ATTACHMENT G

SLR CONSULTING LETTERS
AND REVISED INFRASTRUCTURE REPORT

Responding to

DEPT LETTER OF ISSUES

24 April 2012

610.10150.00450 R2D1.docx

Colston Budd Hunt & Kafes Pty Ltd
Suite 1801 / Tower A
Zenith Centre
821 Pacific Highway
Chatswood NSW 2067

Attention: Lindsay Hunt

Dear Lindsay

Columbia Precinct - Acoustic Issues

Thank you for the opportunity to respond to Strathfield Council's letter to the DoP dated 16 March, 2012, titled "Strathfield Council Submission March 2012 – Part 3A, Concept Plan Columbia Lane Precinct", particularly as it relates to the acoustic issues raised on pages 5 to 9.

In this letter we note that Council is concerned about the high level of rail noise incident on the subject site. They specifically mention the high level of noise from "rail squeal" caused by the tight radius curved section of track that links the Western and Northern Rail Lines, known as the North Strathfield Goods Loop.

It is important to be aware that the relevant Environment Protection Authority's (EPA) guidelines relating to both road and rail traffic noise do not require a thorough assessment of maximum noise level events. The Environmental Criteria for Road Traffic Noise (ECRTN) guideline document does however say that maximum noise levels should be considered but it stops short of requiring measures to be put into place to address maximum noise level events. This point is addressed very clearly in Section 5.1 of our report. In this section of our report we stated the conclusion of the discussion on Sleep Arousal from maximum noise events contained in the ECRTN, that is:

1. *Maximum internal noise levels below 50–55 dBA are unlikely to cause awakening reactions.*

2. *One or two noise events per night, with maximum internal noise levels of 65–70 dBA, are not likely to affect health and wellbeing significantly.*

Notwithstanding the comment given above, an assessment of maximum noise level events is probably appropriate at the more detailed Development Application Stage in order to show that the maximum noise level events can be dealt with by providing an adequate facade construction (example solutions of appropriate glazing upgrades include acoustical double glazing, such as 10 mm glass / 100 mm airgap / 6 mm glass, or where appropriate 12.76 mm thick laminated glass), and allowing residents to close windows during sleep periods should they so choose.

To accurate specify the acoustic facade requirements for each of the buildings contained within this development, the individual room dimensions, intended usage and window sizes must all be known together with the incident sound pressure level on the building. During the Development Application (DA) stage of the project when more of these details of the building design are known, a more complete glazing design can be completed to ensure that maximum internal noise level of 50-55 dBA will be met in all habitable spaces. This will be done and target noise levels achieved.

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As a general rule, noise control should preferably be applied at the source. RailCorp has long known of the high levels of noise that can be caused by rail squeal on tight radius bends in the rail network and have been actively trialling noise mitigation measures such as applying friction modifying compounds to the rail head via automated applicators. This noise control technique has been in use in the three bends between Wollstonecraft and Waverton stations on Sydney's lower North Shore for some years with increasing levels of effectiveness. Potentially a similar noise control technique could be investigated for the North Strathfield Goods Loop. This would then significantly reduce the incidence of high maximum noise levels on all of the surrounding buildings, including the 12 Storey residential building at 14-16 Station Street where Council mentions residents currently complain of rail squeal noise due to inferior noise attenuation in these older buildings.

Council's submission also includes a statement that they do not support the noise sampling contained in SLR's Noise and Vibration Assessment Report. Council appears to be suggesting that noise monitoring should have been carried out at a height of approximately 20m. An obvious difficulty with this suggestion is that there is currently no 20m high structure upon which to place a noise monitor or indeed any easy way of supporting a 20m mast upon which to mount a microphone. Even if we were able to do this monitoring, it would not provide the detailed facade noise levels that we have provided in our report though rigorous modelling of the development and noise sources surrounding the development site.

The methodology we adopted to determine the noise levels at the building facade includes a particularly sophisticated SoundPlan modelling exercise that enables the noise level at different heights up the buildings to be calculated accurately. The noise monitoring made at 4 locations around the development site was used to calibrate the 3D computer noise model of the site. The noise model takes into consideration the exact height of buildings and any shielding provided by adjacent buildings as well as the location and relative heights of the noise sources; being predominantly the surrounding roads and railway lines. It would not have been possible to determine the incident noise levels on the proposed facades of such a complicated source and receiver geometry in any other way. It specifically would not have been possible by monitoring alone, at any number of locations and heights.

The general internal noise level criteria given in our report references the criteria given in State Environmental Planning Policy (Infrastructure) 2007 (the 'Infrastructure SEPP'). The criteria given in the Infrastructure SEPP are referenced in the Department of Planning (DoP) document "Development Near Rail Corridors and Busy Roads – Interim Guideline". The relevant internal noise criteria are listed as follow:

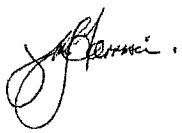
> *If the development is for the purpose of a building for residential use, the consent authority must be satisfied that appropriate measures will be taken to ensure that the following L_{Aeq} levels are not exceeded:*
>
> - *in any bedroom in the building : 35dB(A) at any time 10pm–7am*
> - *anywhere else in the building (other than a garage, kitchen, bathroom or hallway): 40dB(A) at any time*

Section 2.3 of this Interim Guideline states:

> *"With increasing residential densities and business activities near rail corridors, there is a growing need to better integrate landuse and transport. This particularly applies to major development near railway stations. Locating affordable housing and concentrating business activities near stations improves accessibility and opportunities for increased rail patronage. This is particularly the case where the housing or business is within easy walking distance from the station."*

In our report we believe we have shown in a high level of detail how these Infrastructure SEPP internal noise criteria can be met. Additionally we have discussed maximum noise levels caused by rail squeal and provided indicative constructions sufficient to show how this criterion can also be satisfied. We believe that the details of the methods of achieving acceptable internal acoustic conditions should be further developed in the DA stage of the development when additional details of the development are known, and that acceptable and complying levels will be attainable.

Yours sincerely



MATTHEW HARRISON
Technical Discipline Manager – Noise and Vibration

16 August 2012

610.10150.00450 R3 20120816.docx

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Attention: Lindsay Hunt

Dear Lindsay

Columbia Precinct Acoustic Assessment
2-20 Parramatta Road & 11-13 Columbia Lane, Homebush
Discussion of Council's Built Form Approach

1 Introduction

This letter is in response to Strathfield Council's letter to the DoP dated 16 March, 2012, titled *"Strathfield Council Submission March 2012 – Part 3A, Concept Plan Columbia Lane Precinct"*. Council has suggested an alternative built form approach to development on the site to that of the project proponent. On page 9 of their letter, Council requests that the two different approaches be assessed by the 3D acoustic model of the site using the SoundPLAN software. This is a reference to the detailed acoustic assessment undertaken by SLR Consulting as described in Report Number 610.10150R1R2 *2-20 Parramatta Road, 11-13 Columbia Lane Noise and Vibration Assessment.*

The aim of the acoustic assessment conducted by SLR Consulting was to establish the suitability of the site for residential development and to identify in-principle measures that will be required to control rail and road traffic noise intrusion to residential areas. This is a challenging site acoustically, however subject to an appropriate design of facade and glazing elements SLR Consulting has concluded that the relevant acoustic design goals can be met with the proponents' preferred design. Council's letter indicates their agreement with this conclusion on page 5:

> *"The SLR Consulting Australia Pty Ltd (SLR) Noise & Vibration Assessment report that accompanies the Concept Plan states that the proposal is only suitable for residential development if appropriate acoustic design is undertaken. Council agrees with this."*

SLR Consulting is of the opinion that while it would be possible to model Council's alternative, it is more informative (and cost-effective) to consider the aspects of each design in a comparative sense, in order to better understand the underlying principles. While there are significant differences between the two designs, the noise incident on the worst-affected facades (facing Parramatta Road and the rail line) will be very similar in both cases. Both designs would require careful acoustic consideration in the detailed design phase. SLR Consulting has demonstrated that the acoustic design goals can be met with the proponents' preferred design, and would expect a similar conclusion from a detailed investigation of Council's design.

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The issue is whether Council's approach of using buildings as noise barriers would result in a net improved amenity for future residents on this site. In considering residential amenity, we note that acoustics should not be considered independently of other aspects such as solar access, out-door space and ventilation.

In the following sections, we systematically address each of the acoustic concerns raised by Council.

2 Response to Council Acoustic Concerns

2.1 Council Issue 1

"Council also reviewed international best practice in high density development adjacent to noise generating infrastructure. Using the buildings themselves as noise walls, offered the best results for the residents and protecting the public and private open spaces from noise impacts." (Council Letter, p5-6).

For this reason, Council proposes 6 storey buildings along Parramatta Road and in a curve around the railway line to act as barriers to the buildings behind.

Response 1

The 'barrier block' approach can be beneficial in some situations, as in the Lilla Essingen example provided by Council. Another more local example of the use of barrier blocks is the Liberty Grove development between the rail line and Homebush Bay Drive (north of the subject site), where 3 storey apartment blocks provide shielding to lower density housing behind.

The Department of Planning's *Development near rail corridors and busy roads interim guideline* (the DoP Guideline) describes the main considerations when designing a 'barrier block'. These include:

- That noise sensitive rooms in the barrier block (ie bedrooms and living areas) should face away from the noise source.
- Rooms on the 'noisy' side may need heavy insulation and mechanical ventilation

The obvious implication is that dwellings in barrier blocks will be restricted in their layout to protect noise-sensitive rooms. These restrictions need to be balanced against other amenity issues such as solar access to habitable rooms, privacy, outlook and overshadowing to other dwellings.

The buildings as noise barriers approach will be most effective where there is a single noise source (from one direction), where a majority of residences will receive a noise benefit relative to the number of residences required to form the barrier, and where the shielded residences do not suffer adverse overshadowing, privacy, outlook or solar access issues (protection from noise to the detriment of other amenity factors).

On the subject site, the curve in the rail line means that over three-quarters of the site boundary are adjacent to major noise sources, including the northern and eastern sides. This fact, when combined with the proposed density of the development, means that the buildings Council proposes to use as barriers are six storeys each. It is not clear in council's design that a majority of residents would receive a net benefit, as a large proportion of dwellings would remain in close proximity to the noise sources, would have restricted floorplans, or would suffer from overshadowing.

The curved form of Council's scheme facing the railway means most of the floor area is exposed to the 'noisy' facade, with less floor area (along the inside radius of the curve) on the protected side. Approximately 75% of a typical unit floor area is "noise sensitive" including bedrooms and living areas. Accordingly Council's scheme would almost certainly have to contain many noise-sensitive rooms on the 'noisy' side of the block.

The proponents' preferred design has residential towers set back above less sensitive commercial podiums (along Parramatta Road) or car-parking podiums (adjacent to the rail line). Like barrier blocks, this is also a recognised technique to reduce noise impacts on the more sensitive residential receivers, and is described in the DoP guideline. In the proponents' preferred design, the podiums on Parramatta Road and along the railway will provide shielding to the lower levels of the residential tower. There is also provision for noise barriers or parapets on the podium edge to provide additional shielding to both the open space and the residential towers. Also, the towers are set back a greater distance from the noise source. The proponents' preferred approach does not have the same overshadowing and solar access issues of the 'barrier block' approach and is more appropriate in this situation.

2.2 Council Issue 2

"Council's urban design and built form approach has taken into consideration the feedback from residents of the 12 storey building at 14-16 Station Street (on the opposite side of the subject site) in regard to rail noise. This especially relates to the wheel screech at this very location, as freight trains particularly at night travel around the long curved section that links the western and northern lines. This limits owners ability to leave windows open and benefit from natural ventilation. Elevated buildings such as 14-16 Station Street have been proven to be not particularly suited to these specific sites due to the freight rail noise. The Part 3A proposal does not address this as the proposed towers would be exposed to these same noise issues." (Council Letter, p6)

Response 2

14-16 Station Street was designed and constructed over 10 years ago, prior to the specific rail noise provisions of the State Environmental Planning Policy (Infrastructure) 2007 (the Infrastructure SEPP). The noise impacts on residents of this building depend on the consideration given to noise (including maximum noise events) in the design of facade treatments, and the quality of construction.

The curve squeal impacts will be no less on a six storey residential block than on a higher tower. It is illogical to suggest that the overall height of the building should determine its suitability when the noise source is at ground level.

Council's proposal to limit the height along the railway line does not remove the curve squeal issue. Furthermore, Council proposes the residential barrier block to extend along the rail curve from Parramatta Road to the stormwater channel. In comparison, the proponents' preferred design includes a single residential tower in the south-eastern section, with the remainder of the segment adjacent to the railway line proposed for less sensitive land uses including commercial space, office space and car parking on the lower levels. The total area of residential facade in close proximity to the railway line (and requiring consideration of curve squeal impacts) is similar for Council's long, six storey barrier block and the proponents' taller residential tower.

Noise reduces due to geometric spreading with distance and in the absence of other shielding the noise impacting on the top of a 50 m high tower will be the same as the noise impacting on a one or two storey building set back 50 m from the railway line. That is, the noise impacts will be less at higher levels of the tower than at the lower levels (although the lowest residential levels will benefit from shielding provided by the podium level and parapet in the proponents' preferred design).

As described in the acoustic assessment report, an assessment of maximum noise level events is required in the detailed design stage in order to confirm the required facade construction to adequately mitigate the maximum noise level events. It is expected that alternative mechanical ventilation will be required to allow residents to close windows during sleep periods, as is common in urban areas.

2.3 Council Issue 3

"Given the approach of this part 3A Concept Plan, with increasing height, from low (2 storey) at Parramatta road to high (21 storey) near the railway, it is considered that there will need to be greater levels of noise protection for the majority of apartments, as there is no significant noise barrier, and noise can echo between the buildings. Noise from Parramatta Road and the M4 Motorway will also not be blocked by this approach in the Concept Plan. Instead the Plan increases the number of apartments that are exposed to a negative noise environment." (Council Letter, p9)

Response 3

The proponents' preferred design recognises the acoustic challenges of the site. Noise protection will be required across the site. This is identified in the acoustic assessment and will need careful attention in the detailed design phase. However, Council's design will require equivalent or greater levels of protection for all six storeys of the dwellings proposed in the barrier blocks on the boundary of the site.

The acoustic requirements can be met with appropriate design. The overall layout of the site needs to balance all amenity factors such as solar access, privacy, outlook and overshadowing.

2.4 Council Issue 4

"Even with excellent acoustic design, future residents will want to open their windows for fresh air and want to access their balconies and open the doors onto the balconies and thus defeating the acoustic design solutions." (Council Letter, p9)

Response 4

This comment is equally applicable Council's barrier blocks as to the proponents' preferred design. It is expected that alternative mechanical ventilation will need to be provided.

2.5 Council Issue 5

"Council does not support the noise sampling in the SLR Noise and Vibration Assessment Report. The results in table 2 of the report appear too low because they have not considered the full noise environment e.g a 20m high monitoring location that is not blocked by any buildings. In this regard, with 21 storey buildings proposed (60+ m), only a high level noise monitoring location would pick up the true noise impact on these buildings. The tallest location sampled has only 5m and surrounding buildings should block noise from other locations." (Council Letter, p9)

Response 5

The purpose of the noise monitoring was to calibrate the 3D computer noise model of the site, not to directly determine noise levels at the future residences. The noise model takes into consideration the exact height of buildings and any shielding provided by adjacent buildings as well as the location and relative heights of the noise sources; being predominantly the surrounding roads and railway lines. It would not have been possible to determine the incident noise levels on the proposed facades of such a complicated source and receiver geometry in any other way. It specifically would not have been possible by monitoring alone, at any number of locations and heights.

2.6 Council Issue 6

Council is concerned that *"future residents (like existing nearby high rise development) will be disadvantaged and impacted by ongoing noise issues particularly from rail."* (Council Letter, p9)

Response 6

Noise from the rail line would similarly affect future residents of the 6-storey curved "barrier block" under Council's built form proposal. Curve squeal is a known characteristic of the site and would need to be considered in the detailed design of the facades and building elements, for either council's design or the proponents' preferred project.

An assessment of maximum noise level events is required in the detailed design stage in order to show that the maximum noise level events can be dealt with by providing an adequate facade construction, and allowing residents to close windows during sleep periods should they so choose.

To accurately specify the acoustic facade requirements for each of the buildings contained within this development, the individual room dimensions, intended usage and window sizes must all be known together with the incident sound pressure level on the building. During the Development Application (DA) stage of the project when these details of the building design are known, a more complete glazing design can be completed to ensure that maximum internal noise level of 50-55 dBA will be met in all habitable spaces. This will be done and target noise levels achieved.

3 Conclusion

While the 'barrier block' approach suggested by Council can be beneficial in some situations, acoustic amenity is only one factor that needs to be considered in the design of high-density residential developments. In this situation where the affected areas are the northern and eastern sides of the development (critical for solar access), the proponents' preferred design of setting back residential towers above less sensitive podiums with parapets above is considered to be a more appropriate and balanced solution.

In our acoustic assessment report we believe we have shown in a high level of detail how the Infrastructure SEPP internal noise criteria can be met for the proponents' preferred design. Additionally we have discussed maximum noise levels caused by rail squeal and provided indicative constructions sufficient to show how this criterion can also be satisfied, even though this is not specifically required by the Infrastructure SEPP. We believe that the details of the methods of achieving acceptable internal acoustic conditions should be further developed in the DA stage of the development when additional details of the development are known, and that acceptable and complying levels will be attainable with the proponents' preferred design.

Yours sincerely

BRIONY CROFT
Senior Project Consultant – Transportation Noise and Vibration

30 August 2012

610.10150 L01 20120830

Colston Budd Hunt & Kafes Pty Ltd
Suite 1801, Tower A, Zenith Centre
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CHATSWOOS NSW 2067

Attention: Mr Lindsay Hunt

Dear Lindsay

Columbia Precinct
Department of Planning & Infrastructure Communications

Q1: Please confirm that your solar access calculations take account of all buildings - ie include the effects of overshadowing?

A1: SLR Report 610.10150-R3R3 took into consideration all proposed and surrounding buildings that may have overshadowing impact on the proposed development. Sun Eye Views showing modelled buildings are shown in Appendix A of the report.

Q2: Did SLR confirm with Strathfield Council engineers that there is no need for OSD on site?

A2: This was not confirmed with council directly, however the approach was based on the Strathfield Council Stormwater Management Code (Section 4.2), which specifies that "OSD is required to limit discharges from specified developments / building works to pre-development conditions" and that OSD is required for "all developments / building works where the proposed increased paved and/or roofed areas exceeded 100m2".

The proposed development increases the amount of 'green space' (pervious area) onsite and therefore does not increase the paved or roofed area (impervious area) compared to the existing pre-developed site. The total stormwater runoff generated from the whole site during rainfall events will decrease as a result of the increase in pervious area. As shown in Table 1 of the WSUD report, post-development rates for the Q100 event will not exceed pre-development rates with the exception of the internal roads. The increase in discharge from the new roads will be controlled by the implementation of WSUD measures. In accordance with the Stormwater Management Code, no other OSD is deemed to be required. It should however be noted that the proposed rainwater harvesting tanks will provide some onsite detention function.

Q3 Where would the co-gen/tri-gen plants be located, and how would their incorporation (or otherwise) in the design be determined?

A3: SLR Consulting Report 610.10150 (Page 42) has recommended conducting a detailed study during the development application stage of the project to size the system based on detailed cooling load

calculations to determine how the electrical power output from the proposed plant may be most effectively distributed based on accurate thermal loads calculations. Equipment layout and locations can be finalised based on the proposed study. It is anticipated that the trigeneration systems are located on the basement/ground levels.

Q4: Where would greywater storage be located?

A4: Greywater recycling was put forward as a potential opportunity but the volume and location of storage facilities has not been considered in detail. It is assumed that all greywater recycling infrastructure would be situated underground.

Q5: Where is the NatHERS analysis actually documented, what were the results, and is BERS Pro the relevant thermal modelling element of BASIX?

A5: NATHERS analysis is documented in Section 3.1.2. Results of NatHERS-BERS Pro thermal comfort modelling for selected units are summarised in Table 4.

Q6: Assessment using Greenstar Rating Pilot Communities Tool, still in draft and under development. How could it actually be used with this Project?

A6: The green star – Communities PILOT rating tool was released on 14 June 2012 and was not available when the Columbia Precinct project was assessed and submitted.

The Columbia Precinct project meets the Space Use criteria for the new PILOT tool (eg the project contains more than four buildings of any size and mix, of Class 1-9 structures, as classified under the Building Code of Australia).

The PILOT rating tool assesses the sustainability performance of projects' planning, design and construction outcomes against the following categories:

- Governance
- Design
- Liveability
- Economic Prosperity
- Environment
- Innovation

It is worth mentioning that the Communities PILOT Best Practice Design Review Guide is under development and so was not available at the time the concept development was designed.

The proposed development consists predominantly of residential towers and SLR recommend using Multi-Unit Residential V1 green star tool at time of subsequent DA's in order to capitalise on the environmental benefits of the ESD initiatives and deliver health benefits and financial savings for building occupants.

If you have any questions please don't hesitate to call.

Yours sincerely

Dr Neihad Al-Khalidy
Technical Director

SLR

global environmental solutions

2-20 Parramatta Rd, Columbia Precinct

Concept Plan Infrastructure Report

Report Number 610.10150-R2

28 August 2012

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Version: Revision 1

2-20 Parramatta Rd, Columbia Precinct

Concept Plan Infrastructure Report

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DOCUMENT CONTROL

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610.10150-R2	Revision 1	28-Aug-2012	Peter Hayman	Neihad Al-Khalidy	Neihad Al-Khalidy
610.10150-R2	Revision 0	13 July 2011	Peter Hayman	Neihad Al-Khalidy	Neihad Al-Khalidy

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EXECUTIVE SUMMARY

Overall in the opinion of SLR Consulting the services surrounding the site are capable of supporting the development. Further investigation is required into the electricity supply which may need to be supplemented by a new sub-station, however further investigations are being made into renewable energy options to eliminate the need for this. The electricity could be supplied to site via a number of methods including services from the existing Burwood substation, direct supply line to the customer switchboard from a distribution substation remote from the customer premises, customer substation and high voltage supply.

Ausgrid advised that the best supply method for the site can be assessed during the Development Application stage of the project. The subject site is considered suitable for the proposed development in relation to existing services.

1 INTRODUCTION

SLR Consulting Pty Ltd (SLR) has been engaged by PD Mayoh to conduct an infrastructure study for the proposed development at 2-20 Parramatta Rd known as Columbia Precinct. This report looks at the existing infrastructure in and around the site which would be required to service the development.

The following infrastructure elements have been studied for this report

- Sewer
- Water
- Electricity
- Gas
- Communications

1.1 Site location

The proposed development site is bounded by Parramatta Road to the north and the railway line on the east through to the south of the site. The area surrounding the development site comprises:

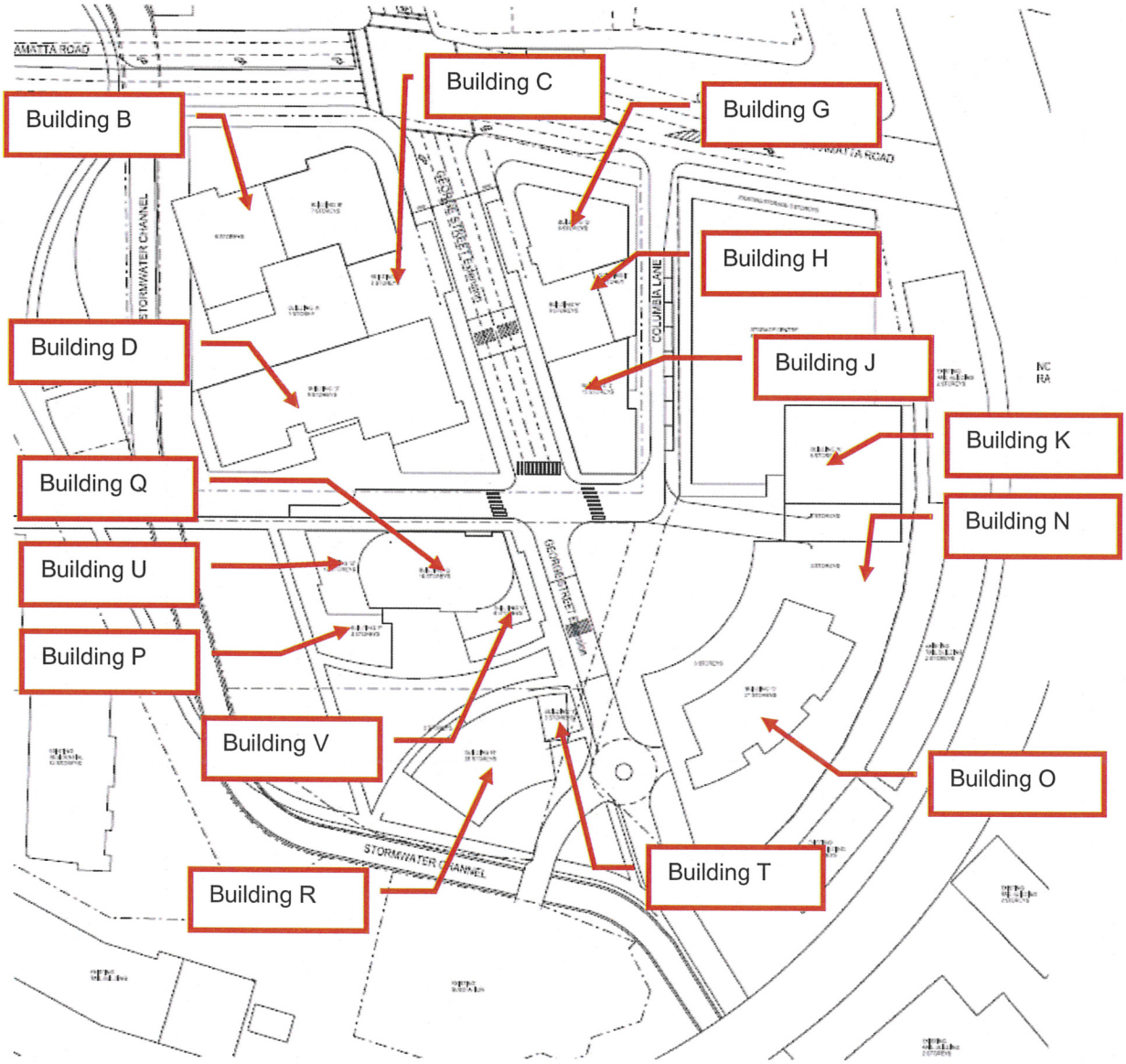
- The Bakehouse Quarter heritage precinct along George Street to the north of Parramatta Road.
- Proposed Part 3A Major Project Application for a 13 storey hotel/function development between the Bakehouse Quarter and the Parramatta road (north to the site)
- A group of 6-storey to 12-storey residential flat buildings to the immediate west of the development site and to the east across the northern rail line
- Low-rise residential flat premises to the south and further west.

Figure 1 Site location

1.2 Proposed development description

The site proposal consists of a number of residential towers ranging from four to 21 storeys with space for commercial, community and retail premises on the lower levels. **Figure 2** shows the proposed development and surrounding buildings. It is proposed that there will be 600-700 residential dwellings on the site. The development will extend George Street through the site on the southern side of Parramatta Rd. There will also be parkland and recreation space developed around Powells Creek which runs through the site. The proposed development site is surrounded by medium rise residential and commercial buildings.

Figure 2 Proposed Concept Plan



2 SEWER

2.1 Existing and proposed infrastructure

Sewage removal for the site is provided by Sydney Water with sewerage infrastructure located under the eastern part of the site. Refer to Figure 8 and Appendix A for diagrams.

2.2 Consultation

Sydney Water was contacted on the 14th February who advised the purchase of sewer and service location diagrams. These diagrams give the locations of services. When asked whether the current sewer infrastructure was sufficient for the proposed development, Sydney Water explained that a water servicing coordinator will need to be engaged to check the adequacy of the current services.

2.3 Staging

All buildings in the proposed development need to be connected to the existing sewer infrastructure under the eastern part of the development along Columbia Lane. Sewer infrastructure comprising rising mains, gravity mains and sewer pump station will be required to connect the proposed development to the existing sewer infrastructure.

A water servicing coordinator has been engaged and a feasibility application was lodged to the coordinator on the 11/7/2011 to determine if augmentation is required. The feasibility Section 73 certificate is processed and issued on 23 September 2011.

Sydney Water has assessed the application and reached the following conclusions:

- The current wastewater system does have sufficient capacity to serve the proposed development.
- The Developer is to design and construct a wastewater main (connecting to the 450 mm main constructed under WO 99411), which will provide a point of connection at least 1m inside all the property boundaries.
- The proposed development conflicts with the location of the 150 mm wastewater main traversing the property. A wastewater deviation may be required. Any adjustment or deviation required must be in accordance with the Sewerage Code of Australia (Sydney Water Edition WSA 02-2009). Refer to your WSC for details of requirements.

3 WATER

3.1 Existing and proposed infrastructure

Water for the site is supplied by Sydney Water. The Sydney Water services plan indicates there are two mains along Parramatta Road (200 mm and 900 diameter pipe) and Columbia Lane (150 mm diameter pipe). Refer to Figure 8 and Appendix A for diagrams.

3.2 Consultation

Sydney water was contacted on the 14th February who advised the purchase of water and service location diagrams. These diagrams give the locations of services. When asked whether the current water supply was sufficient for the proposed development, Sydney Water explained that a water servicing coordinator will need to be engaged to check the adequacy of the current services. A Section 73 feasibility assessment has been lodged and has been processed (issued 22 September 2011).

3.3 Staging

The first stage of the project will need to be connected to the mains-supplied water. The proponent will be required to construct all water mains within the site, although this can be staged. A Section 73 feasibility assessment has been lodged by SLR Consulting in order to determine if augmentation is required. The application is currently being processed.

3.4 Stormwater

The existing site is primarily impermeable and stormwater is currently diverted west and south to Powells Creek. The site currently consists of 95% impermeable surfaces while the proposed site comprises 82% impermeable surfaces as stated in the Water Sensitive Urban Design report provided by SLR Consulting.

In accordance with the Strathfield Council Stormwater Management Code (1994) the proposed development / building work must not cause an adverse impact on adjoining or any other properties. This includes preserving surface flow paths and not increasing water levels. Site discharges will need to be restricted to pre-development discharges using On-site Stormwater Detention (OSD) storages for events up to and including the 100 year Average Recurrence Interval (ARI) event.

Other than for single residential dwelling projects OSD is required for all developments where the proposed increased paved and/or roofed areas (impermeable area) exceed $100m^2$.

The proposed development incorporates a reduction in impermeable area when compared to the existing pre-development site; therefore no OSD is strictly deemed to be required.

A water servicing coordinator has been engaged and a feasibility application was lodged to the coordinator on the 11/7/2011 to determine if augmentation is required. The feasibility section 73 certificate is processed and issued on 23 September 2011.

Sydney Water has assessed the application and provided the following comments:

3.4.1 Number of Crossing over the Stormwater Channels

Sydney Water will not approve any crossings over its stormwater channel other than only one pedestrian crossing as part of this development. Any proposed subdivision or future subdivision must comply with this requirement.

3.4.2 Pedestrian Bridge Across the Sydney Water's stormwater channel

Sydney Water will only give the permission to the pedestrian crossing, which links the proposed development and the existing right of way between 12 to 14 Station Street. If the above link is not feasible with the current proposal, then Sydney Water may give the permission for another pedestrian crossing subject to the removal of this bridge when the second bridge is proposed. The owner would be required to sign a deed of agreement to remove this bridge. The owner would also be required to pay a bond money which is equivalent to two times of the total cost of the removal and disposal of this bridge.

3.4.3 Design of the Pedestrian Crossing

The design of the pedestrian crossing is to be such a way that the underside of the bridge is to be minimum 300mm above the 100 year flood level. The supporting piers also need to be minimum 1m away from the outside wall of the stormwater channel at top.

3.4.4 On Site Detention

SLR Consulting has previously attended a meeting with Sydney Water Engineers during the preparation of the WSUD report and discussed the On Site Detention (OSD) requirements for the proposed redevelopment. At the meeting Sydney Water Engineers advised that no OSD was required onsite as releasing flows without any detention at the Site would benefit the wider catchment.

The feasibility Section 73 letter provides the following comments:

- On Site Detention is required, if the proposed development needs to discharge stormwater into the Sydney Water's channel. In order to calculate the required On Site Detention and Permissible Site Discharge the following details are to be forwarded to Sydney Water:
    - Total Site Area
    - Pre development impervious area
    - Post development impervious area
- If the developer wishes to follow the council's guidelines for the On Site Detention requirement, then the stormwater discharge from the development site need to be directed to any existing council system or street kerb and gutter.

If OSD is in fact required, the base level of the OSD storage tanks would need to be set above the adopted 100 year ARI predicted flood level. OSD storage tanks would ideally be sited adjacent to the proposed rainwater harvesting tanks. If required, the rainwater harvesting tanks may need to be reduced in size to free up space for OSD. However OSD calculations have been undertaken assuming the pre-development site is 'greenfield' to provide a 'worst case' OSD storage volume depending on council requirements. For further information on stormwater please refer to the Water Sensitive Urban Design report compiled by SLR Consulting.

The On Site Detention issues will be further addressed during the Development Application stage of the project.

3.4.5 Stormwater Connection

If the proposed development requires making new connection to Sydney Water system then the following requirements would apply:

- All connections need to comply with Sydney Water's On Site Detention requirements.
- If the connection size is more than 375mm, then connection must be designed by a structural engineer and connection details are to be forwarded through the developer system. The connection details are also to be submitted on the Sydney Water's template

3.4.6 Existing Bridge to the Existing Substation

Please note that Sydney Water may not approve the renewal of the existing bridge in the future which is located at the end of Columbia Lane, if Sydney Water determines that the access is possible from Station Street or Parramatta Road without crossing the stormwater channel for the existing substation. Therefore any current or future development configuration for this site is to be designed such a way that the existing bridge for existing substation is not available for use in the future.

3.4.7 Building Adjacent to Stormwater Channel

No permanent structures including stormwater lines, stormwater pits, gross pollutant trap is to be proposed within 1 m from the outside edge of the stormwater channel.

The project will comply with the Sydney Water requirements and further assessment will be conducted during the Development Application stage of the project.

An option currently being investigated is a rain water and grey water detention system for reducing mains-supplied water demand. This is being considered for irrigation and toilet flushing in the proposed site. Further details of this system can be found in the ESD capability report prepared by SLR Consulting.

4 ELECTRICITY

4.1 Existing and proposed infrastructure

Electricity for this area is provided by Ausgrid. The nearest zone substations are located at Concord, Burwood and Strathfield, distribution lines near the site run along Parramatta Road and along Columbia Lane. Ausgrid has initially advised that they do not currently have capacity for the estimated load and that further study is needed to determine the infrastructure required.

Since this initial response refinements have been made to the estimated electrical load of the proposed development.

Ausgrid has advised via a meeting on 13 July 2012 that the best supply method for the site can be assessed during the Development Application stage of the project when the electrical design calculation for the site is progressed. At this stage it is anticipated that the site could be provided with electricity supply from Burwood Substation. Furthermore, there is a possibility to upgrade the existing adjoining Strathfield (Columbia Lane) substation from its present switching function to a high voltage substation.

4.2 Consultation

A telephone conversation was initially held with Ausgrid representatives on 24 January 2011. From the development summary sent, emails were received on 4 and 7 February 2011 recommending the engagement of an electrical consultant to accurately determine the electrical load and other requirements for the site. Further emails were sent on 6 of June 2011 regarding the revised electrical loading and notification of the proposed planning meeting. Ausgrid has recently advised via a meeting on 13 July 2012 that the best supply method for the site can be assessed during the Development Application stage of the project when the electrical design calculation for the site is progressed

It was noted that the proposed tri-generation system was encouraged due to ability to reduce peak hour demands and total electricity consumption.

Emails were received from Ausgrid regarding on 17 July 2012 provided information on required separation from low voltage and high voltage cables, substation etc from new structures.

The project will comply with the above relevant clearance distances and an accredited Level 3 electrical engineer will be appointed during the Development Application to liaise with Ausgrid and provide design information sufficient to enable design and construction drawings to be completed.

The developer will be responsible for suppling and installing the portion of service mains from the street alignment to the customer's terminals in accordance with the NSW services and Installation Rules and Ausgrid's Local Service and Installation Rules.

4.3 Staging

Ausgrid will require a firm application and the total electrical loading at Development Application so they can commence research into possible outcomes. The site may be classed a Dedicated Large Customer and would therefore be liable for costs involved in providing the required infrastructure. They will also require possible on-site locations where "kiosk" sub-stations could be placed.

Based on SLR experience a renewable energy option such as combined power, heat and cooling (tri-generation) and Photovoltaic (PV) Solar Cells for the proposed development is considered viable economically. SLR Consulting recommend conducting a detailed study during the project application stage of the project to select, size, cost and conduct a payback analysis for the proposed Co-generation/Tri-generation and PV system for the site. The proposed renewable energy efficiency initiatives may help to eliminate the need for a new substation at the proposed site. For details of renewable energy investigations refer to the ESD capability report prepared by SLR consulting.

Ausgrid advised that the electricity could be supplied to site via a number of methods including services from the existing Burwood substation, direct supply line to the customer switchboard from a distribution substation remote from the customer premises, customer substation and high voltage supply.

As noted, Ausgrid advised that the best supply method for the site can be assessed during the Development Application stage of the project. SLR Consulting recommend engaging a Level 3 energy consultant during the Development Application Stage of the project to undertake a detailed design of the electrical loads, size on site "kiosk" sub-stations and liaise with Ausgrid Contestable Section as to the requirements and implementation of cable ducts that may be required for the electrical reticulation stage and any special additional clearances may be required during special circumstances.

5 GAS

5.1 Existing and proposed infrastructure

Jemena has advised that there are medium and high pressure mains located in the footpath area adjacent to the development site and they don't anticipate any issues supplying gas to the proposed development as currently designed or with co/trigeneration units added.

5.2 Consultation

A telephone conversation was held with Jemena's Greg Knight on 25 January 2011. Further to this SLR Consulting sent a summary of the development to Jemena who responded with an email confirming the availability of gas supply.

6 COMMUNICATIONS

6.1 Existing and proposed infrastructure

As of 1 January 2011 all proposed developments must be registered at http://www.nbnco.com.au/ where they are assessed to see if they qualify for the installation scheme. The qualification criteria can be found at NBN Co's website part of which is shown below:

"During the National Broadband Network roll-out, an estimated 1.9 million additional premises will be constructed across Australia. NBN Co will install fibre into new developments of 100 premises (dwellings/units) or more, released over a three year period, which have received Stage Five approval (relating to civil works) after 1 January 2011, within the NBN fibre footprint.

NBN Co is working with developers to deliver fibre broadband infrastructure into these New Developments. As you would have seen in the NBN Co Corporate Plan, NBN Co plans to connect approximately 250,000 premises in New Developments by June 2013.

Under an NBN Co Developer Agreement, NBN Co will cover the cost of fibre infrastructure in all newly approved developments and developers are responsible for designing and installing pit and pipe infrastructure to NBN Co specifications and standards and then transferring ownership of pit and pipe to NBN Co.

An initial study of these criteria shows that the proposed development is eligible.

6.2 Consultation

NBN Co was contacted on 31 January 2011 and the NBN Co website was also consulted. The following enquiry reference number was given for future correspondence regarding the site: 510994-26044651.

6.3 Staging

It is anticipated that there are no major telecommunications servicing constraints associated with the site. The Development must be registered with NBN Co. Information on servicing points close to the site can then be provided.

7 CONCLUSIONS

7.1 Sewer:

- Location is suitable for development; Feasibility Section 73 letter is currently has been processed (issued 22 September 2011).
- All buildings in the proposed development need to be connected to the existing sewer infrastructure under the eastern part of the development along Columbia Lane

7.2 Water:

- Location is suitable for development; Feasibility Section 73 letter is currently has been processed (issued 22 September 2011).
- Water mains will be supplied from the existing mains along Parramatta Road and Columbia Lane
- Further investigations will be made regarding stormwater reuse to reduce the demand for potable water

7.3 Electricity

- .Ausgrid advised that the electricity could be supplied to site via a number of methods including services from the existing Burwood substation, direct supply line to the customer switchboard from a distribution substation remote from the customer premises, customer substation(s) and high voltage supply delivered from upgrading the adjacent substation..
- Investigations have been started into reducing the electrical loading with the use of a tri-generation unit.

- Underground cabling upgrade will be achieved via George Street south.

7.4 Gas:

- No issues with location or supply.

7.5 Communications:

- No major telecommunications servicing constraints with the site.
- Development must be registered with NBN Co.

8 INFRASTRUCTURE UNDER PARRAMATTA RD

The Roads & Traffic Authority (RTA) has advised that Parramatta Road will have to be widened in the vicinity of the proposed development to accommodate the increase in traffic coming from the extension of George Street. Due to this the locations of infrastructure running under Parramatta Rd need to be known. The following figures show the locations of underground cables and pipes. Rail Corp advised that they may have assets in the area but did not give the exact location and will need to be contacted prior to any excavation.

——— Indicates the site boundary

All figures show infrastructure running along Parramatta Rd. Those with pipes or cables crossing Parramatta Rd near the development are:

- Gas
- Electricity
- Sydney Water

Figures below are not to be considered exact and a hand pot-holing would be required to determine precise locations of underground infrastructure. Discussions would be required with each service provider to determine if infrastructure would require moving.

Figure 3 Gas - Jemena

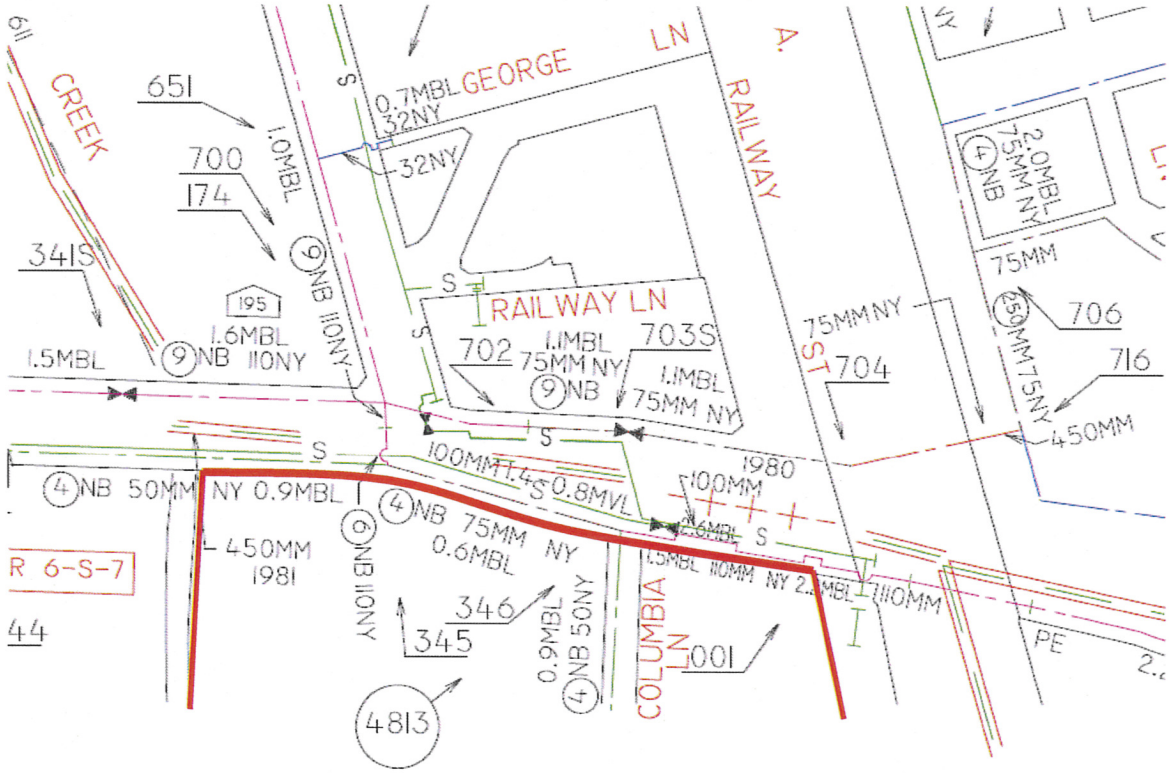


Figure 4 Electricity – Ausgrid

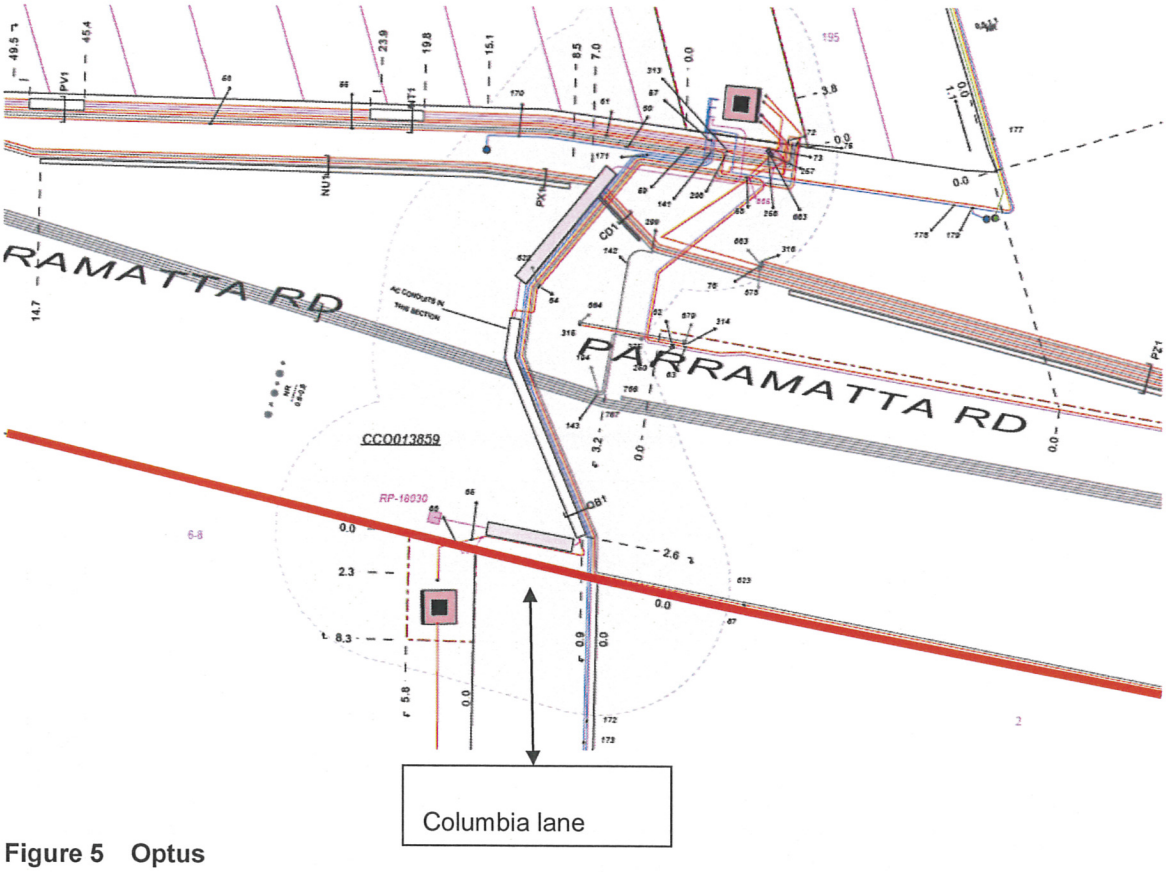


Figure 5 Optus

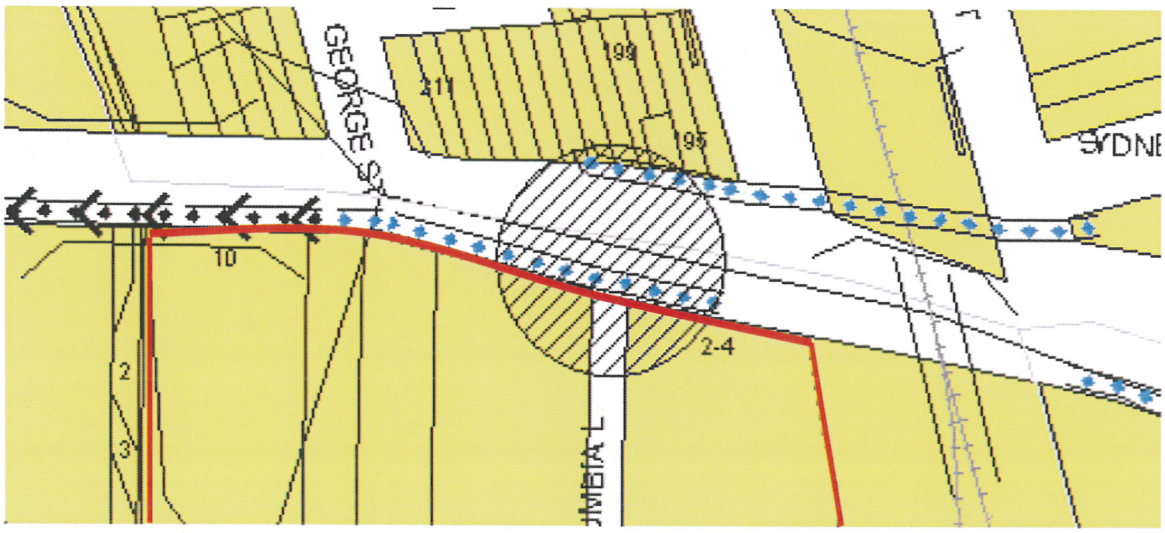


Figure 6 Telstra

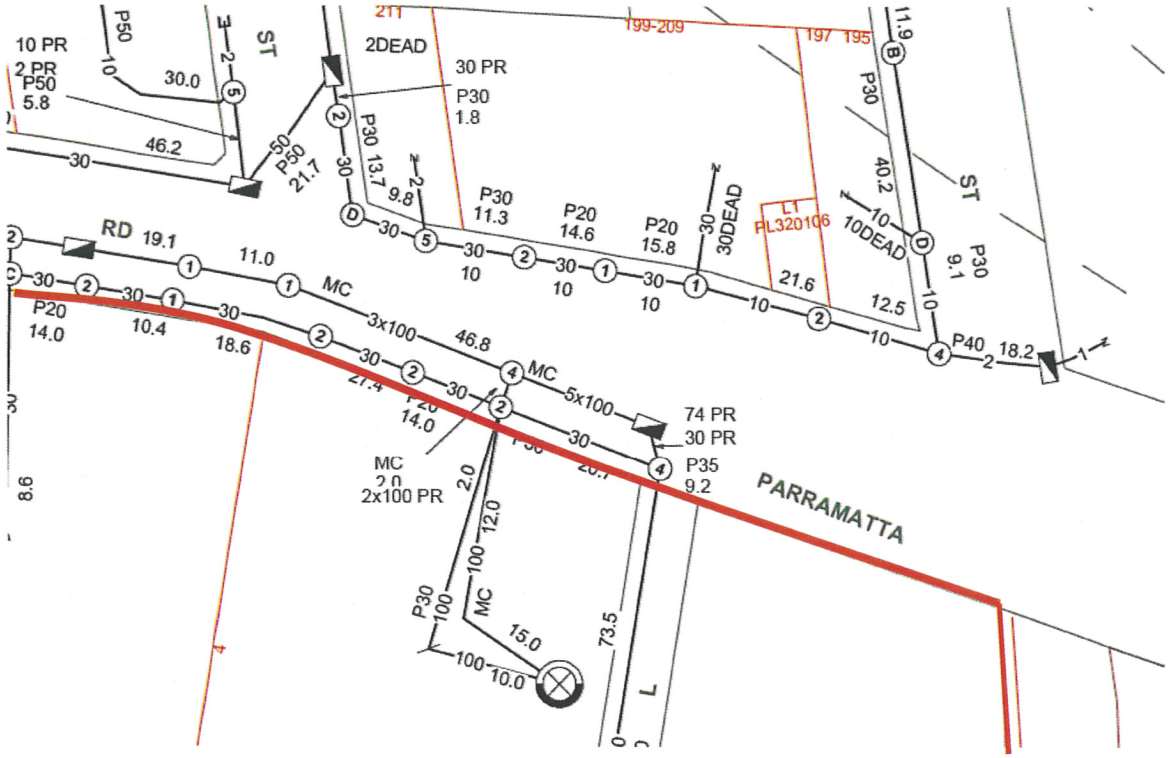
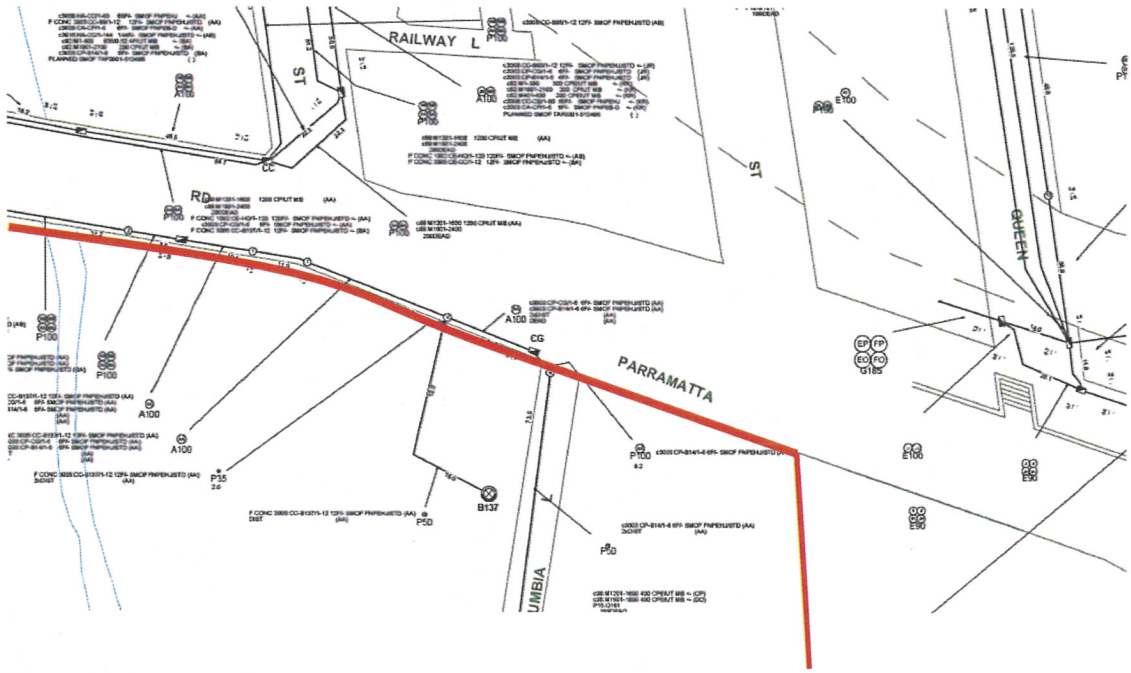
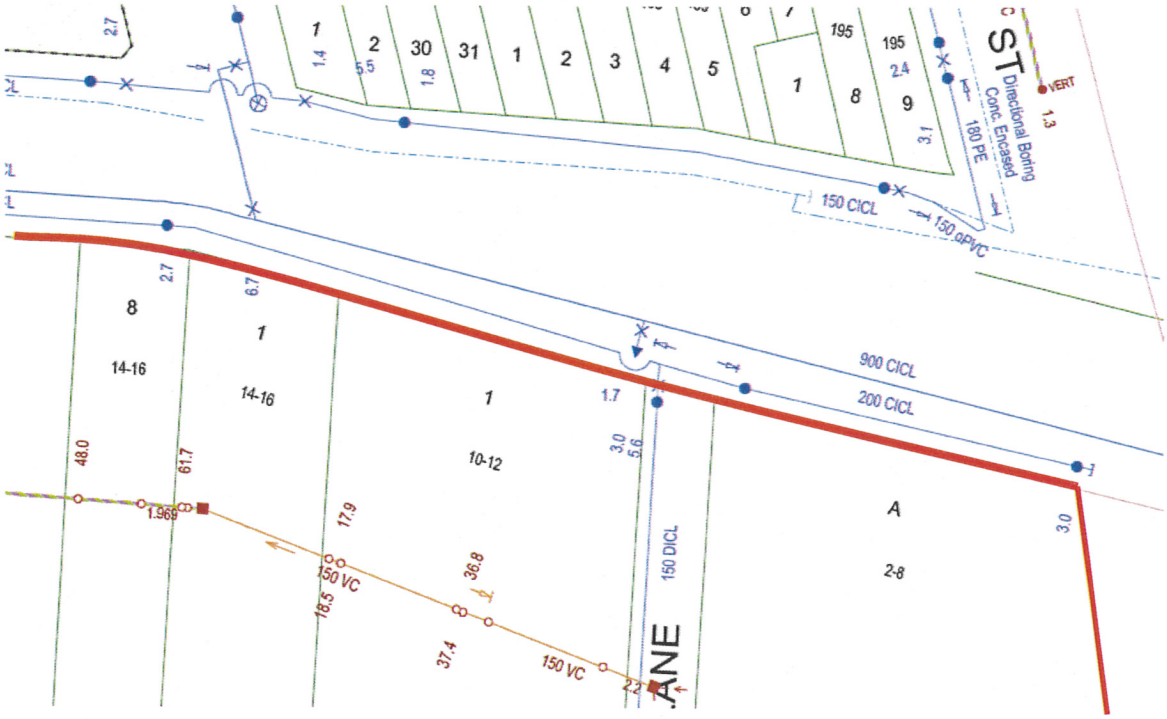


Figure 7 Telstra Mains



Telstra also has optic fibre running parallel to Parramatta Road.

Figure 8 Sydney Water



Hydra Legend

Sydney WATER

Sewer

- Sewer Main (with flow arrow & size type annotation) — 225 PVC
- Disused Main
- Pressure Main (Rising Main)
- Maintenance Hole with upstream depth to Invert — 1.7
- Terminal Maintenance Shaft — TMS
- Maintenance Shaft — MS
- Maintenance Hole with Overflow Weir — 1:10
- Rodding Point — RP
- Ventshaft INDUCT — VSI
- Ventshaft EDUCT — VSE
- Vertical — VERT
- Lamphole
- Property Connection Point (with chainage to downstream MH) — 15.8
- Concrete Encased Section — (Cats. Bric)
- Sewer Rehabilitation
- Pumping Station — SP0882
- Sewer Mining — SM

Sewer - Low Pressure Sewer

- Low Pressure Sewer Main
- Pump Unit (Alarm, Electrical Cable, Pump Unit) — A
- Property Valve Boundary Assembly
- Stop Valve
- Reducer / Taper
- Flushing Point — FP

Sewer - Vacuum

- Vacuum Sewer Main
- Divisional Valve
- Vacuum Chamber
- Clean Out Point

Stormwater

- Stormwater Pipe
- Stormwater Channel
- Stormwater Gully
- Stormwater Maintenance Hole

Property Details

- Boundary Line
- Lot Number — SMITH 25 CD
- House Number — ROAD 99999
- Development Application Reference
- Easement

Location of SWC Heritage Item - Please call 13 20 92 during office hours and ask for the Heritage Unit.

Water

- Water Main - Potable (with size type annotation) — 200 PVC
- Disconnected Main - Potable
- Proposed Main - Potable
- Water Main - Recycled
- Special Supply Conditions - Potable
- Special Supply Conditions - Recycled
- Restrained Joints - Potable
- Restrained Joints - Recycled
- Hydrant
- Maintenance Hole
- Stop Valve
- Stop Valve with By-pass
- Stop Valve with Tapers
- Closed Stop Valve
- Air Valve
- Valve
- Scour
- Reducer / Taper
- Vertical Bends
- Reservoir

Symbols for Recycled Water as per Potable above. Main and Symbol colour as Indicated.

Private Mains

- Potable Water Main
- Recycled Water Main
- Sewer Main

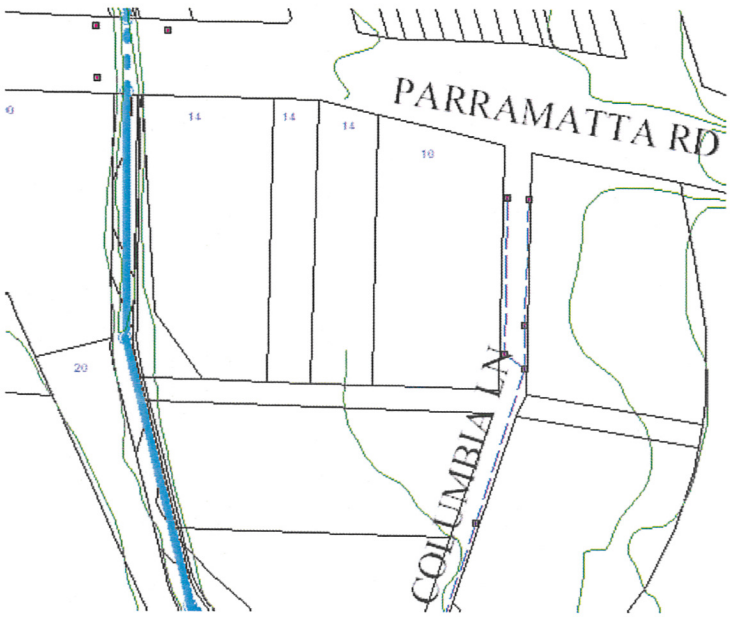
Symbols for Private Mains shown grey. Main colour as Indicated.

Sydney Water - 12 October 2010

Figure 9 Canada Bay Council Assets (Stormwater)

Pipes shown here are stormwater pipes.

Figure 10 Strathfield Council Assets



The Strathfield council assets shown above are a stormwater pit on the west side of Powells Creeks. The council has advised that any drainage assets in Parramatta will have to be checked onsite.

9 DISCLAIMER

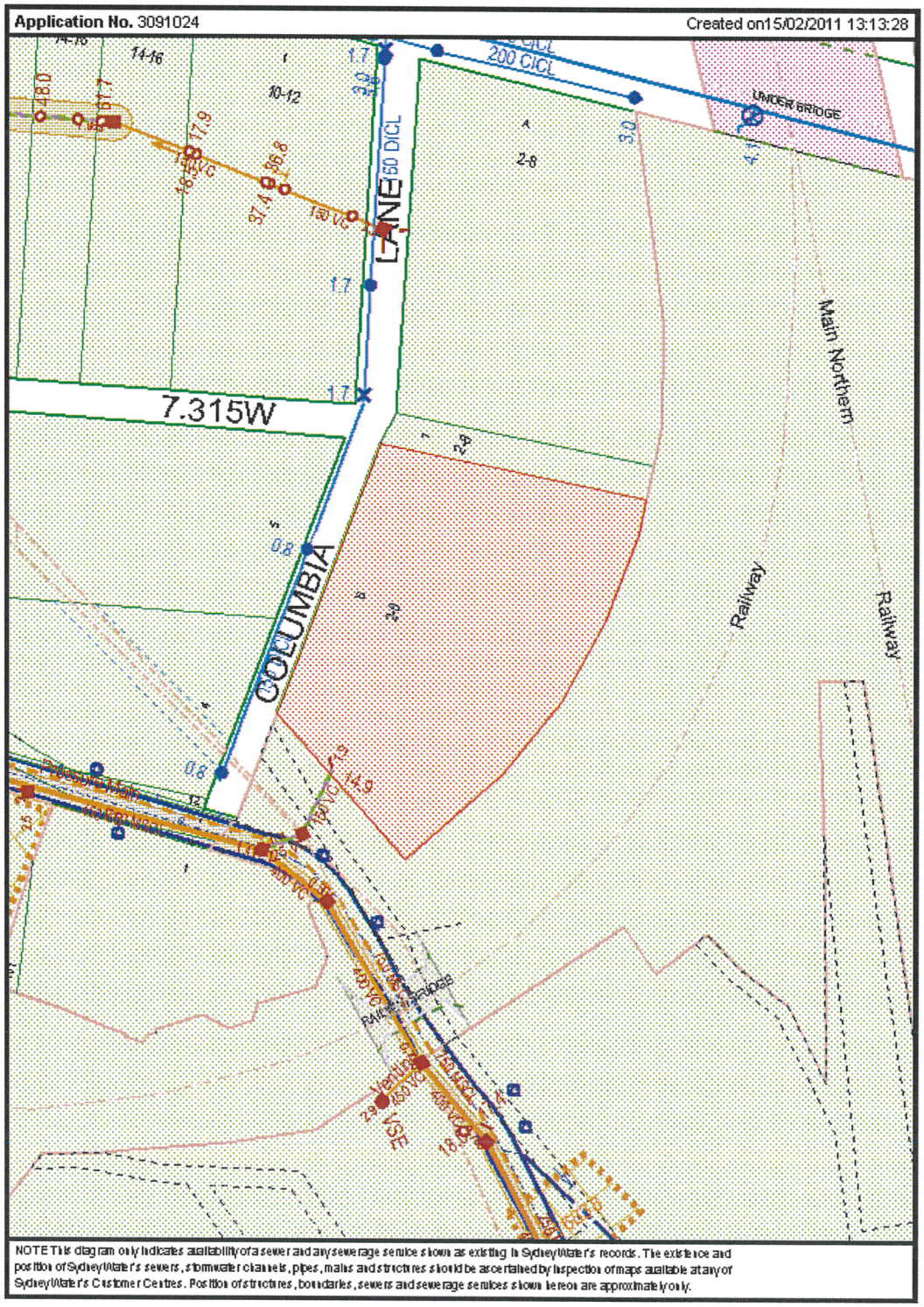
This report has been prepared by SLR Consulting Australia Pty Ltd with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of PD Mayoh Pty Ltd Architects, David Lhuede Pty Ltd, Kennards Self Storage and Hai Phong Properties Pty. No warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR Consulting.

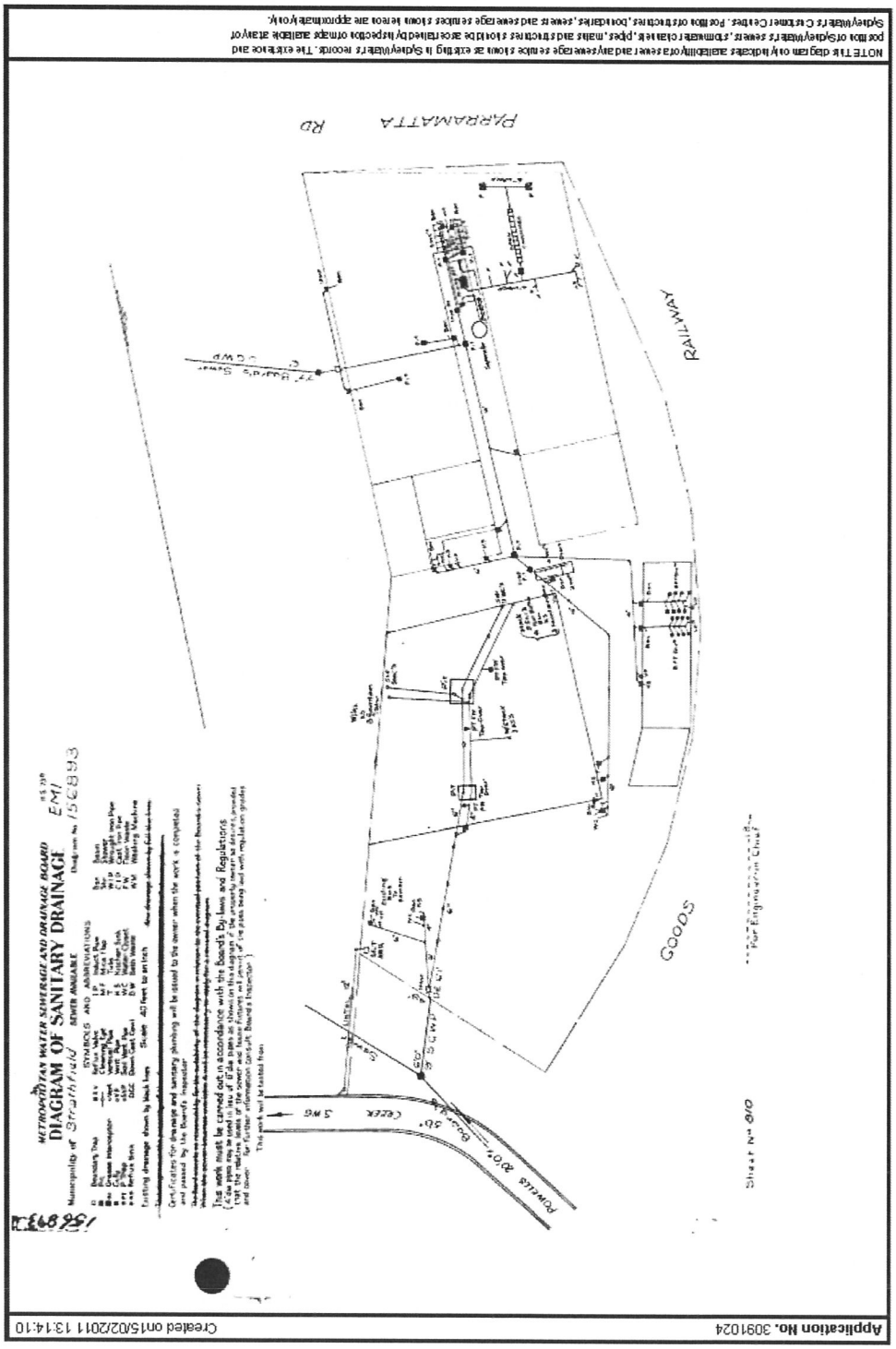
SLR Consulting disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

Appendix A

Water mains diagram



Sewer diagram



Appendix B

Gas:

Natural Gas. The Natural Choice.

25/01/2011

SLR Consulting Australia Pty Ltd
PO Box 176
Lane Cove NSW
1595

Att: Mr. Peter Hayman

Dear Sir:

RE: PROPOSED DEVELOPMENT OF 2-20 PARRAMATTA ROAD HOMEBUSH.

Natural Gas is available in the vicinity to supply this development.

Our mains are installed in the allocated space within the footpath area adjacent to the proposed development.

Caution should be exercised when carrying out any road works that may expose the Natural Gas mains existing at this location. For excavation security you should call 1100 before commencement of any earth works to verify Utility locations.

To arrange a connection offer for the site please contact Neale Hilton on 0402 060 151 once the development has been approved and final configurations are known.

Thank you for your inquiry. If further information or assistance is required, please do not hesitate to contact me on 0402 060 241.

Yours faithfully,

Greg Knight

Greg Knight
Network Development Manager

For & on behalf of Neale Hilton

Jemena Gas Networks (NSW) Ltd
ABN 87 003 004 322 PO Box 8212 [illegible] NSW 2261 Telephone 0402 060 241 Facsimile (02) 4389 8619 [illegible]

Electricity:

From: Stephen G Alfred [SAlfred@energy.com.au]
Sent: Friday, 4 February 2011 4:41 PM
To: Peter Hayman
Cc: Jonathon Simpson; John Menegus
Subject: Re: FW: electricity infrastructure for proposed development at 2-20 Parramatta Rd
Attachments: Development Summary.docx

Peter

I have received your email and have done some preliminary calculations. The total load required exceeds 200 Amps on the HV. This load is not available immediately on our HV Network.

To give you more information, we will need a firm application from you to commence research into the possible outcomes.You maybe classed as a Dedicated Large Customer and as such will be liable for the costs involved in providing the required infrastructure.This project will then pass onto our Contestability Section who will then give you further advice as to the processes involved.

Kind regards,

Stephen G Alfred

Energy*Australia*

Distribution Operations and Reliability

Planning and Supply Negotiations

Sydney South

33-45 Judd Street, Oatley NSW 2223

(02) 9585 5641 (02) 9585 5670

E-mail : salfred@energy.com.au

From: Stephen G Alfred [SAlfred@energy.com.au]
Sent: Monday, 7 February 2011 10:12 AM
To: Peter Hayman
Subject: RE: FW: electricity infrastructure for proposed development at 2-20 Parramatta Rd

Hi Peter

With such a large load my guess would be that new feeders would have to brought into the area.At Present the nearest zone substations are, Concord, Burwood and Strathfield.The area will have to be replanned from both the High and Low Voltage Distribution depending on the Maximum Demand calculated and advised by the Electrical Consultants.

There are too many variables to even make a guess at the Distribution Infrastructure at this stage.Your best bet is to engage an electrical consultant to prepare some sort of preliminary ground work concerning the electrical loading.

Please feel free to consult with me on any general information concerning the project.

Kind regards,

Stephen G Alfred

Energy*Australia*

Distribution Operations and Reliability

Planning and Supply Negotiations

Sydney South

33-45 Judd Street, Oatley NSW 2223

(02) 9585 5641 (02) 9585 5670

E-mail : salfred@energy.com.au

From: Stephen G Alfred [SAlfred@ausgrid.com.au]
Sent: Thursday, 19 May 2011 11:24 AM
To: Peter Hayman
Subject: RE: FW: electricity infrastructure for proposed development at 2-20 Parramatta Rd

Peter

When you have confirmed the Total Electrical Loading of this project,could you please send a copy to me and I will foward it to our Network Planners.I know at present that is some capacity for about 2000kVA. I have to confirm this as we have to look at the long term planning globally for the zone.

In the meantime also you can offer some sites for the establishment of Kiosk substations.

Regards,

Stephen G Alfred | Engineering Officer - Planning | Planning & Supply Negotiations | AUSGRID

Level 1, BLDG 1, 33-45 Judd Street Oatley NSW 2223 AUSTRALIA
☎: 02 9585 5641 (Extn 35641) | 🖷: 02 9585 5670 (Extn 35670) | 🖳: 0419 204 109 | ✉: SAlfred@ausgrid.com.au |

Telephone: 02 9585 5641
E-mail: salfred@ausgrid.com.au
Reference: 2-20 Parramatta Rd,Homebush
18th July 2012

33-45 Judd Street
Oatley NSW 2233
All mail to GPO Box 4009
Sydney NSW 2001
T +61 2 13 15 25
F +61 2 9585 5670
www.ausgrid.com.au

Colston,Budd,Hunt and Kafes
Suite 1801-Tower A
Zenith Centre
821 Pacific Highway
Chatswood , NSW 2067
For attention :Lindsay Hunt

Dear Sir,

2-20 Parramatta Road, Homebush

I refer to your proposal of road works as the first stage of a project the vicinity of the above address and wish to advise the following:

Your plans as presented to this office in respect of staging and truck access to the area are acceptable. It should be pointed out that there is numerous transmission, high voltage and low voltage underground cables present in the area of works .Extreme care should be observed at all times during any excavation. If the levels are deeper than .4m then a representative of Ausgrid should be present. Prior notice should be given to arrange an Ausgrid observer to be in attendance at all times of excavation.

As this area is a transit way to gain access to Ausgrid strategic switching station, a 24 hour unimpeded truck access is required at all times to these facilities. Please liase with our Contestable Section as to the requirements and implementation of cable ducts that may be required for the electrical reticulation stage.

The electrical supply to this project is to be addressed as a separate issue.

Should you have any further enquiries please contact the writer on (02) 9585 5641
Kind regards,

Stephen G Alfred

Ausgrid

Sydney WATER

Case Number: 125121

23 September, 2011

P D MAYOH PTY LTD ARCHITECTS
c/- BOWDENS GROUP AUSTRALIA PTY LTD

FEASIBILITY LETTER

Developer:	**P D MAYOH PTY LTD ARCHITECTS**
Your reference:	**72140/Columbia**
Development:	**Lot A DP 171468 (No.2-20) PARRAMATTA RD, Homebush**
Development Description:	**Concept Plan for construction of mixed use development**
Your application date:	**19 July 2011**

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 Works Agreement (Agreement); 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, e.g. 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** > 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. **Major Works Agreement**

   After the Coordinator has submitted your new application, they will receive the Sydney Water Notice and Works Agreement. You will need to sign and lodge **both originals** of that Agreement with your nominated Coordinator.

   The agreement sets out for this development:
   - your responsibilities;
   - Sydney Water's responsibilities; and
   - the Coordinator's responsibilities.

   You must do all the things that we ask you to do in that Agreement. 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 Agreement to provide these services.

   After Sydney Water has signed the documents, one of them will be returned to your Coordinator.

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

4. **Water and Sewer and Stormwater Works**

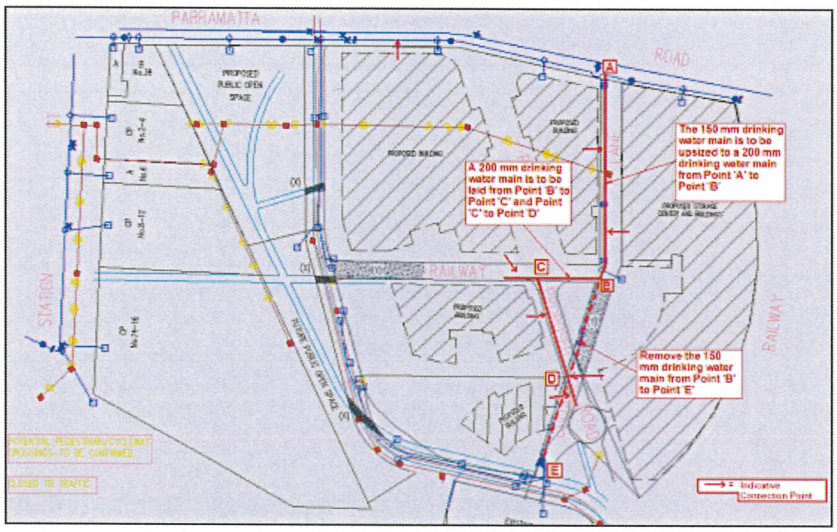
   4.1 Water

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

SYDNEY WATER CORPORATION 4 **Case No: 125121**

Sydney Water has assessed your application and found that:

- The drinking water main available for connection is the 200 mm main on the Southern side of Parramatta Road. See concept plan below.
- The existing 150 mm drinking water main in Columbia Lane is to be upsized to a 200 mm drinking water main from Point 'A' to Point 'B'. See concept plan below.
- A 200 mm drinking water main is to be laid from point 'B' to Point 'C' and Point 'C' to Point 'D'. See concept plan below.
- The 150 mm drinking water main is to be removed from Point 'B' to Point 'E'. See concept plan below.
- The proposed drinking water infrastructure for this development will be sized & configured according to the Water Supply Code of Australia (Sydney Water Edition WSA 03-2002).



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.

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 current wastewater system does have sufficient capacity to serve the proposed development.
- The Developer is to design and construct a wastewater main (connecting to the 450 mm main constructed under WO 99411), which will provide a point of connection at least 1m inside all the property boundaries.
- The proposed development conflicts with the location of the 150 mm wastewater main traversing the property. A wastewater deviation may be required. Any adjustment or deviation required must be in accordance with the Sewerage Code of Australia (Sydney Water Edition WSA 02-2009). Refer to your WSC for details of requirements.

4.3 Stormwater

Number of Crossing over the Stormwater Channels

Sydney Water will not approve any crossings over its stormwater channel other than only one pedestrian crossing as part of this development. Any proposed subdivision or future subdivision must comply with this requirement.

Pedestrian Bridge Across the Sydney Water's stormwater channel

Sydney Water will only give the permission to the pedestrian crossing, which link the proposed development and the existing right of way between 12 to 14 Station Street.

If the above link is not feasible with the current proposal, then Sydney Water may give the permission for another pedestrian crossing subject to the removal of this bridge when the second bridge is proposed. The owner would be required to sign a deed of agreement to remove this bridge. The owner would also be required to pay a bond money which is equivalent to two times of the total cost of the removal and disposal of this bridge.

Design of the Pedestrian Crossing

The design of the pedestrian crossing is to be such a way that the underside of the bridge is to be minimum 300mm above the 100 year flood level. The supporting piers also need to be minimum 1m away from the out side wall of the stormwater channel at top.

On Site Detention

On Site Detention is required, if the proposed development needs to discharge stormwater into the Sydney Water's channel. In order to calculate the required On Site Detention and Permissible Site Discharge the following details are to be forwarded to Sydney Water:

- Total Site Area
- Pre development impervious area
- Post development impervious area

If the developer wish to follow the council's guidelines for the On Site Detention requirement, then the stormwater discharge from the development site need to be directed to any existing council system or street kerb and gutter.

Stormwater Connection

If the proposed development requires to make new connection to Sydney Water system then the following requirements would apply:

- All connections need to comply with Sydney Water's On Site Detention requirements.
- If the connection size is more than 375mm, then connection must be designed by a structural engineer and connection details are to be forwarded through the edeveloper system. The connection details are also to be submitted on the Sydney Water's template

Existing Bridge to the Existing Substation

Please note that Sydney Water may not approve the renewal of the existing bridge in the future which is located at the end of Columbia Lane, If Sydney Water determinesw that the access is possible from Station Street or Parramatta Road without crossing the stormwater channel for the existing substation. Therefore any current or future development configuration for this site is to be designed such a way that the existing bridge for existing substation is not available for use in the future.

Building Adjacent to Stormwater Channel

No permanent structures including stormwater lines, stormwater pits, gross pollutant trap is to be proposed within 1m from the outside edge of the stormwater channel.

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*.**

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.

Private Water Services Connection and Metering)

To provide domestic water to the total development you will need to connect to the Sydney Water main. This connection must comply with the *National Plumbing and Drainage Code AS 3500* and *NSW Code of Practice for Plumbing and Drainage*. You may have to include isolation valves on either side of the connection(s) to the Sydney Water main.

For example, a single meter on:

(a) each vertical block of residential units whether subdivided or unsubdivided (e.g. if your development has tower buildings, you must provide a meter for each building off one or more connections to the main);

(b) each mixed development use type whether subdivided or unsubdivided (e.g. if your mixed development has both a residential and a commercial area, you must provide a meter for each area usually off one connection to the main). Note that if there is more than one commercial area, you must provide a separate meter for each commercial area off that connection; and

(c) each non-residential Strata, Stratum or Torrens (within a Community) Title subdivided lot with a demand for water. You will need a separate private water service for each lot.

Note:
Where a number of non-residential units are not subdivided, separate services and metering to each unit is not required as Sydney Water will look to the owner for payment of all rates and charges. For example, a shopping centre where all shops remain in one ownership.

To meet the preceding guidelines, either:

- a single connection to the Sydney Water main may be branched; or
- if you would rather separate connections for each use type/area, you can apply to us for that.

A vertical building may be plumbed with a common riser, with either:
- a ring main on each floor with tee off-takes at each unit; **or**
- individual metered services to each unit that will allow housing of individually tagged meters in the one location.

The location of the meter servicing a residential vertical building generally must be in the commercial area after all commercial off-takes.

Sydney Water will supply enough meters to meet the above guidelines but we will not provide any check meters. All meters **must** be placed in an accessible area that should be either:
- no more than one metre inside the property boundary; **or**
- in a location acceptable to Sydney Water, e.g. in the commercial area after all commercial off-takes.

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.

Trade Waste Information

Should this development generate trade wastewater, this notice of requirements does not guarantee the applicant that Sydney Water will accept the trade wastewater to its sewerage system. In the event trade wastewater is generated, the property owner is required to submit an application for permission to discharge trade wastewater to the sewerage system before business activities commence. A boundary trap will be required where arrestors and special units are installed for trade waste pre-treatment.

If this development type is "Industrial" then the property may be part of sewerage catchment subject to a wastewater reuse scheme. This may impact the level of pollutants such as Total Dissolved Solids (TDS) that Sydney Water will accept from the property to the sewerage system. Businesses wishing to discharge wastewater (other than domestic sewage) should first contact a Sydney Water Trade Waste Office. A boundary trap will be required where arrestors and special units are installed for trade wast pre-treatment.

Prospective Purchasers should be made aware of the above situation under the requirements of vendor disclosure.

For further information please visit the Sydney Water website at: http://www.sydneywater.com.au/OurSystemsandOperations/TradeWaste/

To contact a Trade Waste Customer Service Representative please see below for Local Government Areas and their relevant contact number.

For the following LGA's the contact number for a Trade Waste Customer Representative is 02 9694 6500:

Ashfield, Bankstown, Botany Bay, Burwood, Camden, Campbelltown, Canada Bay, Canterbury, Fairfield, Hurstville, Kiama, Kogarah, Leichhardt, Liverpool, Marrickville, Randwick, Rockdale, Shellharbour, Strathfield, Sutherland, Wingecarribee, Wollondilly, Wollongong

Backflow Prevention Information

In accordance with Sydney Water's Backflow Prevention Containment Policy, you must install a backflow prevention containment device immediately downstream of each master water meter/s servicing the property. In circumstances where there is no master meter/s the containment device shall be installed on the water supply entering the property boundary.

The device is to be installed on all water supplies entering the property, regardless of the supply type or metering arrangements. It is needed to reduce the risk of contamination by backflow from these supplies.

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

The device must be installed as a condition of continued use of the water supply. Failure to install and maintain the device may result in disconnection of the water service. A licensed plumber with backflow accreditation can advise you of the correct requirements for your property. To view a copy of Sydney Water's Backflow Prevention Policy and a list of backflow accredited plumbers visit http://www.sydneywater.com.au/Plumbing/BackflowPrevention/

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.

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;
- 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.

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