

Preliminary Water and Sewer Servicing Assessment – Proposed Seniors Living Development, 58 Laitoki Road, Terrey Hills, NSW

P1504710JR10V01

September 2020



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All enquiries regarding this project are to be directed to the Project Manager.



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# 1 Introduction

# 1.1 Purpose

This report has been prepared to support an application for a site compatibility certificate for a proposed seniors living development (the **proposal**) located at 58 Laitoki Road, Terrey Hills, NSW (the **site**), this being at the intersection of Laitoki Road and Cooyong Road (see **Figure 1**). We understand that proposal includes:

- 1. 48 self-contained independent living units (**ILU**) in residential blocks, including one block with common areas and reception.
- 2. A 90 bed residential aged care facility (RACF) and associated facilities for staff and residents.



Figure 1: Site location.



# 1.2 Scope

This report outlines:

- 1. Expected demand on water and sewer services generated by the proposal.
- 2. A cumulative assessment of the capacity of existing Sydney Water services to accommodate the proposal.

#### 1.3 Standards

Standards used in this assessment include:

- 1. Water Services of Australia (WSA, 2009) Sewage Code of Australia WSA02-2002-2.2 Sydney Water Edition Version 3.
- 2. Water Services of Australia (WSA, 2012) Water Supply Code of Australia WSA03-2011-3.1 Sydney Water Edition 2012.

# 1.4 Sydney Water

Sydney Water will service the development and have provided a feasibility letter for the development proposal dated 1 November 2018 (refer to **Attachment A**). The following is noted:

- 1. The advice provided by Sydney Water is preliminary and subject to the outcomes of a Section 73 Certificate application which can only be made following granting of a development consent.
- 2. The advice provided by Sydney Water was for a somewhat larger proposal comprising 60 ILUs and a 102 bed RACU with a higher demand on water and sewer services.
- 3. In respect of water, Sydney Water have advised that the existing DN150 CICL watermain located on the northern side of Cooyong Road could provide for the domestic needs of the development.
- 4. In respect of sewer, Sydney Water have advised that because the development is outside of the Sydney Water's existing wastewater servicing area, that a pump-to-sewer may need to be considered and that hydraulic modelling would be required to confirm the actual point of connection. Sydney Water have noted that hydraulic modelling may confirm that discharge be restricted to off-peak times to minimise any detrimental effects to Sydney Water's wastewater system.



# 2 Water Supply

# 2.1 Existing Services

The following existing water supply services are noted:

- 1. Two separate 20 mm potable connections are presently supplied to the site, one each from Laitoki Road and Cooyong Road.
- 2. Nearby Sydney Water water assets include a 150 mm diameter CICL water main and a 125 mm diameter PE water main located adjacent to the site in the Cooyong Road and Laitoki Road reserves respectively.

### 2.2 Water Demands

# 2.2.1 Potable Supply

Forecast potable water demands for the development are provided in Table 1.

Table 1: Potable water demand (WSA Sydney Water Edition, 2012).

Item	Unit Rates	Peak Daily (kL/day)	Peak Hourly (L/s)
ILUs	36 kL/net ha/day	72.0	1.8
RACF1	326 L/room/day <sup>2</sup>	68.9	1.8
Total	-	140.9	3.6

Notes: 1. Includes 28 staff.

## 2.2.2 Non-Potable Supply

We anticipate that supply of rainwater to supply non-potable demand such as toilet flushing and external garden uses will reduce the total site demand in the order of 20-30%, depending on the ultimate design of the rainwater collection and distribution system.

## 2.2.3 Fire Fighting

Fire fighting requirements will be supplied via a separate fire main servicing the development with feed water coming from the Sydney Water mains. An allowance for two operating hydrants should be provided in the design. In the event that the Sydney Water mains cannot provide adequate pressure to service the hydrants, an on-site 288 KL storage tank with booster pump will be provided to enable 10 L/s



 $<sup>^{\</sup>rm 2.}$  Based on the average day demand for the ILUs of 326 L/person/day.

flow from each hydrant for a period of 4 hours at 250 KPa outlet pressure in accordance with AS 2419 (2005).

# 2.3 Capacity Assessment

The Sydney Water feasibility letter confirms that the existing DN150 CICL watermain located on the north side of Cooyong Road has the capacity to provide for the domestic needs of the proposed development.

We note that in respect of the proposed nearby development at 25 Laitoki Road, this consisting of 60 self-contained units, with a peak daily potable water demand of 2.17 L/s, Sydney Water have also indicated that the 125 mm main in Laitoki Road will be capable of servicing that development (Attachment C). No cumulative impact is therefore anticipated on the existing water supply infrastructure out of the proposed development.



# 3 Sewage Management

## 3.1 Existing Services

The following existing sewer assets are noted:

- 1. There is a 150 mm diameter vitreous clay sewer main located in Laitoki Road which drains to sewage pumping station (**SPS**) SPS 0646 located in the road reserve at the front of 35 Laitoki Road.
- 2. The existing dwelling is connected to a small domestic SPS that discharges to the sewer adjacent to the lot boundaries of 54 and 56 Laitoki Road

# 3.2 Sewage Generation

Forecast sewage generations rates for the development are provided in Table 2. We note that wet-weather ingress has been assumed to be negligible given that the sewer will be built to modern standards and that there will be little opportunity for stormwater or groundwater ingress due to the highly sealed nature of the development.

Table 2: Summary of sewage generation rates (WSA Sydney Water Edition, 2009).

Development component	Unit Rates	ADWF (kL/day)
ILUs	360 L/unit /day	17.3
RACF	180 L/EP/day	17.2
Total development		34.5

# 3.3 Concept System Design

On the basis of the Sydney feasibility letter, the proposal will be serviced by a private SPS to be constructed on the site. This will receive sewage from an internal gravity reticulation system and temporarily store collected sewage so that discharge to the sewer in Laitoki Road and SPS 0646 can be restricted to off-peak times. Location of the sewer connection point will be a matter for the section 73 certificate application process.

# 3.4 Capacity Assessment

The existing SPS 0646 catchment contains some 262 residential lots, 25 commercial lots (about 5.2 ha of which approximately 50% is built area), and the pumped discharge from development at 88 Booralie Road. Modelled hydraulic loads to SPS 0646 are shown in Figure 1. The area



under the curve is the total average dry weather flow (ADWF of 217 kL/day) for the entire catchment.

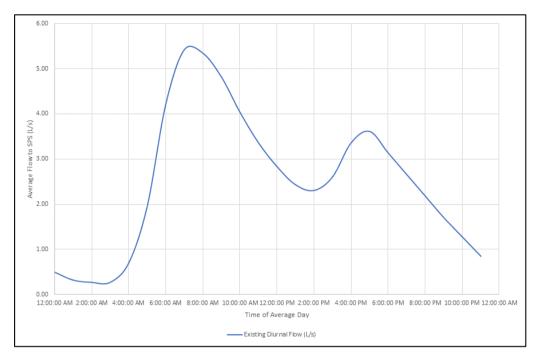
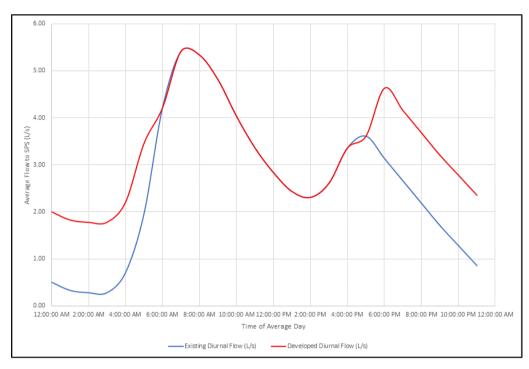


Figure 2: Hydraulic model of existing flows to SPS 0646.

In addition to the above existing developments, the proposed seniors living development at 25 Laitoki Road is also proposed to be connected to SPS 0646. This will generate some 0.35 L/s of sewage. Assuming both the proposal and the 25 Laitoki Road development pump to the sewer in Laitoki in off-peak times say between 6 pm and 6 am at a combined rate of 1.5 L/s, the resulting SPS 0646 inflow hydraulic model is shown as the red line in **Figure 3**. This indicates that there are no cumulative impacts anticipated on the existing sewer infrastructure arising out of the proposed development, as the peak inflow to the SPS is not increased. Total flow under the post-development curve is approximately 281 kL/day.





**Figure 3:** Hydraulic model of cumulative flows to SPS 0646 including flows from 25 and 58 Laitoki Road.



Attachment A – Sydney Water Feasibility Letter (58 Laitoki 4 Road)





Case Number: 173651

1 November 2018

TOLUCEY PTY LTD
C/- North Western Surveys Pty Ltd

## **FEASIBILITY LETTER**

Developer: TOLUCEY PTY LTD

Your reference: 17228

Development: Lot 368 DP 752017 (No. 52) Cooyong Road, Terrey Hills Development Description: 60 self-contained units and a 102 bed nursing home

Your application date: 20 September 2018

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.

You have made an application for specific information. Sydney Water's possible requirements are set out on the following pages:

# 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 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:

 The existing DN150 CICL watermain located on the north side of Cooyong Road could provide for the domestic needs of the proposed development. Refer to additional advice on "Large Water Service Connections" and Fire Fighting" located at the end of this Letter.

#### 4.2 **Sewer**

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

Sydney Water has assessed your application and found that:

- The development is located outside of Sydney Water's existing Wastewater service area.
   In this instance, a connection to Sydney Water's network, via a Pump-to-sewer arrangement, may need to be considered.
- In this regard, Hydraulic Modelling would be required to confirm the actual point of connection. Please note that the results of the Modelling may confirm that discharge be restricted to off-peak times to minimise any detrimental effects to Sydney Water's wastewater system.
- If necessary you may be required to provide a point of connection to accommodate your Pump-to-Sewer arrangement (if approved). The terms of the Deed (referred to in Section 3 above) define this work as 'Major 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.

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#### **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.

### 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.

## Approval of your building plans

Please note that your building plans must be approved. This can be done at Sydney Water Tap in<sup>TM</sup>. Visit www.sydneywater.com.au > Plumbing, building & developing > Building > Sydney Water Tap in<sup>TM</sup> or call 13 20 92.

This is not a requirement of the Certificate but the approval is needed because construction/building works may impact on existing Sydney Water assets (e.g. water and sewer mains). In any case, these works MUST NOT commence until Sydney Water has granted approval.

Your Coordinator can tell you about the approval process including:

- Possible requirements;
- Costs; and
- Timeframes.

Note: 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.

**Backflow Prevention Water supply connections** 

A backflow prevention containment device appropriate to the property's hazard rating must be installed at 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.

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 <a href="https://www.sydneywater.com.au">www.sydneywater.com.au</a> Plumbing, building & developing > Plumbing > Backflow prevention.

## **Large Water Service Connection**

A DN150 CICL water main located on the north side of Cooyong Road could 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 at Sydney Water Tap in<sup>TM</sup>. 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 firefighting purposes for your development. We cannot guarantee that this water supply will meet your Council's firefighting requirements. The Council and your Hydraulic Consultant can help.

## Fire Fighting

Definition of firefighting 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 firefighting 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.

#### **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

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issue the Certificate of Compliance. The Code requires this.

## **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.

# 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; and
- Council firefighting requirements. (It will help you to know what the firefighting 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.

Attachment B - Dial Before You Dig Plans (Sydney Water 5 Plans)





Attachment C – Sydney Water Feasibility Letter (25 Laitoki 6 Road)





Case Number: **173650** 

1 November 2018

TOLUCEY PTY LTD
C/- North Western Surveys Pty Ltd

## **FEASIBILITY LETTER**

Developer: TOLUCEY PTY LTD

Your reference: 17197

Development: Lot 261 DP 775299 (No. 25) Laitoki Road, Terrey Hills

Development Description: Thirteen townhouses; Thirty-four 3 bedroom units; and

Thirteen 3 bedroom houses.

Your application date: 20 September 2018

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

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(and pay another application fee) for each stage.

You have made an application for specific information. Sydney Water's possible requirements are set out on the following pages:

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

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**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:

• The existing DN125 PE watermain located on the east side of Laitoki Road could provide for the **domestic needs** of the proposed development. Refer to additional advice on "Large Water Service Connections" and Fire Fighting" located at the end of this Letter.

#### 4.2 Sewer

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

Sydney Water has assessed your application and found that:

- The development is located outside of Sydney Water's existing Wastewater service area.
   In this instance, a connection to Sydney Water's network, via a Pump-to-sewer arrangement, may need to be considered.
- In this regard, Hydraulic Modelling would be required to confirm the actual point of connection. Please note that the results of the Modelling may confirm that discharge be restricted to off-peak times to minimise any detrimental effects to Sydney Water's wastewater system.
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## 5. Ancillary Matters

#### 5.1 Asset adjustments

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#### Case No: 173650

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- Costs; and
- Timeframes.

Note: 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.

**Backflow Prevention Water supply connections** 

A backflow prevention containment device appropriate to the property's hazard rating must be installed at 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.

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 <a href="https://www.sydneywater.com.au">www.sydneywater.com.au</a> Plumbing, building & developing > Plumbing > Backflow prevention.

# **Large Water Service Connection**

A DN125 PE water main located on the east side of Laitoki Road could 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 at Sydney Water Tap in<sup>TM</sup>. 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 firefighting purposes for your development. We cannot guarantee that this water supply will meet your Council's firefighting requirements. The Council and your Hydraulic Consultant can help.

## Fire Fighting

Definition of firefighting 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 firefighting 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.

#### **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.

# **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.

# 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; and
- Council firefighting requirements. (It will help you to know what the firefighting 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.