

TECHNICAL NOTE

JBA Project Code
Contract
Client
Date and Time
Author

2021s1118
Hydraulic Modelling at Fole Dairy
C.B. Collier Limited
May 2022
Alice Blanchard BSc, PgCert, MCIWEM
C.WEM
Daniel Bloomfield BSc
Supplementary information for Fole Dairy

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1 Introduction

1.1 Terms of Reference

JBA Consulting was commissioned by CB Collier Limited in January 2018 to prepare a Flood Risk Assessment and hydraulic modelling report for a proposed residential development at a former dairy at Fole, Uttoxeter. The FRA and hydraulic modelling report were updated in April 2022 to reflect changes to the proposed masterplan.

The reports were submitted to the Lead Local Flood Authority (LLFA) in April 2022 and this technical note addresses outstanding queries which the LLFA have.

1.2 LLFA response

1. In relation to the impacts US of the site, we need a few extra details here given that there has been recorded instances of flooding in relation to the brook. Please could you provide:

Cross section and peak levels along with comparable ground levels upstream of the Uttoxeter road culvert in the baseline and CC scenario to quantify the changes here.

Table 1 shows the peak water levels during the 100-year plus 31% climate change event for the baseline and post-development scenarios. Modelled bank top levels for cross sections upstream of the site are included within Table 1. Figure 1 shows the approximate location of the modelled nodes upstream of the site. Figure 2 displays a long section profile of peak water levels upstream of the site during the 100-year plus 31% climate change event for the baseline and post-development scenarios.

Table 1 and Figure 2 show that upstream of the site there is a reduction in peak water levels during the post-development scenario.

Table 1: Peak water levels at model nodes upstream of the site

Model nodes	Baseline 100-year plus 31% climate change peak water level (m AOD)	Post-development 100-year plus 31% climate change peak water level (m AOD)	Modelled bank top levels (m AOD)
BGBH_0402	115.04	115.04	Left bank 114.77 Right bank 115.02
BGHB_0370	114.57	114.57	Interpolate
BGHB_0339	114.14	114.14	Interpolate
BGHB_0324	113.93	113.93	Interpolate
BGHB_0309	113.72	113.72	Interpolate
BGHB_0293	113.58	113.58	Interpolate
BGHB_0278	113.35	113.35	Left bank 114.63 Right bank 113.28
BGHB_0238	112.77	112.77	Interpolate
BGHB_0218	112.49	112.47	Interpolate

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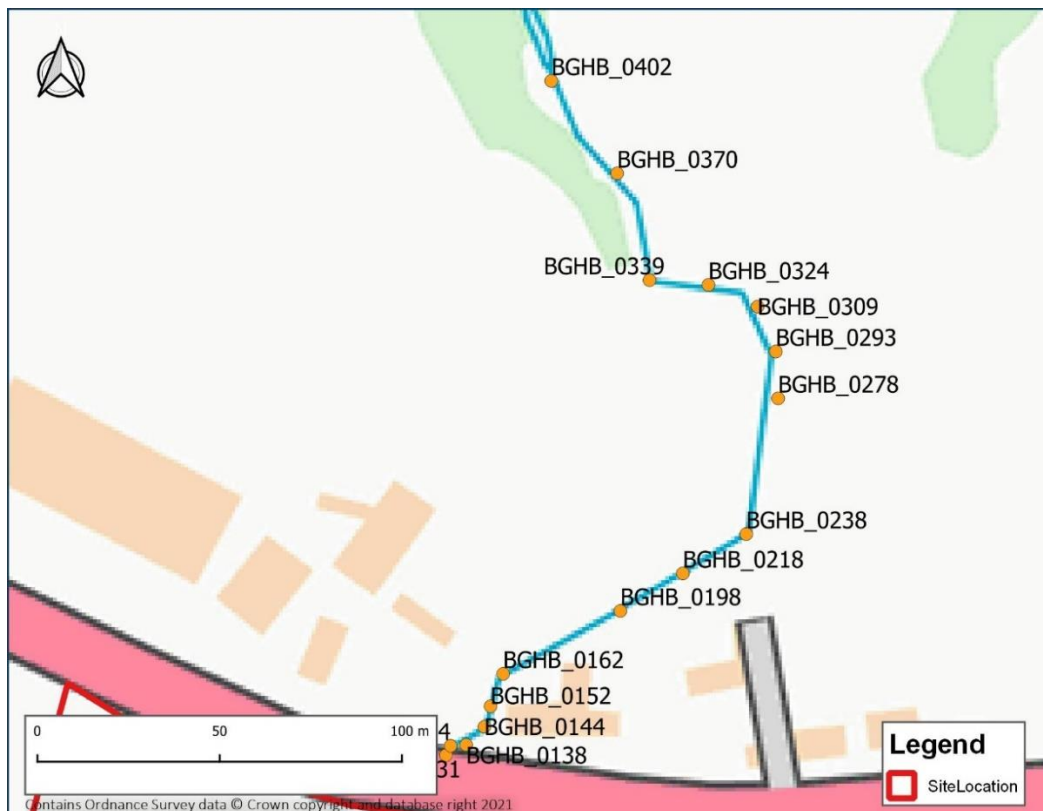
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BGHB_0198	112.35	112.35	Interpolate
BGHB_0162	112.29	112.11	Interpolate
BGHB_0152	112.29	112.10	Interpolate
BGHB_0144	112.29	112.10	Interpolate
BGHB_0138	112.29	112.10	Left bank 112.51 Right bank 111.86
BGHB_0134	112.29	112.10	Interpolate
BGHB_0131 (upstream of Uttoxeter Road)	112.28	112.09	Left bank 112.34 Right bank 111.36
Please refer to Table 3-1 of the hydraulic modelling report for peak water levels through the site			

Figure 1: Model nodes upstream of site



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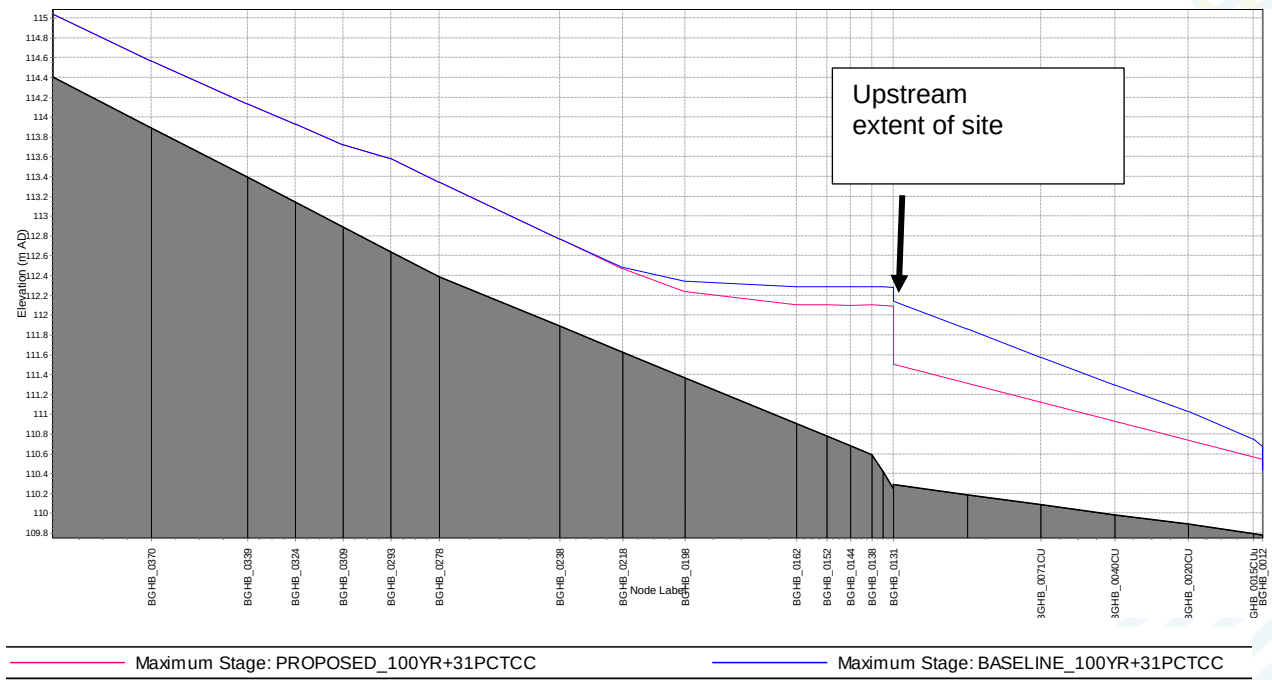
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Figure 2: Long section profile of peak water levels, baseline and post-development 100-year plus 31% climate change scenarios



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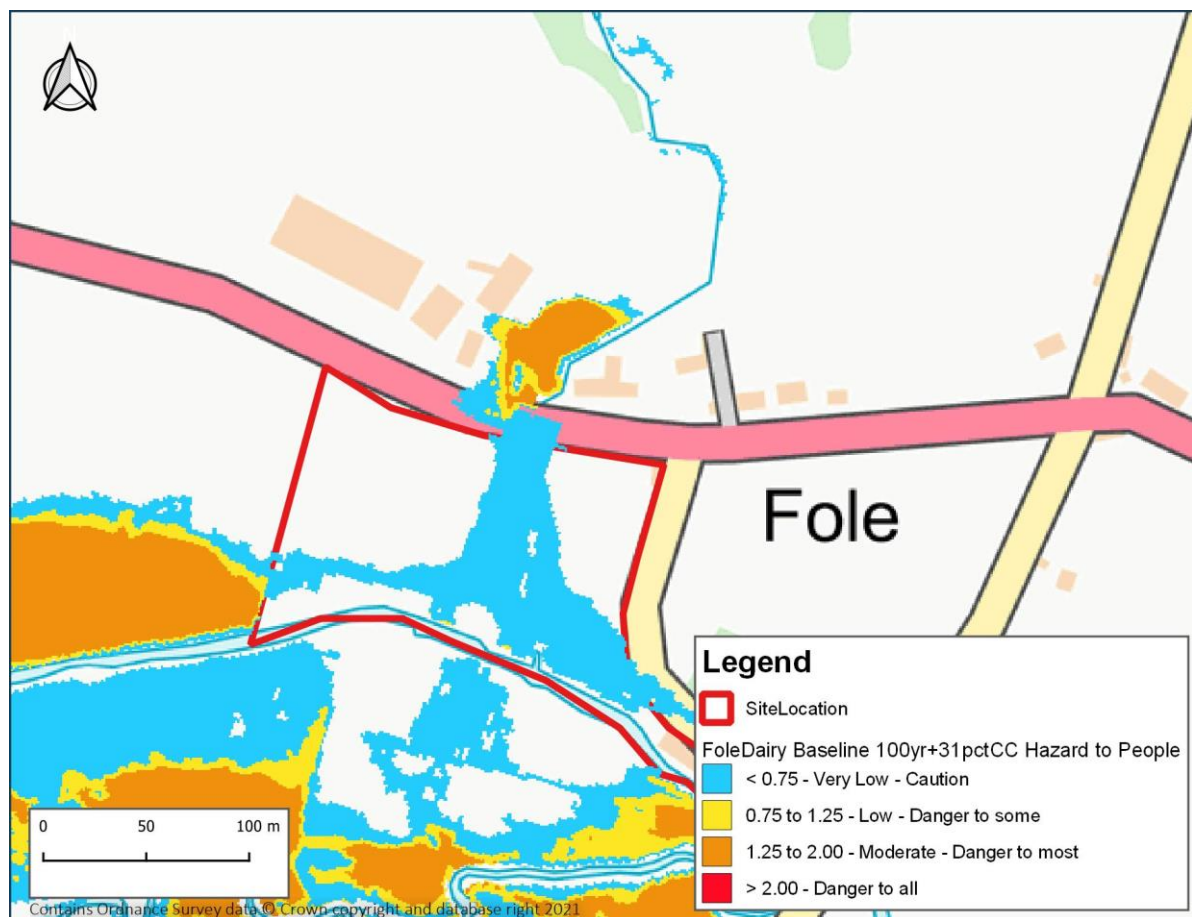
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A baseline and post dev hazard rating for the CC event.

Please refer to Figure3-6 of the hydraulic modelling report for the hazard to people classification for the post-development 100-year plus 31% climate change scenario. Figure 3 below shows the hazard to people classification for the baseline 100-year plus climate change scenario.

Figure 3: Baseline 100-year plus 31% climate change hazard to people classification



A blockage scenario of the Uttoxeter Road culvert (pre installation of the flow interception ditch).

Figure 4 shows the 100-year plus 31% climate change peak water level with a 90% blockage, before installation of the flow interceptor ditch. This shows that the interceptor ditch and bund are required to capture overland flow during a residual blockage risk event.

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Figure 4: 100-year plus 31% climate change blockage scenario peak water level, pre-interceptor ditch

