

Lead Local Flood Authority
Section 19 (Flood and Water Management Act
2010)
Flood Investigation Report

Report Title:

Homeport, Whapload Road,
Lowestoft

Report Reference(s):

| | |
|-------------|--|
| FW2019-1213 | |
| FW2019-1522 | |
| | |
| | |

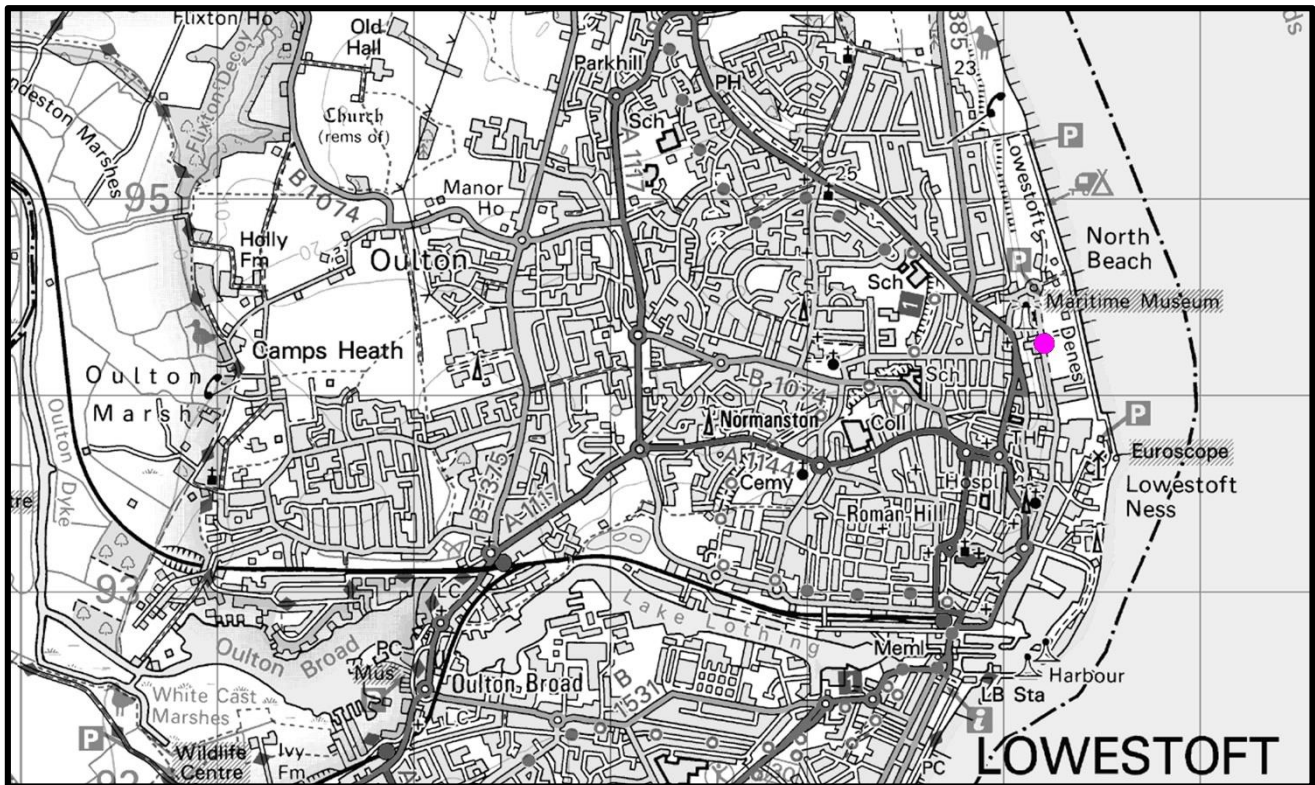
| | Name | Date |
|-----------------------|--------------------------------------|-------------|
| Lead Officer: | Steven Halls | |
| Created by: | Steven Halls | 10/11/2019 |
| Checked by: | Matt Hullis | 21/11/2019 |
| RMA Review: | Suffolk County Council (Highways) | 28/11/2019 |
| Approved by: | Matt Hullis | 23/01/2020 |
| Date Published | | 03/03/2020 |

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- 1.0** Suffolk County Council as a Lead Local Flood Authority (LLFA) has determined that in accordance with criteria, it considered it necessary or appropriate to carry out an investigation into this flood event in accordance with Section 19 (1) of the Flood and Water Management Act 2010, and in accordance with Section 19 (2) of the Flood and Water Management Act 2010, to publish the results and notify the relevant risk management authorities (RMAs).
- 2.0 Reference/s:**
- 2.1 Location:** Homeport, Whapload Rd, Lowestoft, Suffolk
- 2.2 Flood Event Date:** 6th October 2019
- 2.3 Reported to SCC Date:** 7th October 2019
- 2.4 Investigation Commencement Date:** 15th October 2019
- 2.5 Criteria for investigation:**

| Criteria for an investigation (as per Appendix D of the Suffolk Flood Risk Management Strategy): | ✓/X |
|--|------------|
| There was a risk to life as a result of flooding? | x |
| Internal flooding of one property (domestic or business) has been experienced on more than one occasion? | ✓ |
| Internal flooding of five properties has been experienced during one single flood incident | ✓ |
| Where a major transport route was closed for more than 10 hours as a result of flooding | x |
| Critical infrastructure was affected by flooding | x |
| There is ambiguity surrounding the source or responsibility of a flood incident | x |

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2.6 OS Grid Reference: TM 55210 94258

2.7 Extent of flooding: A total of 8 properties flooded internally with another 2 with external flooding. Main private forecourt flooded along with internal access roads. Total affected area 0.09Ha (900m²)

2.8 Effect of flooding: Properties internally flooded up to a depth of 300mm, depths range between 100mm - 300mm as the site is sloped. Stormwater only, no recorded observation of foul affluent.

2.9 History: Previous flooding events occurred in 2010 and 2011, also 2013 although tidal related.

2.10 Flooding Source: Capacity of surface water drainage systems (highway and private drainage) exceeded due to intense storm event on the 6th October 2019. Exceedance volumes accumulated at the bottom of the slope where properties have been built.

2.11 Causes:

- Substantial amount of rainfall over a short duration (60mm total rainfall in 10hrs) – storm was however double peaked with bulk of total rainfall (50mm) in the first 7hrs equating to a 20yr storm (5% AEP), a second peak of 9mm occurred over 1hr (2yr return period). The collective storm had a return period of 25 years

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(4% AEP). (*return periods based on data collected from Environment Agency rain gauges and FEH13 Depth Duration Frequency curves).

- Homeport sits at the toe of a coastal cliff face, the site slopes from Whapload Rd (3.3mOD) towards the cliff toe (2.9mOD), this backfall means that any direct rainfall onto the site or overland runoff from the highway will flow westerly towards the cliff toe where it ponds. The properties sit within this low point. The site is identified as a surface water flood risk zone on national mapping.
- Lack of safe exceedance routes for runoff around buildings means the properties suffer from the localised ponding at the front of the buildings.
- Whapload Rd also converges to a low spot (small depression) outside Homeport, thus promoting runoff from both north and south directions to accumulate outside Homeport. Once this tops the kerb (some drop kerbs) it conveys into Homeport.
- Lack of highway drainage (i.e. gullies) along Whapload Rd exacerbates this issue of runoff from the highway. Although these measures can be overwhelmed during high intensity summer storms anyway.
- Appears to be no separate private sewerage system within Homeport. Residents complained that toilets were bubbling out. This suggests surface water and foul drainage are mixing and there is possibly a single system taking both foul and stormwater. Normal procedure is to have a separate system for stormwater and a sealed foul system. The evidence suggests this is not how the private drains have been designed.
- Although not directly a cause, there is distinct lack of disposal methods for surface water. Only a combined sewer system exists in Whapload Rd belonging to Anglian Water. There is no evidence of soakaways.
- No road closures – cars force water out of highway when in flood exacerbating the issue.

2.12 Additional Information:

- No property level resilience measures have been employed.
- Lack of access to site for emergency vehicles.

3.0 Risk Management Authority with Relevant Flood Risk Function

- Anglian Water: Surface water drainage maintenance, regulator & asset owner
- Suffolk County Council: Public highway maintenance, land & asset owner

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- Suffolk County Council: Lead Local Flood Authority

4.0 Recommendations:

- Homeowner(s) to add additional flood resilience measures to their properties i.e. property level resilience (PLR). Suffolk County Council via the Lowestoft Flood Risk Management Project (LFRMP) may be able to support the funding and implementation of this.
- Private drainage system must be investigated to establish whether both stormwater and foul water is discharged through it and whether it connects to the public sewer (Combined) or a soakaway? Private drainage should be surveyed and improved accordingly, especially if found to be connecting to combined system. Foul water should be sealed off to prevent the risk of polluted floodwater entering homes.
- Anglian Water to investigate whether Homeport drains connect to their system. If not, is there capacity in the combined sewer for a connection? Or at least for a separate private foul system?
- Depending on local groundwater levels and soil permeability, the forecourt areas in Homeport should be made into a pervious pavement. Likewise, existing private drains i.e. slot drains should be improved at the same time for intercepting stormwater more effectively and could be connected to porous sub-base. If levels allow, the camber of the forecourt should be changed to channel water safely through the site to areas away from door thresholds.
- Alternatively, an attenuation system for storing stormwater could be added underneath the forecourt with an outfall to the highway system (would require consent from SCC Highways).
- SCC Highways to survey and investigate state of the highway drainage in Whapload Rd and whether this connects to the AW combined sewer. Pending results of this, highway drainage to be improved accordingly in the area outside Homeport. Additional large double gullies should be installed. Recommend altering drop kerb level.

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4.1 Recommended Actions:

| Action | Responsible Authority | Timescale for response | Latest Progress Update for Actions |
|--|-----------------------|------------------------|--|
| Investigate road drainage in effected area, prioritise improvements to the system accordingly. | SCC Highways | 3 Months | SCC have completed CCTV survey. No actions decided yet until private system checked. |
| Private property owner(s) to survey private drainage system and establish its outfall? Improve system accordingly. | Landowner | 3 months | |
| Advise landowner of potential Property Level Resilience measures and funding opportunities. Support the implementation of suitable measures. | SCC Floods | 3 months | |
| Drainage and camber of the forecourt in Homeport to be improved (where levels allow). | Landowner | 3 months | |
| Anglian Water to comment on combined sewer and availability of further connections? | AW | 3 months | |