# Christchurch District Plan
# Site of Ecological Significance

## Site Significance Statement

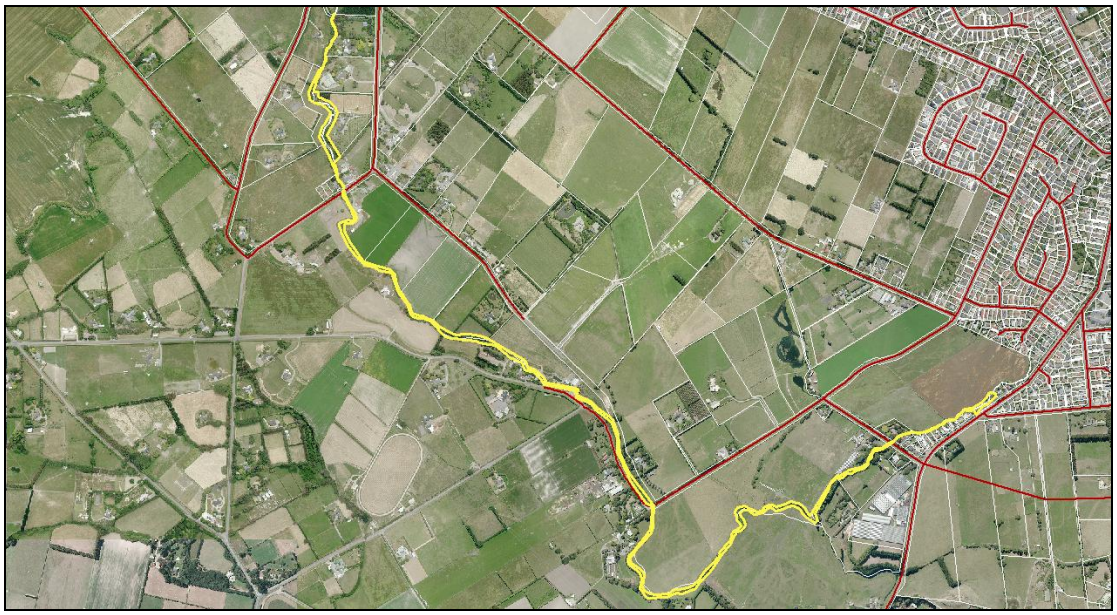
**Site Name:** Knights and Nottingham Streams

**Site Number:** SES/LP/29

### Summary of Significance:

The Knights and Nottingham Streams SES supports at-risk species and contributes to an important ecological network/linkage and migration route for migratory fish species.

### Site Map (refer Appendix 1 for more detail):



## Additional Site Information

**Central point NZTM:** N5173552, E1562885

**Area of SES (ha):** 4.45ha

## Site Description

Knights and Nottingham Streams are natural waterways that have been heavily modified and degraded, having lost much of their original riparian vegetation through land clearance and grazing. Both streams are important habitats and migration corridors for longfin eel which require access from their upstream distribution limit to the sea via the Halswell River.

## Extent of Site of Ecological Significance

The Knights and Nottingham Streams SES extends downstream on Knights Stream from Chesmars Drain (opposite the southern boundary of 100 Whincops Road) to the stream's confluence with the Halswell River (See location map). The Nottingham Stream part of the site extends downstream to the confluence with the Halswell River from the CCC reserve at 570 Halswell Road. The width of the SES varies along the lengths of the streams according to the width of the stream beds and include the associated marginal vegetation.

Throughout most of its length (i.e. the entire length downstream from Whincops Road to the Halswell River) the width of the Knights Stream section SES is defined by the City boundary along its true right bank. Along the true left bank of the stream the SES width is defined by the width of the stream between the top of banks to include the area of flowing water and marginal vegetation. Upstream from Whincops road the width of the SES widens to include specific restoration plantings within the CCC's Knights Waterway Reserve.

Similarly, the Nottingham Stream section is also largely defined by the width of the stream between the top of banks to include the area of flowing water and marginal vegetation, and expands to include restoration plantings at the 570 Halswell Road site.

## Assessment Summary

The Knights Stream site has been evaluated against the criteria for determining significant indigenous vegetation and significant habitat of indigenous fauna listed in Appendix 3 of the Canterbury Regional Policy Statement (Environment Canterbury, 2013) (see below) referring also to the Wildland Consultants (2013) Guidelines and advice from the relevant Specialist Ecologist Groups. Under these criteria the site is ecologically significant because it meets rarity/distinctiveness (criterion 4) and ecological context criteria (criteria 8 and 10).

## Assessment of Significance Criteria

### Representativeness

1. ***Indigenous vegetation or habitat of indigenous fauna that is representative, typical or characteristic of the natural diversity of the relevant ecological district. This can include degraded examples where they are some of the best remaining examples of their type, or represent all that remains of indigenous biodiversity in some areas.***

   Site not assessed under this criterion

2. ***Indigenous vegetation or habitat of indigenous fauna that is a relatively large example of its type within the relevant ecological district.***

   Does not meet this criterion

### Rarity/Distinctiveness

3. ***Indigenous vegetation or habitat of indigenous fauna that has been reduced to less than 20% of its former extent in the Region, or relevant land environment, ecological district, or freshwater environment.***

   Site not assessed under this criterion

4. ***Indigenous vegetation or habitat of indigenous fauna that supports an indigenous species that is threatened, at risk, or uncommon, nationally or within the relevant ecological district.***

   The site is significant under this criterion.

   Knights Stream supports longfin eel *(Anguilla dieffenbachia)* (Taylor and Blair 2012) which is classified as At Risk/Declining (Allibone *et al.* 2010). Longfin eels were recorded in Knights Stream in several locations as far upstream as the confluence of Chesmars Drain. In Nottingham Stream, longfin eels were recorded by Taylor and Blair (2012) at 570 Halswell Road.

   Because longfin eel are a migratory species, they require migration routes to the sea, and therefore the length of Knights and Nottingham Streams downstream of the sampled locations to their confluences with the Halswell River is included as part of this SES.

   Shadbolt and Wong (2013) record the presence of the At Risk/Declining (Grainger *et al.* 2014) koura *(Paranephrops zealandicus)* in Knights Stream immediately upstream from Whincops Road.

5. ***The site contains indigenous vegetation or an indigenous species at its distribution limit within Canterbury Region or nationally.***

   Site not assessed under this criterion

6. ***Indigenous vegetation or an association of indigenous species that is distinctive, of restricted occurrence, occurs within an originally rare ecosystem, or has developed as a result of an unusual environmental factor or combinations of factors.***

   Does not meet this criterion

**Diversity and Pattern**

7. ***Indigenous vegetation or habitat of indigenous fauna that contains a high diversity of indigenous ecosystem or habitat types, indigenous taxa, or has changes in species composition reflecting the existence of diverse natural features or ecological gradients.***

   Does not meet this criterion

**Ecological Context**

8. ***Vegetation or habitat of indigenous fauna that provides or contributes to an important ecological linkage or network, or provides an important buffering function.***

   The site is significant under this criterion.

   The site supports longfin eel *(Anguilla dieffenbachia)* (James 2013). Because longfin eel are a migratory species, they require migration routes to the sea, and therefore the length of Knights and Nottingham Streams downstream of the sampled locations to their confluences with the Halswell River are included as part of this SES. Note that the Halswell River downstream of Knights and Nottingham Streams is contained within another proposed SES, facilitating a continuous ecological linkage to the sea.

   Semi-mature indigenous revegetation plantings within the Knights and Nottingham Stream reserve areas provide a good degree of buffering of the stream from adjacent land uses and provides shade and habitat complexity.

9. ***A wetland which plays an important hydrological, biological or ecological role in the natural functioning of a river or coastal system.***

   Does not meet this criterion

10. ***Indigenous vegetation or habitat of indigenous fauna that provides important habitat (including refuges from predation, or key habitat for feeding, breeding, or resting) for indigenous species, either seasonally or permanently.***

    The site is significant under this criterion.

    Knights Stream supports longfin eel *(Anguilla dieffenbachia)* Longfin eels were recorded in Knights Stream in several locations as far upstream as the confluence of Chesmars Drain. In Nottingham Stream, longfin eels were recorded by Taylor and Blair (2012) at 570 Halswell Road.

    Shadbolt and Wong (2013) record the presence of koura *(Paranephrops zealandicus)* in Knights Stream immediately upstream from Whincops Road.

## Site Management

### Existing Protection Status

| Threats and risks | Management recommendations | Support package options |
|---|---|---|
| • Weed invasion | • Ongoing monitoring and eradication of biodiversity pest plants | • Pest management programming via CCC Operational Pest Management Plan |
| • Artificial riverbank retaining, substrates and/or other structures that adversely affect ecological function of waterways | • Naturalise banks (i.e. remove retaining and create sloping banks with appropriate native vegetation) during bank maintenance works and through capital projects<br>• Prevent construction of fish barriers (e.g. weirs) and remediate current barriers | • N/A |
| • Deficiency of high-quality riparian margins, resulting in a lack of habitat, high water temperatures due to a lack of shading, no buffer/filtering from urban impacts and affects on the functioning of ecological corridors (i.e. species movement) | • Supplement riparian margins with dense, native and locally-sourced vegetation of varying heights (i.e. include tall trees to provide shading to the waterway)<br>• Focus on planting areas of unstable ground, to reduce erosion and sediment discharges<br>• To maintain the riparian margin and ecological corridors, ensure waterway setbacks are maintained (i.e. resource consent is required to build, fill or excavate) and closed fences are not built adjacent to waterways | • In collaboration with ECan, discussions with landowners about the benefits to biodiversity of planting along riparian areas and stock management options.<br>• Assistance available where appropriate. |

| | | |
|---|---|---|
| • Discharge of contaminants | • Treatment of stormwater to a high level prior to discharge into waterways<br>• Reduction in occurrence of wastewater overflows to waterways<br>• Prevent non-stormwater discharges (e.g. trade-waste) from entering stormwater network or waterways<br>• Effective sediment control mitigation measures during construction<br>• Removal of instream sediment (and therefore other contaminants attached to sediment) | • N/A |
| • Excessive amount of leaf-fall from deciduous trees | • Plant indigenous locally-sourced evergreen species in riparian margins instead of deciduous trees | • Advice and guidance to landowners about sourcing alternatives to deciduous trees. |
| • Artificial light impacting on freshwater fauna | • Minimise light-spill onto waterway | • N/A |
| • Lack of instream habitat for freshwater fauna | • Maintain or enhance species-specific habitat, e.g. riffle areas for bluegill bullies | • NA |
| • Pathogen input from waterfowl and dog faeces affecting water quality | • Reduce ability for waterfowl to enter waterways, by densely planting riparian margins with appropriate native species<br>• Encourage community not to feed the ducks<br>• Encourage the community to pick up dog faeces | • Raise awareness about the impact of animal faeces upon biodiversity.<br>• Discuss options to manage public access and use of the site. |

## References


Allibone, R., David, B., Hitchmough, R., Jellyman, D., Ling, N., Ravenscroft, P. & Waters, J. (2010). *Conservation status of New Zealand freshwater fish, 2009*. *New Zealand Journal of Marine and Freshwater Research*, 44(4): 271-287.

Environment Canterbury. (2013). *Canterbury Regional Policy Statement 2013*. Environment Canterbury.

Goodman, J. M., Dunn, N. R., Ravencroft, P. J., Allibone, R. M., Boubee, J. A. T., David, B. O., Griffiths, M., Ling, N., Hitchmough, R. A., and Rolfe, J. R. (2014) *Conservation status of New Zealand freshwater fish, 2013.* (New Zealand Threat Classification Series No. 7). Department of Conservation, Wellington.

Grainger, N., Collier, K., Hitchmough, R., harding, J., Smith, B., and Sutherland, D. (2014) *Conservation status of New Zealand freshwater invertebrates, 2013.* New Zealand Threat Classification Series 3, Department of Conservation.

Shadbolt, A. B., and Wong, V. (2013) Restoring Knights and Nottingham Streams: an issues and options report and six-values response to earthquake related damages. Christchurch City Council

Taylor, M. and W. Blair (2012). *Halswell and Heathcote aquatic values*. Christchurch, Aquatic Ecology LTD.

**Assessment completed by:** Dr Antony Shadbolt

**Date:** 9th December 2014

**Statement completed by:** Dr Antony Shadbolt
**Date:** 9th December 2014

**Statement updated by:** XXX
**Date:** XXX

Please note this statement is based on information available at the time of writing. Due to the dynamic nature of ecosystems, future reassessment of the site may be necessary to reflect any changes in knowledge of its ecological significance.

## Appendix 1: Location Diagrams


**Figure 1:** Knights Stream Downstream from Chesmars Drain

**Figure 2:** Knights Stream Immediately Upstream from Whincops Road

**Figure 3:** Knights Stream Immediately Upstream from Whincops Road

**Figure 4:** Knights Stream at Trices Road

Figure: Knights Stream Upstream from Sabys Road

**Figure 5:** Knights Stream Downstream from Sabys Road

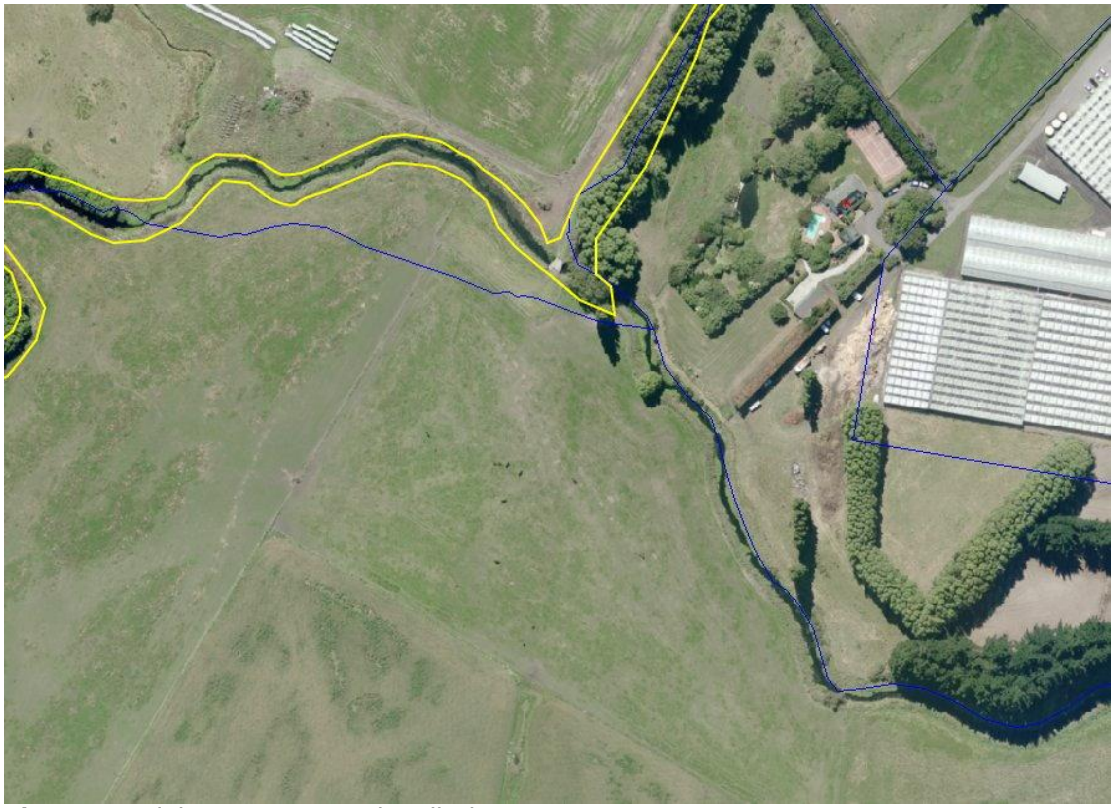


**Figure 6:** Knights Stream to Halswell River


**Figure 7:** Nottingham Stream Downstream Section