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Services Strategy Report

34 Busby Street, Bathurst

Prepared for: ANAT Investments Pty Ltd

Document no: NA231880

Revision no: 06

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Revisions

Revision	Description	Date	Prepared by	Approved by
01	Issue for client review	29.04.24	E.L	G.L
02	Issue for client review	08.05.24	E.L	G.L
03	Issue for client review	25.07.24	E.L	G.L
04	Issue for client review	19.08.24	E.L	G.L
05	Issue for client review	06.08.25	TW	GL
06	Issue for client review	06.08.25	TW	GL

Review Panel

Division/ office	Name
St Leonards	Gregory Lyell

Table of Contents

Appendices

List of Figures

1 Introduction

ACOR Consultants Pty Ltd has been engaged to provide a Services Strategy Report for the planning proposal at 34 Busby Street, South Bathurst.

The site is bound by Busby Street to the north, St Catherines Aged Care (not in use currently) and residential dwellings to the west, a landscaped drainage reserve to the south, and residential dwellings to the east.

The proposed site benefits from development consent to subdivide the land into three, being Lots 223, 225 and 226. The purpose of this report is to determine the service requirements for the proposed development on Lot 225 and 226, which is the subject of Planning Proposal PP2024/1001. This includes the assessment of capacity for reticulated water, sewer, stormwater, gas, electricity, and telecommunication services and identifying any augmentation required.

This report follows a condition of the gateway determination which requires the servicing strategy to quantify the water and sewer networks, inclusive of fire protection needs, to enable Council to model implications of the potential full development for the whole of the land.

1.1 Available Data

The following available information was utilized in the preparation of this report.

- Existing service information obtained from Before You Dig Australia (BYDA) search results
- Fire Flow Water Pressure Test inquiry
- 23091 – BATHURST – Planning Proposal –Place Analysis & Urban Design by Marchese Partners Life3a (dated 19.04.24)
- Amended Planning Proposal – 34 Busby Street, South Bathurst by Thrum Architects (dated 10.11.24)
- Equivalent Tenement (ET) Load for water and sewerage system by Barson (dated 15.07.24)
- Bathurst Regional Development Control Plan 2014 (DCP)

2 Proposed Site Description

The proposed development entails a mixed-use project situated in an area with heritage architecture and local landscape elements of significance. The site benefits from a subdivision comprising three lots, the first including the heritage-listed convent and its curtilage (Lot 224), the second a heritage listed cottage, facing Busby Street (Lot 223) and the third being the residual parcel of land along the eastern and southern side of the allotment (Lot 225).

The planning proposal relates to the approved Lot 225 of the proposed development.

The key components of the proposed development, across the 3 lots, include:

Approved Lot 223 - Gatekeeper's Cottage:

Proposed retention/refurbishment of the existing cottage.

Approved Lot 225 - St Joseph's Mount:

Proposed conversion of heritage buildings into boutique hotel & construction of new function centre & additional accommodation, including:

- Conservation of the 'Logan Brae' building and its existing extension for conversion into a boutique hotel, which may feature (subject to feasibility) a signature restaurant, cellar, and other complementary facilities. Interventions to the built fabric are limited, with the most significant elements proposed to be contemporary additions to enable accessibility throughout the common spaces.
- Conservation and restoration of the chapel to enhance its use.
- Construction of additional accommodation options in the form of cabins. Conservation and conversion of the existing cottage to make it part of the external temporary accommodation options.
- Construction of a new pavilion designated as a function centre.
- Removal of agricultural shelters and other non-significant structures.
- Adjustment of the existing road and landscaping to optimise the functionality of the new uses.

Approved Lot 226 - Open ground located east and south of St Joseph's Mount.

Proposed new residential development, including:

- 7 residential buildings, capable of accommodating a total of 218 apartments.
- Construction of these buildings to a maximum height of 18 metres.
- Visual separation of the residential project from the heritage portion of the site through the preservation of existing vegetation along the lot boundary line and building separation to ensure that views to and from Logan Brae are retained.

Figure 1 – Thrum Townhouse Masterplan (SK-301 OVERALL MASTERPLAN)

3 Preliminary Engineering Assessment

ACOR has investigated via desktop review the proposed service connections based on the proposed site plans

The information obtained from BYDA search indicates that the subject site has access to underground water, sewer, gas, electricity and telecommunication infrastructure within close proximity of the site. There are currently existing connections shown for these services. Refer to **Appendix B** for information obtained from BYDA search.

The Equivalent Tenement (ET) Load for water and sewerage system in Sections 3.1 and 0 has been provided by Barson engineer (Luke Morris) from email correspondence on 15.07.24. The ET rate of sewer and water needs to be confirmed in a later design stage. There is also a separate connection proposed via 23 Rose Street as part of the SWC application.

3.1 Water Supply

There is a water pipe, a water valve, and 2 x water hydrants located along Busby Street. The site is likely serviced by these existing underground water infrastructures.

The existing water connection within Lot 225 will remain and may be extended into Lots 223 and 226 for additional connection if required or recommended by the hydraulic engineers. Final sizing and connection details will be confirmed during the detailed design stage. All construction works shall be undertaken in accordance with Bathurst Regional Council and local authority guidelines and construction specifications.

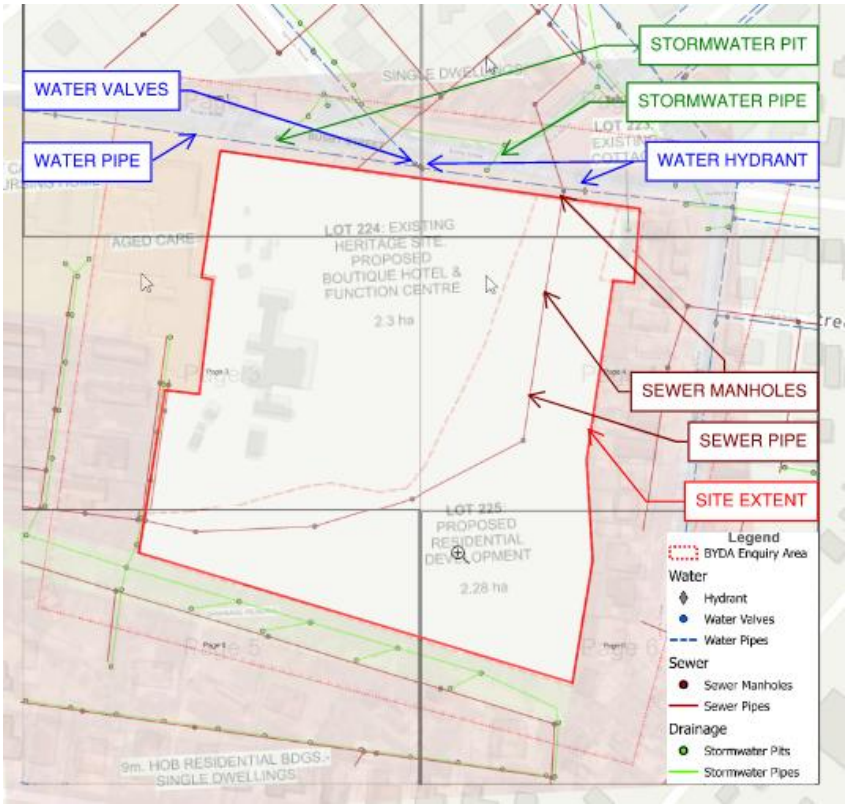


Figure 2 - BYDA Water, Sewer and Drainage networks

Based on state averages in performance reporting by the NSW Department of Primary Industries Water (DPI Water) and performance reporting data collected by the Water Services Association of Australia (WSAA, 2001), a Standard Water ET has been defined as an average water consumption of 230 kL/annum (based on average residential consumption).

The Equivalent Tenement (ET) Load for water, calculated using the development yields provided by Thrum Architects, is summarised below. Lot 225 includes an indicative allowance for the proposed boutique hotel and signature restaurant. Final non-residential ET demand will be determined during detailed design.

Land Use	Number	Water ET rate	Total Water ET's
1 bedroom unit	29	0.33	9.57
2 bedroom units	48	0.50	24.00
3 bedroom houses	53	1.00	53
4 Bedroom Dwellings	7	1.20*	8.40
Hotel/Restaurant (Lot 225 allowance)**	-	-	10.00***
		Total	104.97

* Industry reference ET rate for 4-bedroom dwellings assumed at 1.2 unless otherwise advised by Council.

** Non-residential allowance is indicative only. Final ET's to be confirmed during detailed design in consultation with Bathurst Regional Council.
*** Allowance based on estimated demand for a small boutique hotel with a commercial kitchen and restaurant.

3.2 Sewer

Existing sewer manholes and sewer pipes are located along the lower western boundary, and 1 x sewer manhole is located on Busby Street.

The site is currently serviced by existing sewer manholes and sewer pipes within Lot 226. It is anticipated that sufficient sewer connections will be available for the proposed development. Final connection details will be confirmed during the detailed design stage as part of the SWC application.

Basements on deeper foundations may intersect with the existing sewer infrastructure. Sewer diversion may be required if deeper basement construction is proposed.

Based on state averages in performance reporting by the NSW Department of Primary Industries Water (DPI Water) and performance reporting data collected by the Water Services Association of Australia (WSAA, 2001), a Standard Sewer ET has been defined as an average sewage loading of 140 kL/annum (based on an estimated 60% discharge factor).

The Equivalent Tenement (ET) Load for sewage, calculated using the updated development yields provided by Thrum Architects, is summarised below. Lot 225 includes an indicative allowance for the proposed boutique hotel and signature restaurant. Final non-residential ET demand will be determined during detailed design.

Land Use	Number	Sewer ET rate	Total Sewer ET's
1 bedroom unit	29	0.50	14.50
2 bedroom units	48	0.75	36.00
3 bedroom houses	53	1.00	53.00
4 Bedroom Dwellings	7	1.20*	8.40
Hotel/Restaurant (Lot 225 allowance)**	-	-	12.00***
		Total	123.90

* Industry reference ET rate for 4-bedroom dwellings assumed at 1.2 unless otherwise advised by Council.
** Non-residential allowance is indicative only. Final ET's to be confirmed during detailed design in consultation with Sydney Water.
*** Allowance based on estimated demand for a small boutique hotel with commercial kitchen and restaurant.

3.3 Stormwater Drainage

The site generally falls from west to east, with approximately 24.0m fall.

Existing 2 x stormwater pits are located on Busby Street and an additional 5 x stormwater pits and pipes are located along the lower western boundary. The site is potentially split into 3 catchments so stormwater is to be discharged in 3 directions:

- to the North into the existing pits on Busby Street;
- to the West into the existing stormwater infrastructures; and
- to the South into the existing stormwater easement (title to be investigated).

It is anticipated that there are adequate legal points of discharge for the subject site.

The specific control Clause 17.2.9.2 Council's DCP stated that *"the developed 1% annual exceedance probability (AEP) peak flow must be reduced to pre-development flows through the incorporation of stormwater detention and management devices."*

This control should be considered and adopted to aid the DA process. The implementation of OSD will reduce peak flow rates draining to the existing drainage infrastructures and will ensure the site discharges are limited to the capacity of the stormwater infrastructure.

Hence, on-site stormwater detention (OSD) tanks with the incorporation of Water Sensitive Urban Design (WSUD) measures will be required due to the increase in impervious areas.

3.4 Gas, Electrical and Communication Services

3.4.1 Jemena

An existing 32 mm Nylon 210 kPa Medium Pressure gas main connects into a 2 inch (Nominal Bore) Cast Iron pipe located along Busby Street, servicing Lot 225.

Gas Consumption and Requirements
Based on Jemena's standard residential gas demand rates and industry guidelines for commercial hospitality use, the estimated gas load for the proposed development is outlined below.

Gas demand assumptions:

- **1 & 2 bedroom dwellings** – average peak demand ~125 MJ/day (gas cooking, hot water, space heating)
- **3 & 4 bedroom dwellings** – average peak demand ~180 MJ/day (gas cooking, hot water, space heating)
- **Boutique hotel & restaurant** – allowance of ~1,000 MJ/day for commercial kitchen, laundry, and central hot water plant

Land Use	Number	Unit Demand (MJ/day)	Total Demand (MJ/day)
1 bedroom units	29	125	3,625
2 bedroom units	48	125	6,000
3 bedroom dwellings	53	180	9,540
4 bedroom dwellings	7	180	1,260
Hotel / Restaurant (Lot 225 allowance)*	–	1,000	1,000
Total	**–**	**–**	**21,425 MJ/day**

* Hotel/restaurant load is indicative only and will be refined once the final commercial kitchen and hot water plant specifications are confirmed.

Connection Notes:

- Existing gas main along Busby Street is expected to be capable of servicing the development, subject to Jemena network capacity confirmation during detailed design.
- Final gas sizing, pressure requirements, and metering locations will be determined by the hydraulic and mechanical services engineers in consultation with Jemena.
- If simultaneous peak loads exceed existing main capacity, Jemena may require an upgrade to the connection or reinforcement of the local network.

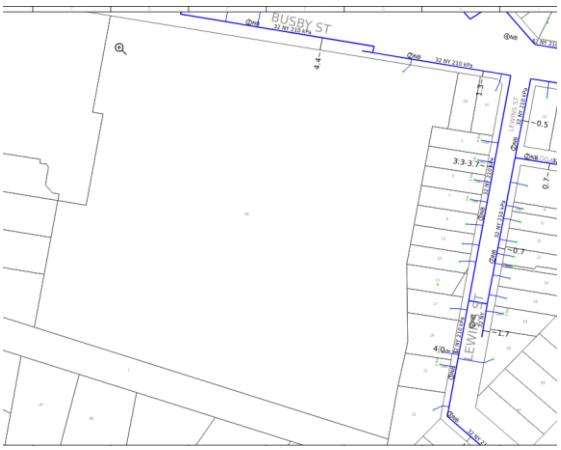


Figure 3 - Jemena Service Network

3.4.2 Essential Energy

An existing underground Essential Energy Electrical asset is provided on the subject site.

There is 1 x pole located within Lot 225 and there are 5 x poles and 1 x “underground Earth or Wires” along the frontage of the site on Busby Steet. There is also a pole location on the frontage of Lot 223 and 5 x additional poles towards the eastern side of the site to service Lot 226.

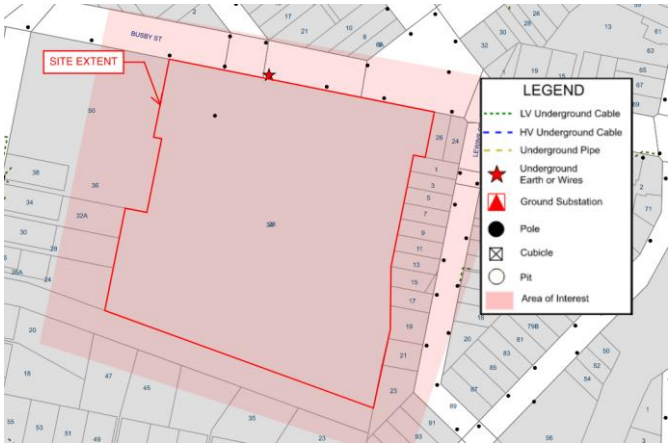


Figure 4 - Essential Energy Service Network

3.4.3 Telstra

Existing Telstra infrastructure is currently available for the subject site, which are summarised as follows:

Located in the western portion of the site

1 x 50mm PVC conduit (P50) owned by Telstra connects 2 x existing pits on site, labelled as “1” and “3” as per Figure 5. The pits are located 112.2m apart.

Located in the eastern portion of the site

1 x 20mm PVC conduit (P20) owned by Telstra with a length of 100.0m connects into an existing pit on site labelled as “5”.

Figure 5 - Telstra Service Network

3.4.4 NBN

Existing NBN infrastructure is currently available for the subject site, which are summarised as follows:

Located in the western portion of the site

1 x 20mm PVC conduit (P20) owned by NBN with a length of 1.0m connects into 1 x existing pit on site labelled as "1".

Located in the eastern portion of the site

1 x 20mm PVC conduit (P20) owned by NBN with a length of 13.9m connects into 1 x existing pit on site labelled as "5".

1 x 50mm PVC conduit (P50) owned by NBN connects 2 x existing pits on site labelled as "5" pits.

51 homes

The proposed subdivision comprises a total of 128 dwellings, including 78 townhouses and 50 apartments, as detailed in the dwelling schedule. All existing telecommunications infrastructure within the development site is to be decommissioned and removed in full. A new NBN-compliant network connection is to be provided to service the entire development, designed and installed in accordance with current NBN Co "New Developments" requirements and relevant industry standards.

The works will include the provision of pit and pipe reticulation, lead-in conduits, and all associated infrastructure to facilitate connection from the NBN point of interconnect to each individual dwelling. Coordination with NBN Co will be undertaken to ensure timely approval, design acceptance, and activation of the new network prior to occupancy.

The works will be a brand new "Pit and pipe NBN Design" which will be submitted for NBN design approval.

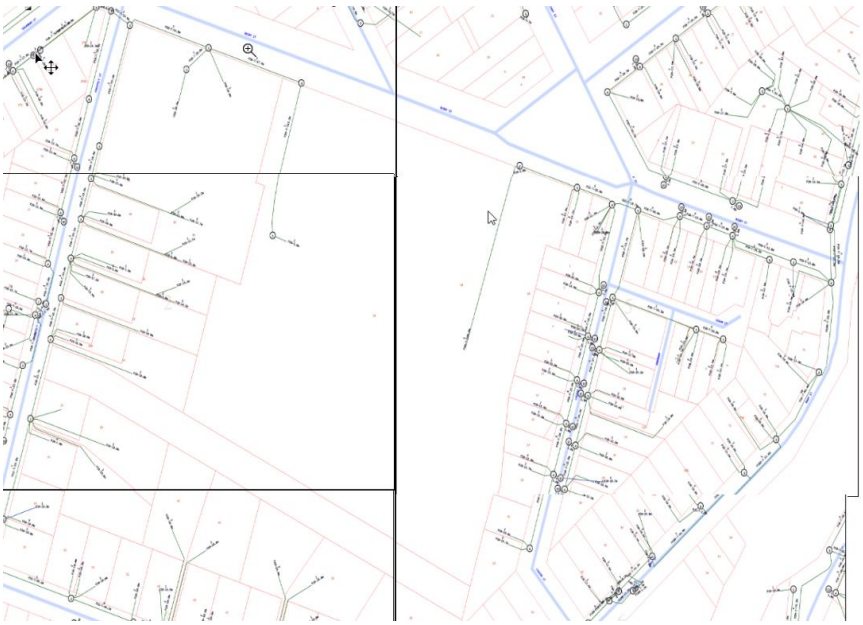


Figure 6 - NBN Service Network

3.5 Pressure and Flow Inquiry

On 24th of June 2024, Bathurst Region Council conducted a pressure and flow test on the hydrant shown in Figure 7.

Figure 7 - Tested Hydrant Location

The results of hydrant flow rate and hydrant pressure, obtained from council, are shown in Figure 8.

Hydrant Flow Rate (controlled)		Hydrant Pressure (corresponding to the controlled flow)
litres/second	*litres/minute*	*kPa*
32.0	1920	Maximum Flow
30.0	1800	
25.0	1500	30
20.0	1200	30
15.0	900	300
10.0	600	440
5.0	300	570
Zero discharge		600

Figure 8 - Flows vs Pressure

Additionally, the pressure and flow statement from Bathurst Region Council (refer to **Appendix C**) reveals that the tested hydrant on an approximate ground level of 674 m AHD provides a maximum head of 72.5 m or 710 kPa, and a minimum head of 60.6 m or 593 kPa at peak instantaneous demand.

3.6 Power Supply

There are no existing substations identified on site.

The key consideration for Electrical Services is the adequacy of the power supply. This demand is a function of both building area and building type. Based on the updated development yields provided by Thrum Architects, the estimated total electrical demand for the development is summarised below.

Assumptions:

- Residential dwellings – average allowance of 5 kW maximum demand per unit (after diversity)
- Boutique hotel & restaurant – allowance of 150 kW (hotel rooms, commercial kitchen, common areas, plant)
- All figures are indicative only and subject to detailed load assessment by electrical engineers

Land Use	Number	Unit Load (kW)	Total Load (kW)
1 bedroom units	29	5.0	145
2 bedroom units	48	5.0	240
3 bedroom dwellings	53	5.0	265
4 bedroom dwellings	7	5.0	35
Hotel / Restaurant (Lot 225 allowance)*	–	150.0	150
Total	**–**	**–**	**835 kW**

This equates to approximately **1,200 A 3-phase** total diversified load for the combined development.

There is very limited information currently available regarding the existing electrical infrastructure serving the site. It is uncertain whether there will be sufficient capacity within the existing network to accommodate this estimated load. If not, new substations will be required. Final demand and network connection requirements will be confirmed during the detailed design stage by a suitably qualified electrical engineer in consultation with Essential Energy. The Applicant accepts that new substations are a likely requirement for the future development of the site.

4 Conclusion

The site is currently serviced by reticulated water, sewer, stormwater, gas, electricity, and telecommunication connections. Final confirmation of network capacity and internal reticulation requirements will be undertaken by suitably qualified engineers during the detailed design stage. When the DA is lodged, a full capacity application will be submitted to each relevant service provider for connection approval, in accordance with Council's DA Consent conditions. Any required amplification or network upgrades will be determined as part of that process.

This report provides high-level advice in relation to the existing and potential capacity of reticulated water, sewer, stormwater, gas, electricity, and telecommunication services for the proposed mixed-use development at 34 Busby Street, Bathurst. The updated development yields for Lots 225 and 226 indicate increased service demands compared to previous approvals, and it is anticipated that augmentation of certain services (including electricity and possibly water and sewer) may be required.

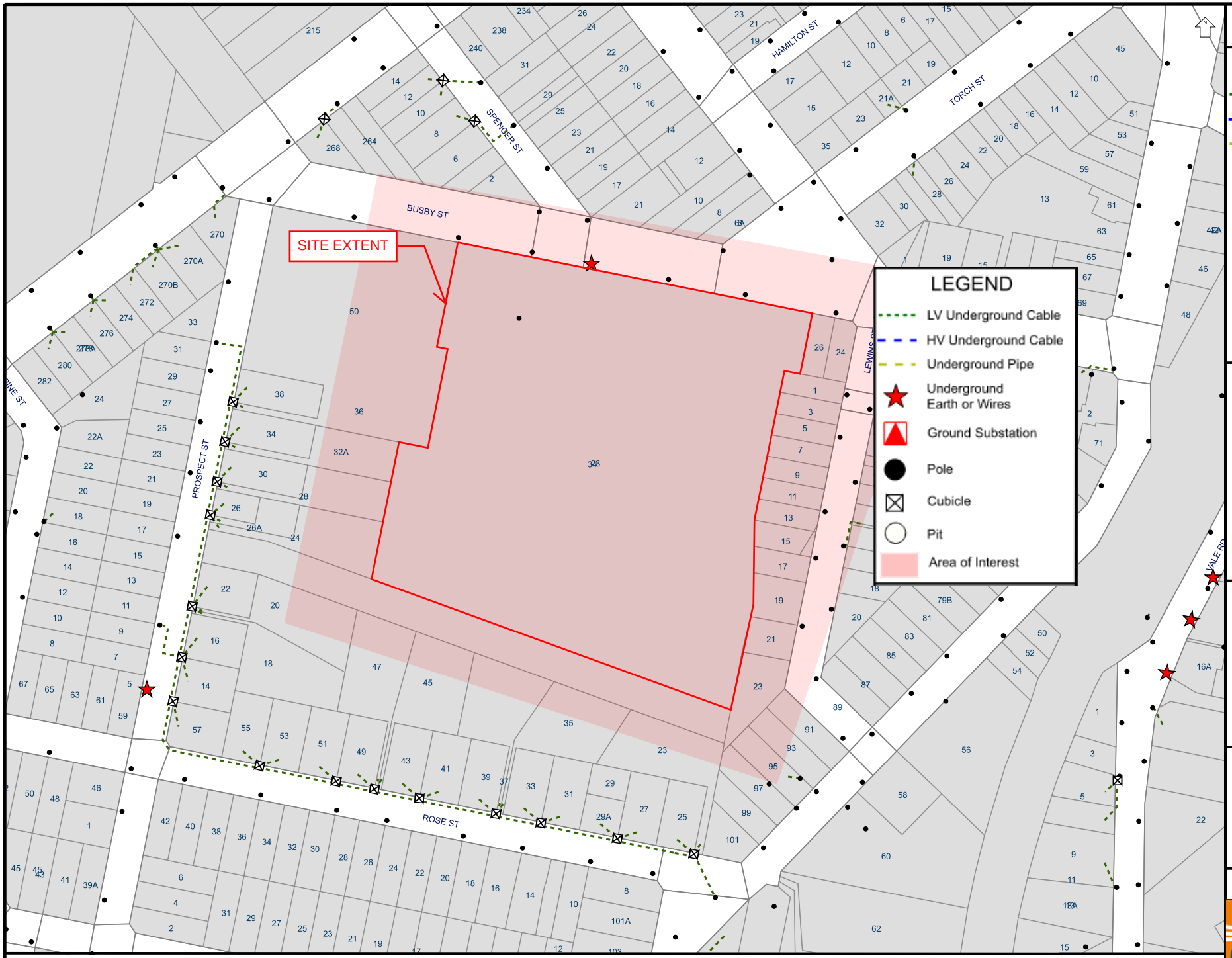
Yours faithfully,

ACOR Consultants Pty Ltd

Gregory Lyell

Sydney Civil Lead

Appendix A BYDA Search



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: 16/04/2024

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

A4 | SCALE: 1:2951

Job Number: 36478784 Sequence number: 238023007 Job location: 34 Busby Street, South Bathurst Map Centre: 149° 34' 30.5", -33° 26'

essential energy

To:	Sam Mattheos
Phone:	Not Supplied
Fax:	Not Supplied
Email:	smattheos@acor.com.au

Dial before you dig Job #:	36478784
Sequence #	238023006
Issue Date:	16/04/2024
Location:	34 Busby Street , South Bathurst , NSW , 2795

BEFORE YOU DIG www.byda.com.au
Zero Damage - Zero Harm

Indicative Plans are tiled below to demonstrate how to layout and read nbn asset plans

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.
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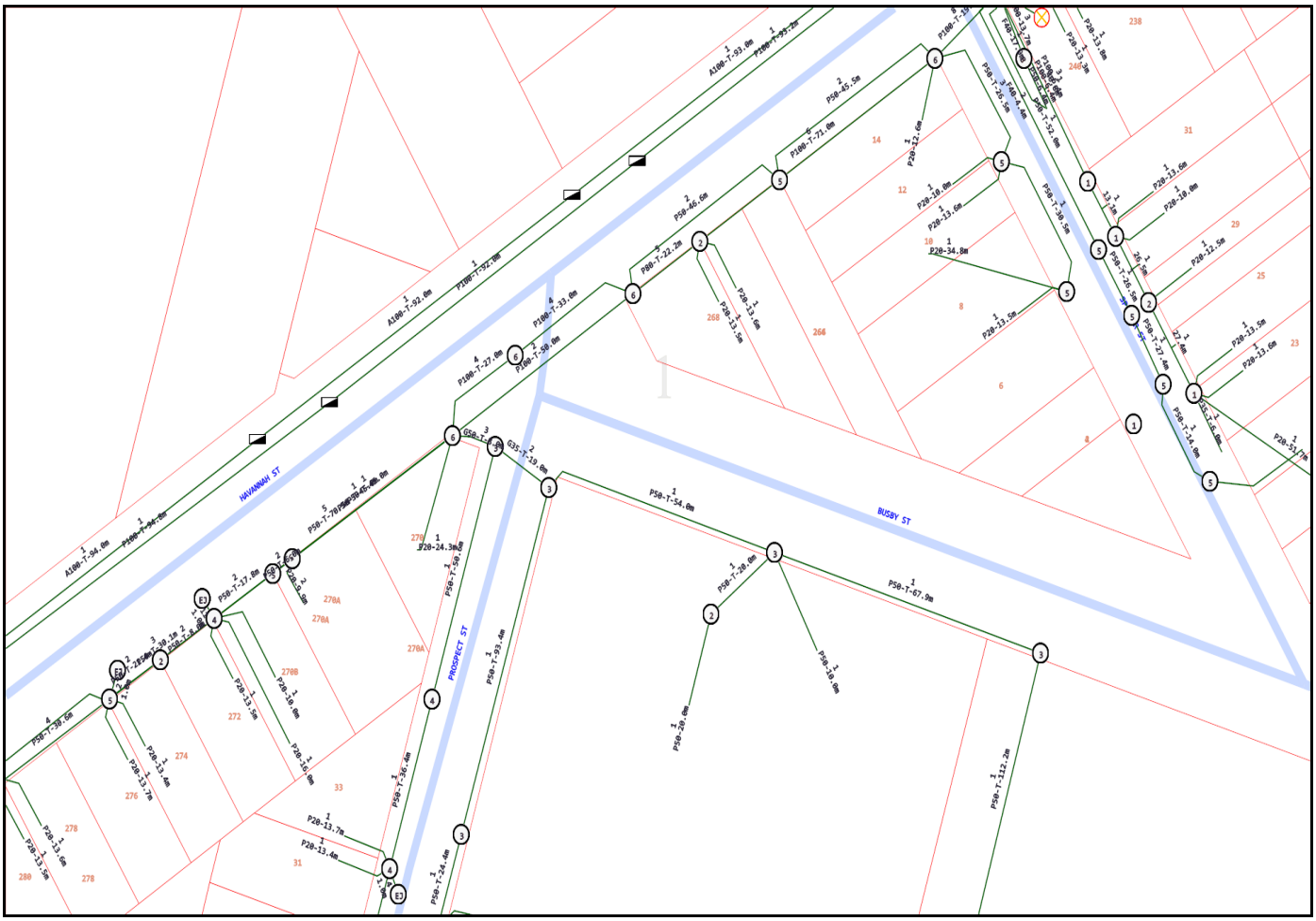
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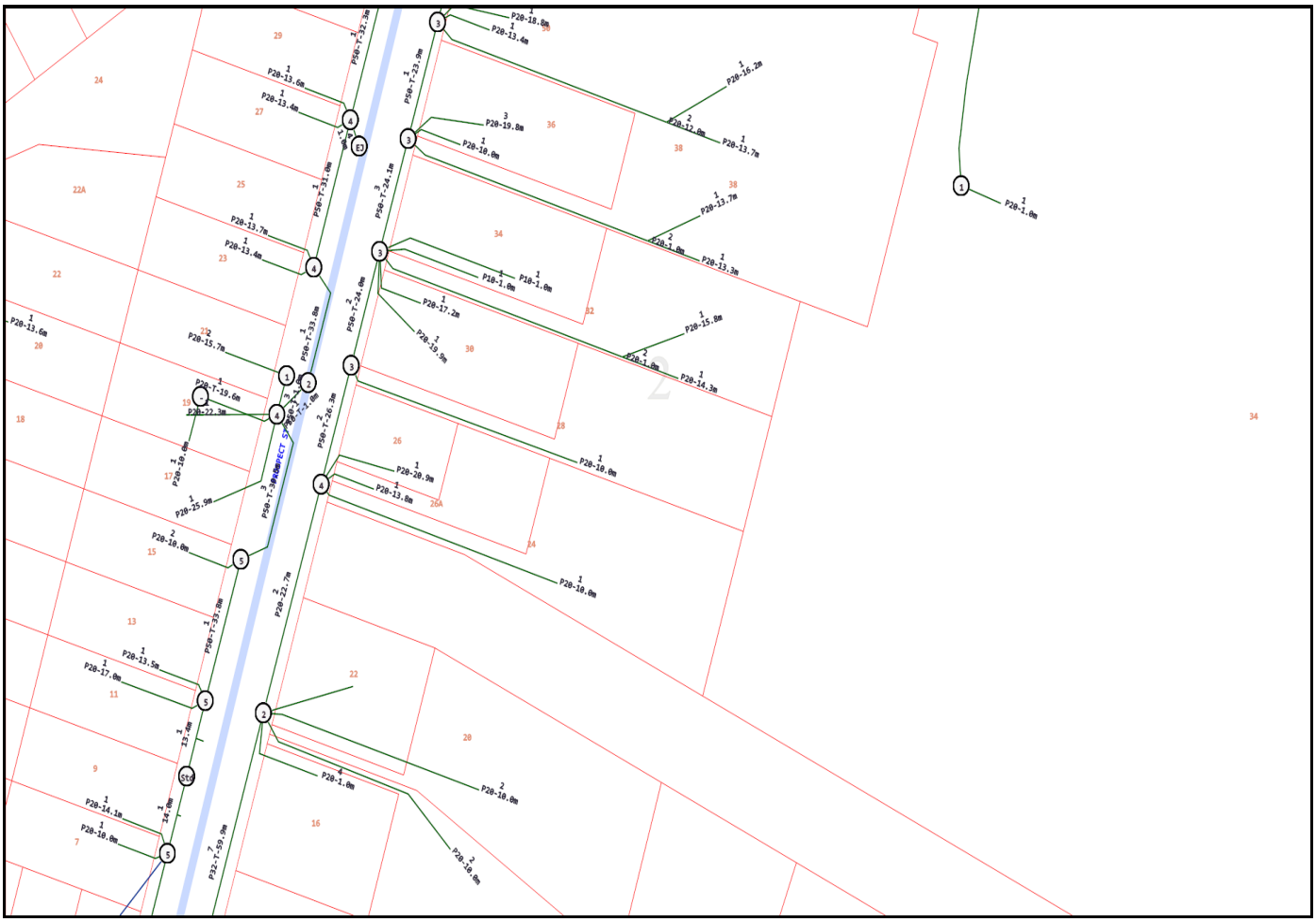
BUSBY ST
PROSPECT ST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P20-13.4m
P20-16.2m
P20-12.0m
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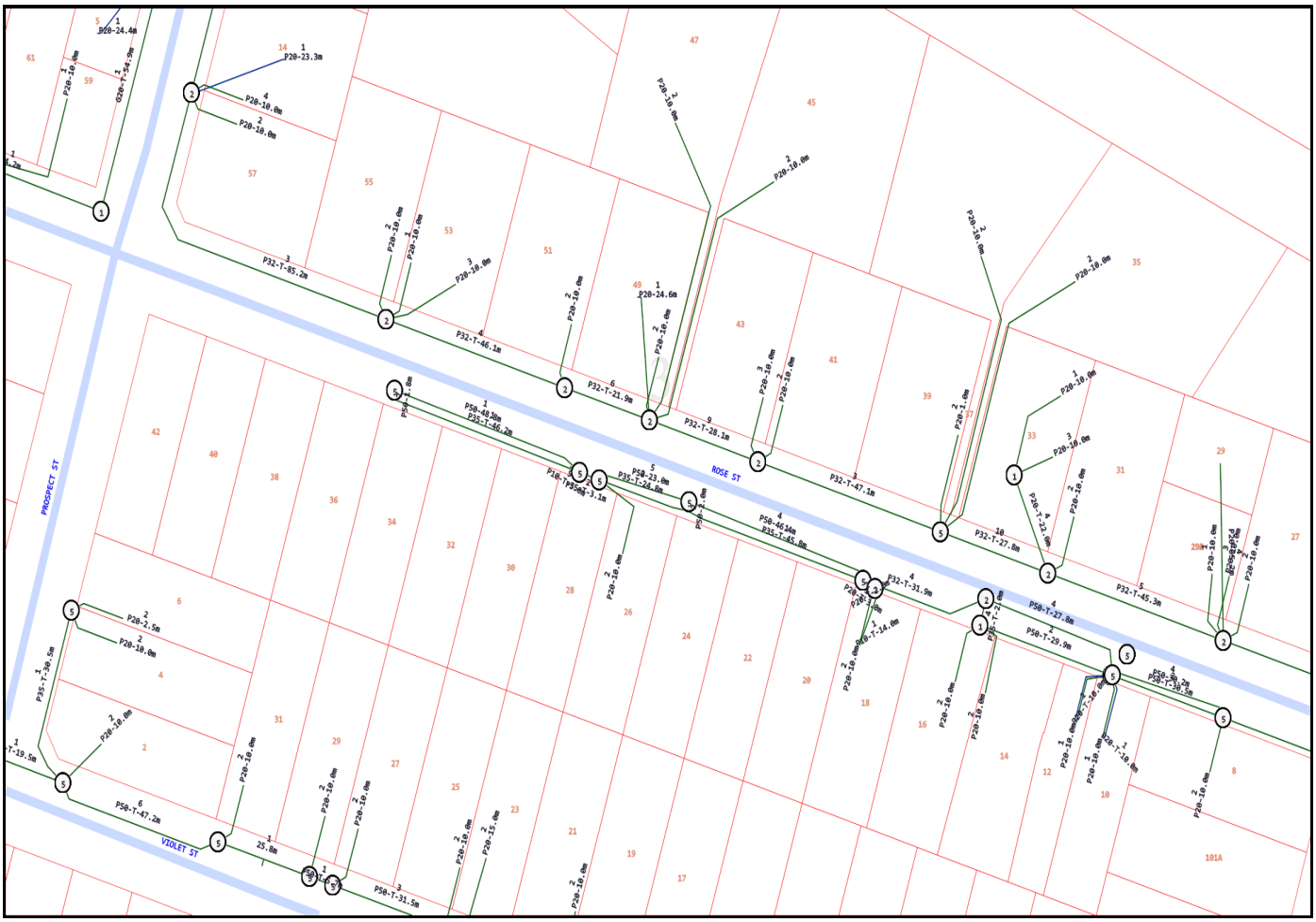
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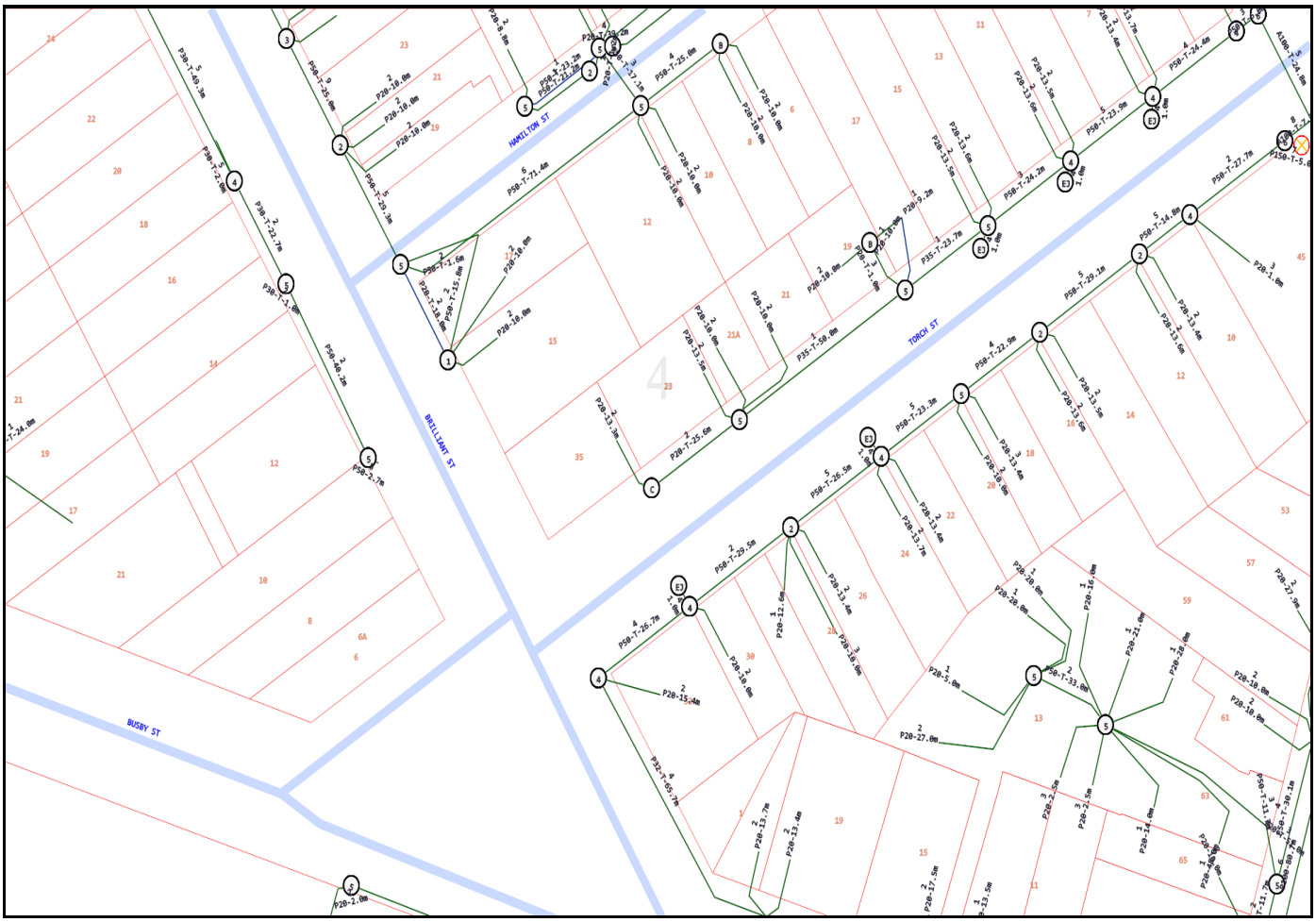
PROSPECT ST
VIOLET ST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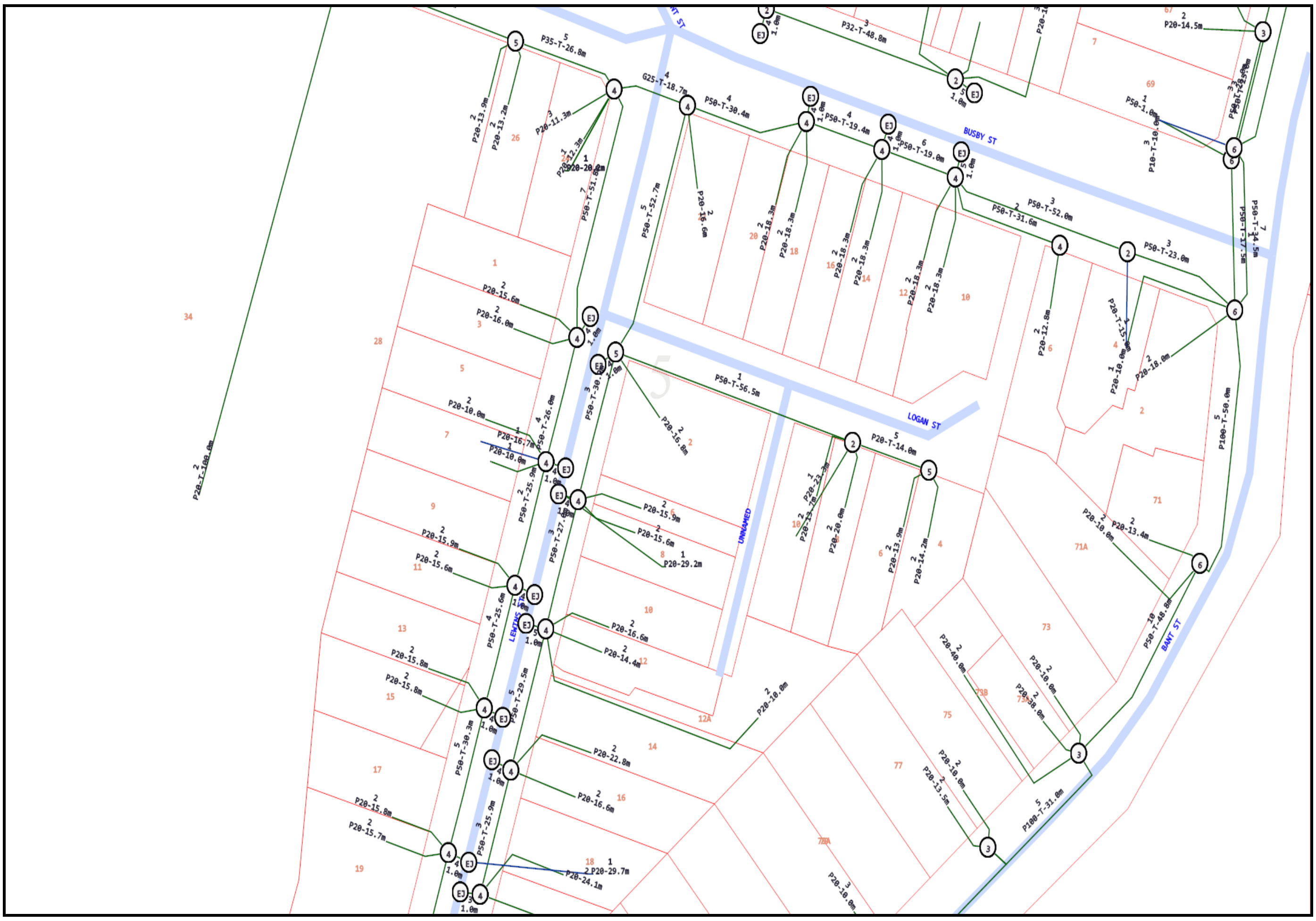
BRILLIANT ST
TORCH ST
BUSBY ST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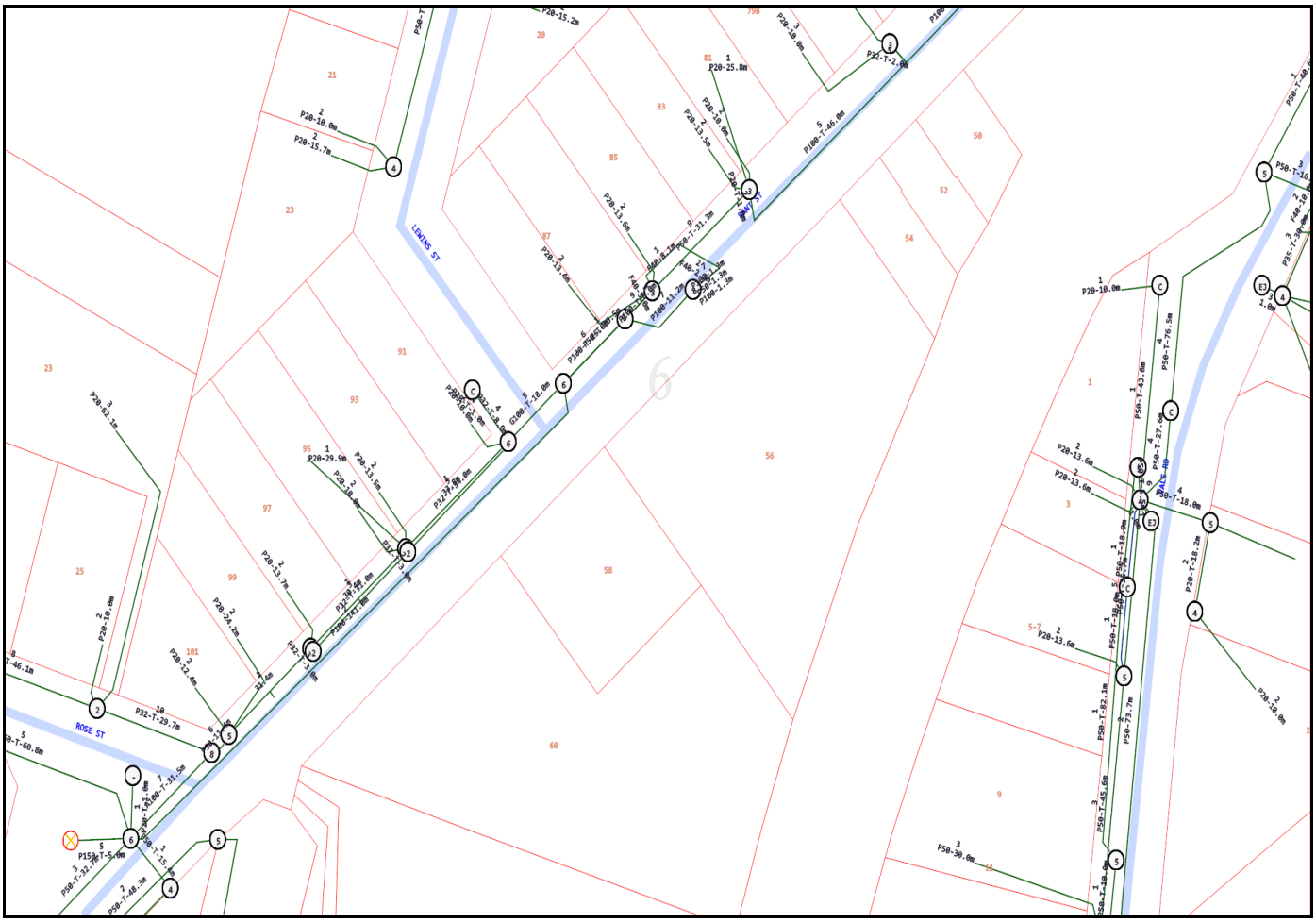
LOGAN ST
UNNAMED
BANT ST



Emergency Contacts

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

BATHURST REGIONAL COUNCIL

Job # 36478784 Seq # 238023008
Provider: Bathurst Regional Council
Telephone: 02 6333 2147

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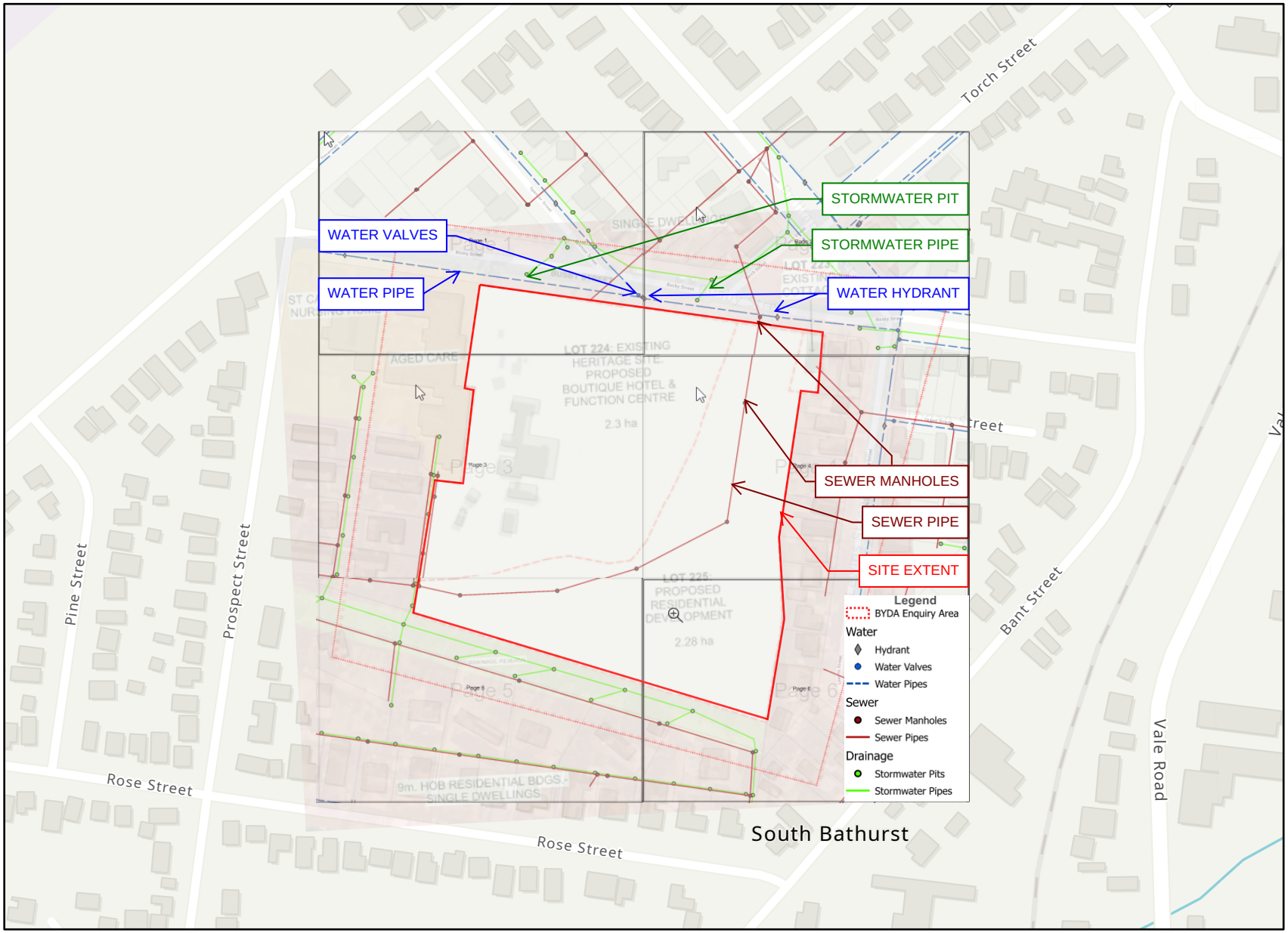

Legend

BYDA Enquiry Area

Detailed Map Page

Disclaimer

The plan is provided in response to a Before You Dig Australia request. While all reasonable care has been taken to ensure the accuracy of the information on this plan, its purpose is to provide a general indication of the location of Bathurst Regional Council. The information provided may contain errors or omissions and the accuracy may not suit all users. A site inspection and investigation is recommended before commencement of any project based on this data.

In an emergency contact Bathurst Regional Council on 02 6333 6147

Index Sheet

Plans generated by SmarterWX™ Automate

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BATHURST REGIONAL COUNCIL

Job # 36478784 Seq # 238023008
Provider: Bathurst Regional Council
Telephone: 02 6333 2147

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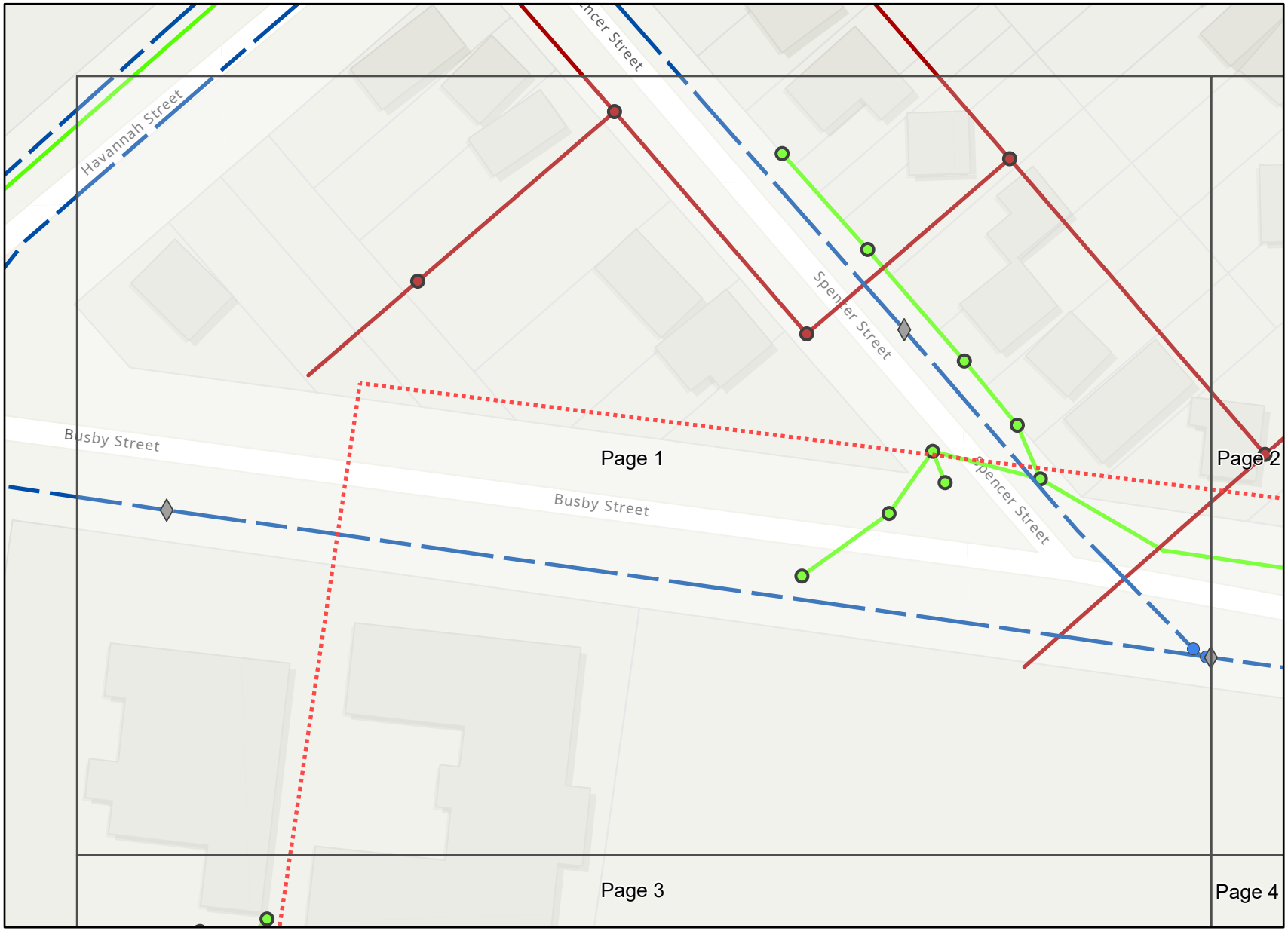

Legend

BYDA Enquiry Area

Water
- Hydrant
- Water Valves
- Water Pipes

Sewer
- Sewer Manholes
- Sewer Pipes

Drainage
- Stormwater Pits
- Stormwater Pipes

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In an emergency contact Bathurst Regional Council on 02 6333 6147
16/04/24 (valid for 30 days)
Plans generated by SmarterWX™ Automate

0 10 20 40 m

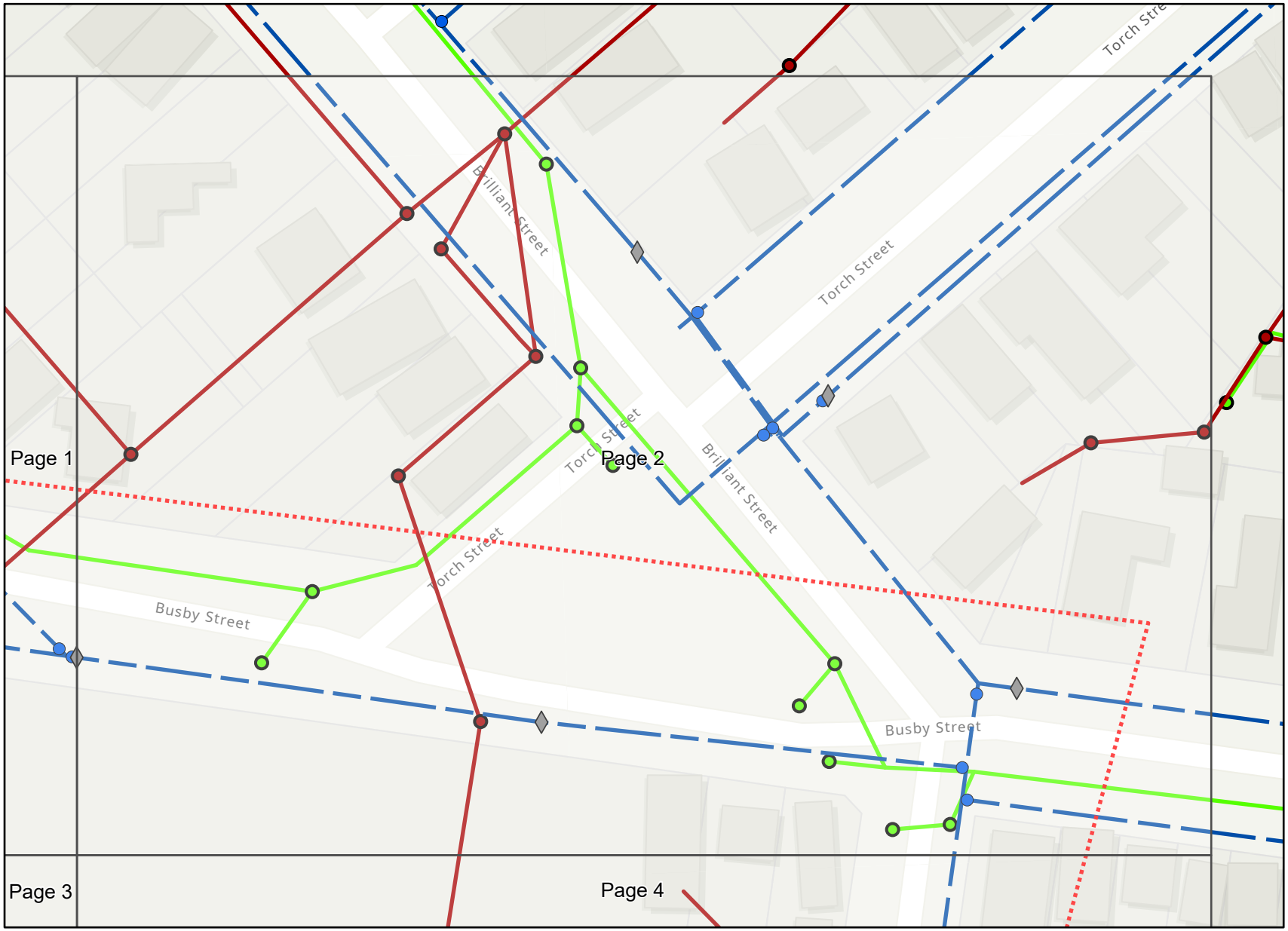
N

Scale 1:1,000

BATHURST REGIONAL COUNCIL

Job # 36478784 Seq # 238023008
Provider: Bathurst Regional Council
Telephone: 02 6333 2147

BEFORE YOU DIG www.byda.com.au



Legend

BYDA Enquiry Area

Water
- Hydrant
- Water Valves
- Water Pipes

Sewer
- Sewer Manholes
- Sewer Pipes

Drainage
- Stormwater Pits
- Stormwater Pipes

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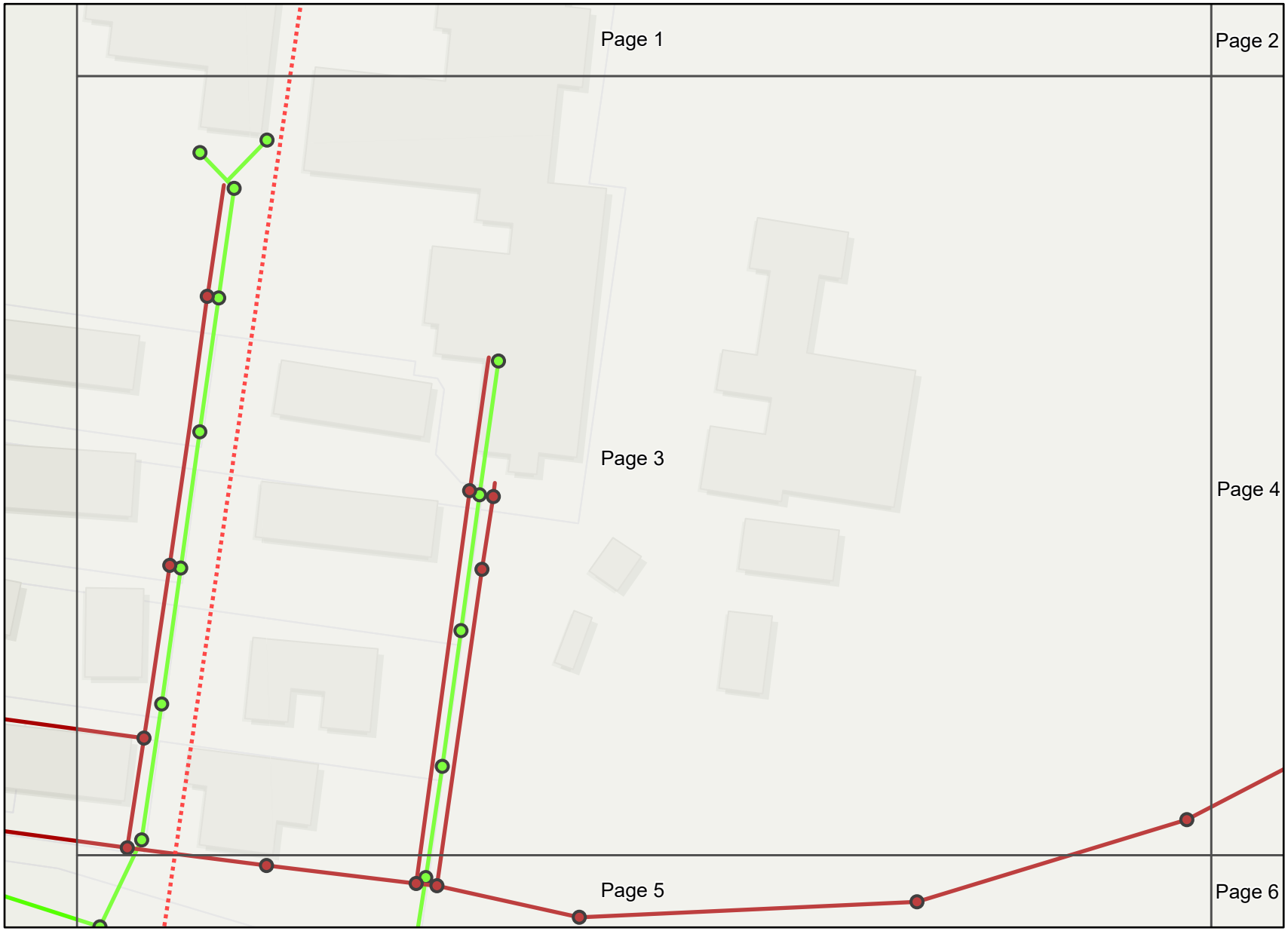

Legend

BYDA Enquiry Area

Sewer

- Sewer Manholes
- Sewer Pipes

Drainage

- Stormwater Pits
- Stormwater Pipes

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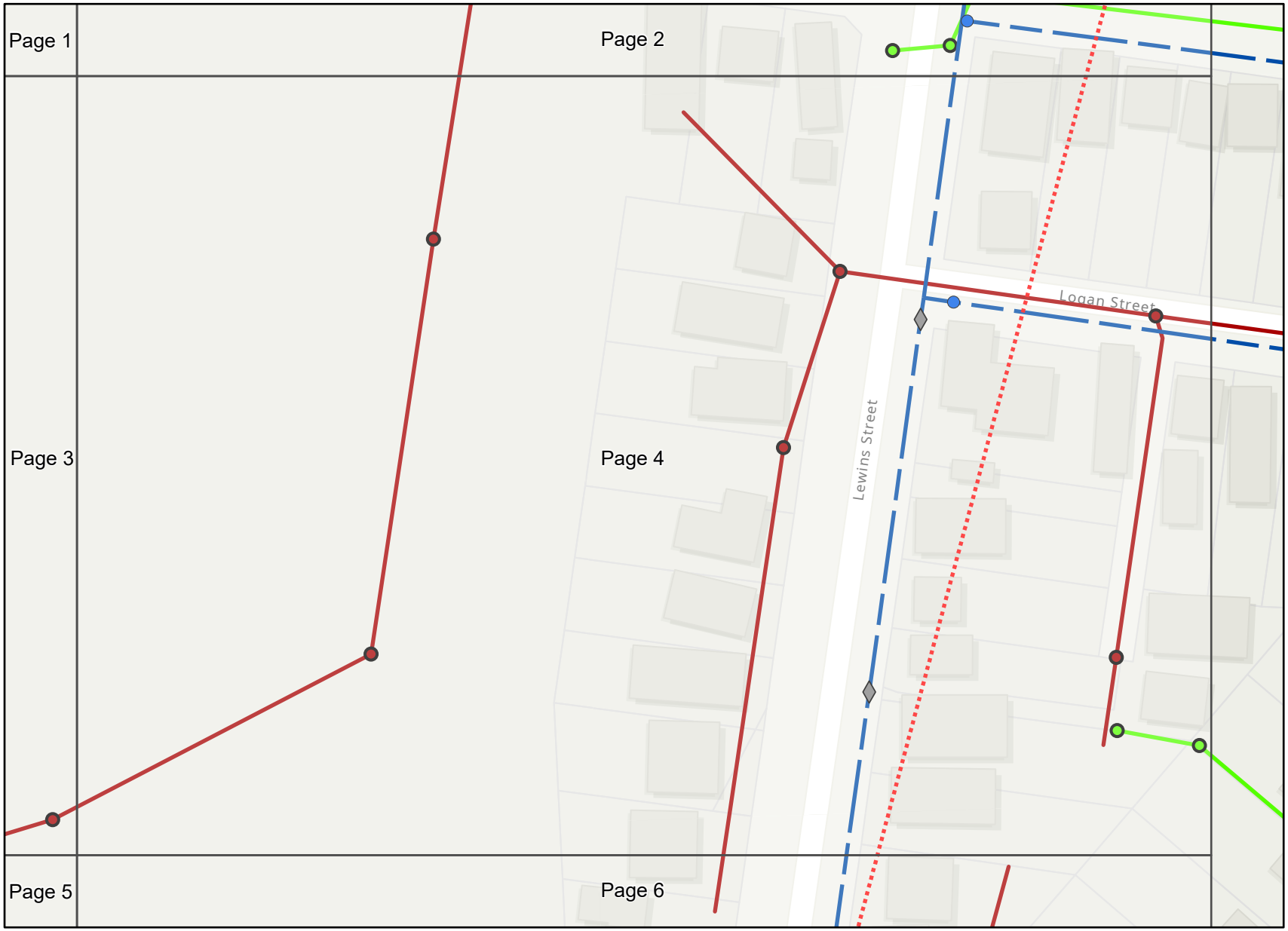

Legend

BYDA Enquiry Area

Water
- Hydrant
- Water Valves
- Water Pipes

Sewer
- Sewer Manholes
- Sewer Pipes

Drainage
- Stormwater Pits
- Stormwater Pipes

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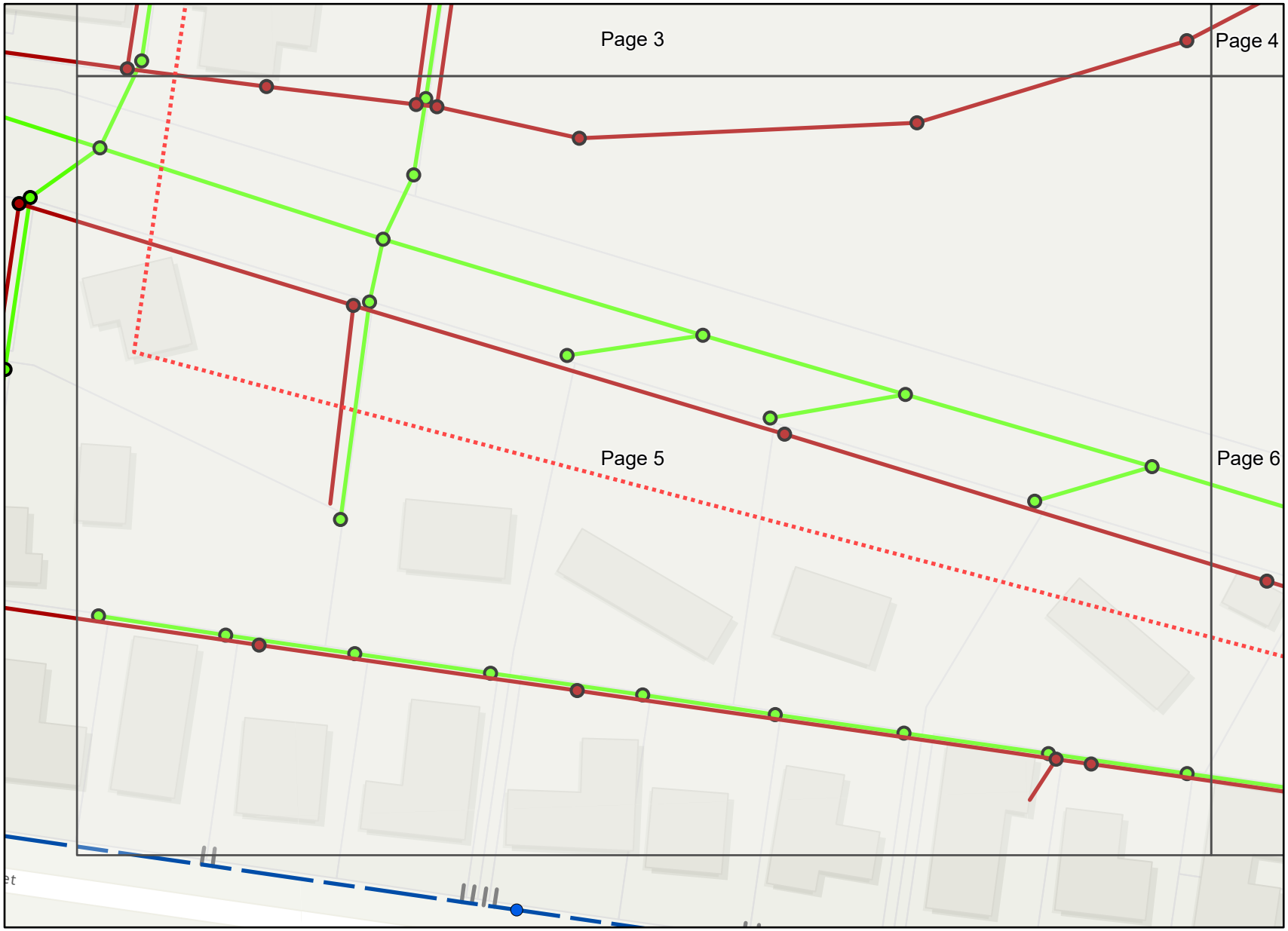

Legend

BYDA Enquiry Area

Water
- Water Valves
- Water Pipes
- Water Meter Connections

Sewer
- Sewer Manholes
- Sewer Pipes

Drainage
- Stormwater Pits
- Stormwater Pipes

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16/04/24 (valid for 30 days)

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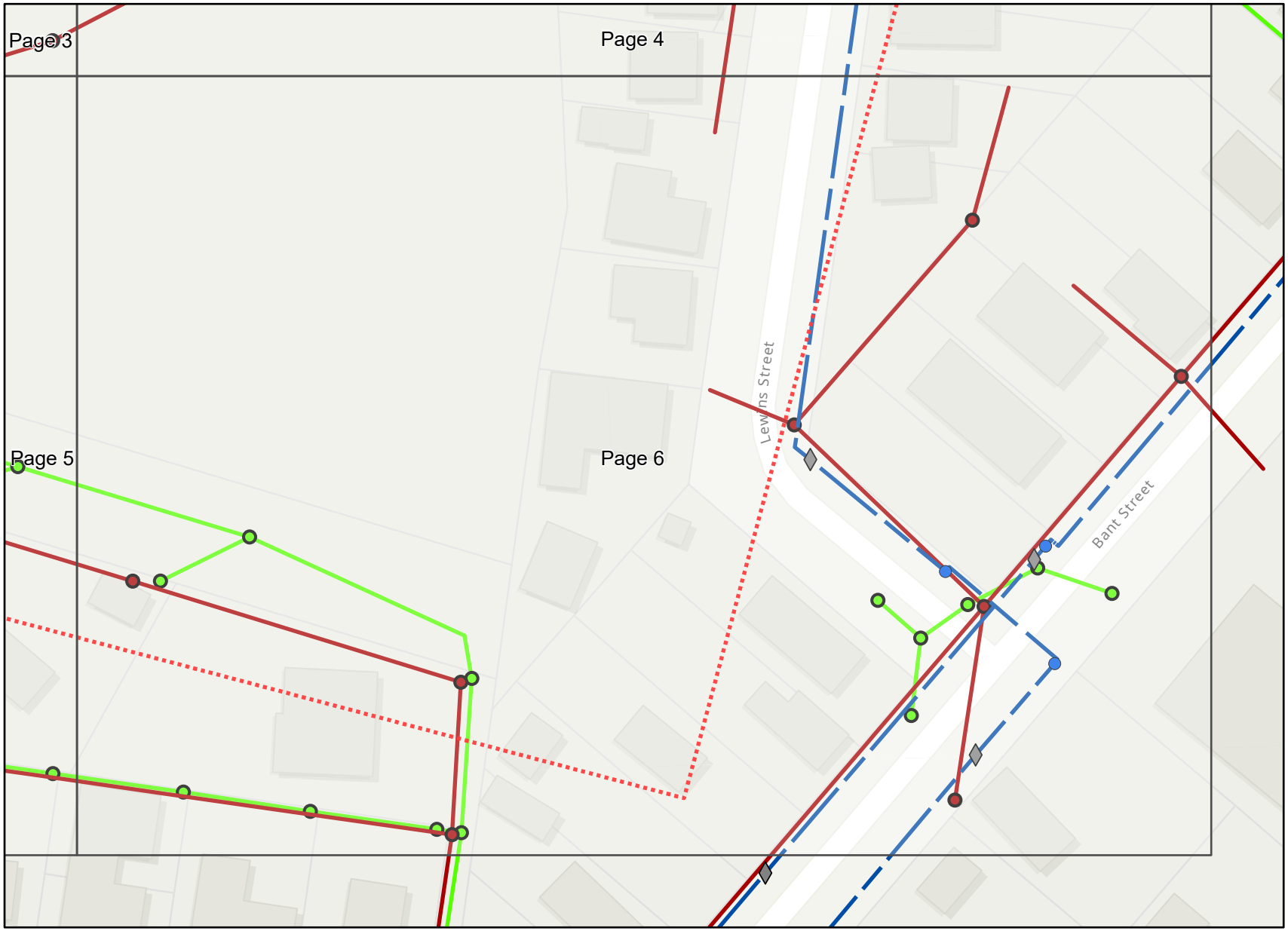

Legend

BYDA Enquiry Area

Water
- Hydrant
- Water Valves
- Water Pipes

Sewer
- Sewer Manholes
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Drainage
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16/04/24 (valid for 30 days)

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N

Scale 1:1,000

Appendix B Fire Flow Water Pressure Test Inquiry

BATHURST REGIONAL COUNCIL

Wiradjuri Country
158 Russell Street
Private Mail Bag 17
Bathurst NSW 2795

Telephone 02 6333 6111
Facsimile 02 6331 7211
council@bathurst.nsw.gov.au
www.bathurst.nsw.gov.au

8 July 2024

Gregory Lyell
Acor Consultants
Suite 2 Level 1 33 Herbert Street
St Leonards NSW 2065

Dear Gregory

Water Pressure Enquiry - 34 Busby Street Bathurst

Further to your request for details regarding maximum and minimum water pressures, and actual hydrant performance available to the above location, the necessary investigations have been completed by Council.

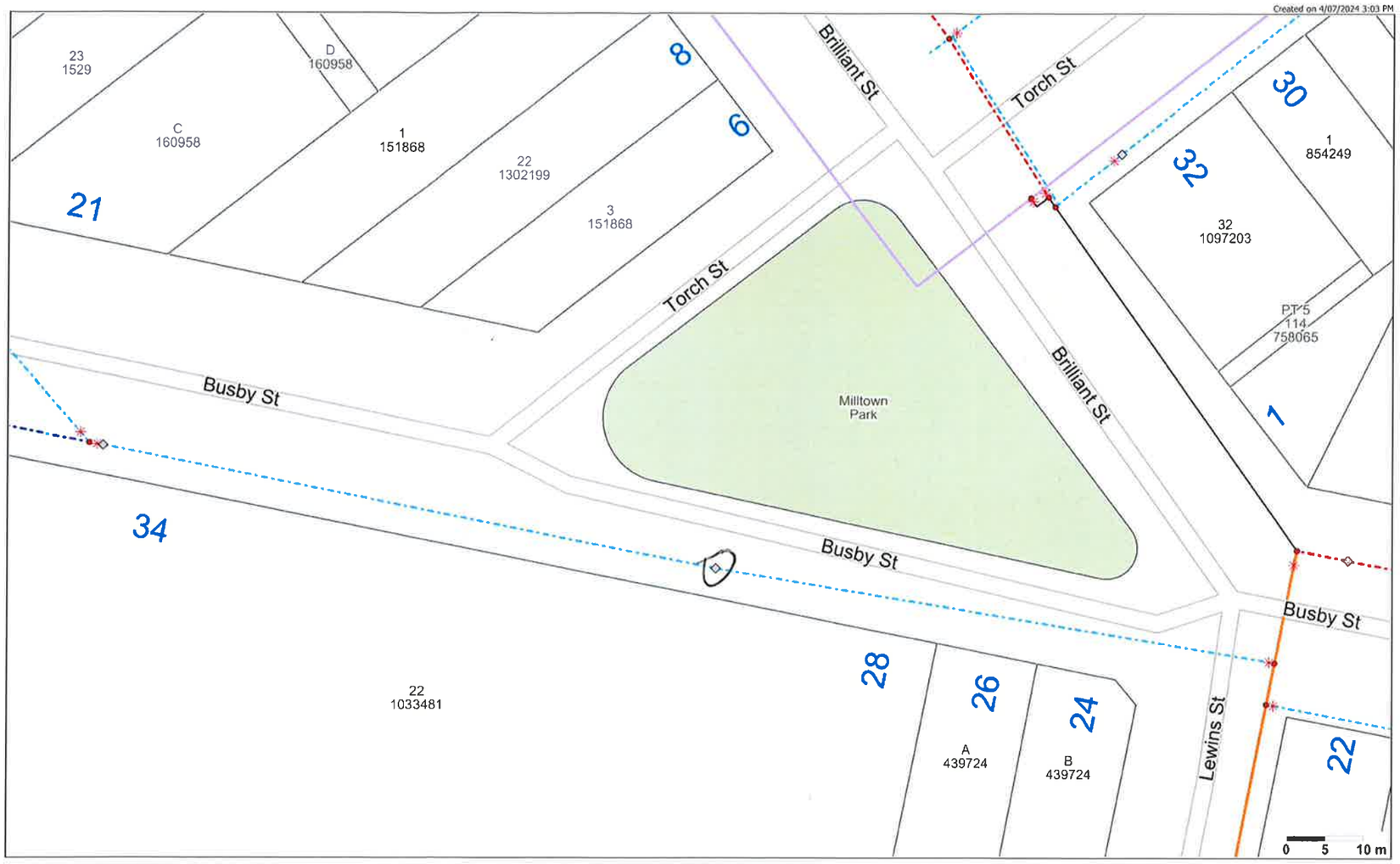
As extracted from Council's hydraulic model, the maximum static head available to the node relative to an approximate ground level of 674m (AHD), is 72.5m or 710kPa. The estimated minimum head available at peak instantaneous demand is 60.6m or 593kPa.

A copy of Council's plan is attached, and highlighted is the location of the hydrant where the test was conducted and the corresponding model node.

A Pressure and Flow Test was conducted on the hydrant shown at 1: 15pm on Monday, 24 June 2024, and the flows vs pressures recorded were:

Hydrant Flow Rate (controlled)		**Hydrant Pressure (corresponding to the controlled flow)**
litres/second	***litres/minute***	***kPa***
32.0	1920	Maximum Flow
30.0	1800	
25.0	1500	30
20.0	1200	30
15.0	900	300
10.0	600	440
5.0	300	570
Zero discharge		600

Reference: PW:AD: 20.00373
Enquiries: Paul Walther 02) 6333 6516



BATHURST REGIONAL COUNCIL

Bathurst Regional Council
PMB 17
158 Russell Street
BATHURST NSW 2795
Telephone: 02 6333 6111
Fax: 02 6331 7211
Email: council@bathurst.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.

N

Drawn By: Jerramy Gillespie

Date: 4/07/2024

Projection: GDA94 / MGA zone 55

Map Scale: 1:658 @ A4