Flood Risk Assessment Addendum

Planning application 21/00500/Out
(Land north of Railway House Hook Norton)

This addendum responds to the consultation of the LLFA which has initially objected to the application requesting that further information be provided

First the consultation response identifies a discrepancy in the infiltration rates used in the Micro Drainage printouts contained in the Appendices to the FRA and the text of the FRA itself.

The printouts identify an infiltration coefficient of 0.11916 m/hr, which converts to 3.31 x 10^{-5} m/sec. This is as identified in the main text of the report, however the consultation response refers to a rate of 3.23 x 10^{-5}m/s. Notwithstanding this, the difference between 3.31 x 10^{-5} and 3.23 x 10^{-5}m/s is negligible but in any event this is a "good" infiltration rate, providing an indication that infiltration is an appropriate means of disposing of surface water.

The consultation response then goes on to request further infiltration is undertaken at other locations across the site and that further information regarding "hard" and "soft" areas is provided. However, because this is an outline planning application the layout plan is illustrative only and may change when a detailed site layout is developed. Accordingly, the FRA states :

> When a "Reserved Matters" layout is being prepared, further "focused" infiltration testing will be carried out to verify the design criteria for each dwelling and the hard surfaces, and accordingly, at this outline stage, a condition requiring further infiltration testing to be carried out to inform a detailed surface water drainage surface water drainage scheme to be submitted and approved by the LPA is considered an appropriate and reasonable condition to attach any planning permission.

It is therefore respectively submitted that, to undertake further infiltration testing at other locations may, at the present time, be a relatively fruitless exercise as, when a detailed site layout is worked up, the location of any infiltration features will almost certainly vary from those shown on the illustrative plan.

Accordingly, when reserved matters are submitted, the testing can then be carried out more precisely at any proposed soakaway or infiltration feature locations.

At the same time the exact areas (hard or soft) which will drain to each infiltration feature will be established so that the each soakaway can be individually designed in accordance with the requirements of BRE 365 – hence the reason for the FRA suggesting that a condition is the most appropriate way forward for an outline planning application where layout matters are not yet fixed in stone (this approach was considered acceptable for the previous outline application and it is submitted that the same principles can apply to this application).

A form of wording along the lines of the following would be acceptable to the applicant:

> "Prior to the commencement of development details of a sustainable drainage scheme in accordance with the principles set out in the FRA (ref G301 DOC 01 FRA) shall be submitted and approved by the LPA. The approved scheme shall be implemented in accordance with a phasing programme to be identified as part of the submitted scheme – Reason to ensure that the site is properly drained without giving rise to any flood risk."

The consultation response also requests an exceedance plan. A plan is therefore attached at Appendix A showing that, during the extreme storm event, when overland flows might occur, the route of any exceedance flows can follow the natural topography towards the east and will not materially change from the present overland flow route. A maintenance plan for the SuDS features has also been requested which is therefore included as Appendix B to this addendum.

Again, because this is an outline application a full maintenance plan can be better developed when the exact details of the drainage design are known. A similar condition requiring a full maintenance plan to be approved would therefore seem to be the way forward and again a possible form of wording is suggested as follows:

> "Prior to the commencement of development details of the maintenance arrangements for the sustainable drainage scheme in accordance with the principles set out in the FRA addendum (ref G301-FN03) shall be submitted and approved by the LPA. The approved scheme shall be maintained in accordance the submitted arrangements – Reason to ensure that the drainage arrangements are properly maintained in perpetuity, without giving rise to any flood risk."

Appendices:

Appendix A: Exceedance plan
Appendix B: Maintenance plan

Appendix A

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For Planning
This drawing is produced for the purposes of supporting a planning application and should not be relied upon for tender, pricing, or construction purposes.

NOTES

1. Drawing is based on the Topographical Survey (Drawing No. 4140177-1007_1008) undertaken by Glanville dated September 2014.
2. Drawing is based on the Illustrative Layout (Drawing No. 20147.101 Rev A, 09.10.20) produced by MHP.
3. Soakaways a minimum of 5m away from buildings. Where private soakaways cannot be acheived due to building offsets shared soakaways or discharging directly into the subbase of the pervious pavement should be considered at the detailed design stage.
4. Site levels permit site access and first ~45m of access road to drain to infiltration basin.
5. Access road designed in cross fall and permeable sub-base limited to lower area with service corridor for foul drainage on the high side of access road.
6. Surface water drainage indicative only and subject to detailed design.

KEY

- House Soakaway (Concrete ring or geocellular)
- Trench Soakaway (where there is limited space).
- Block Paving
- Pervious Block Paving with Permeable sub-base (see note 5)
- Pervious Shared Drives
- Highway Drain
- Highway Gully
- Highway Outfall to Infiltration Basin
- Exceedance Flow Route

Rev	Date	Description	Drawn	Check
#	17/05/21	First issue.	SC	DAB

Status
FOR PLANNING

Client
Greystoke Land LTD

Project
Land East of Hook Norton, Cherwell, Oxfordshire

Drawing Title
Exceedance Flow Routes

Drawing No.
G301/03

Date: May 2021 | Scale: 1:500 @ A1

E-Mail: sconcannon@pfaplc.com

Appendix B

SuDS Maintenance Strategy

1.1. The Flood Risk and Coastal Change Planning Practice Guidance advises that in considering a development that includes a sustainable drainage system the local planning authority will want to be satisfied that there are clear arrangements in place for ongoing maintenance. It goes onto advise that when planning a sustainable drainage system, developers need to ensure their design takes account of maintenance requirements of both surface and subsurface components so that it continues to provide effective drainage for properties.

1.2. This SuDS Maintenance Plan has therefore been prepared to support proposals for a development of up to 43 dwellings on land East of Hook Norton, Oxfordshire

1.3. The surface water system will comprise infiltration features and will not therefore be adoptable by Thames Water

1.4. Oxfordshire County Council endorses, indeed encourages, the use of Sustainable Urban Drainage Systems comprising soakaways/soakage trenches and swales/basins for highway drainage and may require a commuted sum to cover future maintenance of such systems. Accordingly, during the preparation of Reserved Matters, discussions will be held with OCC Highways to determine those areas of roadways which will be eligible for adoption. Then, following adoption under S38 of the Highways Act 1980, the highway Authority will be responsible for the maintenance of all adopted road gullies, swales, and infiltration basins. Prior to such formal adoption the developer will be responsible for the maintenance of such highway SuDs features in accordance with standard practice.

1.5. Individual householders will be responsible for the SuDS features (soakaways) within their individual curtilages. With respect to the maintenance of SuDS features serving common or shared areas and which will not be adoptable by the Council, the developer will set up a "SuDS Adoption" Management Company for the benefit of all of the occupants of the development which will be responsible for the maintenance of these SuDS features (swales, infiltration basin and any other SuDS features identified) when the further details of the development are submitted. Once the development is substantially complete, and the SuDS features constructed, a 12 month "functioning" period will apply during which the developer will be responsible for the maintenance of the SuDS components before handing over this responsibility to the Management Company – the occupiers of the development will covenant to pay an annual maintenance charge to the Management Company to cover to ongoing costs of maintaining the SuDS features.

1.6. For the avoidance of doubt the foul drainage system will be constructed to adoptable standards for adoption by Thames Water.

1.7. Guidance on the operation and maintenance requirements of sustainable drainage systems is contained in The SuDS Manual (CIRIA C753). There are three categories of maintenance: regular, occasional and remedial. The developer will initiate a SuDS maintenance regime as set out in **Table A** below, which, once the features are handed over to the Management Company, will become the responsibility of that Company to maintain.

1.8. As this is an outline planning application, as part of any Reserved Matters approvals or discharge of condition submissions, the maintenance responsibility for each of the SuDS features can be identified at that time. If a standard drainage condition is attached to any consent (eg-requiring drainage details to be submitted and approved prior to the commencement of development), this can be achieved by including in such a condition a requirement to identify the persons or entities responsible for the various features

Table A: Outline SuDS Management Regime

Maintenance Schedule	Required Action	Frequency
Regular maintenance	Litter and debris removal	Monthly (or as required)
	Grass cutting for spillways and access routes to retain grass height to site owner's specification.	As required (monthly during growing season)
	Vegetation cutting for vegetation in the base of the basin.	As required in line with the landscape management plan.
	Inspection of marginal and bankside vegetation and removal of nuisance plants.	Monthly (at start, then as required)
	Tidy all dead growth before the start of the growing season.	Annually.
	Inspection of inlets, outlets, banksides, structures, pipework etc for evidence of blockage and/or physical damage	Monthly
	Remove sediment from inlets and outlets. Undertake contamination testing to inform silt management and disposal options.	Annually (as required).
	Inspection of water body for signs of poor water quality	Monthly (May – October)
	Manage wetland plants in outlet pool – where provided.	Annually.
	Check flow controls.	Annually.
Occasional maintenance	Check for poor vegetation growth due to lack of sunlight or dropping of leaf litter, and cut back adjacent vegetation where possible.	Annually
	Re-seed areas of poor vegetation growth. Alter plant types to better suit conditions, if required.	Annually, or if bare soil is exposed over 10% or more of the basin area.
	Remove sediment from micropools if volume reduced by >20%.	3 – 10 years (or as required).
Remedial actions	Repair erosion or other damage by re-turfing, reseeding or replanting.	As required.
	Re-level uneven surfaces, realign rip-rap and reinstate design levels.	As required.
	Repair/ rehabilitation of inlets, outlets and overflows.	As required.
Monitoring	Inspect inlets, outlets and overflows for blockages, and clear if required.	Half yearly/ after large storms.
	Inspect banksides, structures, pipework, etc for evidence of physical damage.	Half yearly / after large storms.
	Inspect inlets and facility surface for silt accumulation. Establish appropriate silt removal frequencies.	Half yearly.