



Infrastructure Services Masterplan Report

The New Primary School at Warnervale

75 Warnervale Road, Warnervale NSW 2259

REPORT

PREPARED FOR

NSW Department of Education
C/- Billard Leece Partnership
Level 6, 72-80 Cooper Street
Surry Hills NSW 2010

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PREPARED BY

Northrop Consulting Engineers
Level 11, 345 George Street
Sydney NSW 2000

Tel: 02 9241 4188

INFRASTRUCTURE SERVICES MASTERPLAN REPORT

Activity Schedule

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14.11.18	1	Concept Design	M. Peatman	T.Sailing
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Northrop Consulting Engineers Pty Ltd

ACN 064 775 088 | ABN 81 094 433 100

Level 11, 345 George Street, Sydney NSW 2000

02 9241 4188 | sydney@northrop.com.au | www.northrop.com.au

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EXECUTIVE SUMMARY

This Infrastructure Services Management Plan (ISMP) report outlines how the proposed works within The New Primary School at Warnervale details the existing infrastructure, detailing information on the existing capacity and any augmentation required for the proposed development. The report also details record of consultation with relevant agencies.

This IMP outlines the existing infrastructure, detailing information on the existing capacity and any augmentation to the aforementioned services required for the proposed development. The report also details records of consultation with relevant agencies. The details within this report are preliminary and based on currently available information and correspondence undertaken at the time of writing.

This report is provided in response to the Secretary's Environmental Assessment Requirements (SEARs) issued for the project and has been prepared for lodgement to the State Significant Development (SSD) application for The New Primary School at Warnervale. This IMP addresses the Infrastructure Management Plan requirements held within Item 14 of the SEARs.

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1. DEVELOPMENT DESCRIPTION

Client: **School Infrastructure NSW**

Project Name: **The New Primary School at Warnervale**

Project Address: **75 Warnervale Road, Warnervale NSW 2259**

The New Primary School at Warnervale, project proposes a significant expansion of the current facilities on site (Refer to Site Concept in Figure 1). The proposed works are as follows:

1.1.1 Construction of New Buildings & Facilities

- New Core 35 Hall
- New Core 21 Administration & Staff Building
- New Core 21 OOSH
- New Core 21 Canteen
- New Core 21 Library
- New Core 21 (2x) Special Programs
- New Teaching Spaces 20 (Includes 2 Special Education Teaching Spaces)
- New Core 21 Student Amenities
- New Core 21 COLA
- Considerations for Future Expansion
- Staff Carpark 21 Spaces
- Visitor 5 Spaces
- Accessible 2 Spaces
- Related Road Works & Drop off/pick up Zone
- New Games Court

1.1.2 Site & Infrastructure Preparation Works

- Tree Removal
- Excavation and Earthworks;
- Remediation Works.

1.1.3 Infrastructure

- Extension of utilities as required.
- Installation of electrical and hydraulic infrastructure required for the development.



Figure 1: Site Concept Plan

2. SEARS ISSUES ADDRESSED

This report addresses how the proposed project addresses Item 13 of the SEARs and outlines strategies relating to Utilities. These requirements are outlined below alongside where the response to each can be found within this report;

Item	Action to Address the Requirement	Report Location
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.	This IMP report details the existing hydraulic and electrical services infrastructure available to service the proposed New Primary School at Warnervale. This report also includes details regarding any augmentation / amplifications required to service the proposed school development	Section 4 & 5.
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.	Section 6 of this report describes the strategy proposed to be used within the proposed school to offset the use of potable water services.	Section 6

3. SITE DESCRIPTION

3.1 The Site

The proposed site of works is located at 75 Warnervale Road. It is defined by the hatched area of the site shown in the Figure 2 below.

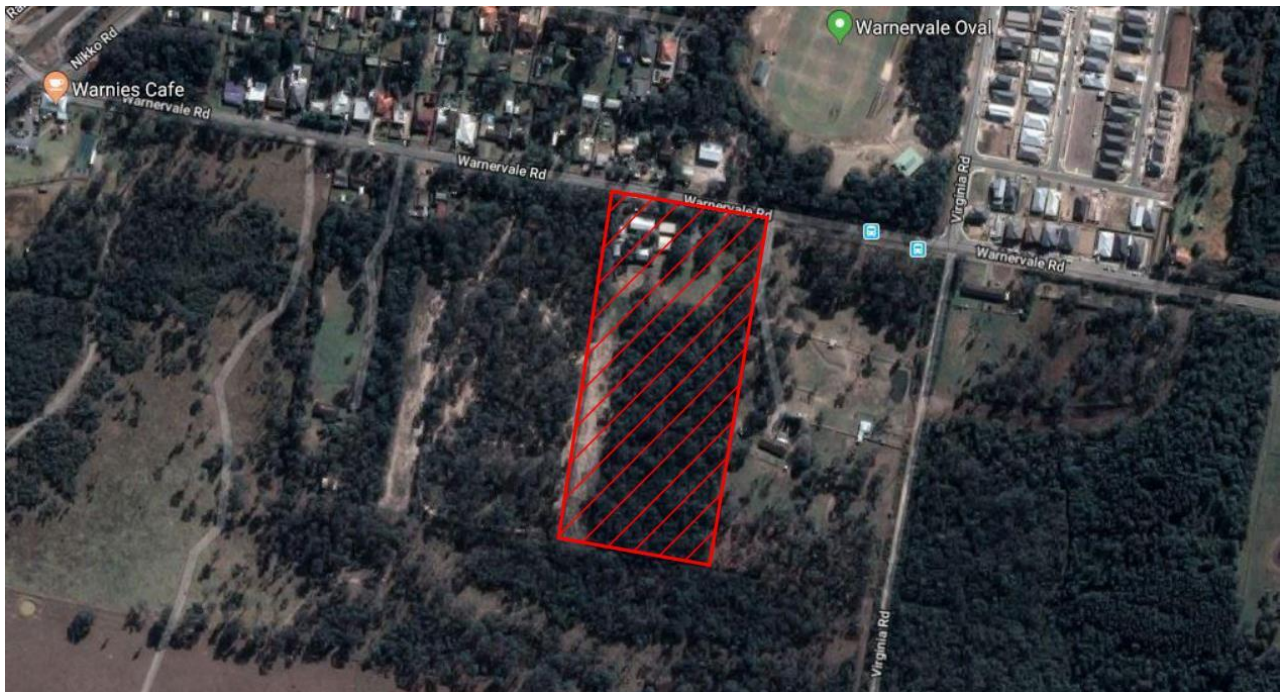


Figure 2: Proposed Site of Works

Northrop has performed desktop investigations in regards to the existing site conditions, considering the context of the proposed School development.

Our assessment has been based on information provided by the relevant electrical and telecommunications utility authorities, and information provided by the project representatives including but not limited to:

- Dial Before You Dig Plans

4. EXISTING UTILITY SERVICES

4.1 Low Voltage Infrastructure

The Energy Authority serving the site is Ausgrid.

There is an existing pole mounted substation within the immediate vicinity of the site, PT12240, located between 38 and 40 Warnervale Road (See Figure 3).

The site encompassing Lot 71, DP 7091, is currently supplied by two incoming services from PT12240. It is not currently known if one or both services are active at present.



Figure 3 - PT12240 Pole Mounted Substation

PT12240 has a capacity of 100kVA, as per Ausgrid Documentation – Wyong Zone 121. This existing substation's capacity is insufficient to supply the proposed development as analysed in Section 5.1.

4.1.1 Sewer Pump Out Station

There is an existing sewer pump out station on the north-eastern frontage along Warnervale Road. There is a potential that relocation of this sewer pump out station may be required. If relocation is required, the existing

power pole may need to be either relocated or replaced. Coordination with Civil and Hydraulic consultants will be required to determine the course of actions required.



Figure 4 - Existing Sewer Pump Out Station

4.2 Telecommunications

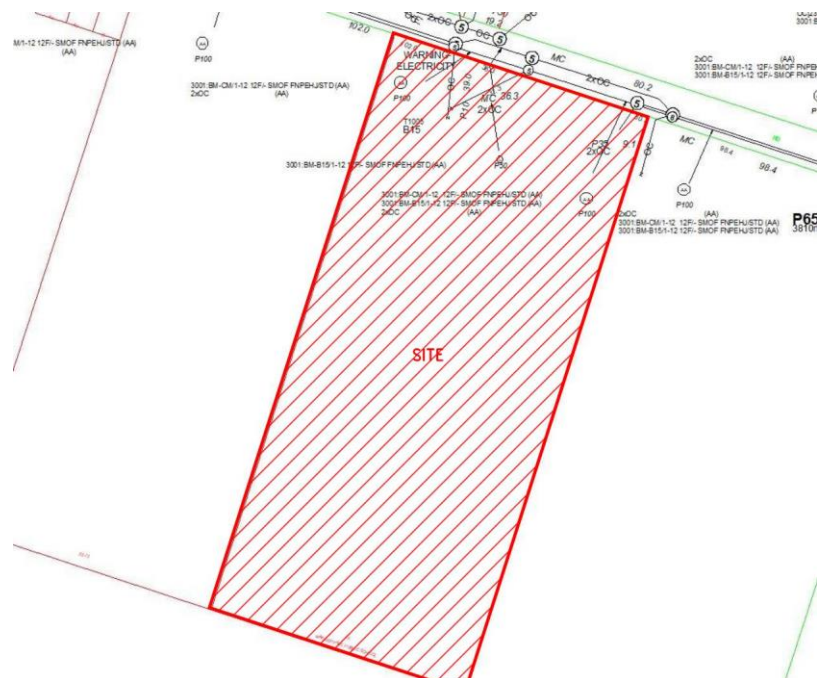
Following the review of the Dial Before You Dig (DBYD) plans, Existing utility telecommunications services have been identified in the immediate vicinity of the New Primary School Development. Utility telecommunications cabling is installed in underground conduits on street verges, with regular access points through pits along the northern side of the site with underground services. These enter the site near the north-western part of the street frontage on Warnervale Road.

4.2.1 NBN

Existing NBN ducts reticulate on the site boundary road Warnervale Road to the north. NBN trenches/ducts and cables are shared with Telstra services due to NBN taking ownership of the existing Telstra copper network in Warnervale. The ducts contain NBN backbone fibre optic cable and NBN customer copper cabling (shared with Telstra for premises not yet live on the NBN network).

4.2.2 Telstra

All existing Telstra infrastructure leading into the site is assumed to have been decommissioned. This infrastructure may still be present on site and may need to be removed.



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4.3 Sewer Services

The existing sewer assets around the site are owned and operated by Central Coast Council as follows:

- DN300 uPVC Central Coast Council sewer main within Warnervale Road.
- DN90 HDPE Central Coast Council sewer rising main within Warnervale Road adjacent to the site.
- DN225 uPVC Central Coast Council sewer rising main within Warnervale Road adjacent to the site.
- Existing Central Coast Council sewer pump station within the site.

Refer Appendix A for details.

4.4 Water Services

The existing potable water assets around the site are owned and operated by Central Coast Council as follows:

- DN100 Asbestos Cement distribution main within Warnervale Road.
- DN200 mPVC distribution main within Virginia Road.

Refer Appendix A for details.

4.5 Natural Gas Services

The existing natural gas assets around the site are owned and operated by Jemena as follows:

- DN110 PE 210kPa natural gas main within Warnervale Road;
- DN150 1050kPa natural gas main within Warnervale Road.

Refer Appendix B for details.

5. PROPOSED INFRASTRUCTURE & AUGMENTATION

5.1 Electricity Services

During the Concept Design phases of the project, Northrop completed ongoing maximum demand calculations based on the concept architectural plans to determine the required utility power services required to service the New Primary School Development.

The proposed site contains only 1 pole-mounted substation with a capacity of 100kVA within the vicinity of the site. This is insufficient to meet the required electrical demand of the proposed New Primary School Development and will require the addition of a new substation on-site, including any augmentation required to the local HV network. This new substation will be dedicated to service the school site exclusively, with PT12240 to remain as it currently operates.

Northrop has undertaken discussion with Ausgrid and applied for connection to service the development. This was based on a preliminary maximum demand calculation (AS 3000, Table C3) based upon architectural concept plans dated 9th July 2018. This included the Department of Education's mandated requirements for air conditioning.

The application for connection was lodged with Ausgrid, requesting for a new 3-phase supply for the site. A reply from Ausgrid was received on Monday, 30th July 2018 which indicated that installation and/or augmentation of transformers and the local high voltage network will be required to supply the requested capacity. A detailed electrical design will now be required by an Accredited Service Provider (ASP) Level 3 to progress further. Another reply from Ausgrid was received by Northrop on Thursday 11th April confirming the offer of acceptance approval, allowing for the detailed ASP-3 design process to begin.

5.1.1 Options for Electricity Supply

Due to the significant impact of installing a substation on-site, all proposed and future expansion electrical requirements need to be considered. L-Type kiosk padmount substations (as proposed for this development) require a standard easement and enclosure size to supply the site. The overall available capacity is determined by the internal components installed inside the enclosure. For developments which may require additional capacity in the future, it is preferable that the substation is sized appropriately to have the capacity to supply both the proposed development and any additional expansion.

Additional consideration will be required for potential expansion of the school in the future. Based upon the concept plans received 9th November 2018 to, we have projected that a future-proofed school will have a maximum demand of **696.11 kVA or 1008.86 Amps/Phase** for a worst-case scenario. This would require a 1000kVA substation to service the site. This is our recommendation for this development due to the scale of the potential future expansion.

5.1.2 Photovoltaic Array System

It is proposed that the new school buildings are to be fitted with a combined 40kW Photovoltaic Array System (comprising off 125 x 320W panels total) to supplement the electrical requirements of the proposed redevelopment. It is proposed to locate all the panels atop the New Teaching space roof. They shall be mounted at a minimum of 10° from the horizontal, to ensure self-cleaning by rainfall (as per EFSG design guideline DG66.3.3 PV array arrangement).

5.2 Telecommunications Services

The school site presently has Telstra/NBN infrastructure running parallel to the frontage on Warnervale Road. It is proposed that the school is serviced by a single Telstra fibre link for Department of Education wide-area network/data services and telephone access via VOIP. This will require augmentation/installation of infrastructure on Warnervale Road to bring telecommunications service into the site. The appropriate connection applications will need to be lodged to confirm the works required for connection. NBN is also available as a secondary or backup connection for telephone access and life safety services.

5.3 Sewer Services

The local area is serviced by a Central Coasting Council sewer pump station located along the northern boundary of the site. Council has advised that their intention is to decommission this pump station and service the area via gravity drainage located in Virginia Road and have requested that a gravity sewer connection be extended to the site from an existing sewer main in Virginia Road.

The scope of work relevant to the project would include connection to the existing sewer (at either an upgraded or relocated pump station). The applicant acknowledges that a contribution to the supply authority (CCC) may be required to facilitate these works, but that a substantial upgrade traversing extended sections of Warnervale and Virginia Road is not demonstrably attributable to the subject development.

A DN150 gravity pipework system shall connect all sanitary fixtures within the site making connection to the existing sewer pumping station.

5.4 Water Services

The cold water service will be designed in accordance with the NCC, AS3500.1, and Central Coast Council Water requirements.

The existing DN100 Central Coast Council water main located within Warnervale Road has sufficient capacity to service the proposed school. This has been determined by the pressure and flow statement provided by Central Coast Council.

Council has indicated that a new DN150 Water main should be installed within Warnervale Road to replace the DN100 Central Coast Water main.

However, the intention of the project is to connect to the existing watermain to service the development.

5.5 Gas Services

The existing DN110 PE 210kPa natural gas main within Warnervale Road should have sufficient capacity to service the proposed school.

A final application to Jemena will be required to connect into the main.

5.6 Proposed Fire Protection Services

5.6.1 Fire Hydrants

A new fire hydrant system shall be designed for the proposed school in accordance with the requirements of the BCA and AS2419.1. A proposed school of this nature is typically required to be designed for two simultaneously flowing fire hydrants. The fire hydrant system will make connection into the water main available within Warnervale Road.

Requirement for a fire hydrant pumpset is anticipated and is subject to confirmation of fire services demands and system design in relation to pressure and flow results from Central Coast Council for the water main within Warnervale Road.

The site is currently within a bushfire prone area and will include additional site hydrants for bushfire fighting.

5.6.2 Fire Hose Reels

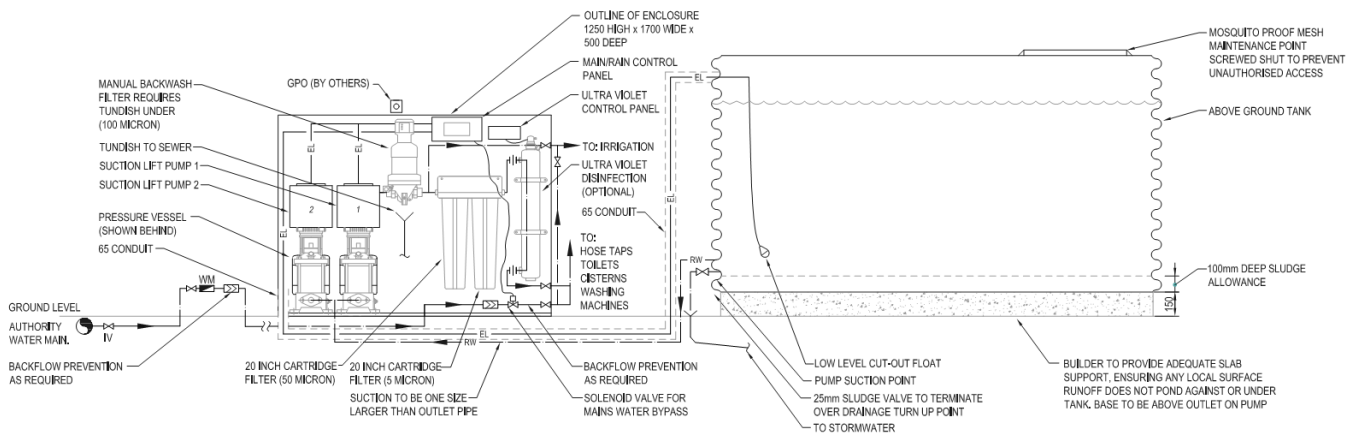
A new fire hose reel system shall be provided within the admin, staff etc. except for any classrooms or associated classrooms. All fire hose reels are to be located in a readily accessible position within 4 metres of a required exit, and along the normal paths of travel to an exit where additional coverage is required.

The fire hose reel system shall make connection to the cold water service via a double check valve backflow prevention device.

6. INTEGRATED WATER MANAGEMENT PLAN

This section details the proposed alternative water supply proposed to be used within The New Primary School at Warnervale.

A rainwater tank will be installed below ground in close proximity to the OSD system. The intent is to collect the majority of the roof areas. Collection of water will be through the roof stormwater system. A rainwater pumpset and filtration system will be provided adjacent to the rainwater tank to supply water from the tank to irrigation and other rainwater reuse points. Final sizing and system configuration is pending detailed design.



Typical Rainwater Reuse System

7. CONCLUSION

This Infrastructure Services Master Plan (ISMP) outlining the proposed Utility Infrastructure servicing the proposed development will be suitable for addressing the requirement within the Head Consultant Services for Central Coast Package item 31 Phase 2 – Functional Design Brief, Concept Design & Business Case, item 4 under Concept Design.

The project, located at 75 Warnervale Road, Warnervale NSW 2259, can be adequately serviced by power, telecommunications, water, sewer and gas services.

It has been identified that the local low-voltage electrical infrastructure is insufficient to support the proposed buildings, requiring a kiosk substation (subject to Ausgrid Requirements) to be installed to service the site. Preliminary correspondence from Ausgrid indicates that this will not require significant HV works, due to the volume of development around the Warnervale area. Augmentation of the local communications infrastructure will also be required to service the site.

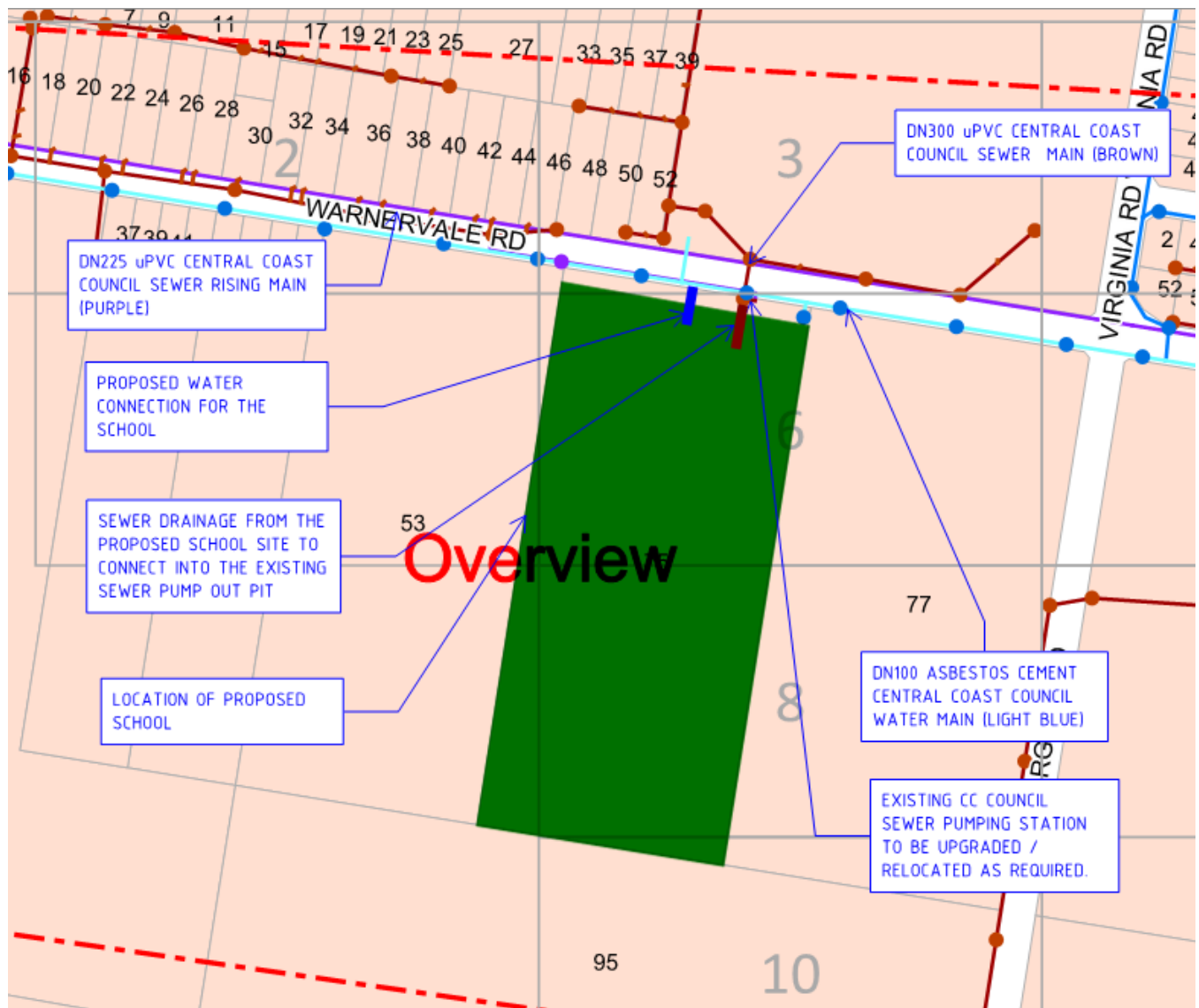
Council have indicated that a new watermain section may need to be installed within Warnervale Road, however the intention of the project is to connect to the existing water supply.

Council have advised that the existing sewer pump station is to be decommissioned and new gravity sewer installed to service the development. The scope of work relevant to the project would include connection to the existing sewer (at either an upgraded or relocated pump station). The applicant acknowledges that a contribution to the supply authority (CCC) may be required to facilitate these works, but that a substantial upgrade traversing extended sections of Warnervale and Virginia Road is not demonstrably attributable to the subject development.

The IMP has addressed all aspects of the SEARs items identified in Section 2 of this report.

8. APPENDICIES

8.1 Appendix A



8.2 Appendix B

