Stormwater Management

Acceptable Solution No. 1

Use of Above Ground Rainwater Tanks for Stormwater Management for residential development with total roof areas greater than 30m^2 and up to or equal to 250m^2

Version: 2
Date: 20 February 2024

Purpose of this document

Acceptable Solutions provide options for development to meet the requirements for stormwater management in Timaru District. It is a simplified process for selection of stormwater management devices and provides simple solutions to meet the stormwater quantity and quality desires of the district.

How to use this document

Timaru District Council will accept the use of acceptable solutions as evidence of meeting the stormwater management requirements without additional submission of calculation and engineering approval. The use of acceptable solutions is not mandatory. You can choose another solution and provide hydraulic and/or engineering calculations from a qualified person to demonstrate compliance of your proposed solution with the Stormwater Management requirements.

Acceptable Solution No.1 – Rainwater Tank for Stormwater Management

A simple process to manage the stormwater runoff from your residential development is using one of the selected rainwater tanks. You will need to;

1. Identify the location of your development (Timaru, Geraldine, Temuka or Pleasant Point),
2. Know the total roof area of your development, and
3. Select the appropriate tank size from the tables depending on your location.

Council will accept the use of Acceptable Solution No.1 as evidence of compliance where:

- Stormwater attenuation is required in **residential development**,
- The total roof area is less than 250m^2 and
- The requirements do not refer to other specific outcomes.

Retention volume for rainwater storage and personal use is a feature of the acceptable solution.

You could choose your rainwater tank based on the total roof area of your development and location from the table below.

Table 1: Rainwater tank sizing chart			**Timaru**		**Geraldine**		**Temuka and Pleasant Point**	
Roof area in m²	**Tank volume**	**Retention volume**	**Orifice diameter**	**Orifice Height (Thin Tank)**	**Orifice diameter**	**Orifice Height (Thin Tank)**	**Orifice diameter**	**Orifice Height (Thin Tank)**
30 – 100	2000L	500L	15mm	0.44m	15mm	0.44m	15mm	0.44m
101 – 150	3000L	750L	19mm	0.44m	17mm	0.44m	15mm	0.44m
151 – 200	4000L	1000L	22mm	0.46m	20mm	0.46m	19mm	0.46m
200 – 250	5000L	1250L	24mm	0.48m	22mm	0.50m	19mm	0.48m

If you are not willing to implement the specified rainwater tanks, then you can either refer to another Acceptable Solution (these are continually being developed) or provide hydraulic and/or engineering calculations from a qualified person to demonstrate compliance of your proposed design with the Stormwater Management requirements.

Figure 1 – Example Tank ***Source: slimlinerainwatertanks.com.au***

Requirements and limitations

1. This acceptable solution is only applicable to meet the requirement of stormwater quantity neutrality for residential development with total roof areas greater than 30m^2 and up to or equal to 250m^2 and total site impervious surface less than 70%.

2. A leaf diverter must be installed on the downpipe to your rainwater tank.

3. Your overflow pipe must not be connected to the main stormwater system. Overflow should discharge to an appropriate and visible overland flow to an acceptable outfall or public system. **This is to provide a visible indicator if your primary outlet is blocked.**

4. A portion of the water in the tank (25%) is retained for your use. Because this water is not treated, it can only be used for gardening purposes, washing property, cars, or as your emergency water supply. The pressure will be low, though this may be sufficient for garden use, otherwise a small pump can be added to the system.

5. The installation of the rainwater tank must be in accordance with Acceptable Solution Tank details and the manufacturer's specification. [Refer to Figures 2 and 3 for **Acceptable Solution 1 - Slim & Round Tank Details** for installation instructions]

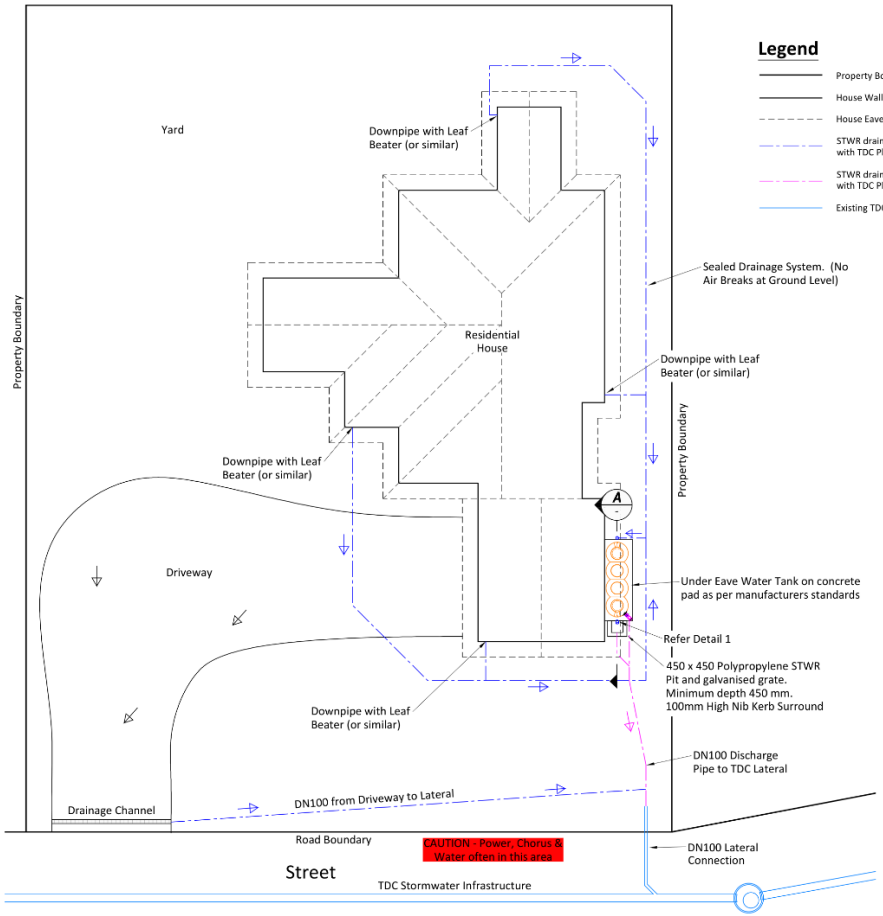
6. During installation, you will need to install an outlet to slowly release runoff back into the stormwater network. The diameter of the outlet and its height above the ground has been carefully sized to maximise the storage within your tank, while minimising the rate of flow back into the stormwater network. As such the tank dimensions, outlet diameters and height of the outlets stated in Table 1 must be adhered to.

7. Any variation from the details in Table 1 will mean your stormwater management is non-compliant with this Acceptable Solution and engineering compliance may be required.

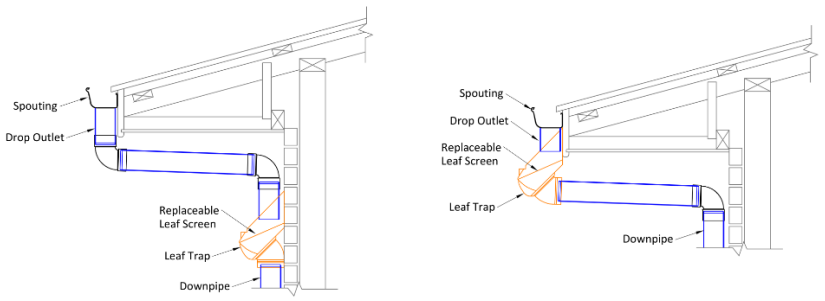
8. You will need to consult with your tank provider for specific detail regarding installation and how to secure your tank.

9. Please refer to your tank manufacturer or supplier for any operation and maintenance requirements of your rainwater tank.

Figure 2 – Stormwater Slimline Tank Detail

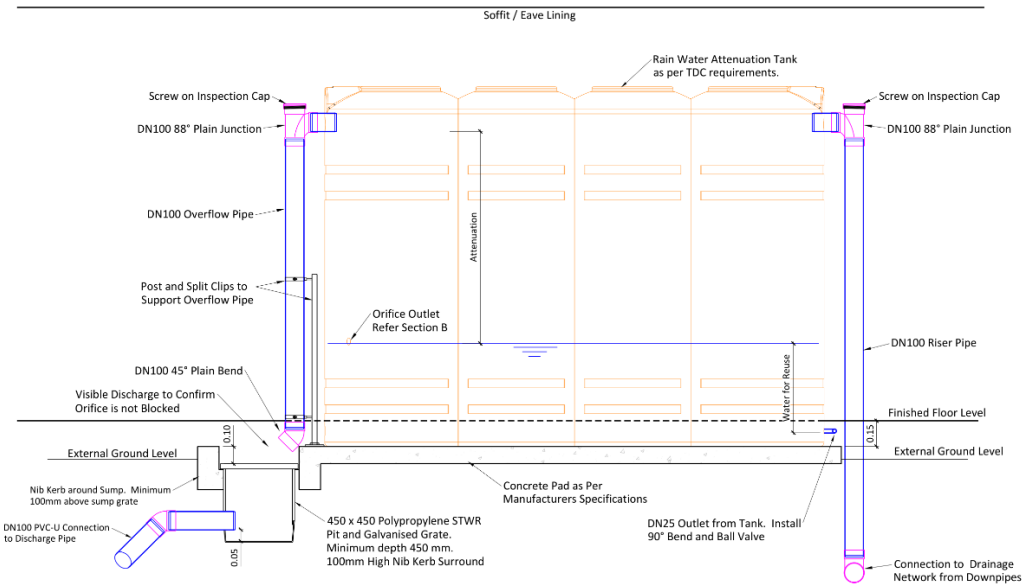


EXAMPLE DRAINAGE ARRANGEMENT
Scale: 1:100 @ A1

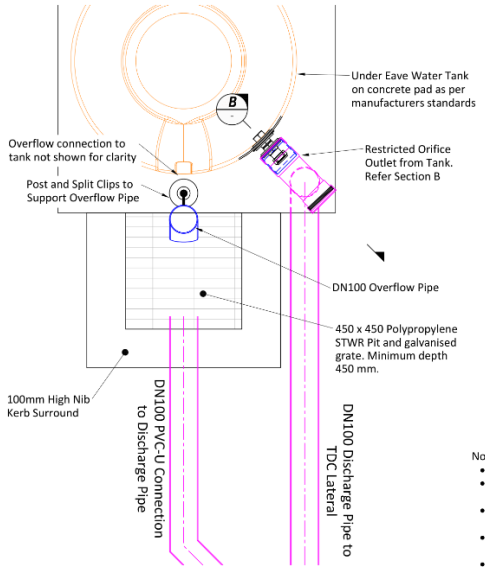


OPTION 1 **OPTION 2**

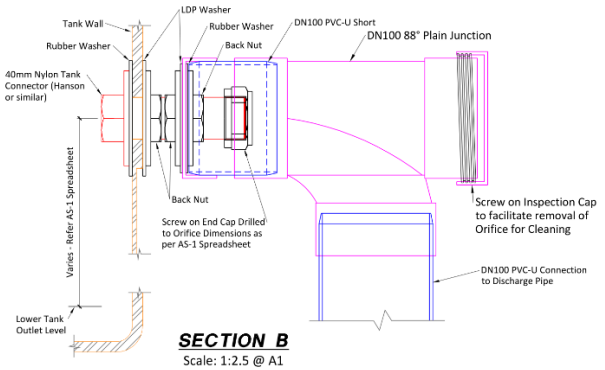
TYPICAL LEAF TRAP INSTALLATION
Scale: 1:10 @ A1



SECTION A
Scale: 1:15 @ A1



DETAIL 1
Scale: 1:10 @ A1

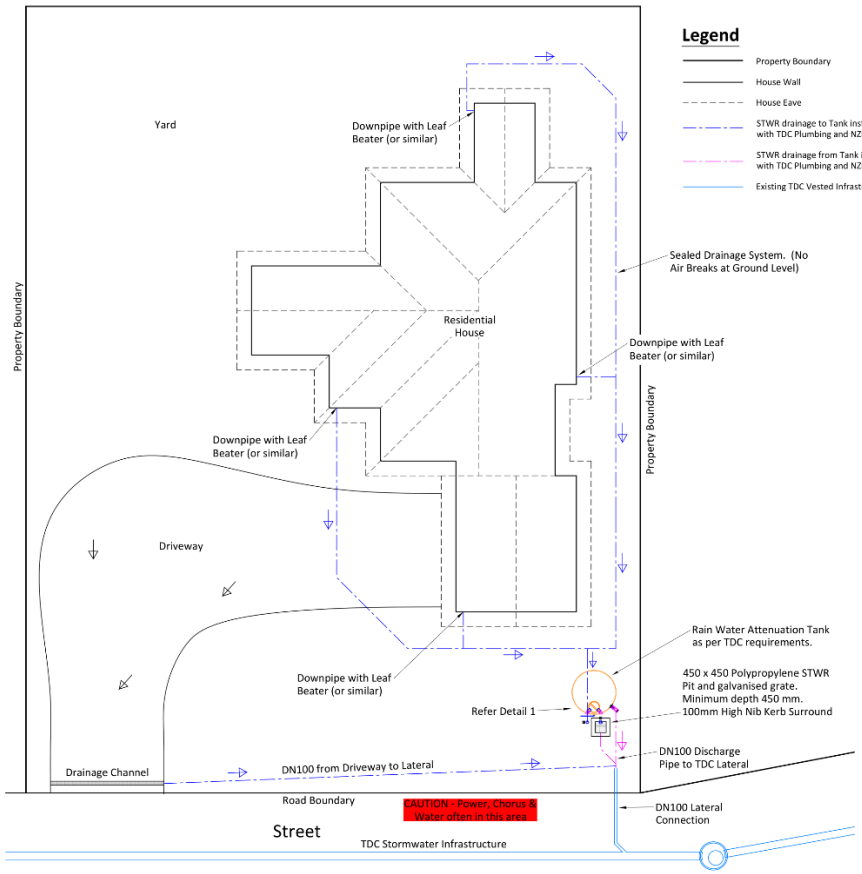


SECTION B
Scale: 1:2.5 @ A1

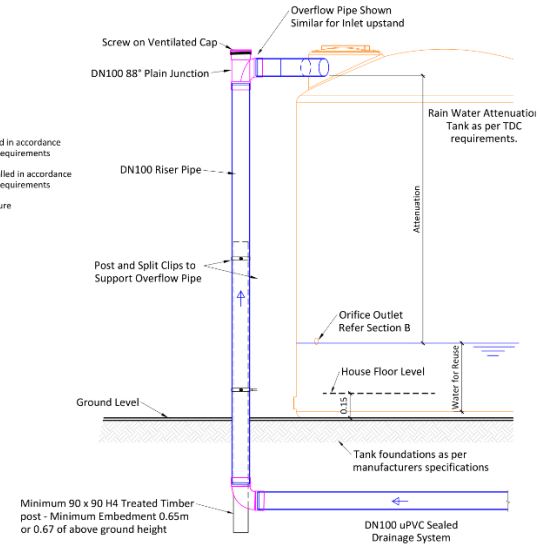
Notes:
- All dimensions in metres unless shown otherwise;
- Tank Size as per Acceptable Solution 1 - Tables 1 - 3 or Acceptable Solution 1 Spreadsheet;
- Orifice Size as per Acceptable Solution 1 - Tables 1 - 3 or Acceptable Solution 1 Spreadsheet;
- Height of Orifice above Lower Tank Outlet as per Acceptable Solution 1 Spreadsheet;
- All drainage materials and installation to be in accordance with TDC plumbing Code of Practice, NZBC and any other specification required by TDC;
- Tank shown is generic - Many options exist and arrangement of fittings may vary depending on the type of tank installed;
- Overflow to have visible discharge to enable land occupiers and TDC to identify if the orifice is blocked;
- Leaf Traps to be installed. On a sealed system it is recommended that they are installed on each Downpipe to minimise debris in the pipeline;
- Tank to be installed in accordance with manufacturers recommendations. All 'Slim' type tanks are to have Seismic Restraint.

Abbreviations
- TDC = Timaru District Council
- NZBC = New Zealand Building Code
- STWR = Stormwater
- AS-1 = Acceptable Solution 1
- LDP = Low Density Polyethylene

Figure 3 – Stormwater Round Tank Detail



EXAMPLE DRAINAGE ARRANGEMENT
Scale: 1:100 @ A1



SECTION A - INLET
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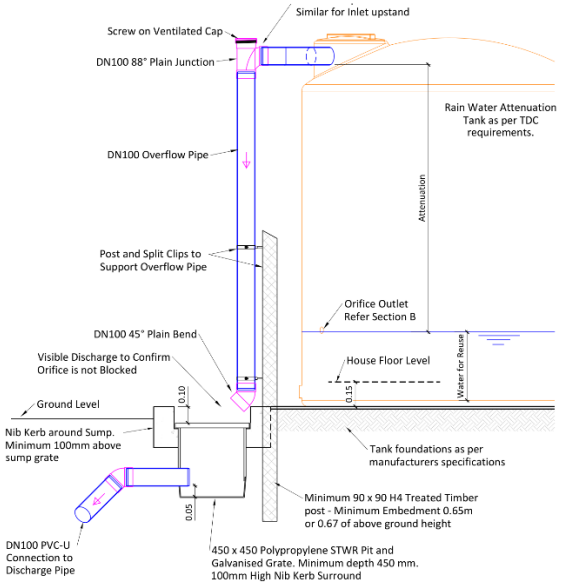

SECTION B - OVERFLOW
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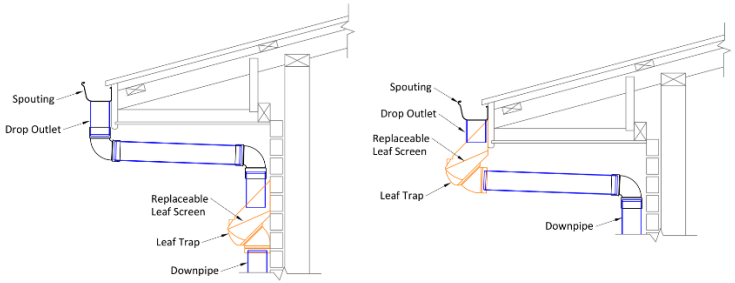

OPTION 1 ***OPTION 2***

TYPICAL LEAF TRAP INSTALLATION
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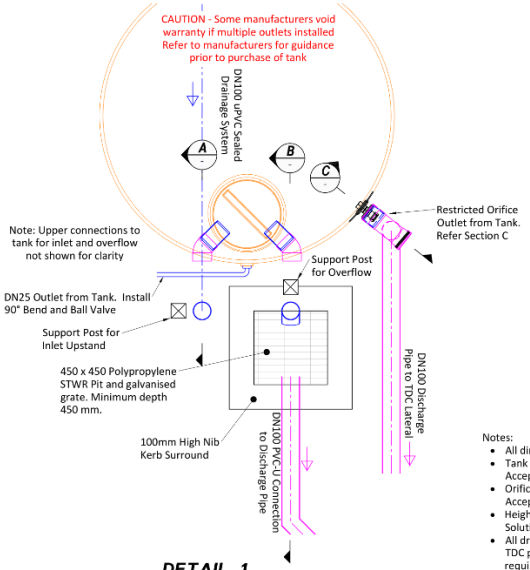
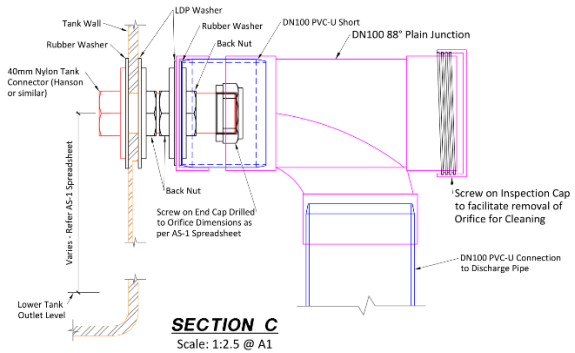


DETAIL 1
Scale: 1:15 @ A1



SECTION C
Scale: 1:2.5 @ A1

Notes:
- All dimensions in metres unless shown otherwise;
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- Orifice Size as per Acceptable Solution 1 - Tables 1 - 3 or Acceptable Solution 1 Spreadsheet;
- Height of Orifice above Lower Tank Outlet as per Acceptable Solution 1 Spreadsheet;
- All drainage materials and installation to be in accordance with TDC plumbing Code of Practice, NZBC and any other specification required by TDC;
- Tank shown is generic - Many options exist and arrangement of fittings may vary depending on the type of tank installed;
- Overflow to have visible discharge to enable land occupiers and TDC to identify if the orifice is blocked;
- Leaf Traps to be installed. On a sealed system it is recommended that they are installed on each Downpipe to minimise debris in the pipeline;
- Some manufacturers void warranty of second connection installed in tank - refer to manufacturer for guidance prior to purchase;
- Tank to be installed in accordance with manufacturers recommendations. All 'Slim' type tanks are to have Seismic Restraint;
- Bottom of tank to be above street kerb level (when discharging to street network) or nearest manhole lid level as appropriate

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