



Title: Drainage Strategy Technical Note
 Date: 11th November 2024
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 Reference: 23339-JUBB-XX-XX-RP-C-003
 Revision: P4

1.0 Introduction

1.1.1 Jubb have prepared this Technical Note to address the Drainage requirements for a reserved matters planning application in relation to planning condition 12 for the proposed redevelopment of Land at Coldharbour Farm Road, Emsworth.

1.1.2 The wording for condition 12 is as follows:

'No development hereby permitted shall commence until a surface water drainage scheme for the site has been submitted to, and approved in writing by the Local Planning Authority. The surface water drainage scheme for the site, shall be based on the principles within the Flood Risk Assessment "MT-5314/FRA.5R" dated September 2022 which includes the updated "West Brook, Emsworth fluvial flood risk modelling report" by JBA consulting dates September 2022 and shall include

- A. a technical summary highlighting any changes to the design from that within the approved Flood Risk Assessment.
- B. Detailed engineering drainage plans to include type, layout and dimensions of drainage features including references to link to the drainage calculations.
- C. Exceedance plans demonstrating the flow paths and areas of ponding in the event of blockages or storms exceeding design criteria.
- D. Details of how the SuDS features and outfalls will be designed to be as natural as possible and maximise ecological benefit.
- E. Material Plans.
- F. Cross Sections for all attenuation ponds, swales, headwalls, underground attenuation (cellular storage) and outfalls into a main river.
- G. Information about the design storm period and intensity, the method employed to delay and control the surface water discharged from the site and the measures taken to prevent pollution of the receiving surface waters.
- H. A scheme to treat and remove suspended solids from surface water run-off during construction works.

The development shall be carried out strictly in accordance with the approved details. Reason: To safeguard the amenities of the locality and ensure that all such drainage and flood provision is constructed to an appropriate standard and quality and having due regard to policies and proposals CS16 and DM10 of the Havant Borough Local Plan (Core Strategy) 2011 and the National Planning Policy Framework.

1.1.3 The site is located on land to the west of Coldharbour Farm Road, Emsworth. The Ordnance Survey National Grid Reference (NGR) for the centre of the site is 474517, 106524.

1.1.4 There are no existing surface and foul water networks located within the development. There is an existing surface water body that runs along the eastern boundary of the site before turning south and cutting through the southeast corner. This watercourse is called the West Brook.

2.0 Condition 11

2.1 Part A

2.1.1 The design submitted to satisfy condition 11 maintains the principles of the design within Bellamy Roberts drawing 5314/1002 Rev B which is contained within the approved report.

- 2.1.2 The main departure from this design is the combining of roof and road drainage into a single system. This change provides efficiencies to both designs and reduces the amount of pipework required within the roads. This change also reduces the amount of pipework within private properties which reduces the risk of pipes being built over or damaged as part of garden maintenance works.

2.2 Part B

- 2.2.1 All drainage plans are contained within Appendix A. All drainage calculations are included within Appendix B.

2.3 Part C

- 2.3.1 Exceedance Plans are included within Appendix A.

2.4 Part D

- 2.4.1 The headwall has been designed to Environment Agency requirements. It is limited in height to 2/3 of that of the existing bank and is constructed of Tied back bag work. This will allow vegetation to ground around the headwall but not obstruct the pipe.
- 2.4.2 The attenuation has been designed as below ground cellular storage, as per the approved design. Ground levels where it is located have been designed to accommodate sufficient cover for the tank whilst incorporating it within the wider landscape design. It is located within an area of planting.
- 2.4.3 The drainage construction detail drawings which show the necessary cross sections of these features is included within Appendix A.

2.5 Part E

- 2.5.1 A copy of the surfacing materials plans is included within Appendix C. This plan details the proposed surface materials to be used across the site.

2.6 Part F

- 2.6.1 The drainage construction detail drawings which show the necessary cross sections of these features is included within Appendix A.

2.7 Part G

- 2.7.1 A copy of the surface water drainage calculations are included within Appendix B. These detail the following storm periods:

1 in 1 year, 1 in 30 year, & 1 in 100 + 40% climate change

The calculation pack details the storm intensities used.

- 2.7.2 A hydrobrake has been proposed to restrict the flow of surface water from the site. A copy of the hydrobrake drawing and specification are included within Appendix A.
- 2.7.3 To prevent pollution from entering the receiving surface waters, trapped gullies have been installed along the road. These gullies will provide a system to catch solids and other contaminated sediment within their pots and prevent it from flowing further downstream. These will be emptied as required to ensure they work at as designed in the long term.
- 2.7.4 In addition to the gullies, a swale has been proposed to run from after the hydrobrake and attenuation tank to before the headwall. This swale will provide cleansing for TSS, Hydrocarbons, and Metals from the surface water prior to discharge into the watercourse.

- 2.7.5 In addition to the above, the management company will be responsible for responding to spills of contaminants by residents to prevent them from entering the receiving surface waters. The overall risk of contamination is low from a residential development and these measures are considered sufficient to prevent pollution from entering the receiving surface waters.

2.8 Part H

- 2.8.1 To ensure suspended solids are treated and removed from surface water run-off during construction works, the following measures have been proposed within the CEMP:

1. Areas of hardstanding and associated with development will be constructed as soon as possible as well as extending the hardstanding to minimise the risk of mud being travelled around the site.
2. All processing plant and vehicles carrying loose aggregates and workings will be covered or shielded to reduce/avoid dust emissions.
3. In periods of dry weather and where practicable, all soil stockpiles and surfaces will be dampened down with water to reduce dust emissions.
4. All earthworks will be sealed or replanted as early as practicable to minimise dust.
5. Where practicable, on-site aggregate handling will be carried out in enclosed areas.
6. Any identified recurring generators of dust will be replaced or improved.
7. Soil stockpiles and the exposed excavation may generate silt run off which may harm animals and the existing water habitat. Discharge points will be identified, and water run off settlement used. To help reduce silt the following measures will be taken:
 - a. Minimise topsoil stripping onsite and only in keeping to the construction areas.
 - b. Keep existing stockpiles covered.

- 2.8.2 The above measures are considered sufficient to keep suspended solids out of the surface water drainage system.

3.0 Maintenance and Management

- 3.1.1 To ensure that any proposed SuDS features operate effectively for its lifetime a detailed management plan for the operation and maintenance of the SuDS will be produced, prior to construction, based on Chapter 32 of Ciria C753.
- 3.1.2 It is anticipated that drainage for the dwellings, carparking, landscaping, etc in private ownership will be managed and maintained privately by a management company.
- 3.1.3 The surface water and foul water drainage networks will not be offered to Southern Water for adoption. The onsite pipework and attenuation structures will be the responsibility of the site owners.
- 3.1.4 Proposed SuDS features will remain private and will be maintained by a management company.
- 3.1.5 Details for the management and maintenance of any SuDS and other drainage features are below.

General Requirements

Regular Maintenance	Frequency
Litter Collect all litter or other debris and remove from site at each site visit.	Monthly or when deemed necessary
Grass maintenance Amenity Grass – Mow all grass verges, paths and amenity grass at 35-50mm with 75mm max. All cuttings to remain in situ.	Monthly or when deemed necessary
Flood Routes Make visual inspection of proposed overland flow routes. Check that the route is not obstructed by rubbish, new features etc. Remove obstructions as necessary.	Monthly

Manholes

Regular Maintenance	Frequency
Silt Trap, Inspection chambers Remove cover and inspect ensuring water is flowing freely and that the existing route for water is unobstructed. Remove debris and silt. Undertake inspection after leaf fall in autumn in which silt build up is more likely to occur.	Annually
Reactive Maintenance	Frequency
Replace gully grating and manhole if physical damage has occurred. If a blockage in the drainage system occurs rod the necessary region within the system to ensure the blockage is removed.	As required

Catch Pit

Regular Maintenance	Frequency
Silt Trap, Inspection chambers Open cover to inspect level of silt present, where required remove the excess silt.	Monthly within first year, annually thereafter
Reactive Maintenance	Frequency
If the level of silt is above the level of the pipes it may be necessary to mechanically extract the silt and jets the drains both upstream and downstream to ensure continued performance.	As required

Hydrobrake

Regular Maintenance	Frequency
Inspection Chamber Remove cover to inspect and note any high-water levels, re-inspect 24hrs later to evaluate reduction of water levels. Inspect ensuring that water is flowing appropriately through the flow control device and there are no obstructions to the flow of water immediately upstream or within the device. Remove debris and silt where necessary.	Monthly or following severe storms, within first year. Monthly for 3 months, then every 6 months.
Reactive Maintenance	Frequency
If a blockage within the hydrobrake unit occurs, it will need to be either jetted or replaced depending on the severity of the blockage.	As required

Attenuation Tanks

Regular Maintenance	Frequency
Inspect and Identify areas that are no operating correctly. If required take remedial action Remove debris from the catchment surface. Remove sediment from pre treatment structures Check inlets, outlets etc they are in good working condition Survey inside of tank for sediment build up and remove as necessary	Monthly or following severe storms, within first year. The annually. Monthly Annually Annually 5 Years
Remedial Actions	Frequency
Repair/Rehab of inlets, outlets, overflows and vents	As required

4.0 Conclusions

- 4.1.1 It has been demonstrated through development of our proposed drainage strategy and maintenance schedule that the proposed development complies with the requirements of the planning authority condition 12.