

# Technical Solution Sheet 3.03

## 3: Drainage (below ground sewer)

### Combined Drains, Overflow Relief and Inspections

#### AIM

The aim of this technical solution is to ensure that:

- Sanitary drains are installed ensuring adequate access for maintenance and replacement.
- Properties are provided with protection against sewer surcharge.
- The standard of drainage work is maintained through inspections and audits.

#### PLUMBING REGULATIONS 2008

The *Plumbing Code of Australia (PCA)* is adopted by and forms part of the *Plumbing Regulations 2008*. Part C2 of the PCA specifies the objectives and performance requirements related to the installation of sanitary drainage systems. [AS/NZS 3500.2: Plumbing and drainage Part 2: Sanitary plumbing and drainage](#) is a “deemed to satisfy” document listed in Part C2 of the PCA and contains sections on location of drains, re-use of existing drains, gullies and reflux valves.

#### COMBINED DRAINS

**Q: What is a combined drain?**

**A:** During the early 1900’s sewerage authorities introduced the concept of servicing a number of properties with one drain by combining and directing the discharges to one sewerage connection point. This is generally no longer permitted, and current practice is to ensure that each property is provided with a separate sewerage connection point. Combined drains are commonly found servicing residential properties in older inner suburban housing areas; however some commercial and industrial

properties were also connected via combined drains (see Figure 1).

**Q: Who must maintain the drain?**

**A:** Property owners are responsible for maintenance of the combined drain to the authority’s property sewer connection point. If a section of combined drain is found to be defective, the responsibility for maintenance may rest with an individual owner, a number of property owners or all property owners.

**Q: Is consent required when repairing or altering a combined drain?**

**A:** Yes, the repair, replacement or alteration of a combined drain is the same as for any other property sewerage drain. A water authority consent number must be obtained and an inspection booked for any section of repaired or altered below ground drain.

After all work has been completed, and within five working days, Compliance Certificate details must be given to the owner and “lodged” electronically with the Victorian Building Authority (VBA). Before the certificate is lodged, it must be fully completed with the relevant work code/s and the installation details noted.

It is also the licensed plumber / drainer’s responsibility to lodge an accurate and legible 1:500 “as constructed” property sewerage plan with the relevant water authority indicating the altered conditions at the property.

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## Q: Can a combined drain be built over?

A: [AS/NZS 3500.2](#) requires that sewer drains should where possible be located clear of buildings, and that drains located under a building must only serve fixtures within that building.

Where a combined drain exists and the drain cannot be diverted clear of a building or extension, the owner or licensed / registered plumber may apply to the VBA for a modification to the regulations to build over the drain.

The VBA will assess each application and where approved will provide written conditions for the drain to be replaced in an approved material as a straight line of drain with no branches or changes of direction under the proposed building or extension with inspection openings to surface with approved type covers at surface or finished level at the upstream and downstream ends of the built over drain.

If the section of drain is already laid in an approved material as a straight line of drain with no branches or changes of direction the drain must be subjected to testing and pass such testing or the drain is to be replaced in an approved material.

A boundary trap or inspection shaft will not be permitted to remain within any building including garages or carports on a combined drain.

A modification is not required if the section of the combined drain being built over does not service other properties e.g. The drain is only serving the property at the upstream end of the combined drain (see Figures 2, 3, 4 and 5).

## Q: If a property is to be redeveloped and the building is to be demolished, can the new development be reconnected to the combined drain and can the existing drain be reused?

A: As with all redevelopments, the relevant water authority will decide whether or not the new development can be reconnected to the combined drain and whether or not the existing drain can be reused.

Where the existing combined drain is a mortar jointed clay drain, [AS/NZS 3500.2](#) does not allow reuse of this drain and the drain must be replaced as follows:

- If the property is at the lower end of the combined drain near the water authority sewer connection point (see Figure 3) “the entire drain must be replaced upstream of the sewer connection point within that property’s boundaries”.
- If the property is between the lower and upper ends of a combined drain (see Figure 4) “from property boundary to property boundary”.
- If the property is at the upper end of the combined drain (see Figure 5) “all the drains within that property’s boundaries”.

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FIGURE 1 - TYPICAL COMBINED DRAIN

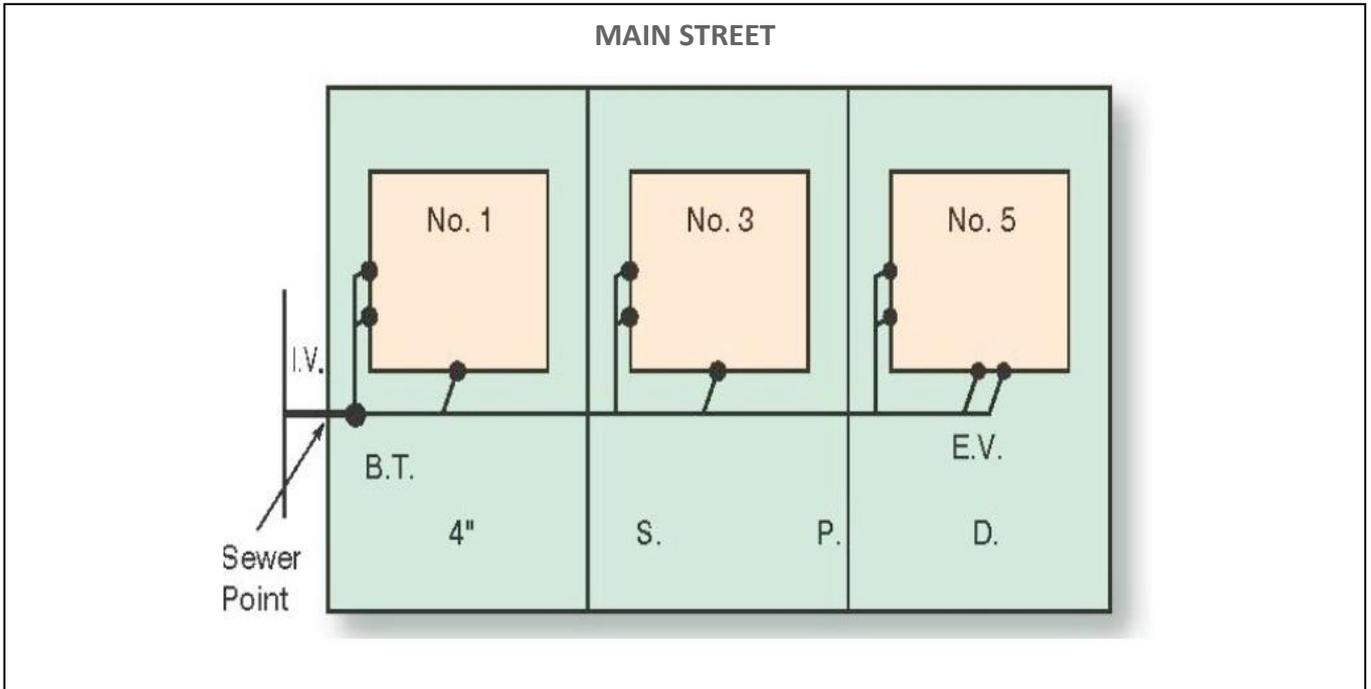
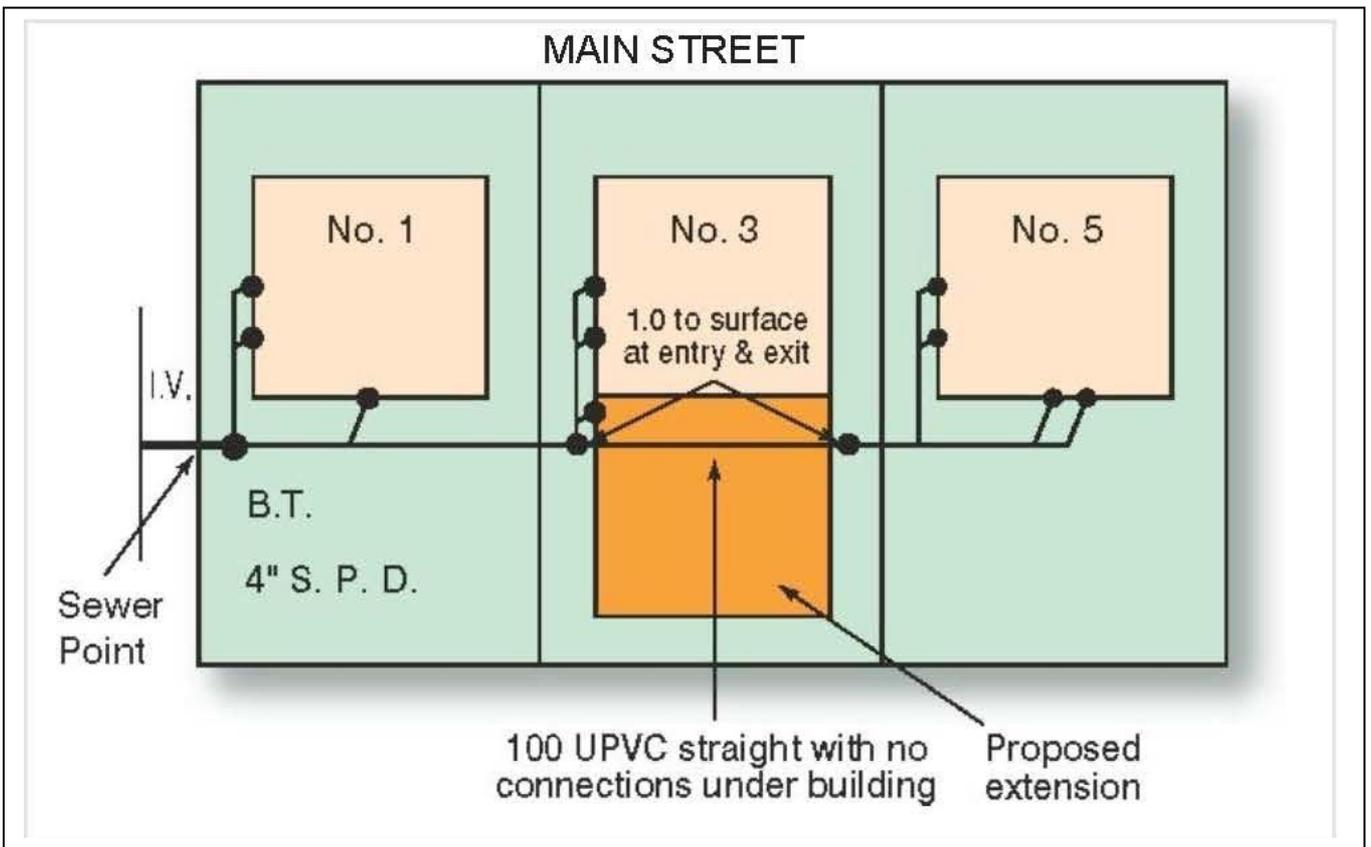


FIGURE 2 - TYPICAL MODIFICATION CONDITIONS



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FIGURE 3 - PROPERTY NO. 1 MAIN STREET

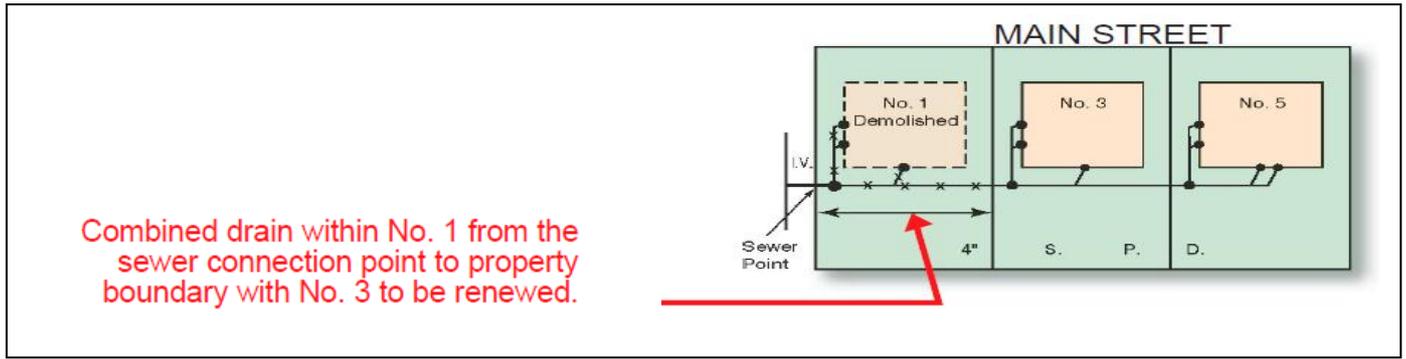


FIGURE 4 - PROPERTY NO. 3 MAIN STREET

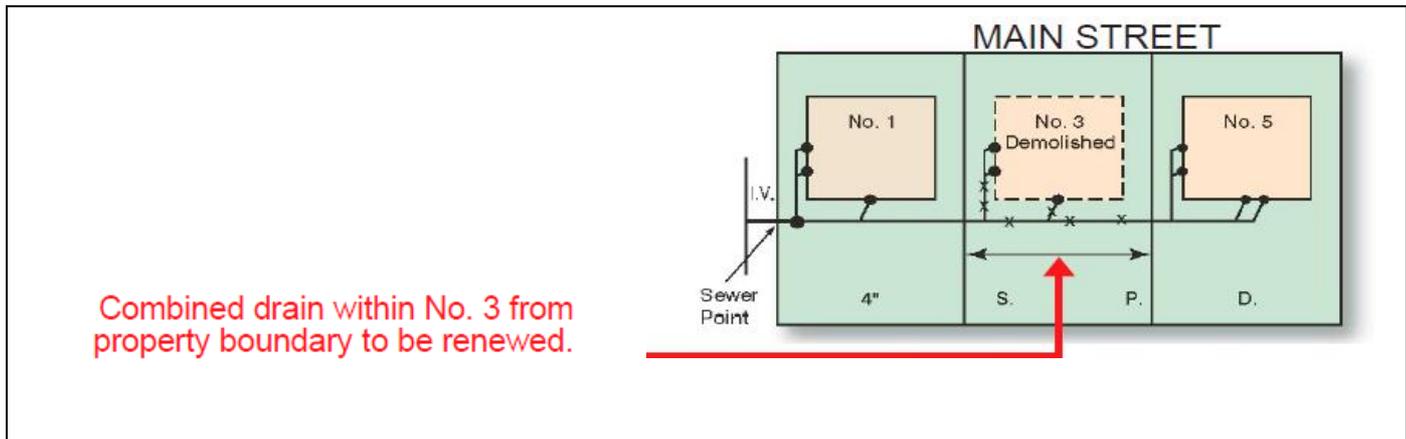


FIGURE 5 - PROPERTY NO. 5 MAIN STREET

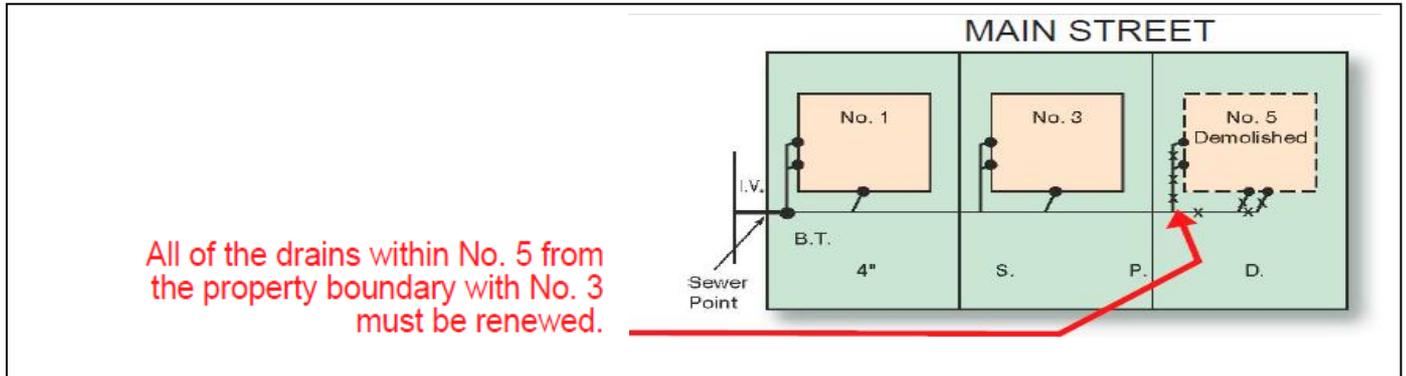
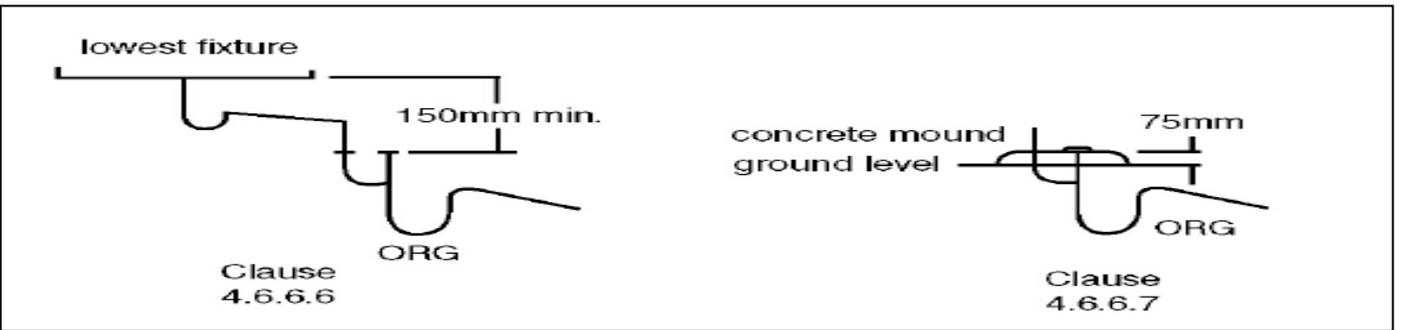


FIGURE 6 - EXAMPLE OF OVERFLOW RELIEF VERTICAL SEPARATION AND FINISH



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## OVERFLOW RELIEF FOR PROPERTY SEWERAGE DRAINS

### Importance of Protection

Authorities' sewers may surcharge due to infiltration of stormwater, blockages or a sewer collapse. This surcharge has the potential to endanger health and cause internal damage to buildings. For this reason, the consumer must be protected through the installation of an overflow relief gully or reflux valve.

**Licensed plumbers and drainers are reminded that they play an important role in protecting public health.**

### MAJOR FAULT ITEM

Failure to protect against sewerage surcharge is a major fault item.

- For new connections: provision must be made for protection against sewerage surcharge for all new connections of property sewerage drains to an authority's sewer.
- For alterations: provision must be made for protection against sewerage surcharge where there are alterations or additions to existing property sewerage drains.
- Alternatively, you must be able to measure and verify that adequate provision already exists.
- In a multi-unit development of three or more residential buildings, provision shall be made for an inspection shaft, an overflow relief gully and an open upstream vent at each individual allotment.

### PRIOR TO COMMENCING WORK

Prior to commencement of sanitary drain laying, ensure that overflow relief complying with the requirements of [AS/NZS 3500.2](#) can be provided.

A 150mm minimum vertical separation must be provided between the top of the overflow relief gully riser and the lowest fixture connected to

the drain. This would normally be measured from the top surface level or finished level of a floor waste or shower grate. To prevent the ingress of stormwater or surface water, the overflow relief gully riser must be at least 75mm above natural surface level. If the surrounding surface is paved, the riser must be finished at a level that does not permit ponding or the ingress of stormwater.

If the above requirements cannot be achieved, or there is some doubt that the requirements will be achieved, then a reflux valve must be installed. It is the responsibility of the licensed person constructing the property sewerage drain to first check and determine the lowest fixture level, and then upon completion certify that the work complies (see Figure 6).

### ADDITIONAL GULLIES

Property sewerage drains like authorities' sewers may also surcharge or block. It is recommended that additional gullies be provided to assist in providing protection where:

- The installation as above is in a multi-unit development or on a combined drain.
- A lower building may be affected by the discharge from a higher building.
- A lower fixture in a building may be affected by surcharge from a higher fixture. In such cases where additional gullies have been provided to assist in providing protection, a lesser vertical separation than the 150mm is acceptable. However, the principle overflow relief gully must still be at least 150mm below the lowest fixture.

### PROPERTY SEWERAGE DRAINS CONNECTED TO SEPTIC TANKS / WASTE WATER TREATMENT PLANTS

Property sewerage drains that connect to a septic tank or on-site waste-water treatment plant are required to comply with AS/NZS 3500.2. The council, as part of the permit to

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construct will require that an overflow relief gully be provided as a measure of protection against property damage that could be caused by blockages in the drain or failure of the on-site treatment system.

The overflow relief gully is best located at or near the head (upstream end) of the property sewerage drain. If the required minimum separation of 150mm cannot be achieved, a reduced separation to 75mm is acceptable. In cases where adequate height separation has been provided above a septic tank or treatment plant with an alternative overflow point, and there is little danger of sewage overflow within the building, the overflow relief gully could be omitted.

## INSPECTION OF BELOW GROUND SEWERAGE DRAINS

### When is a water authority consent required?

Prior to starting plumbing work for water supply, sanitary plumbing and sanitary drainage, you must first have the consent of the water authority that will prescribe any special conditions of consent.

The water authority will allocate a consent number (PIC number) for work involving new installations of below ground drains or alteration, replacement or repair of existing drains that are connected to the authority's sewer.

### Note:

- There are some locations where "privately owned" sewerage reticulation schemes and associated treatment plants operate outside of the control of a water authority. In such cases, upon request, the VBA will allocate a consent number. Bookings for inspection will not be accepted without the consent number.

### What drains need to be booked for inspection?

Other than those drains discharging to a septic tank or on-site treatment plant, inspection bookings must be made for all below ground property sewerage drains, including under-slab drains and drains conveying trade wastes to a trade waste treatment apparatus.

### Q: Why are drains to septic tanks not booked for inspection?

A: Only water authorities have facilities for issuing consent numbers. Councils only issue permits to install septic tanks or on-site treatment systems. It is often the case that properties being connected to a septic tank or onsite treatment system are remote and this can make them difficult to inspect, especially considering that a drainage booking may be made up to 4pm the day before inspection.

The licensed drainer must still lodge compliance certificate details for the installation and note Item 2, Septic Tank Installation and Item 3, Drainage (below ground sewer) against the compliance certificate.

### Q: Is there a limitation on the number of booked drain inspections at a site?

A: No, there is no limit to the number of times that drains can be booked for inspection. Where work has to be completed in sections and covered up, separate bookings for each section of drain must be made.

### Q: What is the procedure for conducting emergency repairs?

A: If you are called on to perform emergency below ground sanitary drainage work, including work outside normal working hours and the drain excavation is on a pathway or driveway which impacts the safety of others, then the work may be carried out and the drain backfilled. You must however book an inspection for the next available day, and obtain an urgent repair notice from the relevant water authority.

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You must also contact the VBA to report that emergency sanitary drainage work has taken place. If your job is selected for inspection, and the inspector agrees that it was an emergency job, then a surface inspection will take place.

**Q: What is required at completion of the work?**

**A:** An accurate and legible 1:500 as constructed property sewerage plan must be drawn and submitted to the relevant water authority that issued the consent or their agent where applicable. A box must then be ticked on the compliance certificate indicating that the plan has been lodged. Within five working days of completion of works:

- The compliance certificate must be completed, signed and dated by the licensed plumber / drainer.
- The original (consumer's copy) of the certificate or compliance certificate details including Compliance Certificate PIN must be provided to the consumer.
- The carbon copy (plumbing practitioner's copy) of the certificate must be retained for six years.
- Notify the VBA through e-Toolbox or the Interactive Voice Response (IVR) phone system that the certificate has been given.