

# Existing on-site wastewater treatment systems assessment in Darfield

## Sanitary survey summary report

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**Canterbury**

District Health Board

Te Poari Hauora o Waitaha

Prepared for the Protection Team  
by the Information Team

Community & Public Health

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# SANITARY SURVEY

## EXISTING ON-SITE WASTEWATER SYSTEMS ASSESSMENT

The following information is being requested to complete a 2013 survey of on-site wastewater management in the Canterbury communities of Darfield in Selwyn District. This information will help to better represent the needs of small unsewered communities.

Public Health District: Community and Public Health, Canterbury District Health Board

Public Health Unit Address: Christchurch office: 310 Manchester Street, Christchurch

Postal address: PO Box 1475, Christchurch

Fax: +64 3 379 6125 Phone: +64 3 364 1777

### Interviewer Instructions

Please show your identification to the householder/business.

Please leave the householder/business with the pamphlet on managing their on-site septic system and a business card so they can contact you for further information.

**Interviewer's name:**

**Interview date and time:**

1. This interview and inspection for a:

Residential property: Yes/No

Commercial/industrial property: Yes/No type: \_\_\_\_\_

School/institution: Yes/No type: \_\_\_\_\_

2. Address of property surveyed: \_\_\_\_\_

3. Permission to take photos? **Yes/No** Signature of HPO \_\_\_\_\_

**Sanitary Survey – Interview**

4. Number of residents usually at property: \_\_\_\_\_

**Number**

5. Age range of usual residents:
- <18years
  - 18 – 40yrs
  - 41 - 60
  - >61 yrs

6. Is the house the original on the property? **Yes/No**

7. What is the size of the property?
- <650m<sup>2</sup>
  - 650m<sup>2</sup>- 2000m<sup>2</sup>
  - 2000m<sup>2</sup> – 5000m<sup>2</sup>

8. Age/year built of current house: \_\_\_\_\_

Number of bedrooms: \_\_\_\_\_ Number of toilets: \_\_\_\_\_

Number of baths: \_\_\_\_\_ Number of showers: \_\_\_\_\_

9. Is there an in-sink kitchen waste disposal unit? \_\_\_\_\_

10. If the house is not the original, are there any comments relevant for this survey (e.g., current house uses pre-existing septic system, is there an old/unused septic system on the property)?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

11. Does the property have a septic system/on-site wastewater system? **Yes/No**

If **NO**, how is wastewater/sewage managed? \_\_\_\_\_  
 \_\_\_\_\_

If **YES**, is the system covered by resource consent **Yes/No**  
 permitted activity **Yes/No**  
 or Don't know **Yes/No**

12. How old do you think the septic system is? \_\_\_\_\_

13. How many separate septic systems do you have? \_\_\_\_\_

14. Description of septic system type on property	System-1	System-2
For each system is it (the main system, out-house, ... )		
For each system the tank is (concrete, plastic, metal, ...)		
Single chamber with boulder pit		
Single chamber with drainage field		
Single chamber with disinfection(UV)		
Two chamber with boulder pit		
Two chamber with drainage field		
Two chamber with aeration		
Two chamber with disinfection		
Other (add detail)		

15. What brand is the septic system? \_\_\_\_\_ or **Don't know**

16. Who installed the septic system? \_\_\_\_\_ or **Don't know**

17. When was the septic system last emptied (date)? \_\_\_\_\_ or **Don't know**

18. Who emptied it (name)? \_\_\_\_\_

19. Did the contractor give you a certificate to show work completed? **Yes/No**

20. How frequently is it emptied?      Annually      2-3yrs      3-5yrs      >5yrs      Never

\_\_\_\_\_

<sup>2</sup> The "no" option for Darfield/Kirwee is to identify those people who don't know they have a septic system or those who use chemical toilets or those who consider everything is "greywater".

21. What service or maintenance do you do on your septic system? **None or detail** \_\_\_\_\_

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22. Or is this done by a contractor? **Yes/No** \_\_\_\_\_

23. How frequently do you/contractor service or maintain the system? **Monthly checks**

**6 monthly**

**Annually**

**3-5 years**

**Never**

24. Have repairs been made to the system? **Yes/No**

If **yes**, what type of repairs and when/by whom: \_\_\_\_\_

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25. Have you ever observed failure of your on-site wastewater system (e.g., slow drainage from toilet, inside overflows, outside ponding, smells, boggy ground, soil collapse)? **Yes/No**

If **Yes** then give details: \_\_\_\_\_

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26. Does water from sinks, drains, shower, toilet etc block up at times? **Yes/No**

If **Yes** give details (when/frequency etc): \_\_\_\_\_

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27. Do you need to restrict your water use? **Yes/No**

If **Yes** give details(why/when/frequency) \_\_\_\_\_

28. Do you use chemicals or chemical treatments for your septic system? **Yes/No**

If **Yes** give details \_\_\_\_\_

29. Do you practice **greywater** recovery or reuse **Yes/No**

(e.g., of bath, shower, basin, laundry water)?<sup>3</sup>

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<sup>3</sup> ESR's research shows many instances, especially in rural communities, where ad-hoc greywater recovery/reuse is practiced, whether it is a permitted activity or not.

If **YES**, how do you do this? \_\_\_\_\_  
\_\_\_\_\_

What brand is the greywater system? \_\_\_\_\_

Who installed the greywater system? \_\_\_\_\_

**30. Are you aware of problems with septic systems in the neighbourhood?      Yes/No**

Detail - \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**31. What is your drinking-water source (e.g., reticulated [Council supply], roof water, individual bore etc)?**

\_\_\_\_\_

**32. Have you or members of your household had any gastro-type illness in the last 30 days?      Yes/No**

If **Yes** detail: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Did you seek medical attention for this? **Yes/No** \_\_\_\_\_

Was a cause found?      **Yes/No** \_\_\_\_\_

**33. Do you have any further comments about communities which use individual on-site septic systems to manage their wastewater?**

**Sanitary Survey – Site Inspection – HPO to complete**

**34.** Circle what proportion of the section is covered by “hard surfaces” (house/buildings/paths/paving)?

**Three quarters**

**Half**

**Quarter**

**Less than a quarter**

**35.** Describe what you can see outside (include outbuildings, general yard maintenance, animals, section uses, vegetable gardens, flushes of bright green grass at variance with area, etc. Take photos).

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List the types of septic system features observed.

\_\_\_\_\_ Septic tank vents

\_\_\_\_\_ Outhouses/cesspools

\_\_\_\_\_ Disposal field

\_\_\_\_\_ Old disposal fields

\_\_\_\_\_ Boulder pit

\_\_\_\_\_ Old boulder pits

\_\_\_\_\_ Unused systems

\_\_\_\_\_ Long-drop

Other \_\_\_\_\_

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Comment on the condition/general observations of the septic system. (Take photos).

36. Is the septic tank area protected from vehicle traffic/vehicle parking? **Yes/No**

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37. Describe the disposal field (include 'boulder hole' and drainage field)

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Is there a reserve/additional disposal field? **Yes/No** \_\_\_\_\_

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Is there room for a reserve disposal field? **Yes/No** \_\_\_\_\_

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Is the drainage/disposal area protected from vehicle traffic/vehicle parking? **Yes/No** \_\_\_\_\_

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38. Is there sign of system failure around the septic tank or disposal area/boulder pit? **Yes/No**

If **YES**, what evidence:

Odour \_\_\_\_\_

Liquid/discharge on surface \_\_\_\_\_

Boggy ground \_\_\_\_\_

Collapsing ground \_\_\_\_\_

Slow plumbing drainage or backup (flush toilet a few times, run some taps)

Discharges to ditch/creek or low point \_\_\_\_\_

Other comments: \_\_\_\_\_

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Describe what you consider the failure may be due to (e.g., improper use or operation, problems with the installation, under-specified system for the number of occupants, section too small, etc)

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**39.** What happens to the stormwater (rainwater) drainage? Is there a separate soakhole for stormwater? Describe its location including distance from the wastewater disposal area.

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**40. Other overall comments**

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Sketch Location of Septic tank/Disposal field/stormwater disposal in relation to House/boundary etc.

## Appendix C: Frequently asked questions

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*How frequently should my tank be pumped out?*

BRANZ (Building Research Association of New Zealand) recommends approximately every 3-5 years, or when:

- the top of the floating scum is 75mm or less from the bottom of the outlet, or
- sludge has built up to within 250mm of the bottom of the outlet.

*What sort of maintenance should I do or get done on my septic tank?*

- Inspect tank annually for scum and sludge levels.
- Check and clean outlet filters regularly (6 monthly) (BRANZ)

For aerated/advanced systems you would expect the following to occur during contracted maintenance:

- clean or replace filters as required,
- monitor effluent quality, including pH of first chamber,
- check submersible pump and float switch operation,
- record all inspection maintenance and monitoring, and
- replace submersible pump every 7-10 years.

*What sort of maintenance should I undertake on my disposal field?*

- Alternate areas (if available) 6 monthly.
- Keep area clear of deep rooting trees and shrubs.
- Clean and service pumps, siphons and filters according to manufacturers instructions.
- Flush drip lines regularly to remove accumulated sediment.
- Mow grass and maintain plants in evapotranspiration areas.
- Ensure surface drains around land application areas are kept clear to reduce rainwater run-off (BRANZ).
- Ensure that heavy vehicles don't park or drive over the field.

*Can I use the effluent on crops?*

Septic tank effluent should not be used on crops for human consumption.

*What is the problem with having an in-sink kitchen waste disposal unit?*

The use of these can significantly increase both the amount of water and also the organic load on the septic tank, compromising the treatment of wastewater.

*What to do if...*

- *Tank is too full?*
  - Have it pumped out
- *Tank contains too much sludge and scum?*
  - Have it pumped out/desludged
- *Too much water is going into the tank?*
  - Use less water and check for stormwater infiltration

*What are the most likely septic tank systems we will see in Darfield?*

Historically there were a lot of soakpits installed in Darfield for sewage discharges. However that changed as the NRRP came in (starting in 2004 when the proposed rules came into effect), further reinforced when the Land and Water Plan was proposed in 2012. Soakhole discharges are no longer permitted under either of these plans. It is understood that the odd consent still goes through for discharge via soakhole (with very short consent durations) but mostly for consented discharges we require treatment via either:

- A septic tank system discharging to a sand trench. Sand trenches can be loaded up at higher rates (up to 50mm/day) so they require a much smaller disposal field than dripline irrigation systems. Therefore you tend to see them on smaller, urban properties.
- An aerated wastewater treatment system discharging to land via dripline irrigation – these discharge at a much lower rate than sand trenches (generally between about 2-5mm/day), so require a bigger land area (for example, a 3 bedroom house producing 1000L/day would need at least 200m<sup>2</sup> of dedicated land area to discharge via dripline irrigation). So you tend to see these on bigger urban properties, or rural properties.

*What are the signs of a failing septic tank?*

- Bad odours around the drainfield especially after heavy water use or rainfall.
- Soggy soil, wet spots with lush green grass growth over drainfield or septic tank.
- Standing water in drainfield.
- Slow draining fixtures.
- Plumbing back-ups.
- High levels of coliform bacteria or nitrate in nearby well.

*What are the signs of a failing disposal field?*

- Foul smell around tank or land application area.
- Tank overflows.
- Ground around tank is soggy.
- Sinks/basins/toilets empty slowly.
- Fixtures make gurgling noise when emptying.
- Grass is unusually green.
- Black liquid oozing from trenches.
- Gully trap or tank mushroom is overflowing.

*What should I be doing to keep my septic tank working well?*

- Reduce volume entering system:
  - Use less water – consider low flow toilets, shower heads, etc.
  - Do laundry a little at a time.
- Don't use products like water softeners.
- Perform system inspection regularly and pump septic tank when needed or on regular interval.
- Don't use an in-sink kitchen waste (garbage) disposal unit.
- Avoid harsh cleaners; use all cleaners sparingly.
- Don't dispose of paints, oils, chemicals into the system.
- Maintain good grass cover over drainfield.
- Protect drainfield from excess runoff.

*If there is an old unused septic tank on the property, is there something I need to do to decommission it?*

Potentially these could present a hazard, especially if they collapse inward, we would recommend that it is inspected by an engineer.

*On the list of septic tanks, there is two chambers with disinfection. What sort of disinfection would we expect to see?*

It is possible that some advanced systems may use UV disinfection – but probably unlikely.

## Appendix D: Media release

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### **Darfield septic tank survey**

*December 6, 2013*

Starting next week Canterbury District Health Board is to survey septic systems in Darfield to see if they are meeting health and environmental needs.

The survey will allow health officials to assess the volume of sewage and wastewater being processed, and will identify any health or environmental issues resulting from the operation of the septic systems.

Dr Alistair Humphrey, Canterbury Medical Officer of Health, says the survey will help establish how septic tanks are being used and maintained.

“Darfield is the largest New Zealand town not fully reticulated and we’re interested to see whether the septic tank system is still meeting the town’s needs,” Dr Humphrey says.

Dr Humphrey says recent population growth has seen an influx of people into the Selwyn District, and people new to the area may not be used to septic systems or appreciate the on-going care and maintenance required.

“Septic systems can work well in rural areas but tank owners need to be careful with what they put down their sink and use in their home”.

Dr Humphrey says poorly operated and maintained septic tanks can overflow and send contaminants into nearby surface and ground water.

“This can create a number of health risks through its effect on groundwater and recreational water can also be affected.”

More than 100 households and at least 10 commercial premises will be included in the sanitary survey. Each visit will last about 30 minutes and will involve a discussion with the household about how they manage their septic system, as well as a visual assessment of the septic system.

Survey results are anonymous and confidential. Information gained from individual inspections will not be made available to any other party.

The survey’s overall findings will be compiled into a report for the Selwyn District Council, ESR and the Ministry of Health.

“The final report will contribute to the evidence decision makers need to decide about future wastewater management for the area,” Dr Humphrey says.

## Appendix E: Tabulated data from the residential property assessment

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**Table 1.** Residential household characteristics (n=106)

Characteristic	Percentage of residents % (n)
Number of usual residents per household	
1	27.4 (29)
2	38.7 (41)
3	14.2 (15)
4	10.4 (11)
5	6.6 (7)
6	1.9 (2)
7	0.9 (1)
Age of usual household residents	
<18 years	26.0 (66)
18-40 years	17.3 (44)
41-60 years	21.7 (55)
≥61 years	35.0 (89)

**Table 2.** Residence characteristics (n=106)

Characteristic		Percentage of residences % (n)
Residence is the original on the property	Yes	95.3 (101)
	No	4.7 (5)
Size of property	<650m <sup>2</sup>	11.3 (12)
	650-2,000m <sup>2</sup>	84.9 (90)
	2,000-5,000m <sup>2</sup>	3.8 (4)
Decade residence built <sup>a</sup>	1910	0.9 (1)
	1920	1.9 (2)
	1930	1.9 (2)
	1940	3.8 (4)
	1950	7.5 (8)
	1960	18.9 (20)
	1970	17.9 (19)
	1980	5.7 (6)
	1990	8.5 (9)
	2000	20.8 (22)
	2010	7.5 (8)
	Missing response	4.7 (5)
Number of bedrooms per residence	1	1.9 (2)
	2	18.9 (20)
	3	53.8 (57)
	4	20.8 (22)
	5	1.9 (2)
	6	2.8 (3)
Number of toilets per residence	1	66.0 (70)
	2	30.2 (32)
	3	3.8 (4)
Number of showers per residence	0	0.9 (1)
	1	70.8 (75)
	2	24.5 (26)
	3	3.8 (4)
Number of baths per residence	0	10.4 (11)
	1	84.9 (90)
	2	4.7 (5)

<sup>a</sup> If the interviewee did not state the year or decade in which the residence was built, but did estimate the age of the residence, the age was used to estimate the decade in which the residence was built.

**Table 3.** Residential septic system characteristics (n=105)<sup>a</sup>

Characteristic (n <sup>b</sup> )	Percentage of systems % (n)
Rules governing system installation (97)	
Resource consent	24.7 (24)
Permitted activity	18.6 (18)
Don't know	56.7 (55)
Tank material (89)	
Concrete	79.8 (71)
Plastic	4.5 (4)
Don't know	15.7 (14)
System brand (81)	
Oasis	4.9 (4)
Hynds	1.2 (1)
Don't know	93.8 (76)
Who installed system (81)	
Builder, or building company	8.6 (7)
Other	3.7 (3)
Don't know	87.7 (71)
Who last emptied the system (82)	
Leech Drainage Services Ltd	84.1 (69)
Selwyn Waste Disposal	1.2 (1)
Don't know	14.6 (12)
Resident received a certificate to show work completion after system last emptied (73)	
No	57.5 (42)
Yes	42.5 (31)
Frequency of emptying (84)	
Every 2-3 years	16.7 (14)
Every 3-5 years	50.0 (42)
Every 6 years or more	26.2 (22)
Never	7.1 (6)
Service/maintenance on the system has been completed by resident (95)	
No	92.6 (88)
Yes	5.3 (5)
Don't know	2.1 (2)
Service/maintenance on the system has been completed by a contractor (52)	
No	55.8 (29)
Yes	44.2 (23)
Frequency of service/maintenance (60)	
Every 3-5 years	36.7 (22)
Never	63.3 (38)
Repairs made to the system (93)	
No	88.2 (82)
Yes	11.8 (11)



Characteristic (n <sup>b</sup> )		Percentage of systems % (n)
System has experienced failure or blockage (102)	No	70.6 (72)
	Yes	29.4 (30)
Resident needs to restrict water use (102)	No	97.1 (99)
	Yes	2.9 (3)
Resident uses chemical treatments for the system (101)	No	91.1 (92)
	Yes	8.9 (9)
Resident practices greywater recovery or reuse (103)	No	94.2 (97)
	Yes	5.8 (6)
Resident aware of problems with systems in the neighbourhood (105)	No	93.3 (98)
	Yes	6.7 (7)

<sup>a</sup> One residence shared its septic system with a neighbouring property, and was therefore not included in these analyses. The total number of respondents for this part of the survey was 105.

<sup>b</sup> The number in brackets represents the total number of responses recorded for that question. For many questions in this part of the survey, the total number of responses did not add up to 105 due to missing data.

**Table 4.** Residential drinking water and gastrointestinal health (n=106)

Characteristic	Percentage of residences % (n)
Source of drinking water	
Reticulated	100 (106)
Rain water	0 (0)
Bore	0 (0)
Residences with household members experiencing gastrointestinal-type illness in the preceding 30 days	
No	88.7 (94)
Yes	7.5 (8)
Missing response	3.8 (4)

**Table 5.** Site inspection (n=105)<sup>a</sup>

Characteristic	Percentage of sites % (n)
Proportion of the site covered by hard surfaces	
Three quarters	6.7 (7)
Half	49.5 (52)
One quarter	29.5 (31)
Less than one quarter	13.3 (14)
Missing response	1.0 (1)
Septic tank area protected from vehicles	
Yes	80.0 (84)
No	19.0 (20)
Missing response	1.0 (1)
Drainage/disposal area protected from vehicles	
Yes	71.4 (75)
No	23.8 (25)
Missing response	4.8 (5)
Reserve disposal field on site	
Yes	1.9 (2)
No	91.4 (96)
Missing response	6.7 (7)
Room on site for a reserve disposal field	
Yes	66.7 (70)
No	29.5 (31)
Missing response	3.8 (4)

<sup>a</sup> One resident did not allow an inspection of their property