



## SOUTH NEW BRIGHTON AND SOUTHSHORE FACT SHEET

# STORMWATER

This Fact Sheet is about the impact of the Canterbury earthquakes on stormwater flooding in Southshore and South New Brighton. It has been produced to provide supporting information for the Southshore and South New Brighton Earthquake Legacy Project.

### Stormwater explained

Stormwater is water that starts as rain, hail or snow. Stormwater soaks into the ground, evaporates, or runs into rivers, streams or stormwater infrastructure.

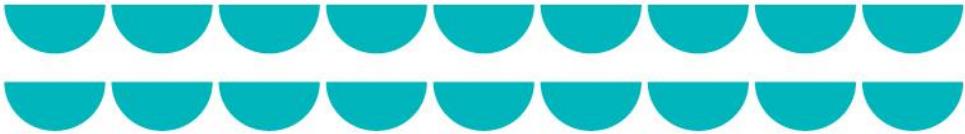
The Christchurch City Council's stormwater infrastructure is a network of waterways, open drains, pipes, pump stations, stopbanks and retention basins (such as the one on Bridge Street).

### The impact of the Canterbury earthquakes on stormwater in Southshore and South New Brighton

Southshore and South New Brighton were low lying areas which already experienced issues with stormwater drainage prior to the earthquakes. The Canterbury earthquakes changed the land in many parts of Christchurch including Southshore and South New Brighton. Some of Christchurch's land dropped, lifted, tilted and/or spread. This means some stormwater systems, most of which rely on gravity, do not drain rainfall as well as they did before the earthquakes. For example, in South New Brighton land dropped in many places, making it more difficult for the stormwater network to drain during high tides as the land is now lower than the king tide levels in some places.

The earthquakes also damaged stormwater infrastructure across Christchurch including in Southshore and South New Brighton.

As a result of the land changes, parts of Southshore and South New Brighton can flood when there is heavy rainfall, especially during high tides, or when there is a king tide. Typically roads are lower than nearby properties. This means that properties can drain to streets and to the stormwater network. This also means that stormwater flooding typically occurs in streets before properties and houses.



## The Southshore and South New Brighton community's stormwater needs

People who live in Southshore and South New Brighton want a well-constructed, monitored and maintained stormwater system that works well and provides adequate drainage. The specific needs identified by the community are:

- Addressing of street flooding in all areas including Jervois Street, Tovey Street and the Ebbtide Street end of Rocking Horse Road.
- Prevention of stormwater from Halsey Street flooding the South Brighton Holiday Park and South New Brighton Tennis Club and impacting on surrounding homes.
- Ensuring functioning stormwater outlets across Southshore and South New Brighton.

## What the Council is doing about stormwater issues in Southshore and South New Brighton

We have inspected the stormwater pipe network, and repaired damage and removed blockages. As part of the Stronger Christchurch Infrastructure Rebuild Team (SCIRT), some stormwater outfall pipes into the Ihutai/Estuary were replaced and extended.

We also replaced flap gates with duckbill valves to minimise the tide flowing back up the stormwater network. Duckbills valves remain closed when the tide is high, and when the tide drops they allow water to flow out of the network into the river or Ihutai/Estuary. This system does take time so the water won't immediately start draining as soon as the tide drops but it does slowly drain away.

We no longer use flap gates in the area because they jam open too easily. This lets the tide (and debris) flow back up the stormwater network, causing blockages. They can also get jammed closed when sand from the estuary edge builds up in front of them.

There is another kind of valve called a 'water-stop' valve where the 'duckbill' goes further up inside the pipe, rather than at the end. However, because there is no protection at the end of the outfall pipe, rubbish can still get in, causing blockages.

While duckbill valves can still get clogged with sand and debris, it doesn't happen so easily and they can be more easily maintained. They are still the most effective option we have for our outfall pipes in this area. If you see a duckbill valve that's clogged or broken, call us on **03 941 8999** and we'll get a maintenance crew out to fix it.



Duckbill valve on a stormwater outlet



We use temporary pumps at key locations to help drain stormwater when tides are high or ahead of heavy rain. These pump water from the stormwater system directly into the estuary. One of the difficulties with temporary pumps is that they need to be set up before an event so they rely on accurate weather forecasting and available resources at the time.

Permanently running pumps that constantly force water out of the stormwater network is not something we do anywhere in the city. Whether the pump is set up permanently or temporarily, we only use them when we predict there is going to be increased demand on the stormwater network.

Throughout Christchurch we use streets, especially in low-lying areas, as storage areas or secondary flow paths for stormwater when the network is overwhelmed. While street flooding is a significant inconvenience, it is still preferable to properties flooding.

## **Southshore and South New Brighton Fact Sheets**

The Southshore and South New Brighton Fact Sheet series cover a range of issues:

Fact Sheet title	What it covers
Flooding	Why the Canterbury earthquakes have led to increased flooding risk in Southshore and South New Brighton.
Groundwater	What groundwater is and why it causes issues in Southshore and South New Brighton.
Stormwater	What stormwater is and why it causes issues in Southshore and South New Brighton.
Planning and approvals	How the planning and approvals process can impact the timing, cost and requirements for options in this area.
Christchurch drainage datum and levels	What the Christchurch drainage datum is, and how we use it and other levels in our planning.
2018 new high tide statistics	Information on the record high tides experienced in Christchurch coastal areas and the 2018 review and update of tidal statistics which has occurred following these events.
Stopbanks, bunds and other structures	Explanations of some of the different structures that can be used for flood and erosion mitigation.
What is a 1 in 100 year flood?	How we describe the probability of flooding.