

# A1 in Northumberland: Morpeth to Ellingham

**Scheme Number: TR010059**

## **Annex D - Environment Agency Meeting Minutes Geomorphology**

AFPF Regulation Rule 8(1)(c)

Planning Act 2008

Infrastructure Planning (Prescribed Forms and Procedure)

Regulations 2009

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning  
(Applications: Prescribed Forms  
and Procedure) Regulations 2009**

**The A1 in Northumberland: Morpeth to  
Ellingham**

Development Consent Order 20[xx]

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**Annex D - Environment Agency Meeting Minutes Geomorphology**

<b>Regulation Reference:</b>	APFP Regulation Rule 8(1)(c)
<b>Planning Inspectorate Scheme Reference</b>	TR010059
<b>Application Document Reference</b>	TR010059/7.9.1.4
<b>Author:</b>	A1 in Northumberland: Morpeth to Ellingham Project Team, Highways England

<b>Version</b>	<b>Date</b>	<b>Status of Version</b>
Rev 0	January 2021	Deadline 1

## AGENDA & MEETING NOTES

<b>PROJECT NUMBER</b>	70044136	<b>MEETING DATE</b>	10 December 2020
<b>PROJECT NAME</b>	A1 IN NORTHUMBERLAND: MORPETH TO ELLINGHAM	<b>VENUE</b>	MS Teams
<b>CLIENT</b>	Highways England	<b>RECORDED BY</b>	NB
<b>MEETING SUBJECT</b>	Discussion of 2D modelling approach to answer Relevant Representation queries (geomorphology)		
<b>PRESENT</b>	[REDACTED] – WSP; [REDACTED] – WSP; [REDACTED] – WSP; and [REDACTED] – Environment Agency		
<b>APOLOGIES</b>	<a href="#">Click here to enter text.</a>		
<b>DISTRIBUTION</b>	As above		
<b>CONFIDENTIALITY</b>	Public		

### Overview

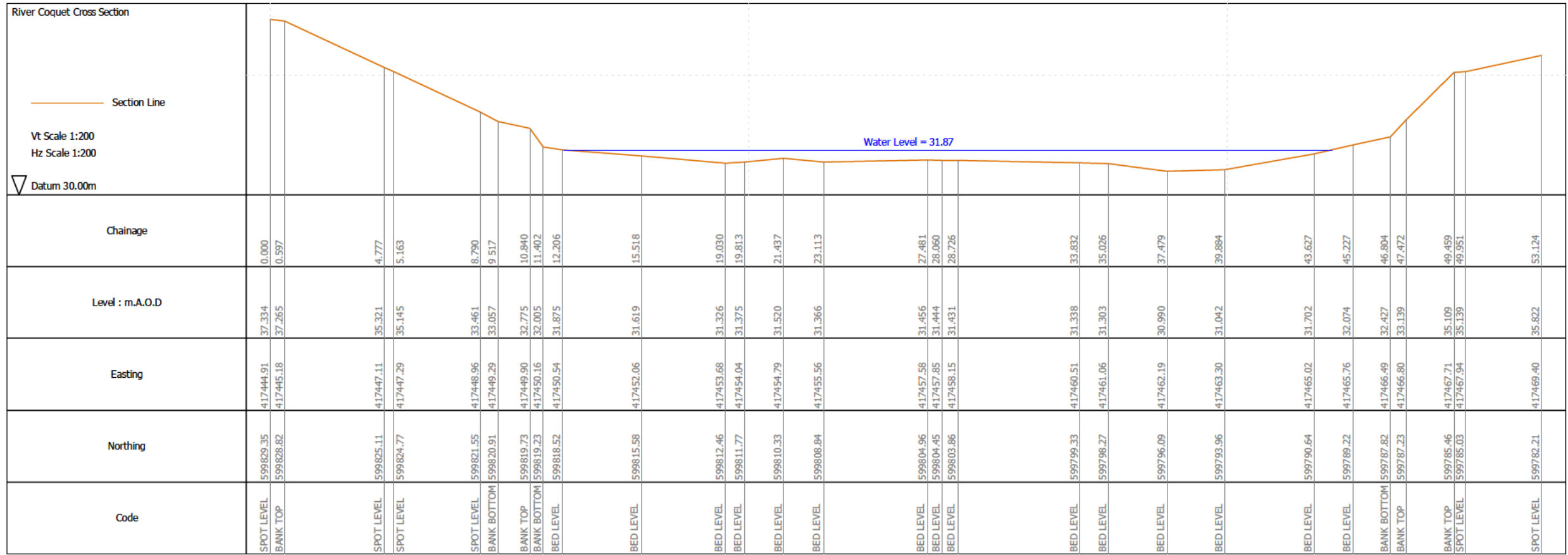
The purpose of this meeting was to discuss the EA's Relevant Representations relating to the Geomorphology Assessment reports submitted as part of the DCO application for the Proposed Scheme. A 2D modelling approach, proposed by WSP, was discussed. This additional analysis is intended to provide reassurance that conclusions of geomorphology studies previously undertaken to assess the Proposed Scheme are robust. Various limitations and benefits of using this approach were also discussed in addition to the outputs WSP intend to analyse and present. Alistair was broadly happy with the approach WSP has proposed and acknowledged the limitations therein. Alistair confirmed that, upon completion of the modelling and successful meeting of its objectives (i.e., to demonstrate no impact) the questions posed in the Relevant Representation queries would be satisfactorily answered and provide confidence in the results presented within the reports. The WSP presented preliminary model results and described its compilation, including rationale of Manning's values used to represent channel features.

ITEM	SUBJECT	DISCUSSION
1	Clarity of the cross section used to produce the physical parameters such as channel width, area, wetted perimeter, hydraulic radius. The cross section needs to be accurate, to scale,	[REDACTED] explained that 2D modelling is now being proposed to assess impacts of the scheme and to provide robustness to previous analyses, rather than continuing with the cross-section approach.

	and must show the 4 scenarios and the levels of the 7 flow regimes;	The cross-section will also be provided to ■■■ as part of the slide pack prepared for this meeting along with its location transposed onto a plan.
2	Relying on the 1 cross section to generate the conclusions feels weak. Further cross sections up stream of and downstream of the new pier will create a much better picture, and more confidence in the findings	WSP team in agreement, hence development of 2D model. Limitations of using LiDAR were discussed but ■■■ agrees that this approach is preferable to using single cross section for analysis.
3	Clarity on the flow data used. How were the numbers for velocity and discharge derived? What is the reasoning behind using a 485 and 525 yr flow, why no 100yr flow. The description of mean flow, Q10 and Q5 in the executive summary appears to be different to the flows used in Table 4.3;4.	■■■ explained that flow data was generated for purposes of flood risk assessment. ■■■ explained that hydrology has been developed for the 2D modelling. ■■■ confirmed that flows to be assessed are: 2, 10, 50, 100+cc and 200-year events.
4	Rational for using a single manning's number for all scenarios. The number feels high for a bedrock channel, especially mid channel where the majority of the sedimentary deposits are located;	■■■ and ■■■ explained the inclusion of multiple Manning's values in the 2D model to better represent roughness. ■■■ happy with values. ■■■ confirmed that a sense check on highest flow would be carried out.  ■■■ also provided further explanation of why a mix of Manning's values were used in the initial assessment report and a single value in the Parameter 10 report. The first report the Manning's values were set by the WSP geomorphology team with different values used to reflect out-of-bank flows for baseline, proposed and the construction phase.

		For the Parameter 10 report, the hydrological data was provided by ■■■, who had used a single value. Due to time constraints for completing the Parameter 10 assessment, it was not feasible to have the calculations re-run and meet the submission deadline.
5	The data collected during the sediment analysis does not truly reflect the composition and makeup of the mobile sediment within the reach. The inclusion of bedrock in the sediment analysis massively skews the results. The sediment analysis needs to focus on mobile sediment rather than the makeup of the bed;	Sediment data were explained and justified with photos of bar features. ■■■ discussed use of D16, D50 and D84 across the full suite of flows for robustness/completeness. ■■■ happy with this approach.
6	The footprint of the sheet piling and the foundations of the pier will be greater than the pier itself. The impact will be greatest during construction, has this been taken into account;	■■■ explained that sheet piling and working area will be modelled for full suite of flows. ■■■ explained that sheet piling will not exceed bed level once complete. ■■■ happy with this approach.  ■■■ will seek information on the construction period and the land take. ■■■ explained that some of this information may be high-level at this stage as it is often deferred to the Contractor.
7	Appendix 10.4 implied that the working area was vulnerable to low magnitude, high frequency flood events, meaning that the risk to the working area is high. Appendix 10.7 does not highlight this, therefore will this risk be adequately assessed and mitigated for within the CEMP; and	WSP team explained that this will be modelled. ■■■ confirmed this would be dealt with in the CEMP.
8	It's also worth noting that the cross sections shown in the two geomorphological reports is different. Why is this, and does it influence the outputs from question 1?	■■■ explained the difference and that it doesn't influence outputs for Q1.

9	A detailed field map/plan should be produced that shows in-channel features, the location of the different flow types, any depositional areas, along with the accurate location for the two piers and the footprint of any temporary works.	WSP team presented an preliminary Froude map as an indicator of flow types in reach. ■ happy with this approach.
10	Given that we now know that the existing pier was built within the active channel, does this change the interpretation of channel form downstream of this point? The previous summary suggests that the widening of the channel, the formation of the bar etc. and natural processed. Is it possible that this change was driven by the work associated with the first bridge?	This was discussed based upon new information relating to the construction of the existing bridge. A revised description will be provided in the technical note being produced. No evidence of scour was observed due to the river training works for the existing bridge pier.



NOTES  
Datum: Ordnance Survey Datum (OSDM15)

SURVEY LEGEND

REV.	DETAILS	ORN	CHD	DATE

STATIONS



Project / Drawing Title  
**A1 Morpeth to Felton  
River Coquet  
Cross Section**

Scale 1:200	Size A3	Date 07/03/2019
Drawn By R Lorimer	Checked By A Moffat	Approved By S Smith

Drawing Name / Number  
**River Coquet  
Cross Section**

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