

Contract:	Isles Quarry East	Contract No:	47061277
Subject:	Culvert Diversion	Date:	13/03/21
Place:	EA offices, West Malling		

Present:	Name	Company
Distribution:	Neil Gunn (NG)	Environment Agency
	Mike Wells (MW)	URS
	Helen Burton (HB)	URS
	Kinga Wec (KW)	URS
	As above plus	
	Niall Connolly	Environment Agency

ITEM	DESCRIPTION	ACTION
1.0	<p>Introductions and General Observations</p> <p>For the benefit of all parties, MW presented a brief summary of the scheme.</p> <p>Culvert is in very poor condition, and the EA has been taking legal /enforcement actions against Hanson to restore it. The agreement between Hansen and EA has been reached that any development taking place will be conditioned to the culvert reinstatement</p>	
2.0	<p>Culvert Diversion</p> <p>EA Requirements with regards to the culvert diversion:</p> <ol style="list-style-type: none"> 1. New culvert to be as straight as possible 2. Will require trash catching and sedimentation arrangements to be installed to EA specification 3. All covers to be accessible from the roads not the private gardens 4. No building allowed on top of the new culvert. 	

ITEM	DESCRIPTION	ACTION
3.0	<p>Modelling</p> <p>The existing EA model of the River Bourne and Coult Stream was constructed by Mott MacDonald as part of their SFRM framework in 2011. This has been requested through their External Relations department and following payment, it has been agreed that a 500GB hard drive is to be sent by HB to Jo Bywater (EA) upon which she will provide URS with a copy of the model.</p> <p>The model is in ISIS-TUFLOW software using a 10m resolution grid size generated from 1m resolution LiDAR digital terrain model data to represent the floodplain. This simplification to a 10x10m grid is likely to have resulted in the discrepancies noted in the water levels relative to those at the site from the IQ West topo. NG agreed that increasing the resolution of the model in this area down to a 2x2m grid and incorporating revised topo-level data in the local vicinity would be sufficient to provide improved representation of the flood risk.</p> <p>The culvert beneath the site is currently represented in the ISIS 1D element of the model. This will be checked, retained and updated if necessary with data/info from the latest IQ West topo and CCTV surveys. The culvert was acknowledged to be in poor condition.</p> <p>The hydrology (inflows) of the existing model will be retained. It was agreed that depending on the extent of the existing model and ease of trimming it down, the extent of the model update is to span from either the very upstream extent or begin at the A25 road to the north, downstream to its confluence with the larger watercourse at Basted Bridge. Representation of water levels at the downstream boundary will be taken from the results at the nearest node along this watercourse in existing model.</p> <p>These components will represent the existing scenario model runs, to be run for as a minimum the following events:</p> <ul style="list-style-type: none"> • 1 in 20 year (functional floodplain) (Flood Zone 3b) • 1 in 100 year (Flood Zone 3a) • 1 in 100 year plus a 20% increase in flows for climate change (Flood Zone 3+CC) <p>Sensitivity test will also be required for the 1 in 100 year plus climate change event to test the impact on flood levels for variances in roughness (vegetation cover) and culvert inlet debris blockage scenarios (e.g. 60%, 90%). These model run results will assist in informing the design of the culvert replacement routing (or potential day-lighting layout).</p>	HB

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4.0	<p>For the proposed scenario, the model will need to incorporate the changes in land use and layout within the site, and the proposed re-routing/replacement of the culvert taking into account any change in length, size and requirement for a minimum of an 8m bylaw distance buffer for access. A trash screen will be required on the inlet if a culvert is retained in accordance with the EA’s design guidance and modelled as such. The proposed scenario geometry will be run for the same events above as the baseline scenario to identify the impacts on flood risk for various magnitude flood events as part of the FRA. Sensitivity test will also be required for the 1 in 100 year plus climate change event to test the impact on flood levels for again variances in roughness (vegetation cover) and replacement culvert inlet debris blockage scenarios (e.g. 75%, 90%, 100%).</p> <p>Should Crest wish to make a challenge to the existing EA Flood Map to incorporate any new hydraulic modelling results (and as such potentially improve the value of the proposed houses if the modelling renders them outside the floodplain), the modelling will need to comply with the EA’s SFRM2 framework specification (of which URS are an approved consultant with Capita Symonds, and as such have significant experience in producing these). This will involve the running of an increased number of magnitude events (1 in 5, 10, 50, 75, 1000 year etc.) through the model and additional detailed mapping and tabulated results outputs.</p> <p>HB is to review the model once received and compile a detailed methodology incorporating the above for review by NG. Following the incorporation of any necessary comments from NG, the methodology proposal with associated costs will be presented to Crest. Should the extent of the model provided be insufficient for the purposes of this study, NG stated that URS could request further data at no additional cost.</p> <p>NB also stated that a Water Framework Directive assessment would not be sought by the EA for the works in specific regard to the re-routing/replacement of the culvert as any such works would provide betterment to that of the existing scenario.</p> <p>General Information</p> <p>Run-off discharge rate from the proposed development to be attenuated to that of the existing development.</p> <p>It was agreed that any temporary works and phasing of such works should be agreed with the EA prior commencement on site.</p> <p>CCTV of finished culvert should be passed to the EA to demonstrate the condition of the new diversion.</p> <p>NG suggested asking Hansen for the As Built information with regards to the culvert, but due to the age of the culvert it is very unlikely to obtain any original design information.</p> <p>Investigation of potential contamination and landfill will be required at some stage in order to evaluate risks to the groundwater.</p> <p>NG suggested that the fishery team at the EA should be consulted as part of the culvert replacement work.</p>	HB

Minutes prepared by: Mike Wells/Kinga Wec/Helen Burton