

**BEFORE THE CANTERBURY REGIONAL COUNCIL**

**UNDER THE**

Resource Management Act 1991

**AND**

**IN THE MATTER**

of application CRC190445 by the Christchurch City Council for a comprehensive resource consent to discharge stormwater from within the Christchurch City area and Banks Peninsula settlements on or into land, into water and into coastal environments

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**REBUTTAL EVIDENCE OF  
THOMAS GEOFFREY PARSONS FOR CHRISTCHURCH CITY COUNCIL**

**Dated 30 October 2018**

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NOTE: This version shows tracked change corrections as made at the hearing 7 November 2018 by Mr. Parsons and recorded in his summary of evidence.

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## INTRODUCTION

1. My full name is Thomas Geoffrey Parsons. I here provide rebuttal evidence for the Christchurch City Council (**Council**) in relation to the evidence of other experts on the Council's application for a comprehensive stormwater network discharge consent (**Application**).
2. My qualifications and experience are as stated in my evidence in chief dated 15 October 2018.
3. I again confirm that I have read and agree to comply with the Code of Conduct for expert witnesses contained in the Environment Court Practice Note (dated 1 December 2014). I confirm that the issues addressed in the statement of evidence are within my area of expertise. I have not knowingly omitted to consider facts or information that might alter or detract from the opinions expressed. ~~The Council as my employer has agreed to me giving this evidence on its behalf.~~

## EVIDENCE RESPONDED TO IN THIS REBUTTAL EVIDENCE

4. I here respond to the evidence of Adrianna Hess.

## SUSTAINABLE URBAN DESIGN

5. Ms. Hess recommends in paragraph ~~26-27~~ that the Applicant should be bound to deliver a 1:20 ratio of Sustainable Urban Design Systems (SUDS) to impervious surface in central city Christchurch by 2028 and a ratio of 1:3 by 2043. I note that she limits her evidence to 3 different types of SUDS, being rain gardens and permeable pavements in paragraphs 8 and 10. These types of solution are recognised in the Ōtākaro / Avon SMP within Table 3 of Section 4.2.
6. Table 3 is ranked in order of highest being greatest preference. Large devices are preferred given their multi-value benefits. Rain gardens and permeable

pavement have lower rankings given the smaller number of values that they benefit. The applicant is not precluding these options from being installed as they are included in the toolbox, as is the case of both rain gardens and permeable pavements which have been installed in a small number of sites within the city. The toolbox covers a wide range of possible treatment options, many of which could be considered SUDS.

7. As I highlighted in paragraph 97 of my evidence the current coverage within the built environment of the city is approximately 15% and this will lift to approximately 40% within 35 years under the BPI scenario. I disagree that a condition for the central city in isolation should be placed on the applicant. Although Ms. Hess has not defined an extent for the central city I assume that it intended to be a small sub-catchment of the Ōtākaro / Avon River. The intent for SMPs is to consider the catchment as a whole to enable consideration of the optimal location for devices (in terms of cost and benefit). To place spatial restrictions this would limit opportunities for optimisation.
8. Ms. Hess in paragraph 30 recommends a minimum 5% surface area allocation of SUDS within the whole Ōtākaro / Avon River SMP. This is likely to be achieved within the current SMP scenario, although beyond the current 10 year plan within the LTP. However, I would not recommend this as a condition because, for similar reasons to the above about spatial coverage, if constraints are placed on the method of treatment then a sub-optimal result may occur.
9. In paragraph 22 of Ms. Hess' evidence she states that *When rain gardens are placed adjacent to conventionally paved roads, incorporating 30% rain gardens into impervious infrastructure may prevent flooding during a 100-year storm event in Christchurch.* When developing the Ōtākaro / Avon River SMP the applicant considered the water quantity benefits of water quality devices. This is discussed in sections 5.3 and 9.1.7 of the Ōtākaro / Avon SMP. The findings showed that there could be significant benefits in short and medium storm durations, particularly in areas where soakage rates were high. Installation of these devices could offset the impacts of increased development in a 4.5 hr duration event. The benefits were not as significant in long duration events with greater rainfall volumes (as shown by a water balance model).

## CONSENT OBJECTIVES

10. Ms. Hess recommends in paragraph 29 that an objective be added to section 1.4.1 of the application, being to: *prioritise neighbourhood-scale extra-over detention Sustainable Drainage System methods, including permeable concrete, permeable asphalt, and rain gardens*. In my view it would not be appropriate to respond to the intent of this object though modification of the proposed consent conditions, should the commissioners wish to do so, as the objective could be viewed as contrary to objective 1 to *enhance ecological values*. Other types of infrastructure responses, such as treatment wetlands, will deliver ecological benefits within the footprint of the device that will deliver against objective 1. The wording of the additional objective proposed by Ms. Hess may unnecessarily focus attention on the three types of SUDS listed at the detriment of other solutions, such as large community facilities, that could provide a wider range of benefits.

**THOMAS GEOFFREY PARSONS**

30 October 2018