

FLOOD RISK ASSESSMENT

**PLANNING APPLICATION FOR OUTBUILDINGS, STORAGE AREAS AND STRUCTURES
RELATING TO RECYCLING FACILITY (RETROSPECTIVE)**

TO

LAUREL LODGE FARM, HURN ROAD, HOLBEACH HURN

1. The Flood Risk Assessment is specific to application PL/0145/22 for retrospective outbuildings and structures relating to recycling facilities.
2. As identified in the Paul Hands Consulting Flood Risk Assessment for the main site:
 - I. the site has a hazard classification of 'danger for some' in both the 0.5% (1 in 200) and 0.1% (1 in 1,000) year events,
 - II. the eastern extent of the site may flood to a depth of between 0.00m and 0.25m in the 1.0% Fluvial and 0.5% (2115) Tidal Breach Event.
 - III. the site is not susceptible to flooding in the event of a flood defence breach in the 1.0% Fluvial and 0.5% (Present day) February 2017 Tidal Breach Event.
 - IV. the eastern extent of the site has a "Low Flood Hazard, less than 0.75" and the mapping suggests that the Flood Hazard throughout the rest of the site is considered to be less than low in the 2115 Tidal Breach Event.
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 - VI. the Residual Flood Velocity in the (2115) Tidal Breach Event across most of the site is anticipated to be 0.00 m/s with only the far eastern extents of the site falling within the 0.00 m/s and 0.30 m/s range.
 - VII. the Residual Flood Velocity in the (Present day) February 2017 Tidal Breach Event is anticipated to be 0.00 m/s.
3. Site investigation was undertaken during 16th June 2021 by Paul Hands Consulting Ltd. The investigations revealed perched groundwater with poor infiltration rates. The works confirmed that the infiltration is not a practical drainage solution for the development.
4. The peak discharge rate of 7l/s into the adjacent IDB watercourse has been agreed in principle with the IDB. The site levels vary between 3.3mOD and 3.6mOD and the receiving watercourse is only 1.2m deep (2.1mOD). As such, a pumping station is required at the downstream end of the site.
5. The IDB has requested that during extreme flood events within the catchment that the pumping station is switched off.
6. There is over 10,000m² of yard area generally at a level of between 3.5mOD and 3.6mOD which could safely store additional flood water upto a depth of 50mm during periods where the pumping station is switched off. This would provide at least an additional 500m³ of storage without affecting operations within the development.

7. The material stored on site is non hazardous material and would not cause pollution to water sources.
8. Identified in the EWE Associates Ltd technical note 1 The proposed MicroDrainage models have been simulated with the 1 in 100 year plus climate change (40%) return period design storm events with durations of 15, 45, 60, 180, 360, 420, 600, 960, 1200 and 1440 minutes.
9. At the request of the Environment Agency seven day 10080 minute duration was also undertaken. The durations were run in both Winter and Summer profiles. It was found that the Winter profile was critical.
10. The table below shows a summary of the 1 in 100 year plus climate change model runs and the impact on the drainage system in terms of peak depth within the site and flow through the pumping station. The 1440 minute duration produced the largest flow through the pumping station and largest water level within the site. The modelled result for the 1440 minute Winter model run is provided at Appendix D. There was no flooding during this event.

Return Period	Profile	Duration (min)	Peak water level in site	Peak flow into ditch	Status
100 year+CC	Winter FSR	15min	2.942	7.0	OK
100 year+CC	Winter FSR	45min	2.755	7.0	Surcharge
100 year+CC	Winter FEH	60min	2.812	7.0	Surcharge
100 year+CC	Winter FEH	180min	2.917	7.0	Surcharge
100 year+CC	Winter FEH	360min	2.906	7.0	Surcharge
100 year+CC	Winter FEH	600min	2.986	7.0	Flood risk
100 year+CC	Winter FEH	960min	3.161	7.0	Flood risk
100 year+CC	Winter FEH	1200min	3.207	7.0	Flood risk
100 year+CC	Winter FEH	1440min	3.227	7.0	Flood risk
100 year+CC	Winter FEH	10080min	2.565	7.0	Surcharge

11. It is proposed that the material stored will be on insitu ground level which would be approximately at a ground level of between 3.60 and 3.85m AOD which is a minimum 370mm above the 100 year plus climate change level in the event of flooding.
12. The above provides evidence that materials can be stored safely on site without risk of flooding.

Your Sincerely