Report

Infrastructure Management Plan

NEW PRIMARY SCHOOL AT MURRUMBATEMAN

School Infrastructure NSW

Report

CONFIDENTIAL

Revision: B – SSDA Submission
Issued: 19 May 2021

Norman Disney & Young
A TETRA TECH COMPANY

Table of Contents

1 EXECUTIVE SUMMARY

1.1 Introduction

This Infrastructure Management Plan accompanies an Environmental Impact Statement (EIS) pursuant to Part 4 of the Environmental Planning and Assessment Act 1979 (EP&A Act) in support of an application for a State Significant Development (SSD-11233241).

The development is for a new primary school located at 2 Fairley Street, Murrumbateman.

This report addresses the relevant Secretary's Environmental Assessment Requirements (SEARs), namely:

- Item '14. Utilities' within the SEARs application SSD-11233241.

1.2 The Proposal

The proposed development is for construction and operation of a new primary school with Core 21 facilities in Murrumbateman that will accommodate up to 368 students.

The proposed development includes:

- A collection of 1-2 storey buildings containing 14 home base units, 2 special education learning units, hall, administration facilities and library.
- On-site parking lot with 40 spaces and kiss-and-ride area.
- Outdoor sports court and play area.
- Integrated landscaping, fencing and signage.

1.3 Site Description

The site is located at 2 Fairley Street, Murrumbateman, in the local government area of Yass Valley Council. The site is formally described as Lot 302 DP1228766 (refer to Figure 1). The site is irregular in shape and has an area of 15,434.92m².

The site is located at the northern end of the Murrumbateman village, which is characterised by a mix of uses including low density residential and some commercial.

Immediately surrounding development includes a tourist hotel to the north across Fairley Street, Murrumbateman Library (located in the former Murrumbateman schoolhouse, a local heritage item) to the south, a medical centre and childcare centre to the west, and rural land and equestrian facilities to the east across Barton Highway. There is also a cycling and equestrian pathway to the south between the site and library.

The site contains an existing parking lot in its northern end and a driveway along its western boundary. There is also a mound of soil at the southern end of the site. The site is otherwise cleared and vacant.

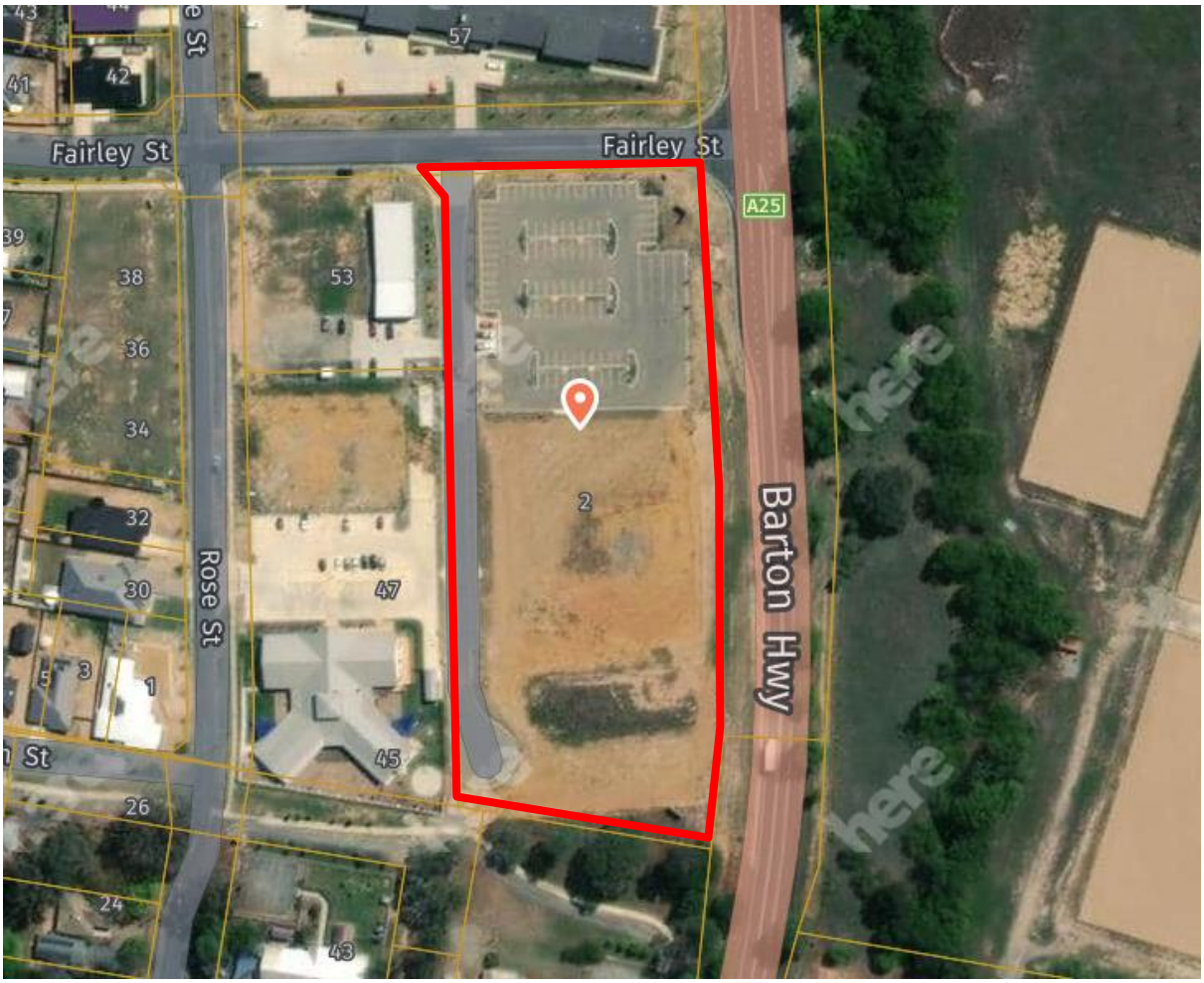


Figure 1: Site aerial photograph

Source: Nearmap

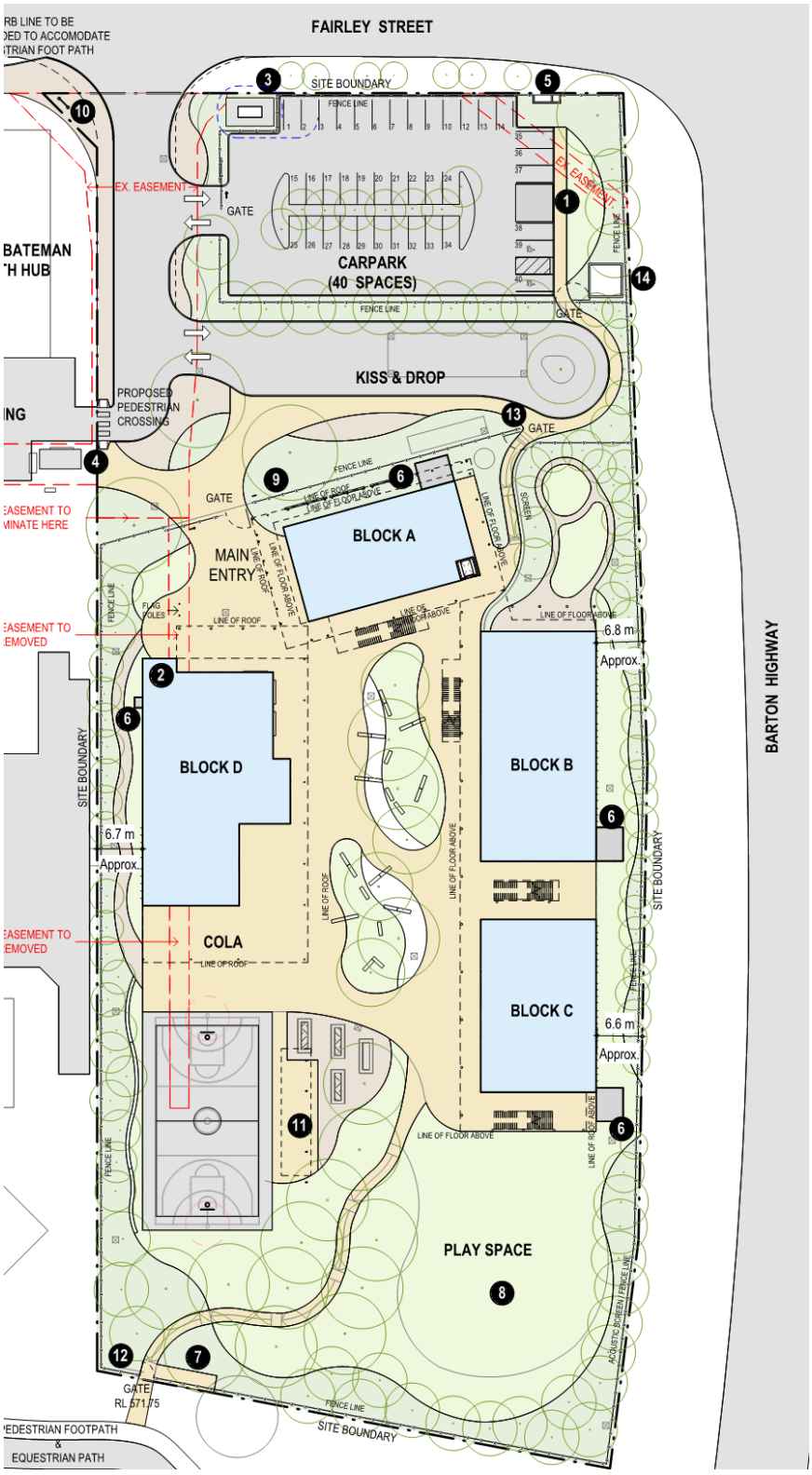
2 SEARS ITEMS ADDRESSED

This report addresses how the proposed project addresses Item 14 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
A site plan showing all infrastructure and facilities (including any infrastructure that would be required for the development, but the subject of a separate approvals process).	This Infrastructure Management Plan (IMP) report details the hydraulic and electrical services infrastructure available to service the proposed development. This report also includes details regarding augmentation / amplifications required to service the proposed development	Relevant engineering discipline section.
14. Utilities In consultation with relevant service providers: • assess the impacts of the development on existing utility infrastructure and service provider assets surrounding the site. • identify any infrastructure upgrades required off-site to facilitate the development and any arrangements to ensure that the upgrades will be implemented on time and be maintained. • provide an infrastructure delivery and staging plan, including a description of how infrastructure requirements would be co-ordinated, funded and delivered to facilitate the development.		

3 SITE DESCRIPTION

The new Primary School at Murrumbateman is being constructed in a new urban development area at the corner of the Barton Highway and Fairley Street. The lot is vacant aside from a new carpark in the North of the lot and an easement driveway to serve the full length of the lot. It is currently served by a small low voltage connection, potable water, sewer and storm water. There is no gas or recycled water serving the lot.



Project Description:

The building characteristics are as noted below:

1. WASTE PAD
2. MAIN SWITCHBOARD ROOM
3. SUBSTATION
4. EXISTING SUBSTATION
5. FIRE BOOSTERS
6. PLANTS WITH SCREEN
7. BICYCLE PARKING
8. PLAYING FIELD
9. MAIN SCHOOL SIGN
10. ELECTRONIC SCHOOL SIGN
11. SHADE STRUCTURE
12. SECONDARY ENTRANCE
13. S.E.L.U. AND SECONDARY ENTRANCE
14. FIRE BOOSTER PUMP ROOM

4 SERVICES INFRASTRUCTURE DEMANDS

The maximum demand for the site is as follows:

Sl No.	Service	Unit	Maximum Demand	Remarks
1.	Electricity	KVA	588	Based on AS3000
2.	Potable Water	l/s	1.7	peak
3.	Sewer Drainage	250FU ADWF = 0.14 l/s PDWF = 1.12 l/s		
4.	Fire Hydrant	l/s	30	AS2419.1-2005
5.	Fire Sprinklers	No sprinklers required		
6.	Fire Drenchers	No drenchers required		
7.	Natural Gas	N/A	N/A	Natural gas supply is not available or applicable for this site.
8.	LP Gas	N/A	N/A	Current design intent is to eliminate gas use.

5 SERVICES INFRASTRUCTURE OVERVIEW

5.1 Potable Water Services

The following information has been provided and sourced to inform this report and our assessment of the Potable Water Service.

- Dial Before You Dig
- Information received from Yass Valley Council

Yass Valley Council own and operate the potable water, sewer and storm water infrastructure on Fairley Street and the Barton Highway that is available for connection.

5.1.1 Existing Potable Water Supply

The site has frontage to the following YVC potable water mains:

- 100mm potable water main reticulating within the existing Easement road (Western Road) to the west of the site;
- 150mm potable water main reticulating within Fairley Street to the north of the site;

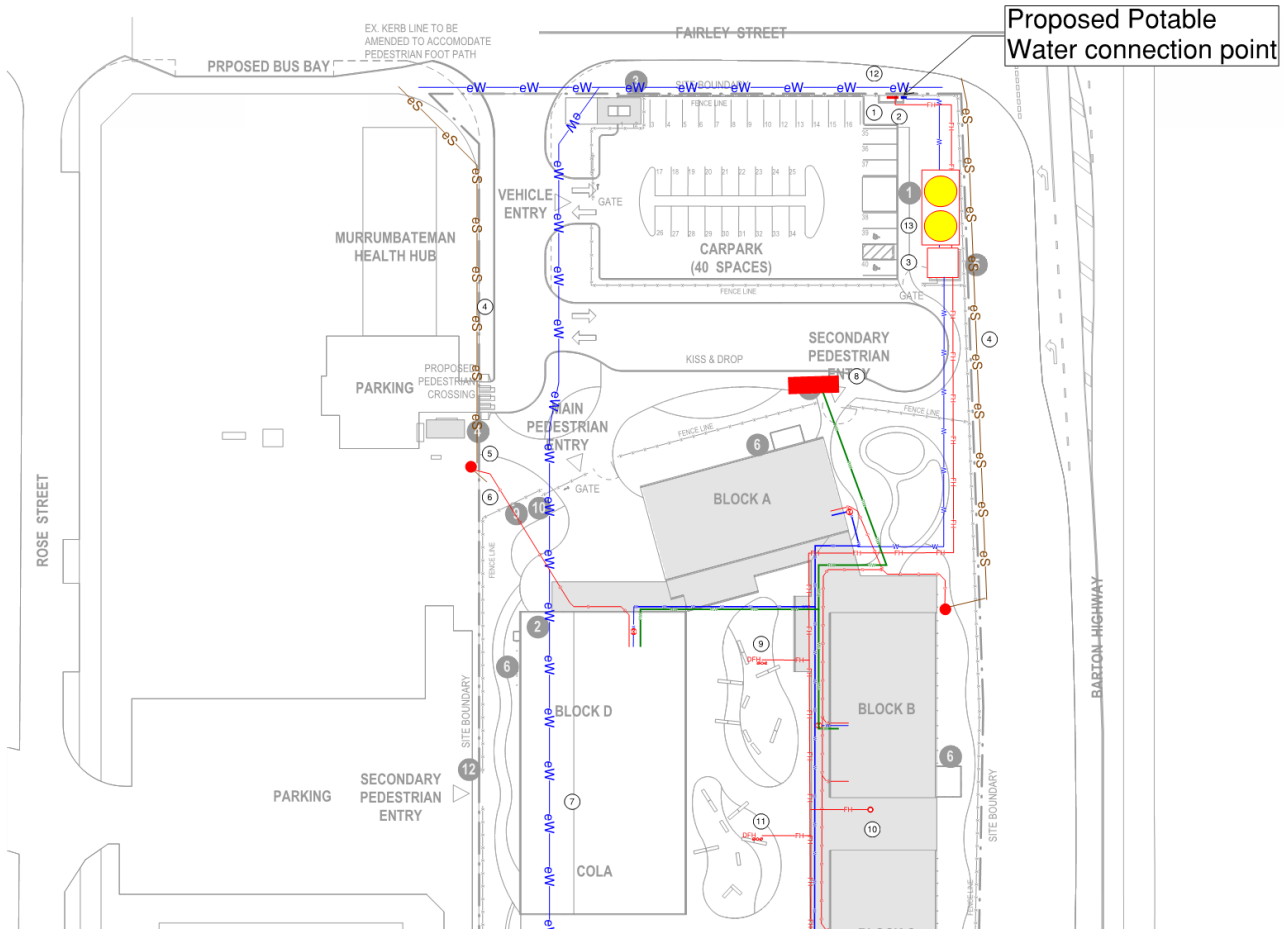
Existing Potable Water Services

5.1.2 Proposed Potable Water Supply

There is a 100mm YVC potable water main located within the Easement Road and a 150mm YVC potable water main located along Fairley Street is available for connection.. A pressure and flow enquiry on the existing water mains has been lodged with QPRC to determine the requirement of booster pumps and/or fire water storage tanks and NDY are currently awaiting the results of this test.

A new potable water connection shall be made to the existing YVC potable water main located within existing Easement Road (Western Road). A new fire services connection shall be made to the existing YVC potable water main traversing Fairley Street. The 100mm potable water main within the existing easement road appears to have adequate capacity to meet the potable cold water demand for the proposed development, however this may not have the sufficient flow required for fire fighting purpose. The fire main is proposed to connect to the 150mm YVC potable water main traversing the Fairley Street. This is to be confirmed upon receipt of pressure and flow statement from the council.

Potable cold water supply shall be reticulated to all fixtures and tapware via an authority water meter. Backflow prevention devices and water meter assembly shall be provided for proposed development works in accordance with the requirements of YVC.



Proposed Potable Water Connection Point

5.2 Recycled Water

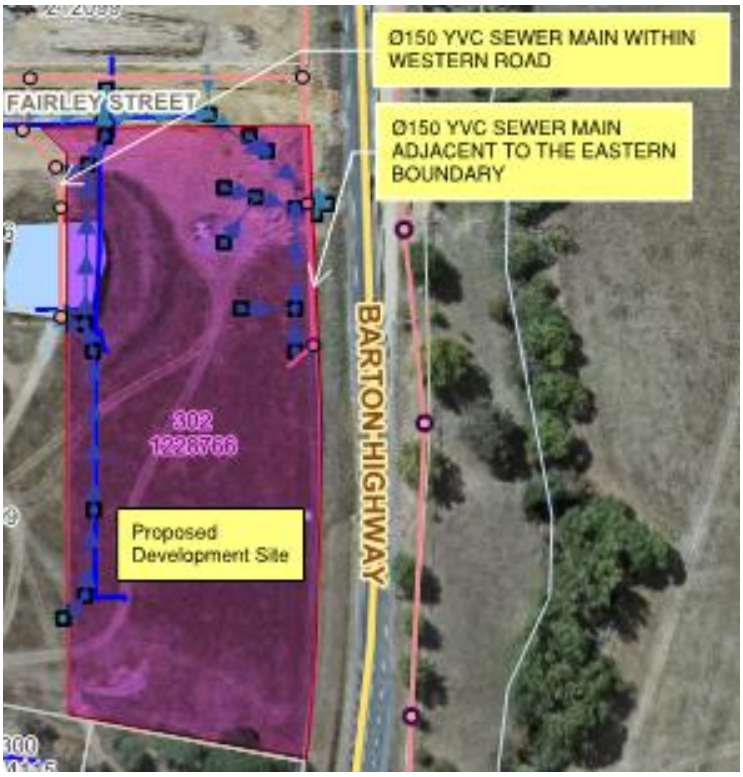
No recycled water assets available for connection.

5.3 Sewer Drainage Services

5.3.1 Existing Sewer Drainage

The site has frontage to the following YVC sewer mains (highlighted in yellow in figure 1):

- A 150mm sewer main within road no.2 to the west of the site;
- A 150mm sewer main along Barton Highway;

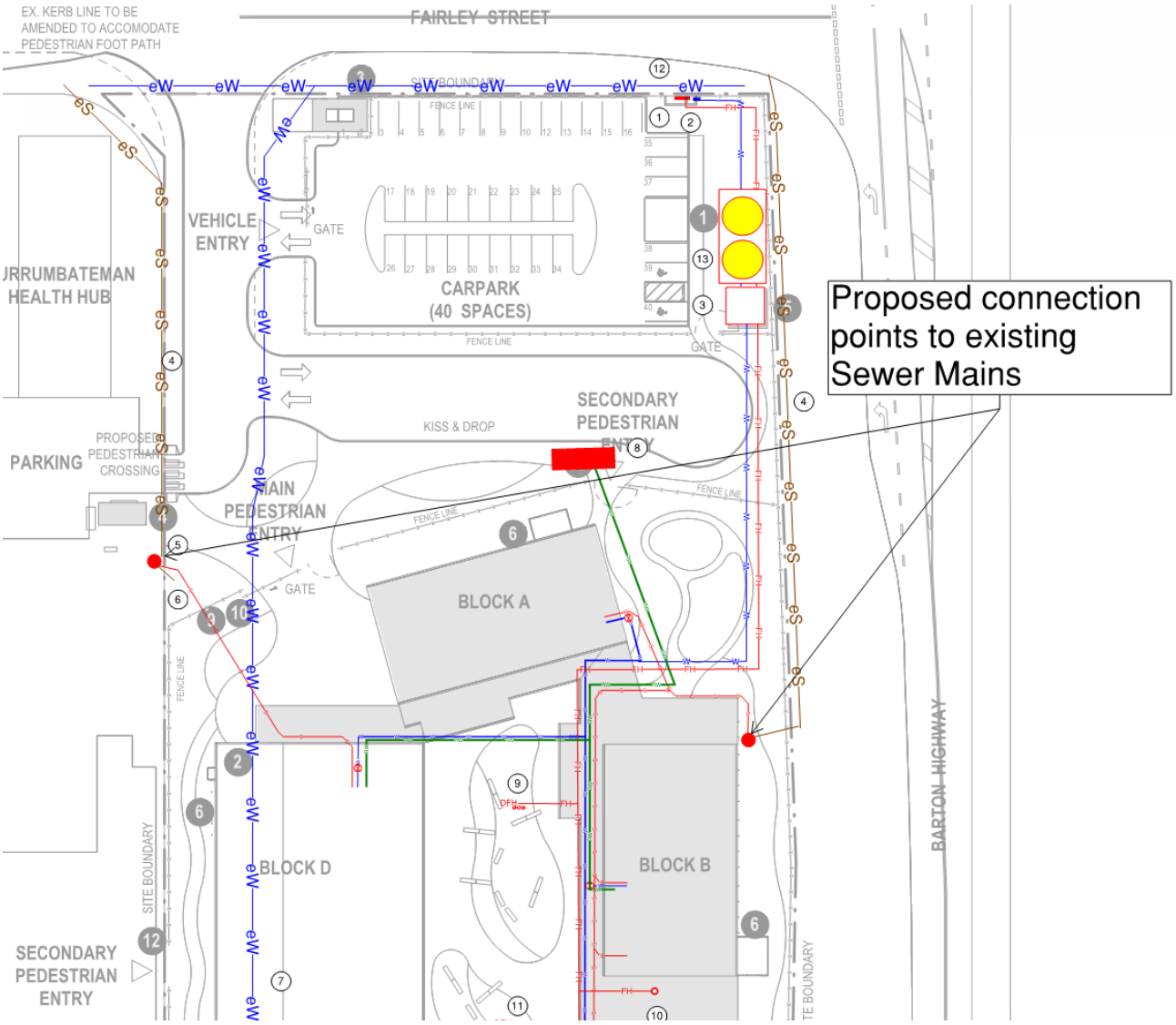


Existing Sewer Services

5.3.2 Proposed Sewer Drainage

The sewer drainage from the proposed buildings are proposed to be connected at two locations to the existing YVC sewer main reticulating within existing easement road (Western Road) and also at the Eastern Boundary. The 150mm sewer main appears to have adequate capacity to service the proposed development. Final invert level of the existing sewer main will need to be determined to finalise the connection point.

Gravity flow sewer drainage systems will collect waste and effluent from all fixtures, fittings and appliances from the proposed buildings and connected to the YVC sewer main. Pumped sewer systems will be considered in areas where gravity falls cannot be achieved. Sewer pump station volume to be as per the requirements of WSAA and YVC requirements.



Proposed Sewer Services Connections

5.4 Natural Gas

From our enquiries, no natural gas assets available for connection. NDY have had discussions with Jemena and they have confirmed that there are no plans in the near future to extend gas to this area.

The project proposes to utilise electric heating sources only and NDY understands that no gas will be required onsite.

5.5 Electrical HV Services

The information provided within Section 5.5 (Electrical HV Services) was provided to NDY by Northrop Engineers PTY LTD.

5.5.1 Existing Electrical HV Services

The below diagram is taken from Essential Energy GIS. It shows that there is an existing substation 25-79206 which supplies the existing Childhood Centre. The cables supplying this substation go through that site to Rose St. The Land Title shows that Essential Energy has a Right of Way on the School site for it to access and operate this substation. This will need to be maintained.

Existing HV Electrical Services

5.5.2 Proposed Electrical HV Services Works

The school site has no existing LV supply and the proposed load required for the school is likely to be larger than any spare capacity on the existing padmount substation. This is in a 22kV area. A new padmount substation is required to service the school. It is in an easement 4.2m x 7.0m. The area inside the easement is flat and may not be crossed by any other services. Ideally the substation is easement directly onto Fairley St. From there the HV & LV cables would be laid underground to Rose St and joined to the cables in that location. If the entry to the driveway is changed, or road geometry of nearby intersections or the number of pedestrians in the area increases markedly or new pedestrian crossings are required, then it might be prudent to get a street lighting assessment done and upgrade the surrounding street lighting to support the development.

5.6 Communication Services

5.6.1 Existing Site Infrastructure

As per Telstra/NBN DBYD documentation, there is no existing communications infrastructure supplying or traversing the site.

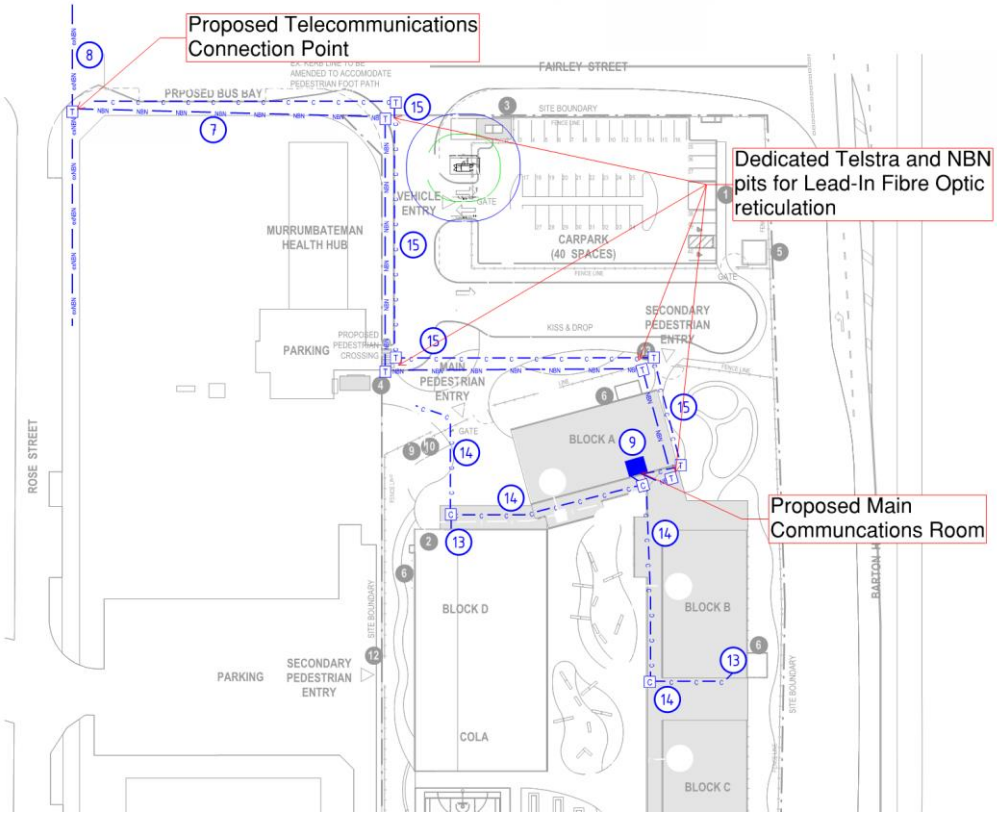
5.6.2 Proposed Communication Services Works

Existing NBN and Telstra pits and associated underground conduits located in Fairley Street are proposed to be the connection point to the NBN and Telstra networks, as they are strategically located on the North-West corner of the campus. New dedicated NBN and Telstra pits and associated underground conduits are proposed to be installed for Lead-in fibre optic reticulation.

The new lead-ins will be terminated in a new main communications room centred located in the Admin & Staff building, which will be the campus distributor.

New pits and associated underground conduits are proposed to be installed as per Figure 2 below for Lead-in optic fibre reticulation.

A new development application form will need to be submitted to NBN Co. for the new connection described in Section 3.1.



Existing and Proposed Telecommunications Services Connection Points

6 CIVIL INFRASTRUCTURE OVERVIEW

The information provided within Section 6 (Civil Infrastructure Overview) was provided to NDY by Northrop Engineers PTY LTD.

6.1 Existing Infrastructure and Easements

Northrop has undertaken a preliminary investigation of existing infrastructure in the vicinity of the proposed development site. Our assessment has been based on limited survey information as well as publicly available information from Yass Valley Council and DBYD.

6.1.1 Existing stormwater infrastructure

There is an existing easement to drain stormwater which cuts across the north western corner of the site conveying stormwater flows collected in a pit in the verge of the Barton Highway from existing stormwater infrastructure in Fairley Street. Our understanding is that the stream was piped as part of the car park construction. As shown on the existing survey plan, there is a storm water pipe and easement crossing the car park from Barton Highway to Fairley Street located at the north eastern corner.

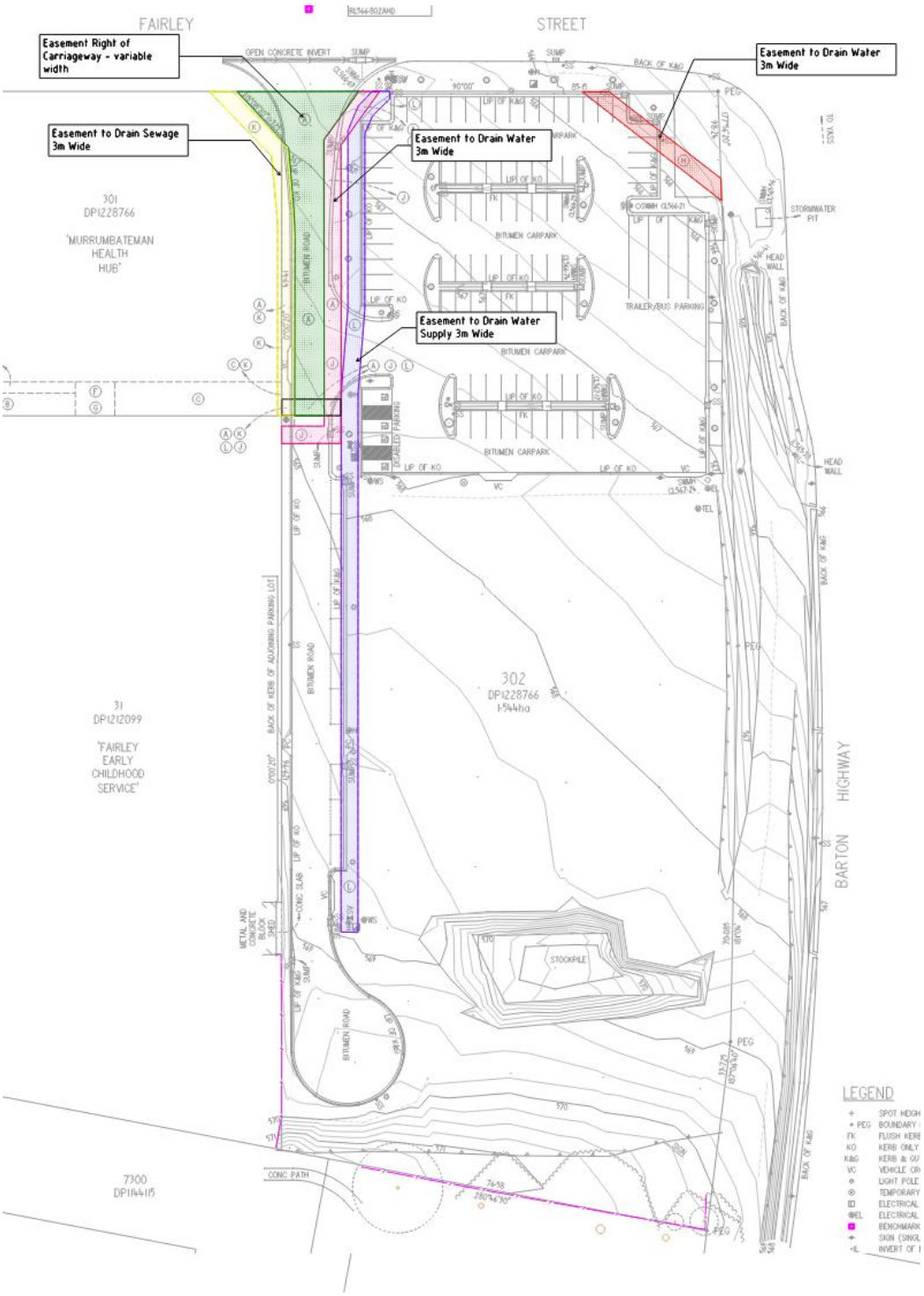
There are also several stormwater pits in the existing carpark and bitumen road which may become redundant as part of the proposed development.

Additional in-ground survey will be required to confirm the location of existing in-ground trunk stormwater mains throughout the site which will need to be reviewed as part of the Schematic Design phase of the project.

6.1.2 Existing Service Easements

There are a few existing easements identified on the site survey, mainly within the existing driveway off Fairley Street. These are mainly to service the adjacent Murrumbateman Health Hub. As part of the New Primary School development, these existing easement and services are to be retained and functional during and after construction.

In addition to the above, an existing water main easement currently runs through the site, which affects the New Primary School layout. Therefore the proposal is to extinguish the existing water main easement, however still utilizing the existing water main to service the New Primary School. This is subject to investigations from the project Hydraulic Consultant. Below is the site survey prepared by Clarke & Di Pauli Surveyors with the existing easements highlighted.



Site Survey Existing Easements (Clarke & Di Pauli Surveyors)

6.2 Stormwater Management Strategy

6.2.1 Stormwater Quantity Management

Northrop has performed a desktop investigation to determine a conceptual stormwater management strategy for the proposed development scenario, and the requirements for the development. This has relied on Yass Valley Council's current stormwater management requirements.

6.2.1.1 Major / Minor Drainage System

The major/minor approach to stormwater drainage is the recognised drainage concept for urban catchments within the Yass Valley Council Local Government Area

The minor drainage system is comprised of below ground pit and pipe network and is designed to control nuisance flooding and enable effective stormwater management for the site. Council requires the minor drainage system to be designed for the critical 5% Annual Exceedance Probability (AEP) with overland flow safely catering for the 1% AEP.

The major drainage system will be designed to control and convey flows from the critical 1% AEP event. This incorporates suitably designed overland flow paths and drainage to direct flows into the OSD, system for all events up to the critical 1% AEP storm event.

In accordance with Council's requirements, overland flow paths are to be designed to contain a 1% AEP storm flow are to be provided over all pipelines that are not designed to cater for this flow. The design of the overland flowpath must consider the velocity-depth hazard.

Further catchment and pipe network modelling will be required for the site to suitably size the major/minor drainage network during the design phase of the project. Allowance for stormwater pit and pipe network needs to be considered as a permanent feature of the proposed development. Please refer to Appendix A for a proposed concept stormwater layout for the New Primary School In Murrumbateman.

6.2.1.2 On-site Stormwater Detention

Based on discussion with Yass Valley Council, On-site Stormwater Detention (OSD) is generally required for all types of developments in the Yass Valley Council Local Government area to limit post development flows to predevelopment rates. This is typically provided on most developments to avoid nuisance flooding of downstream properties.

To control flows generated during storm events, water is stored and released at controlled rate on the development site. Storage is typically provided either of the following:

- below ground in a purpose made holding tanks; or
- above ground in landscaped basins or on the surface of hardstand areas such as car parks.

The proposed concept stormwater drainage layout shown in Appendix has provision for a below ground OSD system which is considered appropriate in a school environment.

6.2.1.3 Connection to Councils Drainage System

Typically outflow pipes from stormwater drainage systems connect either directly to Council's stormwater infrastructure or utilise existing site stormwater connections within the site.

Based on review of the Detailed survey prepared by Clarke & Di Pauli Surveyors dated 30th July 2020, there is an existing stormwater pit in Barton Highway towards the north east of the site which will be utilised to connect the site stormwater network to the public system.

6.2.2 Stormwater Quality Management

Yass Valley Council has advised, Northrop have been advised that Water Quality Treatment is not a requirement in this Local Government Area and as such has not been considered as part of the Concept Design.

Yass Valley Council have however noted that rainwater storage is required and will be further discussed with the project Hydraulic Engineer and Architect as part of the Schematic Design phase of the project.

6.3 Flooding

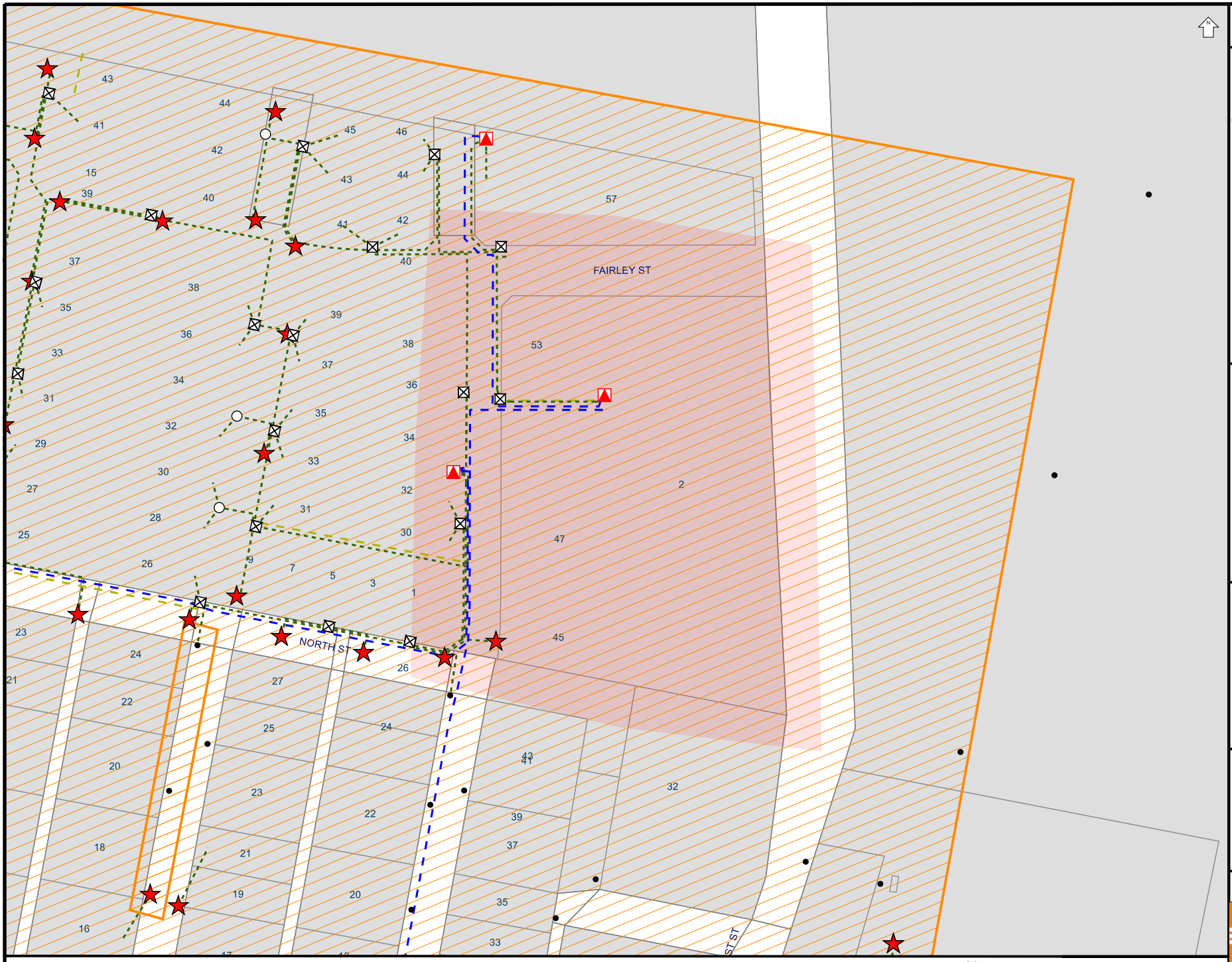
From review of the Flooding Assessment prepared for Yass Valley Council (Murrumbateman, Bowning, Bookham and Binalong Flood Study – Lyall & Associates, August 2020) the site is not flood affected for the 1% AEP event however is affected in the PMF.

7 INFRASTRUCTURE DELIVERY AND STAGING

The below table outlines the approval pathways, time lines and funding responsibilities of the different authority approvals required for the Project.

Service	Authority	Process	Funding Responsibility
Power	Endeavour Energy	– Engage Level 3 Designer – Submit application for connection – Receive Design Brief – ASP Design and 40 day notice – Submit Design – Authority review – Resubmit design – Authority approval – Construction	Project / Builder
Communications	NBN	– Submit application – 15 days for offer – Client accepts offer – NBN Design, appointed builder engages accredited installer.	Project / Builder
Communications	Telstra	– Submit application – 15 days for offer – Client accepts offer – Telstra Design and Construct	NSW Department of Education
Water & Sewer	Sydney Water	– Engage Sydney Water accredited Water Services Coordinator (WSC) and lodge section 73 application – Water connection application via tap in – Authority review and approval – Sydney Water meter procurement by contractor and inline pumping application via tap in – Builder to manage construction	Project / Builder
Natural Gas	Jemena	– n/a	n/a

APPENDIX A DIAL BEFORE YOU DIG



Overhead wires not shown
LOOK UP & LIVE!

LEGEND

- LV Underground Cable
- HV Underground Cable
- Underground Pipe
- Underground Earth or Wires
- Ground Substation
- Pole
- Cubicle
- Pit
- Area of Interest

Critical Assets

Contact Essential Energy on 13 23 91

- Zone Substation
- Underground Cable
- Underground Fibre

Proposed Works

- Area of proposed works

Proposed assets are shown as orange symbols

THE INFORMATION ON THIS MAP MAY NOT BE ACCURATE. If details are incorrect, please notify Essential Energy on 13 23 91 (or fax 1800 354 636)

ISSUE DATE: 17/08/2020

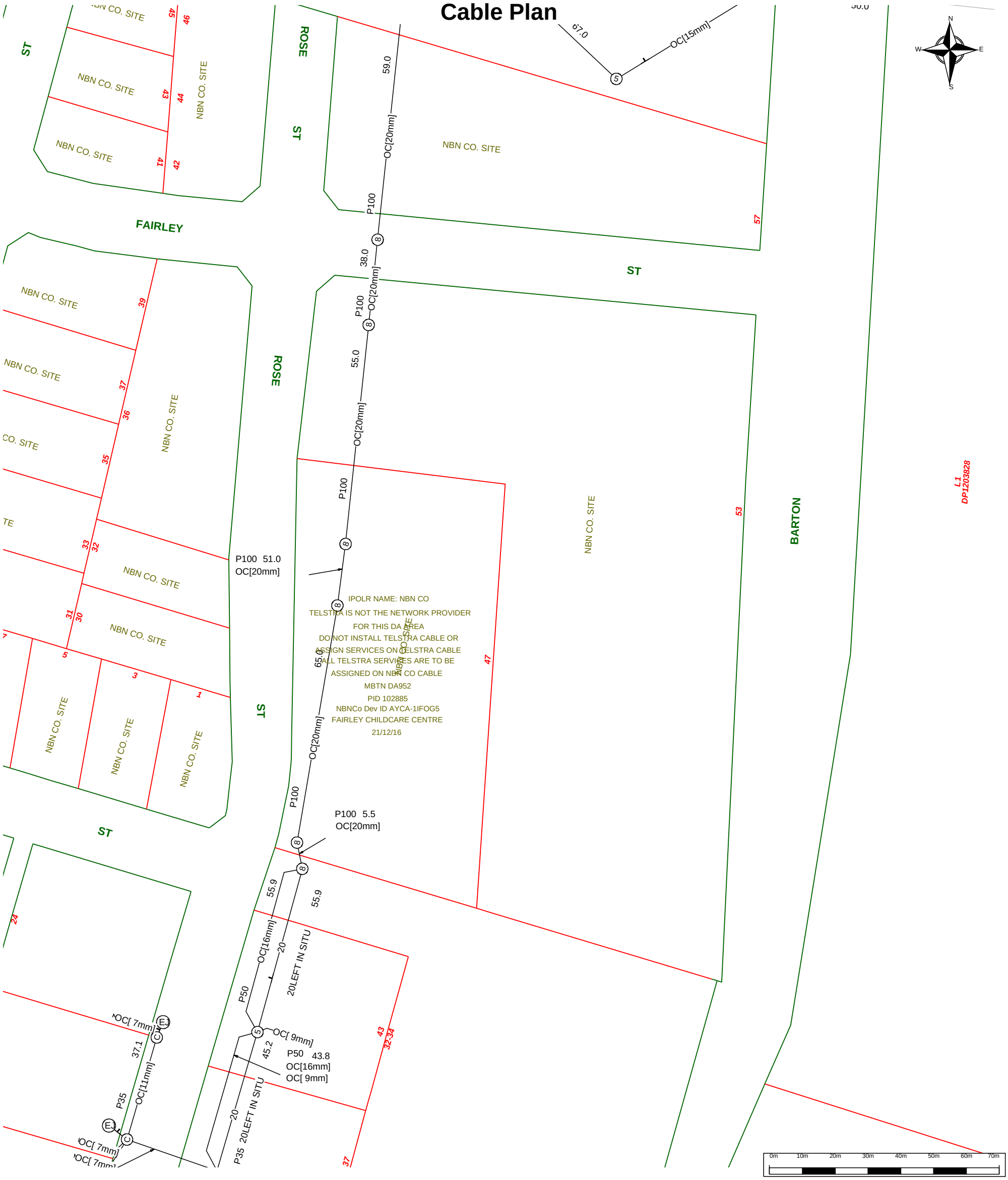
You must resubmit your request if you have not started work within 4 weeks of the 'Issue Date' above

A4 | SCALE: 1:2447

essential energy

Job Number: 20073795 Sequence number: 100799983 Job location: Fairley Street, Murrumbateman Map Centre: 149° 1' 47.6", -34° 57' 59.2"

Cable Plan



Telstra For all Telstra DBYD plan enquiries - email - Telstra.Plans@team.telstra.com For urgent onsite contact only - ph 1800 653 935 (bus hrs)	Sequence Number: 100799984
TELSTRA CORPORATION LIMITED A.C.N. 051 775 556	Please read Duty of Care prior to any excavating
Generated On 17/08/2020 13:36:06	

Indicative Plans

Issue Date:	17/08/2020
Location:	Fairley Street , Murrumbateman , NSW , 2582

1

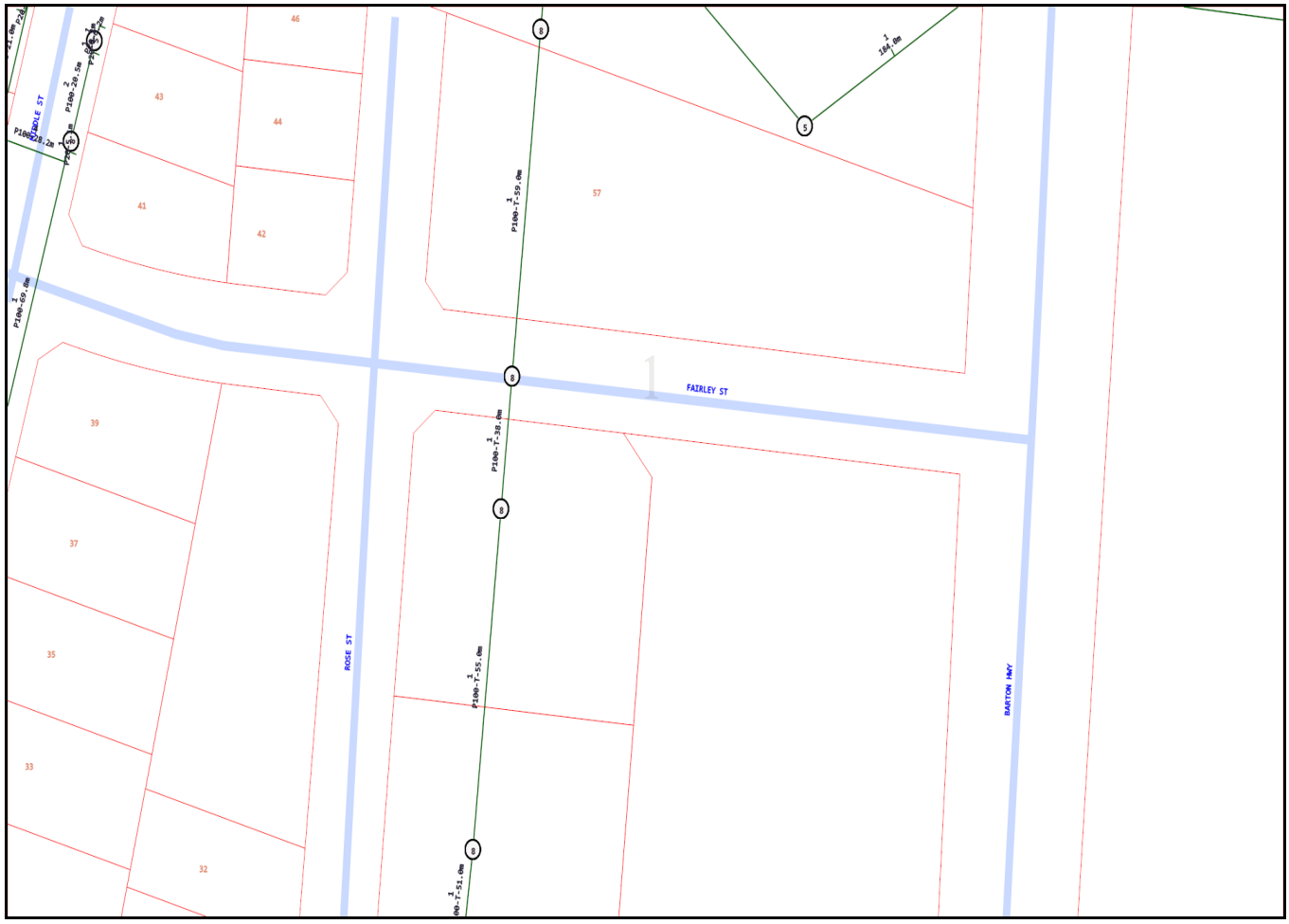
2

Email info@nbn.com.au Web nbn.com.au

LEGEND

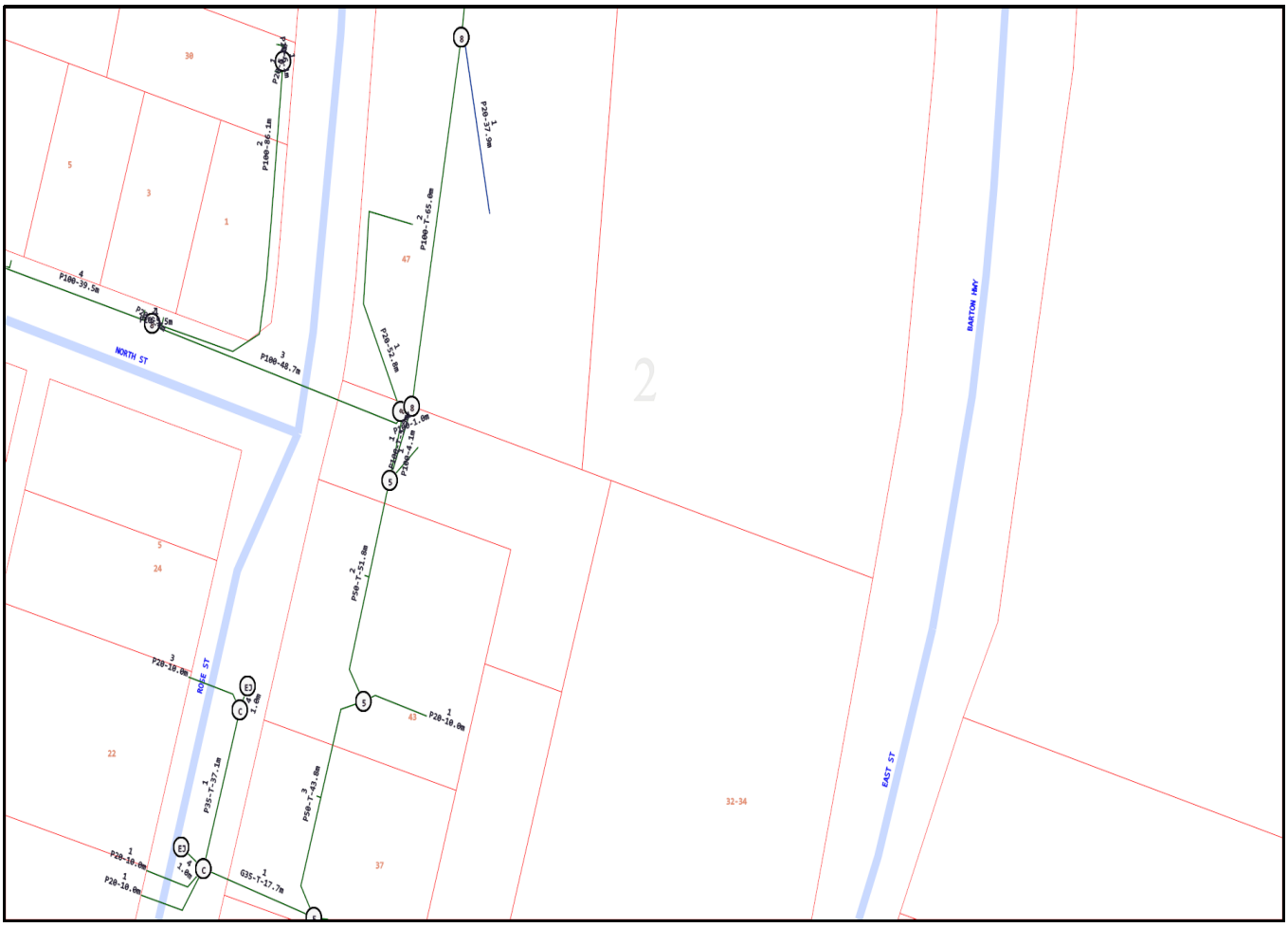
34	Parcel and the location
5	Pit with size "5"
2E	Power Pit with size "2E". Valid PIT Size: e.g. 2E, 5E, 6E, 8E, 9E, E, null.
	Manhole
	Pillar
2 PO – T- 25.0m P40 – 20.0m 5 9	Cable count of trench is 2. One "Other size" PVC conduit (PO) owned by Telstra (-T-), between pits of sizes, "5" and "9" are 25.0m apart. One 40mm PVC conduit (P40) owned by NBN, between pits of sizes, "5" and "9" are 20.0m apart.
2 10.0m 5 9	2 Direct buried cables between pits of sizes ,"5" and "9" are 10.0m apart.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Copper/RF/Fibre) cables.
5 9	Trench containing only DESIGNED/PLANNED (Copper/RF/Fibre/Power) cables.
5 9	Trench containing any INSERVICE/CONSTRUCTED (Power) cables.
BROADWAY ST	Road and the street name "Broadway ST"
Scale	0 20 40 60 Meters 1:2000 1 cm equals 20 m

Email info@nbn.com.au Web nbn.com.au



Level 11, 100 Arthur Street, North Sydney NSW 2060

Email info@nbn.com.au Web nbn.com.au



Emergency Contacts

You must immediately report any damage to **nbn™** network that you are/become aware of. Notification may be by telephone - 1800 626 329.

APPENDIX B YASS VALLEY COUNCIL HYDRALICS PLAN

Created on 13/04/2021 5:28 PM

yass valley council
the country the people

Yass Valley Council
PO Box 6
209 Comur Street
YASS NSW 2582
Telephone: 02 6226 1477
Email: council@yass.nsw.gov.au

Important Notice!

This map is not a precise survey document. Accurate locations can only be determined by a survey on the ground.

Projection: GDA94 / MGA zone 55

Date: 13/04/2021

Drawn By: Mohammad Rahman

Map Scale: 1:2000 at A4

APPENDIX C SITE SURVEY

EASEMENT DESCRIPTIONS (VIDE DP1228766)

A DENOTES RIGHT OF CARRIAGEWAY VARIABLE WIDTH
B DENOTES EASEMENT FOR BORE 4 WIDE (DP 1212099)
C DENOTES EASEMENT FOR SERVICES 6 WIDE
E DENOTES EASEMENT FOR UNDERGROUND ELECTRICITY POWERLINES 2 WIDE (DP1212099)
F DENOTES EASEMENT FOR MULTI-PURPOSE ELECTRICAL INSTALLATION 6 WIDE (DP1212099)
G DENOTES EASEMENT FOR BORE PUMP BUILDING 6 WIDE (DP1212099)
H DENOTES EASEMENT TO DRAIN WATER 3 WIDE (DP1212099)
J DENOTES EASEMENT TO DRAIN WATER 3 WIDE
K DENOTES EASEMENT TO DRAIN SEWAGE 3 WIDE AND VAR
L DENOTES EASEMENT FOR WATER SUPPLY 3 WIDE

WARNING:
* The purpose of this Detail & Contour Survey is for general design and concept planning only and is not to be used for any form of construction.
* Survey stations were created for the purposes of this survey only. They are temporary only and are unstable and unsuitable for construction.
* A full boundary definition must be made where any construction is to take place on or near the boundaries, or at a nominated minimum distance from the boundaries.
* No responsibility will be taken for any other information that may be added or overlaid on this plan
* Clarke & Di Pauli have surveyed all services visible on the surface at the time of survey.
* It is strongly recommended that a full services search be made with the relevant authorities and "Dial-Before-You-Dig" before any construction takes place.
* Beware that over time, new services may be added or existing services altered, thus superseding this plan.

NOTES
* Future registered survey plans, may legally affect the boundaries of this & adjoining parcels. Any differences so caused to the dimensions or position of the boundary shown on this plan are beyond the control of Clarke & Di Pauli who can accept no responsibility for such differences.
* Title boundaries are from DP1228766 plan dimensions only and were not marked as part of this survey.
* Tree canopies that are circular, are sized according to the longest canopy dimension, centered on the trunk and do not reflect irregular canopies.
* Symbols shown herewith may not reflect the object's actual size & orientation.
* Coordinates are based on the MGA55 (GDA94 Datum) to match the earlier survey Ref 13107_DC01.dwg and to match the DP1228766 for main lot 302.
* Please note, that the GDA2020 datum coordinates are different to GDA94 datum coordinates.
* Reduced levels are on the AHD datum and have been determined from published values on SSM185266 Locality Sketch.

MGA
MGA55 (GDA94)
DP1228766

29
DP1212099
'ABODE MURRUMBATEMAN'

BENCHMARK
BRASS PLAQUE IN KERB
SSM185266
RL566·802AHD

FAIRLEY STREET
ROSE STREET
BARTON HIGHWAY
TO YASS
FROM CANBERRA

21 DP1212099
301 DP1228766 'MURRUMBATEMAN HEALTH HUB'
31 DP1212099 'FAIRLEY EARLY CHILDHOOD SERVICE'
302 DP1228766 1·544ha
16 DP1212099
7300 DP1144115
10 DP1168324 'MURRUMBATEMAN PRESCHOOL'
55 DP754900
284 DP823517 'MURRUMBATEMAN RURAL FIRE BRIGADE'
7301 DP1144115
I DP881769 'MURRUMBATEMAN COMMUNITY CHURCH'

ELEC SUBSTATION
ELEC SWITCHBOARD
DISABLED PARKING
BITUMEN CARPARK
BITUMEN ROAD
LIP OF KO
LIP OF K&G
BACK OF K&G
BACK OF ADJOINING PARKING LOT
OPEN CONCRETE INVERT
TRAILER/BUS PARKING
STORMWATER PIT
HEAD WALL
BUS SHELTER
SCHOOL BELL
BRICK AND WEATHERBOARD BUILDINGS METAL ROOF
METAL WATER TANK
METAL WATER TANKS
CONCRETE WATER TANK
METAL SHED
METAL AND CONCRETE BLOCK SHED
COMMUNITY NURSERY
STOCKPILE
OUTHOUSE
DENSE VEGETATION
TRAFFIC ISLAND
VERANDAH
STAIRS
RAMP
SEAT
BBQ
SIGN

CAUTION: THERE IS AN UNCERTAINTY OF APPROX +/- 0·03m IN THE ABSOLUTE POSITION OF THE BOUNDARIES OF LOT 55 & APPROXIMATELY ±0·100m IN THIS CORNER. IT IS RECOMMENDED THAT A FULL AND EXTENSIVE BOUNDARY SURVEY IS MADE WHERE ANY CONSTRUCTION IS TO TAKE PLACE ON OR NEAR THE BOUNDARIES, OR AT A NOMINATED MINIMUM DISTANCE FROM THE BOUNDARIES.

LEGEND

+	SPOT HEIGHT
• PEG	BOUNDARY PEG FOUND
FK	FLUSH KERB
KO	KERB ONLY
K&G	KERB & GUTTER
VC	VEHICLE CROSSING
✦	SCHOOL BELL
•B	BOLLARD
•LB	LITTER BIN
•GP	GUIDE POST
⊛AC	AIRCONDITIONING UNIT
✲FL	LIGHT POLE WITH SIGN
✱PP	POWER POLE WITH LIGHT
•PP	POWER POLE
✲	LIGHT POLE
⊗	ELECTRICAL PILLAR
⊡	ELECTRICAL MANHOLE
•STAY	GUY STAY WIRE
◘	BENCHMARK (STATE SURVEY MARK)
⊷	SIGN (SINGLE POST)
+IL	INVERT OF PIPE
•SS	SUBSOIL DRAIN
○	STORMWATER MANHOLE
⧗SV	WATER STOP VALVE
⊛WS	WATER TIE MARKER
⊛H	HYDRANT
•CV	IRRIGATION CONTROL VALVE
•WM	WATER METER
•TAP	TAP
●	SEWER MANHOLE
•IO	SEWER INSPECTION OPENING
⊛G	GAS BOTTLES
◪	TELECOMMUNICATIONS JOINTING PIT
◫PILL	TELECOMMUNICATIONS PILLAR
•GP	FENCE POST
	13107 DC01 SURVEY EXTENTS
	TOP OF BANK
-/-	FENCE
- - -	EASEMENT
-E-	ELECTRICAL CABLE (ABOVE GROUND)
	ROOF/GUTTER
	TRACK
	DASHED LINE YELLOW
	DOUBLE WHITE LINE
	BROKEN WHITE LINE
	CHANGE OF GRADE
	FOLIAGE OUTLINE
	TABLE DRAIN
	OPEN LINED DRAIN
○	TREE STUMP (DEAD)
	SHRUB
	SAPLING
	EVERGREEN VEGETATION
	NATIVE VEGETATION

SCALE 1:400
0 10 20 30 40

SURVEYOR JY	LEVEL DATUM AHD
CHECKED BY SB	CONTOUR INTERVAL 0·25m
APPROVED: STEVEN BELJANSKI	
7/5/2021	REGISTERED SURVEYOR

Clarke & Di Pauli surveyors
6299 1836
www.cdsurveyors.com.au
CLARKE & DI PAULI SURVEYORS PTY LTD A.B.N. 011 087 968 358
LEV 1, 19 MONARO STREET, PO BOX 88 QUEANBEYAN N.S.W. 2620

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PROJECT	MURRUMBATEMAN PUBLIC SCHOOL
CLIENT	HANSEN YUNCKEN
DRAWING TITLE	DETAIL AND CONTOUR SURVEY
	SHEET 1 OF 3
JOB NO.	13107
DRAWING REFERENCE	13107_DC02
REV.	–
SIZE	A0

EASEMENT DESCRIPTIONS (VIDE DP1228766)

A DENOTES RIGHT OF CARRIAGEWAY VARIABLE WIDTH
B DENOTES EASEMENT FOR BORE 4 WIDE (DP 1212099)
C DENOTES EASEMENT FOR SERVICES 6 WIDE
E DENOTES EASEMENT FOR UNDERGROUND ELECTRICITY POWERLINES 2 WIDE (DP1212099)
F DENOTES EASEMENT FOR MULTI-PURPOSE ELECTRICAL INSTALLATION 6 WIDE (DP1212099)
G DENOTES EASEMENT FOR BORE PUMP BUILDING 6 WIDE (DP1212099)
H DENOTES EASEMENT TO DRAIN WATER 3 WIDE (DP1212099)
J DENOTES EASEMENT TO DRAIN WATER 3 WIDE
K DENOTES EASEMENT TO DRAIN SEWAGE 3 WIDE AND VAR
L DENOTES EASEMENT FOR WATER SUPPLY 3 WIDE

WARNING:
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* Beware that over time, new services may be added or existing services altered, thus superseding this plan.

NOTES
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* Title boundaries are from DP1228766 plan dimensions only and were not marked as part of this survey.
* Tree canopies that are circular, are sized according to the longest canopy dimension, centered on the trunk and do not reflect irregular canopies.
* Symbols shown herewith may not reflect the object's actual size & orientation.
* Coordinates are based on the **MGA55 (GDA94 Datum)** to match the earlier survey Ref 13107_DC01.dwg and to match the DP1228766 for main lot 302.
* Please note, that the .
* Reduced levels are on the AHD datum and have been determined from published values on SSM185266 Locality Sketch.

MGA
MGA55 (GDA94)
DP1228766

BENCHMARK
BRASS PLAQUE IN KERB
SSM185266
RL566·802AHD

29
DP1212099
'ABODE
MURRUMBATEMAN'

FAIRLEY STREET

301
DP1228766
'MURRUMBATEMAN
HEALTH
HUB'

21
DP1212099

31
DP1212099
'FAIRLEY
EARLY
CHILDHOOD
SERVICE'

302
DP1228766
1·544ha

16
DP1212099

7300
DP1144115

10
DP1168324
'MURRUMBATEMAN
PRESCHOOL'

55
DP754900

284
DP823517
'MURRUMBATEMAN
RURAL FIRE
BRIGADE'

1
DP881769
'MURRUMBATEMAN
COMMUNITY
CHURCH'

ROSE STREET
BITUMEN ROAD
BITUMEN CARPARK
TRAILER/BUS PARKING
STOCKPILE
ELEC SUBSTATION
ELEC SWITCHBOARD
DISABLED PARKING
BACK OF KERB OF ADJOINING PARKING LOT
METAL AND CONCRETE BLOCK SHED
METAL SHED
OUT HOUSE
COMMUNITY NURSERY
DENSE VEGETATION
BRICK AND WEATHERBOARD BUILDINGS METAL ROOF
METAL WATER TANK
CONCRETE WATER TANK
METAL WATER TANKS
SCHOOL BELL
BBQ
SEAT
TRAFFIC ISLAND
BUS SHELTER
STORMWATER PIT
HEAD WALL
BARTON HIGHWAY
TO ASSY
FROM CANBERRA

CAUTION: THERE IS AN UNCERTAINTY OF APPROX +/- 0·03m IN THE ABSOLUTE POSITION OF THE BOUNDARIES OF LOT 55 & APPROXIMATELY ±0·100m IN THIS CORNER. IT IS RECOMMENDED THAT A FULL AND EXTENSIVE BOUNDARY SURVEY IS MADE WHERE ANY CONSTRUCTION IS TO TAKE PLACE ON OR NEAR THE BOUNDARIES, OR AT A NOMINATED MINIMUM DISTANCE FROM THE BOUNDARIES.

INVERT LEGEND

STORMWATER INVERT LINE (APPROX. DIRECTION)
SEWER INVERT LINE (APPROX. DIRECTION)
CL COVER LEVEL
IL INVERT LEVEL
ø INNER DIAMETER

LEGEND

+ SPOT HEIGHT
• PEG BOUNDARY PEG FOUND
FK FLUSH KERB
KO KERB ONLY
K&G KERB & GUTTER
VC VEHICLE CROSSING
✦ SCHOOL BELL
•B BOLLARD
•LB LITTER BIN
•GP GUIDE POST
⊛AC AIRCONDITIONING UNIT
✲FL LIGHT POLE WITH SIGN
✱PP POWER POLE WITH LIGHT
•PP POWER POLE
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ELECTRICAL MANHOLE
•STAY GUY STAY WIRE
BENCHMARK (STATE SURVEY MARK)
SIGN (SINGLE POST)
•IL INVERT OF PIPE
•SS SUBSOIL DRAIN
STORMWATER MANHOLE
⧗SV WATER STOP VALVE
⊗WS WATER TIE MARKER
⊛H HYDRANT
•ICV IRRIGATION CONTROL VALVE
•WM WATER METER
•TAP TAP
SEWER MANHOLE
•IO SEWER INSPECTION OPENING
⊛G GAS BOTTLES
TELECOMMUNICATIONS JOINTING PIT
TELECOMMUNICATIONS PILLAR
•GP FENCE POST
13107 DC01 SURVEY EXTENTS
TOP OF BANK
FENCE
EASEMENT
ELECTRICAL CABLE (ABOVE GROUND)
ROOF/GUTTER
TRACK
DASHED LINE YELLOW
DOUBLE WHITE LINE
BROKEN WHITE LINE
CHANGE OF GRADE
FOLIAGE OUTLINE
TABLE DRAIN
OPEN LINED DRAIN
TREE STUMP (DEAD)
SHRUB
SAPLING
EVERGREEN VEGETATION
NATIVE VEGETATION

SCALE 1:400
0 10 20 30 40

SURVEYOR JY	LEVEL DATUM AHD
CHECKED BY SB	CONTOUR INTERVAL 0·25m
APPROVED: STEVEN BELJANSKI	
7/5/2021	REGISTERED SURVEYOR

Clarke & Di Pauli surveyors
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PROJECT: MURRUMBATEMAN PUBLIC SCHOOL
CLIENT: HANSEN YUNCKEN

DRAWING TITLE: DETAIL AND CONTOUR SURVEY SEWER AND STORMWATER INVERTS
SHEET 2 OF 3

JOB NO.	DRAWING REFERENCE	REV.	SIZE
13107	13107_DC02	–	A0

EASEMENT DESCRIPTIONS (VIDE DP1228766)

A DENOTES RIGHT OF CARRIAGEWAY VARIABLE WIDTH
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* Please note, that the
* Reduced levels are on the AHD datum and have been determined from published values on SSM185266 Locality Sketch.

AS5488-2013 CLASSIFICATION OF SUBSURFACE UTILITY INFORMATION (SUI)

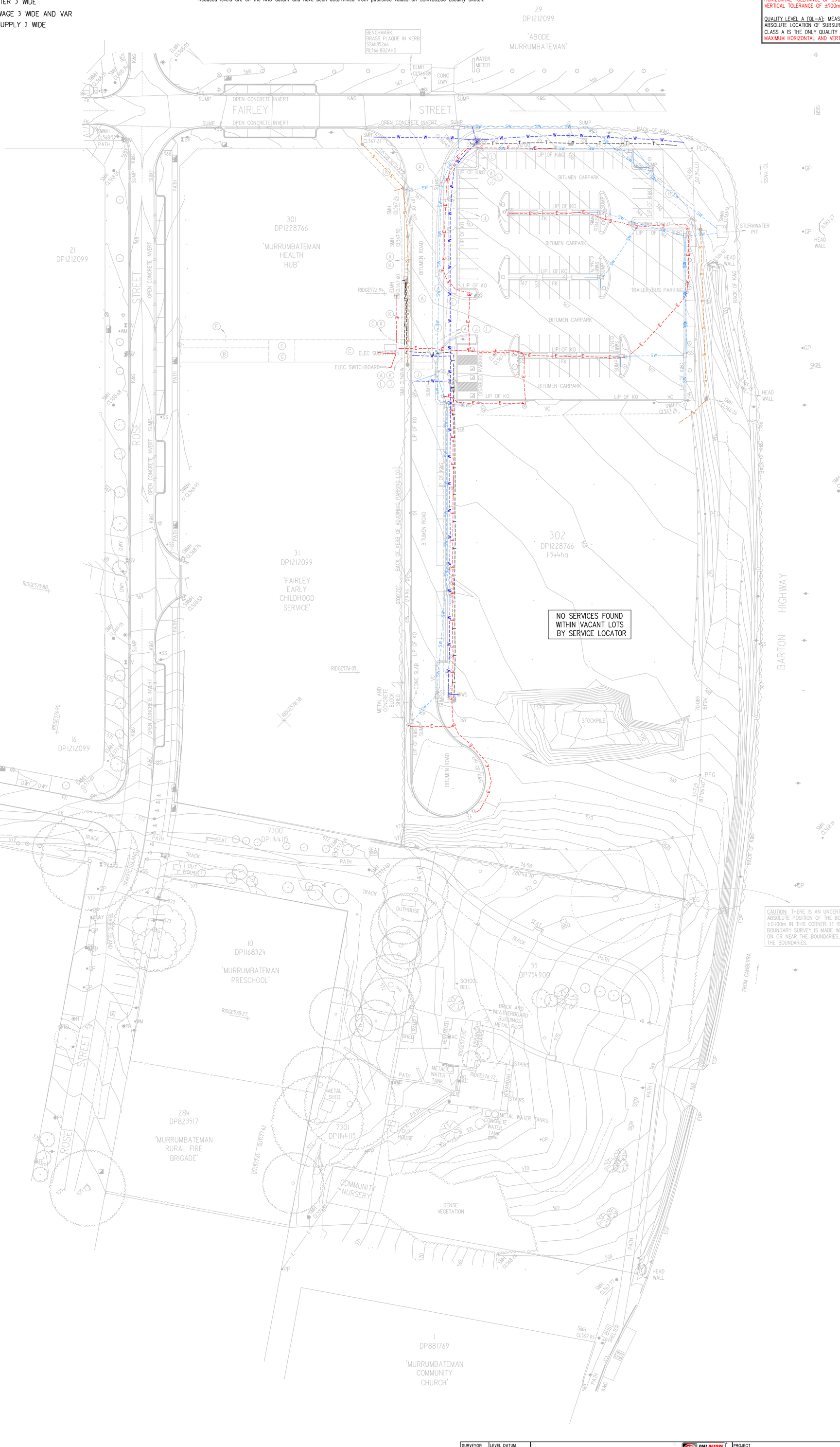
QUALITY LEVEL D (QL-D): INDICATIVE AS PER UTILITY PROVIDED DIAGRAMS OR 'BEST GUESS' SIMPLE APPROXIMATION FROM EXISTING RECORDS, CURSORY SITE INSPECTION AND/OR ANECDOTAL EVIDENCE.
TOLERANCE DOES NOT APPLY.

QUALITY LEVEL C (QL-C): ALIGNED TO UTILITY SURFACE FEATURES (e.g. MANHOLE TO MANHOLE) INTERPRETATION OF APPROXIMATE LOCATION USING COMBINATION OF EXISTING RECORDS AND A SITE SURVEY OF VISIBLE EVIDENCE.
HORIZONTAL TOLERANCE OF ±300mm.

QUALITY LEVEL B (QL-B): TRACED OR DETECTED ELECTRONICALLY
SUBSURFACE FEATURE LOCATED IN THREE DIMENSIONS. THE MINIMUM REQUIREMENT FOR QUALITY LEVEL B IS RELATIVE SPATIAL POSITION.
HORIZONTAL TOLERANCE OF ±300mm.
VERTICAL TOLERANCE OF ±500mm.

QUALITY LEVEL A (QL-A): MEASUREMENT DIRECTLY ON UTILITY (VIA POTHOLE/VISUAL VALIDATION)
ABSOLUTE LOCATION OF SUBSURFACE FEATURE IN THREE DIMENSIONS.
CLASS A IS THE ONLY QUALITY LEVEL THAT DEFINES THE SUBSURFACE UTILITY AS 'VALIDATED'.
MAXIMUM HORIZONTAL AND VERTICAL TOLERANCE OF ±50mm.

MGA
MGA55 (GDA94)
DP1228766



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SUBSURFACE UTILITY LEGEND

WATER MAIN (UNDER GROUND)
SEWER MAIN (UNDER GROUND)
ELECTRICAL CABLE (UNDER GROUND)
TELECOMMUNICATIONS CABLE (UNDER GROUND)
STORMWATER PIPE (UNDER GROUND)
D DEPTH BELOW SURFACE
+ SPOT HEIGHT

SUBSURFACE UTILITY NOTES

* All underground service linework shown is indicative and shown for clarity only. Only where there is a spot height has the service been surveyed.
* Spot heights shown on sheet 3 at subsurface utility linemarking locations are surface heights.
* Depths shown have been provided and marked on site by Australian Utility Search.
* Subsurface utility information survey accuracy at manholes or service pits is QUALITY LEVEL A (QL-A), otherwise, Subsurface utility information survey accuracy is typically QUALITY LEVEL B (QL-B), unless specifically shown otherwise.
* Water Main shown has been located at QUALITY LEVEL C (QL-C).
* Clarke & Di Pauli have NOT performed a "Dial-Before-You-Dig" serach.
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Beware: Detection instruments can only locate services containing metal pipes/cables so there may be other existing services that may not be shown on this plan.

PLEASE SEE CAD .dwg FILE TO ZOOM IN FOR DEPTHS OF SUBSURFACE SERVICE UTILITIES AND SURFACE SPOT HEIGHTS

LEGEND

+ SPOT HEIGHT
• PEG BOUNDARY PEG FOUND
FK FLUSH KERB
KO KERB ONLY
K&G KERB & GUTTER
VC VEHICLE CROSSING
✦ SCHOOL BELL
•B BOLLARD
•LB LITTER BIN
•GP GUIDE POST
◉AC AIRCONDITIONING UNIT
✲FL LIGHT POLE WITH SIGN
✱PP POWER POLE WITH LIGHT
•PP POWER POLE
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⊗ ELECTRICAL PILLAR
◫ ELECTRICAL MANHOLE
•STAY GUY STAY WIRE
◘ BENCHMARK (STATE SURVEY MARK)
•- SIGN (SINGLE POST)
•IL INVERT OF PIPE
•SS SUBSOIL DRAIN
○ STORMWATER MANHOLE
⧗SV WATER STOP VALVE
⓪WS WATER TIE MARKER
◉H HYDRANT
•ICV IRRIGATION CONTROL VALVE
•WM WATER METER
•TAP TAP
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13107 DC01 SURVEY EXTENTS
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FOLIAGE OUTLINE
TABLE DRAIN
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SCALE 1:400
0 10 20 30 40

SURVEYOR JY	LEVEL DATUM AHD
CHECKED BY SB	CONTOUR INTERVAL 0·25m
APPROVED: STEVEN BELJANSKI	
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PROJECT	MURRUMBATEMAN PUBLIC SCHOOL
CLIENT	HANSEN YUNCKEN
DRAWING TITLE	DETAIL AND CONTOUR SURVEY SUBSURFACE UTILITY LOCATING
	SHEET 3 OF 3
JOB NO.	13107
DRAWING REFERENCE	13107_DC02
REV.	–
SIZE	A0

NORMAN DISNEY & YOUNG

CONSULTING ENGINEERS

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NDY QA SYSTEM

Revision No:	B
Revision Date:	19 May 2021
Reason Description:	SSDA Submission
File Location:	\\tt.local\NDY\syd\w\S387xx\S38745\004\00\24_Reports
Filename:	rp210426s0008
Client Name:	School Infrastructure
Client Contact:	Hansen Yuncken
Project Leader:	Tom Meggitt
Editor:	Tom Meggitt

Autho
Hahn

Verifi
Ryan

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