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**Servicing Report  
FORMER SPEERS POINT QUARRY LOT 21 DP790637  
LOT 1 DP557315 LOT 1 DP321254 LOT 1 DP210440  
LOTS 1 AND 2 DP105845 RAYMOND STREET  
BOOLAROO**

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Prepared by:

**RPS Australia East P/L**

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**LAKE MACQUARIE CITY  
COUNCIL**

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| <i>Rev 0</i>   |                                | <i>RP</i>   |               |                    | <i>DH</i>            | <i>IM</i>       | <i>2-3-10</i>     |
|                |                                |             |               |                    |                      |                 |                   |

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## TERMS AND ABBREVIATIONS

| Abbreviation | Meaning                     |
|--------------|-----------------------------|
| AHD          | Australian Height Datum     |
| DSP          | Development Servicing Plan  |
| EA           | Energy Australia            |
| HWA          | Hunter Water Australia      |
| HWC          | Hunter Water Corporation    |
| LES          | Local Environmental Study   |
| LMCC         | Lake Macquarie City Council |
| RL           | Reduced Level               |
| RPS          | RPS Australia East P/L      |

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## **1.0 INTRODUCTION**

RPS Australia East P/L has been commissioned by Lake Macquarie City Council to prepare a Local Environment Study (LES) for the rezoning for the former Speers Point Quarry Boolaroo. This report addresses the provision of utility services to the proposed development within the rezone areas.

The proposed development of these areas would require the construction of major infrastructure to reticulate essential services to the area. Apart from Telstra (see letter Appendix 1) there is adequate capacity available to service the rezone area in existing infrastructure. Additional security will be provided by proposed infrastructure augmentation in the area.

### **1.1 Location**

The study area includes Lot 21 DP790637, Lot 1 DP557315, Lot 1 DP321254, Lot 1 DP210440, Lots 1 and 2 DP105845 Raymond Street Boolaroo which includes the former Speers Point Quarry. The site of approximately 80 hectares has as yet no lot layout proposal but it is envisaged that no more than 250 lots will be created based on known site constraints. The study area is situated on the south-western side of Munibung Hill with the disused Pasminco Smelter to the immediate north-west of the site.

### **1.2 Methodology**

Consultation has been undertaken with the local authorities responsible for providing services to the development area.

Water & Sewer – Hunter Water Corporation (HWC)  
Electricity – Energy Australia (EA)  
Gas – Jemena Gas Networks (NSW)  
Telecommunications - Telstra

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## 2.0 WATER

Reticulated water can be provided to the proposed rezoning area by extension of mains from existing Hunter Water Corporation (HWC) water mains servicing residential areas.

Review of the current Hunter Water Corporation Regional Servicing Strategy and consultation with HWC Sales & Business Development staff indicate that there is adequate capacity available in the existing water system to service the proposed development.

The developer of the site will be required to have a water servicing strategy prepared. This study will be required to address the issues listed below.

- \* Lot layout
- \* Staging of development
- \* Investigation of alternative options for integration of high level systems
- \* Identification of least community cost option
- \* Security of supply
- \* Minimum pressure requirement
- \* Fire-fighting flow requirement

HWC Section 62 consultation comments are included in Appendix 1.

A plan indicating the existing water infrastructure and proposed points of connection are shown in Appendix 2.

HWC Section 62 Consultation comments state that “Hunter Water has no objections to the proposed rezoning application”.

Upon rezoning of the site being approved an application for a Section 50 certificate will be required to be submitted to HWC to determine requirements for the provision of water to the proposed development.

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### 3.0 SEWER

Reticulated sewerage services can be provided to the proposed rezoning area by connecting sewer mains into existing HWC systems servicing adjacent residential areas.

Review of the current Hunter Water Corporation Regional Servicing Plan and consultation with HWC Sales & Business Development staff indicate that there is adequate capacity available in the existing sewer system to service the proposed developments.

Hunter Water notes that the proposed rezoning area could fall either within the Edgeworth Waste Water Treatment Works (WWTW) or Belmont WWTW catchments for wastewater services. For practicality purposes Hunter Water prefers that flows gravitate to one catchment area. The sewer infrastructure plan attached as Appendix 3 suggests that it will be more cost effective to service the proposed development to the Edgeworth WWTW system. This is indicative only.

Upgrades may be required to existing sewerage infrastructure to provide suitable services to the ultimate development. The scope of augmentation works would be based on anticipated sewer loadings in the area.

The developer of the site will be required to have a sewer servicing strategy prepared. This study will be required to address the issues listed below.

- \* Lot layout
- \* Accurate loading information
- \* Pump Station detail (existing or proposed)
- \* Connection options to existing or proposed Waste Water Pump Station catchment
- \* Timing of connection
- \* Emergency storage
- \* Surrounding potential future developments

The provision of reticulation mains to service individual developments will be funded by the respective developer.

HWC Section 62 Consultation comments state that “Both Edgeworth WWTW and Belmont WWTW are likely to have available capacity for preliminary stages of the development”.



Upon rezoning of the site being approved an application for a Section 50 certificate will be required to be submitted to HWC to determine requirements for the provision of sewer to the proposed developments.

Existing sewer infrastructure in the vicinity of the proposed developments is attached as Appendix 3.

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## 4.0 ELECTRICITY

Enquiries with Energy Australia (EA) staff indicate there is an existing electrical supply available in the area. This existing infrastructure has adequate capacity to service proposed development in the rezone area.

There is an existing connection point to the existing 33KV main in Fifth Street and an 11KV connection point in very close proximity to the subject site in Farm Street.

The provision of reticulation mains to service individual developments will be funded by the respective developer.

Upon rezoning of the site being approved an application should be submitted to Energy Australia to determine the individual requirements for the provision of electricity to the proposed developments.

A plan indicating the existing electrical infrastructure in the area is attached at Appendix 4.

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## 5.0 TELECOMMUNICATIONS

Consultation with Telstra Development Consultants indicates that the proposed rezoning area can be provided with telecommunications services via upgrades from the existing networks servicing the adjacent residential developments.

Telstra letter dated 26 February 2010 indicates they maintain an existing network within and adjacent to the subject site and as such “Telstra will require the protection of/relocation of its telecommunications infrastructure that may be impacted by activities on this site”.

It is anticipated that the provision of connection to the Telstra network to service individual developments will be funded by the respective developer.

Appendix 1 contains correspondence received from Telstra regarding the provision of infrastructure to the proposed development site.

Plans indicating the existing telecommunications infrastructure in the area are attached at Appendix 5.

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## 6.0 GAS

Jemena Gas Networks (NSW) has advised that there is provision for gas services in the vicinity of the rezoning area based upon the economical viability of such a network. Details of the proposed development would need to be provided before any assessment could be carried out. Regardless of the outcome of the economic evaluation developers in the area could choose to fund the provision of gas services if they became available.

Correspondence received from Jemena Gas Networks (NSW) is contained in Appendix 1.

Plans indicating the existing gas infrastructure in the area are attached at Appendix 6.

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## 7.0 CONCLUSION

Liaison with the local authorities indicate that utility services can be provided by the upgrading and/or extension of existing infrastructure servicing the area.

Determination of actual servicing requirements for each site would require application to be made to each authority at the time of development.

Augmentation of existing servicing infrastructure would be undertaken by local authorities.

Reticulation of utility services would be undertaken in conjunction with development of individual sites.

There are no objections, with regard to servicing, to the development of the site.



## **APPENDIX 1**

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### **Authority Correspondence**

# DUTY OF CARE



## **IMPORTANT:**

- Please read and understand all the information and disclaimers provided below.
- Sketches and Plans provided by Telstra are circuit diagrams only and indicate the presence of telecommunications plant in the general vicinity of the geographical area shown; exact ground cover and alignments cannot be given with any certainty and cover may alter over time. Telecommunications plant seldom follow straight lines and careful on site investigation is essential to uncover and reveal its exact position.
- Due to the nature of Telstra plant and the age of some cables and records, it is impossible to ascertain the location of all Telstra plant. The accuracy and/or completeness of the information can not be guaranteed and, accordingly Telstra plans are intended to be indicative only.

## **"DUTY OF CARE"**

When working in the vicinity of telecommunications plant you have a legal "Duty of Care" that must be observed. The following points must be considered:-

1. It is the responsibility of the owner and any consultant engaged by the owner, including an architect, consulting engineer, developer, and head contractor to design for minimal impact and protection of Telstra plant. Telstra will provide plans and sketches showing the presence of its network to assist at this design stage.
2. It is the owner's (or constructor's) responsibility to:-

a) Request plans of Telstra plant for a particular location at a reasonable time before construction begins.

b) Visually locate Telstra plant by hand digging (pot-holing) where construction activities may damage or interfere with Telstra plant (see "Essential Precautions and Approach Distances" section for more information).

c) Contact Telstra's **Plan Services** (see below for details) if Telstra plant is wholly or partly located near planned construction activities.

## **DAMAGE:**

**ANY DAMAGE TO TELSTRA'S NETWORK MUST BE REPORTED TO 132203 IMMEDIATELY.**

- The owner is responsible for all plant damage when works commence prior to obtaining Telstra plans, or failure to follow agreed instructions.
- Telstra reserves all rights to recover compensation for loss or damage to its cable network or other property including consequential losses.

## **PLAN SERVICES**

For all Telstra DBYD (Dial Before You Dig) map enquiries please contact Telstra Plan Services

email - **Telstra.Plans@team.telstra.com**

fax - **(02) 4961 3714**

phone (for urgent, onsite or optic fibre enquiries) - **1800 653 935**

## **ASSET RELOCATIONS**

For all enquiries relating to the relocation of Telstra assets please phone - **1800 810 443**

## **CONCERNING TELSTRA PLANS:**

- For plans of Telstra locations contact **Dial Before You Dig** at least 2 business days prior to digging.  
(<http://www.1100.com.au> or phone 1100)
- Fast response can be made by Telstra if an email address is provided. ( if posted may take up to one week or longer to

- receive plans)
- Telstra plans and information provided are **valid for 60 days** from the date of issue.
- Telstra owns and retains the copyright in all plans and details provided in conjunction with the applicant's request. The applicant is authorised to use the plans and details only for the purpose indicated in the applicant's request. The applicant must not use the plans or details for any other purpose. The plans and details should be disposed of by shredding or any other secure disposal method after use.
- Telstra plans or other details are provided only for the use of the applicant, its servants, or agents. **The applicant may not give the plans or details to other parties, and may not generate profit from commercialising the plans or details.**
- Please contact Telstra **Plan Services** (see above for details) immediately should you locate Telstra assets not indicated on these plans.
- Telstra, its servants or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and or details so supplied to the applicant, its servants and agents, and the applicant agrees to indemnify Telstra against any claim or demand for any such loss or damage.
- Please ensure Telstra plans and information provided remains on-site at all times throughout your construction phase.

## **ESSENTIAL PRECAUTIONS and APPROACH DISTANCES:**

**NOTE: If the following clearances cannot be maintained, please contact Telstra Plan Services (see above for details) for advice on how best to resolve this situation.**

1. On receipt of plans and sketches and before commencing excavation work or similar activities near Telstra's plant, **carefully locate this plant first** to avoid damage. Undertake prior manual exposure such as potholing when intending to excavate or work **closer** to Telstra plant than the following approach distances.

- Where Telstra's plant is in an area where road and footpaths are well defined by kerbs or other features a minimum clear distance of 600mm must be maintained from where it could be reasonably presumed that plant would reside.
- In non established or unformed reserves and terrain, this approach distance must be at least 1.5 metres.
- In country/rural areas which may have wider variations in reasonably presumed plant presence, the following minimum approach distances apply:
  - Parallel to major plant: 10 metres (for IEN, optic fibre and copper cable over 300 pairs)
  - Parallel to other plant: 5 metres
- Note: Even manual pot-holing needs to be undertaken with extreme care, commonsense and employing techniques least likely to damage cables. For example, orientate shovel blades and trowels parallel to the cable rather than digging across the cable.
- If construction work is parallel to Telstra plant, then careful hand digging (pot-holing) at least every 5m is required to establish the location of all plant, hence confirming nominal locations before work can commence.

2. Maintain the following minimum clearance between construction activity and **actual location** of Telstra Plant.

|                                                                |                                                                                                                                          |
|----------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Jackhammers/Pneumatic Breakers</b>                          | <i>Not within 1.0m of <b>actual location</b>.</i>                                                                                        |
| <b>Vibrating Plate or Wacker Packer Compactor</b>              | <i>Not within 0.5m of Telstra ducts.<br/>300mm compact clearance cover before compactor can be used across Telstra ducts.</i>            |
| <b>Boring Equipment<br/>(in-line, horizontal and vertical)</b> | <i>Not within 2.0m of <b>actual location</b>.<br/>Constructor to hand dig (pot-hole) and expose plant.</i>                               |
| <b>Heavy Vehicle Traffic (over 3 tonnes)</b>                   | <i>Not to be driven across Telstra ducts (or plant)<br/>with less than 600mm cover.<br/>Constructor to check depth via hand digging.</i> |
| <b>Mechanical Excavators, Boring and Tree Removal</b>          | <i>Not within 1.0m of <b>actual location</b>.<br/>Constructor to hand dig (pot-hole) and expose plant.</i>                               |

- All Telstra pits and manholes should be a minimum of 1.2m in from the back of kerb after the completion of your work.
- All Telstra conduit should have the following minimum depth of cover after the completion of your work:-
- Footway 450mm**
- Roadway 450mm at drain invert and 600mm at road centre crown**
- For clearance distances relating to Telstra pillars, cabinets and RIMs/RCMs please contact Telstra Plan Services (see above for details).

## **FURTHER ASSISTANCE:**

Assistance can be obtained by contacting Telstra **Plan Services**

Where on-site location is provided, the owner is responsible for all hand digging (pot-holing) to visually locate and expose Telstra plant.

If plant location plans or visual location of Telstra plant by digging reveals that the location of Telstra plan is situated wholly or partly



where the owner plans to work, then **Telstra's Network Integrity Group** must be contacted through Telstra **Plan Services** to discuss possible engineering solutions.

#### NOTE:

If Telstra relocation or protection works are part of the agreed solution, then payment to Telstra for the cost of this work shall be the responsibility of the principal developer or constructor. The principal developer or constructor will be required to provide Telstra with the details of their proposed work showing how Telstra's plant is to be accommodated and these details must be approved by the Regional Network Integrity Manager prior to the commencement of site works.

#### **RURAL LANDOWNERS - IMPORTANT INFORMATION**

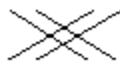
Where Telstra owned cable crosses agricultural land, Telstra will provide a one off free on-site electronic cable location. Please note that the exact location of cables can only be verified by visual proving by pot holing, which is not covered by this service. The Telstra Plan Services operator will provide assistance in determining whether a free on-site location is required. Please contact Telstra Plan services as listed above.

#### **PRIVACY NOTE**

Your information has been provided to Telstra by DBYD to enable Telstra to respond to your DBYD request. Telstra keeps your information in accordance with its privacy statement entitled "Protecting Your Privacy" which can be obtained from Telstra either by calling 1800 039 059 or visiting our website at [www.telstra.com.au/privacy](http://www.telstra.com.au/privacy)

### A GUIDE TO READING PLANS

Telstra Corporation Limited  
ABN 33 05 1175 556



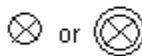
**Exchange**  
(major cable present)



**Footway access chamber**  
(can vary from 1-lid to 12-lid)



**Roadway access chamber**



**Pillar/cabinet**  
(above the ground / free standing)



**Above ground complex equipment housing** (eg RIM)

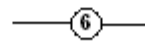
**Please Note:** This equipment is powered by 240V electricity.



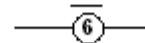
**Public telephone**  
**Please Note:** This equipment is powered by 240V electricity.



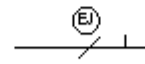
**Direct buried cable**



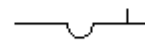
**Cable jointing pit**  
(number indicating pit type)



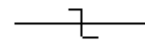
**Buried cable jointing pit**  
(number indicating pit type)



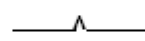
**Elevated cable joint**  
(above ground joint on buried cable)



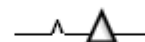
**Cable loop** (direct buried)



**Telstra Plant in shared utility trench**



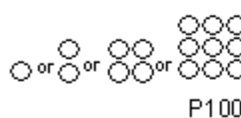
**Aerial Cable**  
(above ground)



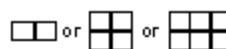
**Aerial cable**  
(attached to joint use pole e.g. power)



**Optical fibre cable direct buried**



**Single to multiple round conduit**  
Configurations 1, 2, 4, 9 respectively  
(Attached text denotes conduit type and size)



**Multiple square conduit**  
Configurations 2, 4, 6 respectively  
(Attached text denotes conduit type and size)

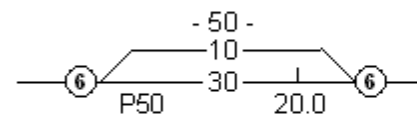
#### **Some examples of conduit type and size:**

A - Asbestos cement, P - PVC / plastic, C - Concrete, GI - Galvanised iron, E - Earthenware.

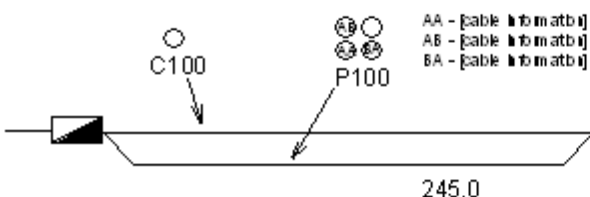
Conduit sizes *nominally* range from 20mm to 100mm.

|      |                                 |
|------|---------------------------------|
| P50  | 50mm PVC conduit                |
| P100 | 100mm PVC conduit               |
| A100 | 100mm asbestos cement conduit   |
| E 85 | 85mm square earthenware conduit |

## Some examples of how to read Telstra plans:



One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits, 20.0m apart, with a direct buried 30-pair cable along the same route.



Two separate conduit runs between two footway access chambers (manholes) 245m apart. A nest of four 100mm PVC conduits (P100) containing assorted cables in three ducts (one being empty) and one empty 100mm concrete duct (C100) along the same route.

**WARNING:** Telstra's plans show only the presence of cables and plant. They only show their position relative to road boundaries, property fences etc. at the time of installation and Telstra does not warrant or hold out that such plans are accurate thereafter due to changes that may occur over time.

DO NOT ASSUME DEPTH OR ALIGNMENT of cables or plant as these vary significantly.

The customer has a DUTY OF CARE when excavating near Telstra cables and plant. Before using machine excavators TELSTRA PLANT MUST FIRST BE PHYSICALLY EXPOSED BY SOFT DIG (potholing) to identify its location.

Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

### ACCREDITED PLANT LOCATERS (For your area)

On-site assistance should be sought from an **Accredited Plant Locator** if the telecommunications plant cannot be located within 2.5 metres of the locations indicated on the drawings provided.

On-site advice should be obtained from a suitably qualified contractor highly skilled in locating Telstra plant if there is any doubt whatsoever about the actual location of the telecommunications plant, the best method for locating the telecommunications plant or the correct interpretation of the drawings provided. In the case where Telstra plant is outside a recognised road reserve Telstra recommends that Telstra Plan Services are contacted for assistance prior to engaging an Accredited Plant Locator.

For the assistance of customers Telstra has established strict criteria to assess the skill of contractors that may be engaged by owners requiring Telstra plan locating services to perform any of the following activities if requested to do so by the owner:

- review Telstra's plans to assess the approximate location of Telstra plant;
- advise owners of the approximate location of Telstra plant according to the plans;
- advise owners of the best method for locating Telstra plant;
- advise owners of the hazards of unqualified persons attempting to find the exact location of Telstra plant and working in the vicinity of Telstra plant without first locating its exact position.
- perform trial hole explorations by hand digging (pot-holing) to expose Telstra plant with a high degree of skill, competence and efficiency and utilising all necessary safety equipment.

Telstra has provided a number of contractors with certification as an Accredited Plant Locator.

**A list of Accredited Plant Locaters operating in your area is attached. Accredited Plant Locaters are certified by Telstra to perform the tasks listed above. Owners may engage Accredited Plant Locaters to perform these services, however Telstra does not give any warranty in relation to these services that Accredited Plant Locaters are competent or experienced to perform any other services.**

The attached list provides the names and contact details for Accredited Plant Locaters who service your area and can provide you with assistance in locating Telstra plant on site. These organisations have been able to satisfy Telstra that they have a sound knowledge of telecommunications plant and its sensitivity to disturbance; appropriate equipment for locating telecommunications plant and competent personnel who are able to interpret telecommunications plans and sketches and understand safety issues relevant to working around telecommunications plant. They are also able to advise you on the actions which should be taken if the work you propose will/could result in a relocation of the telecommunications plant and/or its means of support.

We recommend that you engage the assistance of one of these Accredited Plant Locaters as a step towards discharging your Duty of Care obligations when seeking the location of Telstra's telecommunications plant.

#### Please Note:

1. The details of any contract, agreement or retainer for site assistance to locate telecommunications plant shall be for you to decide and agree with the organisation engaged. Telstra is not a party to any contract entered into between an owner and an Accredited Plant Locator. The Accredited Plant Locaters are able to provide guidance concerning the extent of site investigations required.
2. Payment for the site assistance will be your responsibility and payment details should be agreed before the engagement is confirmed.
3. Telstra does not accept any liability or responsibility for the performance of or advice given by an Accredited Plant Locator. Accreditation is an initiative taken by Telstra towards the establishment and maintenance of competency standards. However, performance and the advice given will always depend on the nature of the individual engagement.
4. Each Accredited Plant Locator has been issued with a certificate which confirms the Accreditation. Each year Telstra will reassess the accreditation and where appropriate will issue a letter confirming the accreditation for the next calendar year.

You have the right to request the organisation you engage to show evidence of this certificate and its currency.

5. The Accredited Plant Locator is required to service each engagement with the personal attendance of at least one accredited employee who has satisfactorily completed a Telstra approved employee accreditation training course. These people will carry a certification card issued by Telstra.
6. Neither the Accredited Plant Locator nor any of its employees are an employee or agent for Telstra and Telstra is not liable for any damage or loss caused by the Accredited Plant Locator or its employees.
7. The attached list contains the current names and contact details of Accredited Plant Locators who service your area, however, these details are subject to change.



# Network Protection

In reply to your enquiry, there are gas mains at the location of your intended work as per the attached map. For an explanation of the map, please see the key below. The following excavation guidelines apply:

## Excavation Guidelines:

If you are going to excavate/bore within 0.4m of the gas main location as indicated on the map you must excavate carefully by hand. If you can't locate the gas main, contact the local depot.

**Newcastle / Hunter (02) 49535102**

| MAXIMUM ALLOWABLE OPERATING PRESSURE |                |          | KEY          |                                                                   |
|--------------------------------------|----------------|----------|--------------|-------------------------------------------------------------------|
| —T—                                  | TRUNK MAIN     | 7000 kPa | ✂            | VALVE                                                             |
| —P—                                  | PRIMARY MAIN   | 3500 kPa | □            | SYSTEM PRESSURE REGULATOR                                         |
| —S—                                  | SECONDARY MAIN | 1050 kPa | ⋈            | SIPHON                                                            |
| ----                                 |                | 300 kPa  | 6NB          | 6 INCH CAST IRON MAIN                                             |
| -----                                |                | 210 kPa  | 150MM        | 150MM STEEL MAIN                                                  |
| -----                                |                | 7 kPa    | 110MM PE/NY  | 110MM POLYETHYLENE / NYLON MAIN                                   |
| -----                                |                | 400 kPa  | Ⓢ NB 50MM NY | 50MM NYLON INSERTED INTO 6 INCH CAST IRON MAIN                    |
| —400—                                |                | 100 kPa  | 1.2MBL       | DISTANCE IN METRES OF MAIN FROM BUILDING LINE (TOLERANCE OF 0.4M) |
| —100—                                |                | 30 kPa   | 123          | HOUSE NUMBERS                                                     |
| —30—                                 |                | 2 kPa    | =====        | NETWORK BOUNDARY                                                  |
| -----                                |                |          | 123          | NETWORK NODES                                                     |
| ←---→                                | PROPOSED MAINS |          |              |                                                                   |

**Warning:** The enclosed plans show the position of Jemena Gas Networks (NSW) Ltd's underground gas mains and installations in public gazetted roads only. **Individual customers' services and services belonging to other third parties are not included** on these plans. These plans have been prepared solely for the use of Jemena Gas Networks (NSW) Ltd and Jemena Asset Management Pty Ltd (together "**Jemena**") and any reliance placed on these plans by you is entirely at your own risk. The plans may show the position of underground mains and installations relative to fences, buildings etc., as they existed at the time the mains etc were installed. The plans may not have been updated to take account of any subsequent change in the location or style of those features since the time at which the plans were initially prepared. Jemena makes no warranty as to the accuracy or completeness of the enclosed plans and does not assume any duty of care to you nor any responsibility for the accuracy, adequacy, suitability or completeness of the plans or for any error, omission, lack of detail, transmission failure or corruption in the information provided. Jemena does not accept any responsibility for any loss that you or anyone else may suffer in connection with the provision of these plans, however that loss may arise (including whether or not arising from the negligence of Jemena, its employees, agents, officers or contractors). The recipient of these plans must use their own care and diligence in carrying out their works and must carry out further surveys to locate services at their work site. Persons excavating or carrying out other earthworks will be held responsible for any damage caused to Jemena's underground mains and equipment.

**In case of Emergency Phone 131 909 (24 hours)**

**Natalie**  
**(02) 9397 9165**

**Jemena Asset Management Pty Ltd ABN 53 086 013 461**  
**for and on behalf of Jemena Gas Networks (NSW) Ltd ABN 87 003 004 322**





# Working Near EnergyAustralia Cables

Dial Before You Dig  
The life you save, could be yours



## Working Safely.

This brochure gives you a brief overview of **NS156**. It will help you work out what you will need to do to ensure the safety of your staff and the public. This will also help to prevent any disruption to the electrical network.

**NS156** is a Network Standard that contains some very important information on what to do if you are undertaking excavation works.

EnergyAustralia operates a network of electrical power cables throughout Sydney, the Central Coast and Newcastle/Hunter Valley. These cables are critical to the continuous supply of power to all of our customers, including hospitals, schools, and the emergency services. They are also potentially dangerous, if you do not take care while working near them.

## With electricity, it's not 'if', but 'when'.

It is likely that you or someone you work with have been, or will be involved in a life threatening situation. It's never a matter of if, but when. Underground power cables and overhead powerlines are potentially hazardous to every person working around them. All it takes is one lapse in safety or preparedness and someone could be seriously injured or worse. You could face criminal charges and a hefty fine if you negligently damage pipes or cables.

## Every little bit helps.

Forward planning and simple safety precautions are necessary and help to ensure everyone is as safe as possible on your work site, including you.

## Do all power cables look the same?

No. Power cables come in different sizes, colours and outer coverings. They may be covered in a black plastic sheath, steel wires in a sticky bitumen like material, or even a simple lead or steel wire/tape sheath. See example below.





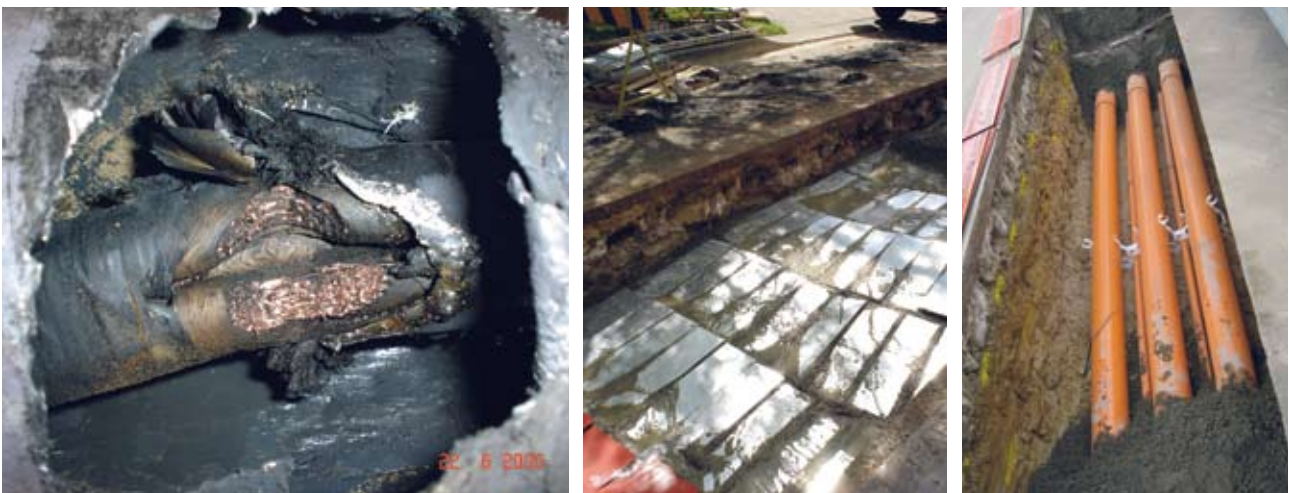
## What other forms do electrical assets take?

It's mainly the method of installation that varies. They may be buried in orange PVC or PE conduits, or even old earthenware or steel pipes. A bank of cables may be covered with electrical bricks, plastic warning markers or protective covers, or nothing at all. If they have to be buried at a reduced depth, they may be covered in concrete slabs or steel plates.



## You've taken every precaution but accidents still happen. What now?

Striking power cables while digging can result in serious damage to the cables, as well as posing a safety hazard. There's also safety and environmental risks associated with working near power cables – for example, some cables are installed in asbestos conduits or troughing, and OCPs have been used in some trenches to avoid damage by termites.



## Be prepared. Wise words for safety at work.

Here are some simple precautions you and your workers need to follow in order to be as safe as possible.

- Keep a copy of the cable plan on site at all times and discuss this with your staff.
- Have a person trained in resuscitation and a first aid kit on site at all times.
- Wear protective clothing, including safety footwear and safety helmet if required.
- Have appropriate emergency contact numbers on site.
- Set up the appropriate safety barriers, witches hats and warning lights to reduce the risk of injury to the general public.
- Comply with all WorkCover requirements and codes.

## Site Manager = Safety Manager.

The site manager or supervisor is responsible for ensuring that all construction staff are fully aware and compliant with the necessary clearances from exposed live overhead conductors.

To ensure all work complies with environmental legislation and WorkCover requirements, you can refer to:

- **WorkCover Guidelines: Work Near Underground Assets; and**
- **WorkCover Codes of Practice: Excavation Work and Work Near Overhead Powerlines if applicable.**

## Before you start. Stop and look around.

Before you start any work, be sure to look for clues as to where cables might be located on the site: for example pits, distribution pillars (green or other colours), cables attached to the side of poles, street lights without overhead wires.

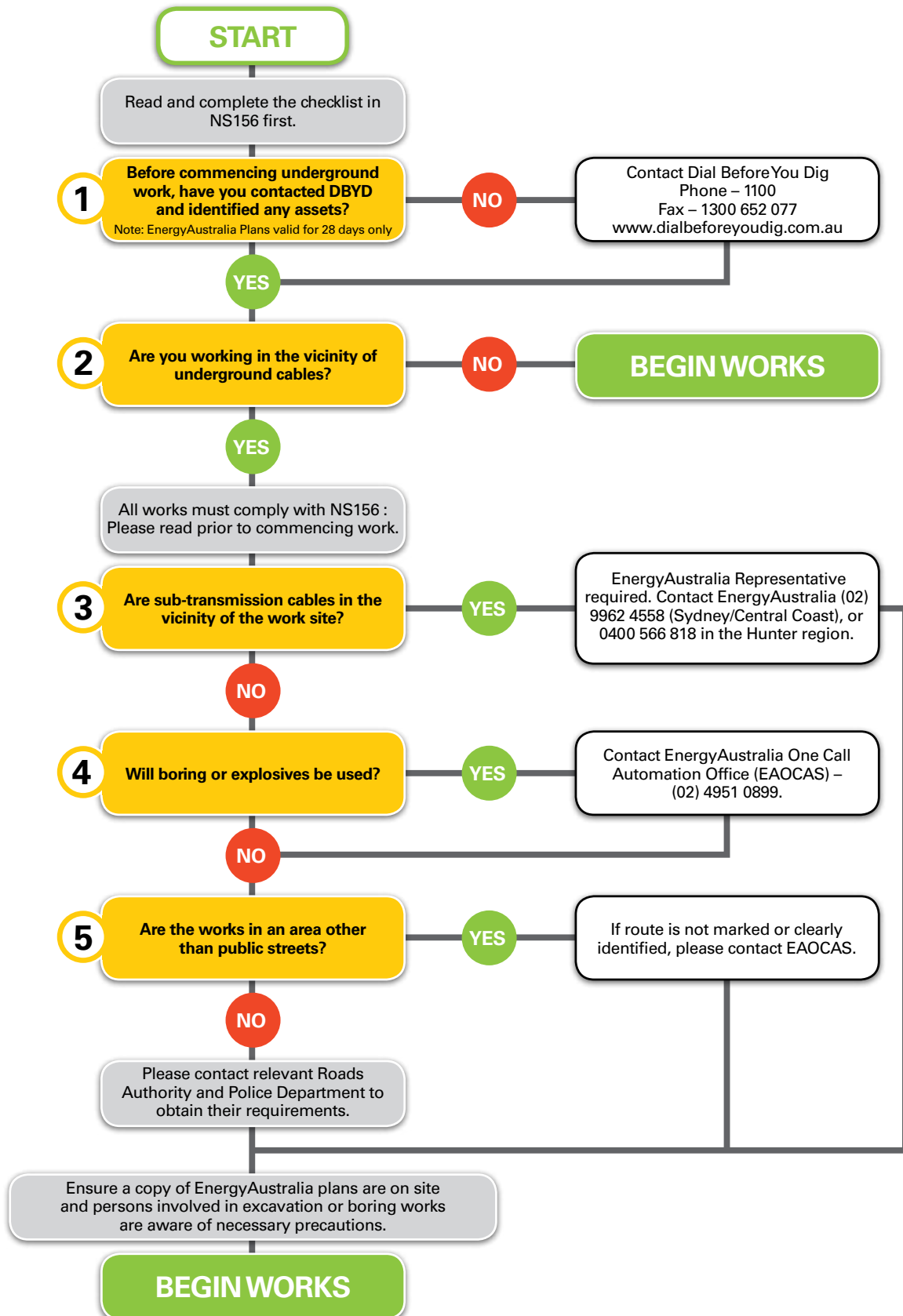
## It's safer with EnergyAustralia by your side.

When working near transmission cables you **MUST** arrange for EnergyAustralia to provide a representative on site during the works – see **NS156** for details including lead time to arrange the representative.

The attached flow chart includes contact numbers and further information. A checklist has also been provided (see over), to help you ensure you have taken all the appropriate precautions before working near power cables.



## Energy Wise Flow Chart for Work Near EnergyAustralia Cables



## EnergyAustralia Checklist for work near or around underground cables

It is the responsibility of the constructor to ensure that underground pits, ducts and cables are not damaged as a result of construction work. It is also your duty to protect your workers from harm or injury. This checklist is intended to be used as a guide to what Constructors should do to make sure they have satisfied the minimum requirements to minimise the damage to underground networks.

| PLANS, LOCATION and NOTIFICATIONS                                                                                                                                                                                                                                                                 | Completed |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|
| Have you obtained all relevant utilities plan by calling "1100" - Dial Before You Dig service? (Allow at least 5 working days for plans).                                                                                                                                                         |           |
| Have you examined the plans and assessed all possible impacts on EnergyAustralia's network?                                                                                                                                                                                                       |           |
| Do you have both Underground Distribution & Transmission Plans (if applicable), on site at all times?                                                                                                                                                                                             |           |
| Have all cables and conduits shown on the EnergyAustralia plans been located and marked on the ground?                                                                                                                                                                                            |           |
| If you are planning to use a bore, have you ensured that the equipment is calibrated?                                                                                                                                                                                                             |           |
| Have you obtained a current copy and understood the requirements of EnergyAustralia's Network Standard NS156 Working Near of Around Underground Cables?                                                                                                                                           |           |
| For a copy of NS156 phone the EnergyAustralia One Call Automation (EAOCAS) office at the number indicated on the response to your DBYD enquiry or visit: <a href="http://www.energy.com.au/energy/ea.nsf/Content/Network+Standards">www.energy.com.au/energy/ea.nsf/Content/Network+Standards</a> |           |
| <b>INSPECTION OF WORK BY ENERGYAUSTRALIA's REPRESENTATIVE</b>                                                                                                                                                                                                                                     |           |
| Where the proposed work is near or around* any sub-transmission cable, is the EnergyAustralia representative on site to observe the work and warn or stop works if they are performed in a manner which may endanger the cables or workers before you start?                                      |           |
| Where the proposed work is near or around* cable other than sub-transmission and/or conduits, are any requirements specified by EnergyAustralia's representative clearly understood and ready to be applied before you start the work?                                                            |           |
| <b>PROTECTION</b>                                                                                                                                                                                                                                                                                 |           |
| Have you checked that all people on-site have been made aware of the presence and location of ALL EnergyAustralia underground cables and/or conduits; especially boring, drilling and trenching machine operators?                                                                                |           |
| Have you checked for the presence of any asbestos or asbestos containing material in EnergyAustralia's underground network assets?                                                                                                                                                                |           |
| Have you checked for the presence of any Organo-Chloride Pesticides (OCP) in sub-transmission trenches?                                                                                                                                                                                           |           |
| Is the site supervisor monitoring all machine operators working near or around EnergyAustralia's underground cables and/or conduits?                                                                                                                                                              |           |
| Are the requirements specified by EnergyAustralia's representative being followed?                                                                                                                                                                                                                |           |
| Are EnergyAustralia's requirements in place for any exposed cables and/or conduits to be supported and protected?                                                                                                                                                                                 |           |
| Have you marked all exposed underground cables and/or conduits with flags that are clearly visible from within all machinery used on-site?                                                                                                                                                        |           |
| Have safety barriers, fencing or para-webbing been erected to protect staff and the public as well underground cables and/or conduits in areas that are at risk?                                                                                                                                  |           |

\*Refer to NS156.

## In the event of DAMAGE to EnergyAustralia's cable or conduits, call 13 13 88 immediately

It is your responsibility to protect EnergyAustralia's cables and conduits from damage and your Duty of Care to protect your workers from harm or injury.

Signed: \_\_\_\_\_ Date: \_\_\_\_ / \_\_\_\_ / \_\_\_\_  
Responsible person on site.

For more information call 13 15 35 or visit [energy.com.au](http://energy.com.au)





26 th February 2010

**Network and Technology**  
Integrated Network Planning

Richard Pawlak  
RPS HARPER SOMERS O'SULLIVAN  
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richard@rpshso.com.au

6/317 Hunter St  
Newcastle 2300  
**Telephone** (02) 49858420  
**Facsimile** (02) 4924 9212

Bruce.v.batten@team.telstra.com

**Re: Speers Point Quarry Re-zoning**

Dear Richard,

Based on the provided information relating to the proposed Speers Point Quarry development a review was undertaken of the area and nearby telecommunications infrastructure.

Telstra maintains existing network within and adjacent to the land marked for rezoning and development. This network is currently not sufficient to meet the likely demand of this development.

Telstra has no objection to the change of zoning of this land.

To accommodate the proposed development, the telecommunications network would require upgrade. The technology and services provided would be determined closer to the time of development commencement, depending on Telstra deployment policy and any negotiations based on a commercial agreement.

Telstra will require the protection of/relocation of its telecommunications infrastructure that may be impacted by activities on this site. To minimise risk of liability due to any damage, the Telstra 1100 Inquiry number should be contacted to obtain location of Telstra plant before commencement of construction work.

Further discussions regarding details for network expansion are strongly encouraged once detailed planning for the development is in progress.

Please note that Telstra reserves the right to change its decision in relation to network deployment within the development without prior notice.

Yours faithfully,

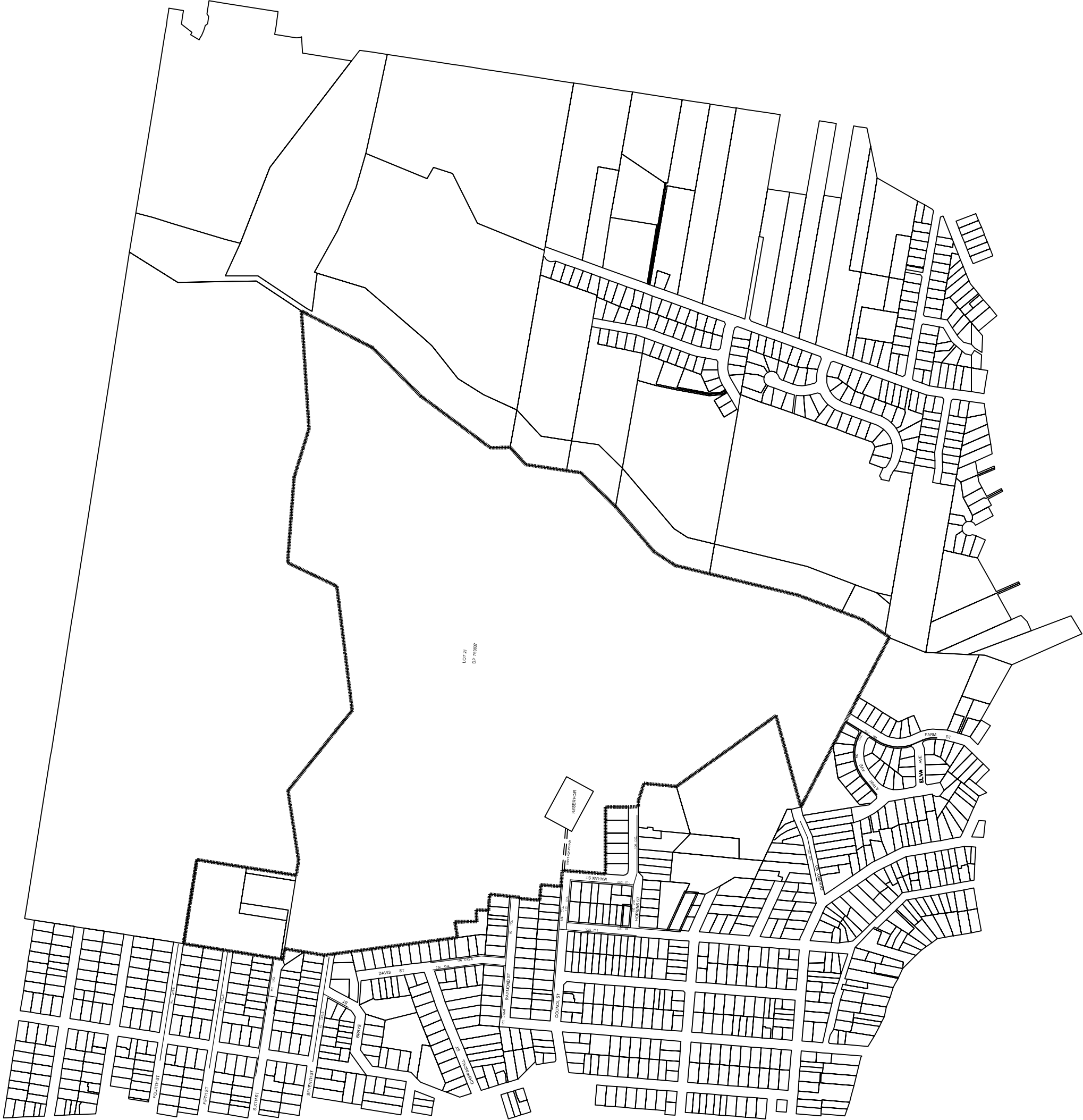
Bruce Batten  
Area Planner



## **APPENDIX 2**

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### **Water Infrastructure**

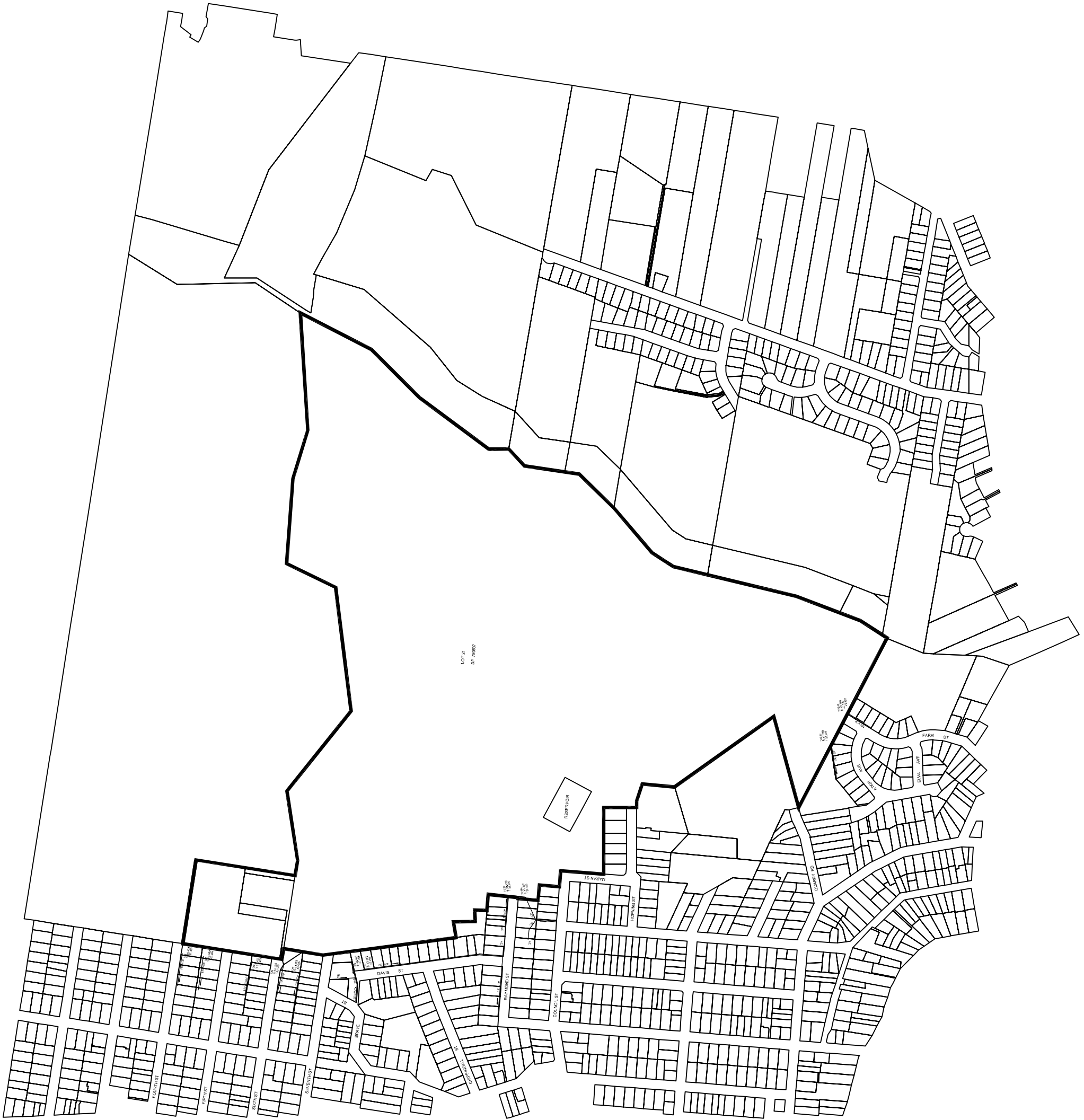




## **APPENDIX 3**

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### **Sewer Infrastructure**



0 50 100 200  
SCALE 1:4000 (A3)



## **APPENDIX 4**

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### **Electrical Infrastructure**





**WARNING**  
Energy Australia's plans, drawings, the location of its equipment have been prepared solely for the use of Energy Australia's customers. They are not to be used for any other purpose. Energy Australia does not accept any liability for any damage or loss arising from the use of its plans, drawings or equipment for any purpose other than that for which they were prepared. Energy Australia's plans, drawings and equipment are not to be used for any purpose other than that for which they were prepared. Energy Australia's plans, drawings and equipment are not to be used for any purpose other than that for which they were prepared. Energy Australia's plans, drawings and equipment are not to be used for any purpose other than that for which they were prepared.

|               |        |       |       |
|---------------|--------|-------|-------|
| EA (ISC) GRID |        | GRID  |       |
| IU823         | IU824  | 15204 | 15205 |
| IU825         | IU826  | 15206 | 15207 |
| IU827         | IU828  | 15208 | 15209 |
| IU829         | IU830  | 15210 | 15211 |
| IU831         | IU832  | 15212 | 15213 |
| IU833         | IU834  | 15214 | 15215 |
| IU835         | IU836  | 15216 | 15217 |
| IU837         | IU838  | 15218 | 15219 |
| IU839         | IU840  | 15220 | 15221 |
| IU841         | IU842  | 15222 | 15223 |
| IU843         | IU844  | 15224 | 15225 |
| IU845         | IU846  | 15226 | 15227 |
| IU847         | IU848  | 15228 | 15229 |
| IU849         | IU850  | 15230 | 15231 |
| IU851         | IU852  | 15232 | 15233 |
| IU853         | IU854  | 15234 | 15235 |
| IU855         | IU856  | 15236 | 15237 |
| IU857         | IU858  | 15238 | 15239 |
| IU859         | IU860  | 15240 | 15241 |
| IU861         | IU862  | 15242 | 15243 |
| IU863         | IU864  | 15244 | 15245 |
| IU865         | IU866  | 15246 | 15247 |
| IU867         | IU868  | 15248 | 15249 |
| IU869         | IU870  | 15250 | 15251 |
| IU871         | IU872  | 15252 | 15253 |
| IU873         | IU874  | 15254 | 15255 |
| IU875         | IU876  | 15256 | 15257 |
| IU877         | IU878  | 15258 | 15259 |
| IU879         | IU880  | 15260 | 15261 |
| IU881         | IU882  | 15262 | 15263 |
| IU883         | IU884  | 15264 | 15265 |
| IU885         | IU886  | 15266 | 15267 |
| IU887         | IU888  | 15268 | 15269 |
| IU889         | IU890  | 15270 | 15271 |
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| IU893         | IU894  | 15274 | 15275 |
| IU895         | IU896  | 15276 | 15277 |
| IU897         | IU898  | 15278 | 15279 |
| IU899         | IU900  | 15280 | 15281 |
| IU901         | IU902  | 15282 | 15283 |
| IU903         | IU904  | 15284 | 15285 |
| IU905         | IU906  | 15286 | 15287 |
| IU907         | IU908  | 15288 | 15289 |
| IU909         | IU910  | 15290 | 15291 |
| IU911         | IU912  | 15292 | 15293 |
| IU913         | IU914  | 15294 | 15295 |
| IU915         | IU916  | 15296 | 15297 |
| IU917         | IU918  | 15298 | 15299 |
| IU919         | IU920  | 15300 | 15301 |
| IU921         | IU922  | 15302 | 15303 |
| IU923         | IU924  | 15304 | 15305 |
| IU925         | IU926  | 15306 | 15307 |
| IU927         | IU928  | 15308 | 15309 |
| IU929         | IU930  | 15310 | 15311 |
| IU931         | IU932  | 15312 | 15313 |
| IU933         | IU934  | 15314 | 15315 |
| IU935         | IU936  | 15316 | 15317 |
| IU937         | IU938  | 15318 | 15319 |
| IU939         | IU940  | 15320 | 15321 |
| IU941         | IU942  | 15322 | 15323 |
| IU943         | IU944  | 15324 | 15325 |
| IU945         | IU946  | 15326 | 15327 |
| IU947         | IU948  | 15328 | 15329 |
| IU949         | IU950  | 15330 | 15331 |
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| IU957         | IU958  | 15338 | 15339 |
| IU959         | IU960  | 15340 | 15341 |
| IU961         | IU962  | 15342 | 15343 |
| IU963         | IU964  | 15344 | 15345 |
| IU965         | IU966  | 15346 | 15347 |
| IU967         | IU968  | 15348 | 15349 |
| IU969         | IU970  | 15350 | 15351 |
| IU971         | IU972  | 15352 | 15353 |
| IU973         | IU974  | 15354 | 15355 |
| IU975         | IU976  | 15356 | 15357 |
| IU977         | IU978  | 15358 | 15359 |
| IU979         | IU980  | 15360 | 15361 |
| IU981         | IU982  | 15362 | 15363 |
| IU983         | IU984  | 15364 | 15365 |
| IU985         | IU986  | 15366 | 15367 |
| IU987         | IU988  | 15368 | 15369 |
| IU989         | IU990  | 15370 | 15371 |
| IU991         | IU992  | 15372 | 15373 |
| IU993         | IU994  | 15374 | 15375 |
| IU995         | IU996  | 15376 | 15377 |
| IU997         | IU998  | 15378 | 15379 |
| IU999         | IU1000 | 15380 | 15381 |

**EA (ISC) GRID**  
Dist + Trans - 17842235  
2 Mar 2010  
Page 1 of 1  
SCALE 1:502 30 metres  
EnergyAustralia







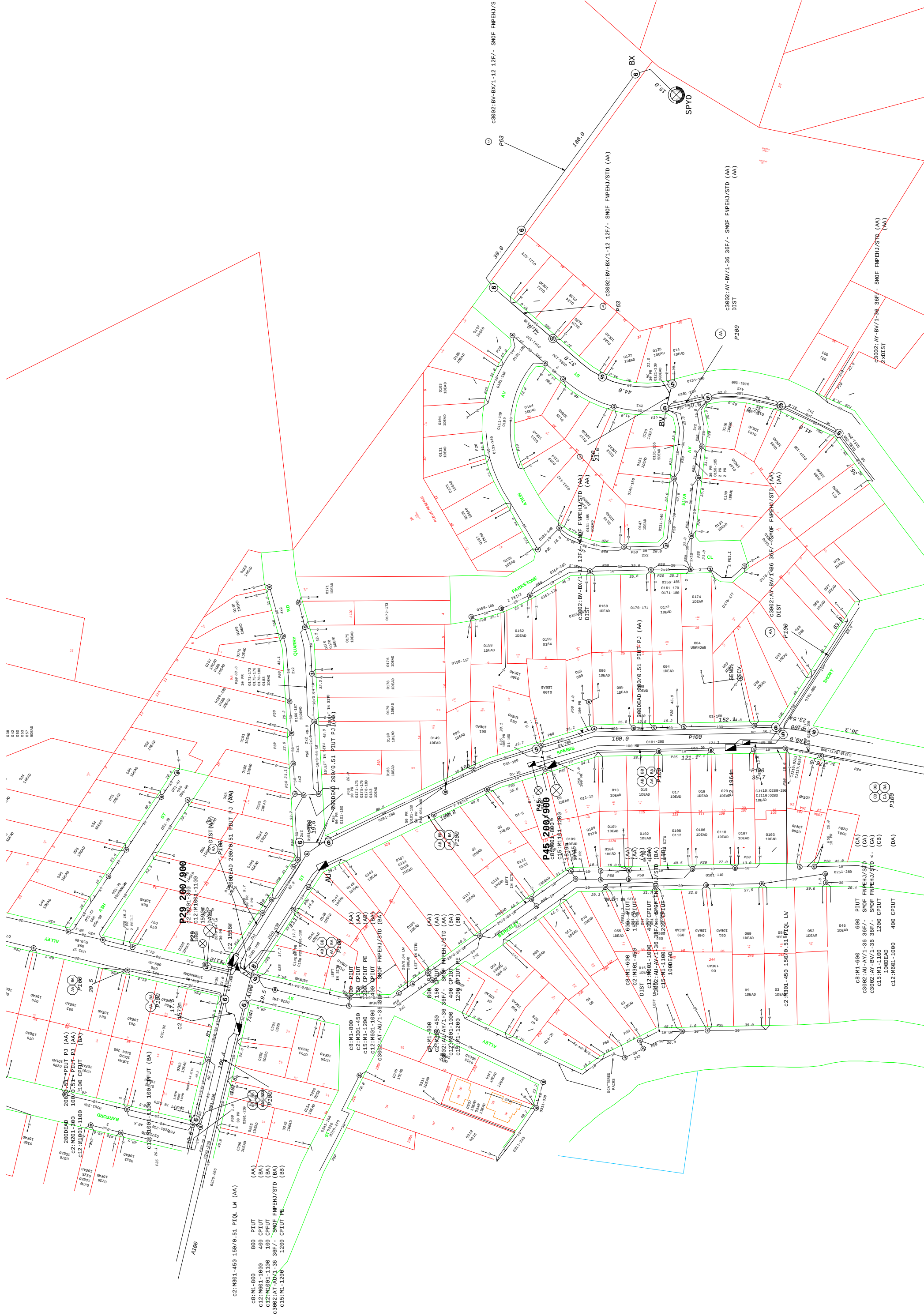


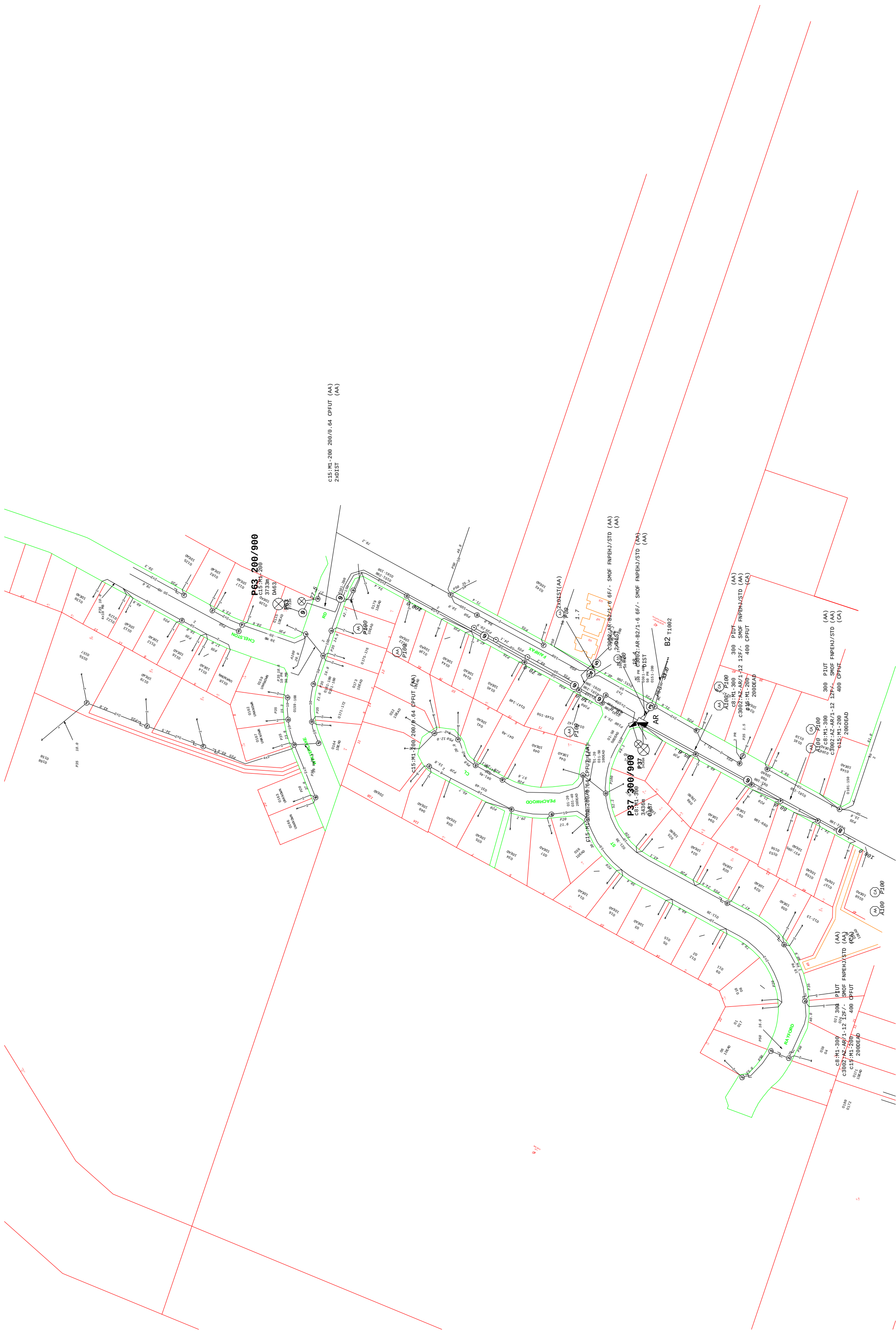
## **APPENDIX 5**

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### **Telecommunications Infrastructure**









## **APPENDIX 6**

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### **Gas Infrastructure**

WALLSEND  
8D



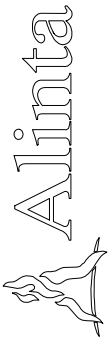
THIS MAP UPDATED ON 04/03/08  
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES  
SCALED FROM THIS PLAN MAY NOT BE ACCURATE.  
DATE ALTERED:..... BY:.....

|      |      |      |
|------|------|------|
| WS8A | WS8B | WS9A |
| WS8C | WS8D | WS9C |
| BM2A | BM2B | BM3A |

ADJOINING MAPS

|     |                   |
|-----|-------------------|
| 238 | LAKE<br>MACQUARIE |
|-----|-------------------|

NETWORK AREA MUNICIPALITY AREA



KEY - NEWCASTLE

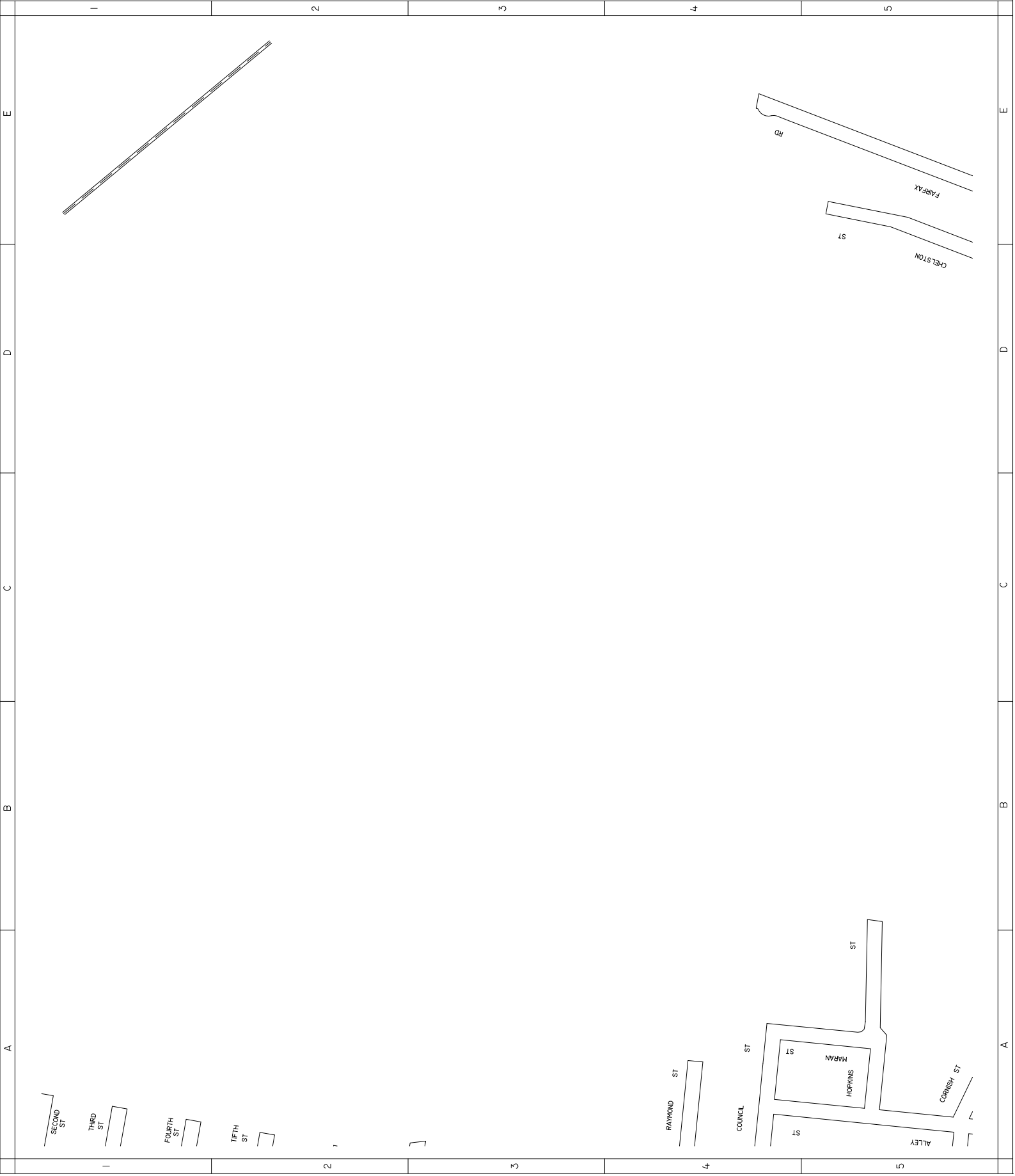
MAX ALLOWABLE OPERATING PRESSURE

|       |                |          |
|-------|----------------|----------|
| — T — | TRUNK MAIN     | 7000 kPa |
| — P — | PRIMARY MAIN   | 3500 kPa |
| — S — | SECONDARY MAIN | 1050 kPa |
| ---   |                | 300 kPa  |
| ---   |                | 20 kPa   |
| ---   |                | 30 kPa   |
| ---   |                | 2 kPa    |
| ---   |                | 400 kPa  |
| ---   |                | 100 kPa  |

PROPOSED MAINS

|           |                                   |
|-----------|-----------------------------------|
| PR 100 3  | STEEL MAIN PROJECT NUMBER         |
| ▲         | PRESSURE MONITORING STATION       |
| ▽         | VALVE                             |
| □         | SYSTEM PRESSURE REGULATOR         |
| ⊗         | SIPHON                            |
| ⊗         | NETWORK NODES                     |
| ⊗         | ITEM DETAIL SKETCH AVAILABLE      |
| ⊗         | VALVE NUMBER (OLD NUMBERING)      |
| ⊗         | 6 INCH CAST IRON MAIN             |
| ⊗         | 150MM STEEL MAIN                  |
| ⊗         | 100MM POLYETHYLENE/NYLON MAIN     |
| ⊗         | 50MM NYLON INSERTED INTO          |
| ⊗         | 60B MAIN CAST IRON MAIN           |
| ⊗         | DISTANCE IN METRES OF MAIN FROM   |
| ⊗         | BUILDING LINE (TOLERANCE OF 0.4M) |
| 1957      | YEAR LAID                         |
| — + + + — | MUNICIPALITY BOUNDARY             |
| — + + + — | NETWORK BOUNDARY                  |
| — + + + — | HOUSE NUMBER                      |

WALLSEND 8D



WALLSEND  
8B



THIS MAP UPDATED 08/2/05/95  
THIS PLAN IS DIAGRAMATIC ONLY. DISTANCES  
SCALED FROM THIS PLAN MAY NOT BE ACCURATE.  
DATE ALTERED..... BY.....

|      |      |      |
|------|------|------|
| WS5A | WS5D | WS6A |
| WS8A | WS8B | WS9A |
| WS8C | WS8D | WS9C |

ADJOINING MAPS

|            |                   |
|------------|-------------------|
| 233<br>238 | LAKE<br>MACQUARIE |
|------------|-------------------|

NETWORK AREA



KEY - NEWCASTLE

MAX ALLOWABLE OPERATING PRESSURE

|       |                |          |
|-------|----------------|----------|
| — T — | TRUNK MAIN     | 7000 kPa |
| — P — | PRIMARY MAIN   | 3500 kPa |
| — S — | SECONDARY MAIN | 1050 kPa |
| — — — | 300 kPa        |          |
| — — — | 210 kPa        |          |
| — — — | 30 kPa         |          |
| — — — | 2 kPa          |          |
| — — — | 400 kPa        |          |
| — — — | 100 kPa        |          |

PROPOSED MAINS

|          |                             |
|----------|-----------------------------|
| PR 1-2-3 | STEEL MAIN PROJECT NUMBER   |
| △        | PRESSURE MONITORING STATION |
| ▽        | VALVE                       |
| □        | SYSTEM PRESSURE REGULATOR   |
| ⊗        | SIPHON                      |

NETWORK NODES

ITEM DETAIL SKETCH AVAILABLE  
VALVE NUMBER (OLD NUMBERING)

6 INCH CAST IRON MAIN

150MM STEEL MAIN

100MM POLYETHYLENE/NYLON MAIN

50MM NYLON INSERTED INTO

60NB MAIN CAST IRON MAIN

DISTANCE IN METRES OF MAIN FROM

BUILDING LINE (TOLERANCE OF 0.4M)

YEAR LAID

MUNICIPALITY BOUNDARY

NETWORK BOUNDARY

HOUSE NUMBER

WALLSEND 8B