



LOWER HUNTER LAND DEVELOPMENT

Concept Plan Infrastructure Report
Minmi / Link Rd

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LOWER HUNTER LAND DEVELOPMENT CONCEPT PLAN INFRASTRUCTURE REPORT- MINMI/LINK RD

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- APPENDIX D PROPOSED SUBDIVISION PLAN**

1. INTRODUCTION

This engineering report has been prepared to supplement the Concept Plan Application to the Department of Planning for Coal & Allied's Minmi / Link Rd development. This report addresses the existing and proposed infrastructure required to service the development and the strategic plans governing and guiding development. This report should be read in conjunction with the accompanying Concept Plan Application prepared by Urbis and the Drawings appended to this report.

The Concept Plan for the Minmi / Link Rd development seeks to gain approval for the development of 3,300 residential lots over an area of 520 ha. The development site is located in two Local Government Areas (LGA), Newcastle LGA and Lake Macquarie LGA. The development site comprises land located either side of the Newcastle Link Rd. A locality map showing the site in a sub-regional context is contained in Figure 1 below.

The following infrastructure elements have been addressed within this report:

- Sewer
- Water
- Electricity
- Gas and
- Telecommunications.

In relation to the utility infrastructure addressed above, the report addresses the following key issues:

- Existing infrastructure
- Proposed infrastructure
- Consultation undertaken
- Contributions payable (applicable only for water and sewer)
- Infrastructure staging

Separate reports have been prepared by other consultants addressing engineering and infrastructure topics, these include: traffic and transport, stormwater and hydrology, social infrastructure, geotechnical and mining.

A report has been prepared by Ensign titled, "Ecologically Sustainable Development Report for Minmi" which details technologies which can be used to provide sustainable services in relation to infrastructure.



Figure 1: Development site location and context

2. STRATEGIC PLANS

There are a number of strategic documents relating to infrastructure in the Minmi / Link Rd development area, they include:

- The Lower Hunter Regional Strategy
- The Newcastle – Lake Macquarie Western Corridor Planning Strategy
- Hunter Water's "Statement of Corporate Intent" and
- Energy Australia's Annual Report.

The over-arching strategic document for Minmi / Link Rd is the Lower Hunter Regional Strategy (LHRS). The LHRS sets out the objectives for the region and the key constraints and drivers to development. Appended to the Strategy is a list of key infrastructure which is planned to support the anticipated development of the region.

The Newcastle – Lake Macquarie Western Corridor Planning Strategy (June 2006) land from Beresfield to Killingworth, including Minmi. The strategy sets out planning and development principles as well as infrastructure provision.

Hunter Water is currently responsible for water and sewer infrastructure in the area. Hunter Water's 'Statement of Corporate Intent' sets out the Corporations objectives, strategic directions and capital works program.

Energy Australia lists upcoming major capital works projects on its website (www.energyaustralia.com.au). Detailed information on recent and upcoming capital works projects can be found in the annual 'Investing For Future Generations' report. Energy Australia's vision is encapsulated in their document entitled, 'The Way Ahead 2005/06 to 2009/10'. The vision document lists key targets for 2005/06 and for 2009/10 under the key headings of 'Our Customers', 'Our People', 'Our Environment' and 'Our Shareholders'.

No specific strategic plans were identified for Telstra or Alinta in relation to gas and telecommunications infrastructure.

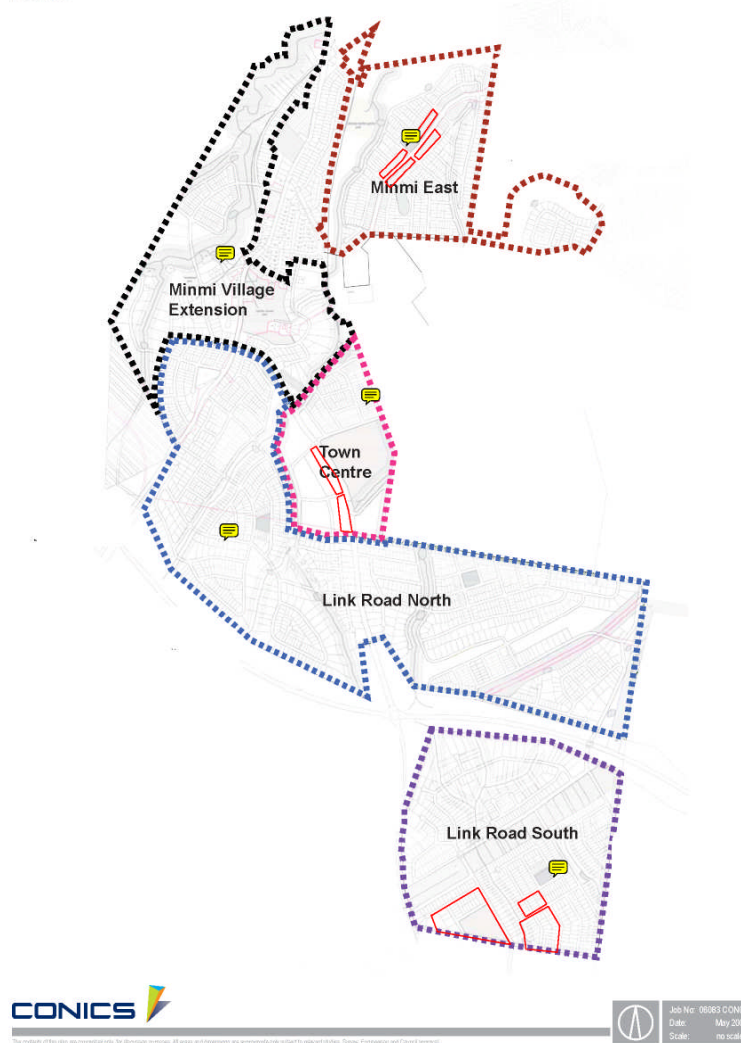
The findings of this report are consistent with the strategic documents outlined above.

3. DEVELOPMENT STAGING

The proposed order of development is as follows:

1. Minmi East
2. Link Rd South
3. Minmi Village Extension and Town Centre
4. Link Rd North

minmi & link road
Precincts



The development precincts are indicated in larger scale on the Proposed Subdivision Plan in Appendix D.

The upgrade of Woodford Rd and the construction of Minmi Boulevard would likely proceed before the construction of Link Rd North to facilitate traffic connections and the provision of trunk infrastructure.

4. SEWER

4.1 Existing and Proposed Infrastructure

The existing developed areas of Minmi drain to the Shortland Sewer Treatment Plant (STP), the carrier main follows the southern edge of the Hexham swamps and links to Shortland via a series of sewer pump stations (SPS) through Maryland.

The development area is located within two sewer catchments, the northern parts of the site will drain to the Shortland STP, while the southern catchment will drain to the Edgeworth STP.

There are upgrade works planned for both STP's; Edgeworth in 2010 and Shortland in 2013. Despite the programmed upgrades, Hunter Water has advised that existing infrastructure has not been designed to cater for loads from the proposed development. As a result, there will need to be upgrades of existing assets and/or the construction of new pump station(s) to cater for the additional demand provided by the development.

A detailed Sewer Servicing Strategy for the site will be prepared in consultation with Hunter Water to determine the optimal servicing arrangement for the site. In addition to assessing upgrade works external to the site, the Servicing Strategy will also consider various options for sewage conveyance within the site to determine the optimal servicing method. Given the topography of the site, non-standard servicing methods (for example low pressure sewer) may be the preferred method on economic and environmental grounds.

Hunter Water has advised that the existing Maryland 2 WWPS has capacity to service approximately 400 additional lots before requiring upgrade. It is noted that the Minmi East Precinct includes approximately 600 lots. Thus it is likely that a portion of this Precinct could be serviced before upgrade is required.

The drawings in Appendix B indicate a possible scenario for servicing the development (subject to detailed analysis and approval). In summary for the northern catchment this would involve upgrades to the Minmi 1A, Maryland 1 and Maryland 2 SPS's as well as the downstream rising main to the Shortland STP. For the southern catchment this would involve upgrading of the Cardiff 1 SPS or construction of a new SPS to pump from the development to the Edgeworth STP.

4.2 Consultation

An initial meeting was held with Hunter Water's Malcolm Withers on 16 January 2007. A 'Preliminary Servicing Advice' application for the development site was lodged on 4 July 2007. A meeting was held with Hunter Water's Rennie Ferguson, Greg Alford and Tony McClymont on 9 November 2007. Jacinta Holmick (Cardno) and Lisle Butler (Cardno) attended this meeting on behalf of Coal & Allied.

'Indicative requirements for proposed development' were received from Hunter Water on 11 January 2008 (dated 9 November 2007). This document is contained in Appendix C.

4.3 Contributions

Hunter Water advised that the anticipated developer charges (combined for water and sewer) would be in the order of \$4,000 per lot (refer Indicative Requirements dated 9 November 2007). These charges are subject to annual CPI adjustments and a formal review every five years.

4.4 Staging

It is anticipated that the Minmi East precinct (approximately 600 lots) would be serviced by upgrades to the pump stations and upgrades to the rising main between Maryland 1 SPS and Shortland STP. Where possible, upgrade works would be staged as the precincts are developed.

5. WATER

5.1 Existing and Proposed Infrastructure

Reticulated potable water supply is available to the existing developed areas of Minmi. The Minmi township is serviced through the Minmi / Maryland Water Supply Scheme.

The development area is located within two water supply systems, the northern parts of the site will be serviced by the Minmi / Maryland Water Supply Scheme while the southern areas of the site will be serviced by the South Wallsend Water Supply Scheme. Neither Scheme has incorporated the demand from the proposed development; upgrade works will therefore be required to the existing network.

The augmentation works may include the construction of a 10ML potable water reservoir on the site and connection to the existing 80ML Stoney Pinch reservoir. The proposed location of the new reservoir is north-west of the Newcastle Link Rd / Minmi Rd roundabout. A detailed Water Servicing Strategy for the site will be prepared in consultation with Hunter Water to determine the optimal servicing arrangement for the site.

The drawing in Appendix B indicates a possible scenario for servicing the development (subject to detailed analysis and approval). In summary, for the northern catchment this would involve extension from the existing main in Minmi Rd. For the southern catchment this would involve installing a watermain from the South Wallsend reservoirs to the development.

5.2 Consultation

As above, refer section 4.2.

5.3 Contributions

As above, refer section 4.3.

5.4 Staging

It is anticipated that the Minmi East precinct would be serviced by the extension of the existing main in Minmi Rd. Subsequent precincts to the north would be serviced from the Minmi Rd main until capacity constraints indicated the need for either the construction of the reservoir and main connection from the reservoir, or alternative servicing arrangement from the South Wallsend reservoirs.

6. ELECTRICITY

6.1 Existing and Proposed Infrastructure

There are a number of overhead electricity high voltage transmission lines and power lines on the development site. These are owned by Transgrid and Energy Australia. Figure 2 below shows the location of the various electrical lines. The details of each line are summarised below:

Ref	Type	Ownership	Easement details	Intention
A	11kv	Energy Australia	No easement	Relocate power underground in road reserve to suit future road pattern*
B	11kv	Energy Australia	No easement	Relocate power underground in road reserve to suit future road pattern*
C	11kv	Energy Australia	No easement	Relocate power underground in road reserve to suit future road pattern*
D	132kV	Energy Australia	30m wide easement	Maintain easement
E	330kV	Transgrid	60m wide proposed easement	Create easement

* Or provide 15m easement.

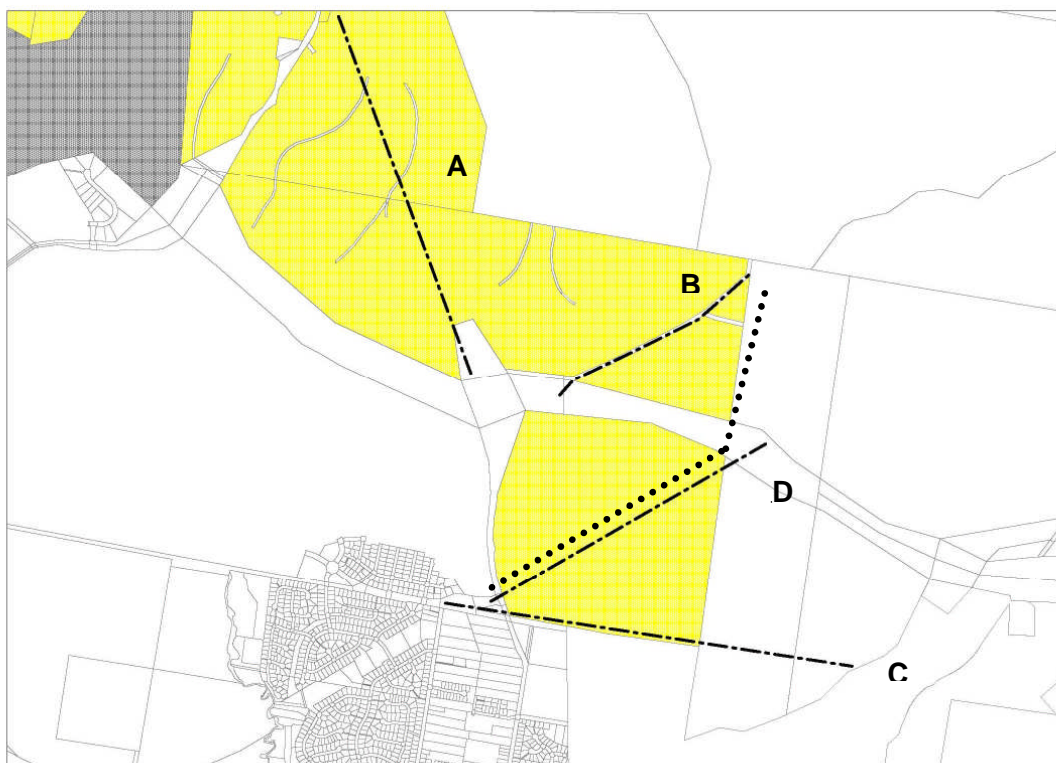


Figure 2: Location of Power Lines

Energy Australia and Transgrid have been consulted regarding the Concept Plan for the Link Rd South precinct to ensure that the development design is consistent with any authority requirements regarding the existing overhead lines and existing and proposed easements. Further consultation and approvals will be sought following Concept Plan approval and prior to the completion of detailed designs for this precinct.

The existing zone substation at Maryland supplies electricity to the Minmi township. A new zone substation is planned to be built in Cameron Park by 2012 which will augment the existing supply network. High voltage feeder mains will link the development to the zone substation.

6.2 Consultation

Initial telephone conversations were held with Energy Australia's Craig Perry on 13 February 2007.

On 3 July 2007 a letter was issued to Energy Australia providing information on the development yield and timing and requesting a meeting. This meeting was held on 24 October 2007 in Energy Australia's Wallsend office. The attendees were Craig Perry (Energy Australia), Frank van den Brink (Catylis) and Jacinta Holmick (Cardno).

A meeting was held with TransGrid on 13 November 2007 in their Sydney office. The attendees were Brian Magin (TransGrid), Linda Butler (TransGrid), Peter Minehan (TransGrid), Geoff Rock (Coal & Allied), Suzana Cosic (Conics) and Jacinta Holmick (Cardno).

6.3 Staging

It is anticipated that the Minimi East precinct would be serviced by minor lead-in works and connection to existing infrastructure either from Minmi Rd or Woodford Rd (subject to detailed analysis and approval). Subsequent stages would necessitate the lead-in works from the new zone substation.

7. GAS

7.1 Existing and Proposed Infrastructure

Alinta has advised that the nearest gas mains are located at Woodford St, Minmi (in the north) and at the corner of Minmi Rd and Northlakes Dr (in the south).

Preliminary economic assessment by Alinta has indicated that it is feasible to service the development with reticulated natural gas. Gas will be provided underground in a shared trench arrangement.

7.2 Consultation

A telephone conversation with Alinta's Greg Knight was held on 15 January 2007. Subsequently a meeting was held in Cardno's office with Greg Knight and Jacinta Holmick (Cardno) on 31 July 2007.

7.3 Staging

Gas will be provided underground in a shared trench arrangement. Each stage of the works will be serviced in turn, with extensions from existing infrastructure.

8. TELECOMMUNICATIONS

8.1 Existing and Proposed Infrastructure

Standard telephony service is provided by Telstra to the existing Minmi township. According to Telstra the development site has good mobile phone coverage. There are existing copper cables within the development site which will require relocation during the construction works.

The development will be serviced by extending existing Telstra infrastructure from Minmi (in the north) and from the Northlakes / Edgeworth area (in the south).

8.2 Consultation

A number of telephone conversations were held with Telstra in January 2007 and a meeting held in Telstra's Newcastle office on 19 January 2007. Five staff from Telstra (including Chris Ross) and three staff and subconsultants of Cardno (including Jacinta Holmick) were in attendance.

8.3 Staging

Telstra cabling will be provided underground in a shared trench arrangement. Each stage of the works will be serviced in turn, with extensions from existing infrastructure.

9. CONCLUSIONS

Lead-in works, upgrades and major infrastructure are required to supply water and sewer services to the Minmi / Link Rd development. A Servicing Strategy will be prepared in consultation with Hunter Water following approval of the Concept Plan.

Electrical supply will be available from the new Cameron Park zone substation. Lead-in electrical infrastructure from the new zone substation will be delivered when the existing supply has been exhausted.

Gas mains will be installed in the shared trench along with Telstra communications and electricity to supply each stage of the development.