



BUILDING SERVICES

Gunnedah Redevelopment Project – Services Utility Report

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PREPARED FOR
Health Infrastructure (HINSW) ABN 89 600 377 397
1 Reserve Road
ST LEONARDS NSW 2065

Building Services Utility Report

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1. EXECUTIVE SUMMARY

1.1 General

The project scope is to redevelop Gunnedah Hospital in line with the current Clinical Services Plan (CSP) including the master planning and delivery of the following:

- Upgrade aging patient accommodation focused on improving the patient experience of care (including quality and satisfaction).
- Improve efficiency of service delivery
- Provide improved access and an environment that is culturally sensitive to the Aboriginal people to allow earlier diagnosis and management of the chronic conditions experienced by this group.
- Consideration of opportunities for innovative and sustainable infrastructure that delivers environmental and social outcomes (Including culture and heritage).

Existing utility infrastructures (electricity, communications) will be upgraded to cater for the development.

The existing electricity infrastructure is inadequate to cater for the proposed development. An upgraded power supply will be required with a new padmount substation, a new main switchboard along with new consumer mains.

As part of the early works, new Telstra and NBN lead-in cables will be established and terminated into a new equipment room.

Existing potable water supply will be retained. A new connection to existing watermain in Marquis Street is required to supply new sprinkler and hydrant systems. Due to limitations of the water supply tanks and pumps have been provided to supplement.

An existing Council sewer main crosses the southeast corner of the site (corner of Reservoir St & Anzac Pde) . However, the existing hospital drains to a Council sewer main in Marquis Street. It is proposed to connect the new building to the existing on-site sewer network.

2. Existing Authority's Services and Connections

2.1 Electrical Services

2.1.1 Power Supply

The existing site power supply is fed from a 315kVA pole mount transformer located in Reservoir Street.



Picture 1 – Pole mounted transformer located in Reservoir Street

2.1.2 Communications

The existing 30 pair Copper, 24 Core multimode and 12 Core Single mode Telstra optic fibre lead in cables enter the site from Marquis Street via conduit and pit networks and terminate into the main comms room located in the Administration Building.

2.2 Hydraulic and Fire Services

2.2.1 Potable Water Supply

The site is serviced from a 300mm Council watermain in Marquis Street and a 100mm watermain in Reservoir Street.

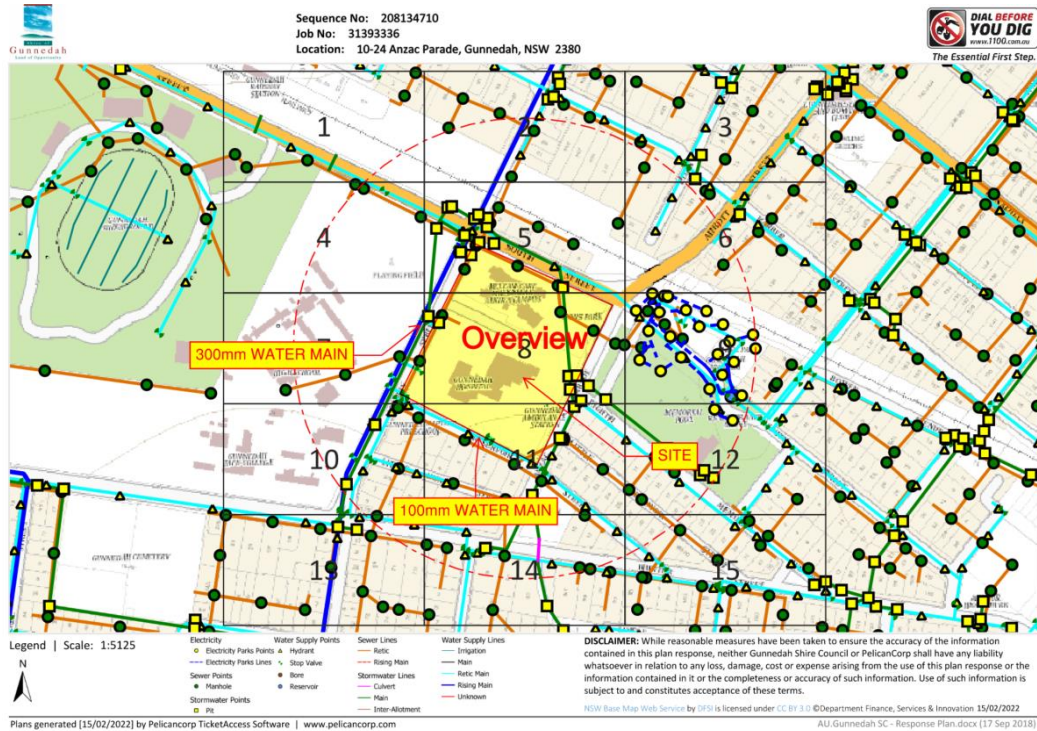


Figure 1 : Council Hydraulic Infrastructure Diagram

Flow and pressure tests were undertaken on both the 300mm and 100mm mains.

Hydrant System Flow Test Results at: Northrop Consulting Engineers Pty Ltd

Site #: _____ **Address:** _____

Date: 10/03/2022 **Driver 1:** _____ **kW**

Location: Gunnedah Hospital **Pump 1:** _____ **Imp:** _____ **mm**

Test Point: as per plan **Driver 2:** _____ **kW** **Tech:** M.Somerville

Test Device: Macrometer **Pump 2:** _____ **Imp:** _____ **mm**

Control Data		Reservoir Street 100mm		Marquis Street 300mm		System Demand Points	
Test Points	Flow Rate (l/sec)	Supply Pressure (kPa)	Discharge Pressure (kPa)	Discharge Pressure (kPa)	Engine RPM	Flow (l/sec)	Pressure (kPa)
1	0	625	675				
2	5	575	650				
3	10	500	600				
4	15	400	550				
5	20	250	475				
6	23	175	425				
7	32		275				
8							
9							
10							

Figure 2 : Flow and Pressure Test Results

The potable water supply to the site is fed from an 80mm water meter assembly and backflow prevention device located at the southwest corner of the site which is connected to the 300mm Council watermain in Marquis Street and the 100mm Council watermain in Reservoir Street for redundancy (the Rural Health Centre has its own independent water/fire connection).

2.2.2 Fire Hydrant Service Connections

There are two fire hydrant services connections to the site. One is connected to the 300mm Council watermain in Marquis Street to the west and the other is connected to the 100mm Council watermain in Reservoir Street to the south (the Rural Health Centre has its own independent water/fire connection).

2.2.3 Sewer Connection

Sewer drainage from the site discharges to the Council water supply to the site through a sewer manhole located in front of the Rural Health Centre along Marquis Street. The site shares its' sewer connection with the Rural Health Centre.

3. NEW WORKS

3.1 Electrical Services

3.1.1 General

Design and installation will be completed in accordance with National Construction Code (BCA) relevant Australian Standards, Essential Energy Guidelines and Health Infrastructure Engineering Services Guidelines and Design Guidance Notes.

3.1.2 Main power supply arrangement

It is anticipated that the proposed development maximum demand (with 20% spare capacity) will be in the order of 1100A/phase. Power supply of this magnitude will be fed from a dedicated padmount substation.

A new 1000kVA padmount substation will be provided for the hospital. The new substation will be positioned on the Reservoir Street carpark (subject to Essential Energy Approval). From the substation, 1100amp rated consumer mains cables will be reticulated and terminated on to a new main switchboard located in the existing main switch room.

The existing power supply will be retained during the construction period and will be decommissioned and removed after commissioning of the new substation.

The new building will incorporate power distribution network via new distribution boards and cable containment system.

3.1.3 Communication services

A new main comms room will be established as part of the early works.

New 30 pair copper, 24 Core multimode and 12 Core Single mode Telstra Optic fibre lead in cables will be terminated in the new communication room.

The new building will incorporate a structured cabling network including fibre and copper cabling infrastructures.

3.2 Hydraulic Services

3.2.1 General

Design and installation will be completed in accordance with National Construction Code series (BCA) relevant Australian Standards and Health Infrastructure Engineering Services Guidelines and Design Guidance Notes.

3.2.2 Sanitary Plumbing and Sewer Services

We will connect to and utilise existing sewer drainage on site where possible. The sewer drainage from the back of house areas currently travels north through the site of the proposed new building. This will be diverted outside the new building line in order to ensure continued operation of the back of house areas during the development works.

All new building works will incorporate new sewer network and connect into the existing site sewer network.

Sanitary plumbing and Sewer Services will be installed in compliance with AS3500.2.

3.2.3 Potable Water

The development will not see an increase capacity in demand on the existing infrastructure.

Given the size and nature of the facility it is not proposed to provide onsite water storage for potable water.

The existing Water services will be diverted and extended to serve the new facilities on site.

The existing water meter assembly and service will be adequate to service the new development works without need for upgrade.

The new building will incorporate a ring main at high level. From the ring main the cold-water service will then drop to feed the equipment fittings and fixtures as required. Groups of fixtures contained within a room will be provided with group isolation valves.

Backflow prevention i.e. RPZD assemblies will be provided as required to meet code requirements

Given the available mains pressure, pumps will not be required.

3.2.4 LP Gas Services

The existing two LP Tanks will be disconnected and removed from site as the proposed development works will see the site become fully electrified with PV offset.

3.3 Fire Services

3.3.1 Fire Hydrant System

A new fire hydrant system will be provided for the development in accordance with BCA 2022, AS2419.1-2021 and NSW Health Engineering Guideline. This will involve the provision of a new incoming supply for the fire hydrant service. It is proposed to connect to the existing 300mm Watermain in Marquis Street. A backflow prevention will be provided on the site boundary with the main booster assembly being located adjacent to the main vehicular entry of the site. The fire hydrant system to all buildings will comprise new external fire hydrants.

The location of the hydrants will form part of the final development fire engineering report (alternate solution)

Based on P&F Statement, presented in Figure 3, pumps are required for new hydrant system. In addition, as confirmed by the Council, a break tank is also required.

3.3.2 Fire Sprinkler System

A new fire sprinkler system will be provided for the development in accordance with BCA 2022, AS2118.1:2017 and NSW Health Engineering Guideline. This will involve the provision of a new incoming supply for the fire sprinkler system. It is proposed to connect to the existing 300mm Watermain in Marquis Street. A backflow prevention will be provided on the site boundary with the main booster assembly being located adjacent to the main vehicular entry of the site. The sprinkler system to all buildings will comprise new sprinkler alarm valves, main distribution pipe and sprinkler heads.

The sprinkler alarm valves shall be installed within a secure enclosure which has direct access to an open space.

Based on P&F Statement, presented in Figure 3, pump and tank are required for new sprinkler system.

3.3.3 Fire Extinguisher

Fire extinguishers will be provided in compliance with BCA 2022, AS2444:2001 and NSW Health Engineering Guideline. The compliant weather protection cover, signage and fixture shall be provided.

3.3.4 Fire Detection and Alarm System

A new fire detection and alarm system will be provided complying with BCA 2022, AS1670.1:2018 and NSW Health Engineering Guideline.

The main FIP will be provided near the main entrance and a sub FIP will be allocated for the existing buildings which protects those buildings during construction phase.

The mimic panels along with audio annunciation and visual alarm devices shall be provided in each staff station.

A new external strobe light will be provided to locate the building during fire when fire brigade approaches the building.

An Alarm Signaling Equipment (ASE) will send the confirmed fire alarm to FRNSW through a third-party monitoring system in accordance with AS1670.3.

The interfaces with other services including wet fire (sprinkler system), EWIS, mechanical, electrical, security and hydraulic will be provided.

Different type of detectors will be provided throughout depends on the rooms' purposes, geometry and layout.

3.3.5 Emergency Warning and Intercom System

A new Emergency Warning and Intercom System will be provided complying with BCA 2022, AS1670.4:2018 and NSW Health Engineering Guideline.

The main EWIS panel will be provided near the main entrance and a sub EWIS panel will be allocated for the existing buildings which protects those buildings during construction phase.

Surface mounted, recessed and horn speakers will be distributed throughout the buildings depend on ceiling type and room purposes.

WIP and Emergency Call points shall be provided in each emergency zone.

4. Authority Drawings

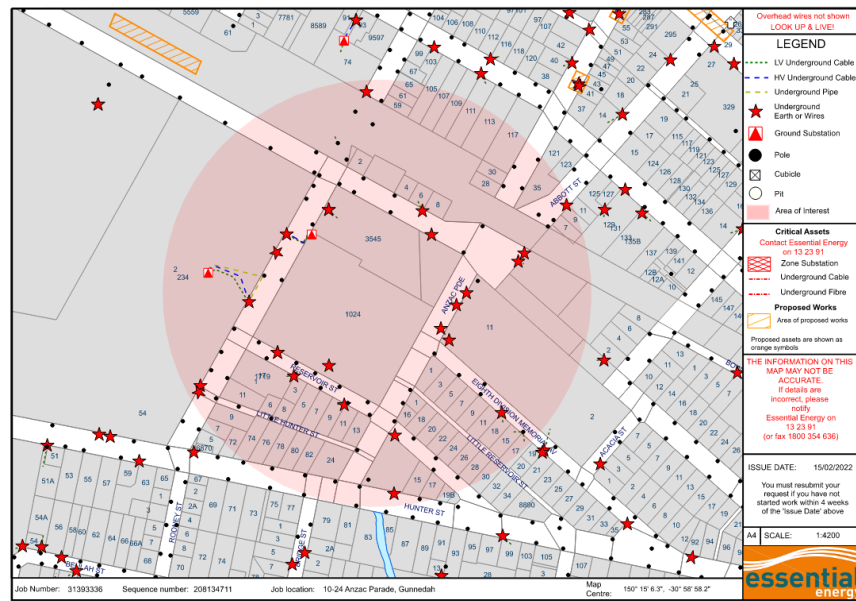


Figure 3: Electrical Services Infrastructure Diagram



Figure 4: Communications Services Infrastructure Diagram

5. Authority Correspondences

5.1 Supply Offer from Essential Energy



Application number: 57796900

19 April 2022

THE MANAGER
HEALTH ADMINISTRATION CORP
MARQUIS STREET
GUNNEDAH NSW 2380

Dear Sir/Madam

Application for a New Connection / Connection Alteration – NMI: NFFFNRKE216

Thank you for your recent application. Your application meets the conditions of our Model Standing Offer for **Low Voltage Standard Connection**.

Please be aware that augmentation and/or addition to the electricity network is required prior to making your connection. You are now required to engage the services of a Level 3 Accredited Service Provider. Additionally, please refer to <https://www.energysaver.nsw.gov.au/get-energy-smart/dealing-energy-providers/installing-or-altering-your-electricity-service> for further information.

APPROVAL/SITE SPECIFIC CONDITION(s): For the total load of this application please engage the services of a Level 3 Accredited Service Provider (ASP). Refer to <http://www.resourcesandenergy.nsw.gov.au/energy-consumers/energy-providers/electricity-connections> for further information.

The fee associated with processing a Standard Connection Offer will be a Connection Offer Service – Standard as per the Price Schedule for Ancillary Network Services located on our website at <https://www.essentialenergy.com.au/our-network/network-pricing-and-regulatory-reporting/network-pricing> and will be invoiced accordingly.

A copy of our Standing Offer is published on our website at www.essentialenergy.com.au/content/connection-offers-and-contracts. To accept our offer, please sign, date and return this letter to Essential Energy via email to connection.applications@essentialenergy.com.au.

If you do not complete and return this letter within 45 business days of the date of this letter, your offer will expire and you will be required to submit a new application for connection. When the signed letter is received by Essential Energy, we will send you a notification of receipt.

Please note that the application for connection submitted by you or your representative will act as the technical schedule to your contract. A link to the application was emailed to you after it was submitted.

Please note that your Accredited Service Provider must complete all required contestable network augmentation work in accordance with the *Operational Procedure CEOP 2015 – General Terms and Conditions for Contestable Work*. Electrical work cannot commence until this process has been completed.

Note for Councils: This connection offer does not replace the requirement for a Notice of Arrangement (NOA). An NOA should be obtained from Essential Energy prior to signing a sub-division certificate if it is a condition that power is to be made available to the subject lot.



Under the standard connection offer the installation must comply with the NSW Service and Installation Rules. Particular attention is drawn to the following requirements:

All NEW service mains in Rural or fire prone areas must be underground, even if the service mains are to be connected to an overhead distribution line. Please liaise with local Essential Energy Inspection staff for any variations from this requirement, as per SIR 1.12.4.

All electrical equipment is selected, installed, and operated so as to minimise or prevent adverse effects to the distribution system and other customers' installations connected to the distribution system and must comply with the SIR.

All motor starts are to be in accordance with 1.16.2.4 and Table 1.2 of the SIR.

All Installations must ensure that a satisfactory power factor is maintained at all times as per SIR 1.16.11.

For all new connections/alterations above 100 Amps, a 'Compliance Statement for Main Switchboards Greater than 100 Amps' is to be submitted using the following Standard Naming Convention: "Address_Customer Name_Submitting Company Name_Submission Version (Example - 2 Southern Cross Dr Ballina_ Marelex_V1". A copy of Essential Energy's 'Compliance Statement for Main Switchboards Greater than 100 Amps' can be found on the following website <https://engage.essentialenergy.com.au/ec>, please click on the more button under information.

You can access this and other relevant information relating to your new connection / connection alteration by visiting www.essentialenergy.com.au or by contacting 13 23 91.

Yours sincerely

Guy Rowlands
Customer Connections Supervisor

I hereby agree to be bound by the offer to provide standard connection services.

.....
Signed

.....
Title

.....
Name

Date:

DESIGN INFORMATION PACKAGE

FOR SITE REF: ST-0004937 MARQUIS STREET GUNNEDAH - Health Administration Corp

Design Information Issue Date: 05-09-2022

NORTHROP ENGINEERS PTY LTD

Level 11/345 George St
SYDNEY NSW 2000

Introduction

Thank you for your application requesting electrical reticulation design information for the proposed supply to Lot 3, DP 792209

Site Address: MARQUIS STREET
GUNNEDAH NSW 2380

Connection Applicant Name: ANNA MATTHEWS

General

1. The site reference ST-0004937 has been established and shall be used for all future reference and payment transactions.
2. The content of this Design Information Package has been compiled on the basis of certain conditions and restrictions. The designer shall incorporate these requirements within the electrical reticulation design prepared for presentation to Essential Energy.
3. The Design Information Package will be valid for a period of 180 days from the above date. If an updated package is required, submit a new request for Design Information.
4. Essential Energy is providing this information in good faith, to assist you to complete designs for certification. Essential Energy cannot and does not warrant the accuracy or completeness of the information and does not accept any liability for inaccuracies or lack of information. It is the responsibility of the applicant or Accredited Service Provider to independently confirm the accuracy or otherwise, of any information.

Connection Point & Specific Design Information

The regulatory category for the project is: **Commercial and Industrial Developments**

The nominated connection point on the network will be at Asset No: **Pole 97009272**

Connection Point Voltage: **22,000 Volts 3Ø**

Connection Contract

Connection Offer No.: 601490

Accepted date:

Existing Asset Details

The existing High Voltage Conductor is: 7/4.50 AAC

The existing Low Voltage Conductor is: LV ABC 4x150mm AL

The existing Substation is: **315 kVA 3Ø**

- Existing Substation HV Fuses are: **16 Amp K Type**
- Existing Substation LV Fuses are: **250 Amp Fuse**

New Asset Details

The Minimum size for the New HV conductor / cable required: **22kV 240mm 3 Core AL XLPE**

The Minimum size for the New LV conductor / cable required: **LV 240mm 4 Core AL XLPE**

The New Substation size required is: **1500 kVA 3Ø**

- New Substation HV Fuses are: **Circuit Breaker**
- New Substation LV Fuses are: **Circuit Breaker**

Refer to CEOS5099 – Distribution: Transformer Fusing

Pre-Allocation of Asset Labels are provided under a separate Asset Label Request. Please submit your Asset Label request through the portal.

Primary Tap setting

Primary Tap setting for this transformer is to be included on the drawing for certification.

The primary tap setting for this transformer: 22000/433/250

Earth Fault Protection Settings for Neutron Earthing Analysis

Site Asset Number: **New Substation Site**

Phase to Earth fault level at site (Amps): **1681**

X/R ratio at site: **3.22**

Number of interconnected Substations: **30**

Estimated number of connections per substation: **30**

SEF Active: **Yes**

Upstream protective device: **Circuit Breaker**

Site Specific Comments:

The application to provide supply to Lot 3, DP 792209 with a Commercial 1,419Amp Three Phase Supply has been assessed and the following site-specific design information is provided to enable a design to be developed.

- The information provided within this DIP is based on the concept plan and supporting documents within the application. Should the project requirements change the DIP will need to be re-issued.
- Upgrade substation 75-900069 from 315kVA to a 1.5MVA 3 way RMU.
- The 1st connection point will be at pole 97009272 with the LV UGOH interconnection in place or to re-supply the existing LV network. The 2nd connection point will be at pole 97009274.
- ASP is to verify at site how to re-configure the current HV/LV set-up, confirm the existing LV network and to confirm the 3-connected loads that are supplying from substation 75-900069.
- Replace HV/LV conductors if either side of pole 97009272 if the spans fall short. Standard conductors of same or greater current carrying capacity from EEs OH conductor list to be used.
- Any portion of a building that is within 3 metres of the pad sub is required to have a 2-hour rated fire rating. Windows or glass blocks are not permitted in this zone.

- If the customers from substation 75-900069 are different from the client and are supplied via underground, a pillar system is to be installed and OH LV interconnection from the new sub (N/O) is to be connected to the existing OH LV network.
- Where there is a requirement for multiple substations to be installed, a full easement allocation for each substation is required. Substations with an adjacent easement to another or a Substation that is within 3m of adjacent Substation, shall comply with Fire and Explosion Risk Management measures within AS2067.
- If required, the substation design must make provision for a retaining wall situated outside the nominated easement area. Satisfactory documentation or certification shall be provided to Essential Energy and the Local Council by the Developer. This is to be lodged as a Non-Standard Design Approval Request for consideration prior to the Design Submission.
- Where retaining walls are necessary, they must comply with the requirements of CEOM7098 2.14.8 Retaining Walls and 5.14.3 Substations & Switching Stations.
- The top of the Pad mount plinth (and switching station plinth) to be 600mm above the 1:100-year flood level in flood prone areas.
- A heavy truck with a vehicle mounted crane is needed to install or remove the pad sub for future maintenance. The access route needs to be a minimum of 4m wide and have a minimum of 5m headroom to allow the heavy truck to access the pad sub and operate the crane.
- Pad mount substations are required to be located such that they will not be subject to damage by vehicles. This must comply with the requirements of CEOM7098 2.14.15 Protection from Vehicles.
- An LV connection application confirming the required load shall be submitted prior to certification of the project. Please supply a copy of the LV connection offer with the design submission.
- Level 3 ASP to apply pole conditions / wall diameters as detailed in Smallworld to a suitable Design software program to ensure existing poles are compliant with AS7000 and Essential Energy's design and construction standards. Should any poles associated with the proposed works fail due to network augmentation the pole/s will need to be replaced.
- For evaluating the suitability of retaining existing poles for additional loads, a Strength Reduction Factor (ϕ) of up to 0.7 can be applied for existing preservative treated poles only. All new poles and existing natural round (untreated) poles shall use a Strength Reduction Factor of 0.5 as per Essential Energy Overhead Construction Manual drawing CEOM7101.03.
- Wind loads and drag coefficients shall correspond to the values shown in clause 3.5.6.8 – Table 3.5.6.8.2 (Regions A1-A7) and Table 3.5.6.8.3 (Region B) as applicable for a 50 Year Design Working Life and 200 Year Wind Return Period.
- Motor Start Requirements - Installation to comply with: AS/NZS 3000, AS/NZS 3008, VD requirements as per the Service & Installation Rules of New South Wales, Harmonics as per AS/NZS 61000.3.6 and/or AS/NZS 61000.3.7 and Handbook 264-2003 Power Quality. Please note that motors are not to be started simultaneously.

The nearest Essential Energy Depot is: **Gunnedah**

Project Funding to be displayed in DIP : **No**

Essential Energy's records indicate that there is not a pre-existing pioneer scheme attached to the infrastructure where you request a connection.

Ancillary Network Service (ANS) Charges

Compulsory network fees for this project are calculated in accordance with the Australian Energy Regulator (AER), Charges for Ancillary Network Services (ANS).

Your client is to be advised of any compulsory network fees that are applicable to this project.

Other fees that may be applied to this project are listed in the document titled 'Price Schedule for Ancillary Network Services that can be found at Essential Energy's website: (<http://www.essentialenergy.com.au/content/electricity-network-pricing-and-information>).

*** Note - ANS fees exclude GST and are subject to annual price increases in accordance with the National Regulatory Framework. Care should be taken to select the fee appropriate to this project type. Design**

certification fees will be based on the date of receipt of a complete and correct submission for certification. All other fees will be based on the work completion date. (eg. date of outage, commissioning, inspection).

GENERAL DESIGN INFORMATION

Design Standards

Applicable Essential Energy design standards include:

- CEOM7001 – Network Services – Design Construction Drawings,
- CEOM7097 – Overhead Design Manual,
- CEOM7098 – Underground Design Manual
- CECM1000.70 - Environmental Impact Assessment NSW
- CEOM5113.02 - High Voltage A.C. Distribution Earthing

Other applicable standards or regulations include:

- Work Health and Safety Act 2011 (NSW)
- Work Health and Safety Regulation 2011 (NSW)
- Electricity Supply Act 1995 (NSW)
- Environmental Planning and Assessment Act 1979 (NSW)
- AS/NZS 7000:2010 Overhead Line Design
- AS1158 : Road Lighting
- AS 2067: Power installations exceeding 1kV A.C.
- Energy Networks Association EG-0 Power System Earthing Guide.
- Appropriate WorkCover NSW standards, guides and directives.
- Appropriate Environmental Protection Authority of NSW standards, guides and directives.

Network Optimisation

The Level 3 ASP must ensure that the design is carried out in such a way as to optimise future network operating and maintenance costs rather than solely minimising initial connection costs. Consideration should be given to utilising or upgrading existing assets (eg. poles and transformers) where possible.

When assessing connection proposals, Essential Energy will use network optimisation considerations to determine which connection proposals are acceptable.

Other Services

The Level 3 ASP must carry out a Dial Before You Dig search and is responsible for ensuring that the design does not impact on other services, e.g. telecommunication, gas, water etc. DYBD information should be clearly shown on the design.

In the event the works or design needs to be varied, amended or rectified due to a conflict with other services, the Level 3 ASP is responsible for any subsequent redesign required.

The Level 3 ASP must also ensure that the design will not conflict with proposed services to be installed in conjunction with the development.

Materials

All materials specified in the design must comply with CEOM7004 – Materials Inventory: Contestability (Approved)

Non-standard materials may only be used with written permission from Essential Energy. Please submit requests to the Contestable Design & Certification department with full details justification and engineering certification where required.

All assets to be removed from the Essential Energy network within this project are to be nominated on the operational form CEOF 2098 and returned to the Essential Energy regional store located **Narrabri**. This requirement should be clearly noted on the project design.

Work Health and Safety

The Work Health and Safety Act 2011 (NSW) and the Work Health and Safety Regulation 2011 (NSW) assign significant responsibilities to designers, constructors and the person who commissions the works.

Regulation 295 of the Work Health and Safety Regulation 2011 requires a designer to provide a designer safety report to the person who commissioned the design. For the purpose of this legislation the connection applicant is the person who commissions the design and Essential Energy is the entity who will take ownership of the assets upon connection to the network.

A copy of the designer safety report must be included with every design or design amendment submitted to Essential Energy for certification.

At a minimum, the Designer Safety Report must include:

- a description of the purpose for which the plant or structure was designed;
- the results of any calculations, testing, analysis or examination;
- any conditions necessary to ensure that the plant, or structure is without risks to health and safety when used for a purpose for which it was designed, or when carrying out any activity related to the plant or structure such as construction, maintenance, and demolition.

The Designer Safety Report should be written with an appropriate level of detail to match the size and complexity of the project.

The Level 3 ASP should link or attach the Designer Safety Report to the design construction plans (and other relevant documents) to ensure the safety information contained within the report is considered by future parties who may work on the designed assets (e.g. during construction, maintenance, decommissioning, demolition etc. phases of the asset lifecycle).

Easements

The Level 3 ASP should consider easements requirements during the design route analysis.

The customer is responsible for all costs associated with the easement creation including solicitor fees, surveying costs and compensation payable to affected landowners.

Where easements are to be created outside of land to be subdivided, satisfactory arrangements must be in place prior to submitting a design package for certification. For further information, please refer to CEOP8046 Network Planning: Easement Requirements.

Easements over Crown land, Crown roads or waterways must be obtained by Essential Energy through the compulsory acquisition process, in accordance with the procedures set out in the Land Acquisition (Just Terms Compensation) Act 1991 (NSW). Please contact the Contestable Design & Certification team for further advice or go to the Easements area of the Essential Energy website which contains an information sheet for crown land easements.

Approvals

The Level 3 ASP must seek approvals from the local council, all road controlling authorities and any land occupier affected by the proposed electrical works. The Electricity Supply Act 1995 (NSW), State Environmental Planning Policy (Infrastructure) 2007 (NSW) and the Roads Act 1993 (NSW) have specific requirements in this regard.

In accordance with Section 45 of the Electricity Supply Act, notification of the proposed works must be given to the local council. The council is allowed up to 40 days to comment and the ASP required must duly consider all responses received.

In accordance with Regulation 42 of the State Environmental Planning Policy (Infrastructure) 2007, notification of proposed substations, or works on an existing substation, must be given to both the local council and to occupiers of all adjacent land. The council and adjacent land owners are allowed up to 21 days to comment. The Level 3 ASP must duly consider all responses received.

For works in, on or over a classified road, Section 138 of the Roads Act requires the proponent to obtain consent from the appropriate road controlling authority, and either consent, or concurrence from the RMS.

Copies of notices to the local council and occupiers of adjacent land, any comments received or a letter stating that no response was received, and any required consent letters are to be provided to Essential Energy with the certification package.

Copies of notices to the RMS (and other road controlling authorities where applicable) and the written consent received must be provided to Essential Energy with the certification package for any works on classified roads.

Design Certification

Please note the following information regarding design package submissions:

1. In addition to specific requirements outlined in aforementioned clauses, the design package shall be prepared in accordance with the technical design requirements as specified in Essential Energy's Design and Construction standards.
2. All relevant documents shall be submitted with the design for certification. (see Required Documents Schedule)
3. Essential Energy will carry out an initial review of the design package and issue certification of the design drawing to indicate that the package is compliant.
4. If it is found that the design package is not compliant with Essential Energy's technical or drawing standards, or specific design requirements, a rejection notice will be issued outlining the reasons for rejection. Design rechecking charges will be applied.
5. Certification will remain valid for a period of 6 months. If construction of the proposed works has not commenced before this period expires, the design package must be updated and re-submitted for certification prior to submission of the Notice to Commence Construction.

In certifying any design, Essential Energy makes no warranty, express or implied, that the design is:

1. Fit for its intended purpose
2. Suitable for the site conditions
3. Free of design defects (i.e. errors and omissions)

The Level 3 ASP (and Level 1 ASP at commencement of construction) acknowledges that Essential Energy has not inspected the site, and therefore, is unfamiliar with the site conditions.

Design certification is granted exclusively based on the submitted design with respect to the construction standards in force at the time. It has no reference to any underlying assumptions or conditions.

Responsibility for the correctness and suitability of the design remains with the Level 3 ASP after certification. Essential Energy will request the Level 3 ASP to correct any design defects discovered after certification is granted and resubmit the design package for certification. Design rechecking charges will be applied.

Environmental

Environmental Impact Assessment

An environmental impact assessment of the project will be required. The assessment is to be completed in accordance with Essential Energy's Environmental Impact Assessment (EIA) Policy CECM1000.70.

A completed *CEOF1070.01 Environmental Impact Assessment: Screening Worksheet*, and *CEOF1070.02 Review of Environmental Factors Worksheet*, must be submitted with design construction plans and other documents for certification by Essential Energy. An information *sheet CEOH1070.02a REF Worksheet: Information Sheet for use by Accredited Service Providers* is available in Essential Energy's online document library to assist ASPs with the completion of CEOF1070.02.

Please ensure ALL required supporting documentation such as threatened species searches, evidence of community consultation, and notifications to council are included.

Please note, Essential Energy is offering Environmental Impact Assessment training for Level 3 ASPs in early 2017. From 1 July, 2017, this training will be mandatory for any person that completing an EIA for a contestable works project.

Vegetation Management

CEOP2010 Vegetation Clearing Guidelines for New Power Lines outlines the requirements for the clearing of vegetation prior to the installation of new overhead and underground powerlines. The document details responsibilities of Level 3 ASPs in the preparation of their design.

If the project requires the clearing (or trimming) of vegetation, the Level 3 ASP must:

1. Ensure their EIA contains details of the required clearing and approvals for the work.
2. Prepare a Site Specific Vegetation Clearing Management Plan (SSVCMP).
3. Specify the width of the required Clearing Zone taking into account the minimum Clearing Zone dimensions (Section 3.2.5) and other factors such as conductor blowout.
4. Include a reference to the SSVCMP on the design construction plan.
5. Ensure the Level 1 ASP who will construct the project is provided a copy of the SSVCMP.

The SSVCMP plan must address all the issues identified in the Environment Impact Assessment. For example, site remediation to prevent the onset of erosion. A list of the minimum information to be included in SSVCMP is in Section 4 of CEOP2010. Essential Energy's certifying officer will assess the submitted EIA and SSVCMP prior to certifying the design.

Clearing works must not commence until design certification has occurred.

Substation Sites

Substations must comply with the requirements of Essential Energy standard construction drawings and design manuals. Level 3 ASPs are reminded of the following requirements:

General:

- Unimpeded access is to be provided for Essential Energy vehicles and staff to substation sites. All substations shall be placed in a location which allows access for a crane borer/erector.
- All padmount substations that are to be installed above the 1:100 year flood level for the local area. Evidence that this requirement is satisfied is to be obtained from the local council, and made available to Essential Energy.
- If an existing substation structure is being altered for any reason, then the structure is to be brought up to the current Essential Energy standards.

Earthing:

- All earthing shall comply with the Essential Energy's policy CEOM5113.02 High Voltage A.C. Distribution Earthing Procedure.
- All earthing designs shall be based on Essential Energy's distribution earthing design software package (Neutron). A copy of the Neutron software package is available on request through neutron@essentialenergy.com.au.
- Level 3 ASPs are required to print an Earthing Report from Neutron and submit it with the design construction drawings for certification.
- Full details of the earthing design must be included on the design drawing.
- Should the customer be upgrading an existing substation, then the suitability of the existing earthing should be assessed for compliance with the current standards. If the existing earthing does not comply, it must be upgraded accordingly.

Voltage Drop Calculations

Where the design requires and alteration to the load on a Low Voltage circuit the Voltage Drop shall be determined using 'LVDROP' software (Version 5.48 or later). CEOM7097 and CEOM7098 provide detailed information on

LVDROP's parameter settings, appropriate load allowances for different development types, and the maximum allowable voltage drop in an LV circuit.

An LVDROP report should be submitted with the design for certification where applicable.

Street Lighting

For projects containing public street lighting, the Level 3 ASP must include a completed CEOF6127 – Public Lighting: Installation and Connection Consent in their design package submitted for certification. CEOF6127 must be signed by an authorised officer of the local council.

CEOF6127 formalises council's agreement:

- That the street lighting design must comply with AS1158.
- To pay annual charges for the lighting applicable from the date of energisation.
- To any other project specific requirements.

The requirement to submit CEOF6127 applies to both new lighting and upgrades of existing lighting.

Preventing Interference to Other Network Customers

Level 3 ASPs must be aware:

All motor starting must comply with the NSW Service and Installation Rules. Motors will require an approved form of reduced current starting, and motor re-starting to be delayed or non-automatic (manual) following a power outage.

Large motors, arc furnaces, rectifiers (e.g. welders), large inverters, single phase to three phase converters, x-ray machines etc. can degrade the power quality at the customer's own installation and cause adverse effects to the supply of other customers and to Essential Energy's equipment e.g. interference with the frequency injection signal.

The effects from such equipment on power quality may include:

- Voltage sags and swells;
- Harmonics & Inter-harmonics;
- Voltage fluctuations;
- Voltage unbalance;
- Impulsive and oscillatory transients;
- Notching.

Any new load must comply with the relevant Australian Standards, NSW Service and Installation Rules and the Electricity Supply Act 1995 to prevent interference to other customers and electrical equipment.

Level 3 ASPs must notify Essential Energy if it is determined that the customer's load is likely to cause interference to Essential Energy's network.

Entry into Private Property

Only an authorised officer of Essential Energy may exercise Notice of Entry powers described in the NSW Electricity Supply Act 1995.

Level 3 ASPs providing contestable design services are not authorised officers of Essential Energy.

During a design investigation, the Level 3 ASP and/or their customer, must obtain the land owner or occupier consent to enter the land and carry out surveying and design related tasks.

Please ensure the following mandatory Schedule of Documents are included with your Design Certification Request' should you proceed to submit a Design Certification Request:

- ☒Electrical Plan For Certification (in pdf and dwg format)
- ☐LV DROP Calculations/Report
- ☒Profile Design Report and Tip Load Calculations
- ☒Neutron Earthing Report
- ☒Designer Safety Report
- ☐Vegetation Clearing Management Plan
- ☒Evidence of Easement Creation or Deed of Agreement
- ☐RMS/Other Authority Notification
- ☐RMS/Other Authority Consent
- ☒CEOF9082 - Customer Funded Project - Consent Form
- ☒CEOF9093 - Consent Form - Schedule of Works Required
- ☐CEOF6127 - Public Lighting - Installation and Connection Consent
- ☒CEOF6283 - Contestable Works - Pioneer Scheme Application
- ☐CEOF1070-01 - Environmental Impact Assessment - Screening Worksheet
- ☒CEOF1070.02 - Review of Environmental Factors Worksheet
- ☒CEOF2098 - Company Form (Network) Returned Redundant Materials Check List
- ☒AHIMS Report
- ☒Flora/Fauna Search Results
- ☒Dial Before You Dig (DBYD) Report/Reference Number
- ☒Enhancement Letters
- ☒Section 45 Notifications
- ☒Section 45 Responses

List of attachments:

- ☒Smallworld
- ☒PowerOn
- ☒Pole Data
- ☒Environmental Report

Environmental Report

Officer: j baker

Date/time: 25/08/2022 11:00 AM

Searched Datasets

Acid Sulphate Planning:	0
Acid Sulphate Soil Map:	1
Aquatic:	0
Atlas of Fauna:	4
Atlas of Flora:	0
RFS-LGA Fire Zone:	0
Conduit:	0
Contaminated Site:	0
Cubicle:	0
Disconnecting Link:	0
Forest Management Zone:	0
Fuse - O/H:	0
Land Council Area:	1
LEP:	6
LEP Clause:	0
Mangrove:	0
Marine Park:	0
Mine Subsidence Area:	0
Naturally Occurring Asbestos:	0
NSW Heritage Register:	0
Review of Environmental Factors:	0
REP:	0
National Park Area:	0
Salt Air:	0
SEPP:	0
SL Control Box:	0
State Forest:	0
State Forest Management Areas:	1
State Forest Section 15:	0
State Forest Section 7:	0
Substation Site:	0
Timber Reserves:	0
Water Catchment Area:	1
Wetland:	0

Acid Sulphate Soil Map

Id	Tag	Probability	Landform Process	Landform Element	Elevation	Additional	Perimeter	Area
940711	Cn(p4)	C	sulfidic material	ASS in inland lakes,	n	p	201.777 km	526.140 km²

Atlas of Fauna

Id	Common Name	Family Name	Class Name	Scientific Name	Abundance	Accuracy	Exotic	First Date	Last Date	Legal Stat	Source	Sight Key	Pole Label	Pole Dist
24127845	Koala	Phascolarctidae	Mammalia	Phascolarctos cinereus		10000	No	01/07/2004	30/06/2006	Vulnerable, Protected	Sighting	WS-34880	97008746	193.201318335
24127481	Koala	Phascolarctidae	Mammalia	Phascolarctos cinereus		10000	No	01/07/2004	30/06/2006	Vulnerable, Protected	Sighting	WS-33124	97009287	183.985631911
24127482	Koala	Phascolarctidae	Mammalia	Phascolarctos cinereus		10000	No	01/01/1980	30/06/2004	Vulnerable, Protected	Sighting	WS-33125	97009287	183.985631911
24125152	Koala	Phascolarctidae	Mammalia	Phascolarctos cinereus	1	10000	No	01/07/2004	30/06/2006	Vulnerable, Protected	Sighting	WS-01286	97009272	179.383802615

Land Council Area

Name
RED CHIEF

LEP

ID	LEP Name	LGA Name	LGA Code	Plan Description	Zone No	Current Date	Supply Date	Published Date	Commencement Date
475190	LEP Load Area						17/12/2017		
416777	Gunnedah Local Environmental Plan 2012	GUNNEDAH	3550	Low Density Residential	R2	06/05/2016	17/12/2017	29/06/2012	29/06/2012
415889	Gunnedah Local Environmental Plan 2012	GUNNEDAH	3550	Medium Density Residential	R3	06/05/2016	17/12/2017	29/06/2012	29/06/2012
415899	Gunnedah	GUNNEDAH	3550	Medium	R3	06/05/2016	17/12/2017	29/06/2012	29/06/2012

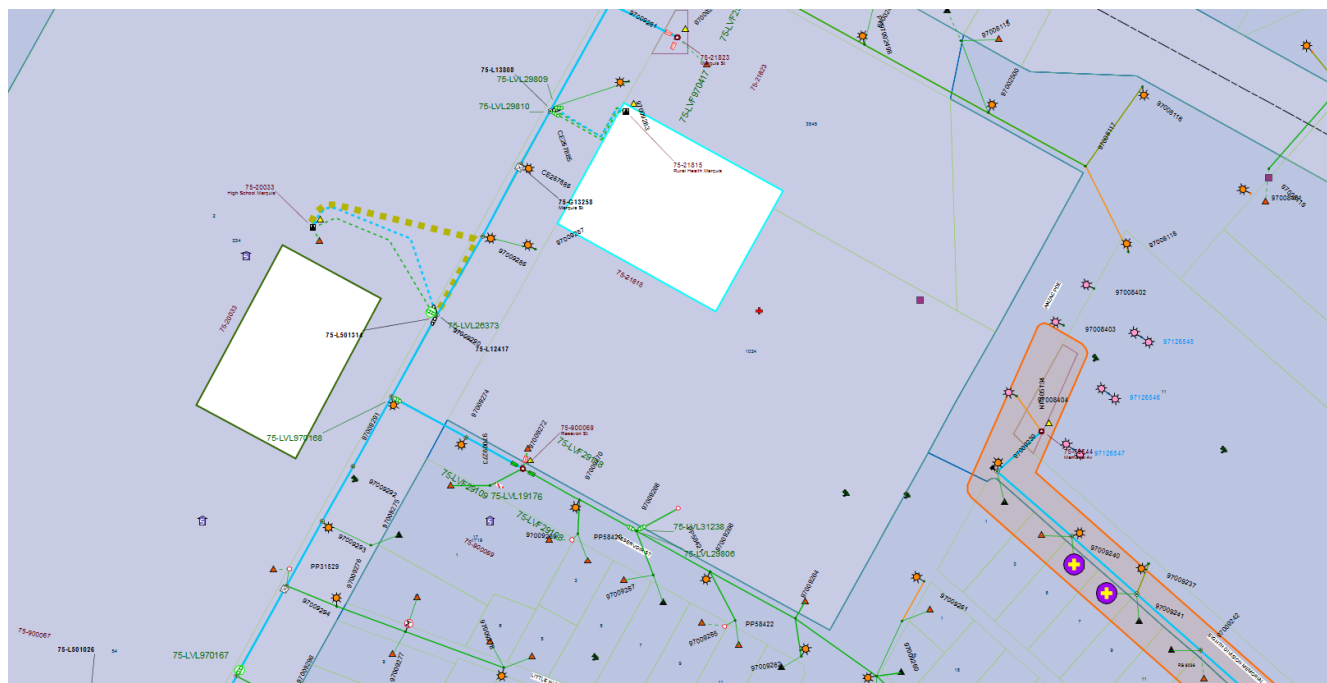
	Local Environmen tal Plan 2012	H		Density Residential					
415779	Gunnedah Local Environmen tal Plan 2012	GUNNEDA H	3550	Public Recreation	RE1	06/05/2016	17/12/2017	29/06/2012	29/06/2012
415904	Gunnedah Local Environmen tal Plan 2012	GUNNEDA H	3550	Public Recreation	RE1	06/05/2016	17/12/2017	29/06/2012	29/06/2012

State Forest Management Areas

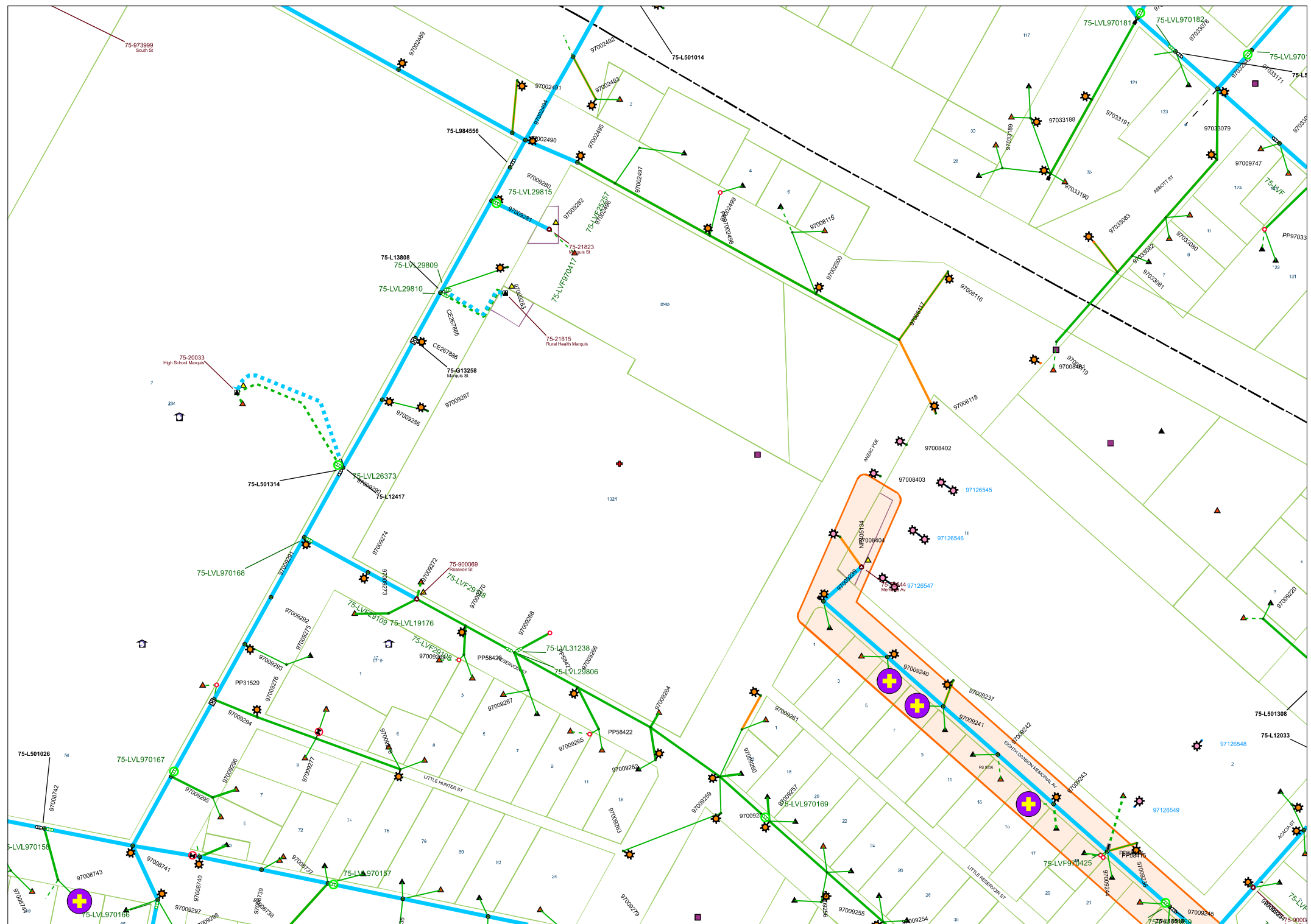
ID	Management Area ID
868	28

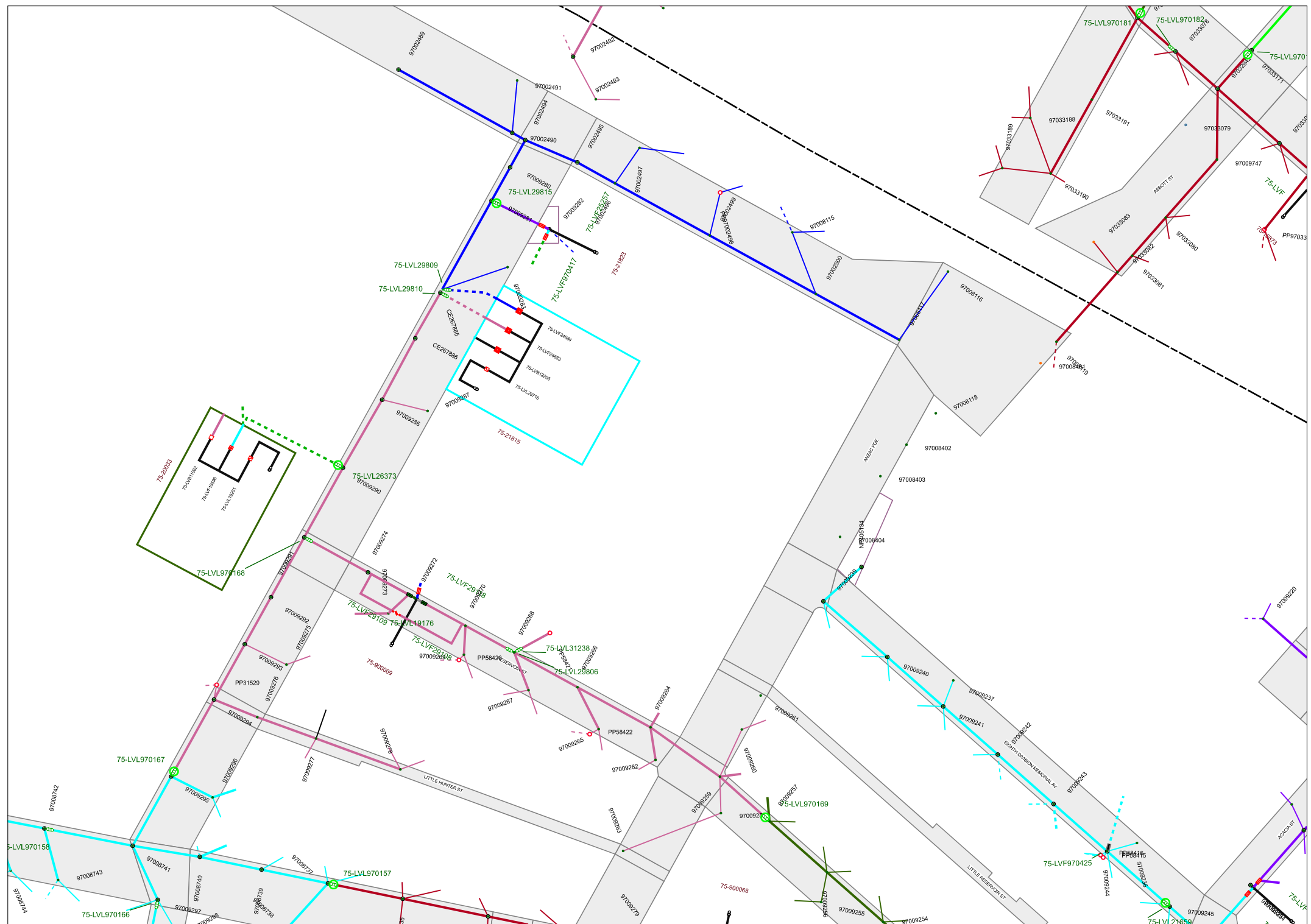
Water Catchment Area

ID	CMA Name	CMA No	Perimeter	Area
175	NAMOI RIVER	19	1355.968 km	39581.863 km ²



Asset Label	AG Diameter	Conductor Code	CZ Diameter	Footing Type	Pole Condition	Pole Length	Pole Material	Pole Strength	Pole Type	Reinforcement	Safety Factor	Wall Thickness
97009283	310	Unknown	310	Normal	Serviceable - As New	12.5	Timber	4	Copper Chrome Arsenic(CCA)	None	4.00	155
97009290	350	Dog 6/0.186+7/0.062 ACSR/GZ (BS215)	350	Normal	Serviceable - As New	12.5	Timber	8	Copper Chrome Arsenic(CCA)	None	4.00	175
97009291	300	Mercury 7/4.50 AAC/1350	300	Grit / Metal Dust	Serviceable - As New	12.5	Timber	6	Copper Chrome Arsenic(CCA)	None	4.00	150
CE267885	380	Dog 6/0.186+7/0.062 ACSR/GZ (BS215)	380	Normal	Serviceable - As New	14	Timber	8	Copper Chrome Arsenic(CCA)	None	4.00	190
CE267886	320	Mercury 7/4.50 AAC/1350	320	Normal	Serviceable - As New	12.5	Timber	6	Copper Chrome Arsenic(CCA)	None	4.00	160
97009286	250	Dog 6/0.186+7/0.062 ACSR/GZ (BS215)	250	Normal	Serviceable - Good	12.5	Timber	4	Pressure Impregnated(PI)	None	4	125
97009287	260	Unknown	260	Normal	Serviceable - Good	11	Timber	4	Pigment Emulsified Creosote	None	4	130
97009274	310	Mercury 7/4.50 AAC/1350	300	Normal	Serviceable - As New	12.5	Timber	4	Copper Chrome Arsenic(CCA)	None	4.00	150
97009272	400	Mercury 7/4.50 AAC/1350	380	Grit / Metal Dust	Serviceable - As New	12.5	Timber	12	Copper Chrome Arsenic(CCA)	None	4.00	190
97009270	290	LV 150mm 4C ABC	290	Grit / Metal Dust	Serviceable - As New	11	Timber	6	Copper Chrome Arsenic(CCA)	None	4.00	145
97009269	280	LV 25mm 2C ABC	280	Normal	Serviceable - Good	11	Timber	4	Pigment Emulsified Creosote	None	4	140
PP58420		LV 25mm 4C ABC		Concrete - Below Ground	Serviceable - As New	5	Steel (Column)	Unknown	Tubular	None		
97009273	270	LV 25mm 4C ABC	270	Grit / Metal Dust	Serviceable - As New	11	Timber	4	Copper Chrome Arsenic(CCA)	None	4.00	135
97009268	310	LV 25mm 4C ABC	310	Grit / Metal Dust	Serviceable - As New	11	Timber	6	Copper Chrome Arsenic(CCA)	None	4.00	155
PP58421		LV 25mm 4C ABC		Concrete - Ground Level	Serviceable - Good	5	Steel (Column)	Unknown	Tubular	None		
97009266	320	LV 25mm 4C ABC	290	Grit / Metal Dust	Serviceable - As New	11	Timber	6	Copper Chrome Arsenic(CCA)	None	4.00	145
97009267	300	LV 25mm 2C ABC	290	Grit / Metal Dust	Serviceable - As New	11	Timber	6	Copper Chrome Arsenic(CCA)	None	4.00	145
PP58422		Unknown Twisted		Concrete - Below Ground	Serviceable - Good	5	Steel (Column)	Unknown	Tubular	None		
97009265	320	LV 25mm 2C ABC	310	Grit / Metal Dust	Serviceable - As New	11	Timber	6	Copper Chrome Arsenic(CCA)	None	4.00	155
97009264	330	LV 25mm 4C ABC	280	Grit / Metal Dust	Serviceable - As New	11	Timber	6	Copper Chrome Arsenic(CCA)	None	4.00	140
97009262	320	LV 25mm 2C ABC	320	Grit / Metal Dust	Serviceable - Good	11	Timber	6	Copper Chrome Arsenic(CCA)	None	4.00	160
97009292	220	Dog 6/0.186+7/0.062 ACSR/GZ (BS215)	220	Normal	Serviceable - Good	11	Timber	4	Natural Round	None	4	110





ZONE - GUNNEDAH
FEEDER - GUNNEDAH CBD
GDH8B9 M60

