# FLOOD RISK ASSESSMENT

Proposed extension to sports pitches and community facilities
at Land off Westhead Road
adjacent to Croston Sports Club

For

Croston Together on behalf of
Croston Sports Club and Croston Community Centre

**BRAMLEY-PATE + PARTNERS**
Chartered Architects
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**Proposed extension to Sports Pitches and Community Facilities**
**Land off Westhead Road, Croston**

**Introduction**

The site consists of farmland amounting to some seven acres, which has never been developed and has been open grassland for many years, mowr twice a year and occasionally grazed by sheep.

It is bounded to the South by Westhead Road and a pair of semi-detached formerly police houses, to the west by existing sports fields, to the north by a watercourse which is designated as a main river by the Environment Agency and to the east by existing gardens of houses.

Most of the site is included in Flood Zone 2 on the E.A. Flood Map indicating a moderate risk of flooding. A small area along the southern boundary to Westhead Road is in Flood Zone 1 – not liable to flooding. This part of the site is some 7.8m above O.S. datum and the site slopes very gently to the northern boundary – the watercourse.

**Sources of Flooding**

| Flooding Source | Identified Risk | Source | Water Route |
|---|---|---|---|
| Fluvial | Yes | River Yarrow<br>River Lostock | Water backing up from river over topping flood defence wall or from watercourse to northern boundary |
| Tidal | Yes | River Yarrow | Water backing up from river over topping flood defence wall |
| Groundwater | No | | |
| Sewers | No | | |
| Surface Water Run On | Yes | | Overland flow in heavy rain |
| Surface Water Run Off | No | Higher Land to South incl. Westhead Road, housing etc, gardens etc. | |
| Reservoirs, canals and other artificial sources | None | | |

The main Flood Risk at this site comes from the tidal River Yarrow, the channel of which is some 200m to the south of the site or the tidal River Lostock to the North. These rivers flow into the River Douglas, then into the River Ribble and out into the Irish Sea.

The watercourse on the northern boundary which actually drains this site flows into the River Lostock just before its confluence with the River Yarrow.

For many years, Croston has had problems with flooding at times of very heavy rain coinciding with very high tides.

Much of the surface water drainage in Croston flows into the River Yarrow or River Lostock (to the north) via ' sluice flap valves' which open when the water level is below them in the river and close if it rises above them, preventing water flowing back. However, when the valves are closed surface water landing on the ground can not discharge and is prone to building up and flooding the surface area when the level in the flood protected Rivers Yarrow or Lostock is still below the top of the flood walls.



The watercourse to the north of the site flows into the Lostock through just such a sluice flap valve.

**Historic Flooding**

The northern part of this site has flooded periodically both due to general flooding in Croston, and due to the culvert which takes the northern watercourse under the railway embankment becoming blocked with silt and detritus. This culvert is the responsibility of the Environment Agency and they do periodically dredge this.

Croston has a history of flood events culminating in the 26th December 2015 when the River Yarrow reached a level 2.99m above its normal flow level and much of the centre of Croston was inundated.

However in 2017 the 'Croston Flood Risk Management Scheme' was completed by the Environment Agency to store flood water to the east of Croston, during very heavy rainfall to avoid it passing downstream and flooding Croston. The Lower Yarrow Flood Action Group feels that this has been a considerable improvement as the periods of surface water being unable to flow into the rivers when their levels are 1.5m above their 'normal flow' levels has been reduced.

**Surface Water Flood Risk**

There remains a flood risk to the majority of the site but as this is a grass field now and will remain grass playing fields or other flat porous surfaces the facilities will not suffer damage from relatively short term flood events.

The proposed changing rooms on this site will be substantially constructed in a manner that will resist water damage and will be set at a floor level of 8.00m above O.S. datum which will be above the Flood Zone 2 level according to E.A. mapping. The community building is situated on the land that is already in Flood Zone 1 and

proposed finished floor levels will be raised a minimum of 150mm above that land and this is therefore unlikely to suffer flooding in a 1 in 100 year worst case flood event.

**Flood Risk from Rainwater from the Site**

As the area of the site will be porous surfaces, grass, gravel etc. the likelihood of run off of rainwater from the site increasing from existing levels is minimal. The changing rooms and community building will be fitted with rainwater storage and attenuation systems to both harvest, store and slow down run off of rainwater from the roofs and these are very modest in relation to the area of the site overall.

**Conclusion**

Although most of this site is including Flood Zone 2 the nature of the proposed use – playing fields and surfaces – are by their very nature not much affected by flooding and much the same can be said for the changing facilities.

The area occupied by the proposed community building is not actually within Flood Zone 2 at present and this will be further raised by the construction.

Therefore the actual likelihood of a serious problem to the proposed development on this site caused by flooding is minimal, as is the likelihood of problems being caused elsewhere.