NSW Department of Commerce | Government Architect's Office

Nepean Public Hospital
Cnr Parket and Derby Streets, Kingswood
Hydraulic Services
Site Investigation Report

20 March 2009

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TABLE OF CONTENT

1 SITE OVERVIEW

Nepean Public Hospital is located in cnr Parker & Derby Streets, Kingswood.

The location of the site falls under the jurisdiction of the following authorities:

- Penrith City Council
- Sydney Water
- NSW Fire Brigade
- Environmental Protection Authority
- Australian Gas Light Company (AGL)

Underground electrical cables, Telecom cables and existing hydraulic services are to be considered when excavating on-site for the proposed new works.

2 DESCRIPTION OF EXISTING SERVICES

2.1 WATER SUPPLY

The existing Hospital currently has 3 meters serving the site. They are:

First meter is a 80mm Cold water supply that extends from the Authorities water main in Barber Avenue that comes from the Sydney Water's 225mm CICL main. This meter is the main meter for the Hospital site.

Second meter is a 50mm Cold water supply that extends from the Authorities water main in Parker Street that comes from the Sydney Water's 150mm CICL main. This meter is for the West Block.

Third meter is a 30mm Cold water supply that extends from the Authorities water main in Somerset Street that comes from the Sydney Water's 150mm CICL main. This meter is for the Childcare Unit in Somerset Street.

Sydney Water has a back-up plan in the event of main breakages to maintain supply to the Hospital see Attachment 1.

A backflow devices have been installed downstream of the water meter as is required by current code requirements

Sydney Water are supplying pressure approximately maximum of 550 kPa and minimum of 450 kPa which is adequate for the hospital. See Attachment 1.

The existing Nurses Unit is served by a 50mm supply into the building in the southwestern corner. A 65mm copper main runs from the services tunnel on the southern side of the OP Theatres along the southern side of the Nurse Unit and then turns to serve the Human Resources Building. See Attachment 2.

2.2 SEWER

The existing Hospital has a number of sewer connections. The main sewer drainage reticulates through the property via a gravity system to connect to a Sydney Water sewer in the corner of Derby and Parker Streets. The Nurses Unit has a property

sewer along both sides of the southern wing that gravitates the site through the middle of the carpark to Derby and Parker Streets boundary. See Attachment 6.

2.3 STORMWATER

The Hospital is located on the top of a hill so the stormwater drains to different catchments of Penrith City Council's systems. Stormwater within the property drains via a number of gravity systems, have in ground piped reticulation, grated pits and junction pits to finally discharge through to Penrith City Council's stormwater system. See Attachment 4.

The Nurses Unit has a gravity system that runs on the northern side of the building and connects to the drainage system that discharge to the Somerset Street.

2.4 FIRE HYDRANT

The existing Fire Hydrant system for the Hospital extends from the Authorities water main in Barber Avenue that comes from the Sydney Water's 225mm CICL main. This is the only fire hydrant system for the site.

The existing Nurses Unit is served by a 100mm supply into the building in the southwestern corner. A 100mm fire hydrant main runs from the western side of the Nurses Unit along the southern side of the Nurse Unit and then turns to serve the Human Resources Building see Attachment 2.

2.5 NATURAL GAS

Natural gas is provided to the hospital via a number of gas meter and regulator assemblies.

A 50mm copper natural gas main runs from the services tunnel on the southern side of the OP Theatres along the southern side of the Nurse Unit and then turns to serve the Human Resources Building and connects to a 40mm gas supply to the Boiler House for the Nurses Unit. See Attachment 2 and Attachment 5.

3 PROPOSED UPGRADE OF SERVICES

3.1 WATER SUPPLY

A meeting was held on the 27/2/09 with Shane Tindall from Sydney Water's Water Operations Unit for the Hospital area. Sydney Water have no problem with adequate supply for the new Eastern Block but would prefer that the supply comes from the Barber Avenue meter.

The existing Nurses Unit is served by a 50mm supply into the building in the southwestern corner. A 65mm copper main runs from the services tunnel on the southern side of the OP Theatres along the southern side of the Nurse Unit and then turns to serve the Human Resources Building. See Attachment 2.

The existing 65mm main potable water connection in the service tunnel would need to be diverted further to west of the Nurses Unit and further south of the Nurses Unit and on the northern side of the existing carpark and reconnect the 65mm supply to the Human Resources Building

The existing water pressure within the existing water reticulation system is adequate for the proposed building.

3.2 SEWERAGE

A meeting was held on the 27/2/09 with Steve Znautas (Area Manager) and Alan Khurshid (Systems Operations Officer) from Sydney Water's Strategic Operations Wastewater Systems- Hawkesbury/Nepean/Illawarra Unit for the Hospital area. Sydney Water has no problem with adequate supply for the new Eastern Block but would prefer that the supply not connect to the Barber Avenue system. Sydney Water has extended a 150mm sewer that terminates on the Somerset Street boundary which would be the adequate for the Eastern Block development.

The Nurses Unit has a property sewer along both sides of the southern wing that gravitates the site through the middle of the carpark to Derby and Parker Streets boundary. This sewer could be terminated without causing any problems to the rest of the Hospital as it gravitates to 2 sewer access chambers in the carpark and is the highest connections on the system.

3.3 STORMWATER

A meeting was held on the 27/2/09 with Stephen Masters Senior Development Engineer with Penrith City Council for the Hospital area. Penrith City Council have no problem with the Eastern Block development if there is less than 10% increase in area. If the area is greater than 10% then detention would be required.

The existing Nurses unit has an area of approximately 1200 square meters and the Eastern Block development is approximately 3200 square meters. This is more than the allowable amount so detention would need to be needed this may be able to be in the form of Rainwater Harvesting, further discussions would be need with the Council to development their requirements.

The proposed roof drainage systems serving the building would be designed to the requirements of AS/NZS3500.3 – Stormwater Drainage.

The Nurses Unit has a stormwater system that gravitates to the Somerset Street Council's system. This could be terminated at the road network and would not cause disruptions to the operation of the Hospital. The Eastern Block could connect to this system.

3.4 FIRE HYDRANT

The existing Nurses Unit is served by a 100mm supply into the building in the southwestern corner. A 100mm fire hydrant main runs from the western side of the Nurses Unit along the southern side of the Nurse Unit and then turns to serve the Human Resources Building see Attachment 2.

The existing 100mm main fire hydrant potable would need to be diverted further to west of the Nurses Unit and further south of the Nurses Unit and on the northern side of the existing carpark and reconnect the 100mm external fire hydrant to the south of the Nurses Unit.

3.5 NATURAL GAS

The contractor is to liaise with AGL to determine whether the existing meter and regulator needs to be upgraded.

A 50mm copper natural gas main runs from the services tunnel on the southern side of the OP Theatres along the southern side of the Nurse Unit and then turns to serve the Human Resources Building and connects to a 40mm gas supply to the Boiler House for the Nurses Unit. See Attachment 2.

This service appears only to serve the Nurses Unit and so could be disconnected in the service tunnel. A through investigation of this service would need to be carried out before disconnection.

4 SUMMARY AND RECOMMENDATIONS

Our site visit revealed the following information:

General

- Beware of underground electrical, Telecom, Local Authorities and hydraulic services when excavating.

Water Services

- Potable cold water is available for connection.
- The water pressure would be adequate for the proposed building.

Sewerage Drainage

- Sewer drainage is available for connection.

Stormwater Drainage

- Stormwater drainage is available for connection detention is required.

Fire Fighting

- The new fire hydrant system would be required to provide coverage to the proposed Eastern Block.
- Fire Hose Reels protection is required for the building.
- The proposed fire hose reel service would connect off the proposed potable water service to the building.

Gas Service

- Gas is available for connection to the new building.
- The existing meter and regulator assembly may need upgrading to suit the additional load. Liaisons with AGL to resolve the actual requirements are required by the contractor.

WATER PRODUCT

Standard Operating Procedure

Nepean Hospital Contingency Plan

Document Number WNOH5000_R1

Author: Gordon Aiken

ConnectNet Path: Divisions/ Asset Management/ Water Operations/ BMIS/ Document Control/ WPQMS/ Water Operations/ Standard Administrative Procedures/ WNOH5000_R1

Lotus Notes Path: WPIMS Document Control/ Active/ By Number/ WNOH5000_R1

Revision Control Chart

Revision Number	Date Revised	Approved By	Amended Page(s)	Description of Change
1	30/3/07	Tony Frigo	all	Initial version

NEPEAN HOSPITAL CONTINGENCY PLAN
INTERUPTION OF WATER SUPPLY

OWNER:	Sydney West Area Health Service
PROPERTY:	Parker Street cnr Derby Street Penrith
TYPE OF PROPERTY:	Hospital
WATER SUPPLY ZONE:	Bringelly Road WS0209
ALTERNATE SUPPLY ZONE:	
METERS SERVICING PROPERTY:	80 mm Main water, 50 mm Mental Health Unit, 30 mm Childcare
LOCATION OF DOMESTIC SERVICES:	80 mm - 250 UPVC/225 CICL main in Barber Street 50 mm - 150 CICL main in Parker Street 30 mm - 150 CICL main in Somerset Street
LOCATION OF METERS:	80 mm – Main entrance Barber Street 50 mm – West Wing Parker Street 30 mm – Childcare Unit Somerset Street
AVAILABITY OF FIRE SERVICE:	2 X 150mm services fed from 225 mm main in Barber Street Penrith for main Buildings. 80 mm service fed from 150 mm main in Parker Street Penrith for Mental Health Unit.
ON SITE STORAGE:	There are 5 storage tanks on the site: 50 KL, 15 KL, 2.5 KL and 2 x 27 KL storage tanks

The following information is required in the Contingency Plan for any asset/ process/ product/ functionality failure that results in a discontinuity in service to the customer, stakeholder or regulator.

CAUSE OF PROBLEM:

Asset operational failure, storm, fire, power failure, flood, earthquake, terrorists etc

Cause of Problem affecting Main supply to Nepean Hospital

1. Failure of the main hospital supply line along Barber Avenue or Rodgers Streets (225mm/250mm).
2. Failure of the 150mm water main at Parker Street.
3. Failure of the water supply trunk mains (1050mm & 375mm) from Orchard Hills Water Filtration Plant.
4. Unplanned shutdown of the Orchard Hills Water Filtration Plant including power failure.

DESCRIPTION OF ASSET / PROCESS / PRODUCT QUALITY / FUNCTIONALITY FAILURE:

Failure of assets/processes or product quality change (including contamination). Loss of functionality – specialist staff, SCADA systems (IICATS), IT Systems (WAMS, HYDRA), other support systems.

Nepean Hospital is located on the Great Western Highway, Kingswood with the main entrance off Barber St. It virtually occupies the entire block bounded by Gt Western Hwy, Parker Rd, Derby St & Somerset St.

There are 2 major water services supplying the Hospital, a 80 mm service at the Barber St main entrance servicing the original hospital and a 50mm service at Parker Rd for the West Wing (the newer section of the hospital). These two supplies are not linked. There is also a smaller 30mm service into the Childcare Centre off Somerset St, which again, is not linked to the other services.

The Barber Street service draws water from the 2 trunk mains (1050mm & 375mm) coming directly from the Orchard Hills Water Filtration Plant WT014. the service as a valve between the two service so as to isolate and break on the 225/250 main and still maintain supply to the Hospital.

The Parker Street service draws water from a 150 mm main which is supplied of a 750 mm trunk main off the above 1050 mm trunk main.

The Hospital ground level has an RL of about 55m and served by the Bringelly Rd Reservoirs at FSL 110m. The tallest building is the 5 storey West Block (approx 15m high). The top floor should record pressures of between 30m and 36m when demand is average

There are 5 storage tanks on the site, 50 KL, 15 KL, 2.5 KL and two 27 KL storage tanks. About 70 KL/day is used by the air conditioners. Certain critical parts of the hospital are not serviced by any of these tanks

Any supply problems to Nepean hospital will also affect the Nepean Private Hospital, which is opposite the hospital's main entrance on Barber Street.

CONSEQUENCES OF ASSET / PROCESS / PRODUCT QUALITY / FUNCTIONALITY FAILURE:

Impact on customer services, staff and contractors, public health, process outputs, community, environment. Information required: Time to (or of) loss of water supply, time to (or of) sewerage overflow, length of change of service/quality change.

Failure 1: Parts of the hospital will not be affected immediately because the storage tanks will be able to supply water for a period of up to 8 hours at normal consumption. However the section known as the North Wards does not have access to the storage and will be without water for a minimum of ½ hr to 1 hour. This section includes the operating theatres, kitchen and the aged care units.

Loss of water supply would have a moderate impact on the capacity of the hospital to function normally because:

- Sterilisation unit needs water to operate – operations could be cancelled
- Bathing of patients and washing hands – general hygiene compromised
- Food preparation will be interrupted or cancelled
- Air conditioning may need to be switched off

Failure 2: Main can be isolated and supply restored as a routine water break job. There will be no supply to the Mental Health Unit during the period that the main isolated and it will have to rely of water in its storage tanks for supply.

Failure 3: Will have more serious consequences but is less likely to occur. The consequences will be as for **Failure 1**, but on a larger scale as it will take longer to repair the main.

Failure 4: Loss of supply, eg due a power outage, from the Orchard Hills WFP will not immediately affect the hospital unless Bringelly Rd reservoirs WS209 & WS304 are severely depleted at the time. There is over 3 days storage within the Bringelly Road reservoirs under average day conditions with the reservoir deletions being controlled by the SOC. When supply is lost the consequences will be as for **Failure 1.**

ANTICIPATED TIME OF RECOVERY:

The best estimate of time of recovery from the incident and the assumptions being made in the assessment.

Failure 1: Repair of the 225/250mm main would take 4-6 hours but alternative supply will take ½ hr to 1 hr to implement from the time of the break until a maintenance crew arrive and make use of alternatives available to restore supply as the supply to the Hospital can be quickly restored by closing the valve between the two services and supplying water from the section of 225/250 main that is not isolated.

Failure 2: Repair of the 150mm main would take 2 to 3 hours but alternative supply will take ½ hr to 1 hr to implement. West wing stored supply will be used until supply is back to normal

Failure 3: If either one of 1050 or 375 mains on Bringelly Road break, the shutdown and restoration of supply will take a minimum of 2-3 hours. In the event that both 1050 and 375 mains are not operational (eg mainbreak closer to the WFP) restoration of supply will take much longer. Repair will not be expected to be complete before 24 hours.

Failure 4: If Orchard Hills WFP is shutdown due a plant fault or power failure it is expected that supply would be restored within 24 hours.

CUSTOMERS / REGULATORS / STAKEHOLDERS IMPACTS:

Customers in area affected by failure, NSW Health (contamination), EPA (discharges into environment)

Nepean Hospital is the major hospital in the far western metropolitan area and has a consumption ranging from 300 to 415Kl /day

SUPPLIERS / CONTRACTORS IMPACTS:

SCA, Mech/Elec contractors, Material suppliers (eg chlorine), etc

Water Services (Civil Maintenance North West) will attend to the repair unless the 1050mm main breaks. In this case it may be necessary to call for digging contractors, welding contractors etc. using a list of SWC approved service providers.

INCIDENT / MAJOR INCIDENT / EMERGENCY NOTIFICATION:

Incident classification, incident controller, emergency control centre status, site managers, notification of relevant authorities (eg fire brigades, NSW Health, EPA etc), etc

Sydney Water Emergency Risk Management (ERM) protocols to be followed.

Nepean Hospital Contacts to be notified in the event of disruption of supply:
Nepean Hospital desk: 02 4734 2000
Building Manager: Andrew Skinner 02 4734 2348
Email: skinnea@wahs.nsw.gov.au
Back up Manager: Ron Dean 02 4734 2537

ISOLATION/SHUTDOWN OF ASSET/PROCESS:

Details on how asset/process can be isolated to allow for repair/recovery and who will carry it out.

Failure 1: The main hospital service has supply from either side of the street and supply can be restored by closing appropriate valves around the break. Refer to attached Plan "A"

Failure 2: As for the main hospital service, a stop valve on each side of the service means that isolating the broken section will not affect the supply and water can enter the hospital from the unaffected section of the same main.

Failure 3: Shut down of either the 1050 or 375 along Bringelly Road will depend on where the break occurs. There are several stop valves and cross connections between the two mains to bypass the damaged section and maintain supply.

Another substantial supply line is on the corner of Colless and Stafford Streets off the 750mm trunk main in Stafford Street. This trunk main can supply the area if a break occurs north of Stafford Street.

Shut down of mains between WT014 and Bringelly Rd is not in the scope of this document, refer to the Trunk Main Shut Down Manual.

Failure 4: Orchard Hills WFP operators will carry out any necessary repairs and/or WFP restart as per their Standard Operating Procedures. The Water Networks/SOC will operate the Orchard Hills system to reduce demand on the Bringelly Road Reservoirs so as to maintain water in the reservoirs.

OPTION/S OF MAINTAINING SERVICES / PROCESSES AND MINIMISING IMPACTS:

By-pass options, Redundancy options (stand-by equipment), alternative services (eg rezoning), power generators, tankers, specialist services etc. Show how specialist services will be procured and arrangements and contacts with suppliers for emergency supplies.

A way of ensuring speedy restoration of supply is to exercise stop valves around hospital on a yearly basis and ensure they are clearly marked.

Failure 1: It would be impractical to use tankered potable water due to the large amounts of water consumed but bottled water can be supplied for drinking purposes.

The construction of a ring main inside the hospital grounds would ensure that any 2 out of the three water supplies going into the hospital can be accessed in case one of these breaks. It will also ensure that all hospital water storages could be accessed and used throughout the whole hospital

Failure 2: Tankered water supply will be provided at very short notice if required.

Failure 3: The same options as for **Failure 1** apply here. In the event that Bringelly Rd supply is unavailable, an option exists where the hospital can be changed over to the Orchard Hills Reservoir zone at a reduced pressure and a limited supply. Two DVs on Jamison Rd as shown on attached Plan B, can be opened to let Orchard Hills Reservoir water into the Bringelly Road system.

Failure 4: In the event that Bringelly Rd supply is unavailable, an option exists where the hospital can be changed over to the Orchard Hills Reservoir zone at a reduced pressure and a limited supply. Two DVs on Jamison Rd as shown on attached Diagram 7, can be opened to let Orchard Hills Reservoir water into the Bringelly Road system.

RESOURCES REQUIRED FOR RESPONSE/RECOVERY:

Staff, contractors, other authorities, government services, community, plant & equipment (eg generators), materials, tradespersons (eg welders), spares (pipes, fittings, mech/elec parts etc), etc.

Water Operations Western – Blue Mountains staff for operational advice. Contact Shane Tindall Telephone: 02 4736 9151 Mobile: 0407 018 044

Water Services staff (North Western Civil Maintenance) for isolation and repair of water main SOC to remotely maintain reservoir levels and dispatch any Mech/Elec work necessary

CUSTOMER RESPONSE:

Messages to customers on status of services (eg lost/reduced supply) and action being taken by Sydney Water (eg restrictions), action to be taken by customers (eg conserve water), give advice (eg boil water) and where help can be obtained (eg where water tankers /bottled water available), etc (though Call Centre, Media, door knocks etc).

Water Services will decide on severity of problem and will decide whether to involve a Customer Services Officer and Water Operations staff. Water Services/ Customer Services Officer/ Water Operations staff will liaise with the hospital on precautions to take to lessen the impact (such as conserving available water during incident and need for water tankers/bottled water).

COMMUNICATIONS:

Communications to Customers, Stakeholders and Regulators, Internal status reports, Customer and Community messages (Call Centre, Media, email).

Water Services/ Customer Services Officer/ Water Operations staff will keep the hospital contact persons informed on work progress.

ENVIRONMENT:

Eliminate, reduce and control of water, sewerage, chemicals etc being discharged into the environment. During the incident response and recovery.

Follow Sydney Water Discharge protocols.

ATTACHED PLANS/INFORMATION:

Isolation Plan, System Operation Plan, Repair Plan, Communication Plan, Staffing Plan.

Water Contingency Data Collection

Diagram 1 – Showing isolating valve locations at corner Parker Street and Barber Avenue
Diagram 2 – 80 mm Service Connection Barber Avenue
Diagram 3 – Isolation Valves on 225 mm main in Rodgers Street and corner of Somerset Street
Diagram 4 – Isolating Vales on 225 mm main off 1050 mm and 375 mm trunk mains corner of Bringelly Road and Rodgers Street
Diagram 5 – Service connection for 50 mm service near corner of Parker Street and Lethbridge Street
Diagram 6 – Isolating Valves on 150 mm main corner of Parker Street and Derby Street
Diagram 7 – DV's between Orchard Hills zone and Bringelly Road zone at Jamison Road and Fragar Road

Water Contingency Data Collection

Customer: Nepean Hospital

Location: Great Western Highway, Kingswood

Water Supply System: **Orchard Hills 3.1, Bringelly Road**

Person(s) Responsible For Water System Operation:

Name:	Andrew Skinner	**Title:**	Engineering Manager
Mobile:		**BH Telephone:**	4734 2348
Email:	skinnea@wahs.nsw.gov.au	**Fax:**	4734 2310
Name:		**Title:**	
Mobile:		**BH Telephone:**	
Email:		**Fax:**	

After Hours /Emergency Contacts:

Contact:	**Telephone:**
On call engineering	4734 2000 (switch/pager)

Points of Connection:

Three mains:

80mm - Main water main
30mm - Childcare
50mm - Mental Health Unit

Water Use

How do you use water?

Health care use particularly:
1. Sterilisation unit
2. Kitchen area (currently increasing)

Characteristics of Water Demand

Average daily use: 350-400 **KL/day Peak hourly use:** **KL/hour**

Average flow rate: **litres/sec Peak flow rate:** **litres/sec**

(Maximum instantaneous rate of demand)

Pressure required at point of connection:

Minimum 450 **metres/head** **Maximum** 550 **metres/head**

Water Quality

Do you have any specific **water quality** requirements?

Clean within standards

Do you **change/treat** the water? (If yes, please give details)

Water filters on holding tanks and special equipment.

Water Contingency Plans

Do you have water supply contingency plans in place? ☐ YES ☑ NO

Please Describe

We have limited storage in two sections of the hospital. Some critical areas of the hospital are not serviced by these tanks. Disaster plan is currently being revised. They have an emergency response disaster team.

What effect would a loss of water have on your production/operation?

☐ Cost Implications

☐ Time

☑ Health and Severe restrictions on public hospital operations.

☑ Othe Huge relocation of patients. Cancel operations (code red) only life

Can you supply plans of the internal hydraulic layout? ☐ YES ☑ NO

If yes, are these plans up-to-date? ☐ YES ☐ NO

Do you have on-site water storage? ☑ YES ☐ NO

If yes, how large is this storage capacity? 121 000

Please provide details:

Storage Tanks:
1 x 50 000 1 x 15 000
2 x 27 000 1 x 2500

How long would this on-site supply sustain production? 8 hours - normal consumption

Are alternative sources of water available? ☐ YES ☑ NO

If yes, please give details

Do you require 24hr/7days week/365 days per year supply of water? ☑ YES ☐ NO

Please specify hours of operation 24/7 days per week

Do you have a planned maintenance or other shutdown schedule? ☐ YES ☑ NO

If yes, can you supply dates and frequency of maintenance program?

Peak production times:

Do you have peak/seasonal production? ☐ YES ☑ NO

If yes, please detail:

Water meters:

Serial number	Size	Location
HDML 0005	80mm	barber street
DDQF 0079	30mm	off somerset
GDKF 0008	50mm	off parker

Backflow Prevention

Backflow Prevention Devices fitted? ☑ YES ☐ NO

Diagram 1 – Showing isolating valve location at corner Parker Street and Barber Avenue

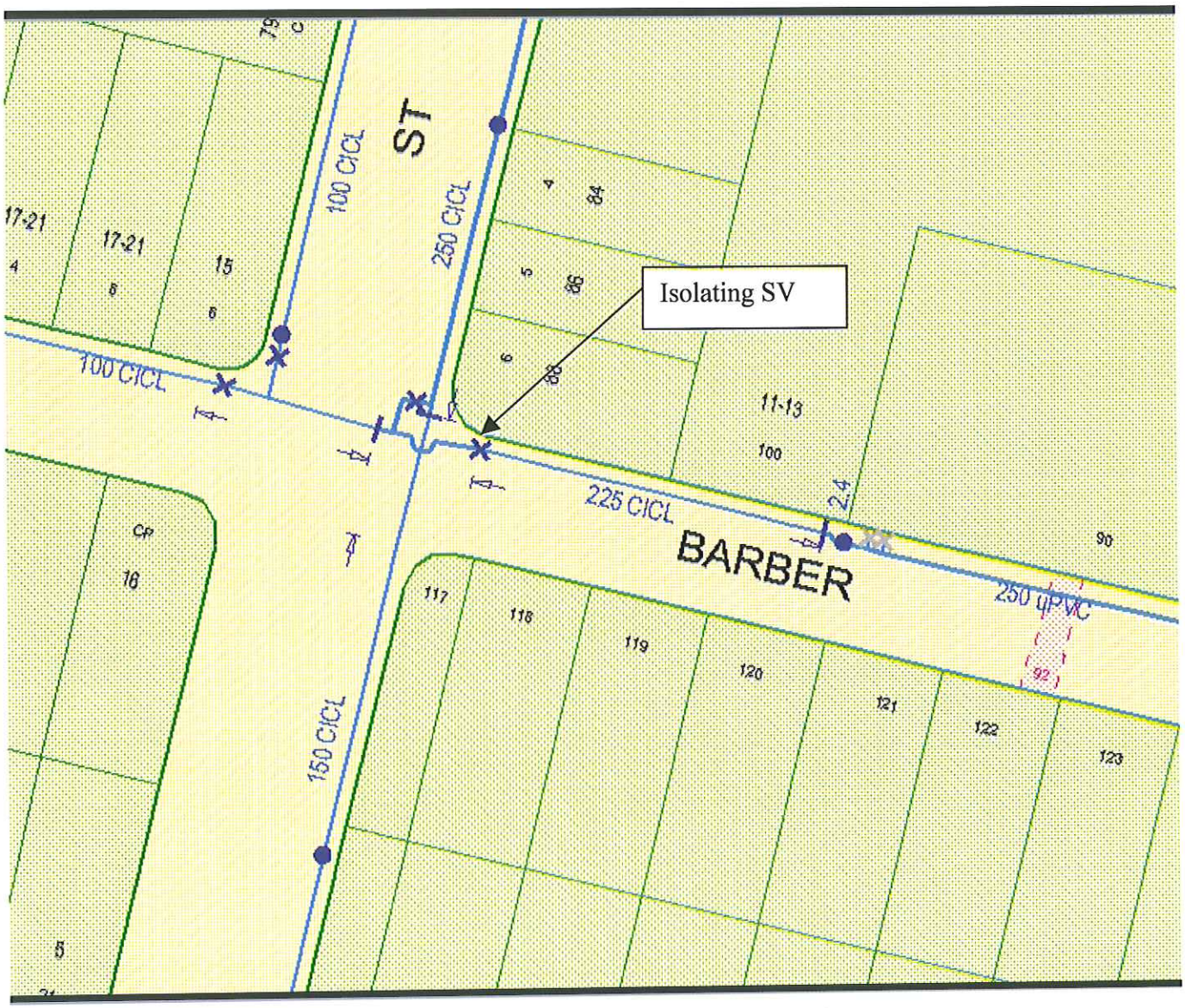


Diagram 2 – 80 mm Service Connection Barber Avenue

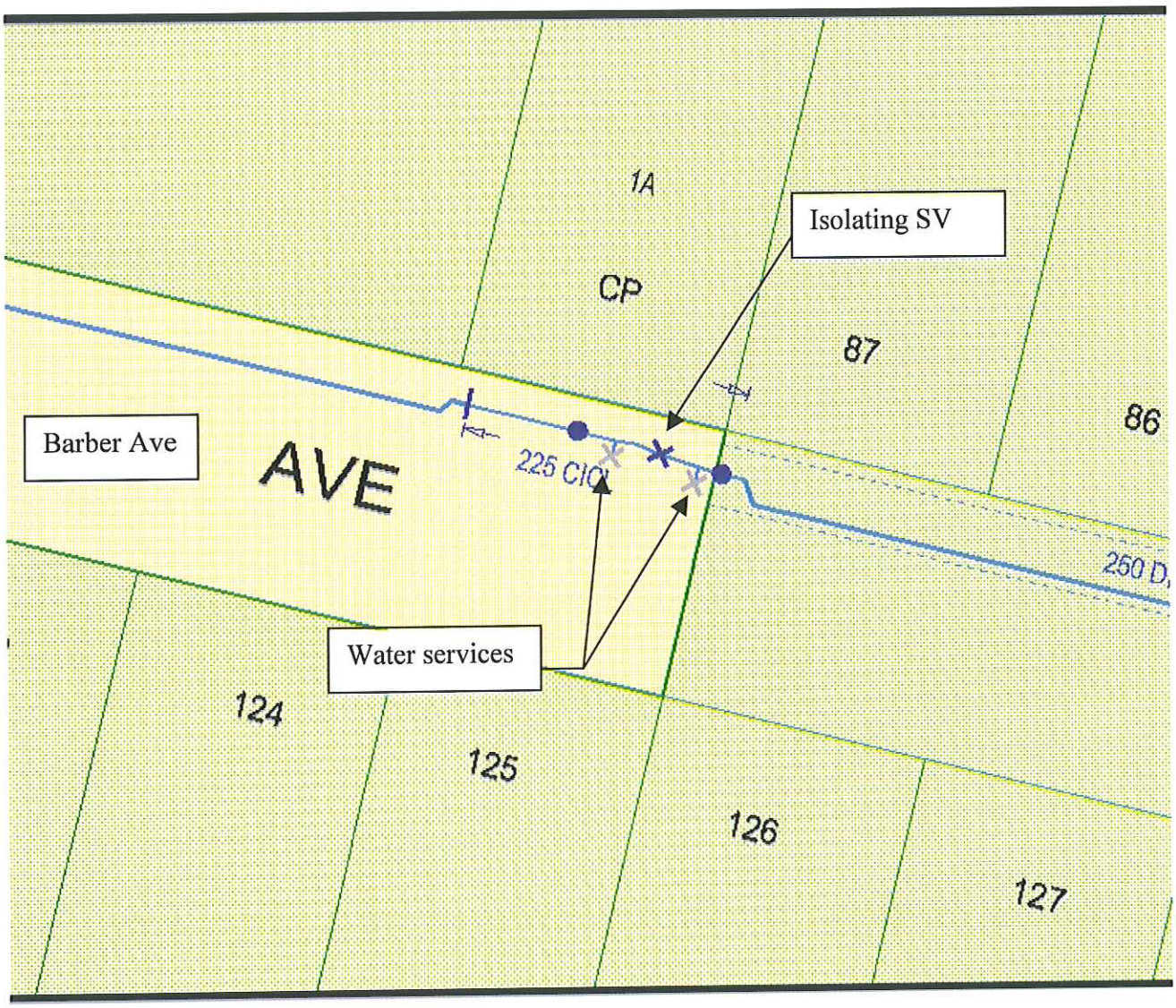


Diagram 3 – Isolation Valve on 225 mm main in Rodgers Street and corner of Somerset Street

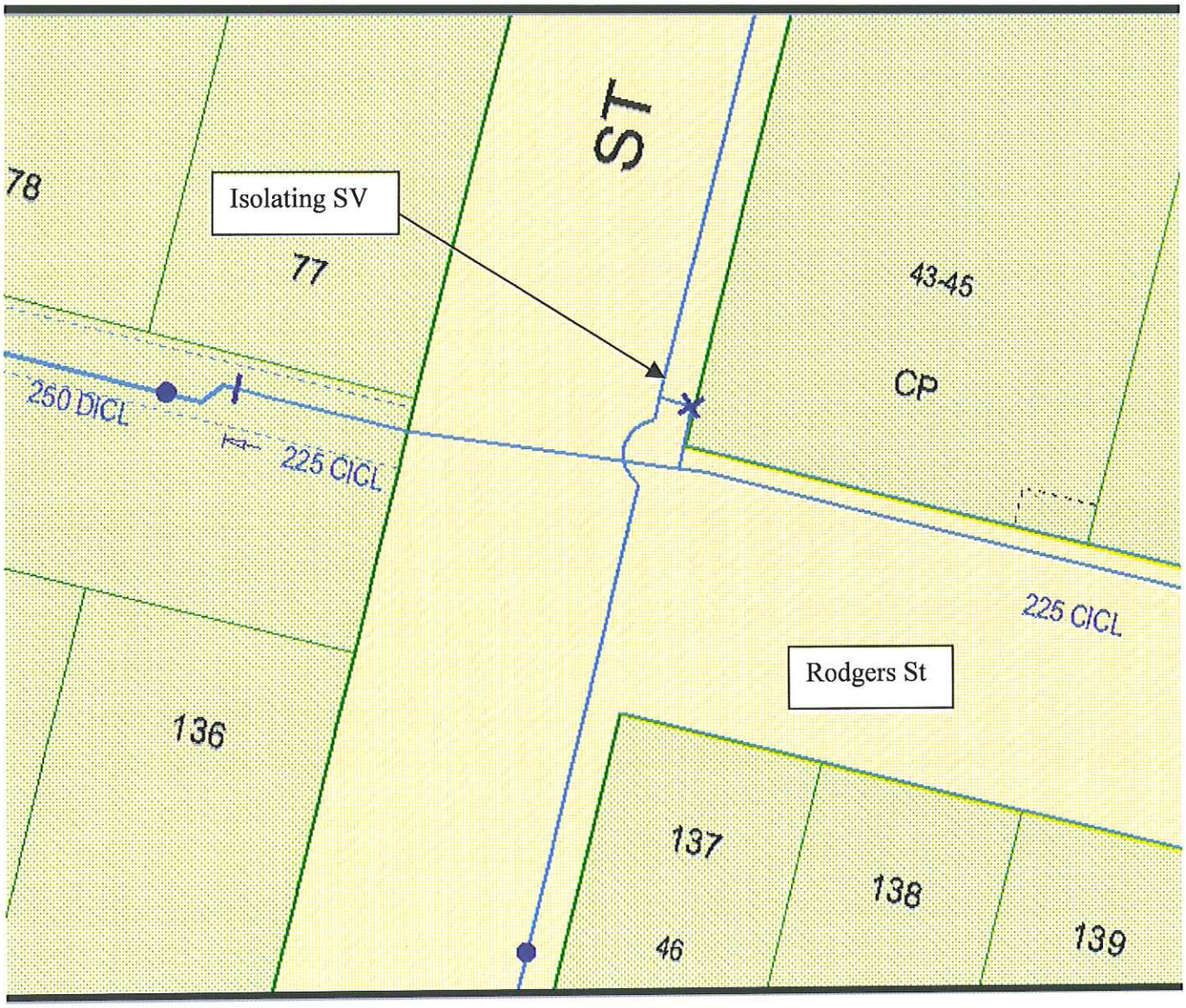


Diagram 4 – Isolating Valve on 225 mm main off 1050 mm and 375 mm trunk mains corner of Bringelly Road and Rodgers Street

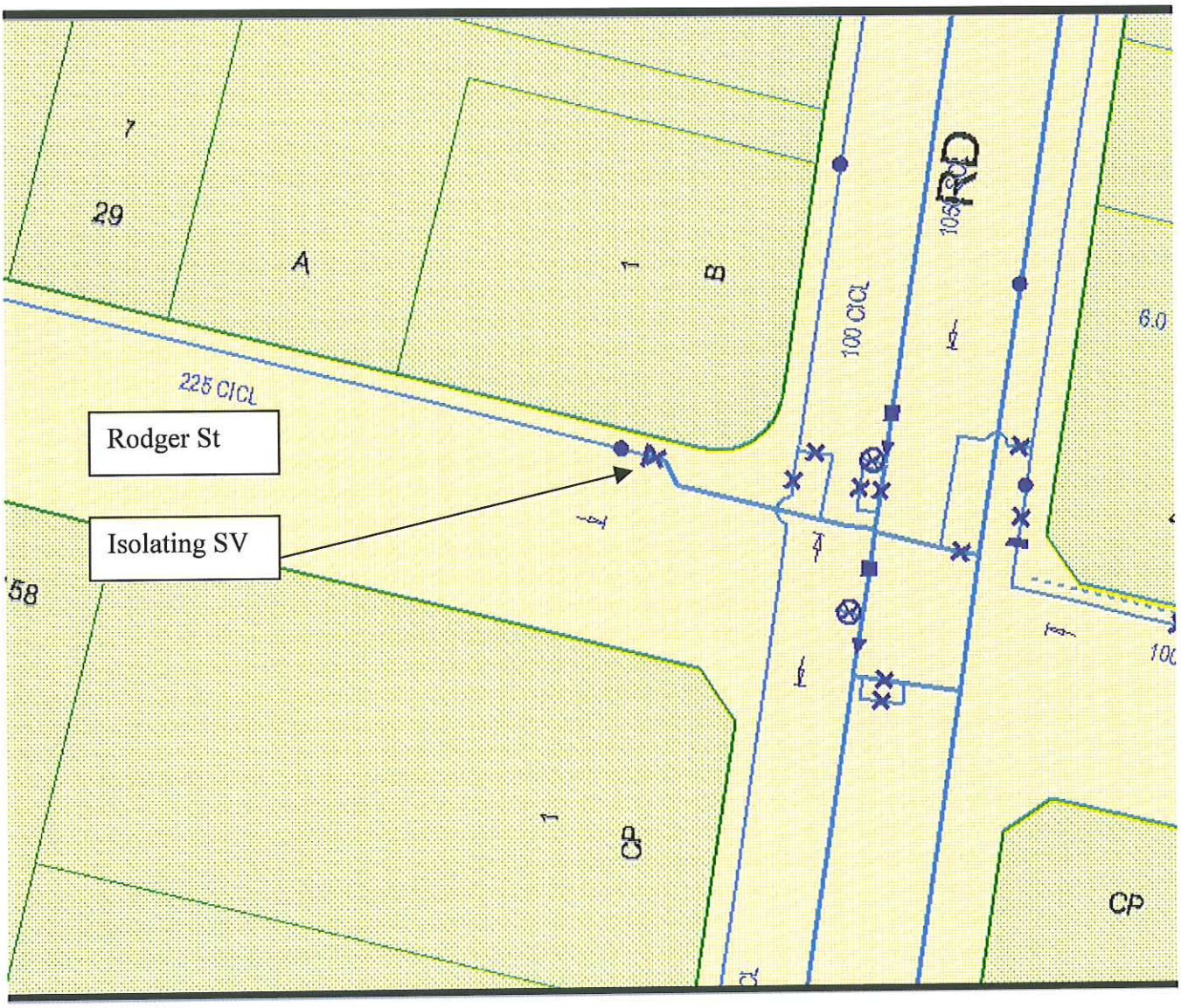


Diagram 5 – Service connection for 50 mm service near corner of Parker Street and Lethbridge Street

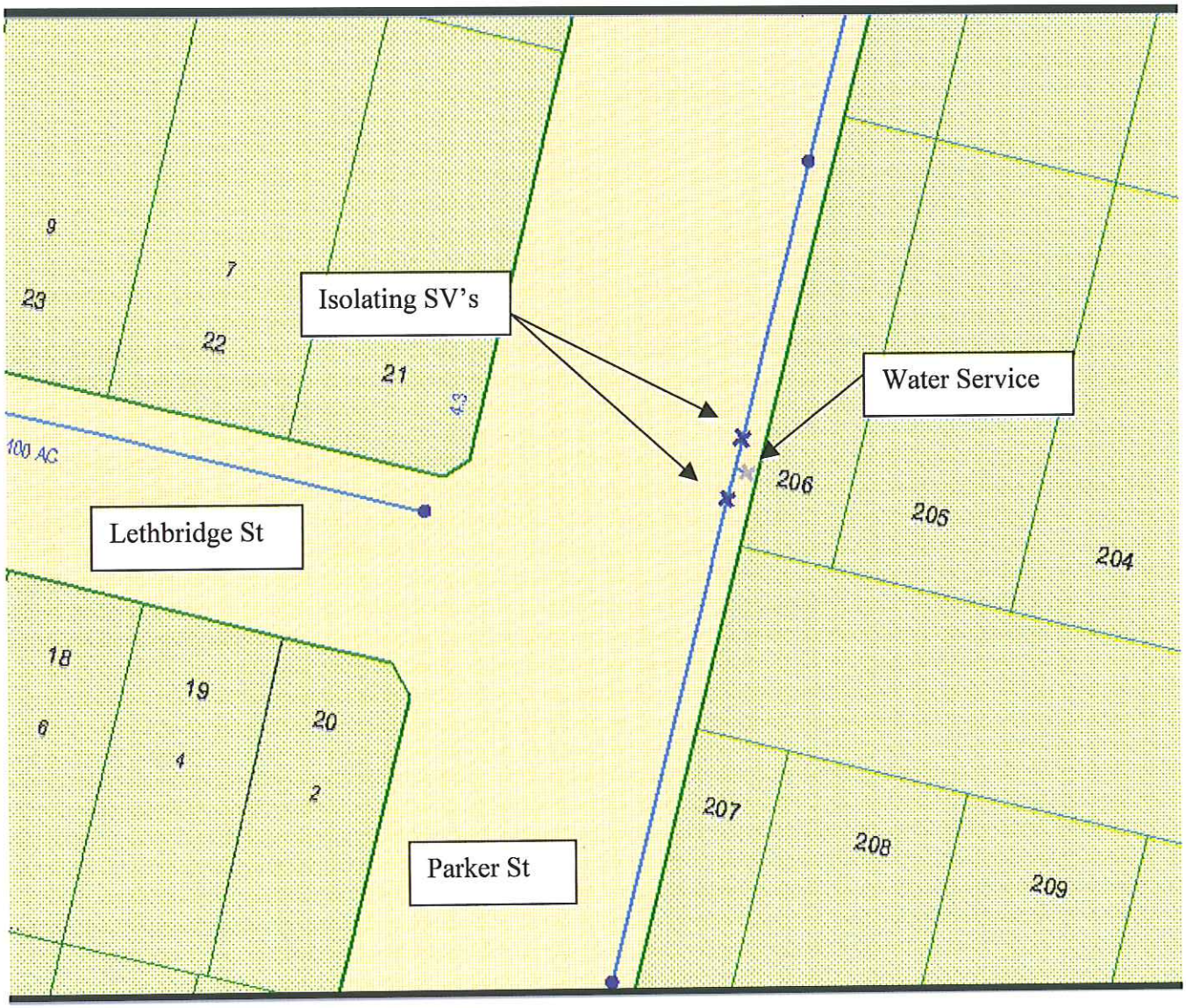


Diagram 6 – Isolating Valves on 150 mm main corner of Parker Street and Derby Street

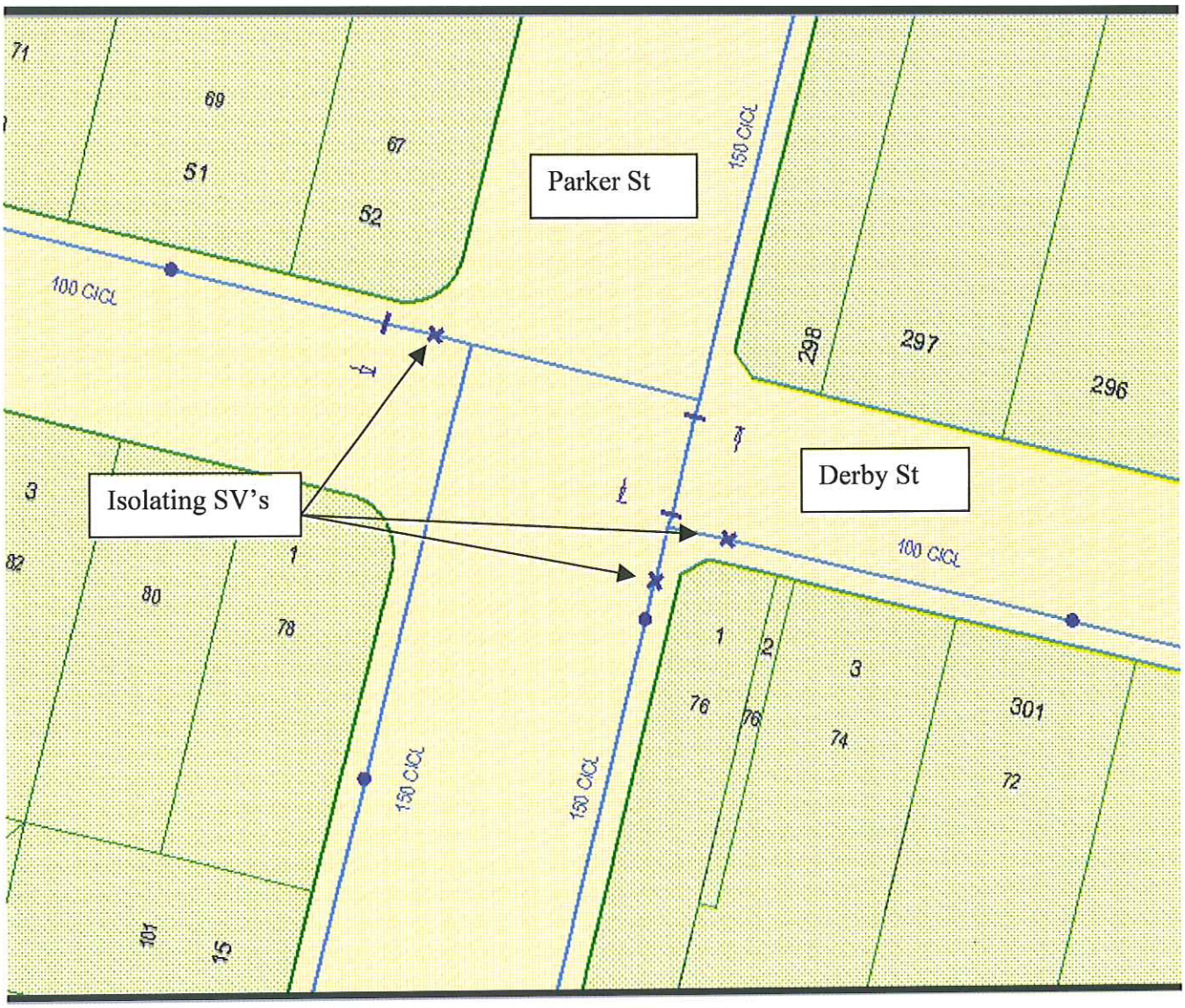
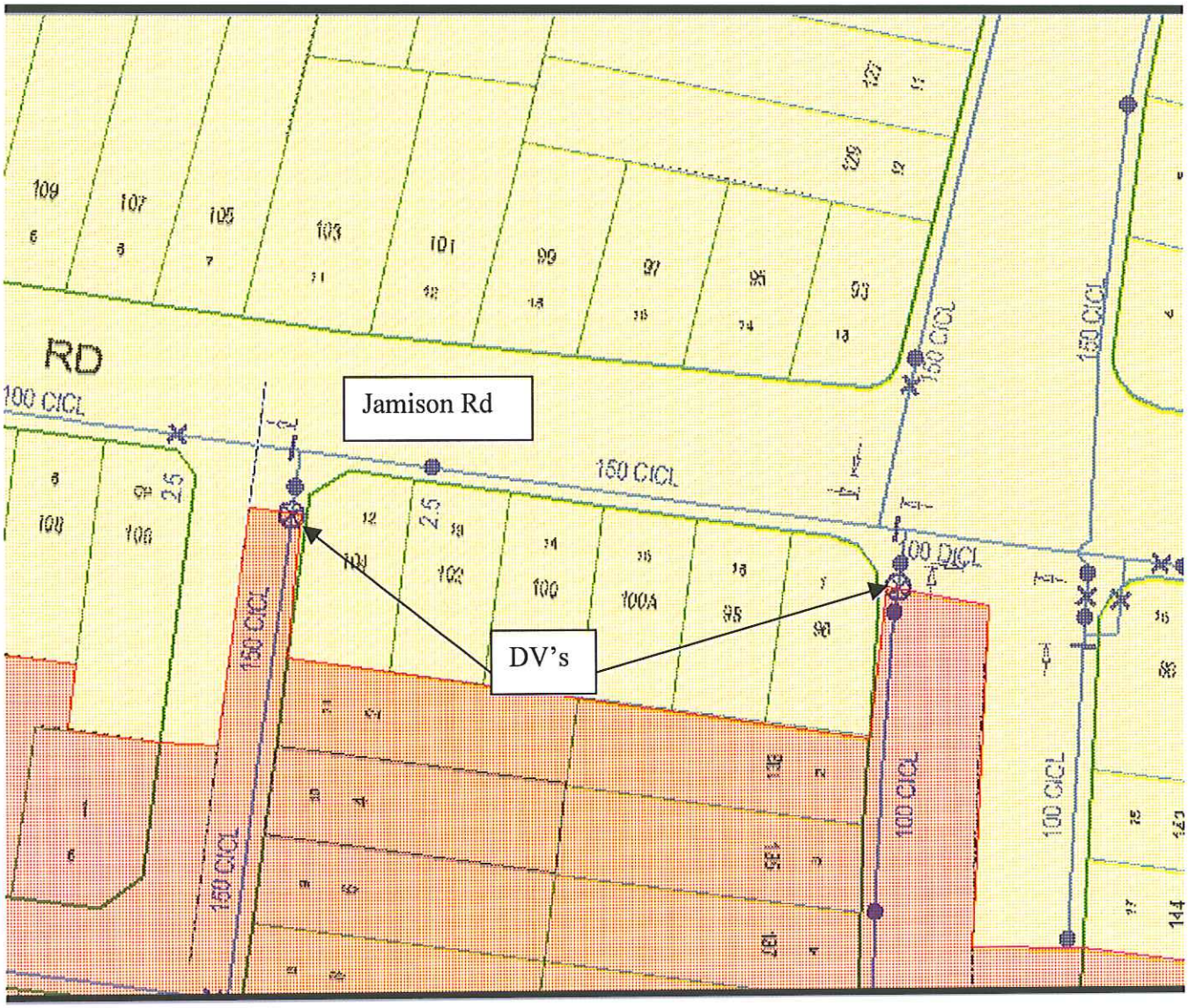
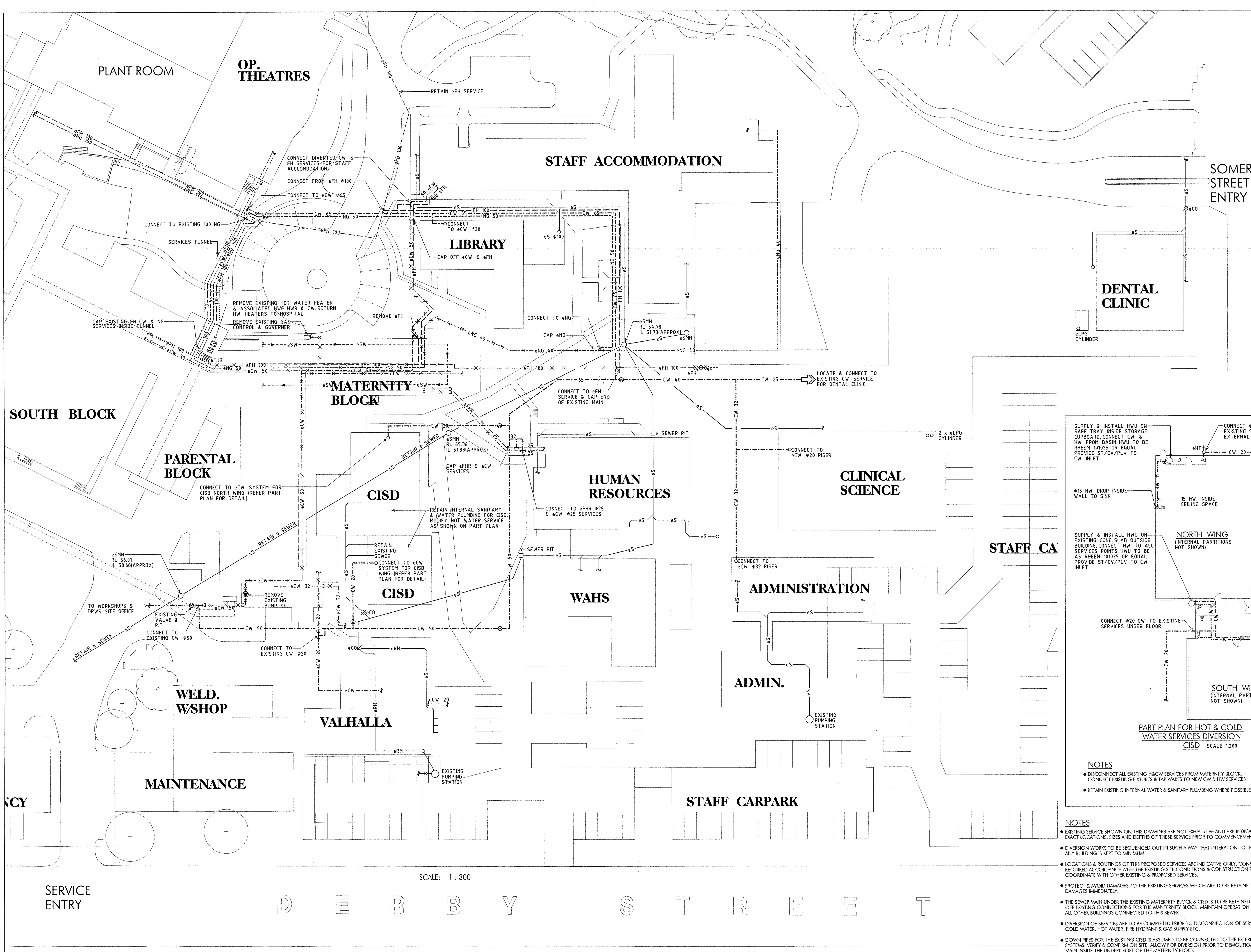


Diagram 7 – DV's between Orchard Hills zone and Bringelly Road zone at Jamison Road and Fragar Road





PART PLAN FOR HOT & COLD WATER SERVICES DIVERSION
CISD SCALE 1:200

NOTES

- DISCONNECT ALL EXISTING H&CW SERVICES FROM MATERNITY BLOCK. CONNECT EXISTING FIXTURES & TAP WARES TO NEW CW & HW SERVICES
- RETAIN EXISTING INTERNAL WATER & SANITARY PLUMBING WHERE POSSIBLE

LEGEND

—x—e—x—	EXISTING SERVICE TO BE MADE REDUNDANT
—eS—	EXISTING SEWER PIPE
—eSW—	EXISTING STORMWATER PIPE
—eCW—	EXISTING COLD WATER PIPE
—eNG—	EXISTING NATURAL GAS PIPE
—eFH—	EXISTING FIRE HYDRANT PIPE
—eFHR—	EXISTING FIRE HOSE REEL PIPE
—eRM—	EXISTING RISING MAIN
—S—	SEWER PIPE
—SW—	STORMWATER PIPE
—HW—	HOT WATER PIPE
—CW—	COLD WATER PIPE
—NG—	NATURAL GAS PIPE
—FH—	FIRE HYDRANT PIPE
—FHR—	FIRE HOSE REEL PIPE
—RM—	RISING MAIN
—⊗—	VALVE AND PIT
→	FLOW ARROW
	NEW CONNECTION IN EXISTING SERVICES
E	CAPPED END IN EXISTING SERVICES
HT	HOSE TAP
CW	COLD WATER
FH	FIRE HYDRANT
FHR	FIRE HOSE REEL
NG	NATURAL GAS
SMH	SEWER MAN HOLE
e	EXISTING
RL	REDUCED LEVEL
IL	INVERT LEVEL
FH	FIRE HYDRANT
LPG	LIQUIFIED PETROLEUM GAS
ST	STOP TAP
CV	CHECK VALVE
PLV	PRESSURE LIMITING VALVE
CO	CLEAR OUT
HWU	HOT WATER UNIT

NOTES

- EXISTING SERVICE SHOWN ON THIS DRAWING ARE NOT EXHAUSTIVE AND ARE INDICATE ONLY. VERIFY EXACT LOCATIONS, SIZES AND DEPTHS OF THESE SERVICE PRIOR TO COMMENCEMENT OF WORK.
- DIVERSION WORKS TO BE SEQUENCED OUT IN SUCH A WAY THAT INTERPTION TO THE SERVICES TO ANY BUILDING IS KEPT TO MINIMUM.
- LOCATIONS & ROUTINGS OF THIS PROPOSED SERVICES ARE INDICATIVE ONLY. CONFIRM & ADJUST AS REQUIRED ACCORDANCE WITH THE EXISTING SITE CONDITIONS & CONSTRUCTION PROGRAMME. ALSO COORDINATE WITH OTHER EXISTING & PROPOSED SERVICES.
- PROTECT & AVOID DAMAGES TO THE EXISTING SERVICES WHICH ARE TO BE RETAINED. REPORT DAMAGES IMMEDIATELY.
- THE SEWER MAIN UNDER THE EXISTING MATERNITY BLOCK & CISD IS TO BE RETAINED. LOCATE & CAP OFF EXISTING CONNECTIONS FOR THE MANTERNITY BLOCK. MAINTAIN OPERATION OF THE SEWER FOR ALL OTHER BUILDINGS CONNECTED TO THIS SEWER.
- DIVERSION OF SERVICES ARE TO BE COMPLETED PRIOR TO DISCONNECTION OF SERVICES INCLUDING COLD WATER, HOT WATER, FIRE HYDRANT & GAS SUPPLY ETC.
- DOWN PIPES FOR THE EXISTING CISD IS ASSUMED TO BE CONNECTED TO THE EXTERNAL STORMWATER SYSTEMS. VERIFY & CONFIRM ON SITE. ALLOW FOR DIVERSION PRIOR TO DEMOLITION OF THE STORMWATER MAIN INSIDE THE UNDERCROFT OF THE MATERNITY BLOCK

REV	REVISION DESCRIPTION	DATE

PUBLIC WORKS
MINISTER FOR PUBLIC WORKS & SERVICES

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Department of Public Works & Services
D PERSSON — DIRECTOR GENERAL
R EAGLE — DIRECTOR COMMERCIAL BUSINESS DIVISION
C JOHNSON — GOVERNMENT ARCHITECT

DESIGN AND DOCUMENTATION
State Projects
A Division of Department of Public Works and Services
R. KEMP
MANAGER,
HEALTH, SPECIAL PROJECTS & ELECTROMEDICAL
06/06/97

KEY PLAN

NEPEAN HOSPITAL SITE DIVERSIONS
HYDRAULIC SERVICES
SITE SERVICES DIVERSION 4

MECHANICAL ENGINEERS DPW & S State Projects Level 16 Mckell Building 2-24 Rawson Place Sydney 2000 Tel: (02) 93728111 Fax: (02) 93728144	ELECTRICAL ENGINEERS DPW & S State Projects Level 16 Mckell Building 2-24 Rawson Place Sydney 2000 Tel: (02) 93728111 Fax: (02) 93728144	HYDRAULIC ENGINEERS DPW & S State Projects Level 13 Mckell Building 2-24 Rawson Place Sydney 2000 7-4-99. Tel: (02) 93727883 Fax: (02) 93727890	STRUCTURAL & CIVIL ENGINEERS DPW & S State Projects Level 13 Mckell Building 2-24 Rawson Place Sydney 2000 Tel: (02) 93727811 Fax: (02) 93727866	ARCHITECTS DPWS & State Projects Level 18 Mckell Building 2-24 Rawson Place Sydney 2000 Tel: (02) 93728385 Fax: (02) 93728377	PROJECT DIRECTOR DPWS & Client Services Level 21 Mckell Building 2-24 Rawson Place Sydney 2000 Tel: (02) 93728603 Fax: (02) 93728633

SCALES	NO IN SET
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PLAN RM NO	SHEET NO
DRAWN M.B./J.LI	SD4-H01

06 APR 99 14:47:09 k:\projects\nep2\hydr\s14div\sd4-h01.dgn

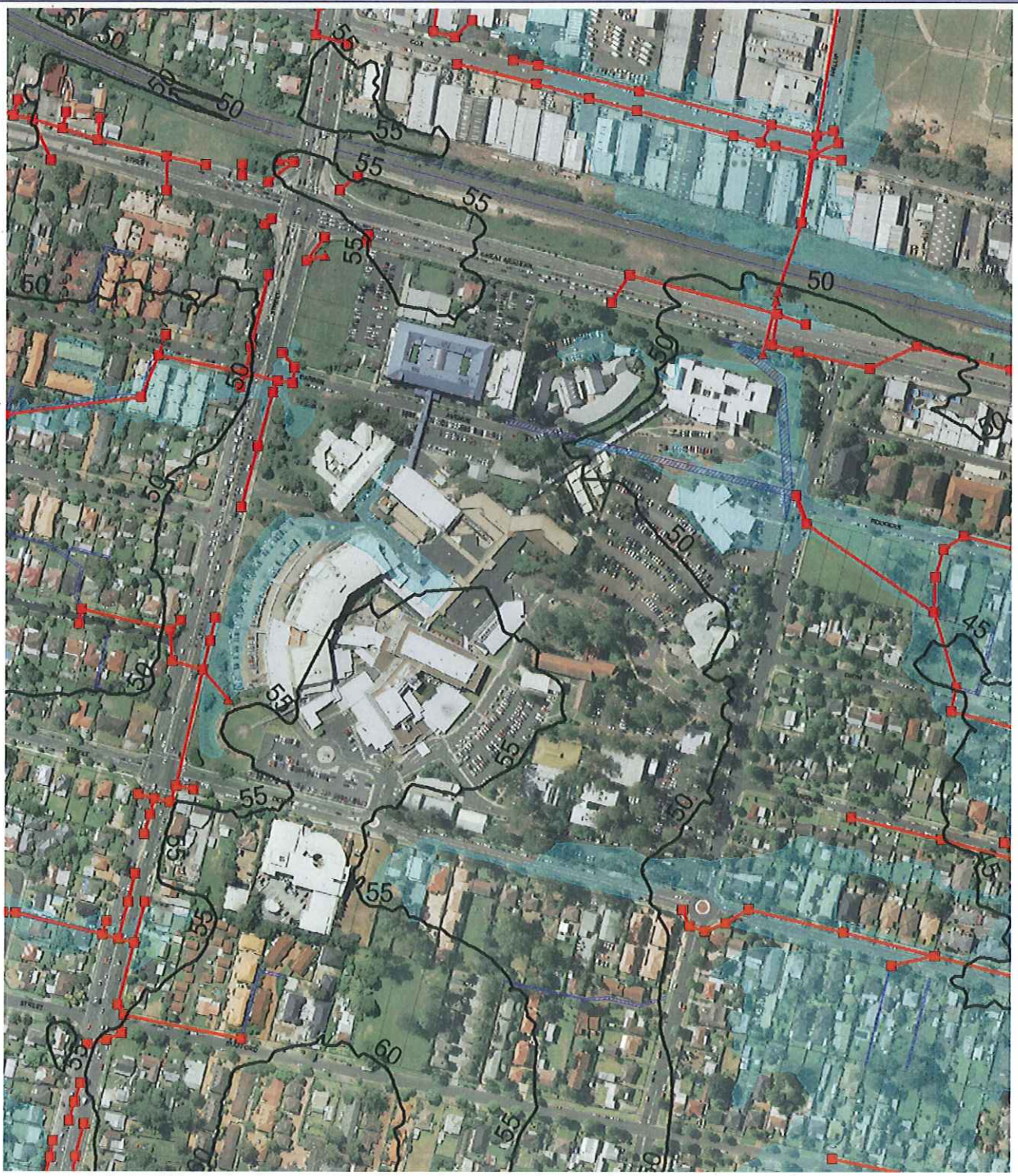
PLOT FILENAME: PLOT DATE: TIME: USER:

B1 FIGURED DIMENSIONS TO BE USED INPREFERENCE TO SCALING ALL DIMENSIONS TO BE CHECKED ON SITE 200MM 300MM ON ORIGINAL

JOSEPH
RD
COX
AVE
S.
R.
A.
818
814
813
815
SANTLEY
ST
50MM NY 1.4MBL
WESTERN
RODGERS
ST
RD
3.1MBL
NY
32MM
106
ORTH
ST
104
105
HARGRAVE
ST
PR 17-8-11
200MM
1983
1.8MBL
50MM
NY
080
087
089
1.2MBL
NEPEAN
DISTRICT
HOSPITAL
BARBER
AVE
094
093
092
091
50MM NY
3.2MBL
50NY
1.0MBL
PR 17-8-5
4181
4182
100MM
1.2MBL
1983
200MM
PIPELINE MARKER
GREAT
BARBER
AVE
149
151
153
161
162
163
32NY 3.3MBL
(CURRENT MAX. OP. 3100kPa)
200MM 1998 6.9MBL
LETHBRIDGE
ST
HOPE
ST
DERBY
2003
200MM
6.75MNBL
PPI-DWG-A-013
(CURRENT MAX. OP. 3100kPa)
PPI-DWG-A-012
PPI-DWG-A-011
PPI-DWG-A-010
STAFFORD
(CURRENT MAX. OP. 3100kPa)
PARKER
SOMERSET
BRINGELLY
FIRST
JONES ST
PASKIN
SECOND
PIPELINE MARKER
SEC REG
075
070
002
020
4326
1.0MBL
110MM PE 1983 1.2MBL
63MM PE 1985
110MM PE 1983 200MM 0.7MBL 1.2MBL
099
090
001
102
103
32NY 50NY
1.4MBL
32MM 32NY
0.6MBL 2.6MBL
1.2MBL 200MM 1985
PIPELINE MARKER 2003 200MM
PR 17-
200MM
A
B
C
D
3
4
5

PENRITH CITY COUNCIL
Serving Our Community

Map



Map Scale: 1:4,438

About this Document	Disclaimer
This map has been created for the purpose of showing basic locality information over Penrith City Council. Property boundary line network data is maintained by Council. Any errors should be reported to the GIS Section, Penrith City Council.	This map is a representation of the information currently held by Penrith City Council. While every effort has been made to ensure the accuracy of the product, Council accepts no responsibility for any errors or omissions. Any feedback on omissions or errors would be appreciated.

PENRITH CITY COUNCIL
Serving Our Community

Map

Map Scale: 1:1,680

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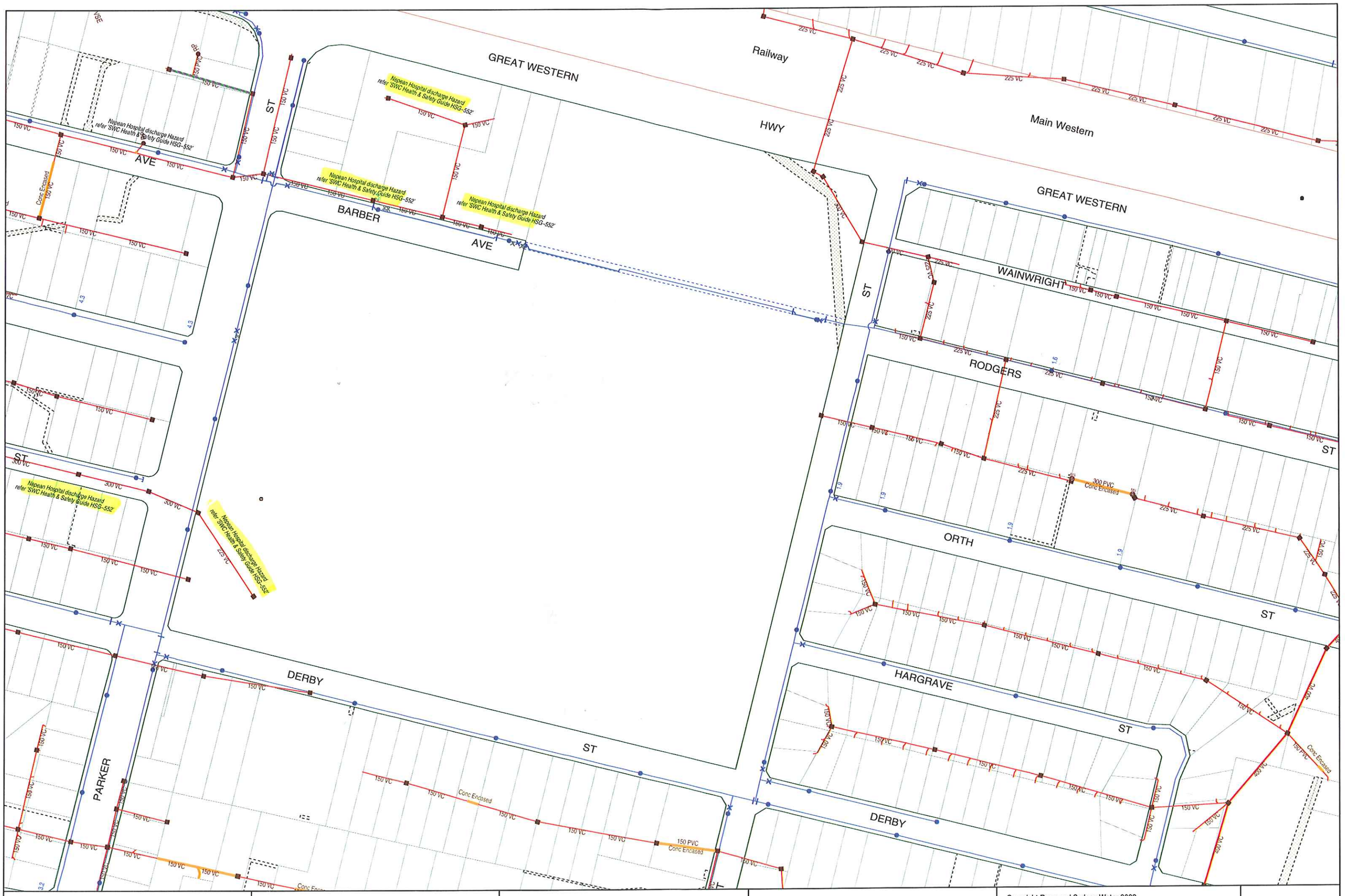
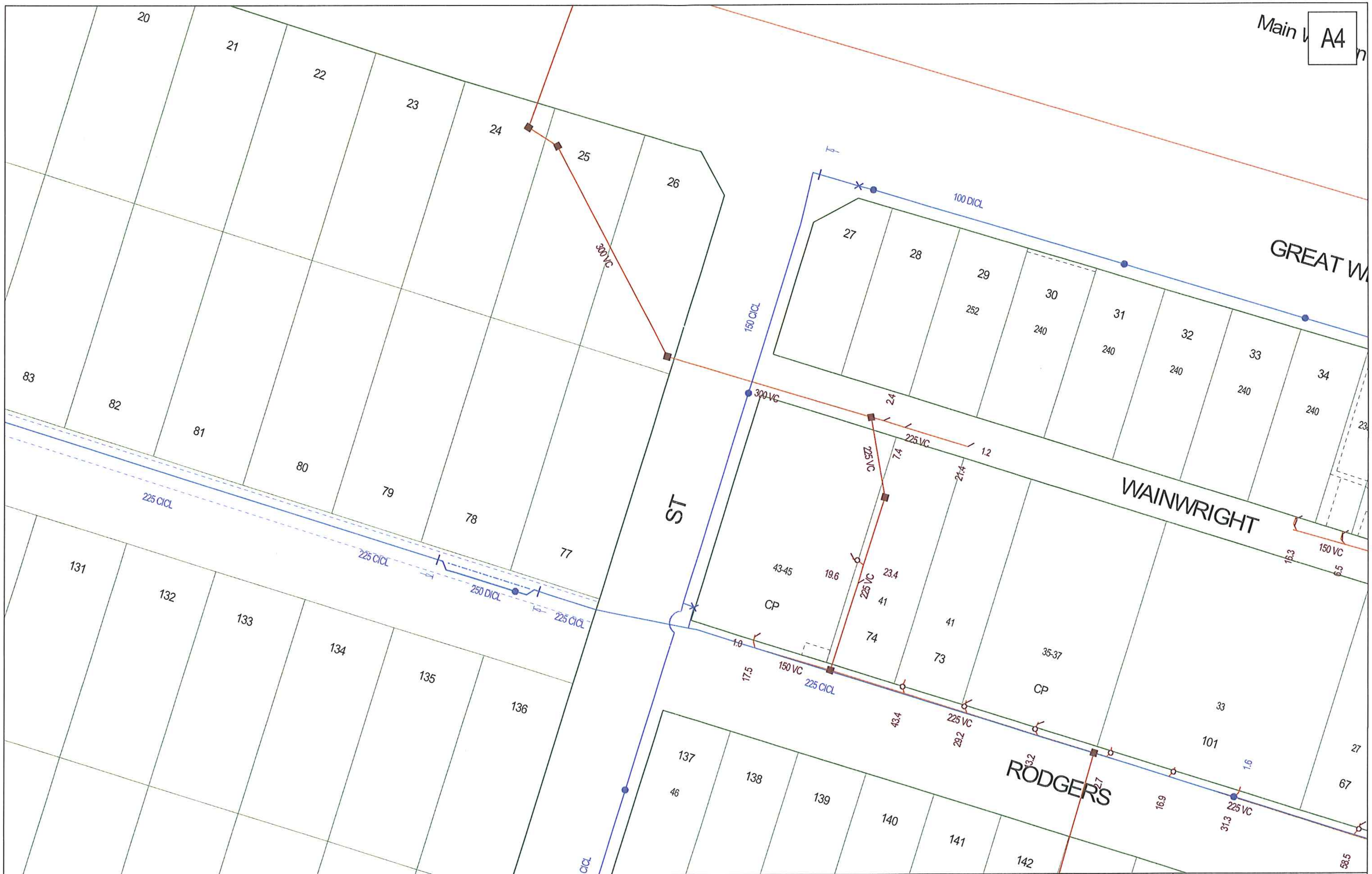
JOSEPH
RD
COX
AVE
S. R. A.
WESTERN
RODGERS
RD
ST
ORTH
ST
HARGRAVE
ST
SANTLEY
ST
PASKIN
JONES ST
FIRST
SECOND
BRINGELLY
SOMERSET
STAFFORD
PARKER
NEPEAN
DISTRICT
HOSPITAL
BARBER
AVE
GREAT
BARBER
AVE
LETHBRIDGE
ST
HOPE
ST
DERBY
PR 17-8-11
PR 17-8-5
PPI-DWG-A-010
PPI-DWG-A-011
PPI-DWG-A-012
PPI-DWG-A-013
PIPELINE MARKER
(CURRENT MAX. OP. 3100kPa)
200MM
2003
50MM NY
1983
4326
4181
4182
SEC REG
A
B
C
D
3
4
5



Nepean Hospital Upgrade Draft MGA Zone 56 (m) Central Co-ord: 288348 6262154	Suburb: KINGSWOOD Map:163 Grid:Q13 Edition:Sydney UBD Edition 41 CMA Sheet: 7360-43-32	Scale: 1:2217 Produced By: Rick Patterson Date: 27/02/2009	Plot Theme: None Plot Request: None	Copyright Reserved Sydney Water 2009 No warranty is given that this is complete or accurate. SYDNEY WATER CORPORATION



DBYD Address:
Nepean Hospital
Somerset Street
Kingswood NSW
2747

DBYD Job No: 38008
DBYD Sequence No: 12866464

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Date of Production: 26/11/2007

Plan 1 of 1

N

0m 5m 10m 15m 20m

A3

DERBY

ST

ORTH

HARGRAVE

ST

DERBY

SOMERSET

STAFFORD

DBYD Address:
Derby Street
Kingswood NSW 2747

DBYD Job No: 120733

DBYD Sequence No: 15384224

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SYDNEY WATER CORPORATION

Scale: 1:1500

Date of Production: 24/02/2009

Plan 1 of 1

N

0m 9m 18m 27m 36m