

Report No:	RESC11-06-07
File No:	
Date:	13 June 2011
<b><i>Information Only – no decision required</i></b>	

## REPORT SUMMARY

**Report to:** Engineering Services Committee  
**Meeting Date:** 23 June 2011  
**Report Author:** Jeff Cuthbertson, Utilities Asset Manager  
**Subject:** **FLOODING IN SOUTH RICHMOND – 26 MAY 2011**

### EXECUTIVE SUMMARY

Heavy rain resulted in flooding of some properties in the White Road/Ranzau Road area on 26 May 2011. Some properties were self-evacuated as recommended by the NZ Fire Service. Council proposes to review what happened during this 26 May 2011 flood event to ensure a solution can be found to mitigate the flooding of residential properties.

### RECOMMENDATION/S

**That the report be received.**

### DRAFT RESOLUTION

**THAT the Engineering Services Committee receives the Flooding in South Richmond, 26 May 2011 report, RESC11-06-07.**

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**Subject:** **FLOODING IN SOUTH RICHMOND – 26 MAY 2011**

## 1. Purpose

- 1.1 The purpose of this report is to inform the Engineering Services Committee of the effects of the flooding that occurred early on the morning of 26 May 2011 in the White Road/Ranzau Road area, south of Richmond.

## 2. Background

- 2.1 On Wednesday 25 May 2011 a heavy rain warning was issued for most of the Tasman District but centred on Nelson West.
- 2.2 Council's Roading and Utilities maintenance contractors are required to check all identified stormwater headworks to ensure that there is no debris at the intake structures. On receipt of the heavy rain warning, Council's maintenance contractors (Downer) were mobilised to carry out these tasks and respond if required.
- 2.3 Heavy rain commenced on Wednesday evening and over a twelve hour period from 5pm Wednesday to 5am Thursday morning, between 65 and 89 mm of rain fell in the Richmond, Hope and Appleby areas. Rainfall fell in two "waves", with the first peaking around 11pm Wednesday, and the second peaking around the hours of 3am to 5am Thursday morning. A peak one hour intensity of 21 mm per hour was measured at Council's Waimea River site – this equates to slightly less than a mean annual rainfall event.
- 2.3 In the morning 26 May, Council received reports of flooding in Whites Road, Ranzau Road and other areas in Hope and South Richmond. Council staff, contractors and consultants responded to these calls.

### **3. Flood events**

3.1 It should be noted that the areas affected by flooding on 26 May 2011 have had similar flood events in the past.

#### **3.2 White Road**

3.3 The flooding that occurred in the White Road area was generally due to three issues:

- Road and driveway gravels were scoured into the roadside water tables. As a result, the water tables had insufficient capacity to contain the flood waters and the water spread over adjacent properties and across the road.
- Some roadside culverts and respective driveways are at different levels. As a result flood waters were able to leave the headworks of the culverts and pass down driveways rather than being retained on the roadway.
- Over the years White Road above Hill Street has been upgraded and subsequently the potential secondary flow path for roadside drainage and the catchment of the uphill water courses has become solely reliant on the capacity of the roadside drains. As the carriageway has been upgraded, shaped and crossfalls provided, the rise in the road carriageway has resulted in no formed secondary flow path.

3.4 Flood water from the uphill watershed (above Hill Street) found its way to the top end of White Road. The northern side of the Hill Street/White Road intersection does have a lower water course that was able to take a percentage of the water being received at the intersection. Following the flood, signs that water had crossed the roads were visible. Flood water at the intersection of Hill Street and White Road was split by the water course and roadside drainage. With this splitting the system seems to work.

3.5 Approximately 500 metres down White Road from Hill Street the water course that provides the relief at the intersection joins the roadside drainage. From this point onwards the roadside drainage system was over capacity.

3.6 Approximately 670 metres along White Road from Hill Street it would appear that a lot of the flood water left the confines of the roadside drainage and progressed through the property at 125 White Road (see attached plan and photos).

- 3.7 Water caused damage to the landowner's driveway and lawns and flowed into their swimming pool before appearing to re-enter the White Road/Paton Road side drainage.
- 3.8 Almost all of the water receded and simply spilled through the intersection and down White Road. At the peak of the flood it would appear that the water moving down White Road was a sheet flow from boundary to boundary.



- 3.9 In a normal situation the stormwater that would flow down White Road would be directed along a water course about midway between Paton Road and State Highway 6 to the Reed Andrews Drain. In the situation that occurred in the early hours of 26 May 2011, the flood water could not be directed along the normal discharge course and just kept travelling down White Road.
- 3.10 There are a number of private dwellings on the south side of White Road. Overnight on 26 May 2011 the Fire Service recommended to nine of the residents to self-evacuate their property.
- 3.11 By 9.00 am on 26 May 2011 virtually no flood waters were visible but the resulting gravel and debris within culverts was very clear to see.



### 3.12 Ranzau Road

3.13 Generally the flooding in Ranzau Road was the result of the volume of flood waters overtopping roadside culverts and roadside drainage.

3.14 At the intersection of Paton Road and Ranzau Road two main water catchments converge. The volume of water for these two catchments basically inundated the culverts at the intersection resulting in very high volumes of water filling the two roadside drains with excess water spilling into the adjacent paddocks and then following old drainage routes.



3.15 As a result the dwelling at 293 Ranzau Road was evacuated.



3.16 The water that flows down Ranzau Road from Paton Road then enters Borck Creek. Borck Creek below Ranzau Road is maintained by Council and appears to have worked effectively. It should be noted that the capacity of Borck Creek at Ranzau Road was at its maximum but appears not to have overtopped.

3.17 There was some minor flooding below the Borck Creek/Ranzau Road confluence but this appeared to be contained.



#### **4. Clean Up of Debris**

4.1 Council staff, consultants and contractors were all involved in inspecting the flood damage and ensuring the affected drainage channels, sumps and culverts were cleared of debris.

#### **5. Future Work**

5.1 It is proposed to review what happened during this 26 May 2011 flood event to ensure a solution can be found to mitigate the flooding of residential properties.

5.2 A whole-of-catchment plan will be required to review why drainage flows in a certain direction, the sizing of culverts and the better management of private upstream water courses and their relationship to roadside drainage systems.

5.3 It is proposed to include any resulting capital works in the 2012-22 Long Term Plan.

## **6. Consultation**

- 6.1 It will be important to write to all of the people affected by the flood event and to provide some solutions that Council will be taking to remedy any future issues. It will also be important to contact the landowners to seek their involvement as to how both they and Council can work together to control these types of events including maintenance requirements of their water courses.

## **7. RECOMMENDATION/S**

That the report be received.

## **8. DRAFT RESOLUTION**

**THAT the Engineering Services Committee receives the Flooding in South Richmond, 26 May 2011 report, RESC11-06-07.**