Land Drainage Recovery Programme

Reducing the risk of flooding throughout Christchurch City

Dudley Creek Overview Notice

Service relocation and bypass works

27 April 2016

Dudley Creek Project - Overview

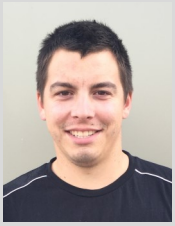
The Stapletons Road route for Dudley Creek flood remediation was approved unanimously by Councillors on 12 August 2015. When completed, the Dudley Creek flood mitigation scheme will reduce the risk of flooding in the Flockton area and benefit at least 585 properties.

Christchurch City Council-led detailed design work is well underway. Stage one running from Slater Street to Chancellor Street and along Julius Terrace is almost complete, with final planting due to start in May. On-site work at Stage two by the Hills Road shops is well underway, and the bypass section of the project is due to start in July. See Map 8 on page 6 for project stages and bypass route.

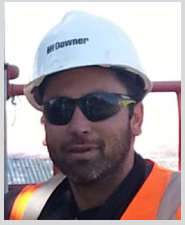
Downer are pleased to be working on this exciting project. Our experienced team are keen to become part of your community. Over the coming weeks you can expect to see Downer staff - introducing:

Alex Mowe
Project Manager

Dean Ewen
Project Engineer



Ben Fox
Site Engineer



Jake Richmond
Site Supervisor

Chiara Tucker
Stakeholder Coordinator

Service relocation and bypass works

- An intake structure is to be constructed on Petrie Street and a new underground piped bypass will run south on Petrie Street, and east along Randall and Medway Streets to the Avon River. Once completed, there will be about 800m of 4m wide by 2m deep box culvert pipeline along this route.
- In preparation for the bypass works, some existing service infrastructure must be relocated as it is within the alignment of the route. See pages 2 and 3 for more information. Some work is within private property. Property owners will be contacted individually about this work.
- **Service relocations will start in the week beginning Monday 2 May and take about 12 weeks.**
- As the bypass will be positioned at a depth between 2.5m to 4m, sheet piling will be undertaken along the length of the route. See page 6 for more information on sheet piling.
- **Bypass works are currently expected to start in July and will take about 12 months.** You will be updated closer to the time for these works.
- There are some tree removals required as part of this work, see Map 6 and Map 7 on page 4 for more information.

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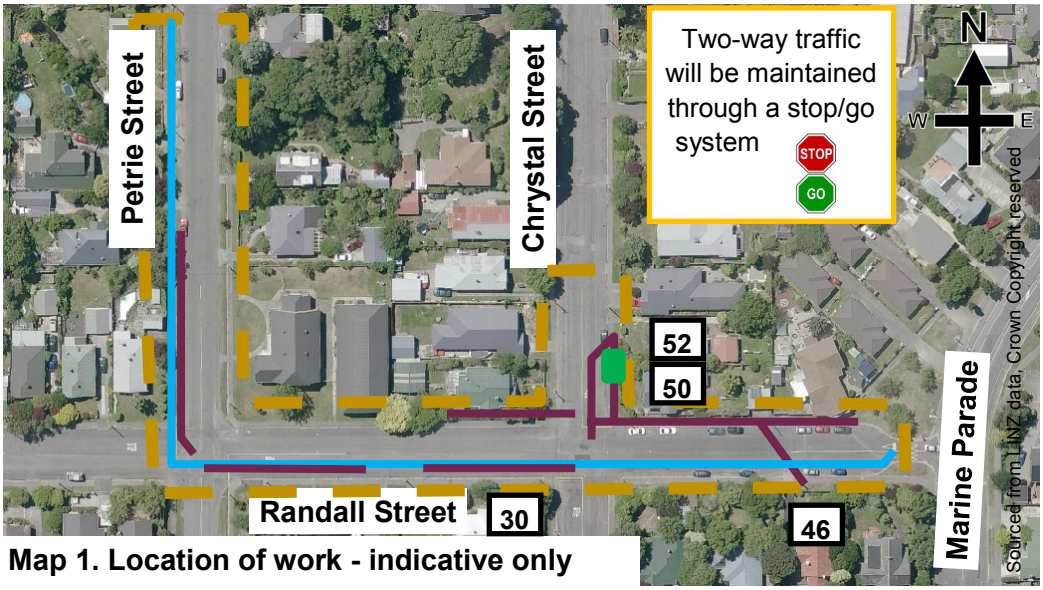
See page 4 for impacts of bypass works

What we are doing - Petrie Street / Chrystal Street / Randall Street - Lift station and service relocation

In preparation for the bypass works, we have to move some of the existing service infrastructure.

- We will be **relocating sections of the gravity wastewater and watermains** along Randall Street and Petrie Street. This work is expected to take about seven weeks.
- We will be **installing a new lift station** on Chrystal Street in the berm outside property numbers 50 and 52. This work is expected to take about five weeks. See more information on lift stations on page 5. Map 1 and Map 2 below show the location of the work, and lift station work area.
- **This work is expected to start in the week beginning Monday 2 May and take about 12 weeks, subject to favourable weather and on-site conditions.**
- The first thing we will do is set up the site. This involves setting up traffic management, locating underground services, machinery movement, and putting up fencing where needed to designate the work area.
- We will then vibrate sheet piles in to position. Once sheet piles are in place, we will need to dewater inside the sheet piled area. **Please expect increased levels of noise and vibrations during this time.**
- See page 6 for more information on sheet piling.



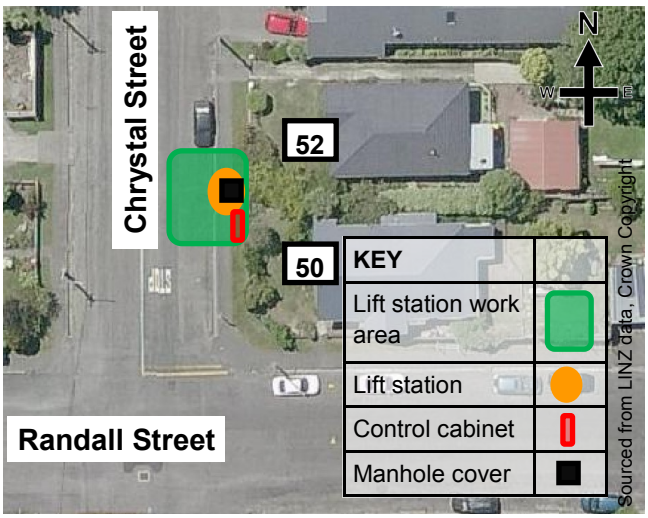
Map 1. Location of work - indicative only

KEY	
Work area	
Lift station work area	
Watermain relocation	
Wastewater main relocation	

See page 5 for more information on lift stations.

Traffic Impacts

- **Two-way traffic will be maintained through a stop/go system.**
- **On-street parking will be reduced around the worksites.**
- Vehicle access will be maintained to private properties. If access restrictions apply, residents will be contacted.
- Please be aware of changes in traffic management, follow signage on-site and drive to the changed conditions.



Map 2. Lift station work area - not to scale

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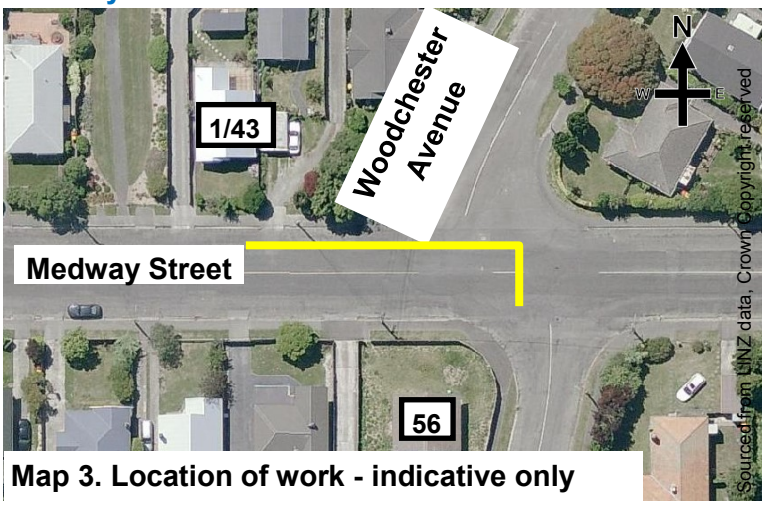
See information on other work overleaf

Other work - Further service diversions

In June / July you will see us doing further service relocation work along the bypass route. This will also involve some tree removals (see information overleaf). You will be updated closer to the time for this work.

Medway Street / Woodchester Avenue



Map 3. Location of work - indicative only

Left: Relocation of the pressure wastewater main.

This work is expected to take about two weeks, and is currently expected to start in early June.

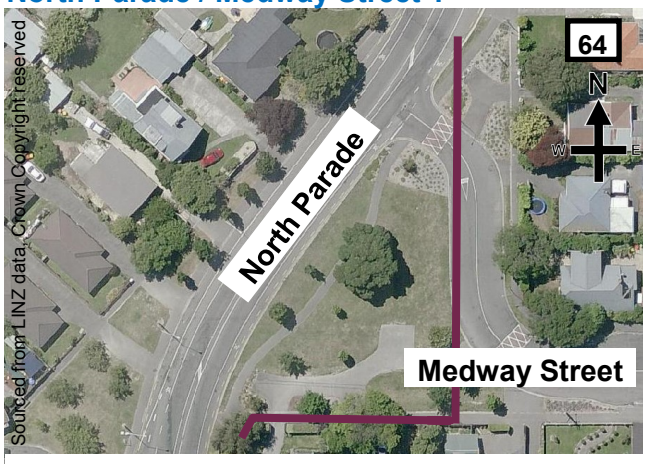
KEY	
Pressure wastewater main relocation	

Right: Relocation of the wastewater main.

This work is expected to take about five weeks, and is currently expected to start in mid June.

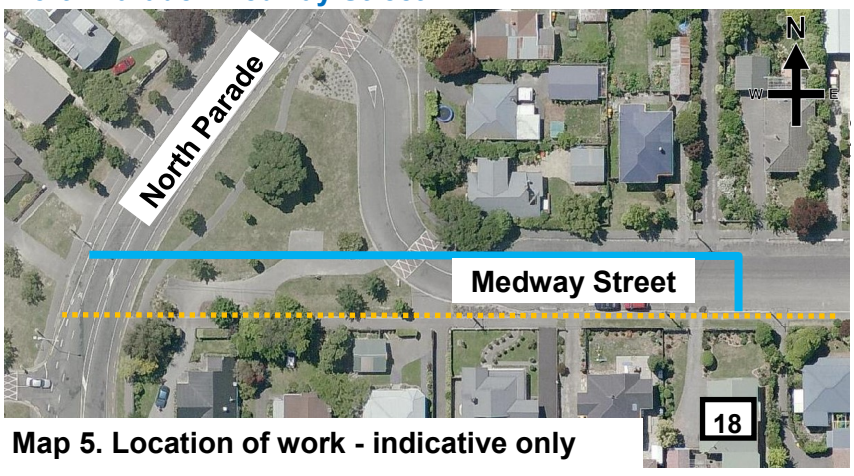
KEY	
Wastewater main relocation	

North Parade / Medway Street 1



Map 4. Location of work - indicative only

North Parade / Medway Street 2



Map 5. Location of work - indicative only

Left: Relocation of the watermain, and the relocation of Chorus and TelstraClear cables.

This work is expected to take about five weeks, and is expected to start mid June.

KEY	
Watermain relocation	
Chorus and TelstraClear cable relocation	

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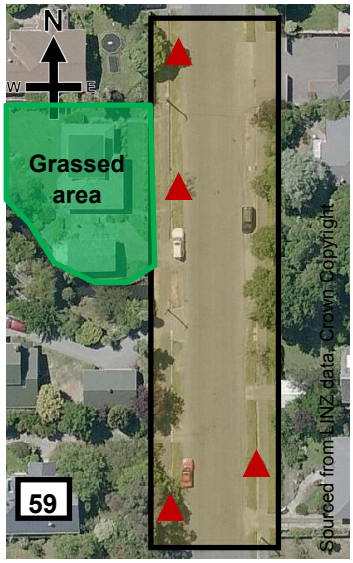
You will be updated closer to the time for this work. Please check your mailbox regularly.

See information on tree removals overleaf

Tree Removals - Petrie Street and Medway Street

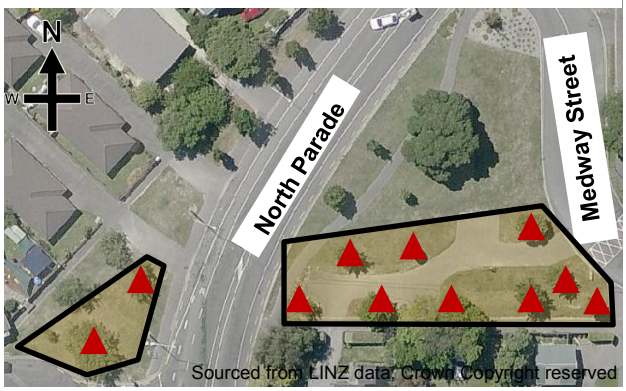
Due to the piped bypass route, some trees need to be removed.
The Petrie Street (4) and Medway Street (10) trees are among the first of a number of trees that will be removed throughout the project.



Map 6. Petrie Street tree removals - indicative only

It is estimated a total of 70 trees will be removed along the project route (from Stapletons Road to the Avon River.)
Further opportunities to retain trees marked for removal are being given as designs progress.
The project is undertaking extensive landscaping with about 70,000 new plants upon project completion.

Map 7. Medway Street tree removals - indicative only



See pages 15-21 in the Christchurch City Council consultation document for more information on this project and tree removals, or contact the Council on 03 941 8999.
Consultation document: http://resources.ccc.govt.nz/haveyoursay/dudleycreekconsulationbooklet.pdf

Bypass impacts

- **The sheet piling associated with this work is very noisy, and you will feel some strong vibrations that may resemble the same feeling as a small earthquake. Property owners along the bypass route will be contacted individually about this work.** Other residents nearby will be updated about this work with a notice closer to the time. Please check your mailbox regularly.
- We will work in sections, and move through each section as work is completed. When work is completed in one section, excavations and sheet piling will start on the next section and the worksite will move with the work.
- Once sheet piling and excavation works are completed, there will be general construction impacts, see below.

General information

- **There will be increased noise, dust and vibration levels associated with this work.**
- Works will have no planned impact on current power, telecommunications, water or gas services. However, the network is still fragile so please be prepared in case there is an unexpected shut off.
- **Please contact Downer if you have any specific needs or access requirements that we need to consider e.g. rubbish collection, Nurse Maude, are on kidney dialysis, or have planned works on your property.**
- Safety is out number one priority. Safety is your responsibility too. Stay clear and stay alert - keep children and pets at a safe distance from the worksite.
- Our standard work hours are Monday to Friday between the hours of 7.00am and 6.00pm. On occasions we may have to work on a Saturday to complete essential work.

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See information on lift stations and sheet piling overleaf

Lift stations

What are lift stations and how do they work?

Lift stations are used to improve a gravity wastewater network. In a gravity wastewater network pipes are laid on a specific gradient, or slope, in order for the waste to flow in the correct direction. A lift station is installed into a gravity wastewater system to create an intermediate high point to keep wastewater flowing in the correct direction.

Why are lift stations needed?

Lift stations help to make a gravity wastewater network more resilient if there are any future earthquakes. When a lift station is installed gravity wastewater pipes can be laid shallower than normal and at steep gradients. Shallower pipes are easier to access if they need to be repaired in the future and are subject to less pressure than deep pipes in an earthquake.

How are lift stations installed?

- Sheet piling is needed around the perimeter of the lift station, a trench will then be dug inside the sheet piles. See overleaf for more information on sheet piling.
- To lower the water level in and around the trench a dewatering pump and spears may be required. The dewatering pumps will run continuously until the work is completed.
- The chamber of the lift station will be installed.
- The wastewater pipes will be connected below ground to the lift station and then the surrounding area will be backfilled.
- The concrete foundation slab will be poured and the electrical system wired up.

What the lift station will look like when it is finished.

Once the lift station is in place underground, there will only be a manhole and small electrical control box visible.

Manhole cover

Note: both photos as indicative only. Control cabinet smaller than pictured.

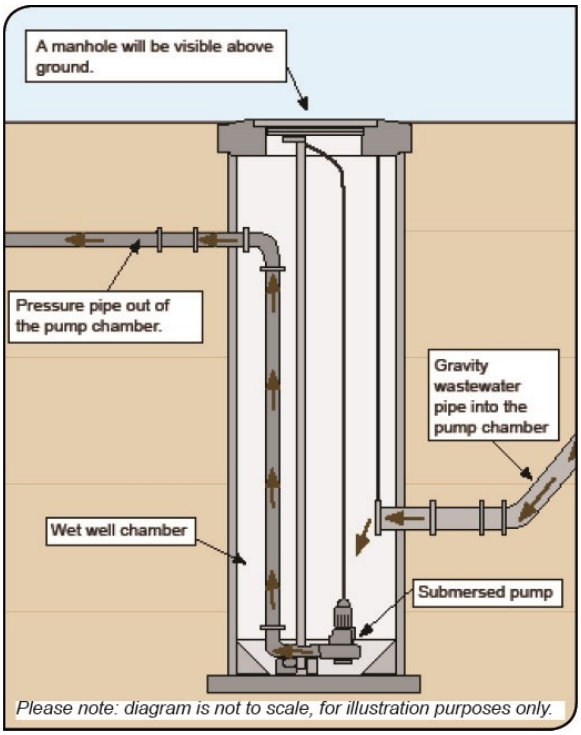
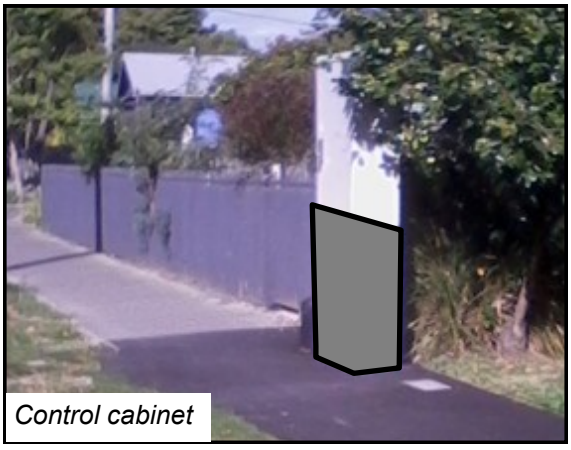


Diagram of an underground wastewater lift station

***What is dewatering?**

Dewatering involves pumping ground water from an area immediately around the work site to carefully lower the water table. Dewatering allows work to take place safely in dry ground. The water is discharged into the storm water network which could be the gutter, underground pipes or nearby stream, depending on the location of the work.



Control cabinet

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Need more information? Contact Downer on 0800 033 747 or email dudleyinfo@downer.co.nz

What is sheet piling?

Sheet piling is a system used to create a temporary wall in a trench. Sheet piles are long sections of steel or metal, that interlock to form a wall. Several sheets link together, creating a barrier between the soil and a trench. This helps keep the trench free of soil and water and ensures the trench is stable.

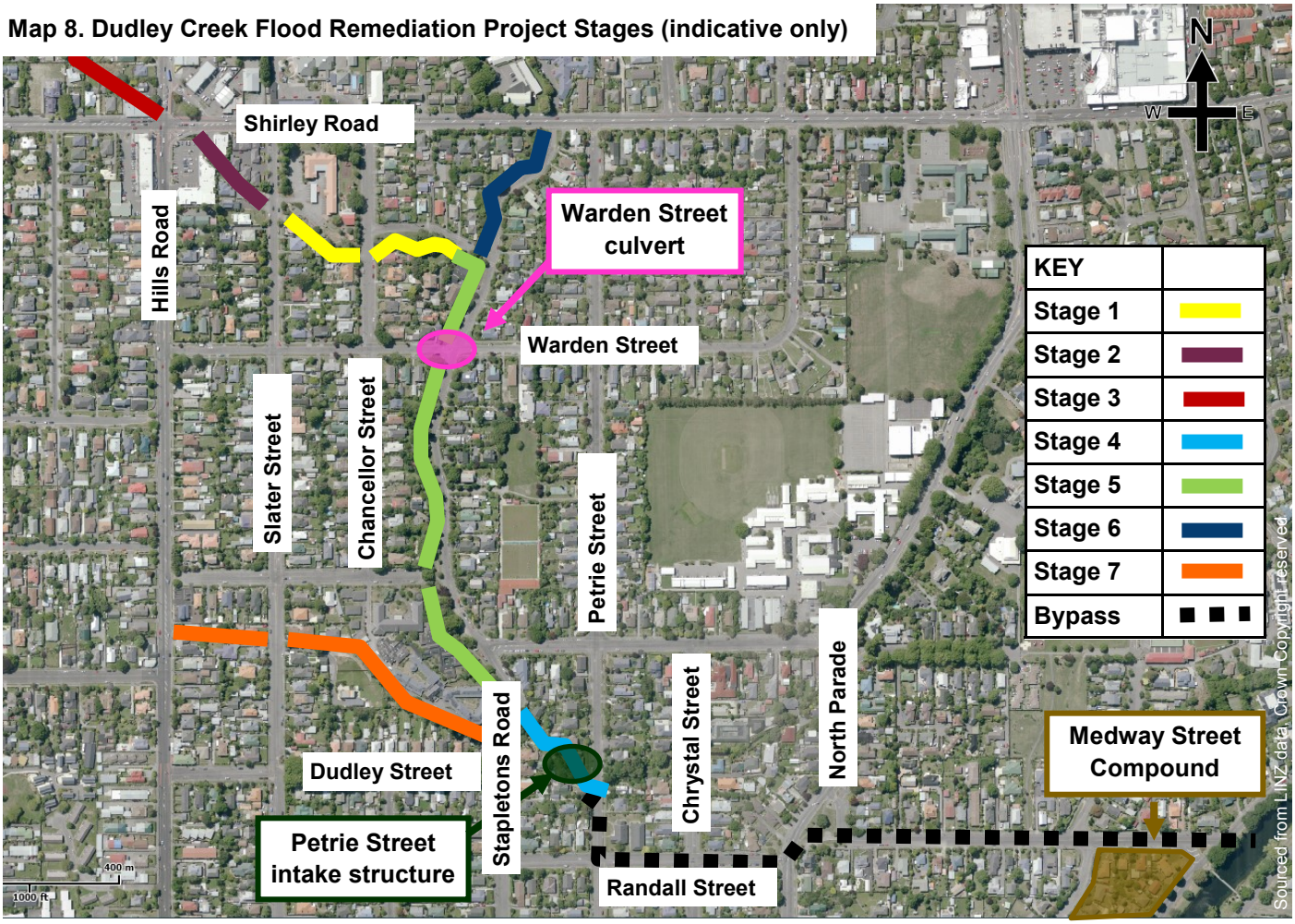
Why is sheet piling necessary?

Sheet piling is needed where the ground is soft, wet or when the trench needs to be over four metres deep. Without the use of sheet piling the trench would need to be very wide in order to stop the ground collapsing back into the trench. Deep trenches without sheet piles are dangerous for workers as the walls of the trench would be unstable.

Nearby residents will experience ground-borne noise and vibrations during the installation of sheet piles. The vibrations can create challenges for residents living nearby. If you are experiencing extreme reactions to the sheet piling, contact Downer.

Sheet piles on-site

Map 8. Dudley Creek Flood Remediation Project Stages (indicative only)



Note: While works are described as 'stages', this does not refer to the sequence of works.

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