



Infrastructure Design  
 Argyll and Bute Council  
 Civic Centre  
 38 East Clyde Street  
 Helensburgh G84 7PG

**FLOOD RISK MANAGEMENT - OBSERVATIONS ON PLANNING APPLICATION**

<b>Planning Ref No:</b> 2017/0062/DET  <b>Design File Ref:</b> R122004/  <b>Date Received:</b> 3 March 2017  <b>Planning Application:</b> Full Type	<b>Site Grid Reference:</b> 210186 700336 <b>Applicant:</b> Peter McKerral & Co Ltd <b>Proposed Development:</b> Erection of new office premises <b>Location:</b> Sawmill Balliemeanoch, Strachur, Argyll And Bute <b>Documents Submitted:</b> Planning application, plans, supporting statement, Flood Risk Assessment
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RECOMMENDATION		No Objections / No Objections subject to Conditions / Refuse / Defer Decision			
<b>FLOODING AND DRAINAGE CHECKLIST</b>					
Meets Requirements- Yes/No/Not Applicable					
1. Fluvial/Coastal/ Pluvial Flood Risk Management		2. Surface Water Drainage Proposals		3. SUDS Design and Implementation	
(a) Records of previous flooding incidents at the design location included in the application	Yes	(a) Drainage Layout and construction details provided with locations of surface water discharge shown.	N/A	(a) SUDS required and adequate levels of treatment provided as detailed in WAT-RM-08(SEPA)	N/A
(b) Site lies outwith flood plains as indicated by SEPA Fluvial & Coastal Flood Maps for the required return period (1:200 year event).	No	(b) . Design calculations for proposed SWD system including freeboard allowance submitted. The 1 in 200 year plus CC flood event contained on site	N/A	(b) Design Calculations and construction details in accordance with CIRIA C753 or other approved provided and meets requirements	N/A
(c) Do proposed FFL's exceed 1 in 200 year event plus CC plus 0.6 m freeboard. For coastal sites CFB level used with allowances for UKCP09 CC, wave height plus 0.6 m freeboard	Yes	(c) Existing site drainage identified and proved. Capacity and ownership identified. Relevant permissions granted for connections or removal.	N/A	(c) Section 7 Agreement with Scottish Water required and agreed between Roads Authority & Scottish Water	N/A
(d) Flood Risk Assessment provided and meets requirements	Yes	(d) ) Method statement detailing surface water containment during construction provided and meets requirements of GBR's detailed in WAT-SG-12(SEPA)	N/A	(d) Suitable maintenance regime for SUDS documented and agreed by all relevant parties in application	N/A
(e) Methodology for estimating run off and design flows acceptable	Yes	(e) Drainage Statement/Assessment provided as detailed in Drainage Assessment- A Guide For Scotland SUDSWP and relevant Planning Advice Notes (PAN)	N/A	(e) Site investigation / Soil Classification of site and method of determination for permeability provided and meets requirements	N/A
(f) Overland Flow risk, to and from site estimated and cut off drainage or other measures considered appropriate	Yes				

Item Ref.	COMMENTS
1	The site is located at the old Balliemeanoch sawmill. The site is bounded by the River Cur to the north, the A815 to the west and open ground to the south and east. Site access is from the minor road adjoining the A815. From the available Ordnance Survey (OS) map information, the site is located at an elevation approaching 40 metres above Ordnance Datum (mAOD).
1a	Some limited information pertaining to historical flooding at the site has been supplied with this application. In the more general area, the local press reported the River Cur bursting its banks in October 2014 and associated flooding on the A815. The Flood Risk Assessment (FRA) "Strachur Sawmill, Strachur, Flood Risk Assessment Report" dated 17 December 2015 and produced by Terrenus Land and Water has been submitted with this application.
1b	The site, including the location of the proposed building, lies within the indicative limits of fluvial flooding (medium likelihood) as shown upon the SEPA Flood Map 2014 with indicative depth of 0.3 m to 1 m. In addition, a small portion of the northern and eastern parts of the overall site lie within the indicative limits of surface water flooding shown upon the SEPA map with similar indicative depths.
1c	The FRA recommends that the final floor level be set to at least the 1 in 200 year plus climate change flood level plus 0.6 m freeboard. On the basis of the information supplied in "Table 2 – FRA Model Outputs" this appears to correspond to 38.07 mAOD (taken from the 1 in 200 year plus climate change flood level of 37.47 mAOD estimated at cross section 5).

1d	<p>In itself, the FRA is acceptable. The FRA quantifies the 1 in 200 year flood risk from the River Cur using acceptable hydrology and hydraulic modelling. The following comments are made on mitigation measures:</p> <ul style="list-style-type: none"> <li>The FRA identifies that the location of the proposed building lies within the estimated 1 in 200 year floodplain. However, the flood map included with the FRA also shows that the higher ground in the eastern part of the site boundary lies outside of the estimated 1 in 200 year floodplain. Best practice would be to re-locate the proposed building to this area, with the final floor level set to the 1 in 200 year flood level plus allowances for climate change and 0.6 m freeboard (estimated to be 38.32 mAOD in this location given a 1 in 200 year plus climate change flood level of 37.72 mAOD for cross section 4, per “Table 2 – FRA Model Outputs”).</li> <li>If re-location is not possible then development at the proposed location would need to either use underbuilding with flood resilient material or be linked to appropriate compensatory floodplain storage in order to minimise floodplain storage losses. The use of underbuilding would likely necessitate a floor level higher than the 1 in 200 year plus climate change plus 0.6 m freeboard but could avoid the complexity of compensatory floodplain storage design.</li> <li>The FRA proposes the installation of an owner operated flood warning system with a water level sensor and siren. This proposal is acceptable. In addition, the “Proposed Site Plan, February 2017” shows an elevated pedestrian way from the proposed building to the A815.</li> <li>The FRA recommends raising the access road level. If implemented, then appropriate flow pathways around or through the raised road should be incorporated to minimise the effects on existing flow paths.</li> </ul>
1e	<p>A flow of 101.7 m<sup>3</sup>/s has been estimated for the 1 in 200 year event on the River Cur using the FEH Rainfall Runoff method. This flow is acceptable and is similar to that estimated for a site upstream (planning application 2015/0053/DET).</p>
1f	<p>Overland flow risk has been considered and the FRA recommends use of a swale to assist in maintaining flow pathways. This proposal is acceptable.</p>
2-3	<p>Single property.</p>

<b>CONDITIONS/REASONS FOR DEFERMENT</b>	
	<p>It is recommended that planning conditions to the effect of the following be attached to any planning consent granted for this application:</p> <ol style="list-style-type: none"> <li>Local flood alarm system and flood plan (including evacuation plan) to be implemented.</li> <li>Final floor levels to be set to at least the 1 in 200 year plus climate change plus 0.6 m freeboard, with additional adjustments dependent upon final building location and design. Building within the 1 in 200 year floodplain should incorporate either appropriate underbuilding or compensatory floodplain storage.</li> <li>Swale to maintain flow pathways to be implemented with respect to a 1 in 200 year plus climate change event.</li> </ol>

<p><b>Signed :</b>JBA Consulting  <b>Position:</b>  <b>Organisation:</b>JBA Consulting</p>	<p><b>Contact No.:</b> 0131 319 2940  <b>Date:</b> 20 March 2017</p>
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