



Infrastructure & Services report Lindfield Learning Village – Stage 2&3

for
Design Inc
SINSW
Savills Project Management



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erbas™ project reference No: SYD19119

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0	13/05/2019	Preliminary	MS	SF
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overview

This infrastructure & services brief has been prepared by Michael Slatter (erbas™) on behalf of the NSW Department of Education and School Infrastructure NSW (the Applicant). It accompanies a Response to Submissions Report in support of State Significant Development Application (SSD 16_8114) for Lindfield Learning Village (the site).

On 24 October 2018 the Minister for Planning granted partial development consent to SSD 8114 for Phase 1 construction and operation of a new school for 350 students. The remainder of SSD 8114 (as originally proposed) has not yet been granted consent and has been subject to further investigation, assessment and engagement with the relevant agencies (DPE, RFS, OEH, RMS, TfNSW) and Council.

The Response to Submissions and supporting documents seek approval for the remainder of SSD 8114, being:

Stage 2(b) of construction:

- Works to accommodate 1,050 students (including the approved 350).
- Repurposing of the Phase 1 area.
- A loop road around the southern portion of the site for emergency vehicles, buses and drop off and pick up vehicles.

Stage 3 of construction:

- Works to accommodate an additional 950 students in the western wing of the building.

The purpose of this infrastructure & services brief is to provide an overarching impact assessment on the surrounding services infrastructure.

The detailed impact assessment of the Project had the following focus areas;

- Existing infrastructure capacity and redundancy;
- Existing infrastructure proximity to the footprint;
- Services augmentation or diversions that may be required;

The information used in the compilation of this report is current at the time of issue. It is noted that any future infrastructure or adjoining development plans not available for public information have not been considered in its preparation.

response to submissions

This infrastructure & services brief has considered the issues raised by agencies during exhibition of SSD 8114 and subsequent Response to Submissions for Phase 1. This table identifies the agency issue and where it has been addressed within this report. This report provides commentary to the extent of the statutory infrastructure available to Lindfield Learning Village (the Project). The infrastructure and design strategies herein may change or be developed with further scope as the design progresses.

Agency comment	Report reference

executive summary statement

The Water, Gas, Sewer and Electrical infrastructure has been reviewed and the result of the investigations and enquiries outlined herein is;

- There appears to be sufficient capacity in the surrounding infrastructure to support the Project for the main hydraulic services of Water, Gas and Sewer without the need for augmentation or diversion of the surrounding supplies available to the campus.
- Electrical infrastructure capacity appears adequate for the for the development of the Stage 2/3 works. Various temporary strategies for protection of utility infrastructure will need to be employed during construction.
- An existing HV main has been identified as traversing the property within the location of the external areas and loop road proposed to the at the rear of the site. Detailed survey of this main has identified this may be required to be relocated should the substrate of the proposed road way encroach on the minimum coverages required by the Authority for this asset.

introductory information

For the purposes of this report it has been asserted the BCA 2016 is relevant for the project. The building has multiple BCA classifications storeys / part storeys including Class 5 offices, Class 6 café areas, Class 7a car parking, Class 7b storage and Class 9b school and assembly buildings.

Construction compliance issues addressed by the previous stage works are still relevant, and a robust strategy has been developed to ensure the successes of the past works are incorporated into the future stage 2&3. These works shall consider the following as a minimum;

- Compartmentation and separation;
- Provision for escape;
- Construction of exits;
- Access for people with disabilities;
- Interconnected floors;

This Infrastructure Management Report will outline;

- authority services requirements;
- roof and green space preliminary assumptions;
- essential services (hydrant, hose reel, sprinkler & dry fire) review;
- intended services strategies
- existing service connections

It was concluded at the pre-concept phases of Stage 1 works that several of the existing building services systems were inherently non-compliant with current standards, including those legislated by BCA 2016. This was not unexpected as standards have been updated or introduced since the original construction during the 1970-1990's. All service augmentation or capacity assessments have taken this into account during Stage 1 completions and influence the design progression and therefore should not affect the outcome or any recommendations herein.

The information within this report has assumed optimal use of available site information whilst also considering the Building Code of Australia, relevant Australian Standards and Codes, client driven design guidance, best practice industry guidelines and the Stage 1 completion.

The installed infrastructure of the Stage 1 completion largely feeds into the extended services strategy for Stage 2/3 works. The detail of Stage 1 has been captured on as executed documentation and can be supplied should further justifications of service arrangements be necessary for the application processes.

The services strategy herein includes for further development of the master planning principles of Stage 1. The strategy herein defines the additional works to be completed as part of the proposed Staged works and what amendments are required to meet the expectations for SSSA RTS application review.

The main considerations that have been established as part of Stage 1 are as follows;

- Consolidated site wide fire services strategy,
- Consolidated electrical services infrastructure,
- Capacity review of sewer services available to the property.

The extension of these into the Stage 2&3 areas have the following implications;

- Fire services ring main has been installed for the entire site, so extension of this has been largely considered. Minor amendment and positioning will remain to be completed,
- Sewer services have been assessed as having ample capacity to supply the additional Stage without need for augmentation.

The information contained within this report has been prepared by erbas™ engineers to detail the services and infrastructure strategy for the proposed works. The overall intent of this report is to provide an overview of the existing services, and to create an infrastructure methodology for the completion of Stage 2&3.

overview

All works under the REF are for services only and are internal works that can be carried out without development consent under the ESEPP. The Stage 2 & 3 works will be carried out pursuant to a separate SSD application.

This application seeks approval for the following components of the development:

- Site preparation works, including temporary services and facilities to support demolition and clearance of the existing areas as required by the works;
- Services termination sufficient to facilitate safe reconfiguration the proposed layouts;
- Services re integration to the new building form by staged construction of new services and extension of existing services where deemed appropriate to service the new layouts and building uses;
- Fit out of new floors in accordance with DECS guideline criteria and to meet the current construction standards;
- Advice for any required infrastructure augmentation and integration of services required for the Public domain improvements surrounding the site;
- Installation of services to meet equivalent quality of the current Standard requirements;
- HV cable pathway realignment or augmentations yet to be determined by the Energy Provider.

The Stage 2&3 spaces will accommodate a range of educational and ancillary educational uses, such as:

- Library
- Teaching Space
- Informal Learning Space
- Student Centre
- Food and Beverage Outlets
- Academic (including Faculty space)
- Retention and re-use of existing structure;
- Construction and use of new floor spaces;
- Landscaping/ Green scaping works to some roof levels and exposed areas;
- Extension and augmentation of physical infrastructure / utilities as required.

project site

The Lindfield Learning Village is in the northern suburb of Lindfield and is accessed by Eton Road from the north. The Campus has multiple existing buildings on the site and is surrounded on its southern eastern and western fringes by bushland.

North West of the site is a recently built residential complex on the opposite side of Dunstan Grove. Dunstan Grove is a cul-de-sac street with no thoroughfare to any adjoining streets.

The site shares a proximity to Blue Gum Creek to the south towards Chatswood West.



Satellite image of the site

limitations

The approach for each of the services disciplines is based upon the original planning solutions and layouts developed from previous stage works.

This report does not currently incorporate specific fire engineering solutions or identified constraints, which are yet to be determined by the project. Nor does it robustly consider the required fire services alternate solutions for the project.

This report does not incorporate any requirements of the project that may be imposed as part of any required development conditions resultant to this application.

The following methodology was used to develop the strategies herein;

- A review of as built documentation.
- A walk-through inspection of the existing site including plant and exposed services arrangements.
- General commentary on the adequacy of plant and systems to meet a minimum performance requirement set out in the relevant standards and guidelines.
- Supply adequacy based on space standards recorded within the NCC (2016) and the Education & Facilities Guidelines as a minimum requirement.

2. electrical services

existing

From the executed design and construction of Stage 1 works the upgrade of the main switch boards to the existing supply to the site has been completed. The current load has been distributed to supply the refurbished areas as required by the building services. Whilst the current distributed load is sufficient for the capabilities of Stage 1, Stage 2&3 will require a supplemented feed to enable adequate supply of the sites electrical needs.

From investigations surrounding the due diligence inspections of Stage 1 we know most of base building installations were replaced during a refurbishment in 1999 (due to change of use of the buildings). The as-built documentation received to-date indicates that the electrical services within the remaining Stage 2&3 areas have been installed for a period of 15 to 40 years (which confirms the observations made on site) and have passed, or have reached, their expected service life.

There are two existing 1000kVA Ausgrid substations supplying the entire campus. The main switchboard is located on the ground floor of adjacent to the loading dock entry. All circuits and switchboards serving the newly constructed areas have been upgraded with RCD protection. This intent is to be carried forth into the future stage works, although the current supply will require amplification as stated above.

Most of the communications active gear equipment has been decommissioned and removed from the site and subsequently will require new services and reticulation to meet the future needs of the site. This will be able to be extended from the recently completed supplies installed as part of the Stage 1 works.

Most of the lighting and switching for the Stage 2&3 areas is past reasonable life term, and subsequently will be renewed. The service intent for lighting will meet the delivered strategy of the Stage 1 works and provide an energy efficient and sustainable solution for the site.

infrastructure requirements

The reconfiguration of the buildings will incorporate detailed assessment of each rooms required use as defined within the client user room data sheets. Reasonable assumption can be made to the required systems at this stage by interpretation of the NCC (2016), AS3000 and our experience with projects of similar uses and configurations.

At this stage it is considered the incoming service arrangement and substation is sufficient to utilise for the development proposal and Stage 2&3 works. This consideration is based on live assessment of the actual loads of stage 1 works, and calculations to derive the redundant (available) supply. Completion of an AS 3000 maximum demand calculation reveals sufficient available supply for the Stage 2&3 works.

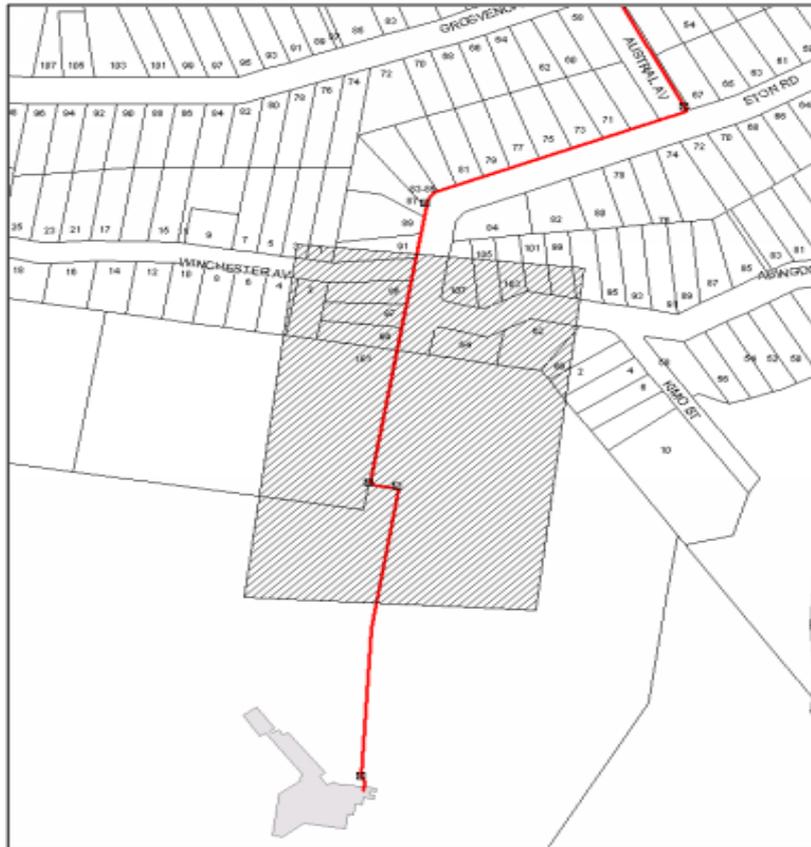
This assessment will be subject to further detailed calculations as more specific data on appliances and use becomes available throughout the planning processes.

From the main switchboard, low voltage submains will distribute to various distribution boards that will service the building. The sub-mains will be sized to meet the demand requirements for each portion of the building.

Further to the assessment of the existing infrastructure, it is anticipated that service renewal for the following systems will be required for the project:

- energy metering & sub monitoring metering system;
- distribution boards and sub-mains;
- earthing;
- surge protection;
- internal and external lighting, including controls;
- telecommunication services;
- emergency and exit lighting system;

Optus network configuration for the site



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Sequence Number: 5300214

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For urgent onsite assistance contact 1800 335 777
Optus Limited ACN 852 833 208



Maximum demand calculation

MAXIMUM DEMAND CALCULATION

CALCULATION IN ACCORDANCE WITH AS/NZS 3000: 2007 TABLE C3

Project: Lindfield Learning Village - Stage 2

Prepared: AS

Project No.: SYD19037

Date: 26/04/19

#	Load Description	Qty	m ²	VA/m ²	kVA	Total (kVA)	Total 3P (A)
1	Completed Stage 1 - Existing MSB1	1					574
2	Completed Stage 1 - Existing MSB2	1					134
3	New Stage 2 Works	1	15000	100	1500	1500	2165

3. hydraulic services

existing

From the executed design and construction of Stage 1 works the upgrade of the main supplies to the site has been completed. The current connection for the water services has been upgraded to meet the required flow for the hydrant systems and meet the supply needs for the potable water for the school.

Stage 2/3 will not require a supplemented water feed for Stage 2&3 completion. This will simply be extended to the required spaces and will meet the demands of the intended uses.

From the information gathered at conceptual planning stages of the Stage 1 works we know the main hydraulic infrastructure within the original portions of the buildings is original base-build ranging from 1972 to 1999 (In some parts of the existing building/s majority of base building installation were replaced during a refurbishment in 1999 (due to change of use of the building/s).

The original as-built documentation received to-date indicates that the main equipment's/plant have been installed for a period of 15 to 40 years, which confirms the observations made on site and have passed or have reached their service life.

All pressure service connections originate from Eton Road at the top of the site and feed down to serve each building. The main water meter assembly and booster connections are located at the site boundary in this location also and have been upgraded as part of the master planning of Stage 1.

There is existing sewer infrastructure to the southern boundary on the lowest part of the site. The sewer currently connects to a 315mm PE main that is sufficient to serve the development requiring no further augmentation or amplification to meet the demand of the future stage works.

There is existing gas infrastructure to the site located on the western side of Dunstan Grove. This reticulates from this rather remote location and reticulates throughout the site. The pressure and the sizing of the infrastructure allows for the reallocation of a suitable capacity for the site without the need for any augmentation, nor requiring any pressure adjustment. This is largely due to the low usage of educational facilities to heat large quantities of water or required to meet high peak domestic related demands.

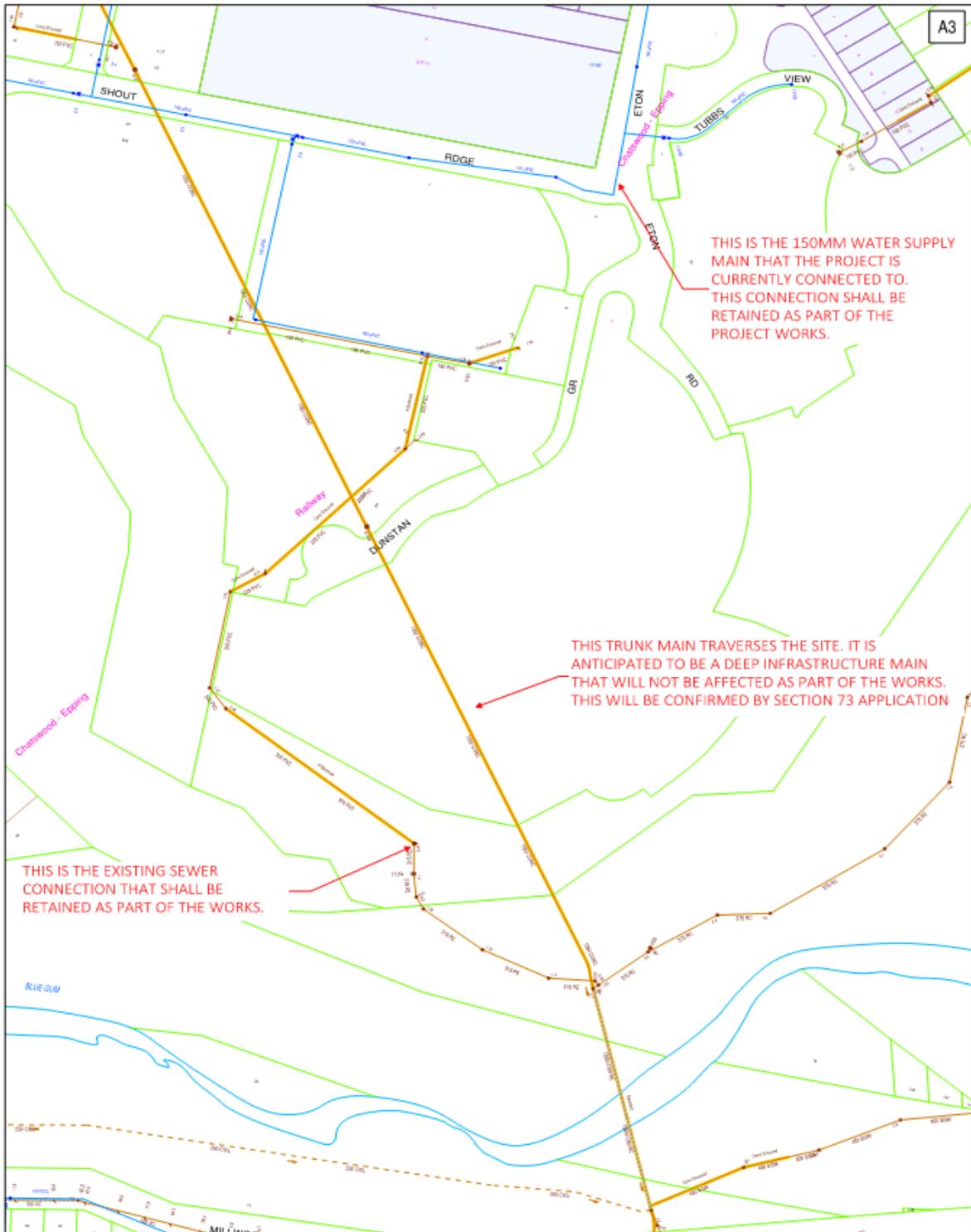
infrastructure requirements

The reconfiguration of the buildings will incorporate detailed assessment of each rooms required use as defined within the client user room data sheets. Reasonable assumption can be made to the required systems at this stage by interpretation of the NCC (2016), AS3500 series, AS5601 Education & Facilities Guidelines and our experience with projects of similar uses and configurations.

At this stage it is considered the incoming water, gas & sewer service arrangements are sufficient to serve the Stage 2&3 works.

Whilst the location of the deep sewer line at the rear of the site traverses the structure line this has been subject to assessment by Sydney water at the original investigation stage. This has resulted in the issuance of a Section 73 certificate for the site. It will be considered necessary to reiterate this approval with specific reference to the sewer main with a services protection report to ensure the main is adequately considered for the proposed loop road configurations of Stage 2.

Water & Sewer infrastructure at the site



DBYD Address:
n/a Eton Road
Lindfield NSW 2070

DBYD Job No: 12013351
DBYD Sequence No: 59628058

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SYDNEY WATER CORPORATION

Scale: 1:1500
Date of Production: 14/03/2017



Plan 1 of 1

Current Section 73 Certificate for the site.



Case No. 175538

SUBDIVIDER/DEVELOPER COMPLIANCE CERTIFICATE
(A certificate under Division 9 Section 73 of the Sydney Water Act, 1994)

DESCRIPTION OF SUBDIVISION/DEVELOPMENT	
Council	Ku-ring-gai Council
Street	Eton Rd, Lindfield (Lindfield Learning Village)
Lot No	DP 2 1151638
Development Phase 1 construction and operation of a new school for 350 students (Lindfield Learning Village) comprising adaptive re-use of part of the existing building to construct one home-base for 350 students construction of all administrative and technical spaces to support a full primary and secondary curriculum for 350 students; construction of a fire trail for bushfire management purposes; traffic and transport infrastructure; and 2 tree removal to establish a 100 metre Asset Protection Zone around the home base on the site.	
Name of Applicant	Erbas & Associates Pty Ltd
Applicant's Address	C/o Rose Atkins Rimmer PO Box 6745, Blacktown 2148

Sydney Water Corporation certifies that the above named applicant has complied with the requirements, relating to the plan of Subdivision/Development described above, of Division 9 of the Sydney Water Act, 1994.

THE FOLLOWING ITEMS 2 AND 5 APPLY TO THE DEVELOPMENT:

- ~~1. Water facilities are to be provided as a result of the subdivider/developer's compliance with Sydney Water's requirements.~~
- 2. Water facilities are available.**
- ~~3. Water facilities cannot be provided within a reasonable time from the date of this certificate.~~
- ~~4. Sewerage facilities are to be provided as a result of the subdivider/developer's compliance with Sydney Water's requirements.~~
- 5. Sewerage facilities are available.**
- ~~6. Sewerage facilities are under the control of the local council.~~
- ~~7. Sewerage facilities cannot be provided within a reasonable time from the date of this certificate.~~
- ~~8. Sydney Water's requirements for future subdivision of this dual occupancy development have NOT been met. On subdivision an additional certificate will be required.~~

THE FOLLOWING ITEMS AND APPLY TO LOT/S IN THE DEVELOPMENT:

- ~~9. Water facilities have NOT been provided. They will only be provided after compliance with Sydney Water's requirements placed on a future applicant for subdivision/development or connection.~~
- ~~10. Sewerage facilities have NOT been provided. They will only be provided after compliance with Sydney Water's requirements placed on a future applicant for subdivision/development or connection.~~
- ~~11. Sewerage facilities are under the control of the local council~~

Applicant Reference No. **19/25672**

Council Reference No. **106808A.2-BCA-2**

Approval date: **29 October 2018**

Name **Cassie Perente**
(Approving Officer for and on behalf of Sydney Water)

Signature 

Name **Steve Beaumont**
(Approving Officer for and on behalf of Sydney Water)

Signature 

Liveable City Solutions

Head Office

Dated: **18 January 2019**

THIS CERTIFICATE IS ONLY VALID WHEN SIGNED BY TWO AUTHORISED SYDNEY WATER OFFICERS
A signed copy is held by Sydney Water

The original of this certificate must be presented to the appropriate consent authority, usually Council, with which the plan of subdivision/development was lodged so that you can satisfy the relevant condition of consent.

Sydney Water Corporation ABN 49 776 225 038

1 Smith St Parramatta 2150 | PO Box 399 Parramatta 2124 | DX 14 Sydney | T 13 20 92 | sydneywater.com.au

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Statement of Available Pressure and Flow

Martin Howell
14 Chicago Ave
Blacktown, 2148

Attention: Martin Howell

Date: 22/10/2018

Pressure & Flow Application Number: 511769
Your Pressure Inquiry Dated: 2018-08-23
Property Address: UTS Eton Rd, Lindfield 2070

The expected maximum and minimum pressures available in the water main given below relate to modelled existing demand conditions, either with or without extra flows for emergency fire fighting, and are not to be construed as availability for normal domestic supply for any proposed development.

ASSUMED CONNECTION DETAILS

Street Name: Eton Street	Side of Street: East
Distance & Direction from Nearest Cross Street	1 metres East from Shout Ridge
Approximate Ground Level (AHD):	68 metres
Nominal Size of Water Main (DN):	150 mm

EXPECTED WATER MAIN PRESSURES AT CONNECTION POINT

Normal Supply Conditions	
Maximum Pressure	62 metre head
Minimum Pressure	56 metre head

WITH PROPERTY FIRE PREVENTION SYSTEM DEMANDS	Flow l/s	Pressure head m
Fire Hose Reel Installations (Two hose reels simultaneously)	0.66	56
Fire Hydrant / Sprinkler Installations (Pressure expected to be maintained for 95% of the time)	5	56
	10	56
	15	54
	20	52
	26	50
	30	48
	40	41
Fire Installations based on peak demand (Pressure expected to be maintained with flows combined with peak demand in the water main)	50	34
	5	55
	10	54
	15	52
	20	50
	26	47
	30	45
Maximum Permissible Flow	40	38
	50	30
	56	23

(Please refer to reverse side for Notes)



Case Number: 175538

3 December 2018

ERBAS & ASSOCIATES PTY LTD
c/- ROSE ATKINS RIMMER

NOTICE OF REQUIREMENTS
for
SECTION 73 SUBDIVIDER/DEVELOPER COMPLIANCE CERTIFICATE
(Sydney Water Act 1994, Part 6, Division 9)

Developer: ERBAS & ASSOCIATES PTY LTD
Your reference: 19/25672
Development: Lot 2, DP 1151638 - Eton Rd, Lindfield
Development Description: Phase 1 construction and operation of a new school for 350 students (Lindfield Learning Village) comprising: adaptive re-use of part of the existing building to construct one home-base for 350 students; construction of all administrative and technical spaces to support a full primary and secondary curriculum for 350 students; construction of a fire trail for bushfire management purposes; traffic and transport infrastructure; and tree removal to establish a 100 metre Asset Protection Zone around the homebase on the site.
Council Consent No: 106808A.2-BCA-2 by DA Exempt of 29 October 2018
Your application date: 16 November 2018

Dear Applicant

Sydney Water has assessed your application for a Section 73 Compliance Certificate (the Certificate) for the development shown above. Before Sydney Water can issue the Certificate, you must meet all the requirements set out in this notice and summarised in the following document *What You Must Do To Get A Section 73 Certificate*.

You have until 3 December 2019 to meet those requirements and receive the Certificate. If you have not received the Certificate by then you will have to reapply (and pay another application fee) and Sydney Water will issue you with a new notice. We may have extra requirements and charges may change in the new notice.

The Water Servicing Coordinator (Coordinator) will be your point of contact with Sydney Water. They can answer most questions you might have on our developer process and charges.

You can also find out about this process by visiting www.sydneywater.com.au > Plumbing, building & developing > Developing > Land Development. (If you want to find out the status of your application, simply select 'Developer Application Progress' and enter you case number (shown above) and email address. A response will be sent automatically to you.

