

**School Infrastructure NSW**  
**Level 8**  
**259 George Street**  
**SYDNEY NSW 2000**

**Project 89754.03**  
**23 April 2021**  
**89754.03.R.003.Rev3.Air Quality**  
**CB:TK:kd**

Attention: David Wheeler

Email: david.wheeler26@det.nsw.edu.au

**Air Quality Assessment - Qualitative**  
**Proposed Hastings Secondary College Port Macquarie Campus Upgrade**  
**16 Owen Street, Port Macquarie**

## 1. Introduction

Douglas Partners Pty Ltd (DP) has been commissioned by School Infrastructure NSW (SINSW) on behalf of the Department of Education (DOE) to prepare this qualitative air quality assessment (QAQA) to accompany a State Significant Development Application (SSDA) to the NSW Department of Planning, Industry and Environment (DPIE) for proposed upgrades to Hastings Secondary College (Port Macquarie Campus), previously known as Port Macquarie High School.

Hastings Secondary College consists of two campuses, being Westport and Port Macquarie. This report has been prepared for proposed works at the Port Macquarie Campus, which consists of two properties, the main campus and the Ag Plot.

The works subject to this proposal are to be carried out on the main Port Macquarie campus which is located at 16 Owen Street, Port Macquarie (the site). The site has a secondary street frontage to Burrawan Street and adjoins Oxley Oval along the eastern boundary.

On 23 December 2020, the Secretary of the DPIE issued Secretary's Environmental Assessment Requirements (SEARs) for SSD Application No. 11920082. This report has been prepared in accordance with the SEARs requirements.

The aim of this QAQA was to provide a qualitative assessment of key environmental air quality risks and potential impacts associated with the proposed development.

The client supplied architectural plans by fjmt Architecture for the project.

## 2. Scope of Works

The following were considered in the qualitative assessment of air quality risks and potential impacts for the proposed development:

- Proposed development and construction activities (scale and nature);
- Potential sources/impacts of air emissions;
- Pollutants of concern;
- Sensitivity of receptors and general site area;
- Local conditions;
- Qualitative assessment of risk;
- Site specific mitigation/management measures.

## 3. Site Description

The site is located approximately 1.2km south east of the Port Macquarie town centre, with access from Oxley Highway (Gordon Street) via Owen Street to the centre, William Street via Owen Street to the north and Burrawan Street via Owen Street to the south. A maintenance access road exists to the east of the site along Burrawan Street.

The site is located at 16 Owen Street, Port Macquarie and is legally known as Lot 111 in DP 1270315. The Port Macquarie Campus site is located within a coastal setting (east), with residential (single two storey and residential flat buildings) located to the west and south and Port Macquarie Bowling Club to the north. The surrounding street network provides on-street parking. Maintenance vehicular access is located off Burrawan Street.

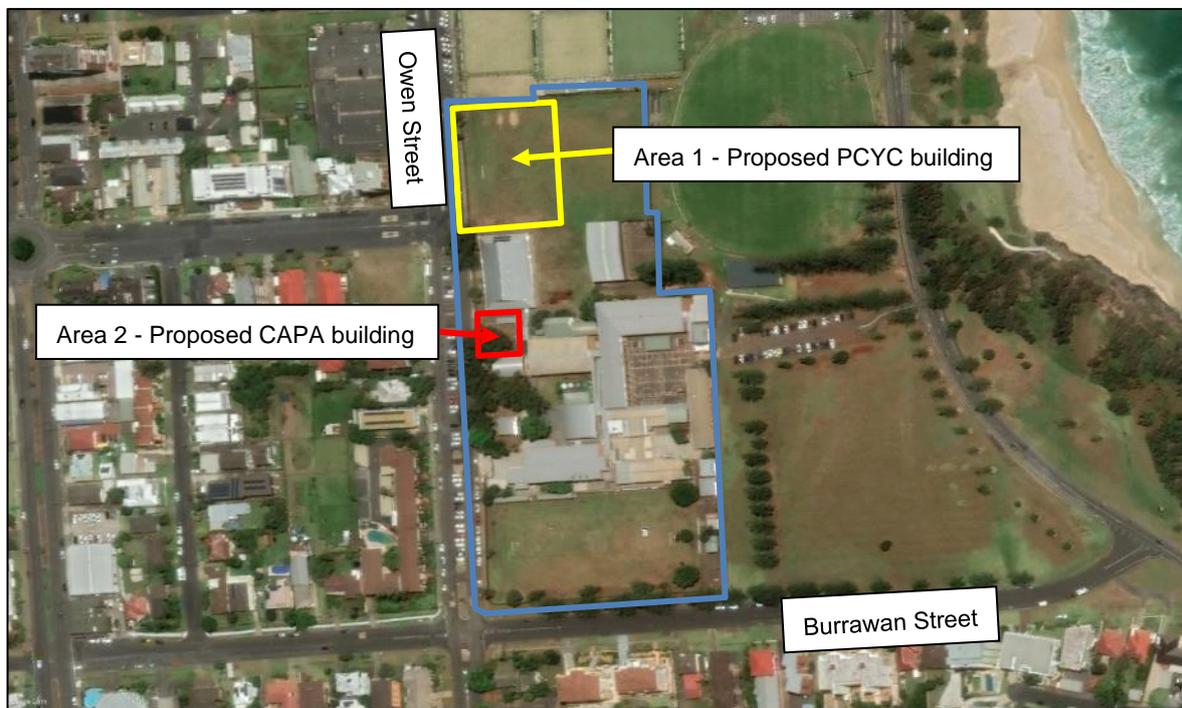
No Natural watercourses are mapped as traversing the site. Scattered vegetation is located throughout the site, with a small area of vegetation concentrated towards the pedestrian access area.

The Port Macquarie Campus site is gently sloping downwards in three general 'platforms' towards the north, with distinct views out towards the ocean and the Hastings River. It also has a distinct view line to the row of Norfolk pine trees along the coastline. The siting of the campus provides many opportunities for ongoing cultural connection to Country. Current built form has an established language of two (2) story, face brick, low pitched metal roof buildings.

Details of the site are shown in **Table 1** below.

**Table 1: Site details for 16 Owen Street, Port Macquarie**

<b>Proposed Development</b>	<b>Site 1 (PCYC building)</b>	<b>Site 2 (CAPA building)</b>
<b>Site Address</b>	16 Owen Street, Port Macquarie	
<b>Legal Description</b>	Lot 111 DP1270315	
<b>Zoning</b>	Port Macquarie Local Environmental Plan (LEP) 2011. Zone R3 Medium Density Residential (Landuse – Secondary School);	
<b>Local Council Area</b>	Port Macquarie Hastings Council	
<b>Current Use</b>	Vacant land functioning as a school sports oval	Walkways between existing structures, lunchtime recreational area
<b>Surrounding Uses</b>	<p><b>North</b> – Port City Bowling Club</p> <p><b>East</b> – School oval and Oxley Oval (cricket ground)</p> <p><b>South</b> – Existing MPC hall</p> <p><b>West</b> – Bound by Owen Street, and residential developments.</p>	<p><b>North</b> – Existing MPC Hall</p> <p><b>East</b> – Existing building “S” and building “B”</p> <p><b>South</b> – Covered entrance to the school</p> <p><b>West</b> – Bound by Owen Street, and residential developments.</p>



**Figure 1: Boundary of Hastings Secondary College (blue outline), proposed PCYC building extent (yellow outline) and proposed CAPA building extent (red outline) (image sourced from Google Earth, dated January 2020)**

#### 4. Local Conditions – Topography, Soils and Geology

Regional Topography	The general topography of the surrounding area typically comprises near level open space areas and low undulating hills with minor slopes toward creek lines which ultimately drain to the Hasting's River.
Site Topography	<p>The school site generally sits on the northern slope of a broad shaped hill, with its peak situated to the south-east at Windmill Hill Reserve. The site gently slopes to the north towards Port City Bowling Club at a slope of between 5° to 10°. Review of the local topographical mapping indicates that surface levels for the total site generally fall to the north from approximately RL 24 m AHD (south-east corner of the site) to approximately RL 11 m AHD (northern boundary).</p> <p>The site of the proposed PCYC building is currently levelled and acts as a sports oval. The site of the proposed CAPA building generally slopes to the north at an approximate slope of between 2° to 5°.</p>
Site Soils	Generally comprised silty sand/sandy silt topsoil, underlain by clayey fill and natural residual clays grading to weathered rock.
Geology	Reference to the NSW Geological Survey 1:250,000 map indicates that the site is underlain by Silurian to Devonian aged Watonga Formation which typically comprises slate, chert, slaty sandstone and rare metabasalt. The north eastern extent of the proposed PCYC building is also underlain by Cambrian to Permian aged Tacking Point Complex, which typically comprises melange, serpentinite. A review of NCCA naturally occurring asbestos (NOA) mapping indicates the site is within a high risk area.

The results of the DP (2021) Preliminary Site Investigation for Contamination for the Proposed School Upgrade, Hastings Secondary College, Port Macquarie, (Report 89754.03.R.001.Rev0) indicated the following:

- General absence of gross soil contamination;
- Presence of naturally occurring chromium and possibly nickel concentrations in soil, however, concentrations were within the adopted human health and ecological site assessment criteria;
- Site mapping indicated that naturally occurring asbestos may be present within the site associated with underlying soils/bedrock with serpentinite origins, however, preliminary testing on soils and weathered rock indicated the absence of asbestos at the locations and depths tested;
- As a precautionary measure, it was recommended that the Construction Environmental Management Plan (CEMP) include procedures to safely handle/manage soils/weathered rock (including confirmatory testing where required) in relation to naturally occurring asbestos;
- It was also recommended that the CEMP include an unexpected finds protocol for the proposed development due to the observed presence of fill within the investigation area (i.e. variable fill conditions may be present).

Reference should be made to DP(2021) for details.

## 5. Proposed Development & Construction Activities

The upgrades will support high-quality educational outcomes to meet the needs of students within the local community and deliver innovative learning and teaching spaces as follows:

- Demolition works to accommodate new works;
- Upgrade to school entry;
- Construction of new two (2) storey Creative and Performing Arts (CAPA) building;
- Construction of new Police Citizens Youth Club (PCYC);
- Partial refurbishment of Building L;
- Refurbishment and alteration to Building B;
- Removal of Building S and demountable buildings;
- New lift connections, covered outdoor learning area (COLA) and covered walkways;
- Associated earthworks, landscaping, stormwater works, service upgrades; and
- Tree removal/ tree safety works.

No change to current staff or student numbers is proposed.

It is understood that the proposed development will include the following construction activities:

- Bulk earthworks - minor cut and fill for building pads (PCYC and CAPA abuilding);
- Infrastructure - provision of minor access and services to new buildings; and
- Construction of new buildings.

It is noted that the total building area is estimated to be less than 10,000 m<sup>2</sup>. The construction works are anticipated to be staged over a period of 13 months. If this construction duration is exceeded a review of this report may be warranted.

The proposed development is shown on the fjmt Site Plan (Ref SSSA-120010 Rev 05) attached.

It is noted that demolition activities are currently underway for CDC works and the current demolition works have not been considered in the current assessment.

## 6. Potential Sources of Air Emissions & Pollutants of Concern

The following key sources of air emissions have been identified during the construction works:

- Modifications/cutting of existing buildings and surfaces;
- Disturbance of site soils - stripping and grading of surface soils, excavations for foundation construction and installation of services;
- Loading and unloading of materials;
- Vehicle movements on unsealed surfaces (wheel-generated dust);
- Wind erosion - exposed surfaces;
- Combustion emissions from on-site mobile and fixed equipment/vehicles.

Environmental factors such as wind speed and direction, rainfall, condition of surface soils (i.e. grading, moisture, erodibility etc) may also affect the generation and dispersion of dust emissions.

Mobile machinery and vehicles utilised for construction are likely to be diesel-powered. The potential for adverse environmental impacts from combustion-related pollutants is considered to be relatively low considering the scale and duration of work.

The following potential air pollutants have been identified for the subject site and the proposed development:

- Suspended particulate matter;
- Deposited dust;
- Products of fuel combustion (including particulates).

## 7. Assessment of Dust Emission Risks During Construction

Due to the relatively small scale of the proposed development, a qualitative assessment has been conducted to assess the risk of air quality impacts and identify relevant mitigation measures associated with the proposed construction activities.

The assessment process considered the following:

- Sensitivity and distance to the nearest receptors;
- The scale and nature of the works;
- Typical/common mitigation measures during bulk earth works and construction.

The nearest sensitive receptors to the proposed development are considered to be the following:

- Students/teachers within existing building(s) and open areas immediately adjacent to the proposed construction works;
- Residences immediately opposite the school on Owen Street;
- The Port City Bowling Club immediately north of the proposed PCYC building;
- Occupants of nearby public space(s).

Reference should be made to the attached proposed development Site Plan by fjmt (Ref SSDA - 120010 Rev 05).

The scale and nature of the works have been estimated as follows:

- Earthworks:
  - <10,000 m<sup>2</sup>;
  - <100,000 t of materials disturbed;
  - Silty sand and clay soil type;
  - Small to Medium scale;
- Construction:
  - <25,000 m<sup>3</sup>;
  - Low potential for dust release from construction materials;
  - Small scale;
- Track-out (transport of soil/dust from construction activities):
  - <10 heavy vehicle movements/day;
  - <50 m of unpaved road length;
  - Small scale.

It is noted that high sensitivity receptors (i.e. school children, teachers, residential areas, general public) have been identified for the proposed development considering the proximity of the site and the proposed construction activities.

Although high sensitivity receptors have been identified, the scale and nature of the work is generally considered to be “small” which suggests a relatively low risk of environmental impacts in general, subject to the implementation of appropriate mitigation measures.

## 8. Mitigation Measures

Although the risks associated with the proposed development are likely to be relatively low due to the scale and nature of the proposed work, it is recommended that appropriate mitigation measures be implemented to minimise the potential for environmental release.

As a minimum, the common/typical mitigation measures listed below should be considered during the development of the Construction Environmental Management Plan (CEMP) for the development.

- Communication:
  - Prepare a Dust Management Plan (DMP);
  - Contact details of person(s) accountable for air quality and dust issues are displayed on the construction area boundary;
  - Consult with relevant stakeholders at all stages of work, including planning.
- Site Management
  - Keep records of incidents that cause dust and/or air emissions, and any dust and air quality complaints;
  - Identify cause(s) dust and/or air emissions and take appropriate measures to reduce emissions;
  - Program site work to avoid excess contaminant generation at any particular time;
  - Consider conducting site work outside normal school operating hours if / when necessary.
- Monitoring
  - Conduct regular site inspections to monitor compliance with the DMP;
  - Increase the frequency of site inspections during prolonged dry or windy conditions or when dust producing activities are carried out.
- Preparing and Maintaining the Site:
  - Ensure access to areas of site work is adequately restricted;
  - Plan site layout so that relevant activities are located as far as possible from receptors;
  - Remove potential dust producing materials as soon as possible, or use on-site covers;
  - Cover, seed, fence stockpiles or exposed soils to prevent erosion;
  - Consider solid screens or barriers around dusty activities or at the site boundary.
- Operating Vehicle/Machinery:
  - Ensure all vehicles comply with relevant vehicle emission and control standards;
  - Avoid the use of diesel/petrol powered generators where possible;
  - Impose maximum-speed-limits on-site.
- Operations:
  - Ensure a reliable water supply on-site for effective dust suppression/mitigation;
  - Minimise stockpile heights and drop heights from loading or handling equipment;
  - Plan and minimise vehicle movements;
  - Ensure effective dust suppression is used where required;
  - Use low pressure water sprays where required;
  - Tools and equipment should be fitted with appropriate dust capture / suppression systems where necessary.

- Trackout (material tracked out of the site):
  - Implement a wheel washing system (with rumble grids) prior to leaving the site where practicable;
  - Avoid dry sweeping of large areas;
  - Use water-assisted dust sweeper(s) on access and local roads as necessary;
  - Consider covering of vehicles entering and leaving sites to prevent escape of materials during transport;
  - Inspect haul routes regularly.

As stated in the DP(2021), the Construction Environmental Management Plan (CEMP) should also include procedures to safely handle/manage soils/weathered rock (including confirmatory testing where required) in relation to naturally occurring asbestos, as a precautionary measure.

In addition to the above, environmental risks, potential impacts and controls must be reviewed on a regular basis, and revised if necessary, to ensure that an appropriate level of control is maintained.

## 9. Conclusion

Douglas Partners Pty Ltd (DP) was commissioned to undertake this qualitative air quality assessment (QAQA) for the proposed upgrade and redevelopment works at the Port Macquarie Campus of Hastings Secondary College.

A number of potential sources of air emissions were identified together with environmental factors that may also affect the generation and dispersion of dust emissions.

High sensitivity receptors (i.e. students, teachers, nearby residents and the general public) were identified, however, the scale of the works is considered to be “small” which generally suggests a low risk of environmental impact subject to the implementation of appropriate mitigation/management measures.

Typical mitigation measures were provided in Section 8 above and should be considered when preparing the Construction Environmental Management Plan (CEMP) for the development. The CEMP should, however, not necessarily be limited to the mitigation measures identified in Section 8.

Based on the qualitative assessment above, the potential risks to receptors (including students, teachers, nearby residents and the general public) from air emissions from the proposed development is considered to be low and can be appropriately managed via typical mitigation measures.

## 10. Reference

DP (2021) Report on Preliminary Site Investigation for Contamination, Proposed Hastings Secondary College Upgrade, 16 Owen Street, Port Macquarie, Report 89754.03.R.001.Rev2, dated 16 April 2021.

## 11. Limitations

Douglas Partners (DP) has prepared this report for this project at 16 Owen Street, Port Macquarie with reference to DP's proposal PMQ200104 dated 27 January 2021 and subsequent emails dated 29 January 2021 and 9 February 2021. The work was undertaken at the request of Tarren Miller of Currie & Brown on behalf of School Infrastructure NSW. The work was carried out as a variation to the original SINSW contract number: SINSW00285/19 dated 2 December 2019.

This report is provided for the exclusive use of School Infrastructure NSW for this project only and for the purposes as described in the report. It should not be used by or relied upon for other projects or purposes on the same or other site or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

The results provided in our report(s) are indicative of the sub-surface conditions on the site only at the specific sampling and/or testing locations, and then only to the depths investigated and at the time the work was carried out. Sub-surface conditions can change abruptly due to variable geological processes and also as a result of human influences. Such changes may occur after DP's field testing has been completed.

DP's advice is based upon the conditions encountered during previous DP site investigations. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

The assessment of atypical safety hazards arising from this advice is restricted to the environmental components set out in this report and based on known project conditions and stated design advice and assumptions. While some recommendations for safe controls may be provided, detailed 'safety in design' assessment is outside the current scope of this report and requires additional project data and assessment.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

Asbestos has not been detected by observation or by laboratory analysis, either on the surface of the site, or in filling materials at the test locations sampled and analysed. Some building demolition materials were observed, and these are considered as indicative of the possible presence of hazardous building materials (HBM), including asbestos.

Although the sampling plan adopted for previous investigations is considered appropriate to achieve the stated project objectives, there are necessarily parts of the site that have not been sampled and

analysed. This is either due to undetected variations in ground conditions or to budget constraints, or to parts of the site being inaccessible and not available for inspection/sampling, or to vegetation preventing visual inspection and reasonable access. It is therefore considered possible that contaminants (including naturally occurring asbestos, asbestos-containing construction/demolition wastes and/or asbestos-containing soil/fill) may be present in unobserved or untested parts of the site, between and beyond sampling locations, and hence no warranty can be given that such materials or contaminants are not present.

The recommendations and conclusions contained in this report shall not abrogate a person of their responsibility to work in accordance with statutory requirements, codes of practice, standards, guidelines, safety data sheets, work instructions or industry best practice.

While work is undertaken in a professional manner the nature of potential contaminants, their multitude sources and the limitations of the method(s) used mean that we cannot guarantee that all potential contaminants or issues of concern have been identified.

Please contact the undersigned if you have any questions on this matter.

Yours faithfully

**Douglas Partners Pty Ltd**

pp

  
**Chris Bozinovski**  
Principal

Reviewed by



**Tim Kulmar**  
Associate  
Senior Occupational Hygienist

Attachments:      About this Report  
                         Drawing 1 – Test Location Plan  
                         fjmt Site Plan – Proposed (SSDA-120010 Rev 05)

cc:      Currie & Brown – Attention: Martin Havdahl  
            Email: martin.havdahl@curriebrown.com

## Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

## Copyright

This report is the property of Douglas Partners Pty Ltd. The report may only be used for the purpose for which it was commissioned and in accordance with the Conditions of Engagement for the commission supplied at the time of proposal. Unauthorised use of this report in any form whatsoever is prohibited.

## Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

## Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

## Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

continued next page

## About this Report

### Site Anomalies

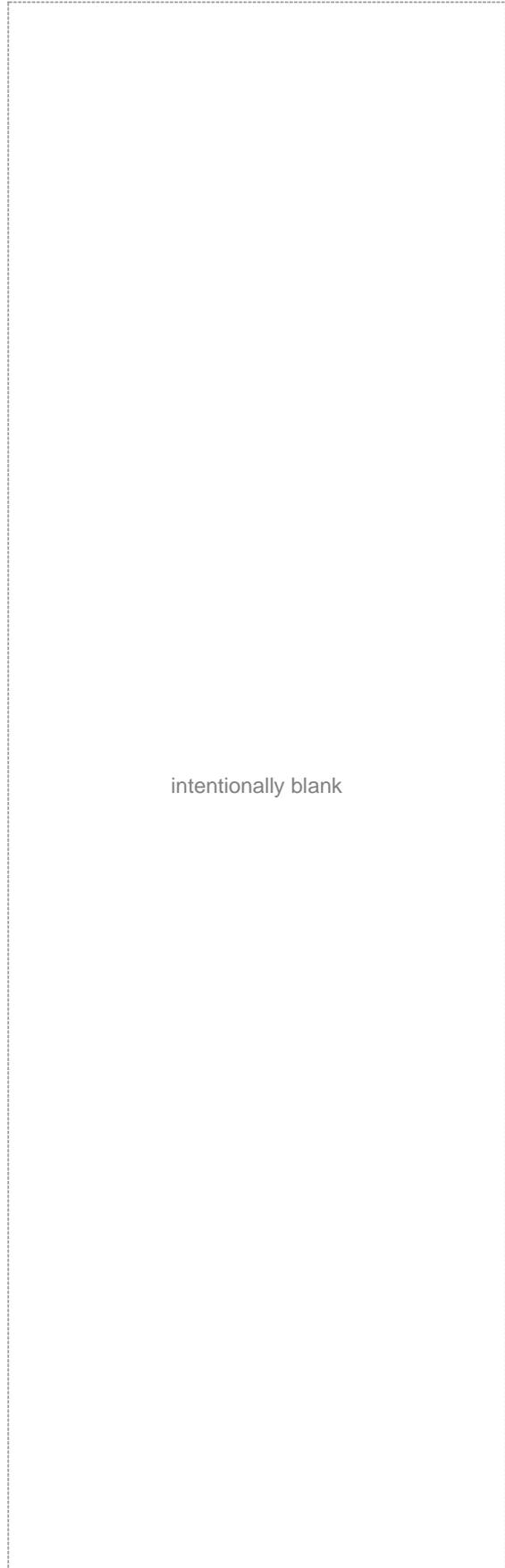
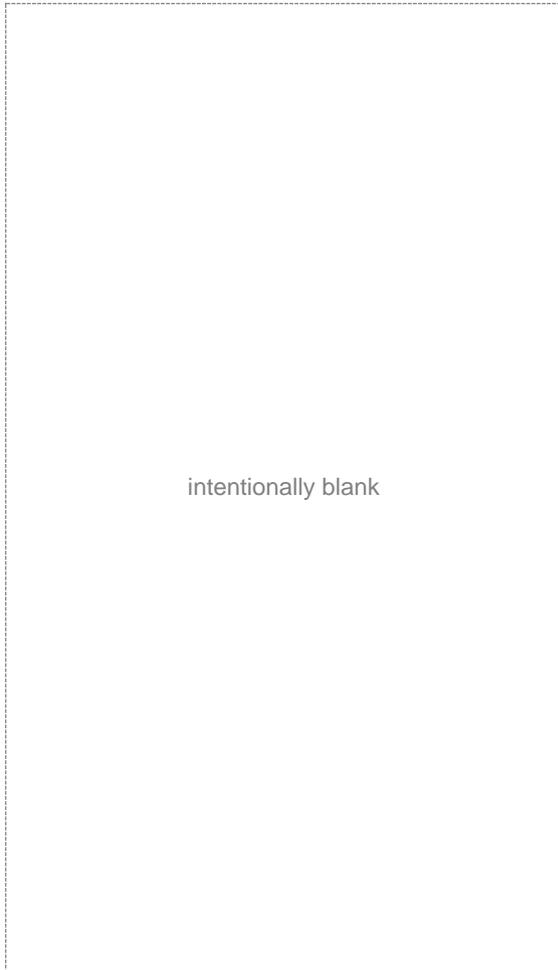
In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

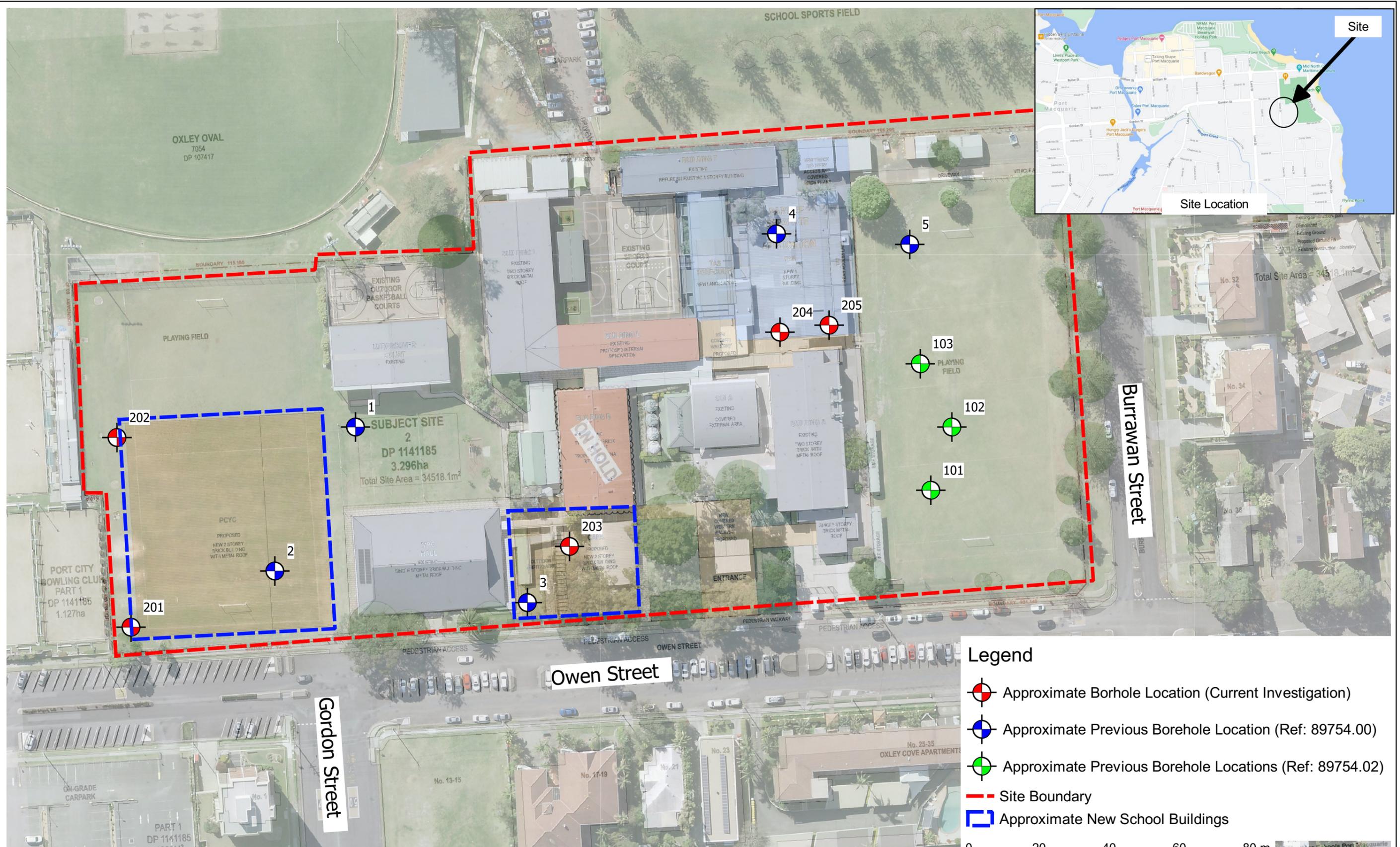
### Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

### Site Inspection

The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.



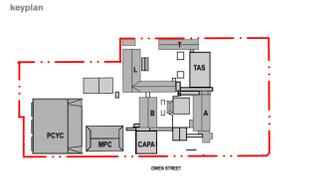


Drawing adapted from aerial imagery from Metro Map dated 17 September 2020 and Client supplied drawing titled "Site Plan - Proposed" Drawing SSSA-120010, dated 12 February 2021, Rev01, by fjmt Studio

Test locations are approximate only and were located using Handheld GPS and Measured off site features



**GENERAL NOTES**  
 ALL DIMENSIONS AND EXISTING CONDITIONS SHALL BE CHECKED AND VERIFIED BY THE CONTRACTOR BEFORE PROCEEDING WITH THE WORK.  
 ALL LEVELS RELATIVE TO AUSTRALIAN HEIGHT DATUM.  
 DO NOT SCALE DRAWINGS.  
 USE FIGURED DIMENSIONS ONLY.



- legend
- BOUNDARY LINE
  - AREA UNDER ALTERNATIVE PLANNING PATHWAY
  - PROPOSED REFURBISHMENT
  - NEW CONSTRUCTION
  - EXISTING TREES
  - PROPOSED TREES

- No. 18-20
- No. 22
- No. 24
- No. 26
- No. 28
- No. 32
- No. 34
- No. 36

rev	date	name	by	chk
05	14/4/21	SSDA	MU	
04	26/3/21	SSDA	KT	
03	19/3/21	SSDA - Consultant	AD	
02	23/2/21	Draft SSDA 02	KT	
01	12/2/21	Draft SSDA	MU	

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project  
**Hastings Schools Port Macquarie**  
 Hastings Secondary College  
 Port Macquarie NSW 2444

Site  
**Site Plan - Proposed**

scale 1:500 @ A1 first issued 12/2/21  
 project code sheet no. revision  
**HSPM SSDA-120010 05**

