Utility Services Masterplan Report

Channel 9 Site Redevelopment, Willoughby

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Prepared for
Nine Network Australia Pty Ltd

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Cardno
Shaping the Future

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1 Introduction

1.1 Background

Cardno has been engaged by the Nine Network Australia to prepare a Utility Services Masterplan Report in support of a Part 3A Major Project application for development of land at 6-30 Artarmon Road, Willoughby (the site). The site has a total area of approximately 2.9 hectares and is bound by Artarmon Road, Richmond Avenue and Scott Street. The southern boundary of the site is shared with the TXA Transmission Tower, a Council reserve and a number of residential properties which front Walter Street. The site comprises a number of individual lot titles, which we understand to be Lot 1 in DP820327, Lot 1 in DP748215, Lot 13 in DP6849 and Lot 1 in DP327266.

The proposed development is for a mixed-use residential and retail development consisting of multiple buildings, ranging in height from two to fifteen storeys. The proposed development includes:

> Up to 60,000m^2 of floor area for residential and up to 600m^2 for retail;

> Development yield of up 600 dwellings;

> Car parking for residents and visitors; and

> Communal and public open space across approximately half the site.

This report investigates utilities infrastructure characteristics, including; potable water, waste water, electrical, gas and telecommunications.

1.2 Information Sources and Limitations

Where possible, we have contacted service authorities and recorded our conversations. Due to time constraints, formal correspondence was not received from all utility providers. Our findings have therefore been based on the following:

> Review of “Dial Before You Dig” information, requested by Underground Services Search Pty Ltd, and provided by Ausgrid, Telstra, Jemena, Sydney Water, Optus, Pipe Networks and Willoughby Council, dated 24 October 2012;

> Sydney Water Feasibility Letter dated 10 December 2012 (Case Number 130606);

> Review of report “Electricity Supply to Proposed Redevelopment of 6 To 30 Artarmon Road Willoughby (Channel Nine)” provided by Connect Infrastructure dated 2 November 2012;

> Review of Sydney Water data available in Hydra;

> Review of NBN Co planning guidelines available at www.nbnco.com.au ;

> Correspondence with Neal Hilton of Jemena on 7 November 2012;

> Site inspection on 9 November 2012; and

> Correspondence with Scott Soutar - Station Manager Channel 9.

This report aims to faithfully convey the outcomes of investigations, meetings and discussions in order to accurately and adequately define infrastructure requirements for the site based on a desktop analysis.

The report has been prepared in the context of the proposed development and offers a balanced approach to address competing demands to represent a sustainable development outcome for the site.

1.3 Site Context

The subject site, shown in Figure 1-1 below is located on Artarmon Road Willoughby. The site is bound by Artarmon Road, Richmond Avenue and Scott Street. The southern boundary of the site is shared with the TXA Willoughby Site, a Council reserve and a number of residential properties which front Walter Street.

Figure 1-1 Site Context Plan (Imagery by Nearmap)

The site contains a number of existing buildings and infrastructure currently required for Channel 9 operations, including;

> Office buildings;

> Television studios;

> Workshops and storage areas;

> Parking and hardstand facilities;

> Helicopter landing area;

> Telecommunications and broadcast facilities; and

> An electrical substation.

1.4 Existing Services

A number of existing services were found both within and proximate to the site. Cardno have prepared an Existing Services Plan which is included as Appendix A.

Each of the major utilities is discussed in greater detail in the following sections.

1.5 Proposed Development

The proposed development is for a mixed-use residential and retail development consisting of multiple buildings. This report is based on Concept Option 2c prepared by SJB Australia shown in Figure 1-2, which includes:

> Six building of various floor size;

> Approximately 60,000m^2 of total floor area;

> Town-house style development along Richmond Road;

> Development yield of approximately 600 dwellings;

> Car parking for residents and visitors; and

> Communal and public open space across approximately half the site.

Figure 1-2 Concept Development Plan (SJB Architects)

1.6 Assumptions and clarifications

At the time of preparing this report it was unknown whether the site would be vacated by Channel 9 prior to development works or whether operations would continue in conjunction with the development. For planning purposes, this report has been prepared on the assumption the development will proceed in a single stage encompassing the whole site. A plan indicating the services to be adjusted is included with Appendix B.

Should the development proceed in multiple stages and should Channel 9 operations continue on the site, it is our opinion that sufficient arrangements can be made for staged utility relocations/demolition as well as staged utilities servicing of the development. Such arrangements can be further developed as part of the detailed design phase.

It is understood the existing TXA transmission tower to the south of the site is currently serviced via assets from within the Channel 9 site under a legacy agreement between TXA and the Nine Network. Correspondence received from the Station Manager confirms construction of a new TXA service building within the tower site will remove the need for existing connections within the Channel 9 site. These works are scheduled for completion in 2013; therefore, this report is formed on the basis the proposed development will not impact on any TXA assets.

2 Potable Water Infrastructure

2.1 Existing Assets

The subject site is within Sydney Water's potable water supply zone and is serviced by the Ryde Delivery System.

Review of the Dial Before You Dig (DBYD) drawings and information obtained from Sydney Water's Hydra System confirms a number of Sydney Water potable water assets exist in the vicinity of the site.

A plan indicating Sydney Water's existing potable water infrastructure is included with Appendix C.

Existing potable water assets within and proximate to the site are outlined below:

a) 150mm mPVC (modified Polyvinylchloride) and 150mm CICL (Cast Iron Concrete Lined) mains are located on the northern side of Artarmon Road. The 150mm mPVC main fronts the site west of Edward Street and the 150mm CICL fronts the site east of Edward Street.

b) 150mm mPVC water main along the east side of Richmond Avenue.

c) 100mm CICL water main located within the western side of Scott Street which services only the existing Channel 9 site.

2.2 Existing Capacity

In order to assess the existing capacity of the potable water supply to the site, a prediction of the existing usage was made based on Sydney Water's commercial building potable water demand rate and per commercial floor area.

It is understood the total floor area of the existing Channel 9 operations buildings on the site is approximately 12,000m^2. Based on Sydney Water's commercial building potable water demand rate of 1.8kL/m^2/year it is estimated the existing potable water demand, and therefore the capacity of the existing potable water network, is of the order of 60kL/day.

2.3 Required Capacity

Potable Water demand for the proposed development was estimated using recently published potable water usage data made available by Sydney Water.

This data demonstrates the historical potable water usage for multi-storey high rise type developments is typically of the order of 3.34L/day/m^2 net floor area. Assuming a typical net floor area of 70m^2 per unit and an ultimate development yield of 600 dwellings the estimated potable water demand for the overall development is 140kL/day. Therefore the development would represent an increase in potable water demand of the order of 80 kL/day.

The Feasibility Letter received from Sydney Water indicates an upgrade of existing potable water infrastructure will be required to service the development. The Feasibility Letter suggests that confirmation be sought during detailed design process regarding Sydney Water's capacity to meet service requirements for fire fighting purposes.

2.4 Potable Water Servicing

The final potable water servicing arrangement for the site will depend on the nature of land titles within the development and dedication or road infrastructure as private or public assets. Generally, a road dedicated to Council as a public asset will have a potable water main constructed as a Sydney Water asset within its verge. One potable water connection will generally be required per Torrens Title lot and one per Strata Title property. Details regarding property connections are typically resolved with the Section 73 application.

Existing mains in Artarmon Road and Richmond Avenue afford the development a variety of connection points to provide potable water servicing to the development. A concept water servicing plan indicating possible connection points for proposed development has been prepared and is included with Appendix D.

The plan indicates potable water supply to Strata Title lots within the proposed development is granted from the existing water main in Artarmon Road via the extension of a new Sydney Water reticulation main into the subject site. Water supply to Torrens title lots to the west of the subject site is granted from the existing water main in Richmond Avenue.

Costs associated with upsizing of potable water mains on Artarmon Road and connections to the existing water supply network would be borne by the developer.

2.5 Potable Water Infrastructure Upgrades / Augmentation and/or Relocation

Sydney Water's feasibility Letter (attached in Appendix H) indicates amplification of existing potable water mains on Artarmon road will be required to service the development. The upsized main would connect to the existing 450mm potable water main on Willoughby Road to the east of the site. The upsized main would continue through the site and connect to the existing infrastructure on Richmond Road.

It is understood the development requires the relocation of Scott Street, therefore, the existing Sydney Water 100mm CICL main in Scott Street will likely be decommissioned. As the existing water main in Scott Street only services the Channel 9 site at present, phasing of the decommissioning will not be required.

Protection measures to the existing water main assets Artarmon Road and Richmond Avenue may be required due to heavy traffic movements associated with construction.

The proposed development includes the construction of a formalised vehicular access point from Richmond Avenue. As part of this upgrade, works may be required to protect the 150mm mPVC main from damage due to increased traffic loads. Sydney Water may require concrete encasement or adjustment (lowering) of the existing main as part of the development.

2.6 Reductions in Potable Water Demand

Cardno have prepared a Stormwater Management Strategy in support of the Part 3A application for the redevelopment of the Channel 9 Site. The Stormwater Management Strategy assesses the opportunity for Total Water Cycle Management (TWCM) initiatives to be included with the development. TWCM initiatives include rainwater harvest facilities which are intended to reduce potable water demand for the development by providing non-potable water supply for use in toilet flushing and irrigation to landscaped areas which would otherwise be serviced by the potable water supply system. Further details are available in Cardno's Stormwater Management Strategy. It is noted for the purposes of this assessment reduction in the potable water demand for the proposed development is not considered, as a measure of conservatism.

2.7 Recommendations

As indicated in Sydney Water's Feasibility Letter, a section 73 Application should be lodged to allow the detailed planning of potable water supply to the site to Progress.

As part of detailed planning and assessment, an analysis of potable water demand for the development should be undertaken to demonstrate the effects the water efficient fixtures and fittings and any Total Water Cycle Management initiatives have on the potable water demand for the development. Detailed planning should also assess fire fighting requirements to identify if additional infrastructure upgrades are necessary for the purposes of fire fighting.

In order to determine the exact nature of Sydney Water's requirements to service the development, a S.73 Application upon determination of the Part 3A application will be required, followed by detailed assessment by Sydney Water. We also recommend a physical services search is undertaken to determine the exact location of Sydney Water's assets. This may include potholing of the existing infrastructure to determine the alignment and depth of the assets.

2.8 Conclusions

The results of the potable water supply investigation have indicated, subject to the provision of upgrades to existing water supply delivery infrastructure and provision of new water supply infrastructure to the site, water servicing of the site is possible and is not considered a technical constraint on the suitability of the land for development.

3 Sewer Infrastructure

3.1 Existing Assets

The site is within Sydney Water's sewer service zone and is serviced by the North Head Wastewater Treatment Works (WWTW).

Review of the Dial Before You Dig (DBYD) drawings, and information obtained from Sydney Water's Hydra System, confirms a number of Sydney Water sewer infrastructure assets exist in the vicinity of the site.

A plan indicating Sydney Water's existing sewer infrastructure is included with Appendix B.

Existing sewer assets within the proposed development area are outlined below:

a) A 225mm Vitrified Clay (VC) main is located in the south west corner of the site, and crosses through the TXA transmission tower site. The direction of flow is from north to south with the main draining through the transmission tower site towards the Gore Hill Freeway.

b) A 225mm VC main is located within the north west corner of the site and exits the site via the western boundary, crossing Richmond Avenue and entering residential properties to the west. This sewer main currently services the Channel 9 technical block and studio block, as well as a number of smaller outbuildings. The direction of flow is from east to west, with the main draining across Richmond Road towards residential houses to the west.

c) A small section of disused main connects the south west and north west 225mm VC mains.

d) A small length of 225mm VC sewer main enters the site on the southern boundary, draining along the eastern boundary of the council reserve to the south of the Channel 9 site.

e) A 150mm VC sewer main currently services the buildings on Scott Street. This main commences with a Ventshaft Educt (VSE) which is attached to the façade of number 4 Scott Street. The main drains to the north, following the alignment of Scott Street. At approximately Chainage 40, the main increases to a 225mm Salt Glazed Ware (SGW) main. This main connects to a 225mm SGW main in Artarmon Road, which drains down Artarmon Road to the east.

3.2 Existing Capacity

In order to assess changes in waste water generation, the existing site usage was determined as 90% of the potable water demand, or 54kL/day.

3.3 Required Capacity

Waste Water generation for the proposed development was estimated by using recently published data made available by Sydney Water. As part of the feasibility application, an estimated daily waste water volume was presented of 126 kL/day.

Based on our review of the existing site usage, it is understood the proposed development would represent an increase in waste water generation of the order of 72 kL/Day.

Sydney Water's Feasibility Letter (Appendix H) does not comment on the capacity for the network, however, advises the detailed planning for final requirements of waste water servicing would be determined as part of the Section 73 Application.

3.4 Waste Water Servicing

The four existing 225mm sewer mains surrounding the site afford the proposed development the option to utilise multiple connection points to the existing sewer system. Multiple connection points create opportunity to divide the development site into smaller sewer catchments, therefore allowing the waste water discharge from the site into the existing sewer assets to be managed and suitably apportioned not to exceed the capacity of each receiving sewer main.

It is therefore likely the development would utilise multiple connections to the existing sewer system in order to reduce the burden on a single connection point and reduce the magnitude of any amplification works the existing sewer system downstream of the site.

A concept sewer servicing plan for the proposed development masterplan has been prepared and is included with Appendix E.

The plan demonstrates three possible sewer catchments for the development. Waste water servicing for the eastern catchment is granted via the relocation and extension within the site of existing 225mm Vitrified Clay (VC) main located in the south west corner of the site. Waste water servicing for the central catchment is granted via the extension within the site of the existing 225mm Vitrified Clay (VC) main located to the south of the site. Waste water servicing for the eastern catchment is granted via the relocation and extension within the site of existing 225mm Salt Glazed Ware (SGW) main draining to Artarmon Road.

The capacity of each existing asset will be assessed during the detailed design stage and proposed waste water discharge through each connection point will be subject to formal approval from Sydney Water, as indicated on the Feasibility Letter.

Costs associated with any extensions or connections to the existing sewer system would be borne by the developer.

3.5 Possible Sewer Infrastructure Upgrades / Augmentation and/or Relocation

The majority of existing sewer infrastructure within the site is impacted by the proposed development. As such all existing sewers leading from the site would be capped at the boundary and decommissioned thereon within the subject site.

The exhumed assets from within the subject site would be disposed of in an appropriate manner at a suitable waste management facility. The methods for removal and disposal of such materials would form part of the Contractor's construction waste management plan.

Amplification of the existing sewer system surrounding the site may be required to service the development and should be explored during the detailed design stage, in consultation with Sydney Water.

As previously discussed the development site would likely utilise multiple connections to the existing sewer system in order to reduce the burden on a single connection point and reduce the magnitude of any amplification works the existing sewer system downstream of the site, however the possibility of amplification cannot be discounted.

Should amplification or lead in of sewer infrastructure be necessary, Cardno's review suggests the optimum main for amplification is the southernmost main draining along the eastern boundary of the council reserve to the south of the Channel 9 site. This main provides the shortest route to the existing trunk sewer main on the opposite side of the Gore Hill Freeway. As a conservative estimate, amplification of this main to a 300mm main may be required for a length of approximately 100m, generally along the eastern boundary of the Council Reserve.

3.6 Reductions in Waste Water Generation

It is understood the proposed development will utilise Environmentally Sustainable Design (ESD) initiatives which employ a Total Water Cycle Management (TWCM) scheme. The principles of TWCM are to reduce both total potable water use and waste water and stormwater outflow. Therefore, a TWCM approach aims to reduce waste water discharge from the development.

Cardno have prepared a Stormwater Management Strategy in support of the Part 3A application for the redevelopment of the Channel 9 Site. The Stormwater Management Strategy assesses the opportunity for Total Water Cycle Management (TWCM) initiatives to be included with the development, including systems which reduce waste water discharge from the site. Further Details are available in Cardno's Stormwater Management Strategy.

Sydney Water methods for calculation of sewage discharge are based on the waste water generation observed in existing multi storey residential buildings. Initiatives included with new Green Star rated developments, including water efficient fixtures and fittings, have typically led to an overall reduction in waste

water generation for new developments. This therefore suggests Sydney Water's rates generally over-estimate the actual waste water generation of new multi-storey residential developments. A detailed assessment of waste water generation at the detailed design stage may indicate that discharge from the site can be reduced to such an extent that sewer lead in works may not be required.

3.7 Recommendations

This report assessed the existing network to have sufficient capacity for the proposed development, based on the predicted increase in waste water generation associated with the change in site use. As part of detailed planning and assessment, an analysis of waste water generation for the development should be undertaken to demonstrate the effects the water efficient fixtures and fittings have on the waste water generation from the site.

Final waste water connection locations will depend on the requirements of each building, including potential reductions in potable water demand and any TWCM initiatives. Opportunity exists for multiple connection locations and the strategy for waste water catchment management should be coordinated throughout the detailed design phase to minimise the development's impact on the existing sewer infrastructure.

In order to determine the exact nature of Sydney Water's requirements to service the development, a S.73 Application upon determination of the Part 3A application will be required, followed by detailed assessment by Sydney Water. We also recommend a physical services search is undertaken to determine the exact location of Sydney Water's assets. This may include potholing of the existing infrastructure to determine the alignment and depth of the assets.

3.8 Conclusions

The results of the sewer investigation have indicated, subject to the provision of upgrades to existing sewer infrastructure and provision of new sewer infrastructure to the site, waste water servicing of the site is possible and is not considered a technical constraint on the suitability of the land for development.

4 Electrical Infrastructure

The site is situated within Ausgrid's Distribution Area. For the purposes of an expedited review, Connect Infrastructure was engaged as the Level 3 Accredited Service Provider to coordinate directly with Ausgrid. Connect's investigations confirm a number of Ausgrid assets exist both within and proximate to the site. At the time of preparing this report, the results of the feasibility application were not available.

4.1 Existing Assets & Impact

Of greatest significance to the proposed development is the Chamber Substation (7712) within the Channel 9 site, which currently supplies Channel 9's facilities as well as reticulation external to the site. The substation includes an associated easement over the Channel 9 site to provide access for maintenance of the asset. The location of the existing substation and associated easement is shown in Figure 4-1 below. The impacts of the proposed development on the substation are discussed in Section 4.2 below.

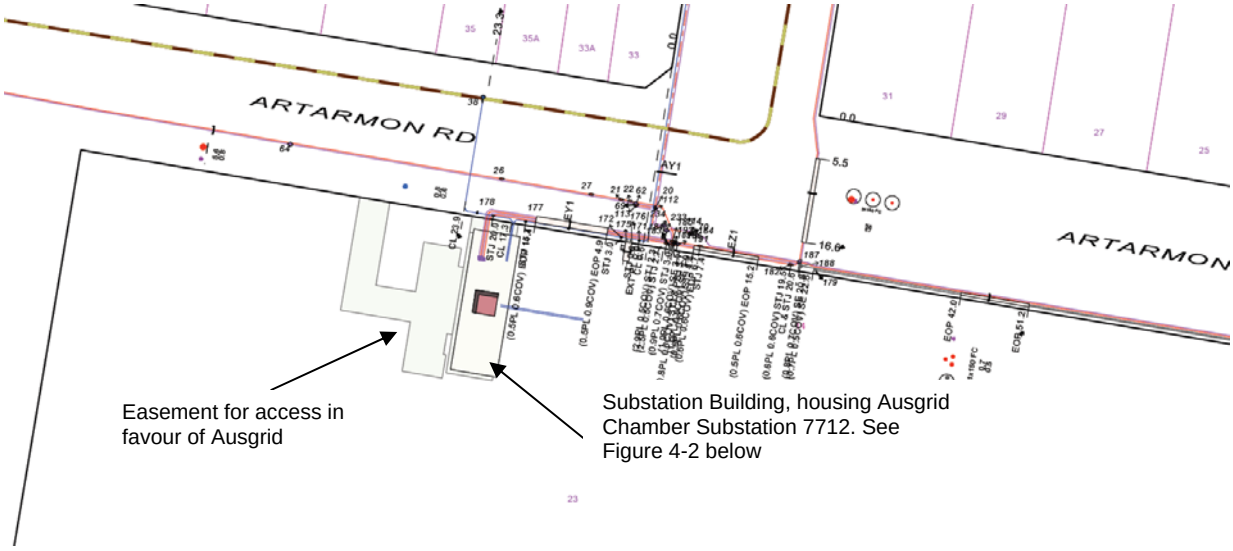

Figure 4-1 Plan showing Ausgrid Chamber Substation Building and associated Easement

Figure 4-2 Ausgrid Chamber Substation 7712 Building

Information available on Ausgrid's Dial Before You Dig plans as well as information obtained during Connect Infrastructure's correspondence with Ausgrid confirms the Chamber Substation supplies the Channel 9 site and also supplies low voltage services to other properties on Artarmon Road and Edward Street.

In addition to the Chamber Substation, our investigations have identified a number of overhead and underground assets proximate to the site, including:

a) Underground High Voltage Distribution infrastructure located in the eastbound lane of the Artarmon Road carriageway, West of Edward Street and continuing north in Edward Street.

b) Underground electrical services along Artarmon Road, along the northern boundary of the site. These assets extend east from the Chamber Substation along the property boundary.

c) Overhead infrastructure on the north side of Artarmon Road and the east side of Richmond Avenue. This infrastructure does not directly front the site.

d) Overhead infrastructure on the East side of Scott Street.

e) A number of overhead connections to existing buildings on the Channel 9 site.

The following summarises the likely impact of development on the abovementioned assets. As previously discussed, it is understood the site would be vacated in one stage, allowing demolition of redundant services to be undertaken prior to the commencement of construction activities on site.

a) The underground High Voltage distribution assets lie outside of the development footprint and are therefore not directly impacted by the proposed development. However, it is noted that any works, including road works or utilities infrastructure works, may impact on the HV Transmission infrastructure. Works in Artarmon Road in the vicinity of the HV Transmission infrastructure should be coordinated with Ausgrid.

b) The underground distribution assets generally lie in the road verge, typically within one metre of the property boundary. This places the assets outside of the development footprint; however, construction activities on site may include excavation proximate to the property boundaries. Therefore works within close proximity of property boundaries and road verges may need to accommodate the existing electrical infrastructure.

c) Existing overhead infrastructure on Artarmon Road and Richmond Avenue lie outside the development footprint and do not front the site. Therefore these assets will not be directly impacted by the development and undergrounding is not required.

d) Existing overhead infrastructure on Scott Street lies within the development footprint and therefore will be directly impacted by the proposed development. These overhead assets currently only connect to buildings within the site on Scott Street, therefore, the removal of these assets will not impact any continued use of these services once Channel 9 have vacated the site.

e) It is understood existing overhead connections which service the existing Channel 9 facilities will be made redundant as Channel 9 operations cease on site. It is also understood any new connections to service the development will be underground, in accordance with Ausgrid network standards.

As discussed in Section 4.1, the Chamber Substation provides electrical servicing to a number of properties external to the site, thus staging of the substation relocation will be required as part of the development.

4.2 Existing Capacity

The existing Channel Nine site is serviced via two (2) x 3000 amps supplies connected directly from chamber substation 7712. The substation consists of three (3) x 1500kVA transformers with a total capacity of 5,500 amps. The maximum load reading of substation 7712 in recent years was 2,060 amps in February 2010.

Based on a yield of 600 residential units the anticipated electrical load in accordance with maximum demand calculations in AS3000 would be approximately:

> 2,850 amps where electric storage hot water, cook tops and ovens are installed in all units.

> 2,600 amps where gas hot water, gas cook tops and electric ovens are installed in all units.

Ausgrid have advised, in accordance with their supply policy (ES8), provided the proposed load does not exceed 3,500 amps, and subject to a formal application and feasibility study, supply will be available or made available at no cost to the developer from the existing 11kV underground cables on the southern side of Artarmon Road. Based on the preliminary maximum demand calculations above, Connect Infrastructure has advised the existing network has sufficient capacity to service the proposed development.

4.3 Service Connection

Servicing to the proposed development could be achieved via the existing Chamber Substation located on site. However, the SJB Concept Plan indicates the Chamber Substation lies within the development footprint and will therefore be directly impacted by the proposed development. For the purposes of this report, it is understood the substation will not remain in its current location and relocation works will be required in order to achieve the desired development outcome.

As discussed above, the existing Chamber Substation supplies electricity to properties external to the site. In order to maintain supply to those properties, the substation cannot be decommissioned without a new substation first being commissioned. Furthermore, proposals for relocation of the existing substation cannot occur without formal approval from Ausgrid. While Ausgrid do have authority to insist the existing Chamber Substation remain, adjustment of the existing network would generally be met with approval if suitable alternative arrangements can be implemented by the developer.

Connect Infrastructure have advised that three kiosk or standard chamber type substations would form a suitable arrangement to replace the existing Chamber Substation on site. It is understood the determining factor for the arrangement of substations, either chamber or kiosk (or combinations thereof), will be the visual impact and the land take associated with these substations.

Kiosk substations are housed within steel structures and are typically located close to public roads. The selection of kiosk substation locations should consider Ausgrid's general requirements in accordance with their network standards; however, the largest factor for consideration is the location of the substation in proximity to public roads. Where the kiosk site is not located adjacent to a public roadway, an easement granting Ausgrid access to the substation will be required for maintenance purposes.

Chamber substations can be incorporated within building footprints and are commonly located on the ground floor fronting public roads. Chamber Substations can also be constructed as a standalone facility, such as the existing Chamber Substation on site, or can be constructed as an underground facility (known as a "Basement Chamber Substation"). The selection of chamber substation locations will need to consider a number of elements in accordance with Ausgrid's standards, which generally include the following:

> Access arrangements, including suitable measures to provide unrestricted personnel access to chamber substation and heavy vehicle access for maintenance requirements;

> The location of cable routes, duct routes, ventilation ducts and cable risers required to service the chamber substation should not be impacted by structural elements or other services;

> Structural design for a minimum 50 year life cycle, including allowances for fire ratings, fire separation and blast ratings;

> Earthing requirements; and

> Measures to ensure Electromagnetic Interference (EMI) does not disrupt sensitive electronic equipment or pose a health risk to persons who continuously occupy adjacent areas.

An Electrical Supply Concept Plan is included with Appendix F which indicates potential arrangements for electrical supply for the site. The plan indicates possible arrangements utilising multiple chamber substations or multiple kiosk substations. The plan indicates staging of HV connections which will be required for the decommissioning of the existing Chamber Substation and commissioning of new substations. Staging of the works will be required to ensure supply can be maintained to properties external to the site.

It is understood the selection of kiosk substations or chamber substations will be based on both cost efficiency and aesthetic outcomes. Therefore we understand the final arrangement of electrical servicing to the site will not be confirmed until the detailed design phase.

4.4 Recommendations

This report identified a number of existing assets proximate to the site which may be impacted by the development. Consideration of these assets should be made during the detailed design and construction phase.

The existing Chamber Substation will be decommissioned as part of the development and considerations regarding staging of new substations will be required to ensure supply is maintained to properties external to the site which are currently serviced by the existing Chamber Substation.

Existing overhead assets on Scott Street will be directly impacted by the proposed development and will therefore be decommissioned as part of the development.

Existing overhead assets on Artarmon Road and Richmond Avenue will not be impacted by the development. These assets do not front the development and therefore undergrounding of these assets is not proposed as part of the development.

Consideration of the proposed electrical supply to the site, including selection of kiosk or chamber substations, should be made throughout the concept planning process. As discussed above, we understand aesthetic outcomes and cost efficiency will be the determining factors in selection of substation locations and style. Consideration should also be given to Ausgrid's access requirements, including the impacts of easements, right of access and restrictions over internal private roads or communal open space areas.

Electricity supply to the development will be via underground infrastructure, with the exception of the required substation infrastructure.

A Level 3 Accredited Service Provider would need to be appointed to facilitate coordination with Ausgrid in order to determine suitable arrangements for substations. In addition, any works on Ausgrid's network must be designed by a Level 3 Accredited Service Provider, in accordance with Ausgrid's design standards.

4.5 Conclusions

Our investigations determined the existing network has sufficient capacity to service the proposed development, via the existing chamber substation located on site. The proposed development indicates the removal of this infrastructure therefore new infrastructure will be required in order to supply electricity to the proposed development and maintain supply to properties currently serviced by this substation.

5 Gas Infrastructure

The site is within Jemena's service zone. Existing assets were identified through the Dial Before You Dig investigation and assessments of network capacity are based on correspondence with Jemena's Network Development Manager for the Sydney North region.

5.1 Existing Assets & Impact

Existing gas assets within the proposed development area are outlined below:

a) 32mm NY (Nylon) main to the west of the development along the western side of Richmond Avenue.

b) 32mm NY main within the eastern side of Scott Street.

c) 110mm NY main to the north of the development along Artarmon Road which connects to the 32mm NY mains in Richmond Avenue and Scott Street

The following summarises the likely impact of development on the abovementioned assets. As previously discussed, it is understood the site would be vacated in one stage, allowing demolition of redundant services to be undertaken prior to the commencement of construction activities on site.

a) The main on Richmond Avenue asset lies outside the development footprint and it is understood this asset will not be directly impacted by the development.

b) The main within Scott Street lies within the development footprint and will be directly impacted by the development. It is understood this asset will be made redundant as part of the development.

c) The main within Artarmon Road lies within the southern verge, and therefore directly fronts the development site. The concept plan does not indicate significant works within the verge, therefore the assets is not likely to be directly impacted by the development. It is, however, likely the asset will be exposed to heavy vehicle loads associated with development, which may require consideration during construction.

5.2 Existing Capacity

Correspondence from Jemena (included with Appendix G) indicates the existing network has sufficient capacity to service the proposed development.

5.3 Service Connection

Jemena have suggested service connection to the site should be made from Artarmon Road, being the larger diameter main adjacent to the site.

Reticulation within the development that is not located within a public road will be considered a private main. Jemena has advised they will be able to assist with the design of internal infrastructure for future use.

5.4 Recommendations

Ongoing coordination with Jemena throughout the development process will enable coordination of assets in Scott Street to be removed as part of the development, and will enable planning for infrastructure and connection to the existing network in order to service the development.

5.5 Conclusions

Our investigation determined the existing network has sufficient capacity to service the proposed development.

6 Telecommunications Infrastructure

Information obtained during the Dial Before You Dig (DBYD) investigations confirm that a number of Telstra, Optus and Uecomm assets exist in the vicinity of the site.

6.1 Existing Assets & Impact

Existing telecommunications assets within the proposed development area are outlined below:

a) Telecommunications infrastructure within the site, Telstra Optic Fibre and Optus Optic Fibre services.

b) Telstra and Optus infrastructure within the eastern side of Richmond Road, including Optic Fibre services.

c) Telstra, Optus and Uecomm infrastructure within the southern side of Artarmon Road, including Optic Fibre services.

d) Telstra network assets within the western side of Scott Street.

The following summarises the likely impact of development on the abovementioned assets. As previously discussed, it is understood the site would be vacated in one stage, allowing demolition of redundant services to be undertaken prior to the commencement of construction activities on site.

a) It is understood all telecommunications assets within the development footprint will be disconnected as Channel 9 relocate from the site. Once disconnected, these assets will be demolished as part of the construction works associated with the development.

b) Telstra and Optus Optic infrastructure within Richmond Road sit outside the development footprint and are not likely to be directly impacted by the development. It is our understanding these assets currently service the Channel 9 Site, therefore, these assets will likely be made redundant and removed as part of the decommissioning of services to the Channel 9 Site.

c) Optic fibre infrastructure in the southern side of Artarmon Road is part of the broader network infrastructure for Telstra, Optus and Uecomm. These assets lie outside of the development footprint, however, it is likely that increased traffic movement and construction works in the vicinity of the assets could pose a risk of damage of the assets. It is therefore likely that asset owners will require measures to be put in place to protect these assets from damage during construction.

d) The infrastructure located within Scott Street are directly impacted by the development and therefore will be required to be removed as part of the development

6.2 Service Connection

In June 2010, the Government announced that from 1 January 2011, NBN Co will be responsible as provider of last resort for the installation of fibre optics in broadacre developments, infill developments where it has fibre optic that is ready for service and capable of connection, and newly approved infill developments of 100 or more premises. The Channel 9 development lies within the NBN Co fibre foot print, therefore the telecommunications infrastructure required must be compliant with NBN requirements. This requirement is further reinforced due to the scale of the development being greater than 100 premises.

The delivery of services to the site can be coordinated through a number of service providers, with NBN Co being the provider of last resort. An agreement can be entered into between the Developer and NBN Co for the provision of services to a Multi Dwelling Unit (MDU) development. The responsibilities of each party in such arrangements, including technical requirements, is set out in NBN Co's MDU Building Design Guide – New Developments (23 August 2012). This is available for review at NBN Co's website, www.nbnco.com.au.

6.3 Conclusions

This review has determined that telecommunications infrastructure can be made available to adequately service the proposed development. A review of possible service providers should be undertaken to determine the best commercial outcome for the provision of NBN compliant telecommunications infrastructure to service the development.

Channel 9 Site Redevelopment,
Willoughby

APPENDIX A
EXISTING SERVICES PLAN

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Services Plan

CHANNEL 9 SITE REDEVELOPMENT

Legend

- Site Boundary
- Gas Main (Jemena)
- Stormwater
- Telstra Cable
- Telstra Mains Cable
- Ausgrid
- Optus conduit
- Optus fibre in other utility conduit
- Underground Cable (Uecomm)
- Major Roads (LPI)
- Water Main
- Sewer Main
- Cadastre (LPI)

Note: Services information was derived from Dial Before You Dig data requested on 31 October 2012

N
W E
S

1:1,000 Scale at A3

Metres
0 10 20 30 40 50

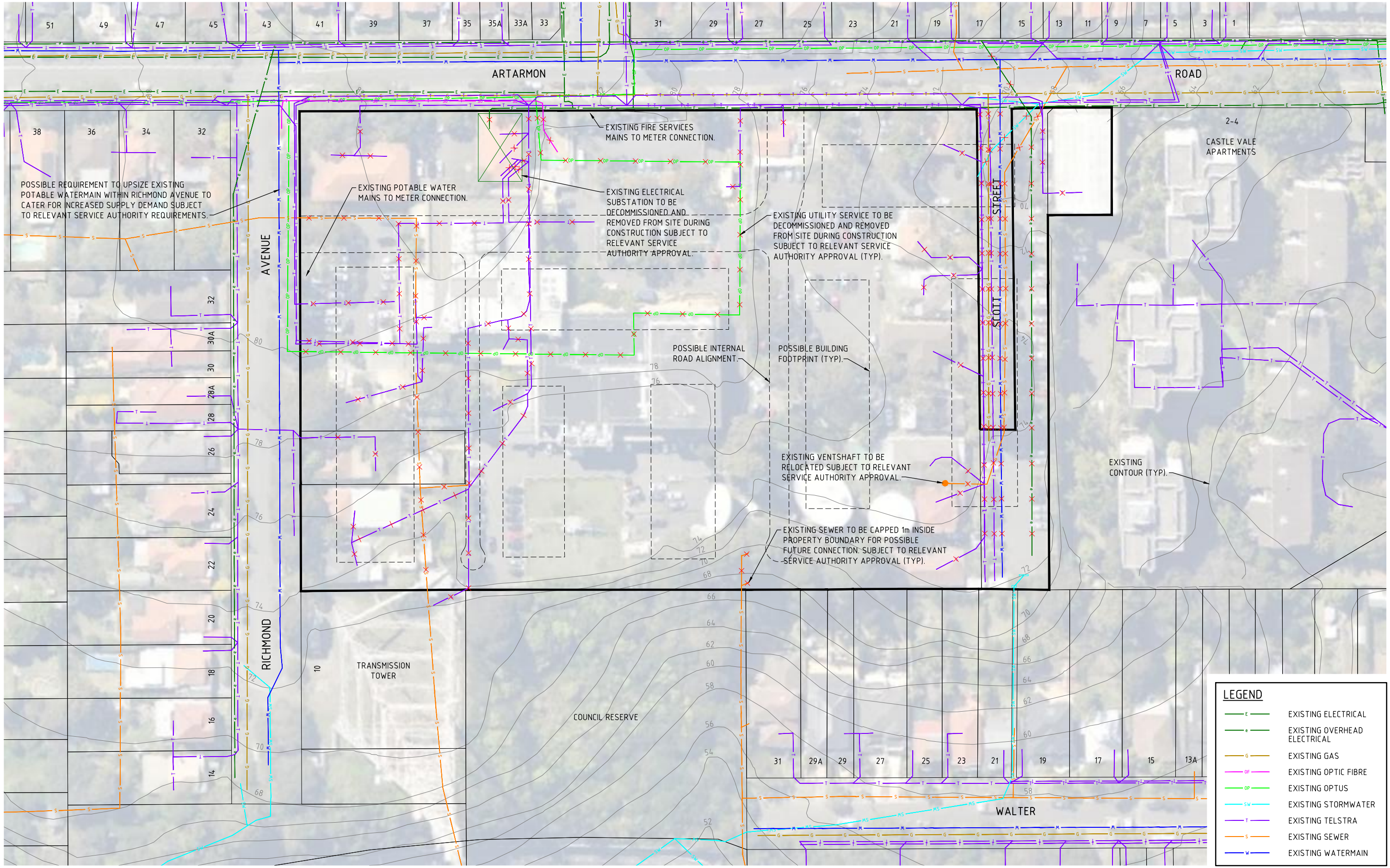
Cardno

Map Produced by Cardno NSW/ACT Pty Ltd (WOL)
Date: 2012-11-12
Coordinate System: GDA 1994 MGA Zone 56
Project: 50613013_11
Map: G1004_Services_Close.mxd 01

Channel 9 Site Redevelopment,
Willoughby

APPENDIX B
CONCEPT UTILITY SERVICE ADJUSTMENT PLAN

Cardno
Shaping the Future



Rev	Date	Description	Drawn	Appr.
03	30.11.12	ISSUED FOR UTILITIES SERVICES MASTERPLAN REPORT	DB	CW
02	28.11.12	REVISED ARCHITECTURAL LAYOUT	DB	CW
01	23.11.12	ISSUE FOR REVIEW	AG	DC

0 10 20 30 40 50m
10 8 6 4 2
SCALE 1:500

Cardno
ABN: 95 001 145 035
Level 9, The Forum, 203 Pacific Highway
St Leonards NSW Australia 2065
Phone (+61 2) 9496 7700 Fax (+61 2) 9439 5170
Email: Sydney@cardno.com.au Web: www.cardno.com.au
Quality Endorsed Company
AS/NZS ISO 9001:2008 Standards Australia

Drawn	AG	Date NOV'12
Checked	CW	Date NOV'12
Designed	AG	Date NOV'12
Verified	DC	Date NOV'12
Approved	DC	Date NOV'12

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL

Client: NINE NETWORK AUSTRALIA PTY LTD

CHANNEL 9 SITE REDEVELOPMENT
UTILITY SERVICES MASTERPLANNING

UTILITY SERVICE ADJUSTMENT PLAN
INDICATIVE FOR PLANNING ONLY

Status: ISSUED FOR NA50613013-R-001

Date	Datum	Scale	Size
NOV'12	AHD	1:500	A1

Drawing Number: NA50613013-SK003
Revision: 03

Channel 9 Site Redevelopment,
Willoughby

APPENDIX C
EXISTING SYDNEY WATER SERVICES

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A3

ARTARMON RD

ARTARMON

EDWARD ST

ARMSTRONG ST

RD

NATHAN

AVE

AVE

CHELMSFORD AVE

RICHMOND AVE

SCOTT ST

WILLOUGHBY RD

GORE HILL

WALTER ST

FLAT ROCK

SM

DBYD Address:
n/a Artarmon
Willoughby NSW 2068

DBYD Job No: 107225

DBYD Sequence No: 26758780

Scale: 1:1500

Date of Production: 19/10/2012

Plan 1 of 1

N

0m 9m 18m 27m 36m

Channel 9 Site Redevelopment,
Willoughby

APPENDIX D
CONCEPT POTABLE WATER SERVICING PLAN

Cardno
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ARTARMON ROAD

EXISTING WATERMAIN (TYP).

PROPOSED WATERMAIN (TYP).

AVENUE

SCOTT STREET

RICHMOND AVENUE

2-4 CASTLE VALE APARTMENTS

BACKUP POTABLE WATER SUPPLY TO RAINWATER HARVEST SYSTEM.

TRANSMISSION TOWER

COUNCIL RESERVE

WALTER

LEGEND

SYDNEY WATER ASSET

PRIVATE SERVICE

Rev	Date	Description	Drawn	Appr.
02	30.11.12	ISSUED FOR UTILITIES SERVICES MASTERPLAN REPORT	DB	CW
01	28.11.12	ISSUE FOR REVIEW	DB	CW

0 10 20 30 40 50m

10 8 6 4 2

SCALE 1:500

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Quality Endorsed Company
AS/NZS ISO 9001 Lic. 3960
Standards Australia

		Date
Drawn	AG	NOV'12
Checked	CW	NOV'12
Designed	AG	NOV'12
Verified	DC	NOV'12
Approved	DC	NOV'12

Client: NINE NETWORK AUSTRALIA PTY LTD

CHANNEL 9 SITE REDEVELOPMENT
UTILITY SERVICES MASTERPLANNING

CONCEPT POTABLE WATER SERVICING PLAN
INDICATIVE FOR PLANNING ONLY

Status: ISSUED FOR NA50613013-R-001

Date	Datum	Scale	Size
NOV'12	AHD	1:500	A1

Drawing Number: NA50613013-SK005 Revision: 02

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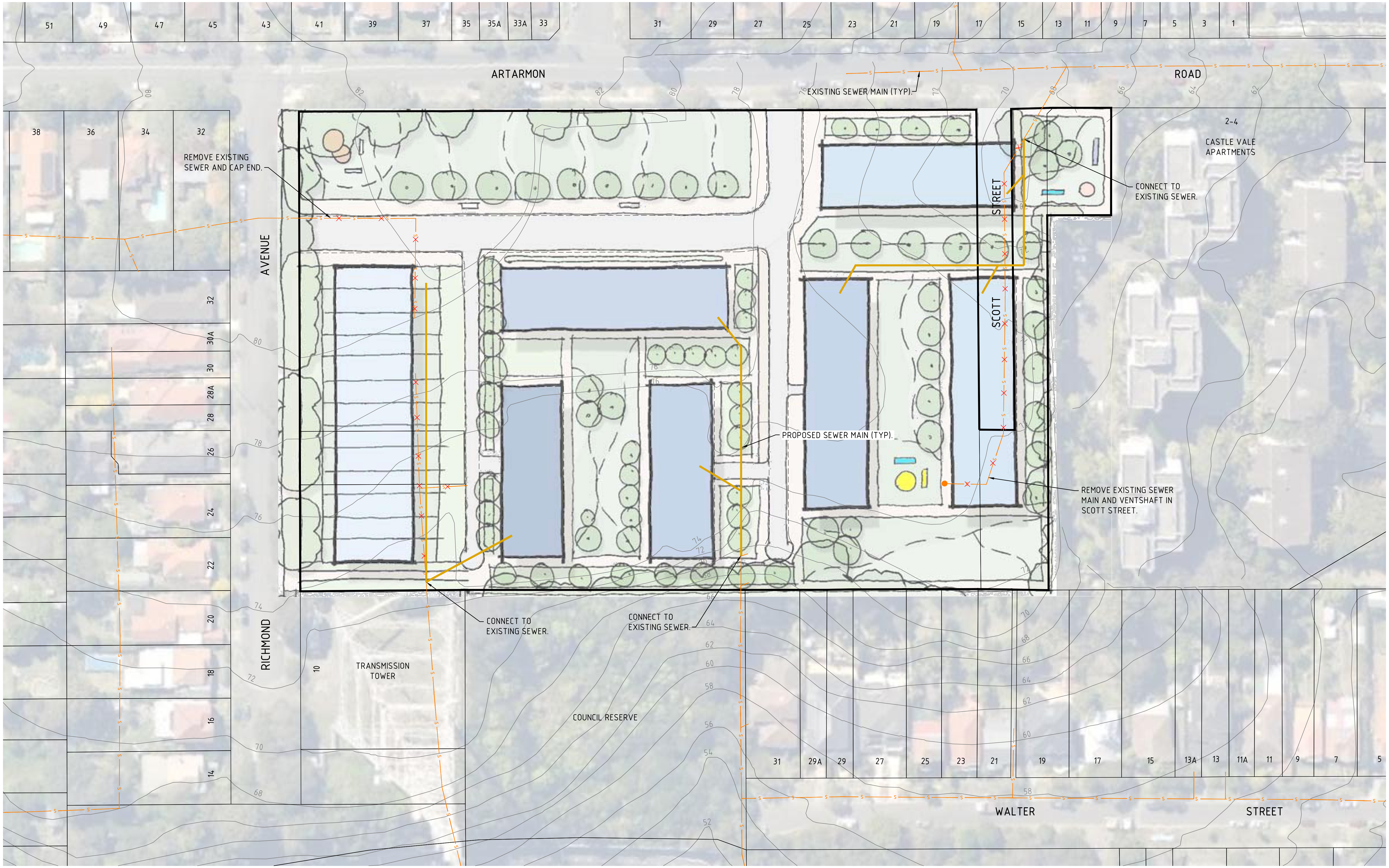
Channel 9 Site Redevelopment,
Willoughby

APPENDIX E
CONCEPT WASTE WATER SERVICING PLAN

Cardno
Shaping the Future



02	30.11.12	ISSUED FOR UTILITIES SERVICES MASTERPLAN REPORT	DB	CW
01	28.11.12	ISSUE FOR REVIEW	DB	CW
Rev	Date	Description	Drawn	Appr.

SCALE 1:500

Cardno
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St Leonards NSW Australia 2065
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Email: Sydney@cardno.com.au Web: www.cardno.com.au

Quality Endorsed Company

Drawn	AG	Date NOV'12
Checked	CW	Date NOV'12
Designed	AG	Date NOV'12
Verified	DC	Date NOV'12
Approved	DC	Date NOV'12

Client: NINE NETWORK AUSTRALIA PTY LTD

CHANNEL 9 SITE REDEVELOPMENT
UTILITY SERVICES MASTERPLANNING

CONCEPT WASTE WATER SERVICING PLAN
INDICATIVE FOR PLANNING ONLY

Status: ISSUED FOR NA50613013-R-001

Date	Datum	Scale	Size
NOV'12	AHD	1:500	A1

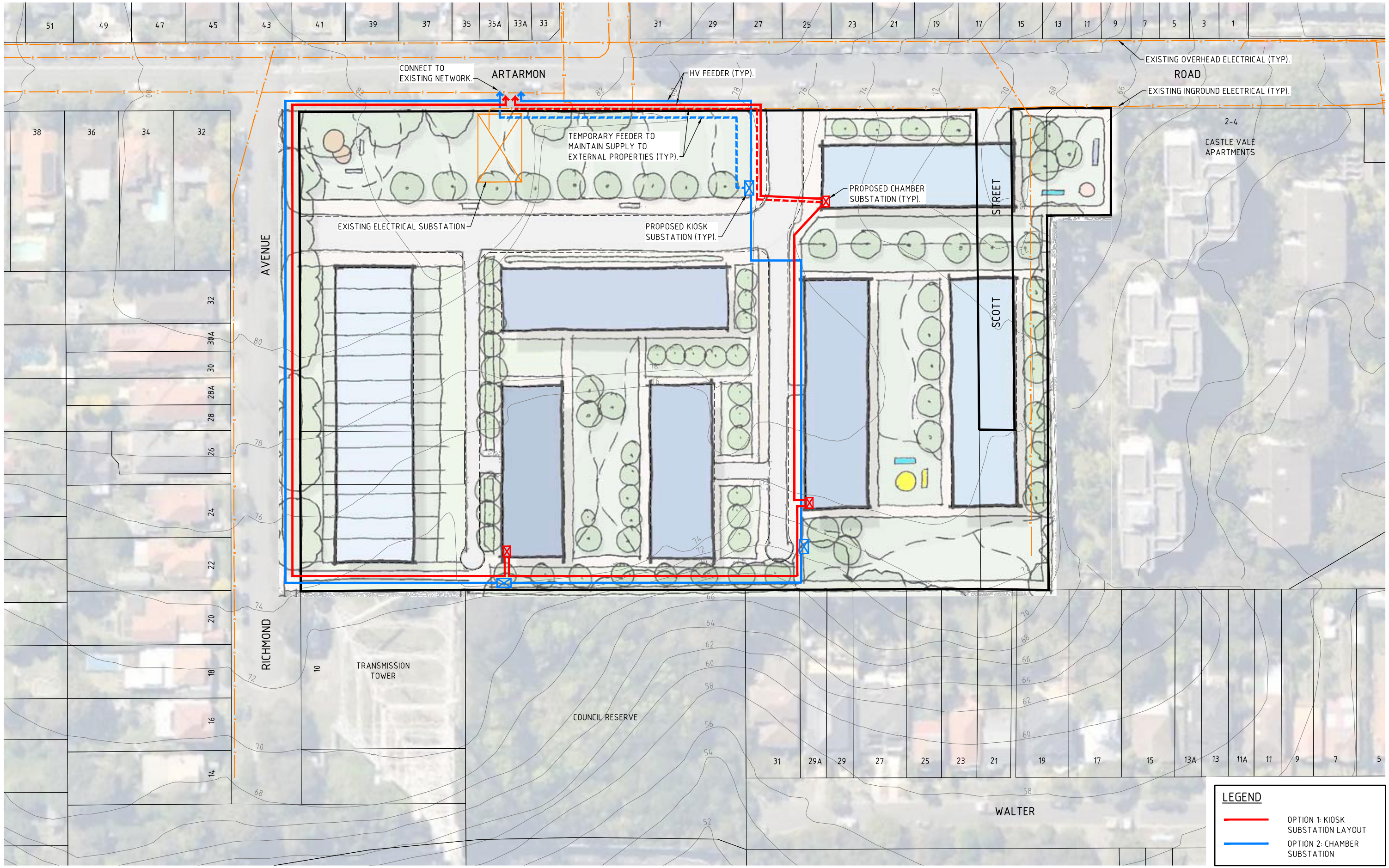
Drawing Number: NA50613013-SK006 | Revision: 02

150mm ON A1 ORIGINAL

Channel 9 Site Redevelopment,
Willoughby

APPENDIX F
CONCEPT ELECTRICAL SERVICING PLAN

Cardno
Shaping the Future



Rev	Date	Description	Drawn	Appr.
02	30.11.12	ISSUED FOR UTILITIES SERVICES MASTERPLAN REPORT	DB	CW
01	28.11.12	ISSUE FOR REVIEW	DB	CW

0 10 20 30 40 50m
10 8 6 4 2
SCALE 1:500

Cardno
ABN: 95 001 145 035
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Phone (+61 2) 9496 7700 Fax (+61 2) 9439 5170
Email: Sydney@cardno.com.au Web: www.cardno.com.au

Quality Endorsed Company
AS 9001 Lic. 3960 Standards Australia

		Date
Drawn	AG	NOV'12
Checked	CW	NOV'12
Designed	AG	NOV'12
Verified	DC	NOV'12
Approved	DC	NOV'12

Client: NINE NETWORK AUSTRALIA PTY LTD

CHANNEL 9 SITE REDEVELOPMENT
UTILITY SERVICES MASTERPLANNING

CONCEPT ELECTRICAL SERVICING PLAN
INDICATIVE FOR PLANNING ONLY

Status: ISSUED FOR NA50613013-R-001

Date	Datum	Scale	Size
NOV'12	AHD	1:500	A1

Drawing Number: NA50613013-SK007
Revision: 02

0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150mm ON A1 ORIGINAL

Channel 9 Site Redevelopment,
Willoughby

APPENDIX G
CORRESPONDENCE WITH JEMENA

Cardno
Shaping the Future

Christopher Wild (Sydney)

From: Neale Hilton [Neale.Hilton@jemena.com.au]
Sent: Wednesday, 7 November 2012 2:13 PM
To: Christopher Wild (Sydney)
Subject: RE: Feasibility Study - Channel 9 Site - Artarmon

Chris
Jemena appreciates being involved in the forward planning of this development. Currently a 110mm Nylon gas main exists in Artarmon Rd and it is suggested that the point of attachment would come from this network. There is sufficient capacity however Jemena does not reserve capacity for any individual project. All private roads will not be reticulated with the Jemena network and Jemena will assist those designing internal infrastructure for future use.
Regards.

Neale Hilton
Network Development Manager
Sydney

Jemena Gas Networks (NSW) Limited
Address Level 26, 111 Pacific Highway North Sydney NSW 2060
Postal Address Locked Box 2f159 Ridgecrop Drive Castle Hill 2154
Mobile 0402 068 151 Fax (02) 9699 3571 Email neale.hilton@jemena.com.au

thenaturalchoice.com.au

From: Christopher Wild (Sydney) [mailto:christopher.wild@cardno.com.au]
Sent: Tuesday, 6 November 2012 6:30 PM
To: Neale Hilton
Subject: Feasibility Study - Channel 9 Site - Artarmon

Neale,

We are currently conducting an infrastructure servicing review for a potential development of the Channel 9 Site on Artarmon Road, Willoughby. Attached is a site context Plan for your reference (see G1001_SitePlan01.pdf).

The proposed development is for multi-storey residential apartment buildings of varying height to be constructed, with an ultimate yield of 600 premises. Attached is a concept sketch indicating three possible alternatives for the development footprint (see 4892 Lend Lease Artarmon Road Option.pdf). Please note the development yield listed on the concept plans does not utilise the total allowable yield for this site, thus for the purposes of planning, we have adopted 600 premises as the ultimate yield.

For your consideration, the electrical consultant is currently assessing servicing to the site based on the assumption the development will use Gas for hot water and each apartment will be built with gas cook tops.

Can you confirm if gas supply is available to service the planned residential development, or if construction of lead in infrastructure or amplification of existing infrastructure would be required?

Please feel free to contact me should you require any further information.

Regards,

Chris.

Christopher Wild
PROJECT MANAGER
CARDNO

Phone +61 2 9496 7700 Fax +61 2 9439 5170 Direct +61 2 9496 7750
Address Level 9 - The Forum, 203 Pacific Highway, St Leonards, NSW 2065 Australia
Postal PO Box 19, St Leonards NSW 1590
Email christopher.wild@cardno.com.au Web www.cardno.com

Channel 9 Site Redevelopment,
Willoughby

APPENDIX H
SYDNEY WATER FEASIBILITY LETTER

Cardno
Shaping the Future

Case Number: 130606

10 December 2012

Scott Seutar
c/- CARDNO FORBES RIGBY PTY LTD

FEASIBILITY LETTER

Developer:	**Scott Seutar**
Development:	**Lot 10 - DP1162507 - 12-30 Artarmon Road, Willoughby**
Development Description:	**Redevelopment of existing Channel 9 site**
Your application date:	**30 November 2012**

Dear Applicant

This Feasibility Letter (Letter) is a guide only. It provides general information about what Sydney Water's requirements could be if you applied to us for a Section 73 Certificate (Certificate) for your proposed development. **The information is accurate at today's date only.**

If you obtain development consent for that development from your consent authority (this is usually your local Council) they will require you to apply to us for a Section 73 Certificate. You will need to submit a new application (and pay another application fee) to us for that Certificate by using your current or another Water Servicing Coordinator (Coordinator).

Sydney Water will then send you either a:

- Notice of Requirements (Notice) and Developer Works Deed (Deed) or
- Certificate.

These documents will be the definitive statement of Sydney Water's requirements.

There may be changes in Sydney Water's requirements between the issue dates of this Letter and the Notice or Certificate. The changes may be:

- if you change your proposed development eg the development description or the plan/ site layout, after today, the requirements in this Letter could change when you submit your new application; and

- if you decide to do your development in stages then you must submit a new application (and pay another application fee) for each stage.

What You Must Do To Get A Section 73 Certificate In The Future.

To get a Section 73 Certificate you must do the following things. You can also find out about this process by visiting www.sydneywater.com.au > Building and Developing > Developing Your Land.

1. **Obtain Development Consent from the consent authority for your development proposal.**

2. **Engage a Water Servicing Coordinator (Coordinator).**

   You must engage your current or another authorised Coordinator to manage the design and construction of works that you must provide, at your cost, to service your development. If you wish to engage another Coordinator (at any point in this process) you must write and tell Sydney Water.

   For a list of authorised Coordinators, either visit www.sydneywater.com.au > Building and Developing > Developing Your Land or call **13 20 92.**

   The Coordinator will be your point of contact with Sydney Water. They can answer most questions that you might have about the process and developer charges and can give you a quote or information about costs for services/works (including Sydney Water costs).

3. **Developer Works Deed**

   After the Coordinator has submitted your new application, they will receive the Sydney Water Notice and Developer Works Deed. You and your accredited Developer Infrastructure Providers (Providers) will need to sign and lodge both copies of the Deed with your nominated Coordinator. After Sydney Water has signed the documents, one copy will be returned to the Coordinator.

   The Deed sets out for this project:

   - your responsibilities;
   - Sydney Water's responsibilities; and
   - the Provider's responsibilities.

   You must do all the things that we ask you to do in that Deed. This is because your development does not have water and sewer services and you must construct and pay for the following works extensions under this Deed to provide these services.

   Note: The Coordinator must be fully authorised by us for the whole time of the agreement.

4. **Water and Sewer Works**

   4.1 **Water**

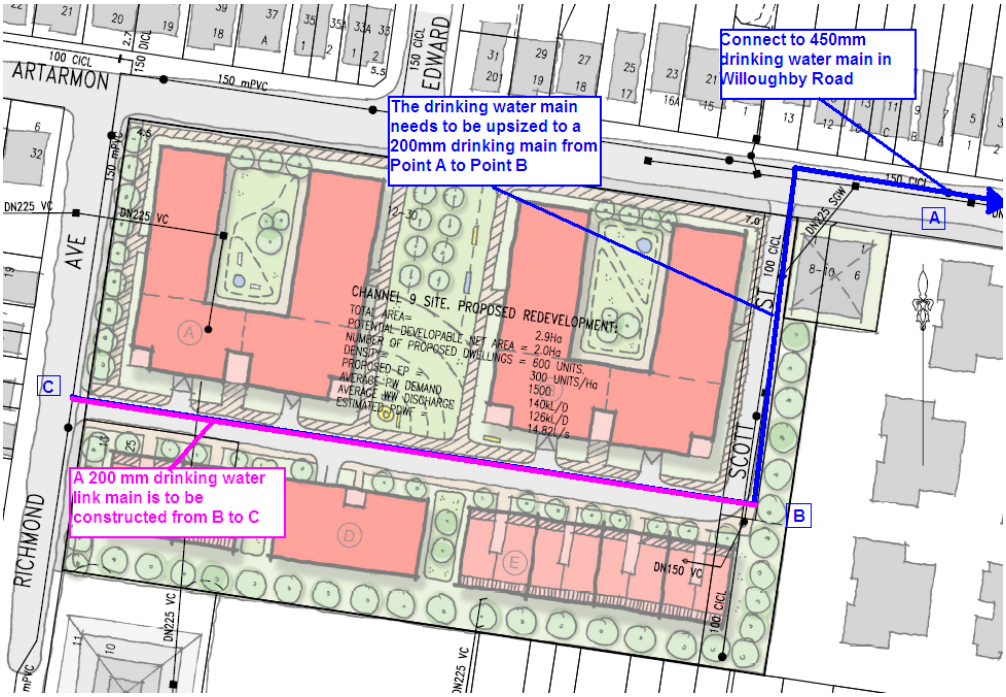
   Your development must have a frontage to a water main that is the right size and can be used for connection.

Sydney Water has assessed your application and found that:

- Preliminary investigation shows that a 200mm drinking water main amplification and extension will be required to service the 15 storey building within the proposed development. The amplification will comply with the Water Supply Code of Australia (Sydney Water Edition – WSA 03-2002) requirement for minimum sized mains for the scope of development.

- The concept plan shows a possible servicing option for the proposed development.

- Detailed water requirements will be subject to the connection points to the existing system which will be provided at the section 73 Application phase.



- **You must construct a water main extension to serve your development**. These works must be constructed by a constructor with the appropriate capability. Your Coordinator will be able to provide further advice about this.

4.2 Sewer

Your development must have a sewer main that is the right size and can be used for connection. That sewer must also have a connection point within your development's boundaries.

Sydney Water has assessed your application and found that:

- The proposed development site is traversed by a number of existing wastewater mains.
- Where proposed works are in close proximity to a Sydney Water asset, the developer may be required to carry out additional works to facilitate there development and protecthe wastewater main. Subject to the scope of development, servicing options may involve adjustment/deviation and or compliance with the Guidelines for building over/ adjacent to Sydney Water assets. Refer to your WSC for details of requirements.

- Subject to the location of the connection points of buildings to the existing sewer mains, amplification of the existing reticulation mains may be required.

- In order to determine detailed requirements, the developer is to submit their proposed wastewater servicing brief at the section 73 application phase.

Funding of works

Under Sydney Water's 'Funding of infrastructure to service growth' policy we may agree to contribute towards a portion of the cost of the works you are required to build. Your Water Service Coordinator can advise you in relation to this policy, the likelihood of Sydney Water sharing a portion of the cost and the process you need to satisfy Sydney Water's probity requirements.

The funding assessment will be made at the detailed design stage, prior to any construction works commencing. A firm commitment would not be made by Sydney Water until we:

- Have reviewed the detailed design and;
- Have reviewed the detailed construction quotations needed to meet our probity requirements and;
- Come to an agreement on the amount.

5. Ancillary Matters

5.1 Asset adjustments

After Sydney Water issues this Notice (and more detailed designs are available), Sydney Water may require that the water main/sewer main/stormwater located in the footway/your property needs to be adjusted/deviated. If this happens, you will need to do this work as well as the extension we have detailed above at your cost. The work must meet the conditions of this Notice and you will need to complete it **before we can issue the Certificate**. Sydney Water will need to see the completed designs for the work and we will require you to lodge a security. The security will be refunded once the work is completed.

5.2 Entry onto neighbouring property

If you need to enter a neighbouring property, you must have the written permission of the relevant property owners and tenants. You must use Sydney Water's **Permission to Enter** form(s) for this. You can get copies of these forms from your Coordinator or the Sydney

Water website. Your Coordinator can also negotiate on your behalf. Please make sure that you address all the items on the form(s) including payment of compensation and whether there are other ways of designing and constructing that could avoid or reduce their impacts. You will be responsible for all costs of mediation involved in resolving any disputes. Please allow enough time for entry issues to be resolved.

5.3 Costs

Construction of these **future** works will require you to pay project management, survey, design and construction costs **directly to your suppliers**. Additional costs payable to Sydney Water may include:

- water main shutdown and disinfection;
- connection of new water mains to Sydney Water system(s);
- design and construction audit fees;
- contract administration, Operations Area Charge & Customer Redress prior to project finalisation;
- creation or alteration of easements etc; and
- water usage charges where water has been supplied for building activity purposes prior to disinfection of a newly constructed water main.

Note: Payment for any Goods and Services (including Customer Redress) provided by Sydney Water will be required prior to the issue of the Section 73 Certificate or release of the Bank Guarantee or Cash Bond.

Your Coordinator can tell you about these costs.

6. Stamping and Approval of your Building Plans

You must have your building plans stamped and approved **before the Certificate can be issued. Building construction work MUST NOT commence until Sydney Water has granted approval.** Approval is needed because construction/building works may affect Sydney Water's assets (e.g. water and sewer mains).

Your Coordinator can tell you about the approval process including:

- Your provision, if required, of a "Services Protection Report" (also known as a "pegout"). This is needed to check whether the building and engineering plans show accurately where Sydney Water's assets are located in relation to your proposed building work. Your Coordinator will then either approve the plans or make requirements to protect those assets before approving the plans;
- Possible requirements;
- Costs; and
- Timeframes.

You can also find information about this process (including technical specifications) if you either:

- visit www.sydneywater.com.au > Building and Developing > Building and Renovating. Here you can find Sydney Water's *Guidelines for Building Over/Adjacent to Sydney Water Assets*; or
- call 13 20 92.

Notes:

- **The Certificate will not be issued until the plans have been approved and, if required, Sydney Water's assets are altered or deviated;**
- **You can only remove, deviate or replace any of Sydney Water's pipes using temporary pipework if you have written approval from Sydney Water's Urban Growth Business. You must engage your Coordinator to arrange this approval; and**
- **You must obtain our written approval before you do any work on Sydney Water's systems. Sydney Water will take action to have work stopped on the site if you do not have that approval. We will apply Section 44 of the *Sydney Water Act 1994*.**

7. **Operation Requirements**

- **Ventline can be relocated but not removed.**
- **Proposed sections can be disused as requested.**
- **Ensure capacity to be checked for the new sewer connection point.**
- **Maintenance holes are to have unrestricted access for 24/7 and not to be located in enclosed areas.**
- **Ensure the disconnected sewers does not service other customers.**
- **Relined 225mm pipe on the southwest end to be dealt with by Sydney Water lining contractor if alterations are done.**

OTHER THINGS YOU MAY NEED TO DO

Shown below are other things you need to do that are NOT a requirement for the Certificate. They may well be a requirement of Sydney Water in the future because of the impact of your development on our assets. You must read them before you go any further.

Disused Sewerage Service Sealing

Please do not forget that you must pay to disconnect all disused private sewerage services and seal them at the point of connection to a Sydney Water sewer main. This work must meet Sydney Water's standards in the NSW Code of Practice for Plumbing and Drainage (the Code) and be done by a licensed drainer. The licensed drainer must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Soffit Requirements

Please be aware that floor levels must be able to meet Sydney Water's soffit requirements for

property connection and drainage.

Requirements for Business Customers for Commercial and Industrial Property Developments

If this property is to be developed for Industrial or Commercial operations, it may need to meet the following requirements:

Trade Wastewater Requirements

If this development is going to generate trade wastewater, the property owner must submit an application requesting permission to discharge trade wastewater to Sydney Water's sewerage system. You must wait for approval of this permit before any business activities can commence.

The permit application should be emailed to Sydney Water's Business Customer Services at businesscustomers@sydneywater.com.au

It is illegal to discharge Trade Wastewater into the Sydney Water sewerage system without permission.

A **Boundary Trap** is required for all developments that discharge trade wastewater where arrestors and special units are installed for trade wastewater pre-treatment.

If the property development is for Industrial operations, the wastewater may discharge into a sewerage area that is subject to wastewater reuse. Find out from Business Customer Services if this is applicable to your development.

Backflow Prevention Requirements

Backflow is when there is unintentional flow of water in the wrong direction from a potentially polluted source into the drinking water supply.

All properties connected to Sydney Water's supply must install a testable **Backflow Prevention Containment Device** appropriate to the property's hazard rating. Property with a high or medium hazard rating must have the backflow prevention containment device tested annually. Properties identified as having a low hazard rating must install a non-testable device, as a minimum.

Separate hydrant and sprinkler fire services on non-residential properties, require the installation of a testable double check detector assembly. The device is to be located at the boundary of the property.

Before you install a backflow prevention device:

1. Get your hydraulic consultant or plumber to check the available water pressure versus the property's required pressure and flow requirements.
2. Conduct a site assessment to confirm the hazard rating of the property and its services. Contact PIAS at NSW Fair Trading on **1300 889 099**.

For installation you will need to engage a licensed plumber with backflow accreditation who can

be found on the Sydney Water website:

http://www.sydneywater.com.au/Plumbing/BackflowPrevention/

Water Efficiency Recommendations

Water is our most precious resource and every customer can play a role in its conservation. By working together with Sydney Water, business customers are able to reduce their water consumption. This will help your business save money, improve productivity and protect the environment.

Some water efficiency measures that can be easily implemented in your business are:

- Install water efficiency fixtures to help increase your water efficiency, refer to WELS (Water Efficiency Labelling and Standards (WELS) Scheme, http://www.waterrating.gov.au/
- Consider installing rainwater tanks to capture rainwater runoff, and reusing it, where cost effective. Refer to http://www.sydneywater.com.au/Water4Life/InYourBusiness/RWTCalculator.cfm
- Install water-monitoring devices on your meter to identify water usage patterns and leaks.
- Develop a water efficiency plan for your business.

It is cheaper to install water efficiency appliances while you are developing than retrofitting them later.

Contingency Plan Recommendations

Under Sydney Water's customer contract Sydney Water aims to provide Business Customers with a continuous supply of clean water at a minimum pressure of 15meters head at the main tap. This is equivalent to 146.8kpa or 21.29psi to meet reasonable business usage needs.

Sometimes Sydney Water may need to interrupt, postpone or limit the supply of water services to your property for maintenance or other reasons. These interruptions can be planned or unplanned.

Water supply is critical to some businesses and Sydney Water will treat vulnerable customers, such as hospitals, as a high priority.

Have you thought about a **contingency plan** for your business? Your Business Customer Representative will help you to develop a plan that is tailored to your business and minimises productivity losses in the event of a water service disruption.

For further information please visit the Sydney Water website at:

http://www.sydneywater.com.au/OurSystemsandOperations/TradeWaste/ or contact Business Customer Services on **1300 985 227** or businesscustomers@sydneywater.com.au

Fire Fighting

Definition of fire fighting systems is the responsibility of the developer and is not part of the Section 73 process. It is recommended that a consultant should advise the developer regarding the fire fighting flow of the development and the ability of Sydney Water's system to provide that flow in an emergency. Sydney Water's Operating Licence directs that Sydney Water's mains are only required to provide domestic supply at a minimum pressure of 15 m head.

A report supplying modelled pressures called the Statement of Available pressure can be purchased through any Quickcheck agent and may be of some assistance when defining the fire fighting system. The Statement of Available pressure, may advise flow limits that relate to system capacity or diameter of the main and pressure limits according to pressure management initiatives. If mains are required for fire fighting purposes, the mains shall be arranged through the water main extension process and not the Section 73 process.

Large Water Service Connection

A water main will be available, once you have completed your drinking water main construction to provide your development with a domestic supply. The size of your development means that you will need a connection larger than the standard domestic 20 mm size.

To get approval for your connection, you will need to lodge an application with a Quick Check Agent. You, or your hydraulic consultant, may need to supply the following:

A plan of the hydraulic layout;
A list of all the fixtures/fittings within the property;
A copy of the fireflow pressure inquiry issued by Sydney Water;
A pump application form (if a pump is required);
All pump details (if a pump is required).

You will have to pay an application fee.

Sydney Water does not consider whether a water main is adequate for fire fighting purposes for your development. We cannot guarantee that this water supply will meet your Council's fire fighting requirements. The Council and your hydraulic consultant can help.

Disused Water Service Sealing

You must pay to disconnect all disused private water services and seal them at the point of connection to a Sydney Water water main. This work must meet Sydney Water's standards in the NSW Code of Practice for Plumbing and Drainage (the Code) and be done by a licensed plumber. The licensed plumber must arrange for an inspection of the work by a NSW Fair Trading Plumbing Inspection Assurance Services (PIAS) officer. After that officer has looked at the work, the drainer can issue the Certificate of Compliance. The Code requires this.

Other fees and requirements
The requirements in this Notice relate to your Certificate application only. Sydney Water may be involved with other aspects of your development and there may be other fees or requirements. These include:

- plumbing and drainage inspection costs;

- the installation of backflow prevention devices;
- trade waste requirements;
- large water connections and
  - council fire fighting requirements. (It will help you to know what the fire fighting requirements are for your development as soon as possible. Your hydraulic consultant can help you here.)

No warranties or assurances can be given about the suitability of this document or any of its provisions for any specific transaction. It does not constitute an approval from Sydney Water and to the extent that it is able, Sydney Water limits its liability to the reissue of this Letter or the return of your application fee. You should rely on your own independent professional advice.

END