BROOKBANKS

1335 Swindon NEV

Technical Note No.38 Rv3: Condition 40 Flood Mitigation Strategy
3rd March 2022

1 Introduction

1.1 Brookbanks Consulting (BCL) is appointed by the Swindon Eastern Villages Consortium to provide technical support for a residential-led scheme development at South Marston and Rowborough to the east of Swindon, together with areas of mixed use comprising: community; employment; education; local retail uses; and formal and informal open space provision on land east of Swindon and north of A420.

1.2 This Report has been prepared in order to satisfy Condition 40 with respect to the outline planning application.

1.3 Condition 40 states

Flood Mitigation Prior to the commencement of the development, full details of the proposed mitigation measures where these were indicated to be "resolved by development" as outlined in Figure 3K and Appendix 2 of the approved Flood Risk Assessment by Brookbanks Consulting (dated 20/01/2017- ref 1335-1/FRA/01 Rev0), including a programme for implementation shall be submitted and approved in writing by the Local Planning Authority. The approved works for the development shall be completed in accordance with the programme agreed.

Reason: To ensure flood risk is not increased to the site and that the development does not increase the risk of flooding elsewhere; in accordance with Paragraph 163 of the S/OUT/13/1555/EDSN www.swindon.gov.uk/planning Page 14 of 24 National Planning Policy Framework (NPPF) and Policy EN6 of the adopted Local Plan 2026.

1.4 This note should be read in accordance with approved FRA ref 1335/1/FRA/01 Rev 0 (extracts included in the Appendices for reference) and the Surface Water Drainage report ref SWDR/01 submitted to discharge condition 41

1.5 A site visit was undertaken by the Brookbanks team in January 2022 to inspect the current drainage situation on site and update any recommendations where appropriate.

1.6 The general findings of the site inspection were that there was evidence of blockages and poor maintenance for much of the existing drainage. Where there was evidence of maintenance drainage ditches and outfalls appeared to be operating well with water flowing.

1.7 This following section sets out the next steps for the proposed improvement works.

2 Proposed Works

2.1 The Site Wide Surface Water Drainage Strategy (SWDR/01) sets out the proposals for dealing with the surface water run off from the site. A sustainable drainage network of swales and basins is proposed to serve the development, and this will include provision for the existing exceedance flow network. The proposals are shown in the extract from 1335- SK-100 Surface Water Drainage Strategy in Figure 2.1 below.

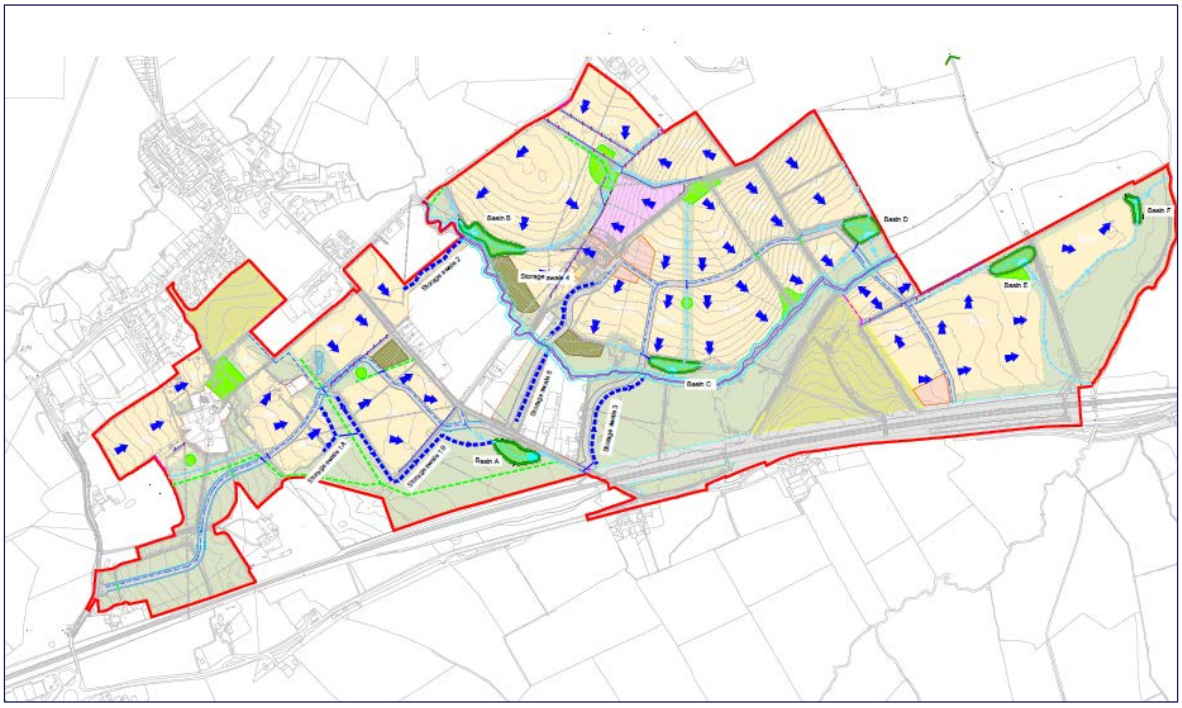

Figure 2.1 Surface Water Drainage Strategy

2.2 The proposed exceedance network is highlighted in green and will include shallow swales to convey the overland flow through the site to the identified outfall points. The extensive swale systems will follow the natural topography flowing through visible and managed green infrastructure corridors and open space areas, enhancing the natural landscape.

2.3 The surface water drainage network shown in blue will attenuate and treat runoff from the site. Through the introduction of the SuDS network there will be a reduction in volume and rate of runoff from the site and as any existing flooding issues downstream will be improved.

2.4 The combined blue and green network shown in Figure 2.1 will mitigate some of the flooding issues highlighted by South Marston Parish council. In particular this will be improved by the connectivity of the west to east South Marston and Rowborough areas of the site, allowing the exceedance flows to reach the South Marston brook as managed flows.

2.5 In addition, the specific measures agreed as part of the FRA (table 2.8 refers) are described in further detail below with photos extracted from the original Parish Council Report dated 2012

2.6 The development will be brought forward in phases and the specific measures will be designed and delivered in parallel with the the overall site construction programme. The proposed phasing strategy is set out in the extract below.

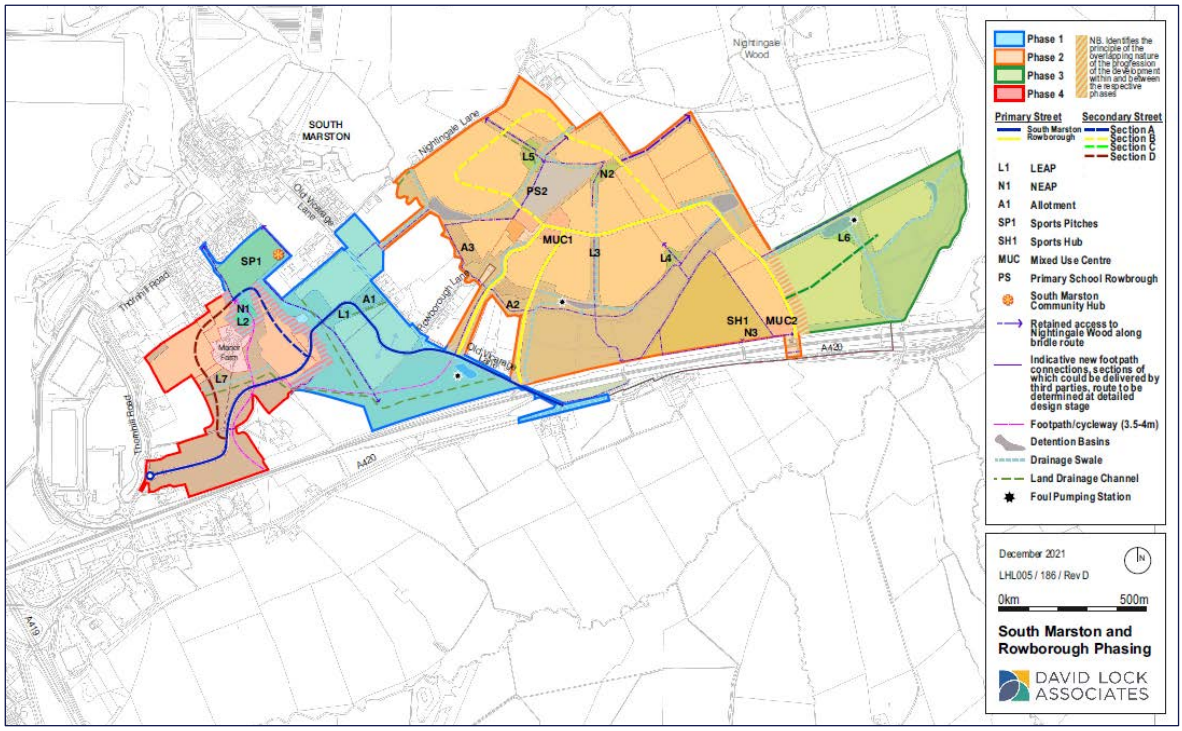

Figure 2.2 Extract from DLA Phasing Strategy dated January 2022

2.7 All works within the highway and the consortium ownership will be carried with approval from the LLFA and Highway Authority. If the proposals are outside of the consortium's ownership, a recommendation will be made to the LLFA that works are undertaken seeking agreement with the current landowner.

2.8 The areas identified for improvement are as follows

Location Reference	Location	Description	Mitigation	Resolved by development
1	Manor Park	Poor Connectivity	Improve connection to ditch	✓
2	Manor Park Pond	Missing Outfall	Confirm and upgrade outfall	✓
3	Manor Farm	Poor connectivity	Improve connection beneath road	✓
4	Mercure Hotel	Localised low spot	Improve drainage connectivity	✓
5	Old Vicarage Lane	Truncated ditch	Improve downstream connectivity	✓
6	Rowborough Lane	Poor Connectivity	Improve connection to ditch	✓
6	Rowborough Lane	Culvert blocked	Improve culverted sections	✓
7	Carpenters Arms	Culvert damage	Upgrade culverted sections	✓
8	Railway Fields	Poor Connectivity	Improve connection to ditch	✓

Table 1 Extract from FRA ref Figure 3k: Parish Council Flooding Locations

2.9 The approximate locations for the improvement works are illustrated in Figure 2.2 below.

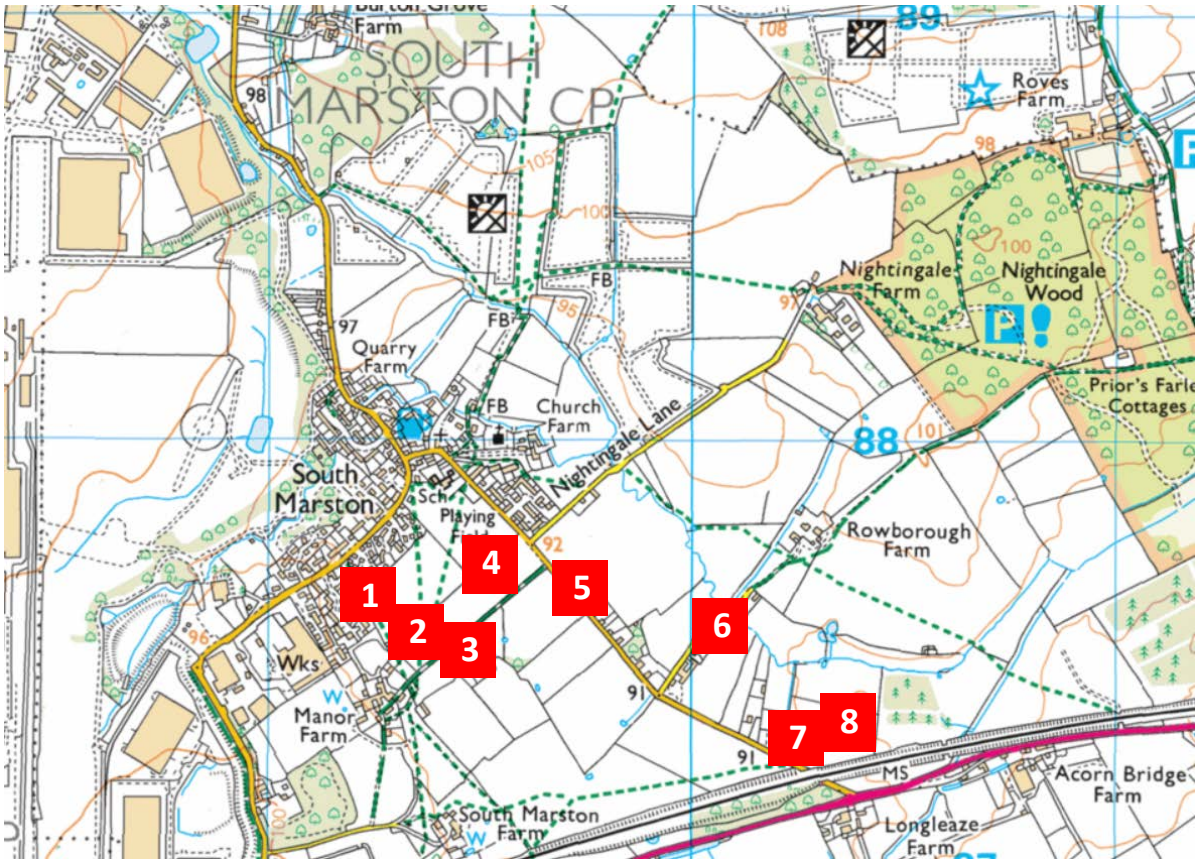

Figure 2.3 Mitigation Measure Locations

Ref 1– Manor Park

2.10 The Parish Council have identified an issue of poor connectivity to the south of Manor Park. There is an existing ditchcourse which runs to the east of the site. It appears that this ditch is blocked and overgrown resulting in flooding in the adjacent field.

Figure 2.4 Parish Council Photo - Manor Park Ditch Outfall

2.11 Recommendation –

- Dredge ditch and trim vegetation
- Ensure ditch connections are provided.
- Connect to site wide exceedance flow network to allow surface water to flow away
- Measures to be to be implemented as part of the delivery of the Phase 1 Open Space.
- The detailed drainage works provided as part of the this first phase of open space. The drainage strategy illustrates how this mitigation will incorporated into the wider SW flow network.

Ref 2 – Manor Park Pond

2.12 The Parish Council have identified a missing outfall at the existing pond referenced as Manor Park Pond. This outfall should be installed to direct surface water efficiently to the watercourse.

Figure 2.5 Parish Council Photo Manor Park Pond

2.13 Recommendation –

- Establish existing connection and outfall by survey.
- Construct headwall to formalise outfall.
- Measures to be implemented as art of the delivery of the Phase 1 Open Space. The detailed drainage works provided as part of the reserved matters for the open space will demonstrate how this mitigation will incorporated into the wider SW flow network.

Ref 3 - Manor Farm

2.14 The area to the east of Manor Farm is prone to flooding and it appears there are issues the existing drainage route crossing the existing road. It should be noted that the development does not have rights over this road (bridleway 4) and therefore mitigation works will need to have permission from the owner. The S106 has secured a mechanism between the developer and LPA for land transfer and subsequent delivery of a road connection, which may be delivered directly by the developer, or in the alternative, the Council.

2.15 The site wide strategy will provide a betterment to the existing situation as the flow routes are connected and will allow surface water run off to drain away.

Figure 2.6 Parish Council Photo - Manor Farm

2.16 Recommendation –

- Clear and widen existing 'v' channel within field to ensure connectivity to the proposed Surface Water network.
- Clear pipe crossing under road.
- Potential to replace pipe under road if agreed with owners
- Subject to s106 provisions, if the crossing is to be delivered by developers, the works will take place in parallel with the delivery of phase 1.

Ref 4 – Former Mercure Hotel Site

2.17 The Parish Council have raised a potential issue due to the localised low spot at the Former Mercure Hotel site, which is now under construction as a residential development known as Vicarage Gardens.

2.18 The recent site visit established that the residential development is underway at this site and that attenuation basins and outfall to existing ditches have been installed. The provision of this development drainage will ensure flows from this are site are managed to ensure no flood risk downstream of the site.

2.19 The land to west of the site has a natural low point that appears to pond as per the photo below. The works to the new site will improve the situation, however a route should be provided to allow water to drain away from the low point to the site wide network.

Figure 2.7 Parish Council Photo West of Mercure Site

2.20 Recommendation –

- Ensure connection of low point to the exceedance route network to allow surface water to drain away.
- Measures to be implemented as part of the delivery of Phase 1 open space. The detailed drainage works provided as part of the reserved matters for the open space will demonstrate how this mitigation will incorporated into the wider SW flow network.

Ref 5 – Old Vicarage Lane

2.21 The Parish Council have identified flooding issues as a result of a truncated ditch along Old Vicarage Lane. This ditch should be reinstated to provide the connection.

Figure 2.8 Parish Council Photo Old Vicarage Lane

2.22 Recommendation –

- Restore truncated section of ditch to match existing profile. Where necessary pipe to allow access crossings.
- To be implemented as part of the S278 new access works to create a new junction from Old Vicarage Lane to Phase 1 of the new development.

Ref 6 – Rowborough Lane

2.23 The Parish Council have identified issues with poor connectivity and a culvert blockage along Rowborough Lane

2.24 The site visit found evidence that the ditches along Rowborough Lane have been cleared recently and that there did not appear to be any blockages. It was noted that there are piped sections to allow access to properties and one piped section on the bend which did not appear to serve a purpose. This section could be deculverted to improve flows through the channel.

2.25 Recommendation –

- Deculvert piped section to improve connectivity and flows.
- Clear existing pipes that must be retained.
- Ensure connectivity to site drainage network is retained.
- Works to be undertaken when development commences within Rowborough, identified as Phase 2 of the development.

Ref 7– Carpenters Arms

2.26 The report from 2012 identified issue with a blocked culvert at the Carpenters Arms.

2.27 The site visit found that this culvert was still blocked and almost fully submerged.

Figure 2.9 Parish Council Photo Carpenters Arms Culvert

2.28 Recommendation –

- Clear existing pipe
- A CCTV survey to be undertaken to assess the condition of the existing culvert and understand if any repairs are required. If repairs are required, the works will need to be agreed with the highway authority.
- Clear and dredge the ditch up and downstream to ensure connectivity.
- Works To be undertaken when first phase works commence on S278 for A420/OVL works

Ref 8–Railway Fields

2.29 The 2012 report identified issue with poor connectivity in the railway fields to the east of Old Vicarage Lane

2.30 **Recommendation –**

- Ensure connection to the exceedance flow networks as per drainage strategy plan.
- Works to be implemented as Rowborough Phase bought forward.

3 Conclusion

3.1 This Report has been prepared in order to satisfy Condition 40 with respect to the outline planning application.

3.2 A site visit was undertaken in January 2022 to verify the current drainage situation on site.

3.3 In accordance with the site wide drainage measures, the report demonstrates how identified flooding issues will seek to be resolved through measures that include improved connectivity and better management of run off and exceedance flows delivered by the development.

3.4 In addition, this note has set out in detail the specific mitigation measures that were identified in the approved FRA ref 1335/1/FRA/0.

3.5 The phasing plan shows the sequencing of broad phases across the development and the specific mitigation measures will be brought forward in line with this approach.

4 Appendices

- Site Visit Notes

5 Limitations

5.1 A The conclusions and recommendations contained herein are limited to those given the general availability of background information and the planned usage of the site.

5.2 Third party information has been used in the preparation of this report, which Brookbanks Consulting Ltd, by necessity assumes is correct at the time of writing. While all reasonable checks have been made on data sources and the accuracy of data, Brookbanks Consulting Ltd accepts no liability for same.

5.3 The benefits of this report are provided solely to the members of the Swindon Eastern Villages Consortium for the proposed development only.

5.4 Brookbanks Consulting Ltd excludes third party rights for the information contained in the report.

Appendices

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1335 Swindon NEV

Technical Note 40: Site Visit; Flood Risk Assessment
10th January 2022

1 Introduction

Background

1.1 This Technical Note reflects the findings of the Site visit to Swindon NEV conducted by Siobhan Murphy and Hugo Smithers-Guerra on Monday, January 10th, 2022.
The weather conditions at the site showed a cloudy grey sky with occasional rainfall; upon arriving on site it could be seen that it had rained the previous day, and for the first 40 minutes of the visit there was light to medium rain. Temperature was 3° to 7° C. Before going on site.

1.2 The purpose of this note is to:

- Go over the Parish Council Flooding Identification, seen in the table below, (only locations marked with green tick).
- Review wider site drainage.

Photo Reference	Location	Description	Mitigation	Resolved by development
1	St Julan's	Manhole Blockage	Remove blockage	✖
2 - 3	Thornhill Rd Layby	Manhole Blockage	Remove blockage	✖
4 - 6	Hodinot Corner	Poor Connectivity	Improve connection to ditch	✖
7	Manor Park	Poor Connectivity	Improve connection to ditch	✓
8	Manor Park Pond	Missing Outfall	Confirm and upgrade outfall	✓
9 - 10	Manor Farm	Poor connectivity	Improve connection beneath road	✓
11 - 12	Mercure Hotel	Localised low spot	Improve drainage connectivity	✓
13	Playing Fields	Localised low spot	Minor ground reprofiling	✖
14	Playing Fields	Poor Connectivity	Improve connection to ditch	✖
15	Tennis Courts	No drainage	Provide drainage connection	✖
16	School Car Park	Manhole Blockage	Remove blockage	✖
17 - 18	Highworth Road	Poor Connectivity	Improve connection to river	✖
19 - 20	Highworth Road	Culvert blocked	Improve culverted sections	✖
21	Highworth Gardens	Poor Connectivity	Improve connection to ditch	✖
22 – 23	Old Vicarage Lane	Truncated ditch	Improve downstream connectivity	✓
24 – 25	Rowborough Lane	Poor Connectivity	Improve connection to ditch	✓
26 - 27	Rowborough Lane	Culvert blocked	Improve culverted sections	✓
28	Carpenters Arms	Culvert damage	Upgrade culverted sections	✓
29	Railway Fields	Poor Connectivity	Improve connection to ditch	✓

Table 1 - Parish Council Flooding Identification

- Provide any recommendations to mitigation impacts.

2 Site Visit Findings

Site Map

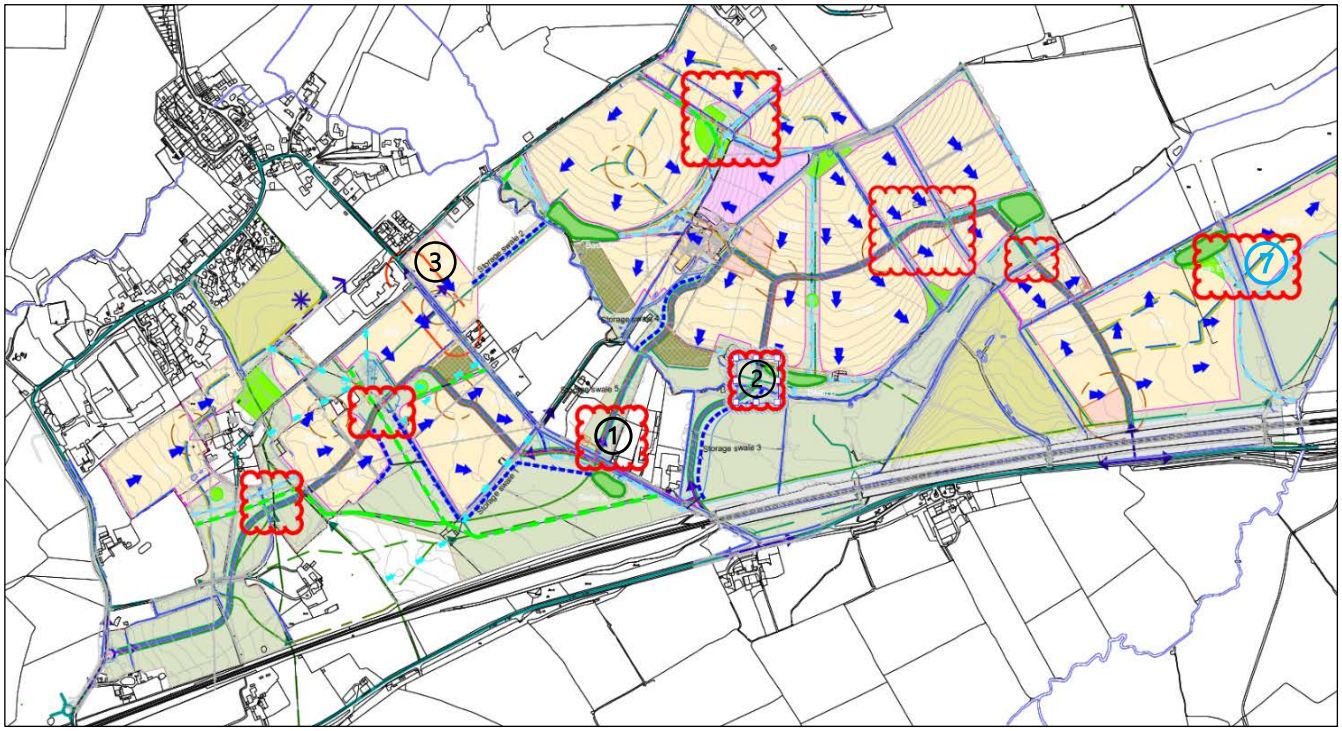

Figure 1 - Drainage Layout

- Revision clouds indicate areas that needed to be assessed.
- Numbers indicate location photo references.

Site Photos

Rowborough Lane (Location 1)

Figure 3 - Rowborough Swale ref. 2

Figure 2 - Rowborough Swale ref. 1

Along Rowborough lane there is a swale roughly 1-1.5 meters wide and deep, along the bend in the road seen in Figure 1 there is a culvert which can be seen in Figures 3 and 4. Both Inlet and Outfall seem to be partially blocked with vegetation, however, culvert seems to have no function and could be removed.

Figure 4 - Rowborough Culvert Inlet

Figure 5 - Rowborough Culvert Outfall

The figures below show the stream running along and through Rowborough Lane, even in rainy conditions, the stream showed no signs of overflowing. Approximately 1-1.5 meters wide and deep. Culvert and Headwall in good condition and with no signs of blockage.

Figure 6 - Stream on Rowborough Lane

Figure 7 - Stream Inlet

Figure 8 - Stream Outfall

Figure 9 - Reference map

Old Vicarage Lane & Carpenters Arms (Location 2)

Figure 10 and 11 shows a culvert located Old Vicarage Lane near the Carpenters Arms which appears to be blocked or at maximum capacity, outfall is also submerged and covered with dense vegetation.

Figure 10 - Blocked Culvert at Vicarage

Figure 11 - Blocked Culvert at Vicarage 2

Mercure Hotel (Location 3)

Mercure Hotel is now a development under Bellway Homes. It is unsure if Bellway has changed the drainage layout within their site, but it is to be noted that one of the headwalls had been redone and that the development now contains an attenuation pond.

Figure 12 - New Development

Manor Park Area

Due to the densely populated residential area and the fact that that there was nothing to note, no photos were taken in this area.

3 Conclusion

- All mitigation options suggested in table 1 seemed to be appropriate and required no alterations.