The Moors at Arne, Coastal Management Project

Frequently asked questions

November 2018

Flood Risk

What are the different types of floods?

1. from rivers and the sea (Environment Agency (EA) published mapping)
2. from surface water (flash flooding from heavy rainfall) (EA published mapping)
3. from surface water drainage below ground
4. from groundwater travelling through the soils.

How is flood severity described?

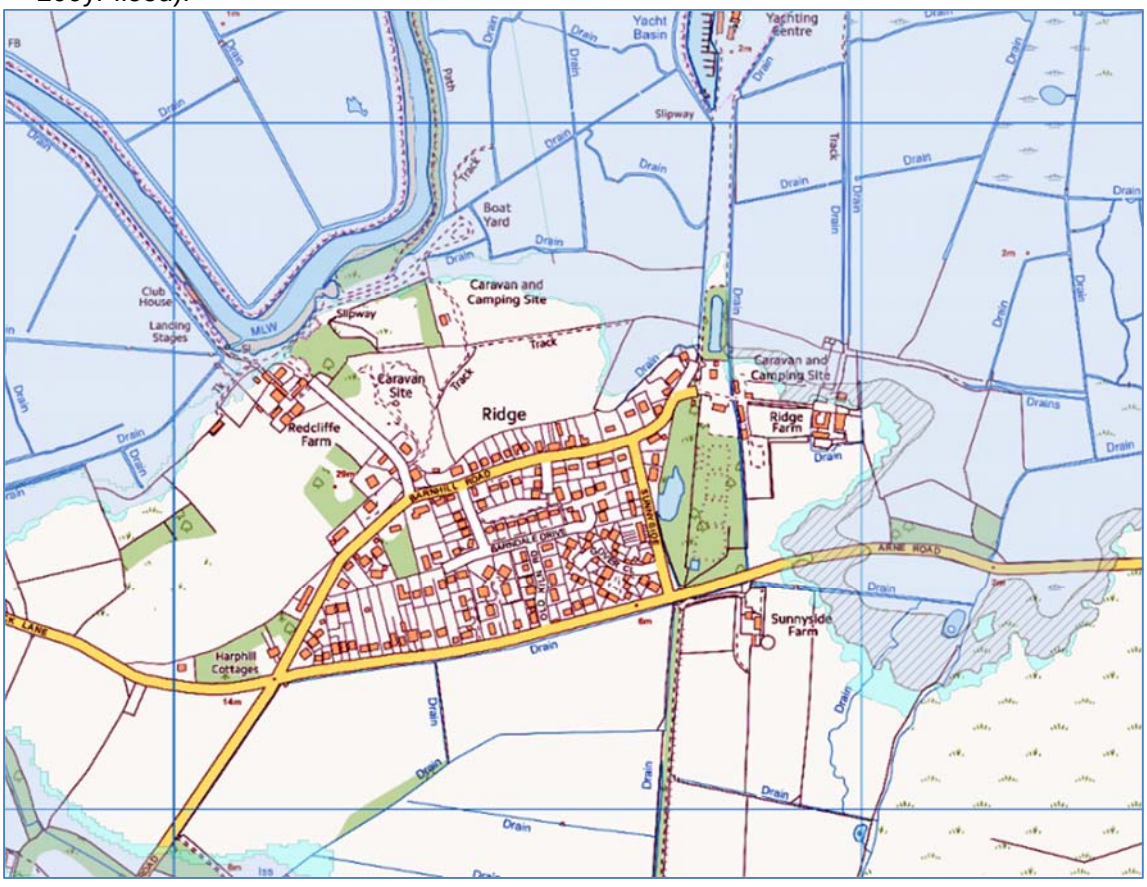
Floods are described by their chance of occurring. For example:

- a '200-year flood' has a 0.5 % chance of occurring in any given year. This will be a very large flood, as it happens very rarely
- a '1yr' or 'annual' flood has a 100% chance of occurring in any given year. This will be a much lesser flood as it happens frequently
- a '30-year storm' is used to describe a rainfall event that has a 3.33 % of occurring in any given year.

What is the existing flood risk in Ridge?

1. The current **flood risk from the River Frome and the sea** is shown below and can be found on **https://flood-warning-information.service.gov.uk/long-term-flood-risk**

   It can be seen that the mapped flood risk (rivers and the sea) affects 1 property in Ridge. All other properties are not affected as they are situated higher than the floodplain (1 in 200yr flood).

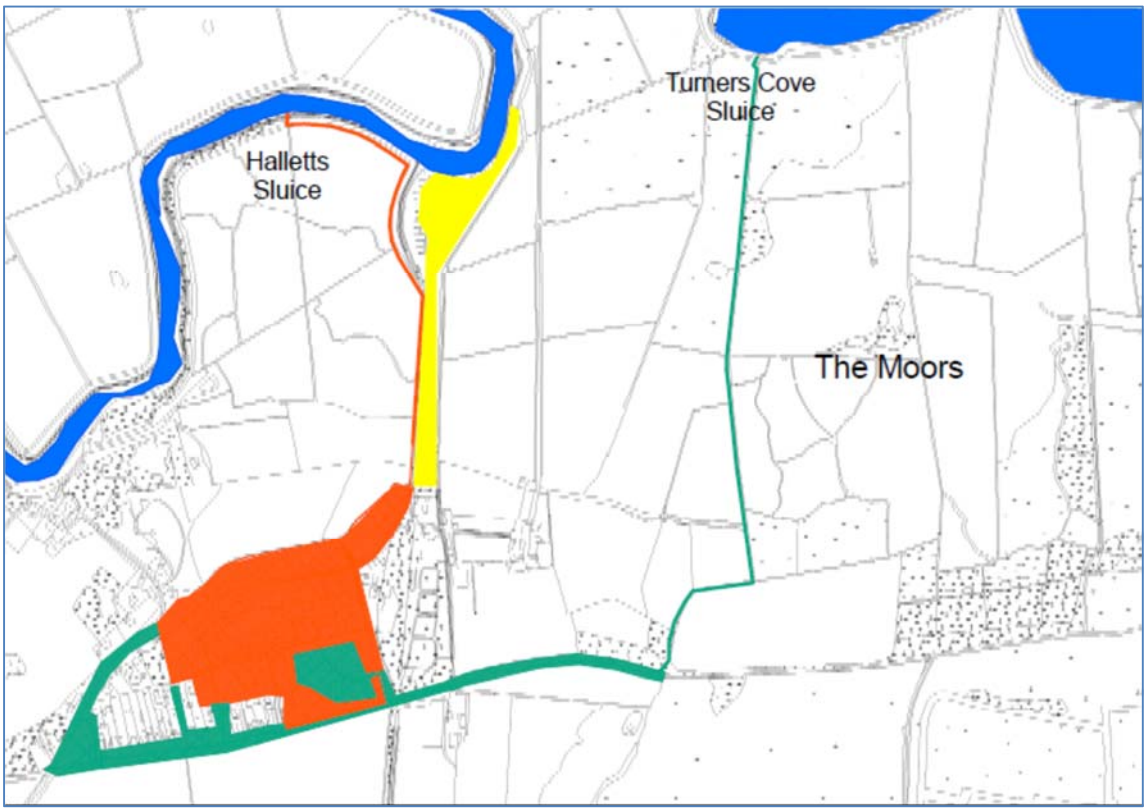


2. The current **surface water flood risk mapping** (flash flooding from heavy rainfall) is shown below, and can also be found on https://flood-warning-information.service.gov.uk/long-term-flood-risk

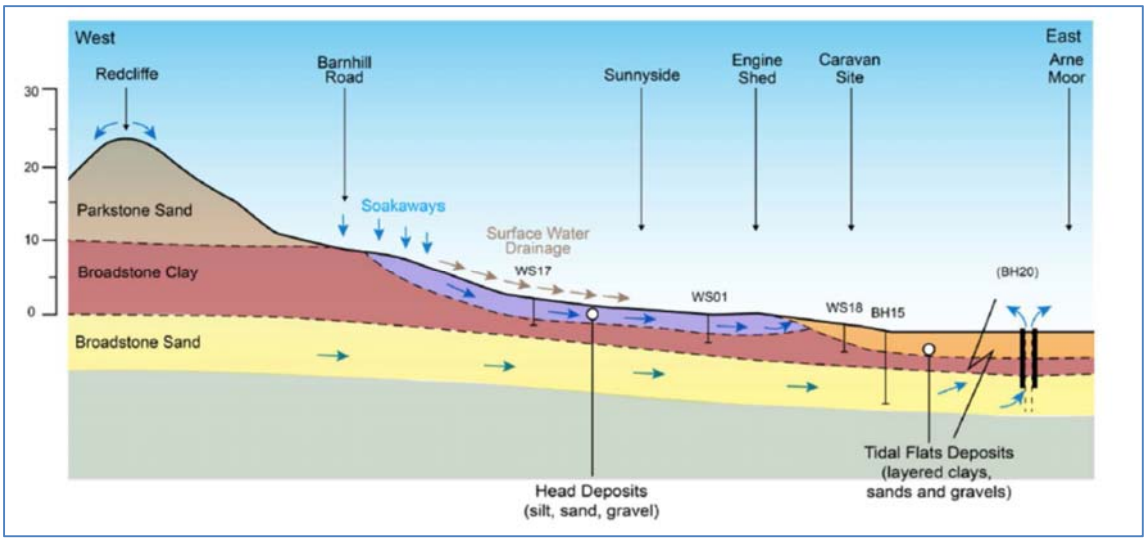
   It can be seen that there is an overland route for rainfall through the centre of Ridge, with the 1 in 1000 yrs risk being shown below. This route flows out to the meadows north of Ridge, and to the west side of the Ridge Wharf causeway.
   It can also be seen that the Furzebrook Stream catchment has an existing mapped surface water flood risk, which affects the Arne Road.

3. **Surface water drainage** below ground has no published risk mapping. However the Environment Agency has carried out a comprehensive investigation into the drainage in Ridge.

   The results show that the drainage system has 2 outfalls, as shown below. Three-quarters of the drainage outfalls at Halletts Sluice on the River Frome upstream of Ridge Wharf (shown in orange below). The other quarter of the drainage outfalls to the Arne Road ditch, which then drains into the Furzebrook Stream (shown in green below). The Furzebrook Stream outfalls to the Wareham Channel at Turners Cove Sluice. There are houses at the upper part of Ridge that have no drainage system, but instead have soakaways (shown as no colour below).



4. **Groundwater** travelling through the soils does not have published flood risk mapping. However the Environment Agency has carried out a comprehensive groundwater investigation for Ridge and The Moors. Boreholes were installed and the groundwater levels were monitored for several months. The results are currently still draft, but the overview is thought to be:



It can be seen that the groundwater system at Ridge (purple) seems to be separate from the groundwater system at The Moors (orange and yellow). The groundwater observed in Ridge village comes from rain falling on the Redcliffe area, and groundwater observed at the Moors is much deeper and comes from farther away.

What effect will the project have on the existing flood risk at Ridge?

Any proposal developed by the project will have to demonstrate *no adverse impact* through a combination of its basic design and/or parallel control measures before it can be given approval.

1. **Flood risk from rivers and the sea**

   The single property that is currently within the published flood plain mapping, and which benefits from the presence of the river embankments, will continue to be protected by the height of the new set-back embankment. The project will not cause any more water to occupy the floodplain than is shown on the published map. This is because the map represents an extreme scenario of a tide / river flow of a rarity of 1 in 200yrs, which is the Environment Agency's standard gauge of coastal floodplain mapping. At this level, the existing river and harbour frontage embankments would be overtopped and submerged, as they are of a lower height than the tide height being represented.

   Therefore there will be no adverse impact to any properties from the River Frome or the sea from the project.

2. **Flood risk from surface water (flash flooding from heavy rainfall)**

   The project proposals will have no effect on the current drainage arrangements west of Ridge Wharf causeway, and therefore will have no effect on the surface water (flash flooding from heavy rainfall) flood risk for properties in Ridge.

   For the Arne Road surface water flood risk, the project will take the current risk into account when designing the storage area needed for the Furzebrook Stream.

3. **Flood risk from surface water drainage**

   The project proposals will have no effect on the current drainage arrangements west of Ridge Wharf causeway. Therefore there will be no effect on the surface water drainage flood risk for those properties in Ridge where the drains outfall to Halletts Sluice (highlighted in orange on the map shown earlier).

   The project will also have no effect on the surface water drainage flood risk for those properties where the drains outfall to the Arne Road ditch, because all the properties are situated very high above the floodplain (at least 3m above the 1 in 200yr tide level). Water on The Moors cannot cause the drains to back-up at this height because the Arne Road ditch is an open ditch, and the water would spill out.

4. **Flood risk from groundwater**

   Groundwater under Ridge village typically emerges at a change of slope, and for the majority of Ridge this would be into the existing drainage ditches that run along Barnhill Road and Sunnyside. This water flows out into the meadows behind Rivendell and then to Halletts Sluice. This route will not be affected by any additional water on The Moors because it is separated by the Ridge Wharf causeway and the proposed lagoon embankments. Therefore the project will have no impact on the groundwater flood risk for the majority of Ridge village.

   Groundwater emerging near Ridge Farm and Oakridge may find its way into the ditch to the east of Ridge Wharf causeway, and the scheme design will allow for this water to flow away.

The project is currently studying the groundwater flood risk of Ridge Farm specifically, to understand whether there would be impacts from the project design. If such impacts are discovered, then the project will amend the design (ie implement mitigation or control measures) to ensure no adverse impact.

The project investigations have demonstrated that the tide has no observable effect on the level of surface or groundwater in or around Ridge.

What affect will the project have on the sewage pumping station on Barnhill road?

The pumping station at the lower end of Barnhill Road, operated by Wessex Water is outside of the mapped floodplain for the River Frome. Any existing pressures on the sewer network from local surface water and groundwater would not be made worse by the Moors at Arne project.

How will flow in drainage ditches and the Furzebrook Stream get from the landward side of the new embankment out into Poole Harbour?

There will be new drainage outlets (eg flap valves) built into the set-back embankment to allow water through to the intertidal area, or to continue the existing ditch route. These outlets will be non-return, so that the tide cannot travel back through the embankment.