MOTT MACDONALD

80 Betty Cuthbert Drive, Lidcombe Master Plan

Utilities and Services Report

Planning Proposal

04 August 2021
Confidential

Property and Development NSW (PDNSW)

Issue and Revision Record

Revision	Date	Originator	Checker	Approver	Description
A	20.12.19	T. Loder	J. Taylor	J. Wukowic	Draft
B	21.02.20	T. Loder	J. Wukowic	J. Wukowic	Updated following PDNSW comments
C	24.04.20	K. Alexander	E. Melville	J. Wukowic	Updated following PDNSW comments
D	05.05.20	E. Melville	E. Melville	J. Wukowic	Updated following Urbis comments
E	18.06.21	R. McNeill	T. Loder	J. Wukowic	Updated following Lot Layout change
F	14.07.21	R. McNeill	T. Loder	J. Wukowic	Updated following PDNSW comments
G	04.08.21	J. Wukowic	T. Loder	J. Wukowic	Updated referencing
H	04.08.21	J. Wukowic	T. Loder	J. Wukowic	Updated referencing

Document reference: 405675 | MMD-405675-PP-RP-02 | H

Information class: Standard

Contents

1 Introduction

Mott MacDonald have been engaged by Property and Development NSW (PDNSW) to undertake a utilities infrastructure study to support a Planning Proposal for the government owned site at 80 Betty Cuthbert Drive, Lidcombe.

1.1 Purpose of Report

The purpose of this report is to determine what, if any, upgrades or modifications to the existing utilities infrastructure may be required to support the Proposal.

This report will:

- Existing and proposed trunk servicing strategies (including sewer, water, electrical, telecommunications and gas);
- Review of current trunk supply (where possible);
- Available trunk capacity (where possible) which could be leveraged to supply the development;
- Key trunk constraints and opportunities to development;
- Additional demand generated by the development; and
- Adjustments/augmentations required to key infrastructure to enable development.

1.2 Limitations

The utility authorities operate under regulatory environments that require them to apply for funding to their regulator based on a business case. In some cases, this has led to a reactive planning response to development as it proceeds, and stagnant plans based on funding cycles. Consequently, they may be reticent to commit to upgrades to their networks in advance of development progressing.

Generally, they are also required to undertake network planning studies to facilitate their funding and delivery applications which include the yields provided to them as part of this study. The findings and recommendations of their more detailed network planning studies may eventually supersede this report.

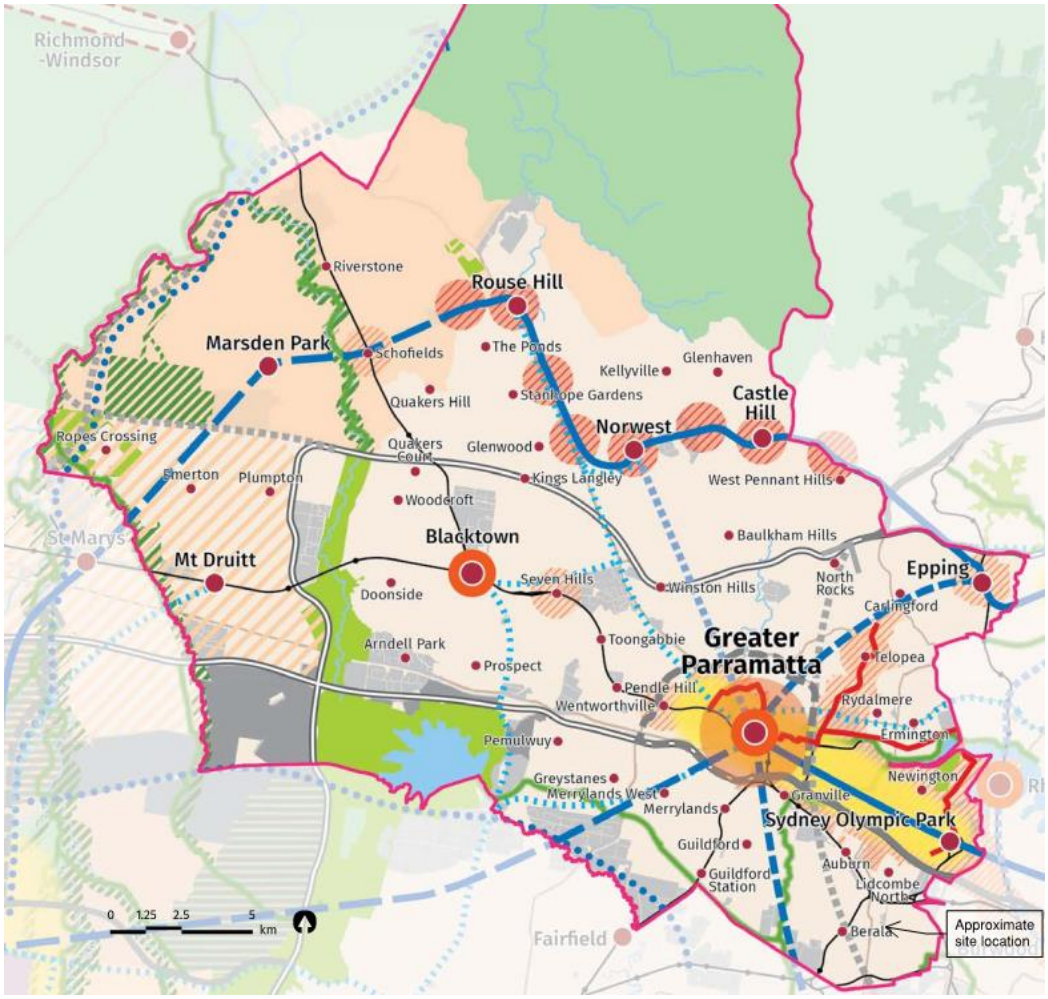
Local reticulation services will typically be provided by developers as development proceeds without significantly delaying development and depend on the form of blocks and timing of their development – which are subject to change at this phase of the process. Upgrades to these services will be important for each individual development stage but will be addressed at the individual DA stage.

1.3 Regional Context

The site is located within the suburb of Lidcombe, approximately 15km west of Sydney CBD and within the Cumberland local government area. The closest major interchange station is Lidcombe Station, 1.5km north of the site, and Berala Station is the nearest station, 1.2km west of the site. The site is surrounded by a mixture of land uses and facilities, with residential land to the north, east and south, an educational site to the south east and the Carnarvon Golf Course to the west.

In March 2018, the NSW Government released the Greater Sydney Region Plan, which outlined a vision of three cities; a western parkland city, a central river city and an eastern harbour city. The study area lies within the Central City District as shown in Figure 1 below. It is within proximity to Lidcombe North and Berala Local Centres, which have been identified for urban renewal.

Figure 1: Central City Plan



Source: Central City District Plan (Greater Sydney Commission, March 2018)

1.4 Local Context

The site is located at 80 Betty Cuthbert Drive, Lidcombe. It has a primary frontage to Joseph Street between Georges Avenue to the north and Botanica Drive to the south. The site is 5.8ha in size and is currently occupied by Multiple Sclerosis Limited (MSL). MSL provide specialist expertise in managing MS which are aimed at enhancing lifestyle, health and well-being. The site facilities include a 4,300sqm brick building (circa 1970's) that provides office space, treatment facilities and respite care facilities to support the operations of MSL. The existing MSL facilities cover approximately 12% of the site and the remainder of the site is undeveloped.

The site is surrounded by a mixture of land uses and facilities, with residential land to the north, east and south, a TAFE to the south east and the Carnarvon Golf Course to the west. Existing vehicle access to the site is via an access road off Betty Cuthbert Drive, through the existing residential subdivision located to the south of the site.

The site is heavily vegetated, with a number of trees located around the site boundary and bordering the existing MSL building. The existing MSL building is located within a high point on the site and the surrounding landscape slopes primarily towards the south-west and eastern sides of the site.

Figure 2: Site Overview

1.5 Proposed Development

In 2017, PDNSW prepared a master plan for the site which allocated land for a future educational establishment, health facility and for residential use. The masterplan has been developed with key stakeholders, Department of Education (DE) and Multiple Sclerosis Limited (MSL). The future educational establishment will be developed by the DE and the health facility by MSL.

The future educational establishment will be located on a 1.85 ha parcel in the central western portion of the site. The future education establishment, for the purpose of this assessment, has been assumed as a 1,000-student primary school, to accommodate a maximum capacity scenario for development of that land. It should be noted that this is an assumption made for this assessment and the establishment may be a different type of school.

A 0.95 ha site adjacent Joseph Street will be used for a new health facility, and the surplus land (approx. 1.78 ha) will be rezoned to medium density residential land (exclcluding road and drainage areas) and divested. The concept indicative layout plan (ILP) is shown in Figure 3 below.

Figure 3: Concept ILP

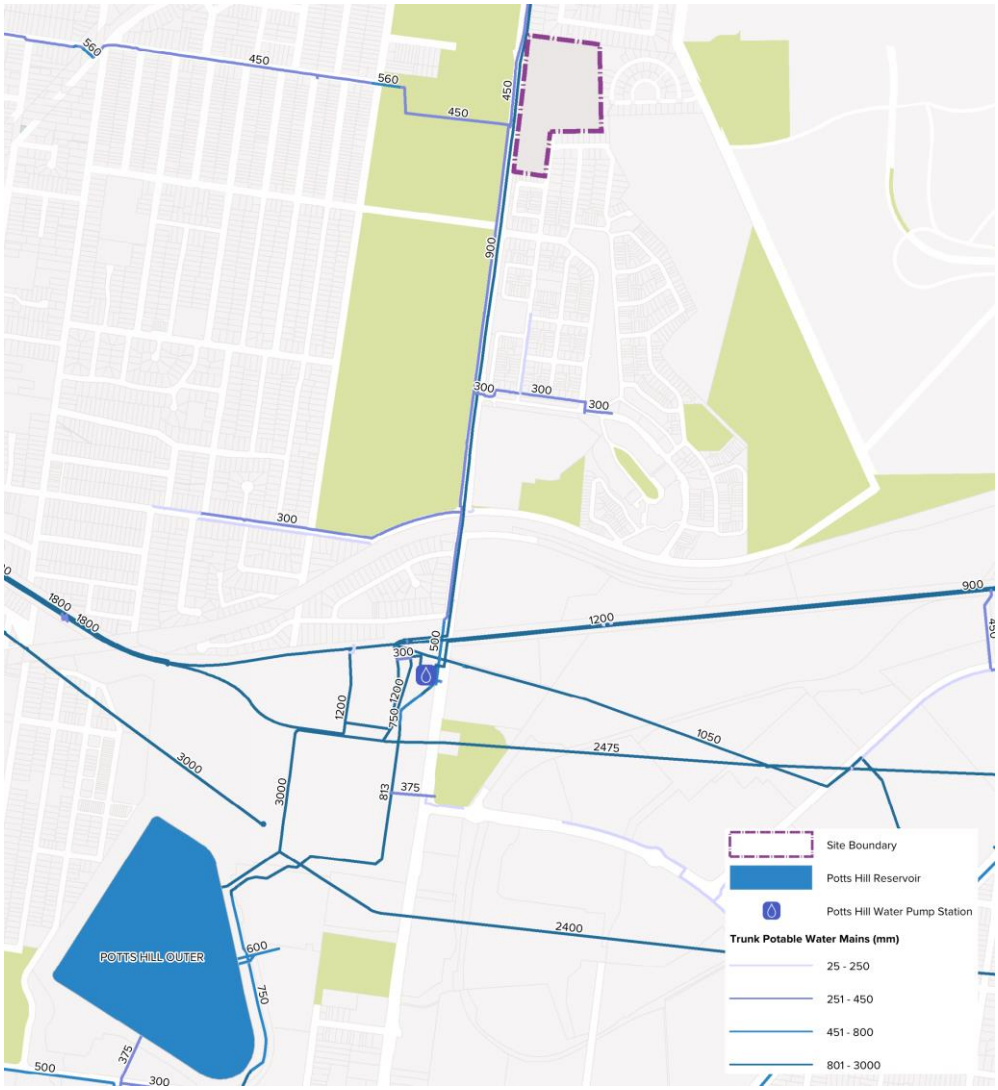
Source: Urbis – 80 Betty Cuthbert Drive, Lidcombe – Indicative Layout Plan (04 August 2021)

2 Water

2.1 Existing Network

Sydney Water currently supply potable water to the site. The site is located within the Potts Hill Water Supply Zone which forms part of the Prospect and Kurnell Delivery System. The site receives potable water from the Potts Hill Outer Reservoir (ref: WS0455), which is located approximately 2.3km to the south of the site. A potable water pump station is located 800m north east of the reservoir and assists in the transfer of potable water to the surrounding region. The regional trunk potable water network is shown on Figure 4 below.

Figure 4: Regional Potable Water Network

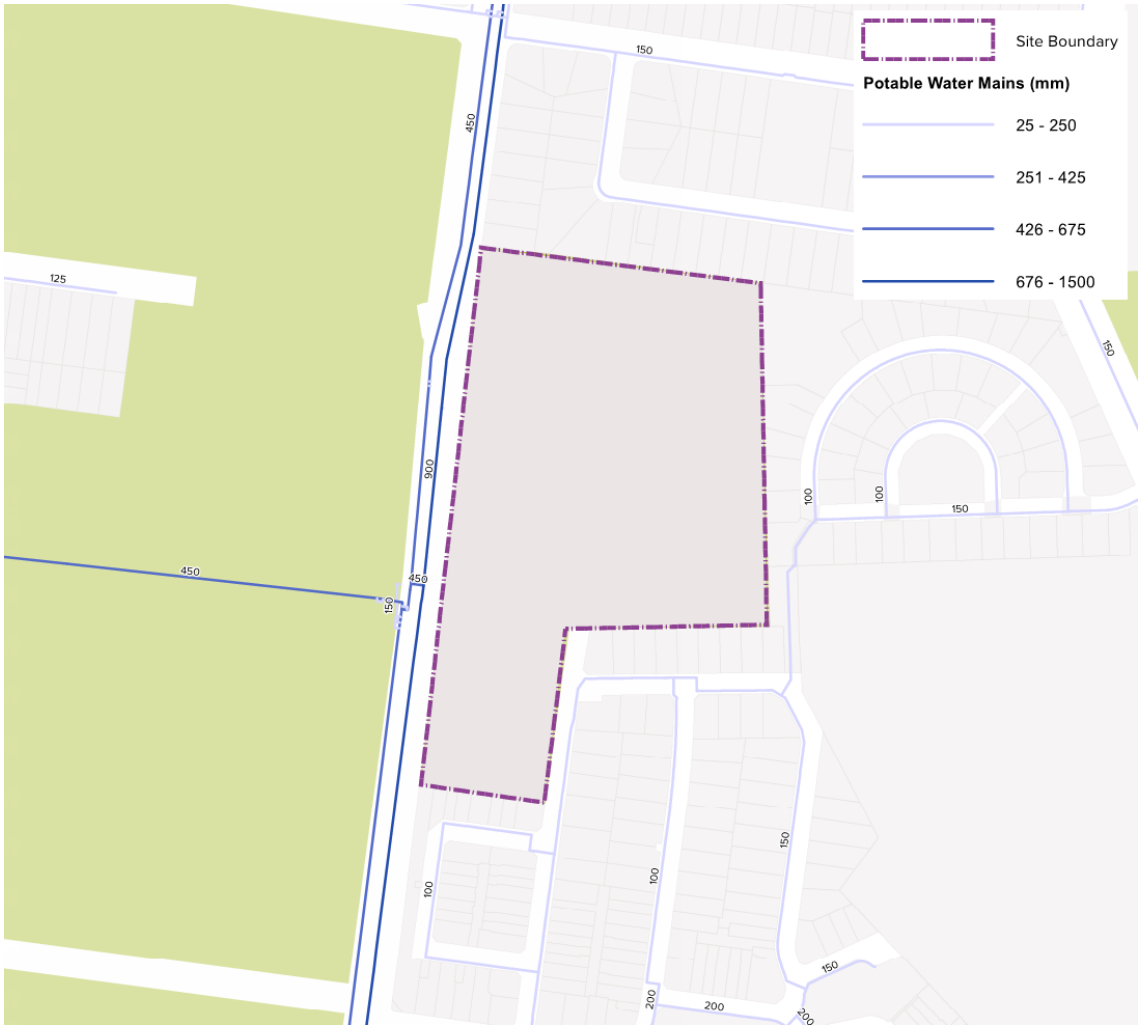


Source: Sydney Water GIS data (2019)

Water is transferred northwards from the reservoir via a 900mm and a 450mm diameter trunk main located on the western side of Joseph Street. The 900mm main transfers potable water from the Potts Hill reservoir to the Five Dock region and would not be utilised to supply the site.

The site appears to have an existing connection to the 450mm main, which crosses to the eastern side of the road corridor approximately 300m north of the Botanica Drive intersection. Assuming there is sufficient capacity in the network, this 450mm connection may be used to supply future development. The local potable water network is shown on Figure 5 below.

Figure 5: Local Potable Water Network



Source: Sydney Water GIS data (2019)

2.2 Concept Supply Assessment

Mott MacDonald have undertaken a high-level assessment to determine the servicing requirements for the site. The potable water analysis follows the procedure detailed below;

- Estimate future demand generated from the new land use yield scenario.
- Determine the ultimate infrastructure requirements for the new development yield.
- Develop, if required, interim servicing options for the Site to mitigate the identified issues.

2.2.1 Future Demand Assessment

A high-level assessment of the new potable water demands for the future growth scenarios has been undertaken using the Water Supply Code of Australia (WSA). Peak hourly demands for the Site have been estimated, refer to Table 1 for proposed land use yields for the three growth scenarios. The maximum water demand rates for each land use were extracted from Table 2.1 of the WSA, these form the basis for estimating proposed demands. It is noted that these rates may vary and are generally conservative.

Table 1: Potable Water Demand Rates per Land-Use Type

Land Use	Max Day Demand Rate (kL/Ha)
30 – 60 dwellings/ha	60
Commercial	41
Industrial	66
School (500 pupils)	90/day

The average daily demands and subsequently peak day factor were then calculated for each area for residential, commercial, industrial and retail land uses. A peak day factor of 1.5 was adopted for all land uses.

The peak hourly demand was then calculated using the average hourly demand from the peak day. A peak hour factor of 2.0 was used in this analysis. The results of assessment are provided in Table 2.

Table 2: Proposed Water Demand Calculations

Land Use	Net Area[1] (Ha)	Density (Dwell/Ha)	Max Day Rate (kL/Ha/d)	Max Day Flow (L/d)	Peak Day Flow (L/d)	Demand (L/s)
Residential	2.21	69	60	132,480	264,960	15.33
MSL – Commercial	0.29	-	41	11,711	23,421	1.36
MSL – Light Industrial	0.09	-	66	5,775	11,550	0.69
School	-	-	180[2]	180,000	360,000	20.83
Total	**-**	**-**	**-**	**329,966**	**659,931**	**38.19**

1. Clinical MSL land use assumed to operate as light industrial
2. Developable area assumed to be equivalent to 80% of net area.
3. Worst case scenario of 1,000 students equals double 90/day rate

It should be noted that that the above demands are based on a range of land use types. Daily demand profiles will vary throughout the time of day for different land use types. For example, school peak use times will differ to residential peak use times, as such the above estimates should be seen as a worst-case scenario and hence conservative. Operationally, the total demand is not entirely additional load on the network as the existing land uses have not been considered. Again, this approach has been adopted to generate a conservative result.

2.2.2 Ultimate Infrastructure Requirements

Pipe Upgrades

The following assessment is provided to estimate the minimum infrastructure sizes required to service the Site. It should be noted that a wider assessment of the Prospect and Kurnell Delivery System and detailed modelling has not been undertaken, further detailed analysis may need to be undertaken to confirm the strategies and bulk supply of water to the Site. As noted above, operational peak demand times for residential and education land uses will be different and this may reduce the minimum pipe size required for the development.

Assuming a target design velocity of 0.8-1.4m/s for the pipes, the diameter of the minimum trunk piped infrastructure required to meet the demand of the Site is 200mm. As highlighted in Section 2.1, a 450mm pipe traverses the western boundary of the site and, if possible, connection to this asset is preferred. Alternatively, supply may be sourced from the 300mm trunk main that traverses Palm Circuit, approximately 500m to the south of the Site. Adoption of this option would result in either an upgrade to the existing 100mm pipe or installation of a second 200mm pipe to service the Site.

Potable water demand for external developments has not been included in the calculations and should be considered over and above these estimates. The pipe diameters calculated are equivalents only and would be more appropriately provided as a number of cross connections through a series of pipes rather than single large connections. Refer to Figure 6 for the potential potable water servicing strategy.

In light of the above analysis, potable water servicing for the site is not expected to present a constraint for development however this would be subject to detailed design and Sydney Water approval.

Figure 6: Proposed Potable Water Servicing Strategy

Source: Mott Macdonald (2021)

2.3 Sydney Water Feasibility Investigation

A feasibility application was lodged with Sydney Water to confirm the servicing strategy for the site (ref: case number 182646). The response letter from Sydney Water is attached in Appendix C, and the following advice was given in terms of potable water infrastructure upgrades:

1. Once a development consent is obtained or submitted, a Section 73 application shall be lodged with Sydney Water and then Sydney Water will issue a Notice of Requirements / Anticipated Notice of Requirements that will be a definitive statement of Sydney Water's requirements.
2. A Water servicing Coordinator shall be engaged by the Developer to manage the design and construction of works that the Developer must provide to service the development at the Developer's costs.
3. A water main extension shall be constructed from the existing DN150 potable water main in Betty Cuthbert Drive (Bankstown supply system) to serve the development. Please refer to clause 4.1 in the Feasibility Letter (Appendix C).
4. Bonding of the adjustment / deviation asset works will be required.
5. Building Plan Approval / stamping of the DA Approved plans will be required.

3 Sewer

3.1 Site Topography & Catchments

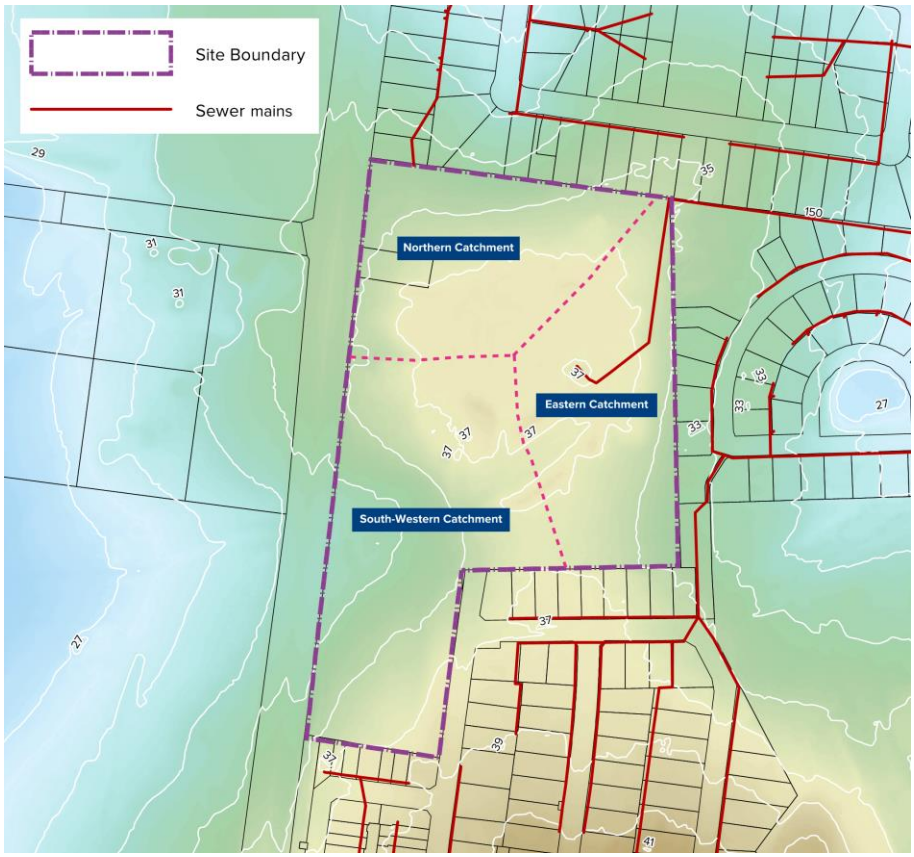
The site generally falls into three main catchments, separated by a ridgeline near the centre of the site which runs in a north-south direction, these catchments are shown in Figure 7 below. Each catchment presents a unique set of servicing opportunities and constraints based on topography and available infrastructure.

The eastern catchment generally drains to a low point in the north-eastern corner of the site. The existing MSL building within the site connects to an internal sewer main which drains to this low point and then to the east via a reticulation main to East Street, where it connects to the Sydney Water sewer network.

The northern catchment appears to drain to a low point on the northern boundary of the site. An existing Sydney Water connection point is located at this low point which services the existing dwellings to the north of the study area.

The south-western catchment drains to a low point on the western boundary of the site. Given the surrounding topography and lack of existing infrastructure, this catchment is likely to prove the most difficult to service.

Figure 7: Sewer Catchments



Source: Sydney Water GIS data (2019) & MSL Sewer Plans

3.2 Existing Network

At present there is no trunk sewer infrastructure located adjacent the site. The Berala Branch Submain is located 450m west of the site, on the western side of the rail corridor. This main is 400mm in diameter and drains to the Haslams Creek Branch Submain located approximately 1.4km north of the site.

The East Street Branch Submain is located in East Street, approximately 370m east of the study area. This main is 300mm in diameter and also drains to the 750mm diameter Haslams Creek Branch Submain. The existing site drains to the East Street Branch Submain via a series of smaller reticulation mains. The regional sewer network is shown on Figure 8 below.

Figure 8: Regional Wastewater Network

Source: Sydney Water GIS data (2019)

As discussed in Section 3.1, the site falls into three main catchments, separated by a ridgeline located through the centre of the site boundary. The northern and eastern catchments drain to the East Street Branch Submain. The existing MSL building is serviced by a 150mm sewer main which drains to the north-eastern corner of the site and connects to a Sydney Water reticulation main located in East Street, which drains to a section of the East Street Branch Submain located to the north of the site.

The south western catchment currently does not drain to the Sydney Water sewer network. Future development in this catchment may require lead in works to ensure an appropriate sewer connection can be provided. This could be achieved via a new reticulation main beneath Joseph Street which connects to the 150mm main servicing properties on Leila Street, adjacent the golf course.

Alternatively, a connection could be provided to the existing 250mm sewer main in Joseph Street, located approximately 240m south of the site. Connection to this main would require significant earthworks due to the challenging topography and is therefore not considered to be a favourable servicing option.

The sewer connection points discussed above are minor reticulation mains (150mm diameter) and therefore may not have sufficient capacity to support the proposed development. Any upgrades to the existing network required to service the site will be confirmed by Sydney Water through lodgement of a feasibility application.

Figure 9: Local Wastewater Network

Source: Sydney Water GIS data (2019)

It should be noted that two sewer easements exist within the site boundary. There is an easement in the north west corner of the site, which is noted as located over a sewer main which may have connected to the

reticulation main to the north of the site boundary. The second easement is in the south west corner of the site. PDNSW has advised that both of these easements are in the process of being extinguished.

3.3 Concept Supply Assessment

Mott MacDonald have undertaken a high-level assessment to determine the servicing requirements for the site. The wastewater analysis will follow the procedure detailed below.

- Estimate future demand generated from the new land use yield scenario.
- Determine the ultimate infrastructure requirements for the new development yield.
- Develop, if required, interim servicing options for the Site to mitigate the identified issues.

3.3.1 Future Demand Assessment

In order to determine the net increase in wastewater demand for the proposed yield growth, the Sewerage Code of Australia (SCA) was used to determine the additional demand generated by the Site. Table 3 outlines the Equivalent Population (EP) rates adopted for each land use. These rates were used to determine the population and associated sewer demand for the Site. It is acknowledged that the below values are conservative and should be seen as a worst-case scenario.

Table 3: Equivalent Population Rates

Land Use	Unit	EP/Unit
Single occupancy medium density units	Dwelling	3.0
Educational Establishment	Student	0.2
Commercial	Ha	75
Clinical[1]	Ha	450

Source: Sewerage Code of Australia
Notes: 1. Rate adopted from previous feasibility study (2018).

Although the Site is split up into three wastewater catchments, for the purpose of this assessment the catchments have been refined further. The total rates for each major land use have been calculated using the Sydney Water's Flow Schedule spreadsheet. The estimated demand rates are presented in Table 4 below. As shown, the residential development has been split up geographically to match the servicing options and ultimate infrastructure requirements explored further in the following sections.

Table 4: Future Wastewater Demand

Catchment	EP	Design Flow (L/s)
Northern Residential	69	2.9
Eastern Residential	108	4.8
Central Residential	30	1.6
MSL	61	4.0
School	200	6.1
Total	**468**	**19.4**

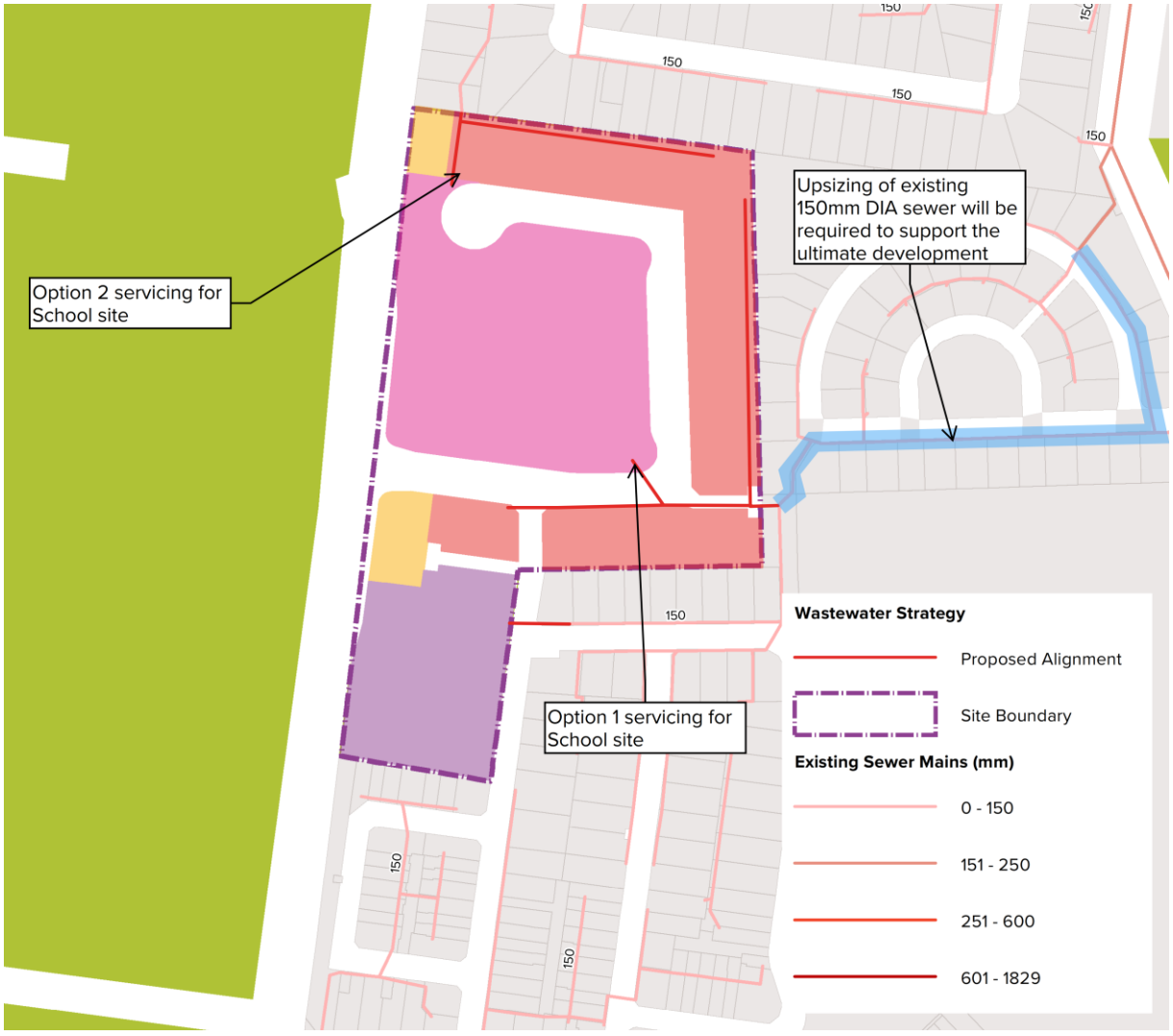
3.3.2 Servicing Options

The existing infrastructure currently servicing the Site will not have sufficient capacity to service the proposed growth. Taking this into consideration, two options have been explored to service the Site;

- Option 1 – the northern residential dwellings are proposed to be serviced via the existing connection to the north of the Site and the remaining land use is serviced via the connection in Ironbark Park, to the east (including school land). As can be seen in Table 4, the combined demand of the school site, MSL site and eastern & central residential will total 16.5L/s.
- Option 2 – this option proposes that the northern wastewater connection will service the northern residential dwellings and the school land. The eastern connection in Ironbark Park is proposed to service the remaining residential dwellings and the MSL facilities. As can be seen in Table 4, the combined demand of the MSL site and eastern & central residential will total 10.4L/s.

It should be noted that the options above have been considered under the assumption that the school land will be serviced by a single connection. Pending the final facility layout, the school land could be serviced by both the northern and eastern connections.

Figure 10: Proposed Wastewater Servicing Strategy



3.3.3 Ultimate Infrastructure Requirements

Based on the existing contributing catchments for the northern connection, there should be sufficient capacity to service either Option 1 or 2, however capacity issues for the eastern connection are outlined below.

The existing 150mm pipe that traverses the eastern boundary of the Site appears to service approximately 60 external dwellings located to the south-west of the Site. Assuming an average dwelling area of 250m^2, these lots will generate a wastewater demand of approximately 6.3 L/s.

For a 150mm pipe that is graded at 1%, its capacity is 15.5 L/s. Based on an external demand of 6.3 L/s, this leaves approximately 9.2 L/s of capacity available for the demand generated by the Site. In both Option 1 and Option 2, the MSL, eastern and central residential development will need to be serviced via this 150mm DIA connection. As identified in Section 3.3.2, this demand equates to a minimum of approximately 10.4 L/s (increasing to 16.5L/s for Option 1). Taking this into consideration, approximately 300m of the existing downstream 150mm pipe will need to be upgraded to 225mm to accommodate the increased demand (a 225mm DIA pipe at 1% has a capacity of 45.7 L/s).

This upgrade will require consent from at least 17 property owners, and approval from Sydney Water. There may be opportunity to delay the trigger point for when the upgrade will be required, however further detailed design will be required confirm with due consideration to the Sydney Water Feasibility Investigation (refer Section 3.4).

Considering the above analysis, wastewater servicing is possible for the proposed site however it should be noted that, all proposed sewer loads are subject to detailed design and Sydney Water approval. Further analysis will need to be undertaken based upon the final lot layout for the residential developments to ensure that all dwelling can be serviced via the proposed system. Assumed available capacity is also subject to Sydney Water confirmation.

3.4 Sydney Water Feasibility Investigation

A feasibility application was lodged with Sydney Water to confirm the servicing strategy for the site (ref: case number 182646). The response letter from Sydney Water is attached in Appendix C, where the following advice was given in terms of sewer infrastructure upgrades:

1. Once a development consent is obtained or submitted, a Section 73 application shall be lodged with Sydney Water and then Sydney Water will issue a Notice of Requirements / Anticipated Notice of Requirements that will be a definitive statement of Sydney Water's requirements.
2. A Water servicing Coordinator shall be engaged by the Developer to manage the design and construction of works that the Developer must provide to service the development at the Developer's costs.
3. Sydney Water preliminary site investigation indicates that the local sewer network can support the proposed development, but further investigation will be required when the Developer supplies their concept detailing servicing proposal for the site. Please refer to clause 4.2 in the Feasibility Letter (Appendix C).
4. A sewer extension shall be constructed to serve the development. The extensions to the site could be possibly taken from the North, East and South. Please refer to clause 4.2 in the Feasibility Letter (Appendix C).
5. Bonding of the adjustment / deviation asset works will be required.
6. Building Plan Approval / stamping of the DA Approved plans will be required.

4 Electricity

4.1 Existing Network

The site is located in the Ausgrid electrical supply zone and is positioned on the border of the Inner West and Canterbury-Bankstown load areas. Electricity is supplied to the site from the Potts Hill Zone Substation (ZS), located approximately 1.6km south of the site. Alternative supply could be provided by the Sefton ZS, located approximately 2.3km west of the site. Details of these substations including capacity and forecast demand are summarised in Table 5.

Table 5: Zone Substation Information

Name	Type	Distance from Site (km)	Total Capacity (MVA)	Firm Capacity (MVA)	Actual Load 2021 (MVA)	Forecast Load 2022/23 (MVA)	Forecast Available Capacity 2022/23 (MVA)
Potts Hill	132/11kV	1.6	107	54.9	43.0	43.0	11.9
Sefton	132/11kV	2.3	152.4	94.6	59.7	60.3	34.3

Source: Ausgrid Distribution & Annual Planning Report (2021)

The existing site and surrounding residential developments are serviced by a series of underground electrical cables. Existing low voltage infrastructure located within the site boundary will be decommissioned and removed where required to facilitate the development of the site.

The existing site receives power via an on-site kiosk substation which is serviced via an 11kV feeder that traverses Joseph Street from Potts Hill ZS. This existing kiosk's current load is approximately 300kVA and is likely to be able to supply electricity to the initial stages of development, however, additional kiosks will be required to service the ultimate proposed development.

There is also a risk that the demand generated by the proposed development exceeds the available capacity of the existing 11kV feeder. In this case an additional feeder from the Potts Hill ZS would be required. Alternatively, opportunities to connect to another nearby feeder could be explored.

Digital GIS data for the subject site has been requested from Ausgrid. When this information is received it will be incorporated into the detailed specifications and plans. Nevertheless, the below image has been provided for context.

Figure 11: Ausgrid Proximal Zone Substations

Source: Ausgrid Distribution & Annual Planning Report (2021)

4.2 Ausgrid Feasibility Investigation

A feasibility application has been lodged with Ausgrid to confirm the servicing strategy for the site. When this information is received it will be incorporated into the detailed specifications and plans.

4.3 Concept Supply Assessment

Mott MacDonald have undertaken a high-level assessment to determine the servicing requirements for the site. The electrical analysis follows the procedure detailed below.

- Estimate future demand generated from the new land use yield scenario.
- Determine the ultimate infrastructure requirements for the new development yield.
- Develop, if required, interim servicing options for the Site to mitigate the identified issues.

4.3.1 Future Demand Assessment

A high-level assessment of the electrical demands for the future growth scenario has been undertaken. In lieu of advice from Ausgrid, Mott MacDonald have adopted electrical demand rates previously provided for a similar project by Endeavour Energy, which are provided in Table 6 below. It should also be noted that, for the purpose of this assessment, the clinical land use of the MSL facilities has been assumed to operate as light industrial.

Table 6: Electricity Load Assumptions

Land Use	Unit Load (VA/m^2 or VA/dwelling)
Medium Density Residential - House	3,000
Commercial	100
Light Industrial	100
School	15

Source: Endeavour Energy (2018)

An evaluation of the expected electrical demands for the Site was undertaken using the rates above and include the application of a diversification factor of 0.8 to account for overestimation of the peak period demand. The results are provided in Table 7 below. These demands are indicative only and should be further refined as more information becomes available regarding final built forms. The implications of this increased demand on the existing infrastructure is explored in the following section.

Table 7: Future Electrical Demand

Scenario	Unit (sqm or dwellings)	Total Load (MVA)	Diversified Demand (MVA)	Number of 11kV Feeders Required
Medium Density Residential - House	69	0.23	0.18	0.04
Commercial	2,300	0.41	0.33	0.07
Light Industrial	700	0.07	0.06	0.01
School	11,380	0.17	0.14	0.03
Total	**-**	**1.04**	**0.71**	**0.15**

Note: Mott Macdonald have assumed, based on previous experience, an 11 kV feeder carries approximately 5 MVA.

4.3.2 Ultimate Infrastructure Requirements

Based on Ausgrid's Annual Planning Report, Potts Hill ZS is proposed to have a forecast load of approximately 45MVA by 2023. Mott Macdonald has assumed that the proposed development at Betty Cuthbert Drive has not been considered in this forecast. Taking this into consideration, there will be approximately 9.9MVA of electrical capacity available for developments similar to this Site. As outlined in Table 7, the proposed development is expected to generate an electrical demand of approximately 0.7MVA, which equates to approximately 7% of the available capacity at Potts Hill ZS. It is therefore likely that the Potts Hill ZS will have sufficient spare capacity to service the Site.

From previous experience on similar projects, if a development requires 50% of a feeder's capacity to service the site, it may require network alterations to either offload power or will require the provision of a new feeder to the site. The estimated load of 0.7MVA for the Site equates to approximately 15% of the existing 11kV feeder and therefore should not require offloading or an additional feeder.

Additionally, the existing kiosk substation has a capacity of approximately 300kVA, the 0.7MVA is likely to require two additional kiosk substations to service the site.

Should there be insufficient capacity at the Potts Hill ZS to service the development, alternative supply could originate from Sefton ZS. Feeders from Sefton would need to cross multiple train lines to reach the site, which would add a significant cost to the development. This option is therefore not a preferred method of connection for the Site.

It should be noted that capacity cannot be reserved for specific developments. Should external developments proceed ahead of the Site, the available supply will be used to service these projects first. Further engagement with Ausgrid should be prioritised to ensure future planning takes into account the density of the Site

In light of the above analysis, electrical servicing for the site is not expected to present a constraint for development, however this is subject to detailed design and Ausgrid approval for connections.

Digital GIS data for the subject site has been requested from Ausgrid. When this information is received it will be incorporated into the detailed specifications and plans.

5 Telecommunications

5.1 Existing Network

The existing site is currently serviced via the NBN Co. network, with infrastructure located within the road reserve of Joseph Street. It is expected that the existing network will be extended into the site to service future development. Any existing infrastructure located within the site boundary will be decommissioned and removed to facilitate development. The existing NBN telecommunications network is shown in Figure 12 below.

Figure 12: Existing NBN Co. Network

Source: NBN Co. DBYD data (2021)

5.2 Concept Servicing Strategy

It is expected that the NBN Co. will be able to service all future development on the Site. NBN Co. will utilise existing ducts within the shared trench of existing roads to install new telecommunications infrastructure. Developers will be expected to provide pit and pipe infrastructure, and any other required infrastructure within the site boundary. This includes providing ducts for any new roads.

New connections to the NBN network incur a charge of $600 per single dwelling unit and $400 for each multi dwelling unit (costs current at time of report). It is not anticipated that any backhaul charges will be applicable for the development.

In light of the above, telecommunications servicing for the site is not expected to present a constraint for development.

6 Gas

6.1 Existing Network

Gas is supplied to the site and surrounding area by Jemena. The adjacent residential developments are serviced by a series of existing network mains and the nearest trunk gas infrastructure is a 3,500 kPa primary main traversing Georges Avenue, slightly north of the site. Given the proximity of trunk gas infrastructure to the site, the provision of gas is not expected to pose a constraint to development.

Under NSW regulation, Jemena are required to ensure that any connection to the natural gas distribution system is commercially viable and therefore must assess each request for supply on an individual basis (as gas is a non-essential service). Mott MacDonald's experience is that Jemena will be able to assess the development once a final layout is prepared and firm demand is known, together with detailed design.

As there is existing gas infrastructure in the vicinity of the site, it is likely that Jemena will be able to facilitate the upgrade of infrastructure required to support the increased demand generated by the development. The existing gas network is shown on Figure 13.

Figure 13: Existing Gas Infrastructure

Source: Jemena DBYD data (2019)

6.2 Concept Servicing Strategy

The Site is generally well serviced by existing gas trunk infrastructure. There is currently a primary gas main running along Georges Avenue, and this will be the key feeder for the Site. It is not expected that there will be any gas supply issues and it is noted that Jemena is required to ensure that any connection to the natural gas distribution system is commercially viable and therefore must assess each request for supply on an individual basis (as gas supply is a non-essential service). It is expected that with an increase in residential yield, gas supply will become more favourable and will also help reduce electrical demand in the Site. Additional pipe upgrades may be required as development occurs but are expected to be monitored and managed by Jemena. Gas mains will be constructed within the standard trench allocation of the road reserve.

Gas servicing for the site is not expected to present a constraint for development.

6.3 Jemena Feasibility Investigation

A feasibility application has been lodged with Jemena to confirm the servicing strategy for the site. When this information is received it will be incorporated into the detailed specifications and plans.

Appendix A: Existing Services Plans

LIDCOMBE MASTER PLAN

SEWER CATCHMENTS

Site Boundary

Sewer Pipes

Northern Catchment

Eastern Catchment

South-Western Catchment

0 0.025 0.05 0.075 0.1 km

19.03.19 | REF: MMD-00-U-GIS-0101

NSW GOVERNMENT Planning, Industry & Environment

MOTT MACDONALD

LIDCOMBE MASTER PLAN

EXISTING LOCAL POTABLE WATER NETWORK

Site Boundary

Potable Water Mains (mm)

25 - 250

251 - 425

426 - 675

676 - 1500

0 0.025 0.05 0.075 0.1 km

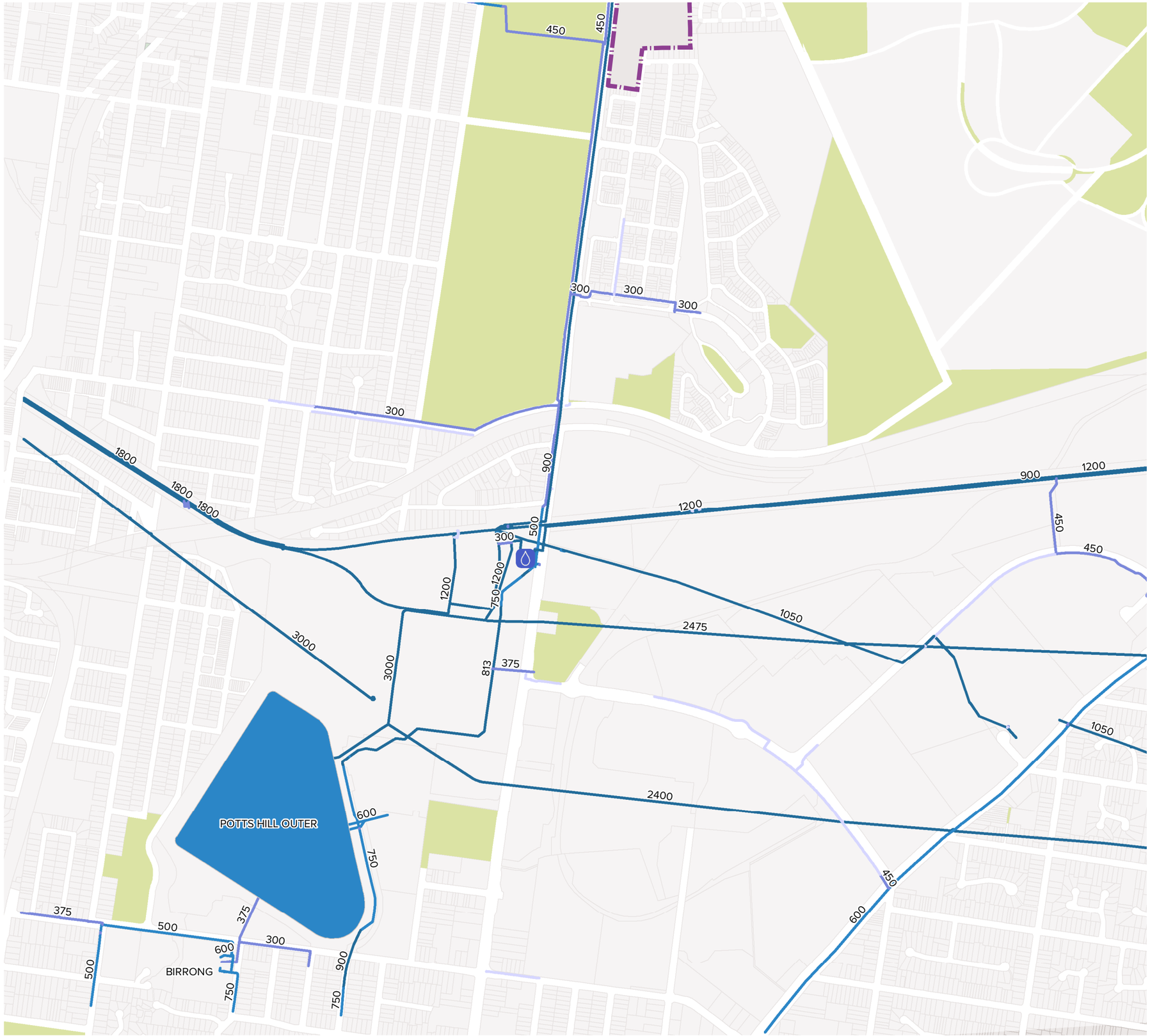
19.03.19 | REF: MMD-00-U-GIS-0102

NSW GOVERNMENT Planning, Industry & Environment

MOTT MACDONALD

LIDCOMBE MASTER PLAN

EXISTING REGIONAL POTABLE WATER NETWORK



Site Boundary

Potts Hill Water Pump Station

Potts Hill Reservoir

Trunk Potable Water Mains (mm)

25 - 250

251 - 450

451 - 800

801 - 3000

0 0.1 0.2 0.3 0.4 km

19.03.19 | REF: MMD-00-U-GIS-0102

NSW GOVERNMENT Planning, Industry & Environment

MOTT MACDONALD

Appendix B: Proposed Servicing Strategies

LIDCOMBE MASTER PLAN

PROPOSED POTABLE WATER STRATEGY

Potable Water Strategy

- Proposed Alignment
- Site Boundary

Existing Potable Water Mains (mm)

- 25 - 250
- 251 - 425
- 426 - 675
- 676 - 1500

0 0.025 0.05 0.075 0.1 km

18.06.21 | REF: MMD-00-U-GIS-0112

MOTT MACDONALD

LIDCOMBE MASTER PLAN

PROPOSED WASTEWATER STRATEGY

Wastewater Strategy

- Proposed Alignment
- Site Boundary

Existing Sewer Mains (mm)

- 0 - 150
- 151 - 250
- 251 - 600
- 601 - 1829

0 0.025 0.05 0.075 0.1 km

18.06.21 | REF: MMD-00-U-GIS-0113

MOTT MACDONALD

Appendix C: Sydney Water Feasibility Letter

Case Number: **182646**

12 March 2020

DEPARTMENT OF PLANNING AND ENVIRONMENT
c/- MOTT MACDONALD AUSTRALIA

FEASIBILITY LETTER

Developer:	**DEPARTMENT OF PLANNING AND ENVIRONMENT**
Your reference:	**405675**
Development:	**(Lot 74 DP1141724), No. 80 Betty Cuthbert Dr, Lidcombe**
Development Description:	**Redevelopment of existing MSL Facilities. The site improvements aims to provide a Mix between Residential, Education and Special Infrastructure Land Uses**
Your application date:	**17 December 2019**

Note: **Level 1 water restrictions are now in place**, which limits how and when water can be used outdoors. This can impact you and your contractors in the activities they need to undertake for this proposal.

Using water to suppress dust is not restricted, but this does mean that you/your contractors will need to apply for an exemption permit to use water for most outdoor uses including:

- Cleaning equipment and the exterior of new buildings
- Drilling and boring, and
- Batching concrete on-site

Fines for deliberate breaches of restriction rules apply from 1 September 2019.

For more information on the restrictions and for applying for an exemption, visit our web site at http://www.sydneywater.com.au/SW/water-the-environment/what-we-re-doing/water-restrictions/index.htm

The more water everyone saves, the longer we can stave off the progression to stricter restrictions or emergency measures.

Please provide this information to your contractors and delivery partners to inform them of their obligations.

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.

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.

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 > Plumbing, building & developing > Developing > Land development.

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 > Plumbing, building & developing > Developing > Providers > Lists 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:

- **You must construct a water main extension from the existing 150mm main in Betty Cuthbert Dr (Bankstown supply system) 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.

- **Reticulation sizing will be to code.**

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:

- **At the desktop level the site could possibly be serviced by extensions from the North, East and South.**

- **You must construct a waste water main extension to serve your development**. The terms of the Deed define this extension as 'Major Works'.

Capacity assessment:

Capacity assessment is indicative only as the WSC did not provide a concept PW and WW servicing proposal.

Sewer requirements:

Preliminary investigation indicates that the local network can support the proposed development, however, further investigation will be required when the developer supplies a detailed detail concept servicing proposal for the site.

•

Additional Information:

Application should have included a concept servicing plan. Additional details can only be provided at the Sec 73 Application.

- Because your development requires adjustment/deviation of a "live" wastewater main you must work with your Water Service Coordinator to ensure that:

  - Your Building Plans are approved prior to temporary pipework and excavation,

  - You submit your temporary pipework design (if required) with your permanent

wastewater deviation design for approval,

- Accept in writing to bonding conditions that will be provided in the Bond Agreement,
- Submit your Bond and signed Bond Agreement,
- Submit the Construction Commencement Notice for construction of the temporary pipework,
- Have your temporary pipework constructed by a listed provider, and then
- Complete your permanent deviation works

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. Approval of your Building Plans

You must have your building plans 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 > Plumbing, building & developing > Building > Building over or next to assets. Here you can find Sydney Water's *Technical guidelines - Building over and adjacent to pipe 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. Special Requirements

- More information on water services can be provided at the Sec 73 Application

Visit www.sydneywater.com.au > Plumbing, Building & Developing > Plumbing > Meters & metered standpipes to see the *Multi-level individual metering guide* and find out more.

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 Plumbing Code of Australia (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 Sydney Water Tap in™ 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 Sydney Water Tap in™. 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 Plumbing Code of Australia (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