

# Jemena Gas Networks (NSW) Ltd

## Response to the AER's draft decision and revised proposal

Appendix 4.3 - Network projects - response to the draft decision

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TABLE OF CONTENTS

**1. Introduction ..... 1**

**2. Project analysis..... 3**

2.1 Surry Hills upgrade – C414-160..... 3

    2.1.1 Project background ..... 3

    2.1.2 Draft decision ..... 4

    2.1.3 Response..... 4

2.2 Woollooware Road upgrade – C414-203 ..... 5

    2.2.1 Project background ..... 5

    2.2.2 Draft decision ..... 6

    2.2.3 Response ..... 6

2.3 Hoxton Park, Yarrawa Street – C414-204 ..... 7

    2.3.1 Project background ..... 7

    2.3.2 Draft decision ..... 8

    2.3.3 Response..... 9

2.4 Haymarket, Parker Street – C414-212..... 12

    2.4.1 Project background ..... 12

    2.4.2 Draft decision ..... 12

    2.4.3 Response..... 13

2.5 Kincumber capacity expansion – C414-213 ..... 14

    2.5.1 Project background ..... 14

    2.5.2 Draft decision ..... 15

    2.5.3 Response ..... 15

2.6 Sydney, Kent – Druitt Streets – C414-222..... 19

    2.6.1 Project background ..... 19

    2.6.2 Draft decision ..... 19

    2.6.3 Response..... 20

2.7 Sydney, Park Street – C414-223 ..... 21

    2.7.1 Project background ..... 21

    2.7.2 Draft decision ..... 22

    2.7.3 Response..... 22

2.8 Unanderra – Farmborough Heights Extension – C414-224..... 23

    2.8.1 Project background ..... 23

    2.8.2 Draft decision ..... 24

    2.8.3 Response ..... 24

2.9 Alexandria – Waterloo interconnection – C414-228..... 25

    2.9.1 Project background ..... 25

    2.9.2 Draft decision ..... 25

    2.9.3 Response..... 26

2.10 Bradbury Stage 2 expansion – C414-233..... 27

    2.10.1 Project background ..... 27

    2.10.2 Draft decision ..... 28

    2.10.3 Response..... 28

2.11 Rockdale reinforcement project – C414-237 ..... 31

    2.11.1 Project background ..... 31

    2.11.2 Draft decision ..... 32

    2.11.3 Response..... 32



## 1. INTRODUCTION

1. The AER engaged Sleeman Consulting to review the capacity development projects (**CDP**) component of JGN's proposed capex programme. In its report <sup>1</sup> Sleeman Consulting concluded that 82 out of 93 proposed CDPs were prudent and efficient and that the other 11 were not. The AER accepted that advice.<sup>2</sup> This appendix addresses each of the 11 rejected projects describing the project and JGN's response to the draft decision. We provide evidence, such as new modelling, that addresses Sleeman Consulting's concerns and supports the inclusion of the projects in the CDP programme as proposed in the initial proposal.
2. Table 1–1 summarises the rejected projects.

**Table 1–1: Rejected capacity development projects, \$ million, \$2013, escalated direct costs and overheads**

Project name	JGN project ID	Proposed project cost
Surry Hills upgrade	160	0.34
Woolooware Road upgrade	203	1.16
Hoxton Park, Yarrawa Street expansion	204	3.08
Haymarket, Parker Street upgrade	212	0.36
Kincumber capacity expansion	213	1.78
Sydney, Kent – Druitt Streets	222	0.24
Sydney, Park Street	223	0.14
Unanderra – Farmborough Heights extension	224	1.60
Alexandria – Waterloo interconnection	228	0.55
Bradbury stage 2 expansion	233	0.31
Rockdale reinforcement work	237	0.32
<b>TOTAL</b>		<b>9.86</b>

3. JGN has removed two of the projects from the CDP programme for the 2015-20 AA period. The Sydney, Park Street project will now be completed in 2015 (see section 2.7) and the Alexandria – Waterloo interconnection project is no longer required (see section 2.9), pending the completion of the Alexandria – Darlington project on time (currently “on hold” at estimate stage).

<sup>1</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator*, September 2014.

<sup>2</sup> AER, *Attachment 6 Capital expenditure (Confidential) – Jemena Gas Networks 2015-20*, pp 6-28 and 6-29.

4. JGN does not accept the draft decision to reject the other nine projects which are prudent and justified in terms of Rule 79 on a number of grounds:

**Table 1–2: Common themes relevant to rejected CDPs**

Reason	Examples of relevant projects
The project is in the Sydney CBD where lead times can be significant	Haymarket, Surry Hills and Kent and Druitt Streets
Project timing is sensitive to changes in demand in the location	CBD projects. The Sydney, Park Street project is an example. Scheduled for 2018-19 and 2019-20 in JGN's initial proposal, the project will now be completed in 2015 to meet a request for new load from a single customer in the affected area (see section 2.9).
Early planning and investment in part or all of a project is required e.g. to acquire land or negotiate rail crossings	Unanderra.
The project will provide security of supply to commercial customers	Haymarket, Surry Hills, Kent and Druitt Streets and Rockdale.
The project provides long-term capacity in an area that is targeted for growth	Haymarket, Surry Hills, Kent and Druitt Streets and Rockdale.
The project is required to ensure timely provision of capacity to meet organic growth from existing customers, E to G conversions and/or new homes developments	Woolooware, Hoxton Park, Kincumber, Unanderra and Bradbury.
The project addresses anticipated low supply pressures	Woolooware, Hoxton Park, Kincumber and Bradbury.

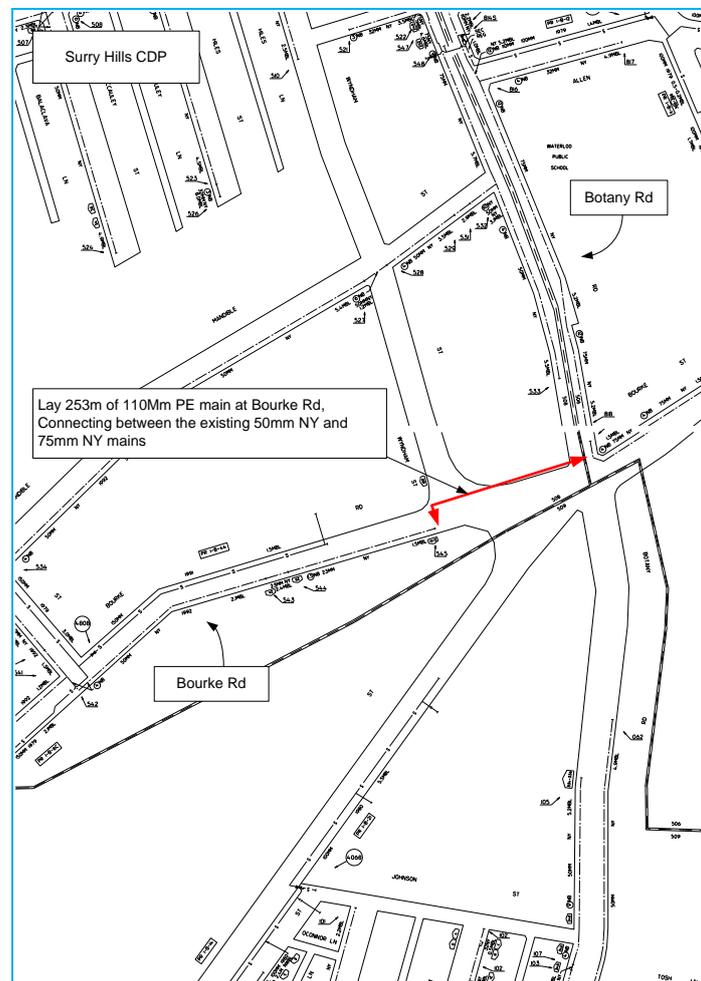
## 2. PROJECT ANALYSIS

### 2.1 SURRY HILLS UPGRADE – C414-160

#### 2.1.1 PROJECT BACKGROUND

5. The project scope is to lay 253m of 110mm polyethylene at Bourke Road, Alexandria, completing the loop of existing 50mm nylon mains. This project primarily aims to provide long term capacity for growth and security of supply in the Alexandria area. This area is currently only supplied via a single 50mm nylon main. Additionally the design has been undertaken to ensure capacity to support ongoing load growth in the area. The project is scheduled for completion in 2017. Figure 2–1 outlines the scope of the project.

**Figure 2–1: Surry Hills CDP scope of work**



## 2 — PROJECT ANALYSIS

### 2.1.2 DRAFT DECISION

6. Sleeman Consulting assessed the Surry Hills upgrade CDP as follows:

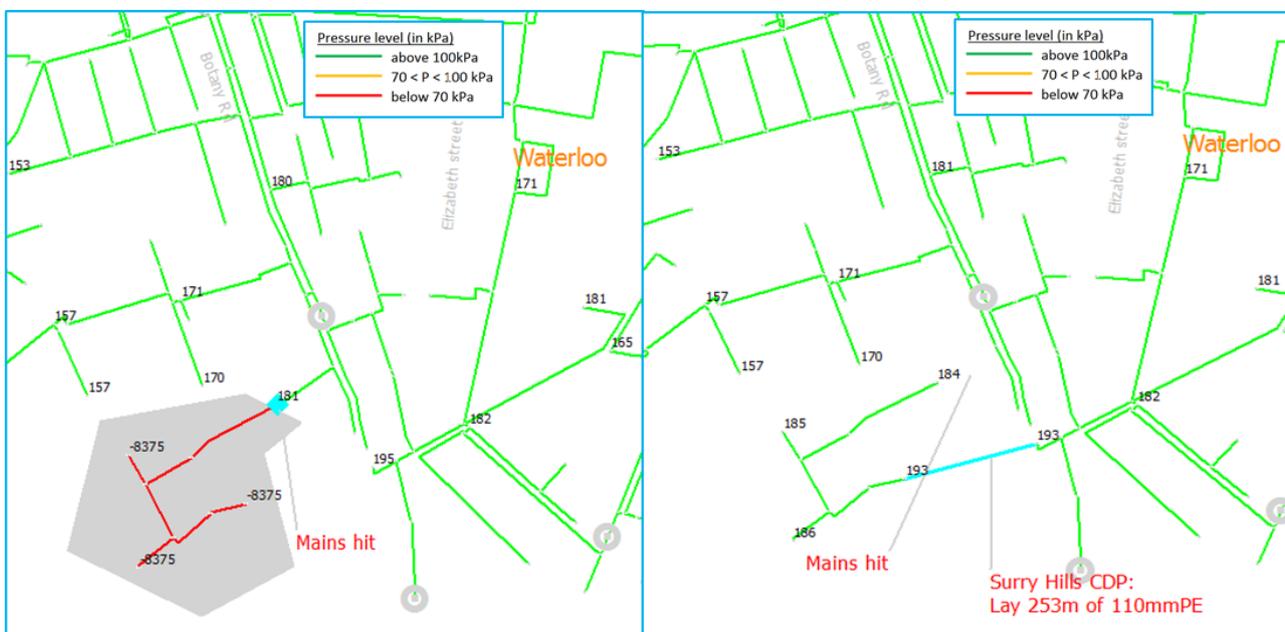
*Surrey Hills upgrade (JGN Project ID160, cost \$0.4m) is scheduled for completion in 2017 but network pressures during the 2019 peak period are projected by JGN, on the basis of a 3% per annum demand growth, to be 160 kPa. This pressure is comfortably in excess of the minimum desirable for the 210 kPa network (that is, 70 kPa).*

*There is nothing to suggest the network pressure will fall below the 70 kPa minimum desirable level during the access arrangement period. Accordingly, in my opinion this item of Capex is not justified.<sup>3</sup>*

### 2.1.3 RESPONSE

7. Sleeman Consulting has correctly identified that there is sufficient capacity in this area under normal operating conditions. However, this project has been incorrectly categorised as a capacity improvement project in the Opportunity Brief. The key driver of the project is to provide security of supply to a number of commercial customers. There is only a single direction main supplying six active commercial customers with average load of 150GJ/yr each and no residential customers on Bourke Road and Mandible Street. The location of these customers in a congested area would mean any damage to the single feeder main would be a complex repair activity, potentially leaving the customers without gas for approximately 24-48 hours. Implementation of this project will enable backflow for security of supply. Figure 2–2 outlines the effect of damage to the existing single feeder main without and with the security of supply provided by the Surry Hills CDP interconnection.

**Figure 2–2: 2017 Surry Hills 210 kPa network simulation**



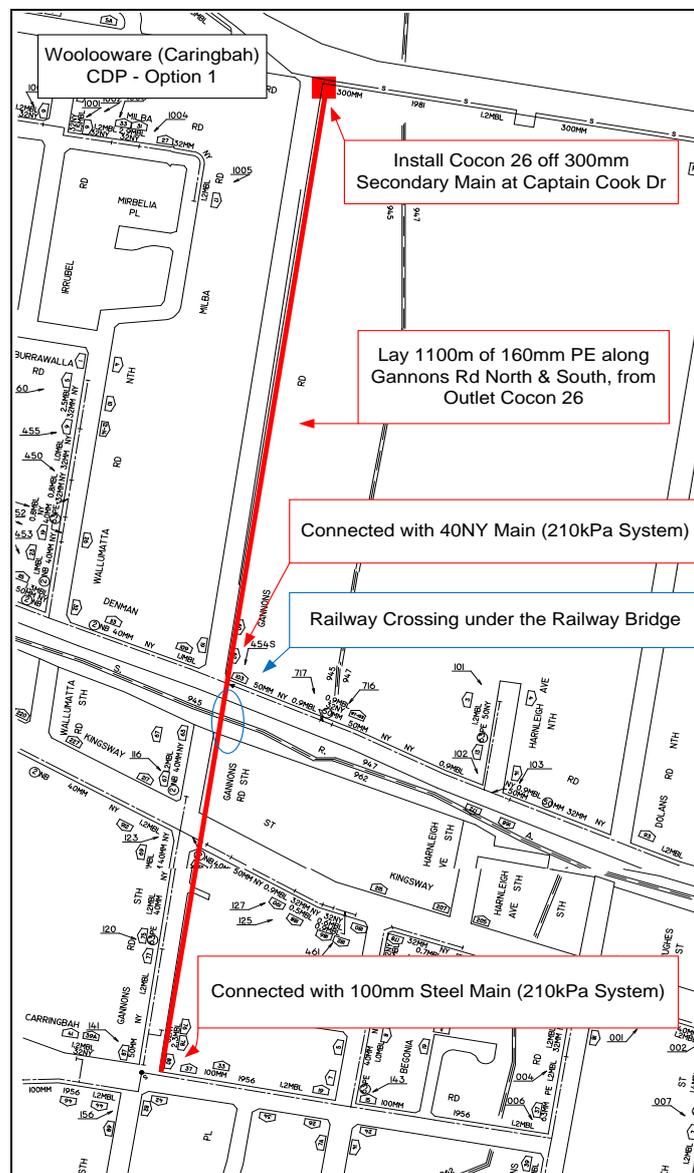
<sup>3</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator*, September 2014, para 2.13(i).

## 2.2 WOOLLOOWARE ROAD UPGRADE – C414-203

### 2.2.1 PROJECT BACKGROUND

8. The project scope is to install a secondary regulator set at the corner of Captain Cook Drive and Woollooware Road North, then lay 1km of 110mm polyethylene along Woollooware Road North and connect with the existing 50mm nylon at Denman Avenue, to ensure capacity in the Woollooware area. This project aims to provide long term capacity for growth and security of supply to the Sutherland 210 kPa network in the Caringbah South, Burraneer and Cronulla areas.
9. As part of ongoing reviews of network performance and future projects, an alternative option has been identified to address the capacity issue in Woollooware. The alternative scope is depicted below. Both options are costed at the same price at this stage of their development. The most suitable option will be confirmed on the basis of further field investigation of construction requirements.

**Figure 2-3: Woollooware CDP scope of work**



## 2 — PROJECT ANALYSIS

### 2.2.2 DRAFT DECISION

10. Sleeman Consulting assessed the Woollooware Road upgrade CDP as follows:

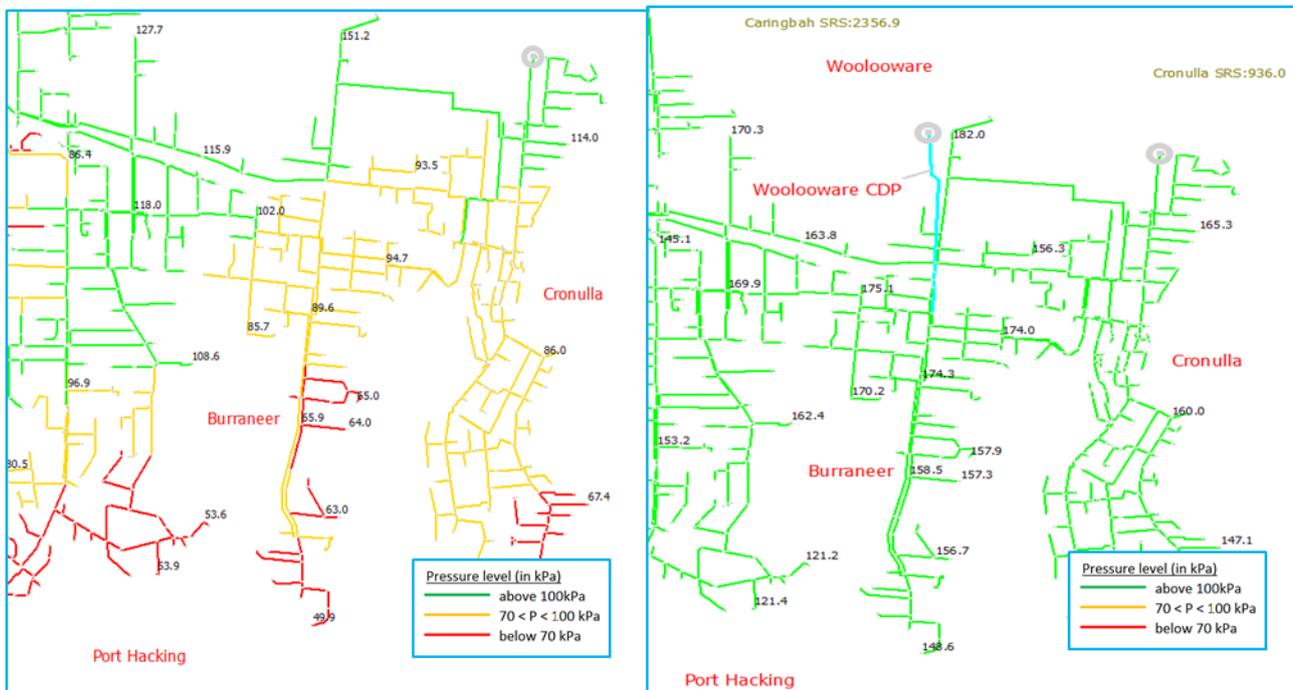
*Woollooware Rd upgrade (JGN Project ID 203, cost \$1.2m) is scheduled for completion in 2017 yet projected terminal pressures for winter of 2017 are projected on the basis of 3% per annum growth to be 137 kPa, comfortably in excess of the minimum desirable pressure for the 210 kPa network.*

*There is nothing to suggest the network pressure will fall below the 70 kPa minimum desirable level during the access arrangement period. Accordingly, in my opinion this item of Capex is not justified.<sup>4</sup>*

### 2.2.3 RESPONSE

11. Sleeman Consulting stated that the pressures in the information supplied did not indicate any terminal pressures below the critical level of 70 kPa. Recent modelling based on the 2014 winter data shows that the forecast pressure for the Burraneer Bay area is below the 70 kPa minimum in winter 2017, as shown in Figure 2–4. Without the enhancement, there is a risk of loss of supply to more than 600 customers in winter 2017. (The modelling of the reinforcement uses the route of the alternative option.)
12. It should be noted that the nature of the mains design in this area is very sensitive to any changes in load. This is due to the long lengths of small bore pipe laid in the 1960s to supply the ‘finger’ peninsulas in the Sutherland Shire. This project provides a more robust backbone, reducing that sensitivity and providing the required capacity and a higher level of supply security.

**Figure 2–4: Sutherland 210 kPa network simulation without and with potential Woollooware CDP implementation for winter 2017.**



<sup>4</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator*, September 2014, para 2.13(ii).

## 2.3 HOXTON PARK, YARRAWA STREET – C414-204

### 2.3.1 PROJECT BACKGROUND

13. The project scope is to lay 2,050 metres of 150mm secondary steel main, install a Cocon26 regulator at the corner of Nineteenth Avenue and First Avenue and lay 600m of 110mm polyethylene from the regulator outlet, along First Avenue, to the 110mm nylon main in Hoxton Park Road. This is required to provide capacity for the forecast 3,500 new estate connections. Construction is proposed to start in 2019 for completion by winter 2020.

The Hoxton Park project will ensure reliable gas supply to 3,500 new dwellings which are being constructed in five new estate areas.

14. Table 2–1 shows the progress of these developments. On current projections, all but 936 lots will be developed by 2020. This is ahead of initial planning figures for this development.

**Table 2–1: Penetration rate of new estate development around Hoxton Park CDP area**

New estate Development	Total lots	Commenced	Current (2014) completion sites and %	Estimated (2020) completion sites and %	Remaining post 2020
Elizabeth Drive	636 lots	2010	335 (53%)	600 (95%)	36
Hoxton Park Aerodrome	250 lots + Commercials	2010	150 (60%)	250 (100%)	0
Middleton Grange	1700 lots	2005	540 (32%)	1,000 (58%)	700
Horningsea Park Inghams Site	900 lots	2009	300 (33%)	700 (78%)	200
<b>TOTAL</b>	<b>3486</b>		<b>1,325 (38%)</b>	<b>2,550 (73%)</b>	<b>936 (27%)</b>

Source: JGN's current projected forecast view.

Figure 2–5: Scope for Hoxton Park CDP (Yarra Street)



### 2.3.2 DRAFT DECISION

15. Sleeman Consulting assessed the Hoxton Park, Yarra Street CDP as follows:

*Hoxton Park, Yarra Street, expansion (JGN Project ID 204, cost \$3.1m) is scheduled for completion in 2020 to meet demand growth over the next 20-30 years. Given the recent, changed nature of demand growth (see paragraph 2.11) a need for the project has not presently been demonstrated. I consider it would be premature to commit to this project now.*

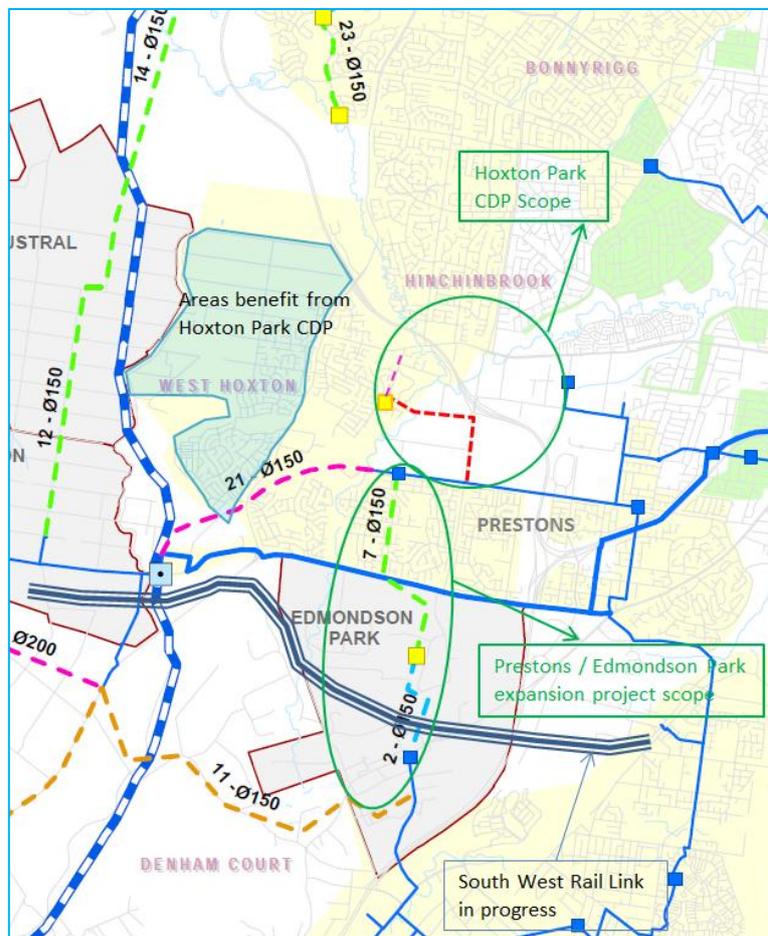
*The project also interacts with, and will not be required, if network support is instead provided by means of a Cocon installation that is separately proposed (as a market expansion project)alt (sic) for the western end of Kurrajong Road. Provision of network support in this alternative way not only overcomes the need for the Yarra Street expansion, it provides capacity to meet possible Carnes Hill expansion at the Ingham site.*

Accordingly, in my opinion this item of Capex is not justified.<sup>5</sup>

### 2.3.3 RESPONSE

16. Sleeman Consulting rejects this project on the basis that the capacity will not be required because the demand has not yet occurred or is unlikely to occur. Table 2–1 provides the basis for the demand projection and clearly indicates that the demand is occurring, if anything, ahead of schedule originally anticipated.
17. Sleeman Consulting also rejects this project on the basis that an alternative project (Prestons / Edmondson Park CDP – Kookaburra Road C414-219) will provide the required capacity. Figure 2–6 shows the relative locations of and areas to be supplied by the two projects.

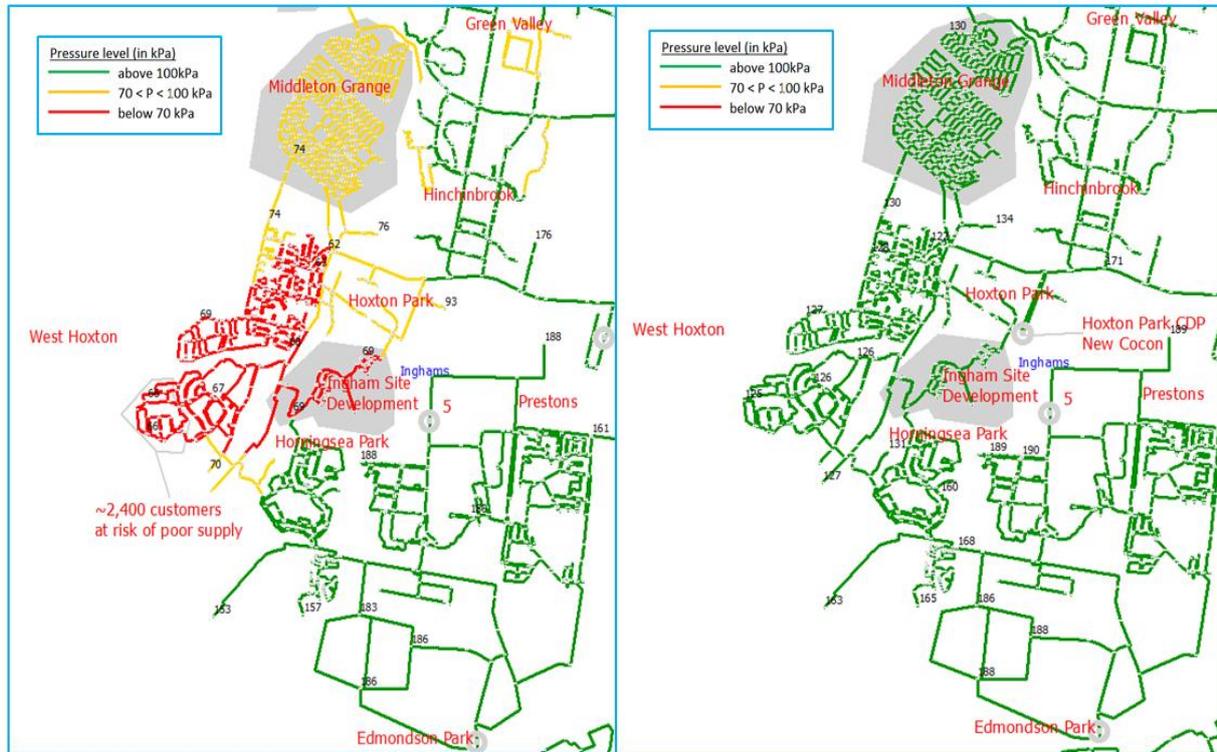
**Figure 2–6: Scope for Hoxton Park CDP (Yarrawa Street)**



18. Although in relative close proximity, the Edmondson Park project is designed to meet the requirements of Edmondson Park North (4,000 lots). Figure 2–7 indicates the network modelling for the scenario where even with the Kurrajong Road Cocon regulator in place, terminal network pressures in the Hoxton Park area for winter 2020 are below 70 kPa. This would result in approximately 2,400 customers being at risk of poor supply.

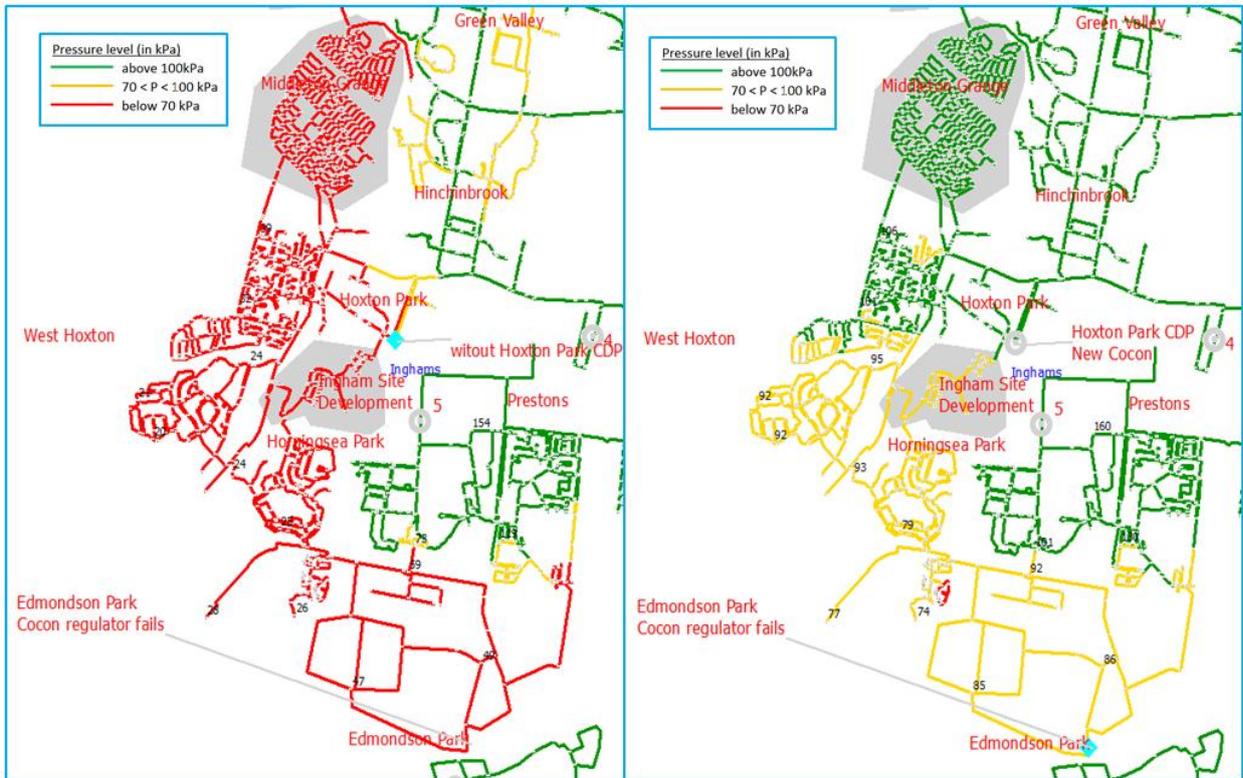
<sup>5</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator*, September 2014, para 2.13(iii).

Figure 2–7: Wetherill Park 210 kPa network severe winter peak 2020 before and after Hoxton Park CDP



19. Additionally, the Cocon proposed as part of the Hoxton Park CDP also supports security and reliability of supply. Figure 2–8 below depicts reliability of supply of the network.

**Figure 2–8: Wetherill Park 210 kPa network severe winter peak 2020 under failure of Edmondson Park Regulator – without and with Hoxton Park CDP**

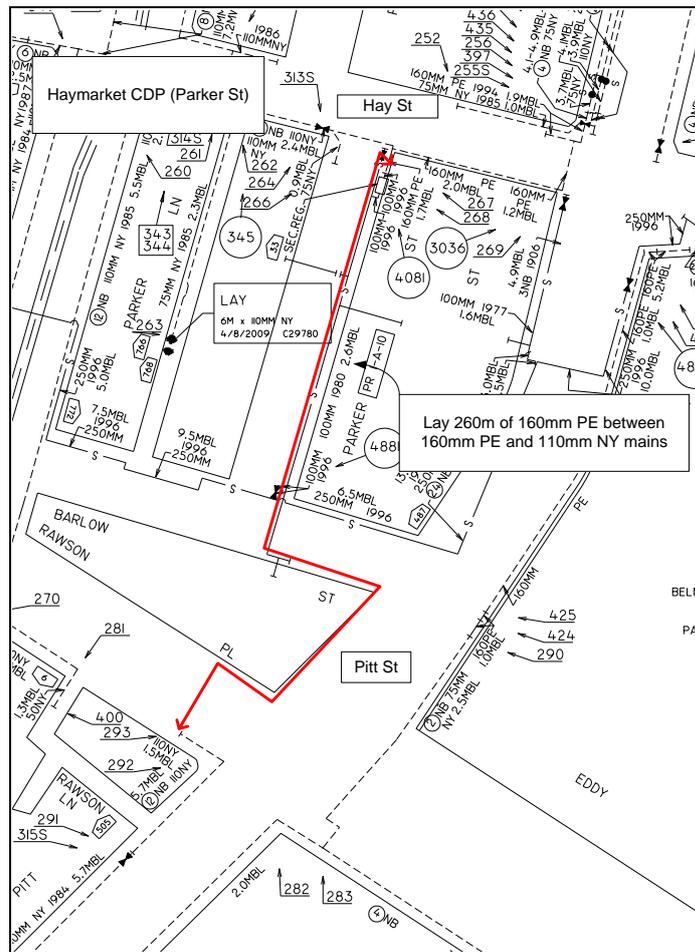


### 2.4 HAYMARKET, PARKER STREET – C414-212

#### 2.4.1 PROJECT BACKGROUND

20. The scope of this project is to lay 260m of 160mm polyethylene from the existing 160mm polyethylene at corner of Parker Street and Hay Street (near the outlet of the existing secondary regulator set) to interconnect with the existing 110mm nylon main at the corner of Rawson Pl and Pitt Street, Haymarket. This project aims to provide long term capacity for growth and security of supply in the southern section (Haymarket area) of the Sydney 7 kPa network.

**Figure 2–9: Haymarket CDP (Parker Street) scope of work**



#### 2.4.2 DRAFT DECISION

21. Sleeman Consulting assessed the Haymarket, Parker Street CDP as follows:

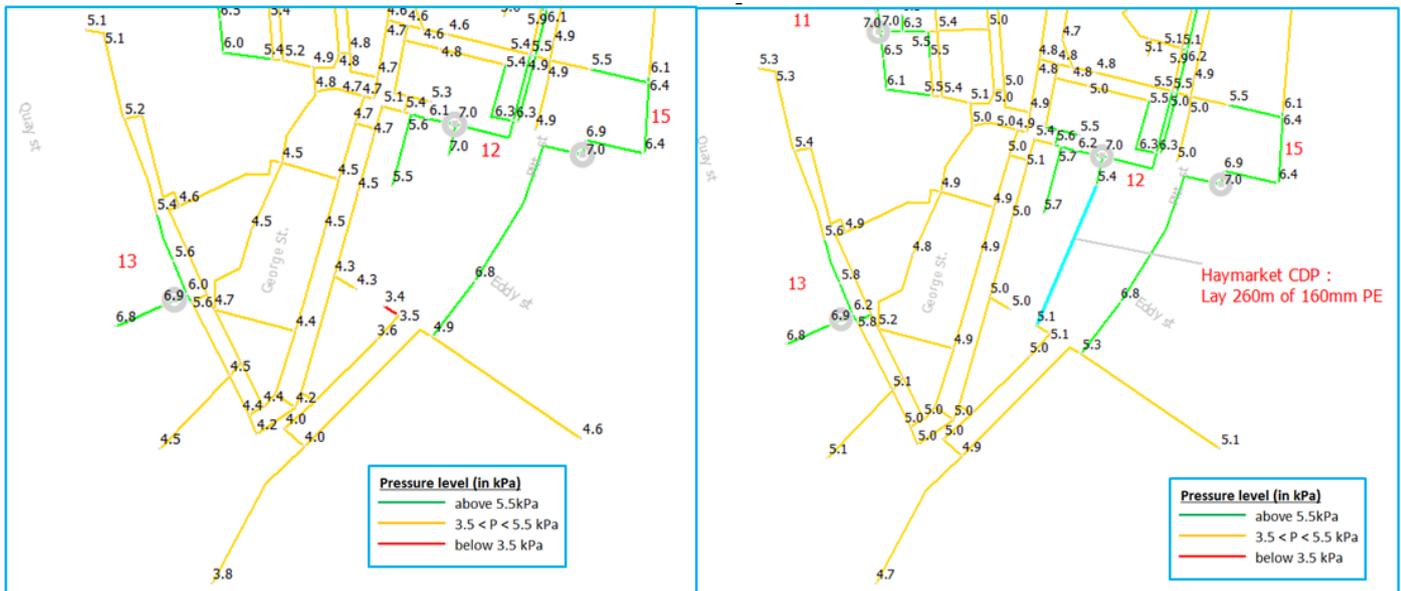
*Haymarket, Parker Street upgrade (JGN Project ID 212, cost \$0.4m) is scheduled for completion in 2019 yet minimum desirable pressures for the 7 kPa network (namely 3.5 kPa<sup>11</sup>) are comfortably exceeded on the basis of an assumed 3% per annum load growth. I note also that the assumed 3% per annum load growth may in any case be high.*

There is nothing to suggest the network pressure will fall below the 3.5 kPa minimum desirable level during the access arrangement period. Accordingly, in my opinion this item of Capex is not justified.<sup>6</sup>

2.4.3 RESPONSE

- 22. Sleeman Consulting correctly states that modelling indicates that the pressure in the area remains above 3.5 kPa for the period until beyond 2020. Updated modelling based upon 2014 winter gauging confirms this outcome, with predicted minimum terminal pressures at 3.8 kPa. However, the nature of the network design in this area (7 kPa serving a mixture of commercial and high density residential) means that network performance is very sensitive to any changes in load, either from an existing customer or new customers.
- 23. This sensitivity means that the addition of a new commercial or residential load (or reasonable increase in load for an existing customer), above that provided for in general growth forecasts, in Pitt Street, George Street or Rawson Place will result in pressure reducing to less than 3.4 kPa which is at the minimum acceptable for the 7 kPa network.<sup>7</sup> Construction conditions in the CBD require careful planning, approvals and generally take considerable time. Pre-emptive laying of this mains extension will provide JGN with the ability to meet customer expectations and provide new connections that may otherwise be lost due to the delays generally experienced in the CBD for connections. This area of the CBD continues to be developed.
- 24. Figure 2–10 outlines the capacity modelling for this project with the minimum terminal pressure increasing from 3.8 kPa to 4.7 kPa, ensuring the ability to meet potential customer expectations.

Figure 2–10: Sydney 7 kPa network simulation without and with Haymarket CDP



<sup>6</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator*, September 2014, para 2.13(iv).

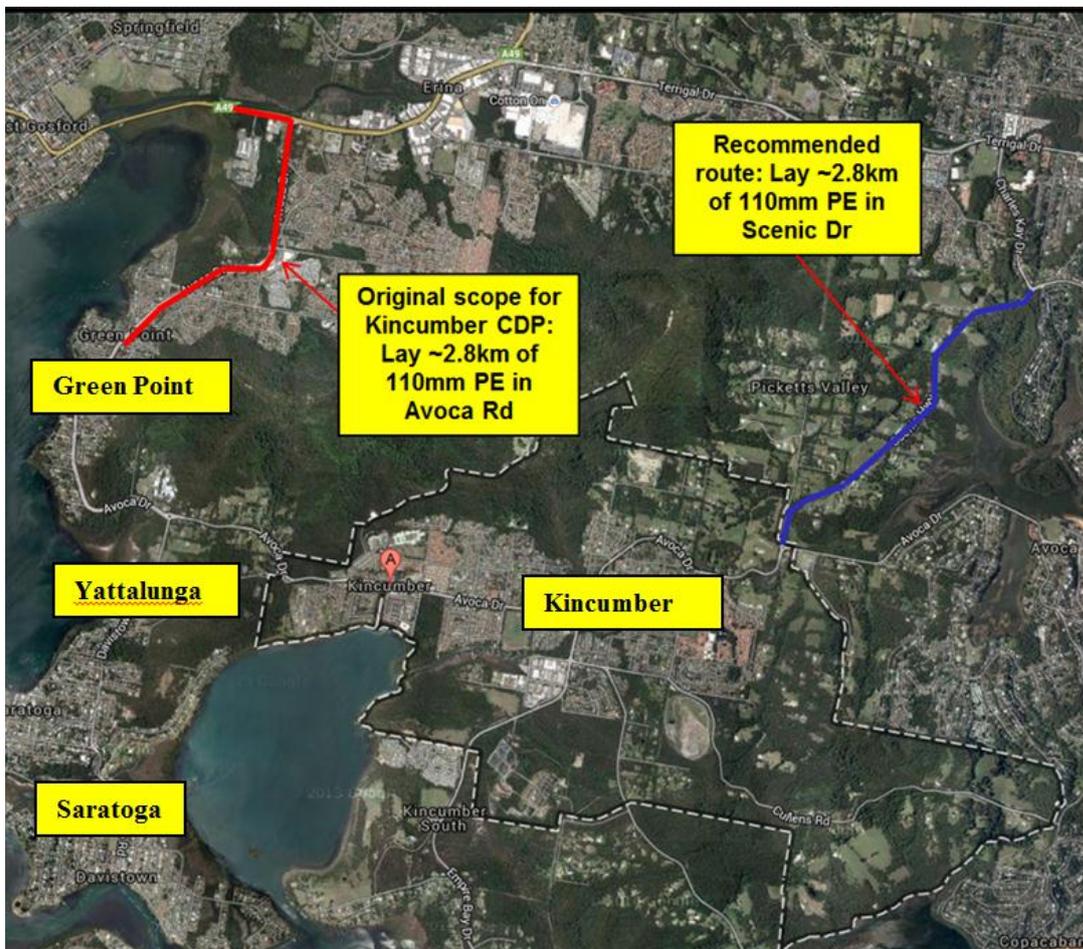
<sup>7</sup> The Park Street project provides a clear demonstration of this sensitivity—refer section 2.7.

### 2.5 KINCUMBER CAPACITY EXPANSION – C414-213

#### 2.5.1 PROJECT BACKGROUND

25. The original project scope, as proposed in the JGN's initial proposal, was to install 2,800m of 110mm polyethylene in Avoca Road effectively looping the existing infrastructure. The justification for this work was to ensure reliability of supply to the Kincumber and surrounding areas as more customers are connected to existing mains and as new mains are laid in existing or new development areas, including the 50 streets in the area that currently do not have a gas main. A secondary consideration was security of supply to the existing 2,700 customers who rely on a long single main.
26. JGN has done further modelling and analysis of this project since the initial proposal was submitted. This has led to an alternative design being recommended, being the installation of 2,800 metres of 110mm polyethylene in Scenic Drive. This alternative is estimated to cost the same as the original proposal, however, it will provide a higher level of security of supply as it does not parallel the existing infrastructure. The updated scope is shown in Figure 2–11.

**Figure 2–11: Modified scope of work for Kincumber CDP**



## 2.5.2 DRAFT DECISION

27. Sleeman Consulting assessed the Kincumber CDP as follows:

*Kincumber capacity expansion (JGN Project ID 213, cost \$1.8m) is scheduled for completion in 2020. The purpose of the project is to avoid possible low pressure within the 210 kPa network at Kincumber, but the need for the project was based upon 2013 gas demand forecasts. System pressure records for recent years<sup>12</sup> have not indicated cause for concern and, with regard for the observations of paragraph 2.11, future demand growth is likely to be less than was forecast by JGN in 2013.*

*There is nothing to suggest the network pressure will fall below the 70 kPa minimum desirable level for the 210 kPa network during the access arrangement period. Accordingly, in my opinion this item of Capex is not justified.<sup>8</sup>*

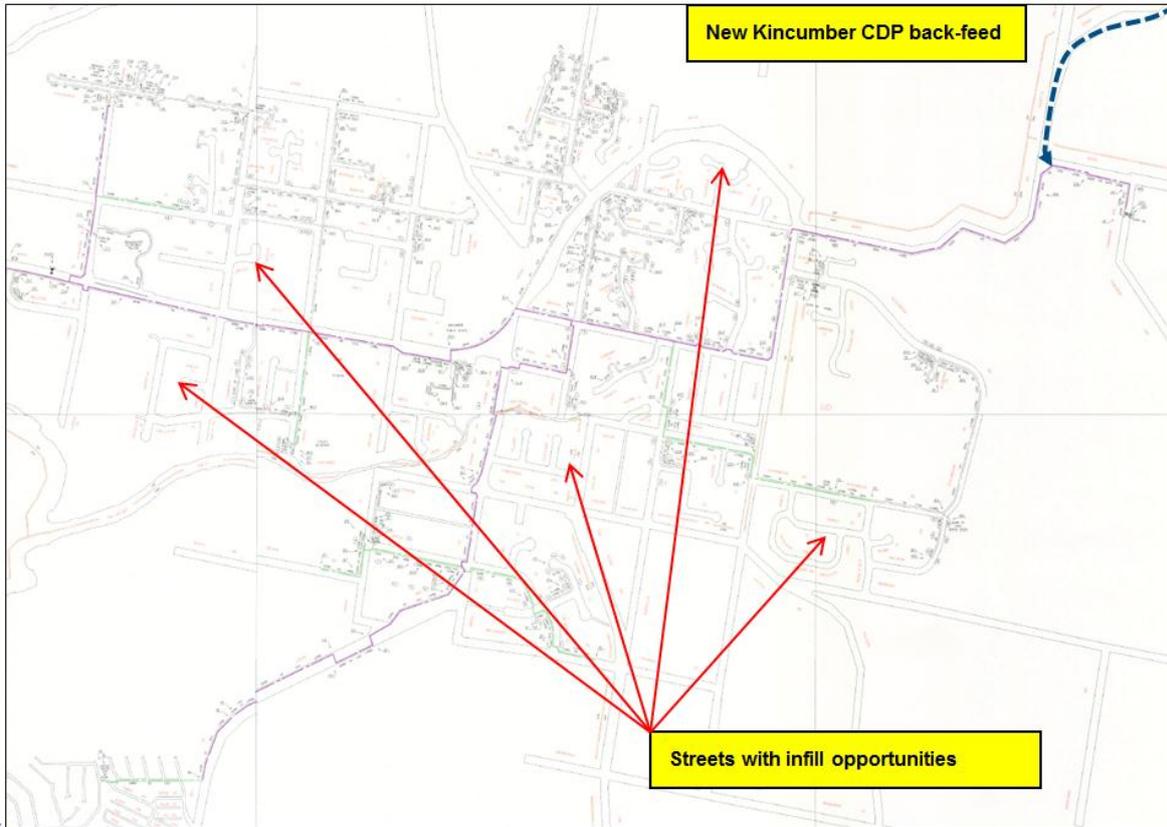
## 2.5.3 RESPONSE

28. While the area may not currently be experiencing a supply shortfall, the following considerations are relevant:
- Kincumber, like the rest of the Central Coast has extensive growth opportunities for infill developments and expansion of the gas network as there are over 50 streets in the Kincumber area without gas supply—refer to Figure 2–12. The new CDP will provide a back-feed into the area to cater for the expansion.

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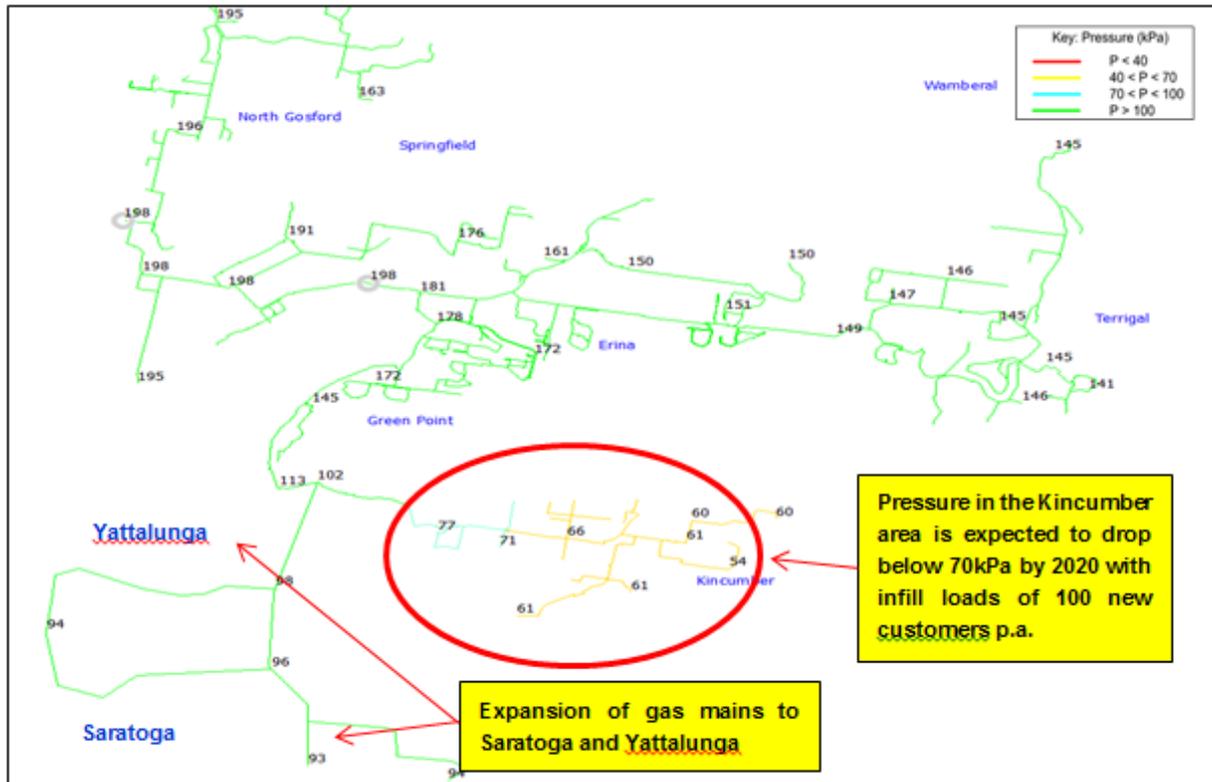
<sup>8</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator*, September 2014, para 2.13(v).

Figure 2-12: Mains map showing existing gas main layout in Kincumber areas of network



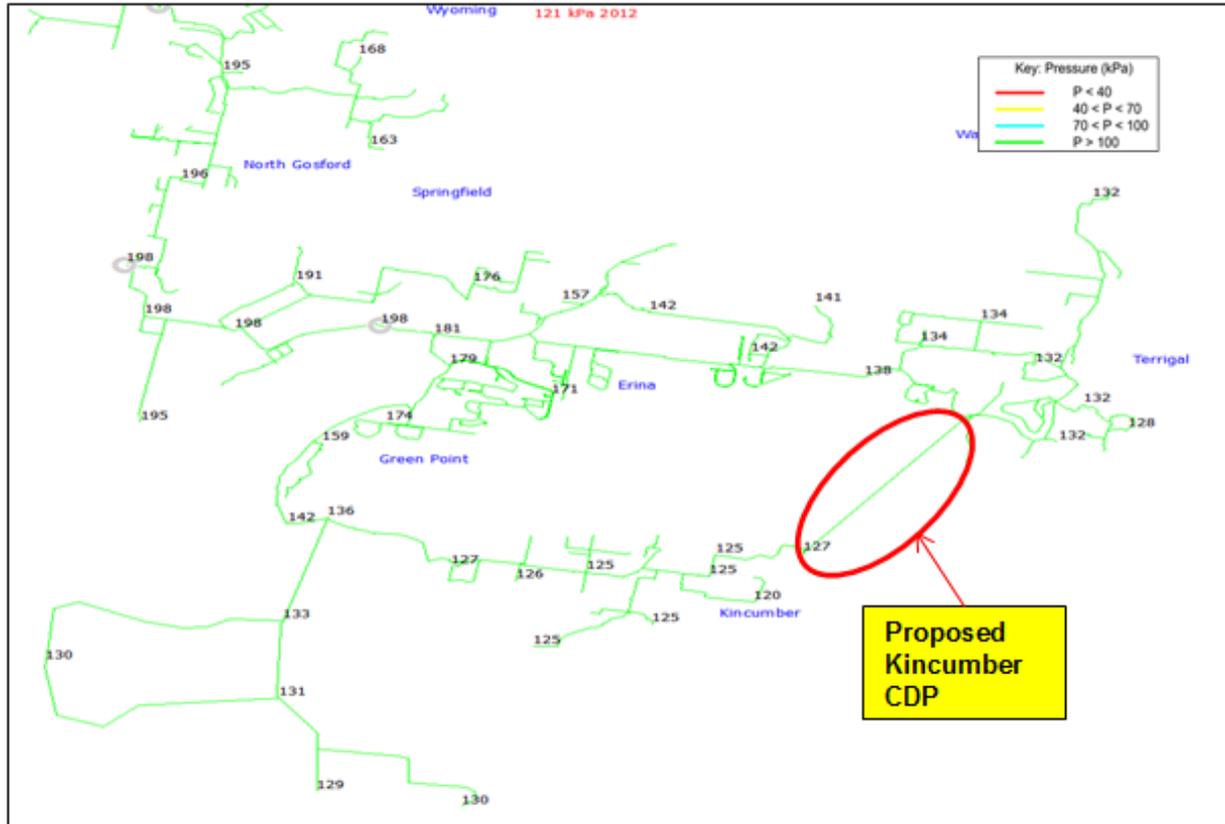
- Gas mains can also be extended to the Yattalunga and Saratoga areas to provide supply to potentially 750 customers. Implementation of this CDP will provide the capacity to support those infill developments. The effect of growth in this area is shown in the modelling in Figure 3-13.

Figure 2–13: 2020 Network simulation with loads from infill development included



- Kincumber has a significant number of retirement villages and it is critical to maintain continuity of supply to these customers during the winter seasons. The current Kincumber network is supplied by a single way 160mm polyethylene and 110mm polyethylene feeder main and any damage to this main has the potential to cause loss of supply to over 2,700 customers.
- Security of supply is a real concern as the JGN network as a whole gets hit over 200 times per month. The revised proposal to lay 2.8km of mains in Scenic Drive will enhance security of supply to the Kincumber and Green Point areas by providing a dual feed to those areas.

Figure 2–14: 2020 Network Simulation with proposed CDP implemented

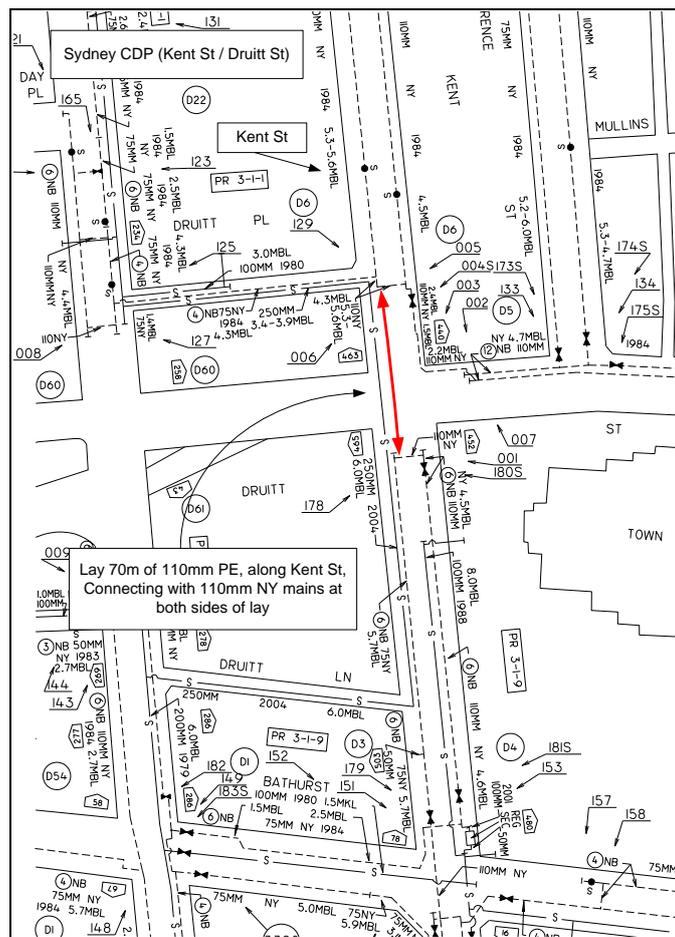


## 2.6 SYDNEY, KENT – DRUITT STREETS – C414-222

### 2.6.1 PROJECT BACKGROUND

29. The project scope is to lay 70m of 110mm nylon from the existing 110mm nylon at the corner of Kent Street and DrUITt Street, to interconnect with the existing 110mm nylon in Kent Street near DrUITt Place, in order to maintain ongoing capacity in Sydney CBD. This project aims to provide long term capacity for growth and security of supply to this section of the Sydney 7 kPa network.

**Figure 2–15: Sydney 7 kPa CDP (Kent Street – DrUITt Street) scope of work**



### 2.6.2 DRAFT DECISION

30. Sleeman Consulting assessed the Sydney, Kent – DrUITt Streets CDP as follows:

*Sydney, Kent - DrUITt Streets (JGN Project ID 222, cost \$0.2m) is scheduled for completion in 2019 yet gas pressures are presently, and are projected to continue to be, comfortably above the desirable minimum for the 7 kPa network (that is, 3.5 kPa). Accordingly, in my opinion this item of Capex is not justified.*<sup>9</sup>

<sup>9</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator*, September 2014, para 2.13(vi).

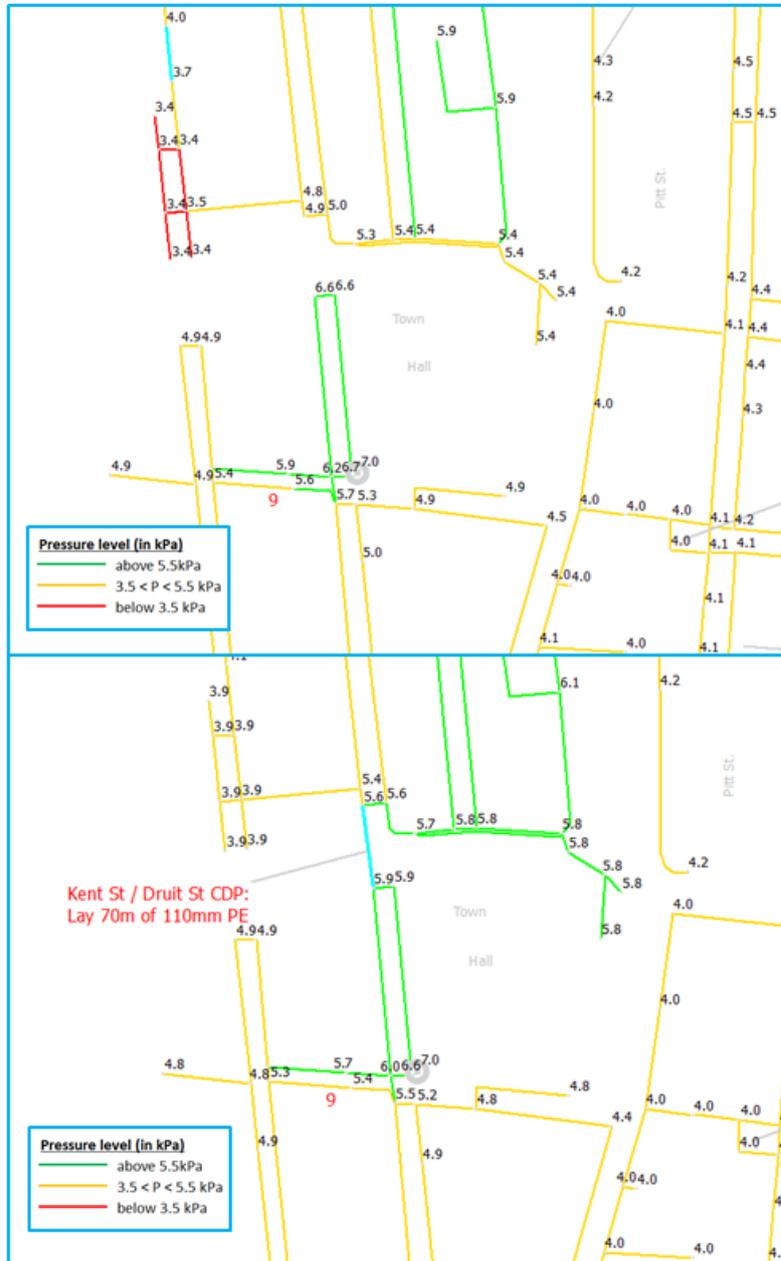
### 2.6.3 RESPONSE

31. Sleeman Consulting correctly states that modelling indicates that the pressure in the area remains above 3.5 kPa for the period until beyond 2020. Updated modelling based upon 2014 winter gauging confirms this outcome, with predicted minimum terminal pressures at 3.8 kPa. However, the nature of the network design in this area (7 kPa serving a mixture of commercial and high density residential) means that network performance is very sensitive to any changes in load, either from an existing customer or new customers.
32. This sensitivity means that the addition of a new commercial or residential load (or reasonable increase in load for an existing customer), above that provided for in general growth forecasts, in Sussex Street will result in pressure reducing to less than 3.4 kPa which is at the minimum acceptable for the 7kPa network.<sup>10</sup> Construction conditions in the CBD require careful planning, approvals and generally take considerable time. Pre-emptive laying of this mains extension will provide JGN with the ability to meet customer expectations and provide new connections that may have otherwise been lost due to the delays generally experienced in the CBD for connections. This area of the CBD continues to be developed.
33. Figure 2–16 outlines the capacity modelling for this project with the minimum terminal pressure increasing from 3.8 kPa to 4.7 kPa, ensuring the ability to meet potential customer expectations.

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<sup>10</sup> The Park Street project provides a clear demonstration of this sensitivity—refer section 2.7.

Figure 2–16: Sydney 7 kPa network simulation without and with the Kent – Druiitt Streets CDP



## 2.7 SYDNEY, PARK STREET – C414-223

### 2.7.1 PROJECT BACKGROUND

34. The project scope is to lay 100m of 110mm polyethylene from the existing 110mm nylon at corner of Park Street near Pitt Street, to interconnect with the existing 75mm nylon in Park Street near George Street, in order to maintain ongoing capacity in Sydney CBD. This project aims to provide long term capacity for growth and security of supply to the section at the centre of the Sydney 7 kPa network.



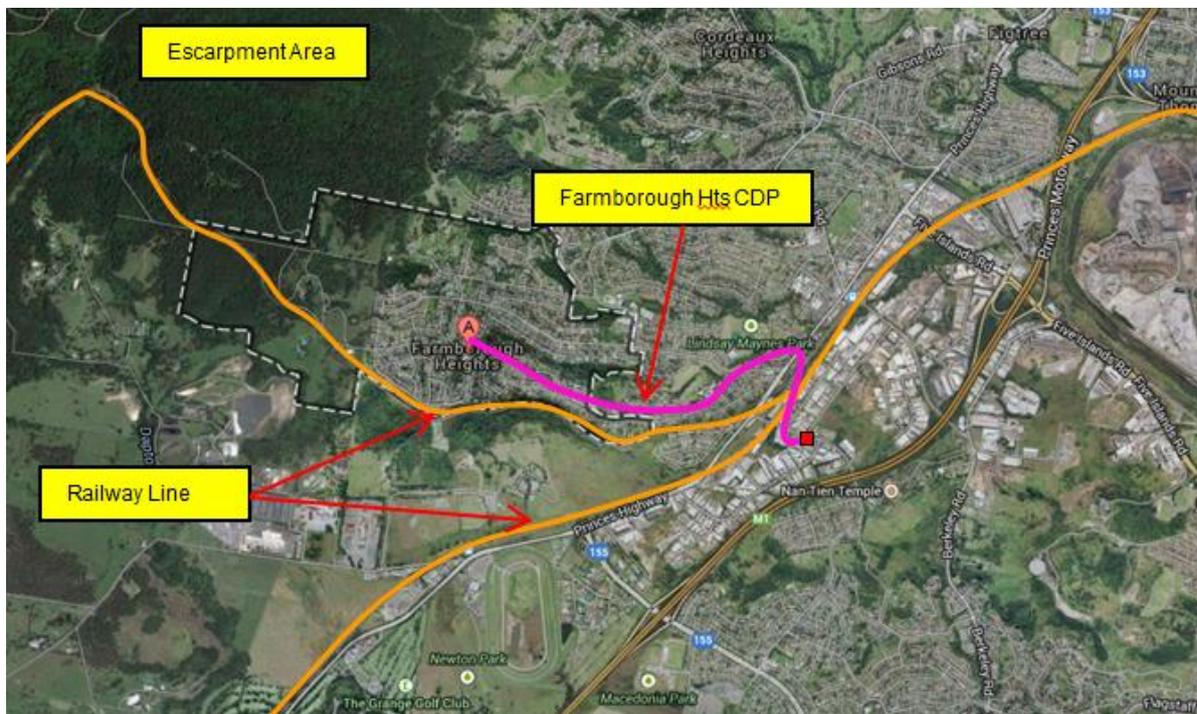
37. This project demonstrates the sensitivity of the 7 kPa network to additional load in specific locations above forecast general growth rates.

## 2.8 UNANDERRA – FARMBOROUGH HEIGHTS EXTENSION – C414-224

### 2.8.1 PROJECT BACKGROUND

38. The project scope is to lay 2,700 metres of 110mm nylon main from the existing 63mm polyethylene at the corner of Brendon Street and Farmborough Road, Farmborough Heights to tie in to the 75mm Nylon main on the outlet of the secondary district regulator set located on the corner of Waverley and Nolan Streets. This will improve terminal point pressure in Farmborough Heights. Two railway crossings are required. The plan includes 125 metres of horizontal directional drilling in two sections—one at a rail crossing (65 metres) and the other at the Princes Highway (60 metres). Key elements of the project are to be completed by winter 2020.

**Figure 2–18: Farmborough Heights CDP scope of work**



## 2 — PROJECT ANALYSIS

### 2.8.2 DRAFT DECISION

39. Sleeman Consulting assessed the Unanderra – Farmborough Heights CDP as follows:

*Unanderra - Farmborough Heights extension (JGN Project ID 224, cost \$0.1m (sic)) is scheduled for completion in 2020 but is highly dependent upon continued growth in the Farmborough Heights area. My understanding is that continued growth of peak demand in the Farmborough area will be limited by the extent of the three farms that were subdivided to establish the area. Accordingly, ongoing growth is likely to be slow relative to past experience. While network reinforcement may eventually be necessary, in my opinion it will not be required before 2020. Accordingly, in my opinion this item of Capex is not justified.<sup>12</sup>*

### 2.8.3 RESPONSE

40. Sleeman Consulting correctly states that growth in this area is at times slower than other areas. However, while the Farmborough Heights CDP may not be needed by 2020 due to restricted growth opportunity from presence of railway line in the South and escarpment in the West of Farmborough Heights, this project needs to commence as per the proposed timetable given the need to plan and deliver two railway crossings and the Princes Highway crossing. The crossings need to be secured prior to the growth coming on line in later years giving reasonable contingency in time as with recent issues with railway lines. An additional benefit to this CDP will be improved security of supply for the Farmborough Heights area in the event of damage to the main in Farmborough Road.
41. Furthermore, to clarify the expenditure profile of Unanderra – Farmborough Heights CDP (Refer Table 2-2).

**Table 2–2: Unanderra – Farmborough Heights expenditure schedules – \$ million, \$2013, escalated direct costs and overheads**

Project Name	RY19	RY20
Unanderra – Farmborough Heights CDP	0.4	1.2

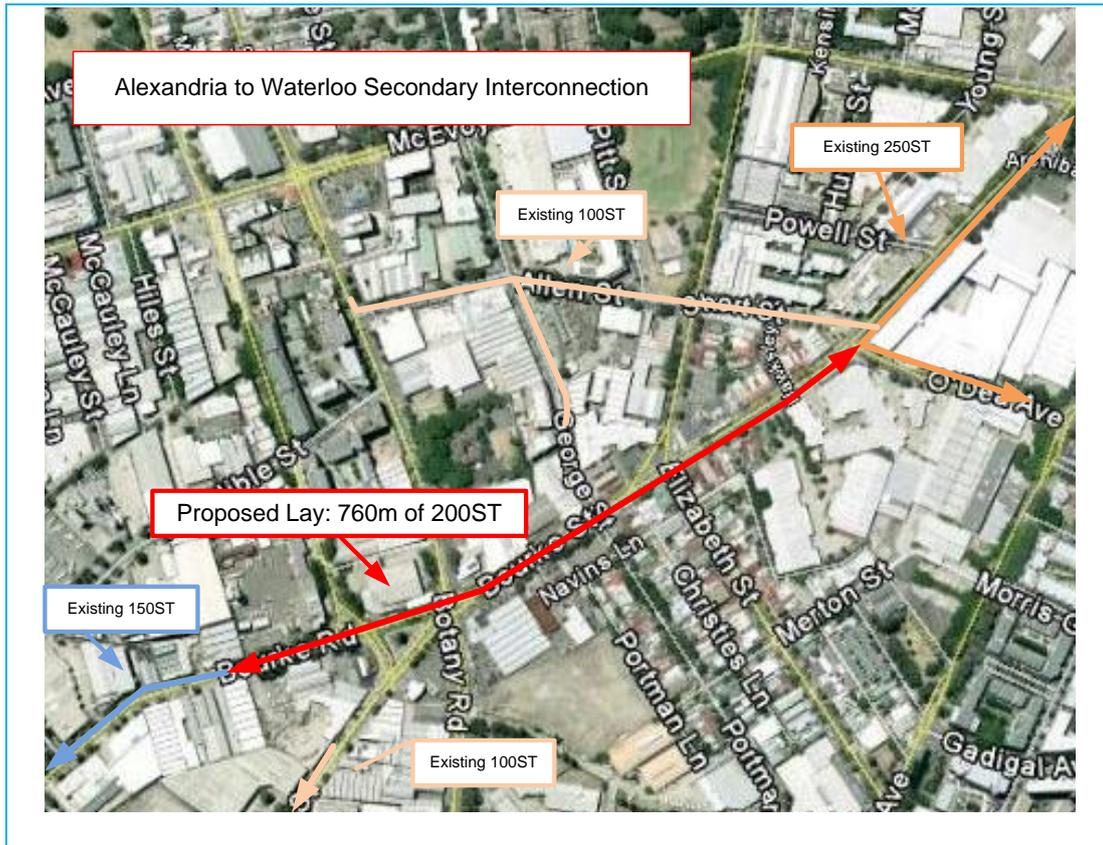
<sup>12</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator, September 2014, para 2.13(viii).*

## 2.9 ALEXANDRIA – WATERLOO INTERCONNECTION – C414-228

### 2.9.1 PROJECT BACKGROUND

42. The project scope is to lay 760m of 200mm steel along Bourke Road, from near Bowden Street, Alexandria, to O'Dea Avenue, Waterloo. The project was proposed to ensure capacity for ongoing load growth in the southern CBD area, in the event that the railway crossings for the Darlington to Alexandria CDP were delayed.

**Figure 2–19: Alexandria to Waterloo secondary interconnection scope of work**



### 2.9.2 DRAFT DECISION

43. Sleeman Consulting assessed the Alexandria – Waterloo interconnection CDP as follows:

*Alexandria Waterloo interconnection (JGN Project ID 228, cost \$0.6m in present period) is scheduled for completion 2021. JGN noted that the need for and timing of this project was conditional upon completion of the Darlington to Alexandria secondary main (JGN Project ID 136, cost \$3.3m). There was a risk that the Darlington to Alexandria secondary, which is separately recommended for approval, might be delayed owing to the presence of railway crossings along its length. JGN has now advised that arrangements for the railway crossings have been agreed and*

*the Darlington to Alexandria secondary main will not be delayed. Accordingly, Capex relating to the Alexandria Waterloo interconnection is not justified.*<sup>13</sup>

### 2.9.3 RESPONSE

44. The statement by Sleeman Consulting is correct. Since the projects were compiled for JGN's initial draft submission in June 2014, JGN has continued to progress discussions with the authorities responsible for the railway crossings. Based on these more recent discussions, JGN now has a higher level of confidence that the Darlington to Alexandria project will be completed in time. Accordingly, no provision is included in the revised proposal for the Alexandria – Waterloo interconnection.

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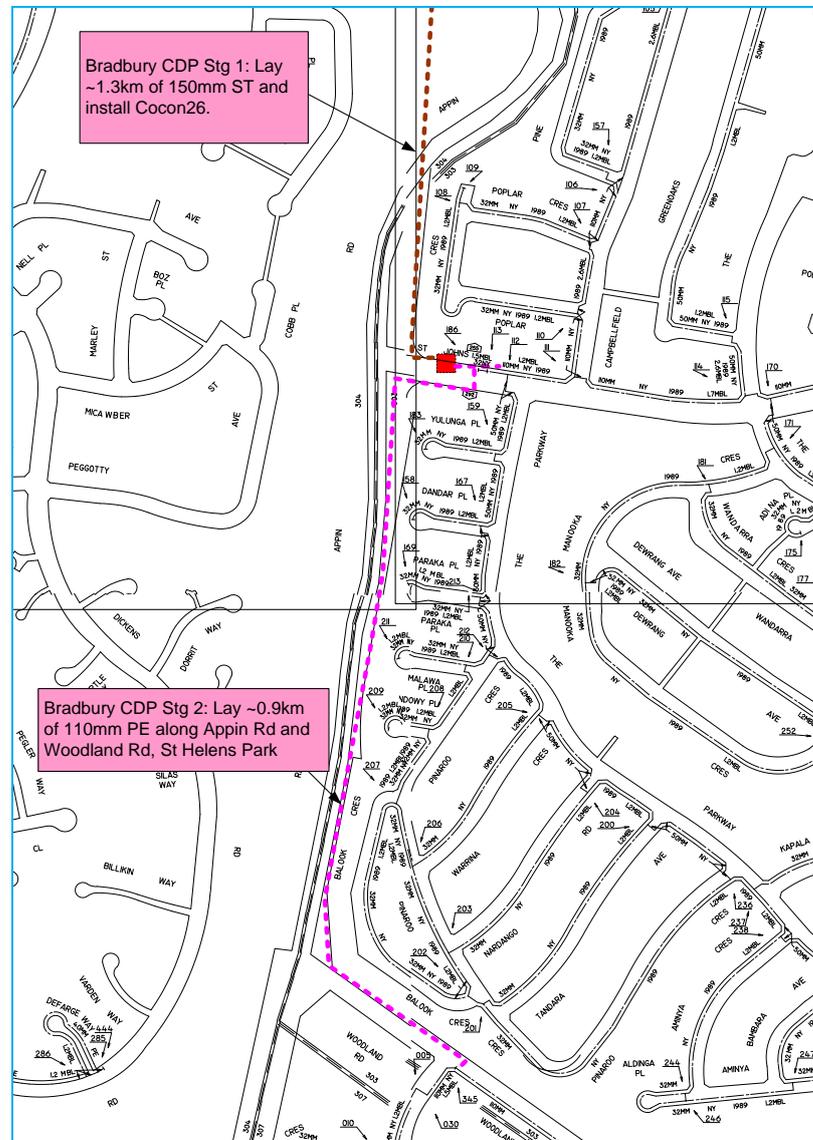
<sup>13</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator*, September 2014, para 2.13(ix).

## 2.10 BRADBURY STAGE 2 EXPANSION – C414-233

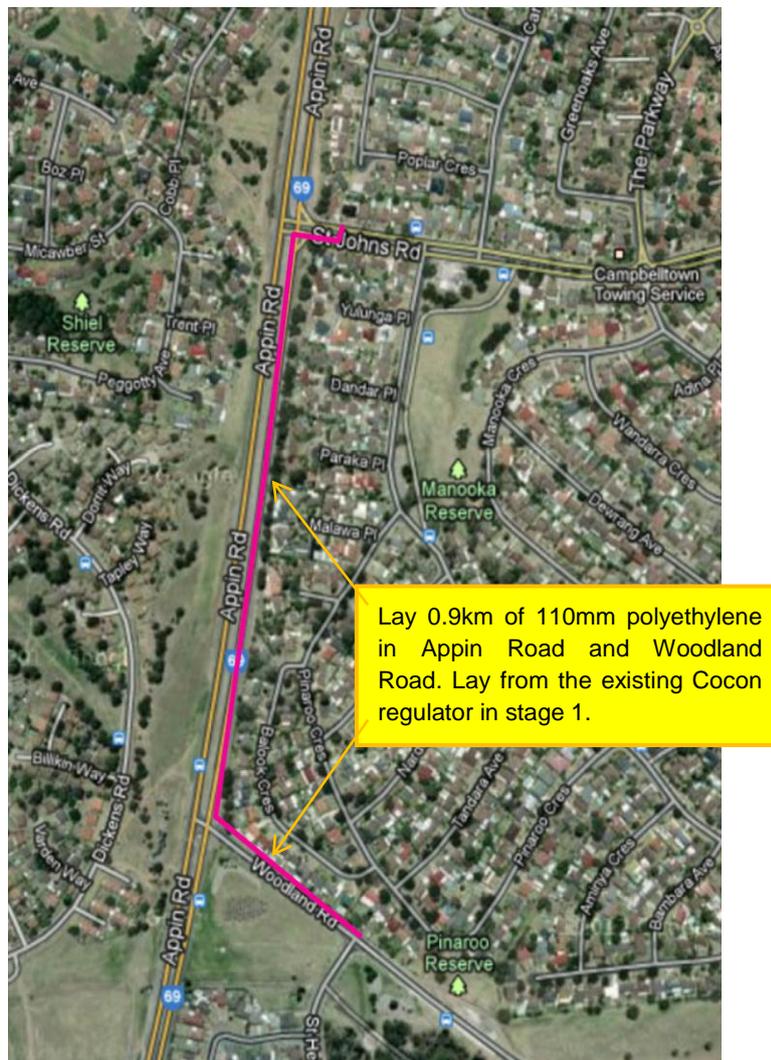
### 2.10.1 PROJECT BACKGROUND

45. The scope of the Bradbury stage 2 project is to lay 920m of 110mm polyethylene from the 110mm nylon at the outlet of the existing secondary regulator set in St Johns Road (installed with Bradbury Stage 1) and along Appin Road to the existing 110mm nylon at the corner of Woodland Road and St Helens Park Drive, St Helens (refer to Figure 2–20).
46. Bradbury stage 1 and stage 2 are both required to supply gas for a proposed development site in Mount Gilead covering approximately 200 hectares. The developers' stated intention is to begin selling lots by mid-2016. JGN expects 800 customers to be connected by 2020 with an additional 600 to 900 connecting in subsequent years.

**Figure 2–20: Bradbury stage 1 and stage 2 CDPs as an integral sequence**



**Figure 2–21: Scope of Bradbury stage 2 CDP**



### 2.10.2 DRAFT DECISION

47. Sleeman Consulting assessed the Bradbury Stage 2 CDP as follows:

*Bradbury stage 2 expansion (JGN Project ID 233, cost \$0.3m in present period) is scheduled for completion in 2021. This project should be delayed since the Bradbury Stage 1 project (JGN Project ID 207, cost \$1.4m) is itself not scheduled for completion until 2021. Accordingly, in my opinion this item of Capex is not justified.<sup>14</sup>*

### 2.10.3 RESPONSE

48. The Bradbury project has been divided into two stages to allow for flexibility in implementation by multiple contractors if deemed to be more efficient. The majority of Bradbury stage 1 is scheduled for completion in

<sup>14</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator*, September 2014, para 2.13(x).

RY20, with only project close-out in RY21. Stage 2 CDP is an integral continuation of Bradbury stage 1. Stage 2 is scheduled for winter 2021 completion (refer to Figure 2–20 and Figure 2–23).

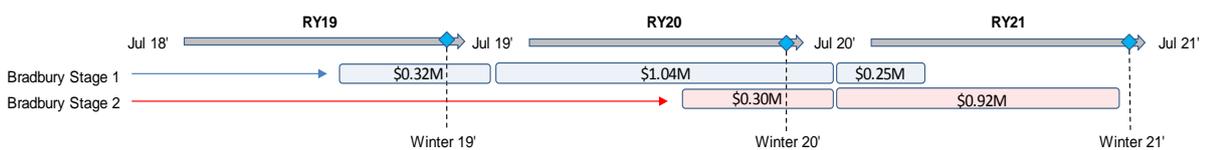
- 49. The delivery schedules for the two stages will overlap:

**Table 2–3: Bradbury stage 1 and stage 2 expenditure schedules – \$ million, \$2013, escalated direct costs and overheads**

Project Name	RY19	RY20	RY21
Bradbury Stage 1	0.32	1.04	0.25
Bradbury Stage 2	-	0.30	0.92

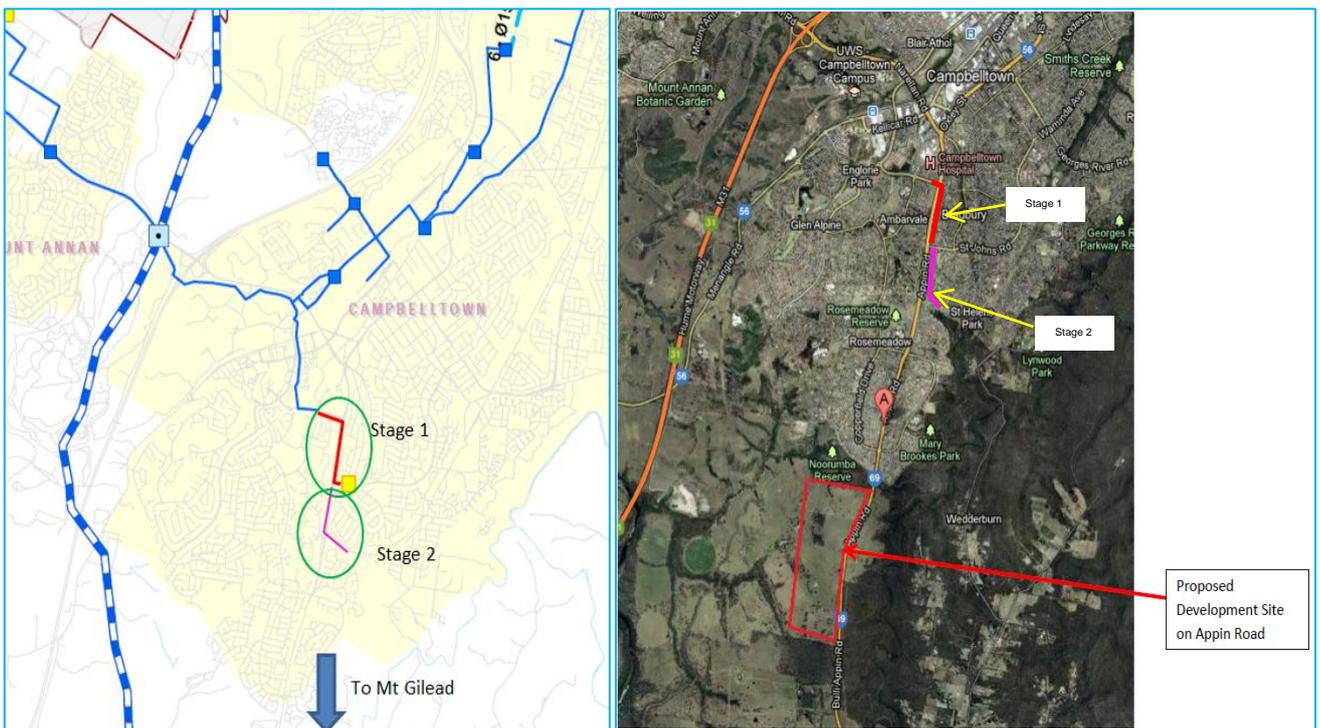
- 50. The bulk of the project costs for Bradbury stage 1 are in RY20, with only project close-out costs incurred in RY21. In turn, the majority of Bradbury stage 2 costs are in RY21, with only project planning and initiation costs in RY20. Hence, stage 2 will only be completed following completion of stage 1. Figure 2–22 shows the timing of the two stages in greater detail.

**Figure 2–22: Bradbury stage 1 and stage 2 – detailed timing**



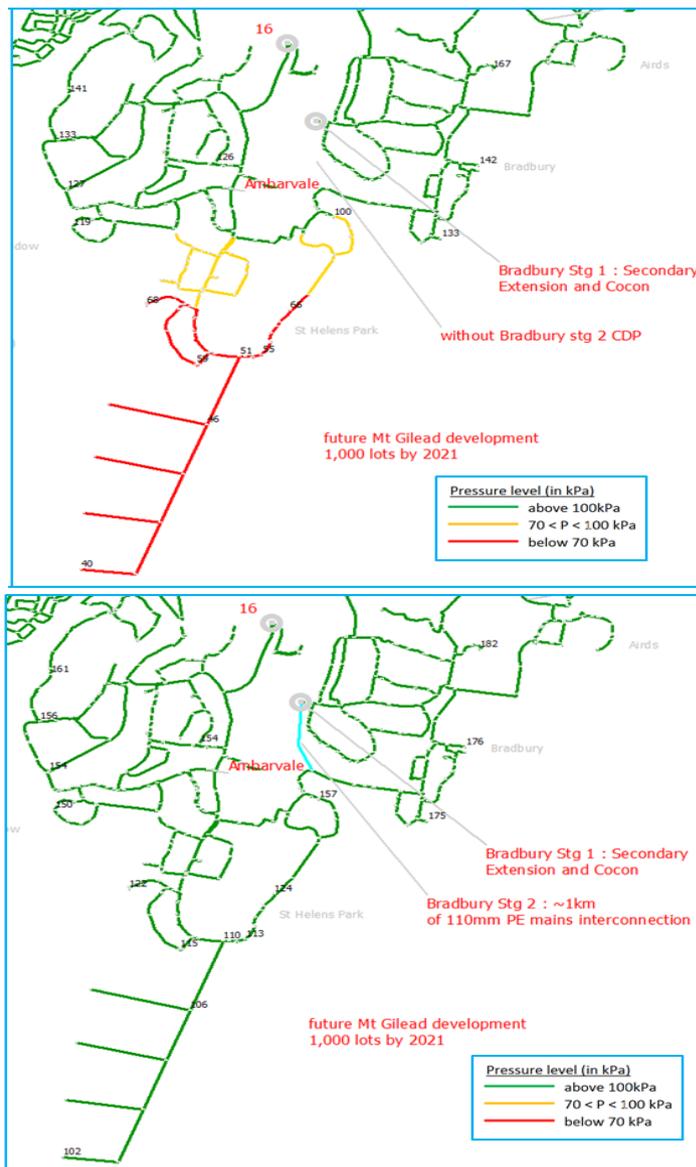
- 51. Funding for Bradbury stage 2 is still required in the 2015-20 AA period.
- 52. Figure 2–23 shows the location of the Bradbury stage 1 and stage 2 CDPs

**Figure 2–23: Bradbury stage 1 and stage 2 CDPs to supply Mount Gilead new estate development**



53. Figure 2–24 shows modelling of the Campbelltown 210 kPa network for a severe winter peak in 2021 with Mount Gilead gas demand without and with Bradbury CDP stages 1 and 2. Without the Bradbury projects approximately 400 customers in the Bradbury and Saint Helens Part area would suffer poor supply in a severe winter in 2021. There would also be no spare capacity available to connect the remaining 400-700 prospective customers in the new estate.

**Figure 2–24: Campbelltown 210 kPa network severe winter peak 2021 with Mount Gilead gas demand without and with Bradbury CDP stages 1 and 2**

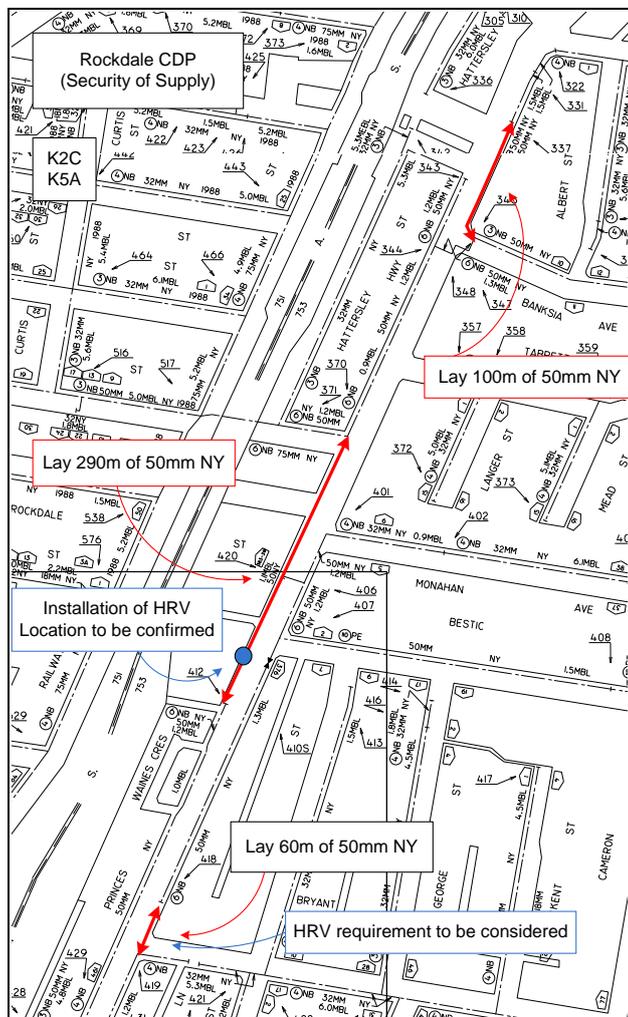


2.11 ROCKDALE REINFORCEMENT PROJECT – C414-237

2.11.1 PROJECT BACKGROUND

54. The scope of this project is to lay 50mm nylon mains interconnections at three locations on the Princes Highway:
  - on the east side near Bryant Street, Rockdale
  - on the west side between Kimtop Street and Waines Crescent, Rockdale
  - on the east side near Banksia Avenue, Banksia.
  
55. This project aims to provide long term capacity for growth and security of supply to the Hurstville 210 kPa network at Rockdale.

Figure 2–25: Rockdale CDP scope of work



## 2 — PROJECT ANALYSIS

### 2.11.2 DRAFT DECISION

56. Sleeman Consulting assessed the Rockdale reinforcement project as follows:

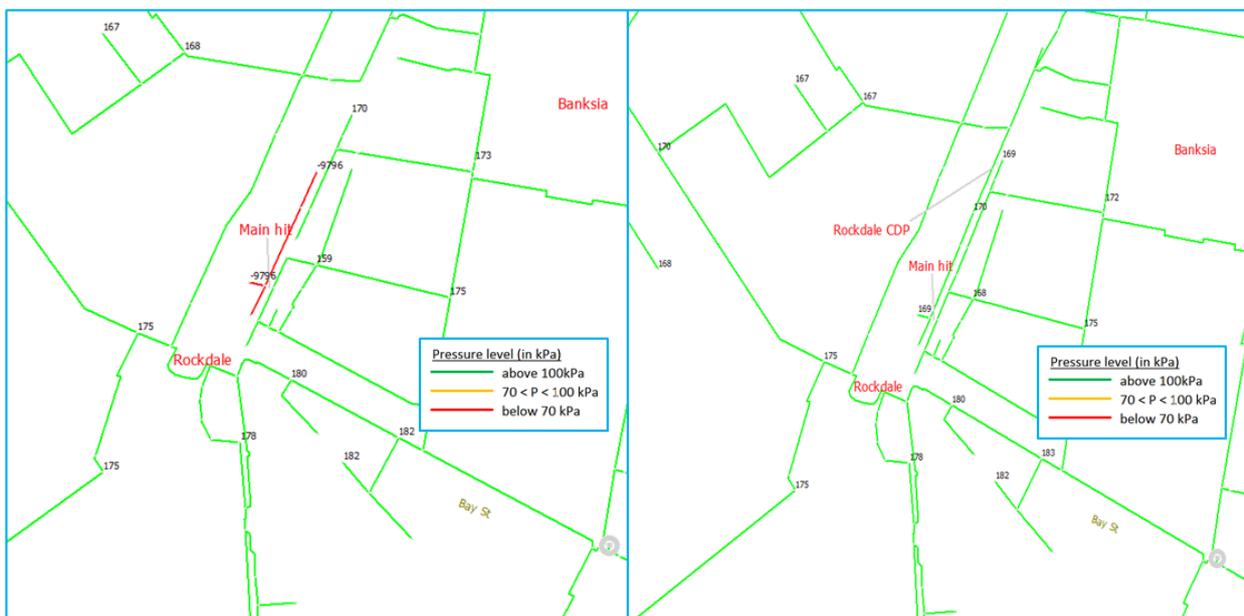
*Rockdale reinforcement work (JGN Project ID 237, cost \$0.3m) is scheduled for completion in 2020 yet terminal network pressures are presently well above the desirable minimum for the 210 kPa network.*

*There is nothing to suggest the network pressure will fall below the 70 kPa minimum desirable level for the 210 kPa network during the access arrangement period. Accordingly, in my opinion this item of Capex is not justified.<sup>15</sup>*

### 2.11.3 RESPONSE

57. Sleeman Consulting has correctly identified that there is sufficient capacity in this area under normal operating conditions. However, this project has been incorrectly categorised as a capacity improvement project in the Opportunity Brief. The key driver of the project is to provide security of supply to a number of commercial customers. There is only a single direction main supplying 27 active commercial customers, six which each have a load of more than 500GJ/yr. All 27 would lose supply in the event of damage to the single feeder main. These customers are mostly on the Princess Highway. The location of these customers in a congested area means that any damage to the feeder main would be a complex repair activity, potentially leaving the customers without gas for up to two days. Implementation of this project will enable backflow for security of supply. Figure 2–26 outlines the effect of damage to the feeder main and the benefit of an interconnection.
58. Additionally, this project will provide a better design for managing incident responses. The additional high risk valve included in the project will limit the number of lost customers during any incident.

**Figure 2–26: Hurstville 210 kPa network simulation without and with the Rockdale CDP**



<sup>15</sup> Sleeman Consulting, *Jemena Gas Networks 2015 Access Arrangement Submission, Review of Capex Forecasts for Capacity Development and Facilities Renewal and Replacement, Report to Australian Energy Regulator*, September 2014, para 2.13(xi).