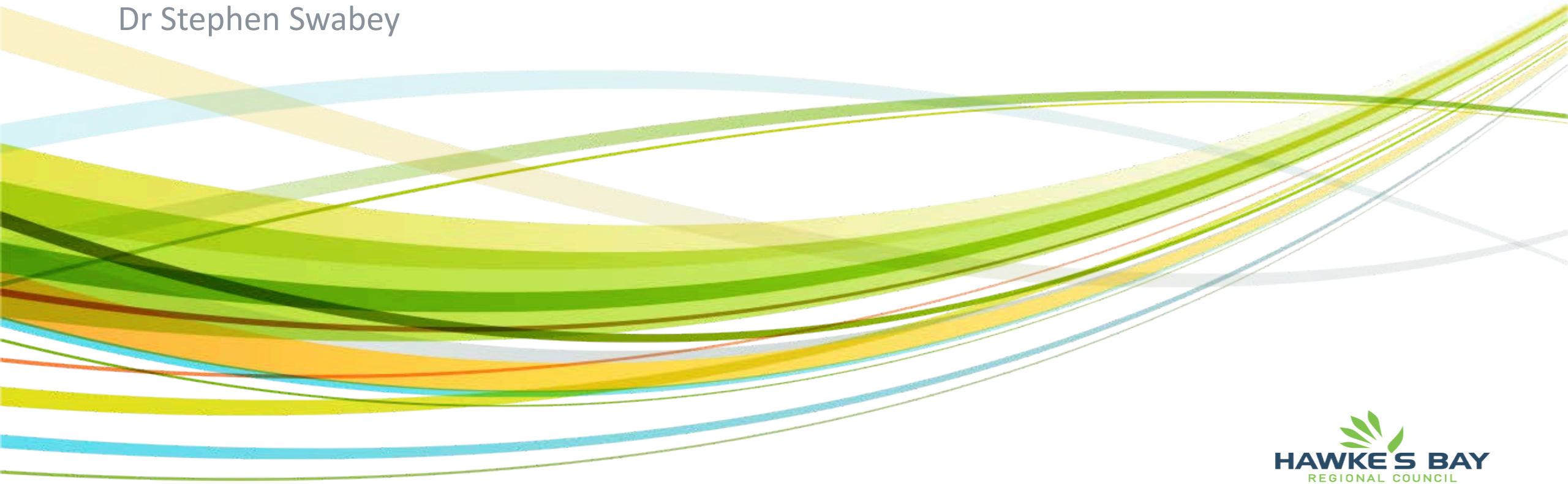
Science Investigation – Havelock North *Campylobacter*

Dr Stephen Swabey



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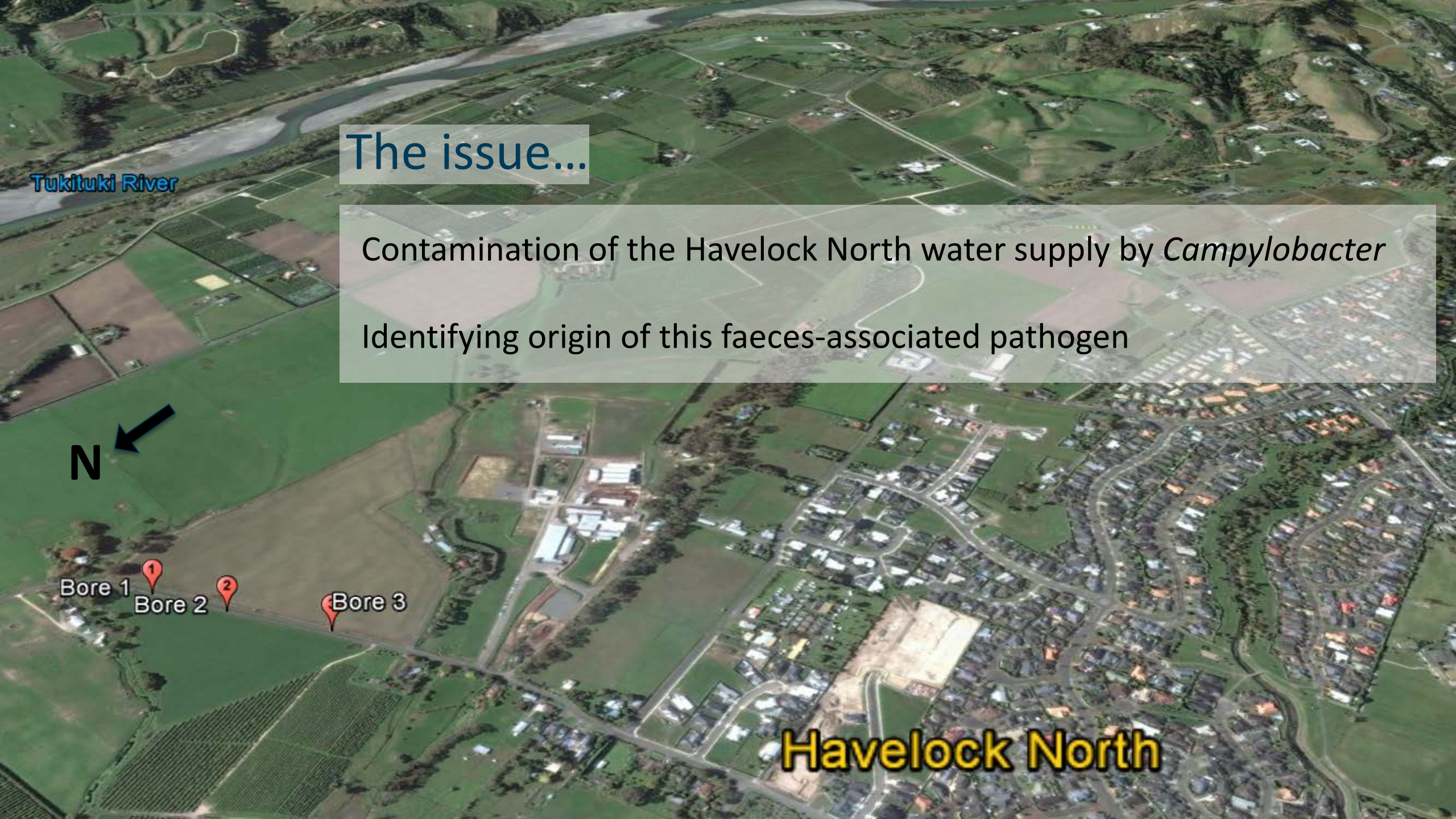

The issue…

Contamination of the Havelock North water supply by *Campylobacter*

Identifying origin of this faeces-associated pathogen

Investigation approach

Developed with advice from Institute of Environmental Science and Research (ESR) scientists

1. Identify potential environmental sources of contaminated faeces

2. Identify potential pathways for transmission to water supply bores

3. Use ‘screening’ approach to test environment:
   a) Test for *Escherichia coli* (*E. coli*) – an indicator of faecal contamination
   b) If *E. coli* present, then test for presence of *Campylobacter*
   c) If *Campylobacter* present, then identify type (avian/human/ruminant)

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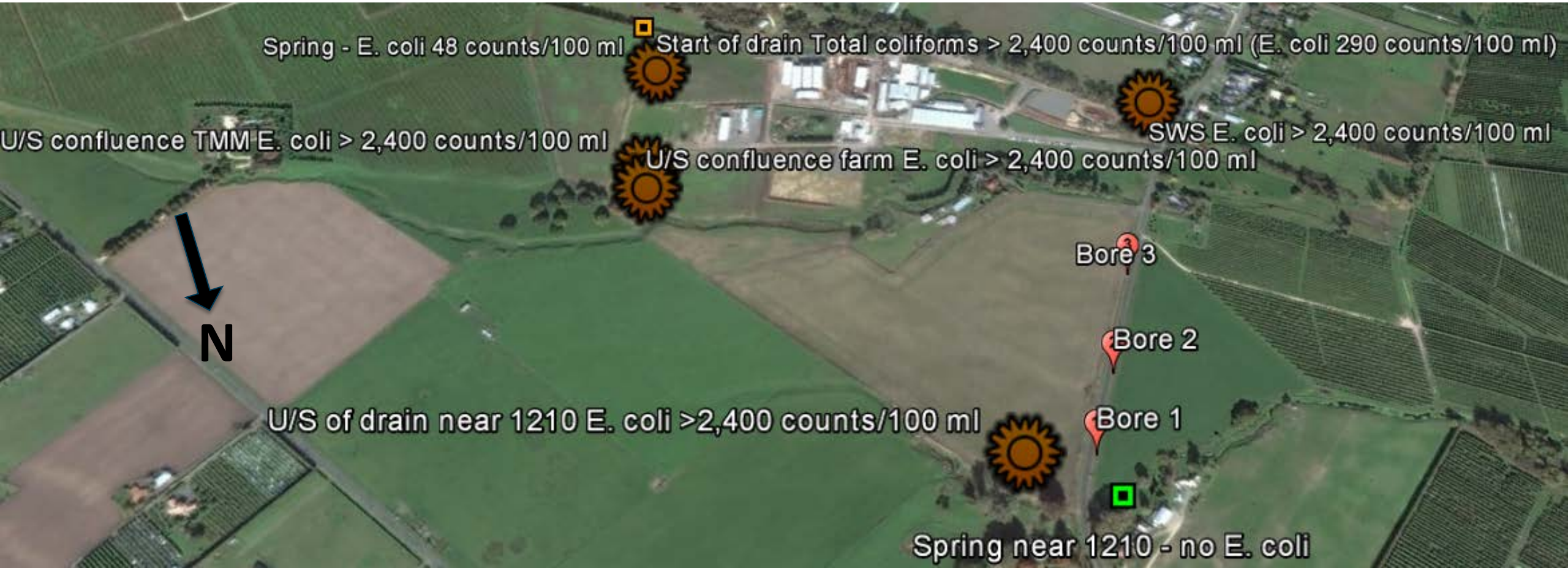
Not likely to originate from Tukituki River

- Recent *E. coli* in Tukituki River typical of values seen during monthly State of Environment sampling
  (NB – all within 'A-grade' Microbiological Assessment Category limits for recreational water use of <130 counts/100 ml)
- Some groundwater sites have total coliforms present – may have non-faecal origin

High levels of *E. coli* in local surface water

- Drainage network on Te Mata Mushrooms site has high *E. coli*
- Stream east of HDC borefield also has high *E. coli*



Investigations continue

- Indications from HDC investigation are *Campylobacter* has ruminant origin
- 1st round of sampling began 16 August 2016
- 2nd round of sampling began 23 August 2016
- Minimum 3 rounds of sampling required initially to identify any trends
- Also sampling local animal faeces to help type any ruminant source
- Modelling groundwater flows and flood flows to help understand potential pathways

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