Barton Block 13 Section 9 Barton Master Plan Site Services Report

Prepared for

Capital Planners

Prepared by

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R001-A	07/09/2005		Campbell MacDougall Canberra Manager	
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Table of Contents

Executive Summary

The major opportunities and constraints to the development of Block 13 Section 9, Barton are:

- The site is serviced on all its boundaries by road and hydraulic infrastructure, power and telecommunications.
- All existing services have adequate spare capacity to service the site, with the possible exception of the water services. This will be determined by ActewAGL after they conduct modelling of the existing services relative to the concept design.
- There is a 525 mm diameter sewer main running under the north east corner of the development. Correspondence with ActewAGL has determined that this main will require a 10 metre easement.
- The 150 mm dia sewer tie in the north west corner of the site will service the site.
- The sewer tie entering the site from Macquarie Street will have to be removed.
- Redundant services within the site may be abandoned and removed.
- New 150mm dia water main connections to existing live water mains must be undertaken by ActewAGL at the developer's expense.
- The large native tree located in the southern section of the site will require assessment in relation to its significance. Such assessment may impact on the development option in the vicinity of the tree.
- ActewAGL wish to conduct modelling of the water system surrounding the site as they are concerned that the development could adversely affect water pressure in the surrounding area. This will be conducted after a concept usage for the site is developed.
- It appears highly likely that the water main which runs along the eastern boundary of the site will need to be extended from the vicinity of the north east corner of Tourism House to join the 150 mm dia line in the vicinity of where it enters the site from Blackall Street to maintain the circuit. This will require off site works. This will be determined by the modelling conducted by ActewAGL.
- The 100 mm dia water main in Macquarie Street may need to be upgraded to a 150 mm dia main which will require substantial verge works. This works will be effected by the trees growing in the verge of Macquarie Street and a tree assessment will be required if there is to be verge works in this area. This will be determined by the modelling conducted by ActewAGL.
- There are a number of issues that should be considered by designers to reduce water usage of the development.
  - Landscaping should utilise plants with a low need for water, preferably native plants
  - The use of more permeable pavements should be considered

- The introduction of a dual system for plumbing should be considered in the design
- Installation of rainwater tanks should be considered as the water collected by the tanks can be utilised for toilets and landscape watering.
- Consideration should be given to designing the development to attain Green Star rating from the Green Building Council of Australia.

1.0 Introduction

1.1 Background

This report prepared by Maunsell Australia Pty Ltd for Capital Planners Pty Ltd provides an assessment of the existing services for the proposed development of Block 13 Section 9 Barton. It forms part of a Master Plan being prepared for the block.

Block 13 Section 9 in Barton is depicted in Figure 1-1. The site is currently occupied by car parking, both paved and gravel. The structures depicted in Figure 1-1 in Block 13 have been removed.

Figure 1-1 Proposed Development Site in Surrounding Context

1.2 Scope of Work

This report provides an assessment of engineering services to Block 13 Section 9, Barton, including:

- Locations and size of existing site services;
- Upgrades to existing services proposed by service providers;
- Assessment of the ability of existing services to cater for the proposed developments;
- Constraints posed by engineering services and other factors;
- Opportunities for site servicing; and
- Recommendations on the provision of engineering services

2.0 Description of the Site

2.1 Location

Block 13 Section 9 in Barton is bordered by:

- Broughton Street, the Edmund Barton Building to the north;
- A café in Section 12 to the north;
- Blackall Street and the Landmark apartment complex to the east;
- Tourism House and the AMA Building to the south; and
- Macquarie Street, a small park and a church to the west.

The majority of the area surrounding the proposed site is occupied by office and apartment buildings. The site surrounds are shown in Figure 2-1.

Figure 2-1 Site Surrounds

2.2 Existing Site Use and Conditions

The existing site contains a mix of paved and gravel surfaced car parking. The car parking facility caters for approximately 850 vehicles but is currently operating at approximately 110% to 120% of its capacity. The site has approximately forty trees on or immediately adjacent to it. **Error! Reference source not found.** depicts vehicles illegally parked in an attempt to maximise parking. It would appear that the site is servicing the parking needs of a significant proportion of office workers in the area.

Figure 2-2 Gravel car park and paved car park

Other key users adjacent to the site include:

- A large café/restaurant to the north in Section 12
- Government offices across Broughton Street to the north
- The Landmark apartment complex to the east;
- Tourism House and the AMA Building to the south;
- A small park and a church to the west; and
- A hotel complex to the south west.

Land usage in the near vicinity of the proposed site mainly consists of office buildings and some high density residential apartment blocks.

3.0 Existing Services

3.1 General

There are major visible hydraulic, telecommunications and power services surrounding the site. Plans of existing services surrounding the site are attached as Appendix A. The supplied plans do not show any easements. Service authorities require easements for their assets when located within private leases irrespective of the use of the site.

3.2 Sewer

There are sewer mains running under the verge of Macquarie Street, Broughton Street and the eastern section of Blackall Street. The line of greatest concern is the 525 mm dia line which runs under the north east corner of the site. A 150 mm dia line runs from Macquarie Street into the north east section of the site. This area also has a tie which originates from the 150 mm dia line in Broughton Street. There is another tie which enters the site from Macquarie Street. Layout plans of the sewer system as supplied by ActewAGL are appended in Appendix C.

3.3 Water Supply

The site has a number of water mains running through it. There is a 150 mm dia line running along the southern edge of the boundary with the café. This line continues though the site to Macquarie Street. Another 150 mm dia line runs through the middle of the site from the sites southern boundary until it joins the already mentioned line in the approximate centre of the site. Another 100 mm dia line runs through the site in an east/west direction in the vicinity of the southern boundary. There are mains in Macquarie Street, Broughton Street, and both the southern and eastern sections of Blackall Street. Complete plans of the water system as supplied by ActewAGL are appended in Appendix C.

3.4 Stormwater

The plans in relation to the current stormwater infrastructure situation supplied by ActewAGL are not very clear. It would appear that there are stormwater lines under the northern verge of Broughton Street with two pits on the boundary of the site in the vicinity of the Broughton/Café/site boundary. There is a 300mm dia stormwater service under the eastern verge of Macquarie Street adjacent to the site boundary. Minor lines (unknown dimension stormwater services) enter the site at two locations from Macquarie Street. The first enters the south west corner of the site and runs in an easterly direction for about three quarters the width of the site. The second enters from the midpoint of the Macquarie Street boundary and runs east through the centre of the site for about three quarters of the sites width. These are appended in Appendix C.

3.5 Electricity

There are underground high voltage electrical services located in the road reserve adjacent to the boundary of the site on all surrounding streets. There are also low voltage (240V) cabling and conduits that service the car park lighting and abandoned services for the structures which have been removed. These services run throughout the centre of the car park area. Due to the complexity of the surrounding electricity network, a separate

drawing has been included as Appendix B exclusively to show those services and electricity services are not show on the plan in Appendix A.

3.6 Telecommunication

Telecommunications carriers have indicated that there are a number of services which could be damaged by on site excavation. Telecommunications cabling is routed within the road reserve around the study area. Cabling exists within the site from previous developments. On site inspections by those carriers will be required before commencement of works.

3.6.1 Optus

Optus has cables in another utilities duct running along Blackall Street along the edge of the development site (both boundaries). There is also an Optus underground asset running along the eastern kerb of Macquarie Street and the southern kerb of Broughton Street. An Optus representative will be required to attend the site prior to excavation to indicate the exact location of this infrastructure.

3.6.2 Telstra

Telstra has cable and optical fibre located in the road reserve adjacent to the boundary of the study area in Blackall Street, Macquarie Street and Broughton Street. There is also cable located on the southern boundary of the study area. Telstra cables enter the study area from Macquarie Street in two locations in the vicinity of the south western section of the study area and one location in the north western section. Cable also enters the site from one location on Broughton Street and one location from Blackall Street. A Telstra representative will be required to attend the site prior to excavation to indicate the exact location of this infrastructure.

3.6.3 TransACT

TransACT has indicated that there is optic fibre in the vicinity of Blackall and Macquarie Streets. They have not supplied plans but require a site investigation prior to commencement of any excavation. Sarah Finnerty of TransACT should be contacted on (02) 6229 8009 prior to commencement of works to facilitate the required site visit to indicate the exact location of this infrastructure.

3.6.4 Diverse Data Communications

There is ICON optic fibre in the vicinity of the development and Diverse Data Communications require a site visit prior to works commencing. Ms Annette Gall of Diverse Data should be contacted on (02) 6209 9787 or 0419 487 677 prior to commencement of works to facilitate the required site visit to indicate the exact location of this infrastructure.

3.6.5 AAPT

AAPT has indicated they have plant in the vicinity of the proposed site. Their plan indicates they have cable running along Blackall Street into Broughton Street, though the cable is on the opposite side of those streets to the proposed development.

3.7 Gas

There are gas mains running along Blackall Street under the southern kerb, Macquarie Street under the western kerb and Broughton Street under the northern kerb. A high pressure steel gas main enters the site from Broughton Street, near the boundary of Block 12. The location of these services is indicated in Appendix A

3.8 Vehicular Access

Vehicle access to the site from the surrounding road network is via Macquarie Street and Blackall Street. Local access is primarily via Macquarie Street and Blackall Street. There are three vehicle accesses along Macquarie Street (Figure 3-1), although two of these accesses are blocked with bollards. The remaining access serves the various parking aisles located in the western sector of the Section 9 car park.

Figure 3-1 Macquarie Street vehicle accesses

Blackall Street has 3 vehicle access points; two of which access gravel car parking area and on accesses paved car parking (Figure 3-2).

Figure 3-2 Blackall Street vehicle access points

A number of nearby intersections that form the major accesses to the site from the surrounding road system are signalised. These are; Macquarie Street/Kings Avenue, National Circuit/Kings Avenue and National Circuit/ Brisbane Avenue. The intersection of Blackall Street/Kings Avenue is priority controlled.

4.0 Proposed Services and Easements

4.1 Summary

The site presents with various opportunities and constraints for redevelopment and site servicing. As mentioned previously the site and its existing infrastructure has been inspected, including obtaining information and records from the relevant service authorities on the location, size and capacity of their assets.

The site is adequately serviced around its entire perimeter with hydraulic, power and telecommunication services, as well as road access. Traffic management in the immediate local road network is the subject of a separate Maunsell report. The site has adequate opportunities for redevelopment utilising the existing infrastructure adjoining the site with minimal upgrading of existing services.

Electrical services drawings supplied by ActewAGL do not indicate the presence of extensive lighting and underground cabling within the site. Nonetheless, care will need to be exercised when excavating the site during its redevelopment and construction phase if the existing lighting is to be retained.

The site constraints have been investigated and are summarised below in the relevant subsections. The major constraint is the presence of a large 525mm dia trunk sewer traversing the north eastern portion of the site in the vicinity of the Cafeteria abutting Broughton Street and Blackall Street. The sewer is a major link on the local sewer network and requires a ten metre wide unencumbered easement for maintenance purposes along its route within the site. In addition, and although not a constraint to redevelopment of the site, a new 150mm dia water main will need to be installed in Blackall Street to restore the integrity of the water supply network caused from pipe which is abandoned within the site.

Existing services to the Cafeteria must be retained including the 525mm dia trunk sewer and gas pipeline nearby. All other redundant services comprising water supply, stormwater drainage, sanitary drainage, power supply and telecommunications may be abandoned and terminated at their point of origin. Abandoned pipe and cables may be removed from the site.

The existing 150mm dia water main traversing the northern portion of the site may be abandoned and/or utilised as a service connection for the new development. The water main which is abandoned in Macquarie Street verge must be terminated with an end cap and fire hydrant for flushing purposes to avoid water stagnating in the dead end.

New 150mm dia water main connections into live water mains are to be undertaken by ActewAGL at the developer's expense.

4.2 Sewer

The site has access to two sewer ties, one from Macquarie Street and one from Broughton Street. One of these could be utilised by the development provided they are functioning. If they are not, a 150mm dia tie will need to be constructed from 225 mm dia line in Macquarie Street.

The 525 mm dia line should be allocated an easement. The sewer is a major link on the local sewer network and requires a ten metre wide unencumbered easement for maintenance purposes along its route within the site.

All other redundant services comprising sanitary drainage may be abandoned and terminated at their point of origin. Abandoned pipes may be removed from the site.

4.3 Water Supply

Water supply is available from the 150 mm dia pipe on the eastern side of the site. A 150 mm dia tie from Blackall Street will be required to provide adequate fire flows. The line will need to be extended from the vicinity of the north east corner of Tourism House to join the 150 mm dia line in the vicinity of where it enters the site from Blackall Street to maintain the circuit. This will require off site works.

ActewAGL wish to conduct modelling of the water system surrounding the site as they are concerned that the development could adversely affect water pressure in the surrounding area. This will be conducted after a concept usage for the site is developed.

It appears highly likely that the water main which runs along the eastern boundary of the site will need to be extended from the vicinity of the north east corner of Tourism House to join the 150 mm dia line in the vicinity of where it enters the site from Blackall Street to maintain the circuit. This will require off site works. This will be determined by the modelling conducted by ActewAGL. The 100 mm dia water main in Macquarie Street may need to be upgraded to a 150 mm dia main which will require substantial verge works. These works will be affected by the trees growing in the verge of Macquarie Street and a tree assessment will be required if there is to be verge works in this area. The need for these works will be determined by the modelling conducted by ActewAGL.

The existing 150mm dia water main traversing the northern portion of the site may be abandoned and/or utilised as a service connection for the new development. The water main which is abandoned in Macquarie Street verge must be terminated with an end cap and fire hydrant for flushing purposes to avoid water stagnating in the dead end.

New 150mm dia water main connections into live water mains are to be undertaken by ActewAGL at the developer's expense.

Services to be abandoned are shown on the ActewAGL Water Network drawing in Appendix D and marked [xx] denoting the abandoned service.

4.4 Stormwater

Stormwater discharge from the proposed development will be similar to existing flow from the site. Stormwater discharge from the site should connect into the 300 diameter pipe along the western side of the site. This line currently drains the site. There is a risk of stormwater entering the site via the vehicle access points on Blackall Street. These access points should be altered to prevent localised flooding.

All other redundant services comprising stormwater drainage may be abandoned and terminated at their point of origin. Abandoned pipes may be removed from the site.

4.5 Electrical

The existing street lighting circuit will need to be removed may be abandoned and terminated at their point of origin. Abandoned pipe and cables may be removed from the

site. Care will need to be exercised when excavating the site during its redevelopment and construction phase if the existing lighting is to be retained.

Power supply will most likely come from Macquarie Street.

4.6 Telstra

All redundant services telecommunications services may be abandoned and terminated at their point of origin. Abandoned pipe and cables may be removed from the site.

It is understood to be Telstra's policy that connection will be provided to the block boundary at Telstra's expense subject to commercial viability of the demand.

4.7 Gas

Existing services to the Cafeteria must be retained including the gas pipeline nearby.

It is understood to be Agility's policy that connection will be provided to the block boundary, subject to the commercial viability of the ultimate demand.

4.8 Vehicular Access

The primary point of vehicle access to the site will be via Macquarie or Blackall Streets. Access/Egress and traffic related issues are examined in the traffic impact assessment.

4.9 Environmental Considerations and Water Conservation

There are a number of issues that should be considered by designers to reduce water usage of the development.

- Landscaping should utilise plants with a low need for water, preferably native plants
- The use of more permeable pavements should be considered
- The introduction of a dual system for plumbing should be considered in the design
- Installation of rainwater tanks should be considered as the water collected by the tanks can be utilised for toilets and landscape watering.
- Consideration should be given to designing the development to attain Green Star rating from the Green Building Council of Australia.

5.0 Overland Flow

The site topography slopes towards the north west corner of the development.

Figure 5-1 Overland Flow

Overland stormwater flows for the peak storm event are contained within the abutting road reserves. The site is neither on an overland flow route nor subject to flooding from peak storm events.

6.0 Tree Assessment

There are a large number of trees on the site. Some of these are introduced species and some natives. Most of the native trees are significant and a full tree condition assessment must be completed to ACT Environment requirements. No trees can be removed before a 'Tree Damaging Request' is submitted and approved. The trees depicted in Figure 6-1 and Figure 6-3 are in very good condition and may receive a H or H+ classification. If this is the case, if may be very difficult to gain approval for its removal.

Figure 6-1 Native tree in south east quadrant of the site

Figure 6-2 Location of tree depicted in Figure 6.1.

Figure 6-3 Large native tree on the boundary of the site

There are a large number of smaller trees in the north east corner (Figure 6-4) of the proposed site and also some trees throughout the north west quadrant (Figure 6-5). Trees surround the proposed site in road verges and will need to be protected throughout construction. A verge management plan will be required to be submitted to CUPPs for approval during the construction phase of the project.

Figure 6-4 Trees Viewed from approximate centre of the site to the north east.

Figure 6-5 Trees in the north west of the site

7.0 Development Constraints

The major constraints to the development of Block 13 Section 9, Baron are:

- There is a 525 mm dia diameter sewer main running under the north east corner of the development. Correspondence with ActewAGL has determined that this main will require a 10 metre easement.
- The sewer tie entering the site from Macquarie Street will have to be removed.
- The large native tree located in the southern section of the site will require assessment in relation to its significance. Such assessment may impact on the development option in the vicinity of the tree.
- ActewAGL wish to conduct modelling of the water system surrounding the site as they are concerned that the development could adversely affect water pressure in the surrounding area. This will be conducted after a concept plan for the site is developed.
- It appears highly likely that the water main which runs along the eastern boundary of the site will need to be extended from the vicinity of the north east corner of Tourism House to join the 150 mm dia line in the vicinity of where it enters the site from Blackall Street to maintain the circuit. This will require off site works. This will be determined by the modelling conducted by ActewAGL.
- The 100 mm dia water main in Macquarie Street may need to be upgraded to a 150 mm dia main which will require substantial verge works. This works will be effected by the trees growing in the verge of Macquarie Street and a tree assessment will be required if there is to be verge works in this area. This will be determined by the modelling conducted by ActewAGL.
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- There are a number of issues that should be considered by designers to reduce water usage of the development.
  - Landscaping should utilise plants with a low need for water, preferably native plants
  - The use of more permeable pavements should be considered
  - The introduction of a dual system for plumbing should be considered in the design
  - Installation of rainwater tanks should be considered as the water collected by the tanks can be utilised for toilets and landscape watering.
  - Consideration should be given to designing the development to attain Green Star rating from the Green Building Council of Australia.

8.0 Development Opportunities

- The site is serviced on all its boundaries by road and hydraulic infrastructure, power and telecommunications.
- The site may be accessed and serviced by existing infrastructure to suit the proposed development.
- The 150 mm dia sewer tie in the north west corner of the site will service the site.
- All existing services have adequate spare capacity to service the site, with the possible exception of the water services. This will be determined by ActewAGL after they conduct modelling of the existing services relative to the concept design.

Appendix A – Telecommunications and Gas Services

Appendix B – Electrical Services

Appendix C – Hydraulic Services

Appendix D – Possible Changes to Water Services

The attached plan is an indication of works that may be required by ActewAGL after modelling has been conducted on the surrounding water network relative to the development of the proposed site.