines as set out in the SEARs are addressed in **Table 9**.

Table 9 Summary of consistency with relevant Strategies, EPIs, Policies and Guidelines

Instrument/Strategy	Comments
Strategic Plans	
NSW State Priorities	The NSW State Priorities are a series of reforms designed to grow the economy, deliver infrastructure, and improve health, education and other services across NSW. Whilst not directly related to the proposed development, the project will facilitate the delivery of significantly upgraded education infrastructure, noting that the NSW State

Instrument/Strategy	Comments
	Priorities seek to improve educational results.
A Metropolis of Three Cities – The greater Sydney Region Plan	The Greater Sydney Region Plan is the current metropolitan planning strategy that establishes a vision for the future growth of Sydney to 2056. The Concept proposal and in turn the Stage 1 works broadly support the ten directions outlined in the Strategy in that it: • ***Direction 1: A city supported by infrastructure*** This proposal aims to provide a concept framework to deliver additional education floor spaces within the existing school campus. This is consistent with Direction 1 as it strategically prepares for anticipated population growth and the subsequent increased demand for essential social infrastructure such as schools within existing local communities. • ***Direction 3: A city for people*** Deliver a new masterplan that retains unique aesthetic and environmental qualities of the 120 year old campus, while upgrading and delivering additional density within key opportunity areas of the campus. • ***Direction 5: A city of great places*** The proposal will facilitate necessary renewal and upgrade of the existing school facilities on campus. It will improve connectivity, permeability and efficiency of the campus. It will deliver modern facilities and enable the school to respond to contemporary educational needs. • ***Direction 7: Jobs and skills for the city*** In the short term, the development will supply additional construction jobs. In the long term, the proposal by seeking to introduce a new primary school function on campus (Kindergarten to Year 4) and an ELC (subject to a separate DA application) will create additional jobs within the locality and the education sector. • ***Direction 8: A city in its landscape*** Due consideration is given to retain the unique landscape and ecological qualities of the campus. A key principle of the School's Strategic Plan 2016 – 2020 is to be an ecology centred school. Accordingly, the proposal limits new development opportunities within opportunity areas of the campus whilst protecting ecologically sensitive or valuable spaces.
North District Plan	The Greater Sydney Regional Plan comprises of six districts. The District Plans identify the overarching strategic directions and goals for each of the six districts. The site is located within the North District, which is expected to experience a 20% increase (21,900 additional students) by 2036. Growth is forecasted for Hornsby LGA with an estimated increase in 2,120 students. Accordingly, this proposal delivers orderly and planned renewal commensurate to forecasted growth in student population. The proposal is also consistent with the ecological priorities of the District Plan.
Future Transport Strategy 2056	The Future Transport Strategy is an update of the 2012 Long Term Transport Master Plan for NSW. It provides a 40 year strategy for NSW's transport system. The proposed development is consistent with the Strategy in that it aims to intensify the use of existing school campus in proximity to existing bus and rail infrastructure. The proposal continues to limit car parking and provides a Green Travel Plan that encourages use of public transport, which will assist in improving the modal split between cars and public transport.
State Infrastructure Strategy 2018 – 2038 Building Momentum	The Strategy outlines a 20 year strategy for infrastructure development in NSW in order to address a number of key challenges and opportunities, including population growth, demographic change, climate change and an emerging fiscal gap. The Strategy identifies that the NSW economy is expected to grow from $539 million to $1.4 trillion over the next 40 years. The projected economic growth will increase the demand for economic and social infrastructure. The proposal will enable the school to accommodate K – 4years as well as improve the efficiency and layout of the existing school campus. In this regard, the proposal is consistent with the strategy and provides additional social infrastructure in line with anticipated demand and projected population growth.
Sydney's Walking Future 2013	The proposal rethinks the overall campus layout to improve connectivity, accessibility and permeability within the campus. Further, a Green Travel Plan (**Appendix S**) has been prepared as part of this application which outlines measures that aim to promote sustainable modes of travel including walking to nearby transport nodes.
Sydney's Cycling Future 2013	The school is supportive of students and staff using bikes as a mode of transport. The school's commitment to promote sustainable travel modes to access the campus, including cycling, is outlined in the Green Travel Plan provided at **Appendix S** of this application.
Sydney's Bus Future 2013	The school is supportive of students and staff using buses as a mode of transport. The school will continue to encourage public transport use to access the school over private vehicular use. This is evidenced in the measures outlined in the Green Travel Plan prepared for the school (**Appendix S**).
CPTED Principles	CPTED principles are a set of best practice guidelines that aim to promote safety within the built environment, through good environmental design practices that discourage opportunities for crime.

<table>
<tr><th>Instrument/Strategy</th><th>Comments</th></tr>
<tr><td></td><td>The design of the concept plan and in particular, the Stage 1 works are designed in line these principles. A discussion of the consistency of the Stage 1 development works against the CPTED principles is provided at Section 6.19 of this report.</td></tr>
<tr><td>Healthy Urban Development Checklist, NSW Health</td><td>The Healthy Urban Development Checklist provides guidelines to design healthy built environments that promote physical activity, advocates for transport and physical connectivity, access to social infrastructure and social equity of development. This proposal is in accordance with the policy as it aims to create a new concept masterplan that will facilitate the delivery of a well designed, safe, healthy, well connected, equitably accessible social infrastructure within the Normanhurst locality. As demonstrated by the Green Travel Plan submitted with this application, the proposal also encourages the reliance of sustainable travel modes to access the site, given the proximity of the site to existing rail and bus infrastructure.</td></tr>
<tr><td colspan="2">State Legislation</td></tr>
<tr><td>EP&A Act</td><td>The proposed development is consistent with Division 4.7 of the EP&A Act, particularly for the following reasons:
the development is declared to be of state significance in accordance with SEPP (State and Regional Development) 2011;
the development is not prohibited by an environmental planning instrument; and
the development has been evaluated and assessed against the relevant heads of consideration under section 4.15(1).</td></tr>
<tr><td>EP&A Regulations</td><td>The EIS has addressed the specification criteria within clause 6 and clause 7 of Schedule 2 of the EP&A Regulation. Similarly, the EIS has addressed the principles of ecologically sustainable development through the precautionary principle (and other considerations), which assesses the threats of any serious or irreversible environmental damage (see Section 9.3).

As required by clause 7(1)(d)(v) of Schedule 2, the following additional approvals will be required in order to permit the proposed development to occur.
<table>
<tr><th>Act</th><th>Approval Required</th></tr>
<tr><td colspan="2">Legislation that does not apply to State Significant Development</td></tr>
<tr><td>Coastal Protection Act 1979</td><td>N/A</td></tr>
<tr><td>Fisheries Management Act 1994</td><td>N/A</td></tr>
<tr><td>Heritage Act 1977</td><td>N/A</td></tr>
<tr><td>National Parks and Wildlife Act 1974</td><td>N/A</td></tr>
<tr><td>Native Vegetation Act 2003</td><td>N/A</td></tr>
<tr><td>Rural Fires Act 1997</td><td>N/A</td></tr>
<tr><td>Water Management Act 2000</td><td>N/A</td></tr>
<tr><td colspan="2">Legislation that must be applied consistently</td></tr>
<tr><td>Fisheries Management Act 1994</td><td>No</td></tr>
<tr><td>Mine Subsidence Compensation Act 1961</td><td>No</td></tr>
<tr><td>Mining Act 1992</td><td>No</td></tr>
<tr><td>Petroleum (Onshore) Act 1991</td><td>No</td></tr>
<tr><td>Protection of the Environment Operations Act 1997</td><td>No</td></tr>
<tr><td>Roads Act 1993</td><td>Yes</td></tr>
<tr><td>Pipelines Act 1967</td><td>No</td></tr>
</table></td></tr>
<tr><td>SEPP 55</td><td>A preliminary site investigation assessment has been carried out by Environmental Investigation Services. Refer to Appendix U for a copy of the assessment and its findings. Given the historical and existing use of the site for school purposes, it is considered that the development is suitable for the proposed use to the extent of satisfying the requirements of clause 7 of SEPP 55. Detailed investigation reports and remediation if necessary are proposed to form a part of the detailed design applications of the future subsequent stages of the Concept Proposal.

In relation to Stage 1 works, additional testing is warranted to further characterise the site, following the demolition of existing buildings and removal of hardstand surfaces. On this basis, it is recommended</td></tr>
</table>

Instrument/Strategy	Comments
	that remediation works (if necessary) are managed by way of a suitable condition of consent. Refer to **Section 6.11** for suitable mitigation measures to manage contamination of the Stage 1 site and broader Concept Proposal area.
SEPP (Infrastructure)	The aim of this SEPP is to facilitate the effective delivery of infrastructure across the State, including providing for consultation with relevant public authorities about certain development during the assessment process. The site has direct street frontage to Pennant Hills Road which is an identified classified road. In accordance with provision of clause 101, alternative vehicular entries, including services and delivery vehicle access are provided off the two local roads, to the west (Osborn Road) and to the east (Mount Pleasant Avenue) of the site. Notwithstanding this, the principal entry to the school campus has historically been via Pennant Hills Road. On this basis, the site's main entry off Pennant Hills is proposed to be retained. The proposal relates to an existing school site as such the use of the site is considered acceptable with regards to clause 102. The Stage 1 works area, including the new boarding house facility is sufficiently recessed from the Pennant Hills Road and will not be adversely impacted by noise or vibration impacts. Any future detailed application that relates to a part of the campus in close proximity to the classified road will be assessed against clause 102 as required. In accordance with clause 104 and Schedule 3, the development is also traffic generating development and is to be referred to RMS for concurrence. As discussed in **Section 5.0** of this report, RMS has been consulted as part of the preliminary consultation process of this SSDA.
SEPP 33 – Hazardous and Offensive Development	The proposed development is not identified as a potentially hazardous industry or a potentially offensive industry as described under this SEPP or relevant guidelines. Therefore, the preparation of a preliminary hazard analysis is not warranted for this development.
SEPP (State and Regional Development)	Under Schedule 1 clause 15, development in relation to an existing school with a capital investment value of more than $20 million is SSD. As the proposed development will have a capital investment value of approximately $129,802,054 (see **Appendix N**), this application is identified as SSD. Awaiting QS Report.
SEPP 64 – Advertising and Signage	No consent is sought for installation or display of external signage under this application.
State Environmental Planning Policy (Educational Establishments and Child Care Facilities 2017)	This SEPP seeks to assist in the efficient delivery of high quality education facilities across NSW. The proposed development is consistent with the aims of the SEPP for the following reasons: • The proposal provides an overall masterplan to allow for strategic and orderly renewal of an existing school campus; • The proposal aims to improve the overall efficiency of the existing school campus, identifying additional development opportunities to accommodate growth within opportunity areas of the school site; • The proposal seeks to improve connectivity, legibility and accessibility across the campus and between existing and future buildings; • Opportunities for consultation with all relevant public authorities have been provided; • Consistent with the school's growth strategy, the concept proposal provides a masterplan that aims to increase the overall campus capacity by 850 students (2047 scenario). In accordance with clause 57, development that increases the capacity of an educational establishment above 50 or more students are to be referred RMS prior to determining the application. Further, in accordance with clause 57(3), **Section 6.6** of this report or **Appendix S** provides a detailed traffic assessment of the development. • The proposal is consistent with the Schedule 4 design quality principles under the SEPP. Refer to the Design Report at **Appendix A**. It is noted that clause 42 provides that "Development consent may be granted for development for the purpose of a school that is State significant development even though the development would contravene a development standard imposed by this or any other environmental planning instrument under which the consent is granted."
Draft State Environmental Planning Policy (Remediation of Land)	The Draft SEPP Remediation of Land is currently under review and was released for public exhibition in January 2018. The objectives of the draft SEPP along with its key operational framework remain consistent with SEPP 55. The draft SEPP differs in that it contains new provisions that: • Require all remediation work that is to be carried out without development consent, to be reviewed and certified by a certified contaminated land consultant; • Categorisation of remediation work based on the scale, risk and complexity of the work; and • Require environmental management plans relating to post-remediation management of sites or ongoing operation, maintenance and management of on-site remediation measures (such as a containment cell) to be provided to council.

Instrument/Strategy	Comments
	Refer to **Section 6.11** of this report or the assessment provided within the contamination investigation report at **Appendix U**.
Draft State Environmental Planning Policy (Environment)	The Draft SEPP Environment was released for public exhibition in October 2017 and aims to repeal and replace a number of State Environmental Planning Policies and Sydney Regional Environment Plans that currently apply in NSW. The proposed development does not require further assessment under this Draft SEPP given the site is not zoned for the purposes of public open space, does not contain and is not in proximity to bushland zoned for public open space, and is not subject to the SEPPs to which the draft EPI seeks to consolidate.
Local Planning Instruments and Controls	
Hornsby Local Environmental Plan 2013	
Clause 2.2– Zone	The site is zoned R2 Low Density Residential under the HLEP 2013. The use of the site for the purposes of an educational establishment is permissible use subject to development consent. The proposal is consistent with the objectives of the zone in that, the proposal for renewal of school, provides complimentary educational facilities and services that meet the day to day needs of residents.
Clause 4.3 – Height of Buildings	The maximum building height under the HELP 2013 is 8.5m. The concept proposal includes several building envelopes that exceed the maximum building height control. The new student boarding house development also marginally exceeds the 8.5m height standard. Accordingly, a clause 4.6 Variation Request is submitted with this application. Refer to **Appendix X**. Despite the 8.5m HLEP 2013 height standard, SEPP Education permits development consent to be granted for development for the purpose of a school that is State significant development even though the development would contravene a development standard imposed by this or any other environmental planning instrument under which the consent is granted. As the Education SEPP also provides for buildings up to a height of 22m to be undertaken as complying development (i.e. not requiring a DA), the Masterplan adopts the principle of all proposed buildings having a height of 22m or below.
Clause 4.4 – Floor Space Ratio	No Floor Space Ratio control applies to the site under the HELP 2013.
Clause 4.6 – Exception to Development Standards	This application is accompanied by a Clause 4.6 Variation Request that is prepared in accordance with the provisions of this clause. Refer to **Appendix X**.
Clause 5.10 – Heritage Conservation	The Loreto Convent group, comprising a part of the site, including the grounds, gates and cemetery, is identified as an item of local heritage significance under Schedule 5 of the HELP 2013. The site is also identified for archaeological potential under the Schedule. Accordingly, a Heritage Impact Statement, prepared by Weir and Philip is provided at **Appendix L** of this application.
Clause 6.4 – Terrestrial Biodiversity	The southern part of the site is identified as terrestrial biodiversity under the HELP 2013. The concept proposal and the Stage 1 works are consistent with the provisions of this clause. The works are identified to either have a positive impact or a neutral impact on the site. A Biodiversity Development Assessment Report, prepared by Ecological Australia is also provided with this application and concludes that proposal is consistent with the requirements of this clause. Refer to **Appendix Q** or **Section 6.9** of this report.
Hornsby Development Control Plan 2013 (Hornsby DCP)	
It is noted that Development Control Plans are not a matter for consideration in the assessment of SSDAs by virtue of Clause 11 of SEPP SRD, which states that “Development control plans …do not apply to…state significant development”. Notwithstanding, the application is generally consistent with the relevant controls contained in Part 1 and Part 7 of the Hornsby DCP. A general assessment against the key objectives of this part is discussed within this table below.	
Part 1C – General Controls	The proposed concept development and Stage 1 detailed design is broadly consistent with the objectives of part 1 of the Hornsby DCP 2013, in relation to matters such as biodiversity (**Section 6.8**), stormwater (Section 6.11), earthworks, built environment (**Sections 6.2** and **6.3**), transport and parking (**Section 6.6**), waste management (**Section 4.11**), noise and vibration (**Section 6.7**), bushfire (**Section 6.13**) and land contamination (**Section 6.10**).
Part 7 – Community Uses	The proposed concept development and Stage 1 detailed design is consistent with the objectives / desired outcomes of part 7 of the Hornsby DCP 2013 which relates to community infrastructure including schools in that: • The proposal aims to improve the overall amenity, functionality, efficiency of the existing school campus by developing a long-term masterplan to guide future growth and development. The masterplan rethinks the school layout holistically, and identifies areas that can appropriately accommodate growth, while protecting and managing sensitive interfaces to heritage items and nearby residential dwellings; (Section 7.1) • The site is well connected by public transport and within 400m of Normanhurst Station;

Instrument/Strategy	Comments
	• The proposed development compatible use within the locality given that it is a permissible use under the HELP 2013 and is consistent with the objectives of the R2 Low Density Residential land use zone; • The proposal, as demonstrated by this EIS, is of an acceptable bulk and scale for the locality. The bulk and scale have been informed by a contextual site analysis and is designed with due regard given to the heritage context, mitigating overshadowing impacts, considering the functional requirements of the school and the anticipated demand in schools within the LGA. • Setbacks are provided in accordance with the minimum Hornsby DCP requirements, including biodiversity setbacks, Asset Protection Zone setbacks. • High quality landscaping is proposed across the stage 1 works area. The landscaping complements the heritage context and aims to improve the overall amenity of the campus, while providing functional and useable open space areas for learning, student interactions or relaxation. A significant portion (nearly half) of the site, currently used as open space, is proposed to be retained for active recreation or protected for its ecological biodiversity. • Parking and traffic impacts have been considered in careful detail and is considered to have an acceptable outcome. This is discussed further in **Section 6.6** of this report.

6.2 Urban Design and Built Form

Design principles have been prepared by AJ+C Architects (**Appendix A**) to establish a structure plan for the proposed built form in order to achieve a holistic campus across the various stages of the development. These principles aim to create a well connected, safe and secure campus while retaining and preserving the unique aesthetic qualities of the school grounds. Future detailed SSDAs will be required to demonstrate consistency with the principles set out in this document. The overarching design principles are set out in the Design Report (**Appendix A**) and outlined in **Section 3.1**.

6.2.1 Concept Proposal

The concept proposal sets out the new 30 year masterplan for the school campus. The overall masterplan has been informed by contextual site analysis, and mapping out key opportunities and constraints on the site. The masterplan is consistent with the overarching design principles to protect the sensitive and aesthetically unique elements of the campus, improve pedestrian connectivity and circulation, better safety and security on campus while identifying opportunities for growth. The resulting built form is an outcome of extensive design analysis and options testing undertaken by AJ+C Architects. Refer to the Design Report at **Appendix A** for more detail on design and option testing.

The location of the future buildings / additions, as set out in the concept proposal, is limited to the key opportunity areas on campus. The envelopes reflect a density and scale that is consistent with the existing context of the school campus, but importantly represent a scale that will not result in adverse environmental and built form impacts, in particular additional overshadowing, view impacts and biodiversity impacts.

The maximum proposed building height, being 22m, is consistent with the maximum height allowed for complying development under the Education SEPP. Therefore, despite the 8.5 metre height limit that applies to the site under the Hornsby LEP and R2 zones more generally, the school could pursue a fast-tracked complying development approval with no environmental assessment for a building up to 22 metres in height. Therefore, the development potential of the site is greater than that otherwise permitted by the applicable height limit under the Hornsby LEP 2012. This is discussed further within the Clause 4.6 Variation Request (**Appendix X**).

The north – south orientation of the site, accommodates a 22m building height without resulting in significant additional overshadowing. Solar access and overshadowing is discussed in more detail at **Section 6.3** of this report.

All new building envelopes are setback from the site boundary in accordance with the HDCP 2013 requirements. A minimum side setback of 6m and front setback of 9m is provided from the main site boundary. Overall the concept proposal improves pedestrian connectivity and circulation and increases the landscape and deep soil areas. Refer to **Section 3.5.2** of this report.

While the concept envelopes have large floor plates, these allow for future flexibility and delivery of functional floor plates for educational uses. Given the 30 year horizon of the masterplan, future flexibility is an essential to the

concept proposal. Further, the envelopes represent the maximum extent of the future buildings. All future detailed design application will be subject to overarching design principles which are expected to guide and shape the existing envelopes. The design principles will ensure future buildings respond to the site's context, particularly the heritage and landscape setting, protect significant views, contribute to the beauty of the campus and integrate sustainability and wellbeing. In this regard, the proposed principles will serve as the future design parameters or guidelines while providing some necessary flexibility in a 30 year masterplan.

6.2.2 Stage 1 Works

The Stage 1 works comprise the Mary Ward courtyard works, landscaping works and the new student boarding facility. The overall Stage 1 scheme is seen to deliver a good urban design outcome for the school campus and significantly improves the quality and setting of the eastern end of the campus.

The massing and form of the boarding house facility is stepped in response to the gradient fall of the site (approximately 10m). This approach reduces the appearance of bulk and scale and provides a tiered building that contextually responds to its internal and external site interfaces. The built form adopts a low scale residential quality along its eastern elevation which is consistent with the residential character observed along Mount Pleasant Avenue. The built form is setback from the site boundary to maximise the retention of key trees and the setback zone is landscaped to include a front/arrival garden.

The building reads as a modest three storey interface to the north. To its south and south west (internal elevation only visible from within the school campus), the building presents as a part 5 and part 6 storey. The is due to the natural fall of the topography, which necessitates the inclusion of two additional storeys at lower levels (Level 1 and Basement Level 1). Notwithstanding this, a part 5 and part 6 storey structure is consistent with the existing scale of developments observed on campus and will frame complement the backdrop of the playing fields. As such, the proposal is considered to have an acceptable impact from a visual bulk and scale perspective.

While the height of the proposed boarding house facility exceeds the maximum 8.5m height standard for the site under the HELP 2013, SEPP Education permits development consent to be granted for development for the purpose of a school that is State significant development even though the development would contravene a development standard imposed by this or any other environmental planning instrument under which the consent is granted. As previously noted the height is below the maximum 22m height standard that could otherwise be achieved on the site if the application was a complying development under the Education SEPP. A Clause 4.6 Variation Request is provided with this application (**Appendix X**) and appropriately demonstrates that in this instance, given the circumstances of the case, compliance with the development standard is unreasonable or unnecessary and that there are sufficient environmental planning grounds to justify contravening the development standard. On this basis, pursuant to clause 4.6 of the HELP 2013, the building height is acceptable.

The Stage 1 works also replaces at grade car parking with a landscaped pedestrian link that connects the boarding house facility to the main campus. It also proposes a new Mary Ward Building Courtyard space which replaces hard stand surfaces on campus. Overall, the proposed landscaping works will increase open space and deep soil areas and improve campus amenity, in addition to improving stormwater performance targets.

6.3 Environmental Amenity

6.3.1 Solar Access and Overshadowing

Concept Proposal

Due to the size and shape of the Loreto Normanhurst school site, the absence of any residential neighbours to the south of the school site as well as the design and scale of the proposed building envelopes on campus, there will be limited overshadowing impacts outside of the school grounds.

Most shadows will fall within the Loreto Normanhurst school site or onto Osborn Road or Mount Pleasant Avenue. There will be limited overshadowing impacts on the front yards of 10, 12, 14 and 18 Osborn Road during the morning of the winter solstice from 9 am to 10 am. Unobstructed solar access to these properties will return from 10am until 3pm. In the afternoon (3pm) of the solstice, there will be minor overshadowing impacts on 2 and 4 Mount Pleasant Avenue. The Boarding House facility will not overshadow any dwellings on the eastern side of Mount Pleasant Avenue (refer to **Figure 31**). Proposed building envelopes 2 - 9 will be further refined as part of the

detailed design stage in order to minimise overshadowing impacts on surrounding properties. It is noted that the overshadowing impacts associated with the Concept Proposal are limited to one portion of the day (being either 9am or 3pm) and have a minor impact on only a portion of the dwellings identified.

Part 7 (Community) of the Hornsby DCP notes that 50% of the principal private open space on any adjoining residential property should receive 3 hours of unobstructed solar access between 9am and 3pm on 22nd June (Winter Solstice). The overshadowing of properties to the west of Osborn Road will only last from 9am – 10am whilst the overshadowing of properties of properties to the east of Mount Pleasant Avenue will only last between 2pm – 3pm. Therefore, all surrounding properties will more than meet the required 3 hours of unobstructed solar access.

Figure 31 illustrates the shadowing impact associated with the Concept Proposal during the Winter Solstice.

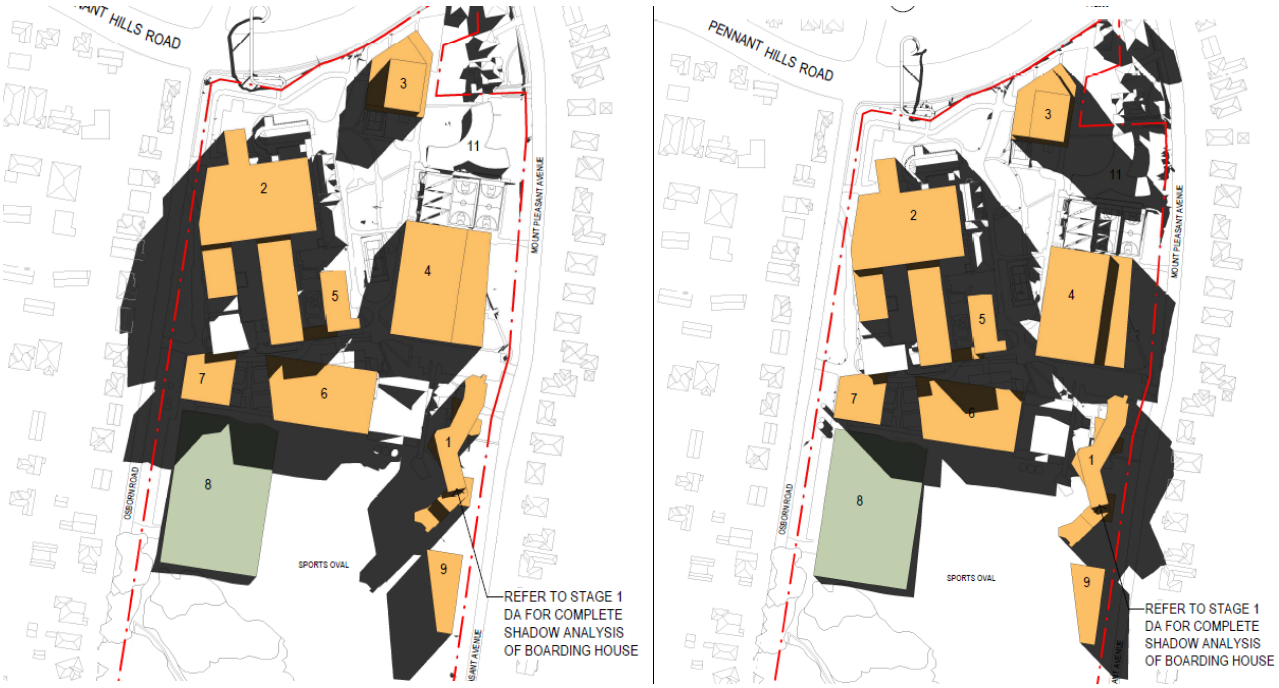

Figure 31 Concept Plan Shadow Diagrams – 9am and 3pm Winter Solstice

Source: AJ+C Architects

Stage 1 Works

The Stage 1 Boarding House development is located along Mount Pleasant Avenue at the eastern boundary of the school site. The shadowing impact is consistent with that demonstrated in the overshadowing analysis as part of the Concept Masterplan above.

The Boarding House will present as a three-storey development to the north and due to the natural fall of the site appears as a part 5 and part 6 storey development at the south western elevation (internal elevation). When viewed from Mount Pleasant Avenue (east elevation), the building appears as a low scale, part three and part 4 storey, development.

The Boarding House will predominantly overshadow the Loreto Normanhurst school site and Mount Pleasant Avenue between 9am – 2pm. At 3pm there will be a limited amount of overshadowing on the front yards of properties on the opposite side of Mount Pleasant Avenue. As outlined above, this shadowing is compliant with the Hornsby DCP controls in that it ensures more than 3 hours of unobstructed solar access to all surrounding properties.

Figure 32 illustrates the shadowing impact associated with the Stage 1 works during the Winter Solstice.

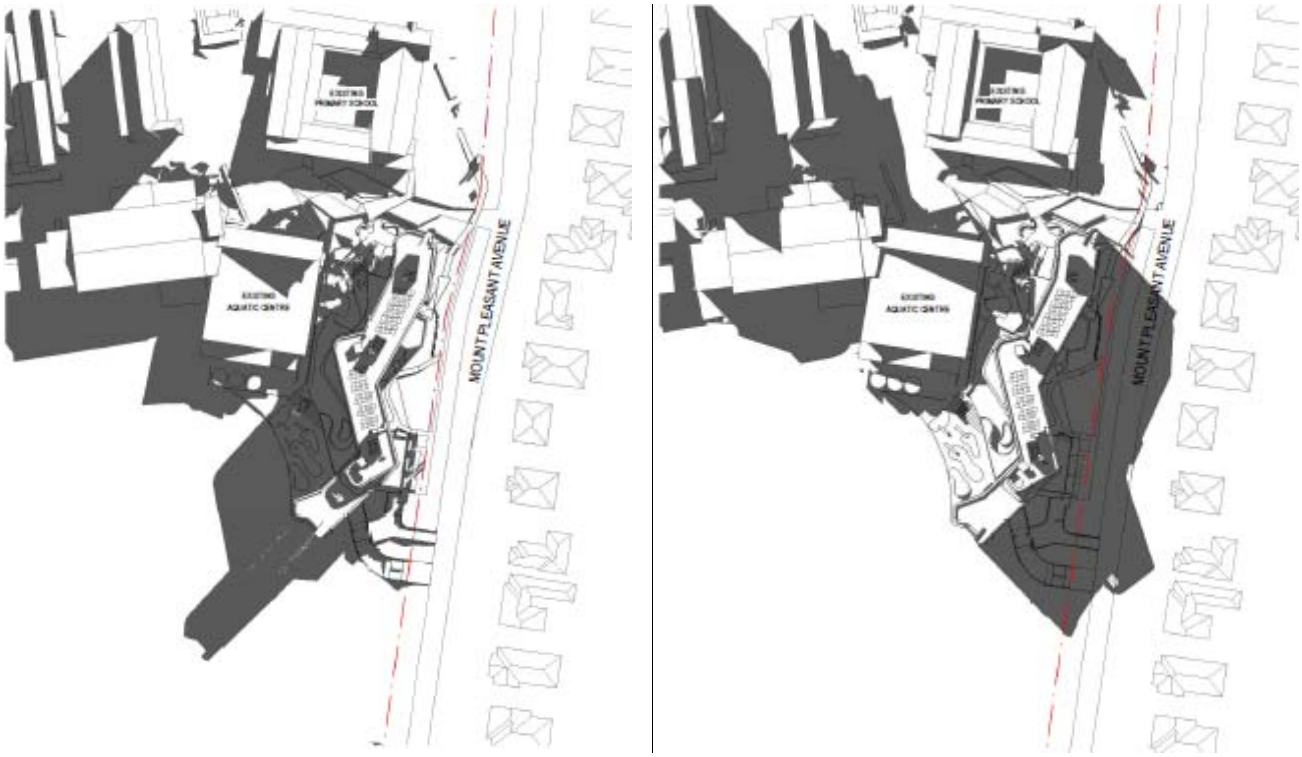

Figure 32 Proposed Stage 1 Shadow Diagrams – 9am and 3pm Winter Solstice

Source: AJ+C Architects

6.3.2 View Impact and Visual Privacy

Concept Proposal

The concept proposal is informed by careful site analysis. Additional density is only proposed to those parts of the site that can appropriately accommodate additional bulk and scale without resulting in significant visual bulk / scale impacts and overshadowing impacts (as discussed at **Section 6.3.1**). Overall, view impact of the concept proposal is reasonable for the following reasons:

- While the proposed concept envelopes exceed the maximum building height standard under the HELP 2013, the envelopes, with the exception of building envelope 3, are below the maximum building height (being 22 metres) permissible under SEPP Education if it were developed as a complying development;
- View analysis diagrams have been prepared by AJC to determine potential view loss associated with building envelope 3 from the surrounding public domain as well as nearby residential dwellings. Views, of building envelope 3, from a majority of private residences along Mount Pleasant Avenue and Osbourn Road are obstructed by existing vegetation and built form. While building envelope 3 may result in a reduction in the amount of sky views from certain viewpoints (89 Pennant Hills Road, 2A and 4 Mount Pleasant Avenue), based on the established planning principles as the envelope does not obstruct or limit any significant or scenic views;
- The concept envelopes represent the maximum bulk and scale of future school buildings. The detailed development schemes will be further modulated and articulated and thereby further reduce potential visual bulk and scale impacts; and
- The site has historically been used as a school site and the proposed concept envelopes represent bulk and scale that is typical and generally observed for educational buildings within the Metropolitan Sydney context.

On this basis, it is concluded that the concept proposal has an overall acceptable visual impact and will not result in significant view loss. Further analysis can be undertaken at detailed design stage to mitigate bulk and scale through good architectural design.

Appropriate treatment of building interfaces will also be considered as part of the future detailed design applications to mitigate any loss of visual privacy.

Stage 1 Works

A View Analysis of the proposed student boarding house facility from nearby residences (along Mount Pleasant Avenue) is provided at **Appendix A**. Overall view impact of the proposed student boarding house facility and associated landscaping is reasonable on the basis that:

- As discussed in **Section 4.3.1**, several trees fronting Mount Pleasant Avenue are proposed to be retained as part of the proposal, and integrated with additional tree plantings proposed as part of the landscape proposal (**Appendix D**). Landscaping will further aid to screen and limit direct views of the development from nearby residences, as well as ameliorate visual bulk and scale impacts when viewed from the public realm. It should be noted that the view analysis at **Appendix A** does not illustrate or existing vegetation that will be retained or the proposed landscaping;
- The building footprint is recessed and substantially setback from the eastern site boundary;
- While the building exceeds the maximum building height control for the site under the HELP 2013, the built form is well modulated and designed to ameliorate impacts of scale through its design, which steps down in height to the north along with the topography of the site. Further, the proposal is of a compliant height and scale under the Education SEPP and therefore the scale of the development is consistent and not excessive for the proposed typology and use; and
- Appropriate materials and finishes are proposed to provide a sympathetic and complementary interface to the historic buildings within the school campus, as well as to the residential setting to the east.

For all of the above reasons it is concluded that the proposed development will not result in significant view loss and has an acceptable visual impact that is entirely reasonable given the historic land use and the existing planning context of the site.

The boarding house facility has also been designed to maintain and protect visual privacy of nearby residences. Accordingly, windows and balconies are fitted with louvers and screens to reduce any potential overlooking. Landscaping and the overall setback of the boarding house facility form the site boundary will also further ensure that privacy of neighbouring residential dwellings is maintained.

Mitigation Measure

Trees recommended for retention under this proposal is to be protected and preserved during the construction phase of the development to ameliorate any visual impacts associated with the new student boarding house facility. Additional tree planting as identified by landscape plans, prepared by Oculus (**Appendix D**) are to be provided to screen and limit direct views of the boarding house facility.

6.3.3 Operational Impact

Concept Proposal

The main operational hours of the school are 9am to 3:30pm. After hours use (between 6:35 am to 5:00pm on weekdays and 7:45 am to 2:00pm on Saturday), of the sports field and gym facility is generally limited to students and staff. As discussed in **Section 3.4**, the school grounds are generally accessible for residents and the community, but the school facilities available for use by the community is limited to the Aquatic Centre. The Gym Facility is also used by the local Hornsby basketball team. No change is proposed to the intensity, timing or location of these uses. As such, the concept proposal will not create any net additional operational impacts or associated environmental amenity impacts.

Stage 1 Works

The Stage 1 works relate to the new boarding house facility. No new or additional operational impacts are anticipated as the proposal largely relocates the existing boarding house facility. Access to the boarding house is generally limited to student boarders and staff residents. During the school term, the boarding house facility will be open 24 hours and 7 days a week and the boarding house reception is open from 7:30 am to 9:00pm. The facility will be closed during school holidays.

No adverse operational impacts or environmental amenity impacts are anticipated given the synonymous residential nature of the boarding facility and the surrounding residential character of the area. Noise impacts associated with the use has been assessed by Wilkinson Murray and are considered to be nominal (refer to **Section 6.7** of this report). As discussed in **Section 6.3.2**, the windows and balconies of the boarding house facility are screened to

mitigate overlooking and ensure that the visual privacy of nearby residential dwellings are retained. Overall, the proposal is not anticipated to result in any adverse operational impacts or environmental amenity impacts during either school hours or out of school hours.

6.4 Heritage Impacts

A Heritage Impact Statement (HIS) prepared by Weir Philips is provided with this application (**Appendix L**). The report undertakes a detailed assessment of the concept proposal and the Stage 1 works. A site wide Conservation Management Plan (CMP), dated July 2008 also applies to the site (**Appendix M**). The CMP was prepared to guide renewal and development of the campus whilst protecting significant heritage views and items of key heritage significance on campus. The HIS undertakes a review of all works against the CMP and the relevant policies, and concludes that the proposal is consistent with the CMP and the works will have an acceptable heritage impact. A summary of the HIS findings in relation to the concept proposal and the Stage 1 works are provided below.

Concept Proposal

- Concept proposal works are considered to have either minimal impact or acceptable impact as the works are proposed to the parts of the campus identified as having low significance. Further, the overall concept proposal is in keeping with the social significance of campus and will ensure ongoing use of the site for educational purposes consistent with the historical use of the site. Careful assessment of the heritage sensitive works such as the construction of the bush chapel building, the location of the Theology Centre and the works to the entry and reception area (refer to the concept proposal masterplan for building locations referenced in this section) are considered acceptable given that:
  - The development of the bush chapel is within the footprint of an existing 1943 glade. From a heritage perspective, the trees in this part of the bush are not as old as within the remainder of the bushland area;
  - Entry and reception works: The detailed design works will be subject to further heritage review and consideration against the CMP as part of any future application. Further, as illustrated by the concept proposal, the alteration and addition works to the 1897 building are limited to elevations that have previously been subject to alterations. On this basis, it is considered that sensitively designed alterations and addition will not alter the ability to understand the overall historic, aesthetic and social significance of the building;
  - Theology Centre: While the building is located in proximity to the heritage significant Chapel (north west of the campus), the proposed development will not alter any heritage significant views (eastern and northern views) of the Chapel. The Theology Centre is located to the west of the chapel and sufficient separation is retained from the Chapel's western elevation. A two-storey building at this location is not of a scale that will detract from the heritage buildings.
- The concept landscape proposal, in particular works that will replace car parking with landscaped areas, will improve the setting of heritage significant buildings and on this basis, is expected to have an overall positive impact to the heritage significance of the campus.

Stage 1 Works

- Stage 1 works relating to the new boarding facility are considered to have an acceptable impact, given that:
  - The works sit outside the curtilage of the HLEP 2013 heritage listing;
  - While the CMP identifies Loreto Community House (LCH) as an item of moderate heritage significance, further review and assessment of the LCH suggests that the building is of little or low significance to the campus. The only likely impact associated with the replacement of the Community House is that of social significance. A suitable interpretations strategy can be prepared and implemented, acknowledging the building and the people, including the nuns to mitigate the loss of the social significance associated with the LCH;
  - The proposed boarding house facility supports the ongoing use as a school and is also consistent with the social heritage significance of the campus. The new boarding house will not physically impact on the heritage significant items located within the curtilage of the HELP 2013 listing;
  - None of the trees identified for removal form a part of the setting of significant buildings or spaces on the campus;

  - The proposed works are located outside of the most significant view corridor towards the school from the public domain, being the view up the driveway from the main entrance off Pennant Hills Road. Views of the campus comprising the Loreto Community House from Mount Pleasant Avenue are not significant. Accordingly, the new boarding house facility will not impact any significant views; and
  - The new building is well designed to minimise scale and bulk impacts, using the fall of the site to reduce visual prominence. Proposed materiality such as will complement the immediate setting of the campus. The new landscape proposal will further integrate the building within this part of the campus.
- Works relating to the removal of a small two storey administration office building, located between the Mary Ward Wing and the dining room building (part of the existing boarding house building), is considered to have an acceptable impact or positive impact on the basis that:
  - These buildings are identified as having low significance;
  - The buildings are not located within a significant view corridor; and
  - Removing the two storey component is seen to have a positive impact as this is a 1950/60s infill addition that currently obscures the southern elevation of the Givendale Wing.
- The HIS also undertakes an assessment of potential impacts of the proposal on nearby heritage items including the State heritage listed 'Gilligaloola' and garden at 82 Pennant Hills Road, and the locally listed dwelling house on No.4 Mount Pleasant Avenue. The envelopes set by the concept proposal illustrate the maximum extent of the future developments. Given the physical separation of the proposal from these sites, the proposal will not result in any adverse heritage impacts to these nearby items.

Mitigation Measure

It is recommended that a suitable interpretation strategy be prepared in relation to Loreto Community House and use of the building.

6.5 Aboriginal Archaeology

An Aboriginal Cultural Heritage Assessment Report (ACHAR) prepared by Ecological Australia is appended with this application at **Appendix T**. The report undertakes an assessment of the site for potential Aboriginal heritage in accordance with the Office of Environment and Heritage's (OEH) 'Guide to investigating, assessing and reporting on Aboriginal Cultural Heritage in NSW (DECC, 2011). Aboriginal community consultation, in accordance with the Department of Environment, Climate Change and Water's 'Aboriginal cultural heritage consultation requirements for proponents 2010' (DECCW 2010) has also been undertaken for the project and informed the ACHAR findings. A summary of the key findings of the ACHAR is provided below:

- There are no registered Aboriginal Heritage Information Management System (AHIMS) sites located within the site boundary (refer to **Figure 33**) and there is low to nil potential for further archaeological material to be located/harmed within the study area;
- A site inspection identified the study area as having low to nil potential to contain Aboriginal archaeological sites;
- Visual assessment of the study area during survey and from aerial imagery dated to 1943 shows the area has undergone significant disturbance and landscape modifications in the past; and
- Given the general disturbance of the overall site, the lack of AHIMS sites located in the nearby vicinity of the study area and the distance from waterways, there is low to nil sensitivity for Aboriginal artefacts to be found within the study area.

On this basis, the ACHAR confirms that no Aboriginal heritage sites will be harmed and no Aboriginal Heritage Impact Permit (AHIP) or approval is necessary under the *National Parks and Wildlife Act 1974*.

In accordance with the OEH 'Guide to investigating, assessing and reporting on Aboriginal cultural heritage in NSW' (OEH 2011), the ACHAR should be submitted for registration on the AHIMS register within three months of completion of the report.

The following general recommendations are proposed to manage any unlikely or unexpected finds:

- If suspected Aboriginal objects, such as stone artefacts are located during future works, works must cease in the affected area and an archaeologist called in to assess the finds. If the finds are found to be Aboriginal objects, the OEH must be notified under section 89A of the NPW Act. Appropriate management and avoidance or approval under a section 90 AHIP should then be sought if Aboriginal objects are to be moved or harmed.
- In the extremely unlikely event that human remains are found, works should immediately cease and the NSW Police should be contacted. If the remains are suspected to be Aboriginal, the OEH may also be contacted at this time to assist in determining appropriate management.

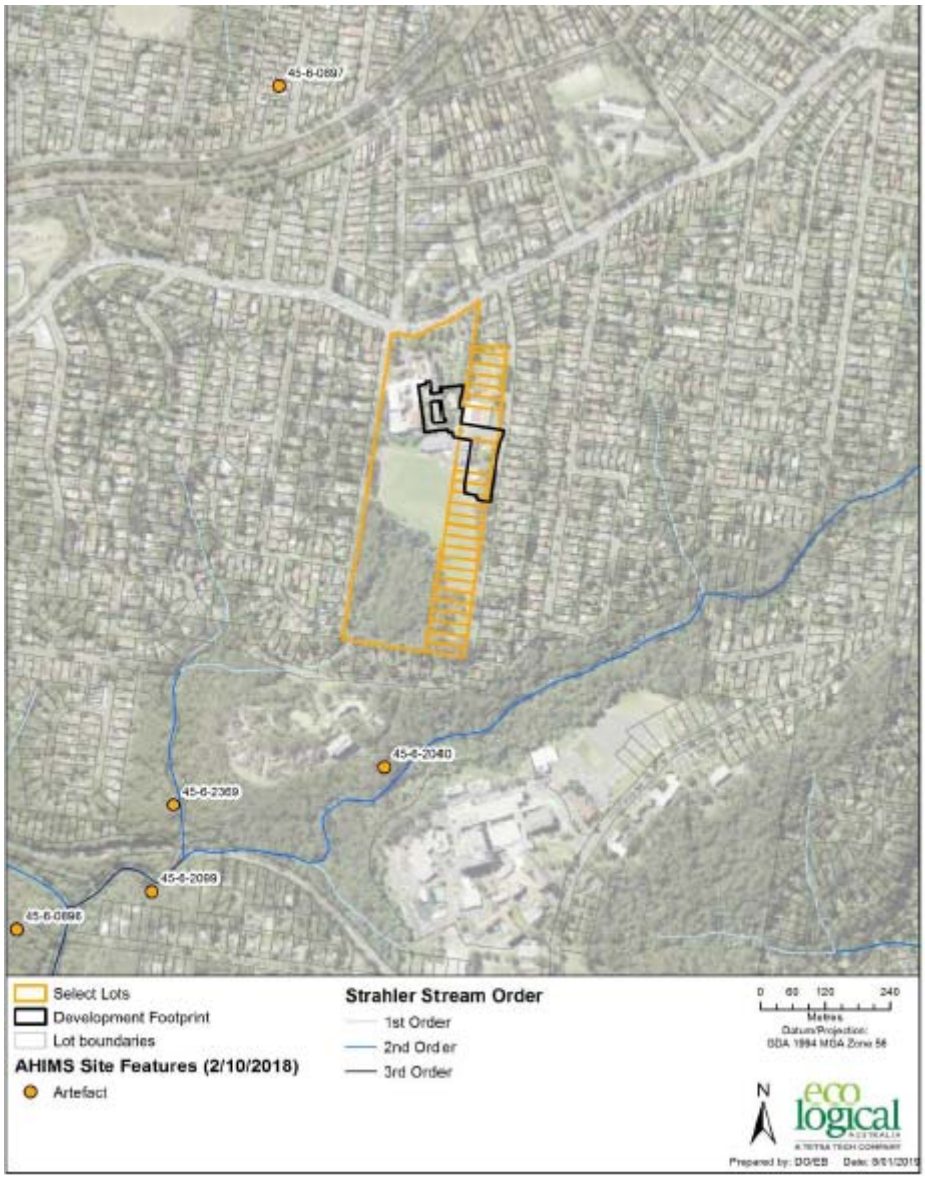

Figure 33 Location of Aboriginal artefacts in context to the school site

Source: AHIMS Database

6.6 Parking, Traffic and Servicing

6.6.1 Concept Proposal

Parking, traffic and servicing impacts associated with the Concept Proposal is outlined under the detailed Traffic Impact Statement prepared by Ason Group. Traffic related impacts associated with the Stage 1 works are considered as part of the Concept Proposal. In addition, a standalone assessment of the Stage 1 works has also been undertaken (refer to **Section 6.6.2**). A summary of the Concept Proposal impacts is provided below.

Parking

Car parking, including accessible car parking, bicycle parking and motorcycle parking associated with the Concept Proposal is to be provided in accordance with the Hornsby DCP 2013 minimum rates.

While the TIS provides a high level assessment of minimum parking spaces required, the TIS concludes that these numbers are indicative and that it is more appropriate to determine final parking requirements at detailed design stage, assessing cumulative campus parking demands as part of future applications. The school is committed to accommodating all staff and student car parking demands within the campus and reduce reliance of street parking, whilst also advocating for the uptake of sustainable travel behaviours, particularly in light of the campus' proximity to public transport.

To this end, a Green Travel Plan has been prepared by Ason Group to promote a mode shift away from single driver vehicle trips and towards sustainable travel modes which in turn is expected to reduce on campus car parking demand.

Traffic

A summary of the traffic impacts associated with the Concept Proposal is discussed below.

- Traffic surveys were undertaken by Ason Group to determine existing intersection performances of Pennant Hills Road/ Normanhurst Road/Osborn Road and Pennant Hills Road/ Mount Pleasant Avenue. The findings are presented in **Table 10** below.
- Travel surveys have been conducted to determine the existing staff and student modal split. Based on the survey findings, 30% students drive (Year 12 car drives and car passengers using the drop off and pick up facility) to and from the school daily. The remaining students rely on the school bus, public transport or walk to school.
- By the 2027 scenario, predicted additional student trip generation is 160 vehicles/hour (82 arrivals/ 78 departures) to and from the school during AM peak hour (7:30 am to 8:30 am). An additional of 8 school bus trips (4 arrivals/ 4 departures) is forecasted. A similar number of vehicular trips is expected for the PM peak hour (3:00pm to 4:00 pm).
- By the 2047 scenario, predicted additional student trip generation is 302 vehicles/hour (157 arrivals/ 145 departures) to and from the school during AM peak hour (7:30 am to 8:30 am). There would also be an additional of 16 school bus trips (8 arrivals/ 8 departures). A similar number of vehicular trips is expected during the PM peak hour (3:00pm to 4:00 pm).
- While the increase in staff numbers by 2027 and 2047 are not known at this time, for the purposes of the assessing traffic demand, a rate of 1 staff per 10 students[1] has been applied. This results in a total of 37 additional staff by 2027 and 40 additional staff by 2047. Based on these numbers, an additional 19 staff vehicle trips are predicted for the AM peak and 9 vehicle trips in the PM peak hour by 2027. A total of 34 additional vehicle trips in the AM peak hours and 15 vehicle trips in the PM peak hour by 2047.
- Based on the predicted trip generations, SIDRA intersection performance analysis was carried out on the nearby intersections. It is noted that the assessment factors in the delivery of the Northconnex in 2020. Based on RMS data, the Northconnex works will provide a 1 – 2% traffic reduction during morning and afternoon peak hours for Pennant Hills Road.
- With regards to the intersection performance of Mount Pleasant Avenue and Pennant Hills Road, there would a minor increase of vehicular trips generated on Mount Pleasant Avenue as a result of the Proposal (3 vehicles /hr), with the additional parking required to be provided in a consolidated car park accessed via Osborn Road.
- The findings of the analysis for the 2026/2027 scenario and the 2036/2047 scenario are provided in **Table 11** and **Table 12** respectively. Findings confirm the performance of the intersection would not materially change between now and 2026/2027, with the queues and DOS slightly improving and AVD and LOS remaining consistent.
- It should be noted that traffic analysis is based on the Sydney Traffic Forecast Model which forecasts up to 2036 year. On this basis, 2026 is used as the base case for the Concept Proposal's 2027 scenario. Similarly, due to the unavailability of data, 2036 scenario is used to assess the Concept Proposal's 2047 Scenario.

[1] Based on Ason Group's data

- An ultimate Master Plan year has been assessed for 2036/2047 scenario, which is consistent with the RMS data. The SIDRA analysis shows that the intersection would continue to operate with acceptable LOS, DOS and AVD which is consistent with the “Base Case”. The overall intersection performance indicates that the student increase is supportable.

Table 10 Intersection Performance (Existing)

Intersection	Control Type	Period	LOS
Pennant Hills Road / Normanhurst Road / Osborn Road	Signals	AM	B
		PM	B
Pennant Hills Road / Mount Pleasant Avenue	Stop Priority	AM	F
		PM	F

Source: TIS, Ason Group

Table 11 Intersection Performance (2026/2027 scenario)

		2026 Base Case	2026 Base Case+ Development	Change
Intersection	**Period**	**LOS**	**LOS**	
Pennant Hills Road / Normanhurst Road / Osborn Road	AM	C	C	No change
	PM	B	B	No change

Source: TIS, Ason Group

Table 12 Intersection Performance (2036/2047 scenario)

		2026 Base Case	2026 Base Case+ Development	Change
Intersection	**Period**	**LOS**	**LOS**	
Pennant Hills Road / Normanhurst Road / Osborn Road	AM	C	C	No change
	PM	B	C	Minor increase

Source: TIS, Ason Group

6.6.2 Stage 1 Works

Parking, traffic and servicing impacts associated with the Stage 1 works have been assessed as part of the standalone Stage 1 Traffic Impact Statement (TIS) prepared by Ason Group (**Appendix S**). A summary of the findings and recommendations is provided below:

- The Stage 1 work will not result in an increase in student population on campus as the proposal seeks to relocate existing student boarders;
- Similarly, while the scheme proposes 42 additional car parking spaces, in reality, the 42 spaces will be replacing the 37 at grade car parking spaces associated with the Teressa Hall car park, which is proposed to be demolished to make way for the pedestrian garden link. Overall, there would be a slight increase of 5 parking spaces associated with the Stage 1 works. This has the potential to increase traffic on Mount Pleasant Avenue by 3 vehicles during the School peak hours. However, given the nominal increase in traffic, the works would not have a material impact on the operation of the Mount Pleasant Avenue / Pennant Hills Road intersection;
- Car parking for boarding staff (10 spaces) is provided as part of the admin car park located along Osborn Road. These spaces will continue to be reserved and made available for boarding staff;
- Two basement entries are provided off Mount Pleasant Avenue, being a separate basement entry for vehicles and a separate services vehicle entry. Swept path analysis of both entries have been provided as part of the TIS report (refer to Appendix A of the TIS). As illustrated by the swept path diagram, the internal design of the service area can accommodate a Small Rigid Vehicle, 6.4m in length. A minimum bay width of 3.5m is provided and all service vehicles can enter and exit the site in a forward direction; and
- The proposed basement layout and configuration of the boarding house development is seen to be in accordance with the relevant Australian Standards of AS2890.1, AS2890.2 and AS2890.6. It is considered that

any minor inconsistency can be resolved at Construction Certificate Stage by way of a suitable condition of consent.

The Stage 1 works will not result in any adverse traffic impacts on the surrounding road network or the availability of on street parking.

6.7 Operational Noise Impacts

A Construction and Operational Noise Report has been prepared by Wilkinson Murray (**Appendix F**) to assess the noise generating sources during operation, and recommend any mitigation measures to minimise potential noise impacts on surrounding occupiers of land.

6.7.1 Concept Proposal

The concept proposal pertains to a masterplan that is intended to guide future renewal and development of the campus. It is therefore anticipated that a detailed noise assessment will be carried out for any future subsequent application that is identified to increase the overall noise levels.

Due to the concept nature of this proposal, no new PA system is proposed at this point. To this end, the following general recommendations are provided to guide future detailed applications for school buildings with these systems.

- Speakers should be located and orientated to provide good coverage of the school areas whilst being directed away from residences. The coverage of the system should be subject of the detail design of the system.
- The volume of the system should be adjusted on site so that announcements and bells are clearly audible on the school site without being excessive. The system should initially be set so that noise at surrounding residences does not exceed the ambient noise levels by more than 5dBA.
- Once the appropriate level has been determined on site, the system should be limited to the acceptable level so that staff cannot increase noise levels.
- The bell system should be set so that it only occurs on school days.

Additionally, the mechanical plants, such as rooftop exhausts and major plant associated with the development should be assessed at the time of detailed design and selection, having regard to nearby residential and commercial properties surrounding the development, and to future uses in the school area.

6.7.2 Stage 1 Works

A new boarding house facility is proposed to be delivered as part of the Stage 1 works. The Noise Report identifies nearby noise sensitive receivers to the boarding house facility, and assesses potential noise impacts arising from the operation and use of the boarding facility.

Noise impacts from other Stage 1 works such as demolition and construction activity are discussed under **Section 6.15.1** ‘Construction Noise and Vibration Impacts’ of the report.

In order to quantify the existing noise environment, long-term ambient noise levels were monitored at residences near the proposed Boarding House site at 53 Mount Pleasant Avenue, Normanhurst.

Operational noise from the building will occur from activities within the new student boarding house building as well as mechanical plant located predominantly on the roof. Through a review of the potential operational noise sources this assessment has determined that:

- Noise levels resulting from use and operation of the new boarding house facility will not be acoustically significant and can sufficiently be mitigated by the building façade. Noise levels from the use of the dining area is predicted to 25dBA which is significantly below the acceptable noise criteria; and
- At this stage, specifics around the preferred mechanical plant for the boarding house is not available. Accordingly, to mitigate noise from mechanical plant, attenuators could be incorporated in the outlets of the exhaust fans. Attenuators can be installed to the fans if required. The mechanical plant noise emission would be designed at detailed design stage to meet the project specific noise criteria.

Mitigation Measure

It is recommended that a suitable condition of consent is provided to ensure that noise emissions from the future mechanical plant system associated with the student boarding facility is consistent with the project specific criteria, and will not result in noise levels that exceed the project specific noise criteria.

6.8 Biodiversity Impacts

As discussed in **Section 2.2.5** of this report, the southern portion of the school campus contains remnant bushland comprising critically endangered communities of Sydney Turpentine Ironbark Forest (STIF). Blue Gum High Forest (BGHF) communities are also observed across the northern part of the campus. On this basis, a Biodiversity Development Assessment Report (refer to **Appendix Q**) has been prepared for the site by Ecological Australia using the Biodiversity Assessment Method (BAM) as established under Section 6.7 of the *Biodiversity Conservation Act 2016* (BC Act). The report outlines key findings of the overall biodiversity assessment, and provides measures to avoid, minimise and mitigate impacts to the vegetation and species habitat present within the campus.

Key findings of the BDAR is summarised below:

- The southern portion of the site contains bushland comprising STIF remnant vegetation (PCT 1281_ remnant vegetation) and STIF weedy vegetation (PCT 1281_weedy vegetation). As a result of the concept masterplan proposal, 0.003ha of remnant vegetation (PCT 1281_ remnant vegetation) will need to be removed to accommodate the reorientated sporting field. The quality of the vegetation is comparatively low due to the edge effects, weed infestation and lower native resilience of the soil seedbank. Additionally, 0.09ha of weedy vegetation will need to be removed for the new bush chapel. This area will involve the removal of shrub and ground layer only, in an area which is currently comprised of exotic shrubs and ground cover species;
- The northern part of the site includes clusters of BGHF vegetation communities, however, most of the vegetation clusters at this part of the site are planted species (not remnant). As part of the concept proposal and Stage 1 works, 0.38ha of the planted BGHF vegetation community will require removal. It is however noteworthy that only remnant vegetation communities are listed as threatened ecological communities under the EPBC Act. The concept proposal, small amount (0.002 ha) of remnant BGHF in the form of one single remnant *Eucalyptus pilularis tree*, will require the trimming of several outer branches for the project. The tree is located 10m from the proposed buildings and will be retained within the subject site with careful mitigation measures;
- An assessment of both indirect impacts and prescribed biodiversity impacts have been carried out in accordance with Section 9.2.1 of the BC Act. Suitable measures to mitigate these impacts prior to, during and post construction are provided as part of the BDAR reports. These measures will apply to Stage 1 works and all subsequent future stages;
- Following consideration of all the above aspects, the residual unavoidable impacts of the project were calculated in accordance with the BAM by utilising the Biodiversity Assessment Method Credit calculator (BAMC). For PCT 1237 the BAMC generated a vegetation integrity score of 28. Under the BAM, eight (8) ecosystem credits are required to offset the removal of 0.38 ha of PCT 1237 (integrity score of 35.8) and two (2) ecosystem credits for PCT 1281 for the removal of 0.09 ha (integrity score of 39.7); and
- No threatened flora or fauna species were recorded within the school site, including any microbat habitats within any of the school buildings on campus. The Grey headed flying fox, which is listed as a vulnerable species under the EPBC Act, is considered to potentially use the school site for foraging. However, an assessment of the commonwealth Significant Impact Criteria confirmed that the project would not have a significant impact on this species and therefore a referral to the Commonwealth is not required.

Mitigation Measures

A list of mitigation measures is proposed to manage impacts prior to and during construction, as well as the operation phase of Stage 1 development, Stage 2 development and all subsequent future buildings. Where residual unavoidable impacts are observed, biodiversity offset credits need to be purchased. As identified under the BDAR report, 8 ecosystem credits are required to offset impact to the planted BGHF vegetation community and 2 ecosystem credits are necessary for removal of the STIF vegetation community.

6.9 Tree Removal and Protection

An Arboricultural Impact Assessment has been prepared by Earthscape Horticultural Services (**Appendix G**) which considers the trees present within the proposed works area, including those to be retained and those to be

removed.

A total of 78 trees within or in proximity to the Stage 1 works area are identified as being necessary for removal. Of these, 72 trees will be replaced as part of the new Stage 1 landscape proposal.

Trees near or in the vicinity of the Stage 1 work area will be retained and protected in accordance the Australian Standard AS4970 2009 Protection of trees on development sites and the additional protection measures set out under the Report.

Mitigation Measures

It is recommended that construction proceeds in accordance with the Australian Standard and the specific additional tree protection measures recommended by the arborist are implemented.

6.10 Contamination

6.10.1 Concept Proposal

A preliminary site investigation was undertaken by Environmental Investigation Services. The findings of the site investigation are outlined in the Preliminary Site Investigation Report (refer to **Appendix U**). The site is considered to have potential for moderate contamination, due to:

- the presence of unknown fill material across the site;
- the historical use of pesticides containing heavy metals or organocholorine pesticides around the site; and
- historical demolition of building containing hazardous materials (such as asbestos, lead or polychlorinated biphenyls).

The preferred remedial strategy is to undertake remediation works in a staged manner. Owing to the heritage listing of the site, remediation works for the site is categorised as Category 1 under SEPP 55. Development consent is therefore required for remediation works. On this basis, it is proposed that remediation, if necessary, be carried out as part of the future stages of the concept proposal (i.e as part of the detailed design application).

Notwithstanding, a Remediation Concept Plan (RCP) has been prepared by Environmental Investigation Services based on the preliminary findings (refer to **Appendix AA**). The RCP sets out a concept remediation strategy that provides a framework to guide further intrusive investigations and remedial works of the site prior to the future stages of the concept plan. The RCP also outlines the site management procedures that will need to be implemented during remediation works and details the unexpected finds protocol that will generally be implemented during the development of the site. The preferred remedial strategy for the site is either:

- Excavation and off-site disposal of waste and contaminated soil to a licenced facility; or
- Capping of contaminated soil on-site (where excavation and removal is not feasible).

The RCP therefore concludes that the site can be made suitable for the proposed development. A site validation report should be prepared on completion of remediation activities and should be submitted to the consent authority. If required, remediation and validation can be staged along with the proposed development. A separate validation report would be required for each development stage.

Given that detailed design consent is sought for the Stage 1 Works comprising the boarding house development and make good of surrounds, a detailed site investigation and a Remediation Action Plan has been prepared to inform the works. This is discussed further in **Section 6.10.2**.

Mitigation Measure

All future detailed design applications will need to address contamination in accordance with the Remedication Concept Plan, by undertaking a detailed site investigation to better characterice the relevant section of the site and the preparation of a tailored Remediation Action Plan if remediation works are necessary.

6.10.2 Stage 1 Works

In accordance with the recommendation of the RCP, a suitable detailed site investigation report, discussing the findings of a detailed site investigation, has been prepared by Environmental Services Investigation (refer to **Appendix BB**). Soil and groundwater samples from the site revealed elevated levels of the following:

- Polycyclic Aromatic Hydrocarbons (PAH) above the human health-based site assessment criteria. However, based on a risk assessment, the concentrations of the contaminants confirmed a low to negligible risk to existing site users;
- Total Recoverable Hydrocarbons, benzo(a)pyrene and zinc were encountered above the ecological based site assessment criteria. However, the overall risk is low due to low concentration of contaminants; and
- Minor elevations of some metals in groundwater were identified, however this is considered to be consistent with regional groundwater conditions. One fibre cement fragment collected from the surface of the site (AMF1) was found to contain chrysotile asbestos.

Based on the findings of the assessment, a RAP (refer to **Appendix CC**) has been prepared for the site to remediate the key Areas of Concern (AoC). The sequence of works is as follows:

- Remediation of PAH impacted fill: excavation of PAH containing soil, appropriately classify and dispose off site in accordance with NSW EPA guidelines
- Remediation of Bonded ACM: on site treatment by physical removal of materials. The remediation strategy is based on the assumption that only minor quantities of bonded ACM require removal.

On completion of remedial works, further sampling will be undertaken to validate the site and a site validation report will be prepared by the validation consultant. In addition, an unexpected finds protocol will continue to apply during the course of remediation works.

On this basis, it is concluded that the Stage 1 works area will be suitable for the proposed education and student boarding facility use on remediation of the site.

Mitigation Measure

Remediation works are to be undertaken in accordance with the RAP, prepared by Environmental Investigation Services and dated 29 May 2019. On completion of the remediation works, the Stage 1 Works will be suitable for the proposed education and student boarding use.

6.11 Water Cycle Management

A Stormwater Management Plan has been prepared as part of the Civil work package prepared by TTW (refer to **Appendix I**). A summary of the report is provided below.

6.11.1 Concept Proposal

Stormwater Quantity
The stormwater systems of all subsequent future buildings, identified under the Concept Proposal, will be designed to comply with the requirements of Hornsby Shire Council's Development Control Plan. As such, new developments will be required to demonstrate that post development peak flows are up to and including the 1 in 20 year Average Recurrence Interval and do not exceed the maximum flow rate generated during a 1 in 5 year ARI storm event pre-development. Accordingly, it is proposed that the stormwater design of future buildings will be addressed as part of the detailed design applications for each future building.

Stormwater Quality
The concept proposal and all subsequent future applications will at a minimum aim to meet the Hornsby Development Control Plan 2013 stormwater quality targets as provided below:

- 90% reduction in the post development mean annual load of total gross pollutants;
- 80% reduction in the post development mean annual load of total suspended solids;
- 60% reduction in the post development mean annual load of total phosphorus; and
- 45% reduction in the post development mean annual load of total nitrogen.

MUSIC modelling will be carried out to demonstrate that future detailed application meet the above water quality targets.

It is likely that water quality treatment measures will include a combination of Water Sensitive Urban Design practices (such as grassed swales and rainwater re-use) and proprietary products (such as pit inserts and gross pollutant trap units).

6.11.2 Stage 1 Works

Stormwater Quantity

Stormwater will be collected via series of stormwater pit and pipe network and connected to a 120kL rainwater tank. Any overflow from the rainwater tank will be directed to a 100m^3 OSD tank with an orifice of 245mm. The tank is designed to cater for a minor storm event with an allowance for some 2,500m^2 of potential bypass given the constraints of the site and the existing surrounding stormwater network.

Importantly, in accordance with the HDCP, the post-development peak flows from the OSD up to and including the 1 in 20 year Average Recurrence Interval (ARI) does not exceed the maximum flow rate generated during a 1 in 5 year ARI storm event pre-development. Refer to **Appendix I** for DRAINS modelling results.

No OSD system is proposed for the Mary Ward Courtyard as the proposed landscaping works will significantly reduce the extent of impervious site area, which in turn will reduce site run off. This approach was confirmed as being acceptable by Council to TTW consultants.

Stormwater Quality

Captured stormwater will be treated using water quality measures including a 120kL rainwater tank, vegetated swale, Stormwater 360's Enviropods and Stormfilter cartridges. MUSIC modelling results confirm that the proposed stormwater treatment system can suitably treat stormwater, and the results are in line with the Hornsby Shire Council's pollution removal targets as shown below:

- Total Suspended Solids (TTS): Achieves a TTS reduction of 83.9%, which meets the 80% reduction target;
- Total Phosphorous (TP): Achieves a TP reduction of 61%, which meets the 60% reduction target
- Total Nitrogen (TN): Achieves a TN reduction of 47.3%, which meets the 45% reduction target; and
- Gross Pollutants (GP): Achieves a reduction of 99.9%, which meets the 90% reduction target.

On this basis, it is concluded that the proposed stormwater system is appropriately designed in accordance with Hornsby Shire Council DCP requirements.

6.12 Flooding

Likelihood of flooding has been assessed as part of the Civil Works Report prepared by TTW at **Appendix I**. The report concludes that the site, including the entire school campus and the Stage 1 works area, is not flood prone. Further, the site is not identified as being flood prone under the HELP 2013, the HDCP 2013 or any other Council flood study. The concept proposal does not appear to result in any obstruction to natural overland flow paths through the site. Should this occur, it is considered that flows will be diverted around any proposed buildings.

The CSIRO seal rise maps have also been reviewed. The CSIRO's Sea Level Rise Map confirms that the school campus will not be affected by flooding as a result of sea level rise due the distance of the site from the coastline.

6.13 Bushfire

As discussed in **Section 2.2.6** of this report the site, the southern part of the campus contains bushfire prone land. A Bushfire Protection Assessment Report prepared Ecological Australia has been provided with this application (**Appendix R**). A summary of the report findings is discussed below.

Concept Proposal

The site is managed by an existing Asset Protection Zone (APZ) as shown in **Figure 34**. The APZ setback required for the site under the Planning for Bushfire Protection (PBP) 2006 is 70m. The existing APZ is proposed to be retained under this application, and all future buildings including the Stage 1 works are situated outside the 70m APZ. On this basis, the concept proposal will not result in any adverse bushfire impacts. Further, any subsequent detailed design applications will also be required to demonstrate compliance with bushfire protection measures. On

this basis, it is concluded that the concept proposal is acceptable from a bush fire perspective. It is recommended that future buildings comply with the site's APZ maintenance plan measures.

While the proposed bush chapel is located within the APZ setback area, this space is simply an open outdoor education space and not within a building. As such, no construction standard applies to the outdoor bush chapel and no APZ setback or clearance is necessary.

Figure 34 Existing Asset Protection Zone

Source: Ecological Australia

Stage 1 Works

The development of the Stage 1 works, in particular the construction of the new boarding house facility is identified as Special Fire Protection purpose development. Given that the new boarding house facility is an infill development, the building will be assessed against the infill requirements of the PBP.

The building is located outside the existing APZ by 36m. Considering the south west slope of the site (downward) and setback of the building from the APZ, the overall Bushfire Attack Level is identified as low. Accordingly, the proposed building should meet the BAL - LOW construction standards under the *Australian Standard AS 3959-2009 'Construction of buildings in bushfire-prone areas.*

During and post completion of the Stage 1 works, the western site entry via Osborn Road will remain open and provide direct access to the hazard.

The electricity supply is above ground and complies with PBP subject to no part of a tree being closer to a powerline than the distance specified in 'ISSC3 Guideline for the Management of Vegetation in the Vicinity of Electricity Assets' (Industry Safety Steering Committee 2016).

Reticulated gas is not proposed. Any gas services are to be installed and maintained in accordance with AS/NZS 1596:2014 'The storage and handling of LP Gas' (Standards Australia 2014)

It is recommended that the Emergency and Evacuation Management Plan is either updated (if existing) or a new plan be prepared, in accordance with the RFS Guidelines for the preparation of the Emergency / Evacuation Plan, prior to the completion of the proposed development.

Mitigation Measures

An Emergency and Evacuation Management Plan is either updated (if existing) or a new plan be prepared, in accordance with the RFS Guidelines for the preparation of the Emergency / Evacuation Plan, prior to the completion of the proposed development.

6.14 Construction Impacts (Stage 1 Works)

A preliminary Construction Management Plan (CMP), prepared by Gledhill is provided with this application at **Appendix V**. The preliminary CMP comprises a work site plan identifying the proposed site entry and exit points, the temporary vehicular access route and locations of mobile crane points for the duration of the Stage 1 construction works. An excerpt of the site plan is provided at **Figure 35**.

As previously mentioned in **Section 4.7**, standard construction work hours are nominated for the project to minimise construction impacts. Additionally, potential construction impacts such as construction noise and vibration impacts, construction traffic and pedestrian management impacts and construction/demolition waste have been considered by relevant consultants and appropriate management measures, if necessary, are proposed to ameliorate impacts. Construction impacts are further discussed in **Section 6.15.1** to **Section 6.15.3** below.

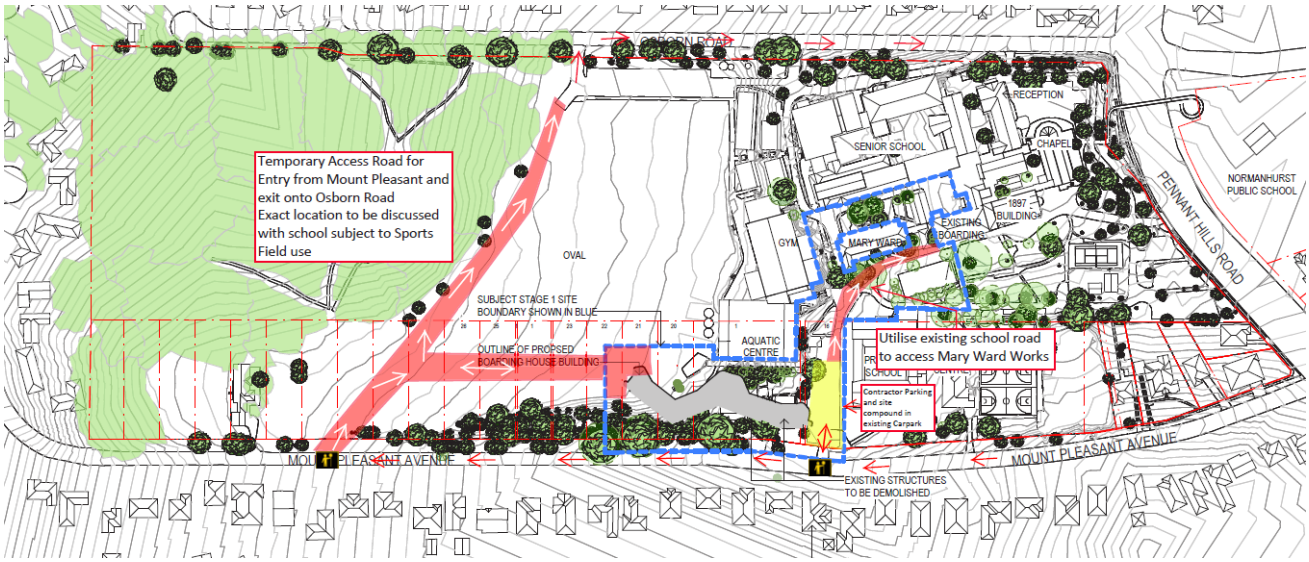

Figure 35 Site plan

Source: Gledhill

6.14.1 Construction Noise and Vibration Impacts

Construction Noise and Vibration Impacts have been addressed as part of the Construction and Operational Noise Report at **Appendix F**. A summary of the key findings is discussed below.

Construction Noise

Relative background noise levels (RBLs) were monitored using noise loggers placed strategically in proximity to the project boundary. Site specific construction noise management levels were determined for the site (10 dBA + RBLs for during standard construction hours and 5 dBA + RBLs outside of standard hours) in accordance with the EPA's

Interim Construction Noise Guidelines (ICNG). Construction noise activities were grouped into three scenarios being:

- Scenario A – Excavation
- Scenario B – Building Construction
- Scenario C – Façade/Fitout

The predicted construction noise for each scenario was determined by identifying the construction tools intended for use during each phase.

Construction noise predictions at the nearest noise sensitive receivers, being the residential dwellings along Mount Pleasant Avenue, are noted to exceed of the construction noise management levels. Maximum exceedance of the noise criteria for these receivers is observed during Scenario A and Scenario B as discussed below:

Scenario A, being excavation and earthworks:

- Approximately 10 dBA – 11dBA exceedance as a result of the proximity of the Mount Pleasant Avenue dwellings to the Stage 1 works area.

Scenario B, being construction of the building:

- Approximately 4dBA – 5 dBA exceedance as a result of the proximity of the Mount Avenue dwellings to the Stage 1 works area.

Scenario C is within the construction noise management levels adopted for the site.

Vibration

Vibration Impact of the proposed construction activity was assessed against the vibration assessment criteria set out in British Standard 6472-1992. The DIN4150 recommended vibration level for heritage buildings are set as the criteria given the heritage context of the site.

The highest vibration impacts are expected when the construction equipment is located on the eastern side of the site near the residences. Accordingly, a minimum distance of 40m is to be maintained between vibration generating activities and the surrounding residential receivers.

Construction vibration levels to the school are likely to be similar to the levels predicted for the residential dwellings on Mount Pleasant Avenue.

Recommendations

On this basis, construction noise and vibration management measures are necessary for the excavation and construction phases of the development. The following mitigation measures are recommended to manage construction noise impacts:

- Installation a 2.4 metre plywood hoarding around the construction site;
- Selection of quietest feasible construction equipments;
- Use of saw cutting in preference to rock-breakers where feasible; and
- Localise treatments such as barriers, shrouds, and the like around fixed plant, such as pumps, generators, and concrete pumps.

In addition, the following measures should be included in a Noise & Vibration Management Plan.

- Plant Noise Audit – Noise emission levels of all critical items of mobile plant and equipment should be checked for compliance with noise limits appropriate to those items prior to the equipment going into regular service. To this end, testing should be established with the contractor.
- Operator Instruction – Operators should be trained in order to raise their awareness of potential noise problems and to increase their use of techniques to minimise noise emission.
- Equipment Selection – All fixed plant at the work sites should be appropriately selected, and where necessary, fitted with silencers, acoustical enclosures, and other noise attenuation measures in order to ensure that the total noise emission from each work site complies with EPA guidelines.

- Site Noise Planning – Where practical, the layout and positioning of noise-producing plant and activities on each work site should be optimised to minimise noise emission levels.

Recommendations to Manage Construction Noise and Vibration within the School

Construction noise and vibration impacts within school is expected to be similar to the predicted levels identified for the residential dwellings on Mount Pleasant Avenue. As such similar recommendation measures as discussed above can be adopted to manage and reduce impacts to the school. Other measures proposed include:

- Closing of classroom windows;
- Relocating classes during busy construction periods; and
- Scheduling works during school holidays.

It is recommended that appropriate and feasible measures to manage impacts to the school be developed as part of the Construction Noise and Vibration Management Plan.

Mitigation Measures

A suitable condition of consent to ensure that a Construction Noise and Vibration Management Plan, taking into consideration the noise and vibration mitigation measures outlined under the Construction and Operational Noise Report prepared by Wilkinson Murray.

6.14.2 Construction Traffic and Pedestrian Management

A Construction Traffic and Pedestrian Management Plan (CTPM) has been prepared by Ason Group (refer to **Appendix S**). As previously mentioned, the Stage 1 works site is located away from the main school buildings, In this regard, opportunities for pedestrian (staff and students) and construction vehicle interaction is minimised. Site hoarding will further limit access to areas undergoing construction within the campus. Loreto Normanhurst Management will also further liaise with the chosen builder to manage construction impacts and mitigate any construction – pedestrian conflicts. The findings of the CTPM are provided below:

- Construction traffic generation associated with the Stage 1 works is estimated to 60 truck movements per day. To ameliorate impact, a majority of truck heavy activities are to be restricted during off peak school and traffic hours. Construction trucks will not access the site between 6 am and 9 am to avoid the school's morning peak hours. However, a total of 10 truck movements is expected to occur during AM and PM peak periods for essential construction work such as concrete pours;
- It is estimated that a total of 60 site workers would be on site at any one time. Some site parking will be provided to site workers. No street parking will be allowed for construction workers. Site workers will generally be encouraged to access the site via public transport options (Normanhurst Railway Station, bus services along Pennant Hills Road) available in proximity (within 800m) to the site. Light vehicle traffic generation associated with site workers accessing and leaving the site will be between 6:30am – 7:30am and 5:00pm to 5:30pm;
- Construction projects underway in proximity to the site include the NorthConnex Project and the Bowden Brae Retirement Village. The construction of the Bowden Brae Retirement Village (at 40 – 50 Pennant Hills Road) is expected to reach completion prior to the commencement of Stage 1 works. In relation to the North Connex Works, a total of 221 vehicle in AM peak and 234 vehicles in PM peak are expected on Pennant Hills Road in accordance with the Traffic Management and Safety Plan (Revision 22 prepared by Lendlease and Bouygues). Ason's findings conclude that the introduction of 10 extra heavy vehicle movements and limited additional light vehicle trucks are considered to have an overall negligible impact on the traffic volumes;
- Key intersection for this CTMP are Mount Pleasant Avenue/Pennant Hills Road and the signalised intersection at Osborn Road/ Pennant Hills Road/Normanhurst Road. A total of 5 truck arrivals and contractor parking is not expected to negligibly impact the traffic conditions. Appropriate measures will be taken to ensure that no queuing occurs on the public road network. A schedule for deliveries of materials and goods will be established and radio contact will be maintained with construction vehicles at all times by site traffic controllers;
- Traffic controllers will manage construction vehicles, pedestrian and cyclist demands at key intersections. As outlined in the CTPM, pedestrians and cyclists using the footpath fronting the Site will be halted by an accredited Traffic Controller using a remote-controlled boom gate while construction vehicles are exiting the Site. An expandable barrier (pedestrian boom gate or equivalent) would be installed on both sides of the driveway, to be operated when construction vehicles are on approach / ready to depart from the Site. Once the

construction vehicles are clear from the footpath, the Traffic Controller can allow the pedestrians and cyclists to continue along their journey. An on-Site waiting bay is proposed for all heavy vehicle exiting movements.

- In accordance with the RMS guide “Traffic Control at Worksite” manual, a Traffic Control Plan (TCP) , a Vehicle Movement Plan and appropriate warning signage is proposed to manage activities during the construction phase of the development. (Refer to the Appendix B of the CTPM for the TCP)

It is considered that cumulatively the measures as set out under the CTPM will reduce and ameliorate construction impact during the Stage 1 works. Further, the CTPM sets out a monitoring and communication strategy that will ensure that all management measures are regularly monitored during the course of the construction period. A clear communication strategy will be developed in consultation with the construction contractor.

Mitigation Measure

Construction Traffic and Pedestrian interaction is to be managed in accordance with the management measures outlined under the CTPM.

6.14.3 Construction Waste Management

Management of construction and demolition waste streams generated during the Stage 1 works has been addressed within the Waste Management Plan prepared by Foresight Environmental (**Appendix P**). The report sets out the estimated volume each waste stream likely to be generated during each the demolition and construction phase as well as the proposed waste management strategy to reduce, reuse and recycle waste.

Refer to the WMP (**Appendix P**) for the quantity of each waste stream that is proposed to be either reused or recycled and the respective on-site or off-site recycling systems.

A designated waste storage area, with appropriate signage, will be nominated by the site manager within the work site and managed during the construction of the development. All waste generated during the project will be assessed, classified and managed in accordance with the Waste Classification Guidelines Part 1: Classifying Waste (DECCW, December 2009). Hazardous waste will be managed and disposed in accordance with EPA guidelines.

While the site manager will be responsible for ensuring that the chosen off site waste facilities are capable of accepting waste, the WMP outlines facilities in proximity to the site being, Sydney Transwaste, Bingo Recycling Centre and Genesis Alexandria.

Mitigation Measure

It is recommended that construction and demolition waste generated during the project is handled in accordance with the waste management strategy set out in the Waste Management Plan prepared by Foresight Environmental.

6.14.4 Operation of the school during construction activities (Stage 1)

The Stage 1 work site is located to the east of the campus, generally away from the main school buildings and the administrative buildings. On this basis, the school’s operation is expected to proceed with minimum interference during the construction phase. Further, construction hoarding will be installed around the perimeter of the work site, with access restricted to construction workers and personnel with site access. The construction vehicle entry and exit route is proposed away from the main school buildings, accessways and campus entries. Where impacts are unavoidable such as construction noise, appropriate management measures as outlined in **Section 6.15.1** to **Section 6.15.3** will be applied to mitigate, ameliorate and minimise the impact. The Loreto School Management will also continue to monitor construction within the school campus and hold discussions or meetings with the builder to manage construction impacts as necessary.

6.15 Sediment and Erosion Plan (Stage 1 Works)

A Sediment and Erosion Control Plan has been prepared by TTW. A copy of the plan is provided as part of the Civil Works package at **Appendix I**. The proposed control measures will prevent sediment laden stormwater from flowing into adjoining land, nearby bushland or roadways during the construction phase of the development. Proposed measures include a sedimentation trap, catch drains, silt fence, sandbag sediment traps and geotextile filter around existing stormwater pits. Temporary sediment traps are also proposed near the site exit to capture any sediments from construction vehicles leaving the construction site. The plan has been prepared in accordance with the

Landcom NSW's Managing Urban Stormwater, Soils and Construction ("Blue Book") and relevant provisions of the HDCP 2013.

6.16 BCA, Access and Fire Safety (Stage 1 Works)

6.16.1 BCA and Fire Safety

A BCA Capability Statement has been prepared by Blackett Maguire Goldsmith (**Appendix H**) which finds that compliance with the BCA will be achieved through a combination of compliance with the Deemed-to-Satisfy provisions and alternative performance based solutions. Compliance matters identified as areas of non-compliance can be resolved as per the recommendations of the report. This can be resolved prior to Construction Certificate stage by progressively reviewing and incorporating changes to detailed design (construction stage) drawings.

Mitigation Measures

Prior to issue of Construction Certificates, review and update plans as necessary to achieve compliance or develop suitable alternate performance solutions as identified under the BCA report.

6.16.2 Access

An Access Report (**Appendix E**) prepared by Funktion reviews the proposed boarding house facility development against relevant access regulations, including Access Standards (AS 1428 series, AS 1735.12), *The Disability Discrimination Act 1992*, the BCA and the Disability Standards for Education 2005. The report confirms that the development achieves compliance or can readily achieve compliance by way of developing alternate performance solutions during the Construction Certificate stage.

Mitigation Measure

Prior to the issue of a Construction Certificate, ensure the boarding house facility achieves compliance with relevant access regulation and standards, or provides suitable alternate performance solutions to meet the intent of the standards as necessary.

6.17 Utilities and Infrastructure Services (Stage 1 Works)

An Infrastructure Management Plan prepared by Harris Page and Associates is provided as part of this application (**Appendix O**).

In relation to utility services (potable water, gas and fire services) for the Mary Ward courtyard works, no additional demand is warranted and as such no changes are proposed. Where necessary, new connections will be made to the existing internal supply.

The Boarding House development will be located on a separate legal allotment from the school and, as such, will require an individual connection to the mains (sewer, potable cold water, fire services and gas) as follows:

- Sewer: The Sydney Water sewer main (150mm) is located on Mount Pleasant Avenue approximately 135m north of the site. It is recommended that a Water Service Coordinator be engaged to design an extension for the Sewer Authority. Once the DA is approved, a Section 73 Certificate will be lodged to Sydney Water.
- Potable Cold Water and Fire Services: The Sydney Water potable cold water main (150mm) is located on Mount Pleasant Avenue. The boarding house facility can be connected to this water main for potable cold water and fire services (sprinkler system and fire hydrant. It is proposed that sanitary fixtures will also be connected to the on site rain water. A Sydney Water Pressure and Flow Statement has been submitted to Sydney water to review the development's capacity/ need for potable cold water services.
- Gas: The Jemena gas main (32mm@210kpa) is located on Mount Pleasant Avenue. Individual connections will be necessary to connect to the gas main for the mechanical plant, hot water plant and commercial kitchen in accordance with relevant Australian Standards.

Electricity

An Electrical Supply Statement has been prepared by Shelmerdines Consulting Engineers at **Appendix Y**. On consultation with Ausgrid, installation of a new kiosk substation was identified as necessary. The new substation is proposed adjacent to the existing Primary School Building and would be connected to an external Main

Switchboard. Submains from the external Main Switchboard is proposed to also serve the existing Pool Building, the Primary School, Early Learning Centre and the new Boarding House. An excerpt of the proposed upgrade plan is shown at **Figure 36**.

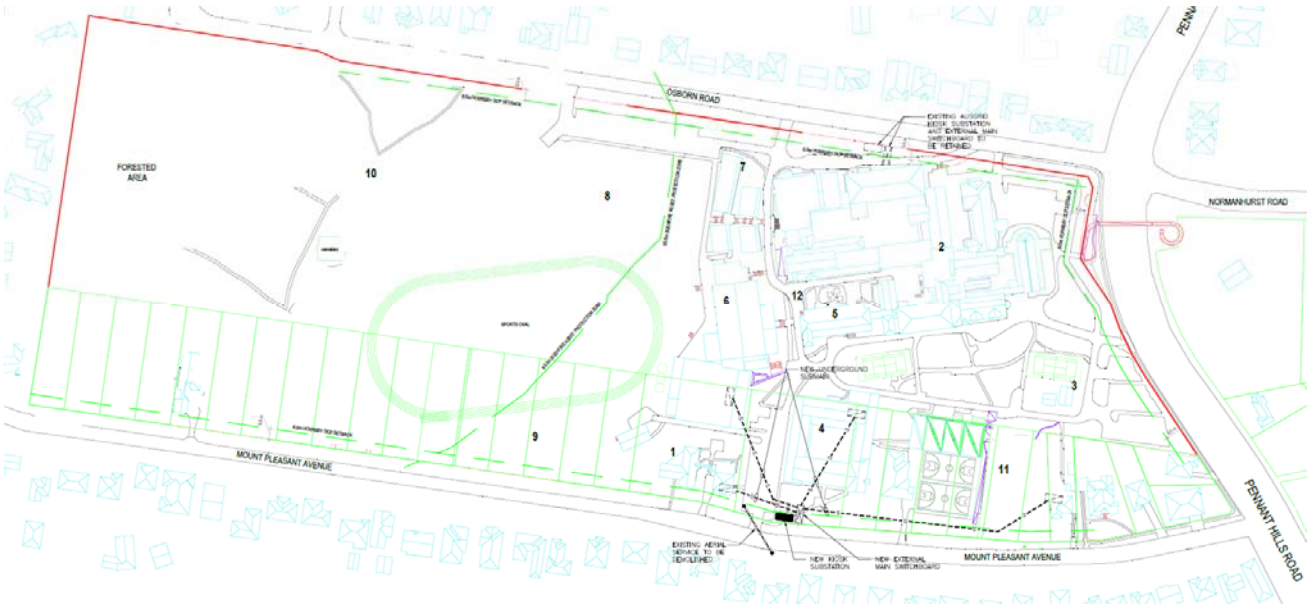

Figure 36 Proposed upgrade to campus electricity supply

Source: Shelmerdines Consulting Engineers

6.18 Crime Prevention Through Environmental Design (Stage 1 Works)

The principles of Crime Prevention Through Environmental Design (CPTED) have been implemented within the boarding house proposed as part of the detailed Stage 1 works in accordance with the Department of Planning guideline titled Crime Prevention and the Assessment of Development Applications (2001) as follows:

Principle 1 – Natural Surveillance

As noted in Crime Prevention and the Assessment of Development Applications, good surveillance means that people can see what others are doing. People feel safe in public areas when they can easily see and interact with others. Would-be offenders are often deterred from committing crime in areas with high levels of surveillance.

The proposed development provides increased active surveillance along Mount Pleasant Avenue. The Boarding House will be built in a largely vacant section of the street frontage and the built form will provide surveillance from boarders to the suburban street. The Boarding House provides windows that address both Mount Pleasant Avenue as well as the open space within the Loreto Normanhurst campus. This promotes casual surveillance to the school and the street and will act as a risk in the minds of potential perpetrators.

Principle 2 – Access Control

Access controls use physical and symbolic barriers to attract, channel or restrict the movement of pedestrians. As noted in Crime Prevention and the Assessment of Development Applications, effective access controls make it clear where people are permitted to go or not go, and makes it difficult for potential offenders to reach and victimise people and damage property. Illegible boundary markers provide excuses for being in restricted areas.

The main entrance to the school will remain accessed from Pennant Hills Road. The school will remain open during the day however access by visitors will be controlled via the reception desk located at front of the school. The Boarding House will also be available to students outside of school hours. It will be managed by the school with an on-site manager to ensure safety for students and boarders. The Boarding House will have their own access control.

Principle 3 – Territorial Reinforcement

Territorial reinforcement refers to the clear identification of public spaces, and the creation of a sense of community ownership over such spaces. As noted in the Crime Prevention and the Assessment of Development Applications people feel comfortable in, and are more likely to visit, places which feel owned and cared for. Well used places also reduce opportunities for crime and increase risk to criminals.

Boundary fencing and landscaping will help differentiate public and private areas. The proposed development will provide a 1.8 metre high palisade fence along the eastern boundary to match the existing fence. This will reinforce the Boarding House and surrounds as a private property and deter potential criminals.

Principle 4 – Space Management

Space management refers to providing attractive, well maintained and well used spaces. As noted in Crime Prevention and the Assessment of Development Applications, space management strategies include site cleanliness, rapid repair of vandalism and graffiti and the removal of damaged physical elements.

The school will continually be maintained with particular care taken with the buildings, gardens and open space areas to avoid degradation and dilapidation. The continued maintenance and access control and territorial management will ensure that the buildings do not become degraded and will discourage any potential vandalism. The Boarding House will also employ an on-site manager to care for the day to day running of the building and its students.

6.19 Development Contributions

The Hornsby Shire Council's Section 7.12 Development Contribution Plan 2014 - 2024 applies to all school developments. In accordance with the plan, the Stage 1 works are subject to a 1% levy based of the development's cost of works. Development contribution amounts are generally payable prior to the issue of a Construction Certificate. On this basis, it is recommended that payment of development contributions to Council can be managed by way of a suitable condition of consent.

6.20 European Archaeology

The site is identified for archaeological potential under the HLEP 2013. Accordingly, a European Archaeological Assessment Report prepared by Ecological Australia is provided with this application at **Appendix Z**. The findings of the report are summarised below.

- The archaeological potential of the site is largely associated with the cemetery. The concept proposal works, including the Stage 1 works are generally located within the areas identified as low potential for archaeological evidence. The location of the Bush Chapel will not impact the cemetery. On this basis, the proposal will not result in any adverse archaeological impacts and no further historic archaeological assessment of the study area is required; and
- As noted in the detailed Conservation Management Plan (**Appendix M**), there is limited potential for early deposits due to the level of disturbance as a result of the expansion of the school facilities and buildings and works to the grounds, gardens and Oval. The cemetery remains as the significant feature of the site and should be conserved. Relics such as the Grotto ae part of the ongoing use of the site and should also be retained and protected. On this basis, the CMP concludes that there are no other known archaeological deposits on the site.

Notwithstanding this, in the extremely unlikely event that any suspected historical archaeological relics be uncovered during construction works, a suitably qualified archaeologist should be called to assess the finds. If deemed to be relics, the Heritage Council must be notified of the discovery under Section 146 of the *Heritage Act 1977* and appropriate assessment and management determined and put in place.

6.21 Site Suitability and Public Interest

The site is suitable for the proposed development given that:

- The site has been historically used as a school campus for nearly 120 years, and currently accommodates educational facilities and buildings of a similar scale to that proposed under the concept proposal;
- The concept proposal, including the Stage 1 works for the school is permissible in the zone;

- The proposal is consistent with the objectives of the zone as it provides a complementary facility and service that meets the day–to–day needs of the residents;
- The proposal adequately plans and responds to anticipated future growth in school enrolments in Hornsby LGA and surrounds;
- The proposal aims to increase capacity in proximity to nearby bus and rail infrastructure. In this regard, students and staff can rely on public transport to access the site without resulting in significant additional traffic impacts; and
- As demonstrated by this EIS, the concept proposal and Stage 1 works consider and minimise any adverse environmental impacts to the site and surrounds.

The site is in public interest given that the proposal:

- Will facilitate necessary renewal of out of date educational facilities, and provide contemporary learning environments for future generations;
- Respects the ecological, heritage and aesthetic features of the school campus;
- Will create additional jobs, during the construction phase as well as during the operation phase, and represents an investment in the local economy;
- The Stage 1 works will deliver a high landscape and design quality outcome; and
- The masterplan's guiding principles will ensure that the subsequent stages of the proposal provide high quality design and architectural outcomes.

7.0 Environmental Risk Assessment

The Environmental Risk Assessment (ERA) establishes a residual risk by reviewing the significance of environmental impacts and the ability to manage those impacts. The ERA for the Concept Masterplan and the detailed Stage 1 works have been adapted from Australian Standard AS4369.1999 Risk Management and Environmental Risk Tools.

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; and
- 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.

Figure 37 indicates the significance of environmental impacts and assigns a value between 1 and 10 based on:

- the receiving environment;
- the level of understanding of the type and extent of impacts; and
- 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; and
- 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.

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 37 Risk Assessment Matrix

				Risk Assessment		
Item	**Phase**	**Potential Environmental Impact**	**Proposed Mitigation Measures and / or Comment**	**Significance of Impact**	**Manageability of Impact**	**Residual Impact**
Heritage Impact	O	Impact heritage significant fabric	• Preparation of suitable interpretation strategy that acknowledges the Loreto Community House and the accommodation use of the building.	2	2	4 (Low/Medium)
Traffic	C	Construction traffic Impact	• Construction traffic and pedestrian interaction is to be managed in accordance with the management measures outlined under the CTPM. A list of mitigation measures have been provided within the CTMP and include: – Traffic control; – Potential haulage routes; and – Entry / exit routes.	3	2	5 (Low/Medium)
Contamination Impact	C	Exposure to contaminants during construction.	• Detailed site investigation is to be carried out for any future subsequent detailed design development applications. In this instance, the propsoal does not relate to a change of use. On this basis, it is recommended that contamination matters be managed by way of a suitable condition of consent. • For the Stage 1 works area, following competition of demolition works on site, further investigation is to be undertaken within the building footprint of those structures to fully characterise the site. Remediation works, if necessary, will be undertaken in accordance with the Remediation Action Plan. Following remediation, a Validation Report will be prepared by a suitably qualified Environmental Consultant, which will detail the methodology, results and conclusion of the assessment, provide waste classification and disposal information, and make a clear statement regarding the suitability of the site for the proposed land use.	3	2	5 (Low/Medium)
Biodiversity	C + O	Loss of biodiversity	• A list of mitigation measures is proposed to manage impacts prior to and during construction, as well as the operation phase of Stage 1 development, Stage 2 development and all subsequent future buildings. Where residual unavoidable impacts are observed, biodiversity offset credits need to be purchased. As identified under the BDAR report, 8 ecosystem credits are required to offset impact to the planted BGHF vegetation community and 2 ecosystem credits are necessary for removal of the STIF vegetation community.	3	3	6 (Medium)

				Risk Assessment		
Bushfire	O	Risk of bushfire	• The existing APZ is maintained for the site. New developments are generally located outside of the APZ setback area. An Emergency and Evacuation Management Plan is either updated (if existing) or a new plan be prepared, in accordance with the RFS Guidelines for the preparation of the Emergency / Evacuation Plan, prior to the completion of the proposed development.	3	2	5 (Low/Medium)
Construction Noise	C	Exposure to Construction Noise in exceedance of the noise criteria	• Preparation of a Construction Noise and Vibration Management Plan that sets out specific management measures to reduce and manage construction noise exceedances prior to commencing construction activities.	3	3	6 (Medium)

8.0 Mitigation Measures

The collective measures required to mitigate the impacts associated with the proposed works are detailed in **Table 13** below. These measures have been derived from the previous assessment in **Section 6.0** and those detailed in appended consultants' reports.

Table 13 Mitigation Measures

Mitigation Measures
Contamination • Detailed site investigation is to be carried out for any future subsequent detailed design development applications. In this instance, the propsoal does not relate to a change of use. On this basis, it is recommended that contamination matters be managed by way of a suitable condition of consent. • For the Stage 1 works area, following competition of demolition works on site, further investigation is to be undertaken within the building footprint of those structures to fully characterise the site. Remediation works, if necessary, will be undertaken in accordance with the Remediation Action Plan. Following remediation, a Validation Report will be prepared by a suitably qualified Environmental Consultant, which will detail the methodology, results and conclusion of the assessment, provide waste classification and disposal information, and make a clear statement regarding the suitability of the site for the proposed land use.
Construction Traffic and Pedestrian Management Plan • Construction traffic and pedestrian interaction is to be managed in accordance with the management measures outlined under the CTPM.
Building Code of Australia • Alternative solutions that address non-compliances with the deemed to satisfy provisions of the BCA should be considered during detailed design stage. The alternate solutions should be assessed against the relevant Performance Requirements of the BCA by suitably qualified persons.
Tree Removal • Trees identified for retention will be protected in accordance with the recommendations of the Arboricultural Impact Appraisal and Method Statement prepared by Earthscape Horticultural Services.
Biodiversity • A list of mitigation measures is proposed to manage impacts prior to and during construction, as well as the operation phase of Stage 1 development, Stage 2 development and all subsequent future buildings. Where residual unavoidable impacts are observed, biodiversity offset credits need to be purchased. As identified under the BDAR report, 8 ecosystem credits are required to offset impact to the planted BGHF vegetation community and 2 ecosystem credits are necessary for removal of the STIF vegetation community.
Heritage • Preparation of suitable interpretation strategy that acknowledges the Loreto Community House and the accommodation use of the building.
Bushfire • The existing APZ is maintained for the site. New developments are generally located outside of the APZ setback area. An Emergency and Evacuation Management Plan is either updated (if existing) or a new plan be prepared, in accordance with the RFS Guidelines for the preparation of the Emergency / Evacuation Plan, prior to the completion of the proposed development.
Construction Noise and Vibration • Preparation of a Construction Noise and Vibration Management Plan that sets out specific management measures to reduce and manage construction noise exceedances prior to commencing construction activities.

9.0 Justification of the proposal

In general, investment in major projects can only be justified if the benefits of doing so exceed the costs. Such an assessment must consider all costs and benefits, and not simply those that can be easily quantified. As a result, the EP&A Act specifies that such a justification must be made having regard to biophysical, economic and social considerations and the principles of ecologically sustainable development.

The proposed development relates to new Concept Masterplan for the existing Loreto Normanhurst school and detailed consent for Stage 1 works. The assessment must therefore focus on the identification and appraisal of the effects of the proposed change over the site's existing condition.

Various components of the biophysical, social and economic environments have been examined in this EIS and are summarised below.

9.1 Social and Economic

Schools are essential pieces of social infrastructure within a community. This proposal will enable the existing school to undergo timely renewal and upgrade, so as to ensure that the existing and future generation of students within the locality and broader community have access to high quality education. The proposal will replace out of date facilities with contemporary learning facilities, equipping the younger generation with necessary modern skills and good education.

The proposal seeks to stop the ad-hoc development approach of the school campus, which can result in poor social, economic and environmental outcomes for the school campus and surrounds. Alternatively, it will provide a framework that holistically reviews opportunities to improve the amenity, functionality and equitable access of the existing campus.

Importantly, the proposal strategically plans for anticipated growth in student enrolment numbers in Hornsby LGA and nearby LGAs and increases the schools student capacity. The proposal will also create new long term job opportunities and contribute to the economic activity of the locality. The staged 30 year masterplan will also facilitate the supply of construction jobs.

As such, the overall proposal will result in positive social and economic outcomes.

9.2 Biophysical

Section 6.0 of this EIS contains a thorough assessment of the likely biophysical impacts of the proposed development. The environmental risk assessment contained at **Section 7.0** demonstrates that the proposed development will not result in any significant environmental impacts that cannot be appropriately addressed through standard conditions of consent or the current mitigation measures included at **Section 8.0**.

The environmental impact assessment of the proposed development has demonstrated that responsive measures will ensure noise and vibration impacts, construction traffic and pedestrian conflicts are adequately managed during the construction phase. Further, ecological impacts can appropriately be managed through the mitigation measures outlined under **Section 8.0**. On this basis, the development is not anticipated to result in adverse biophysical impacts.

9.3 Ecologically Sustainable Development

The EP&A Regulation lists 4 principles of ecologically sustainable development to be considered in assessing a project. They are:

- The precautionary principle;
- Intergenerational equity;
- Conservation of biological diversity and ecological integrity; and
- Improved valuation and pricing of environmental resources.

An analysis of these principles follows.

Precautionary Principle

The precautionary principle is utilised when uncertainty exists about potential environmental impacts. It provides that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. The precautionary principle requires careful evaluation of potential environmental impacts in order to avoid, wherever practicable, serious or irreversible damage to the environment.

While the site contained two candidates (BGHF and STIF vegetation communities) identified for Serious and Irreversible Impacts (SAII) under the OEH bionet web portal. The BDAR assessment (**Appendix Q**) concludes that the area of impact is minimal and on this basis is not anticipated to result in any serious and irreversible impacts. Further, much of the works are proposed to the already developed areas of the school campus. On this basis, the EIS has not identified any further serious threat of irreversible damage to the environment. On this basis, the precautionary principle is not relevant to the proposal.

Intergenerational Equity

Inter-generational equity is concerned with ensuring that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations. The proposal has been designed to benefit both the existing and future generations by:

- Facilitating improved connectivity, permeability and equitable access opportunities within the broader school campus;
- Protecting the unique ecological and aesthetic qualities of the school campus by limiting development areas by intensifying development within the developed areas of the campus; and
- Implementing safeguards and management measures to protect environmental values;

The proposal has integrated short and long-term social, financial and environmental considerations so that any foreseeable impacts are not left to be addressed by future generations. Issues with potential long term implications such as waste disposal would be avoided and/or minimised through construction planning and the application of safeguards and management measures described in this EIS and the appended technical reports.

Conservation of biological diversity and ecological integrity

The principle of biological diversity upholds that the conservation of biological diversity and ecological integrity should be a fundamental consideration. This proposal is informed by a detailed BDAR (**Appendix Q**), prepared in accordance with the requirements of the BC Act 2016. The findings of the report conclude that impacts on biological diversity and ecological integrity can appropriately be managed. Importantly, the proposal seeks to largely limit additional development within the existing built portion of the campus and avoid high biodiversity value areas. Notwithstanding this, mitigation measures are provided under the BDAR to appropriately reduce any anticipated impacts during construction and operation. A risk assessment further confirms that by appropriately applying mitigation measures, all risk is classified as either low or very low.

Improved valuation, pricing and incentive mechanisms

The principles of improved valuation and pricing of environmental resources requires consideration of all environmental resources which may be affected by a proposal, including air, water, land and living things. Mitigation measures for avoiding, reusing, recycling and managing waste during construction and operation would be implemented to ensure resources are used responsibly in the first instance.

Additional measures will be implemented to ensure no environmental resources in the locality are adversely impacted during the construction or operational phases.

10.0 Conclusion

The Environmental Impact Statement (EIS) has been prepared to consider the environmental, social and economic impacts of the proposed concept proposal and detailed stage 1 works. The EIS has addressed the issues outlined in the SEARs (**Appendix A**) and accords with Schedule 2 of the EP&A Regulation with regards to consideration of relevant environmental planning instruments, built form, social and environmental impacts including traffic, noise, biodiversity and stormwater impacts.

Having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development, the carrying out of the project is justified for the following reasons:

- The concept masterplan is consistent with the ongoing strategic intent in facilitating the growth of educational spaces within Sydney and, in particular, the North District of Sydney.
- The concept masterplan is consistent with the objectives of the Loreto Strategic Plan 2016 – 2020 and provides an overarching strategy to guide renewal and development in an orderly and planned manner;
- It undertakes a holistic review of the existing campus and sets out guidelines to protect the aesthetically and environmentally unique qualities of the campus, by limiting additional development to parts of the site that can readily accommodate capacity;
- The development protects and preserves the heritage significant items, including prominent heritage views of the campus;
- The concept masterplan provides a framework to improve the amenity, functionality and equitable access of the existing campus;
- The proposal will offer several positive socio-economic benefits including an increase of educational spaces as well as the creation of new long term job opportunities; and
- The assessment of this proposal has demonstrated that the development will not generate any environmental impacts that cannot be appropriately managed, and is generally consistent with the relevant planning controls for the site, with the exception of height. As detailed in **Section 9.0**, it is considered unreasonable and unnecessary that the height standard be applied to the site.

Given the merits described above, it is requested that the Minister, or his delegate, approve this application.