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Drainage & Maintenance Strategy

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DRAINAGE STRATEGY

SUMMARY

Further to instruction from Chris Fountain Limited, SIE provide this assessment of the drainage infrastructure based on the latest Planning Layout [8009T-PP1-02 from John Roberts Architects; [please refer to Appendix A].

Other data provided includes a new topographical site survey along with the soils investigation and various plans and details generated by Jacobs Babtie on behalf of Lincolnshire County Council [LCC] which cover the design of the original site infrastructure.

Additional information, recently provided by LCC include the original FRA for the site from 2005, an update to that FRA from 2008 covering the Phase 2 area of the site, which is not relevant to this particular project, and a report from May 2016 from the LCC Technical Services Partnership.

This report was completed following review of the original data provided and discussions with Black Sluice Internal Drainage Board and in reference to the documentation detailed above from LCC.

THE SITE

The soils on the site are wholly unsuitable for the use of soakaways of any kind.

The site of approximately 1.9ha is made up of three basic rectangles, the site generally sits 700mm below the surrounding infrastructure which was designed by Jacobs Babtie on behalf of Lincolnshire County Council.

The development land comprises the proposed access road, along with all of tranche 8 and part of tranche 4 indicated as just part of Phase 1 on the overall development shown on drawing KC0080006/02/2007 produced by the LCC Highways Alliance. [Please refer to Appendix B]

This plan indicates that the development infrastructure has been designed to accept unrestricted flows from the whole of tranche 8 along with the access road, and a proportion of the 143.4l/s allowed from the whole of tranche 4. [Please refer to Appendix B].

All the runoff from the areas described is intended to drain into the Black Sluice IDB system at a controlled rate determined by the design of the control chamber that sits to the south-west of tranche 8.

Immediately south of the development site there is a detention basin [Basin 2] that is presumably sized to attenuate any excess flows from the entire area of Phase 1 of the development as a whole.

Continued

LCC DOCUMENTS

The Kirton Development Site Drainage Strategy Review CA101086W110 carried out by the Technical Services Partnership in May 2016 states that adoption of the sewers and consents for the water courses had not been obtained at that time, leaving them the responsibility of the developer, presumably LCC. it also states that maintenance of these systems appears to be lacking and suggests a programme of works moving forward. There is no evidence that this maintenance was ever carried out. [See Appendix C]

In clause 8.2 of the report recommendations, it states *'Surface water disposal should be in accordance with the strategy shown in Figure 3.'*

It should be noted that Figure 3 is a version of Appendix B with some of the details removed.

Flood Risk Assessment [FRA]

As part of this application, a New Flood Risk Assessment reference ECL0441 has been produced by Ellingham Consulting after discussions with the Environment Agency. [See Appendix D]

The FRA conclusions suggest that a finished floor level of +3.3mOD would be acceptable with flood resilient measures incorporated into the building construction up to a level of +3.7mOD.

Consequently, the preliminary design of the site drainage uses these figures, although some of the development will sit higher than this.

SURFACE WATER DISPOSAL

The preliminary surface water design on drawing 9003-107 [See appendix E] and detailed in the attached calculations was submitted to LCC for comment on the 24th May 2021, but as yet no observations have been received.

The design is based on the criteria outlined in Fig.3 of the LCC Strategy Review but with an allowance of 40% for climate change.

Continued

FOUL WATER DISPOSAL

Foul water from the site will be connected to the already installed foul water sewerage system and pumping station on the development via manhole #9900.

This foul system, and the surface water sewer, are both indicated on Anglian Water records as being adopted, but the LCC Documents mentioned below suggest that these sewers might still remain private.

If adopted then applications under S106 of the Water Act will be made to AW for these connections, if not, we assume permission to connect is a given by way of the land sale by the developer to our Client. [See Appendix F]

ROADS, PAVEMENTS & VERGES

The main estate roads will be designed and built to adoptable standards with the possibility that they might be adopted by LCC under a S38 agreement.

If not, they and the remaining surfaces on the site will be maintained by a management company.

MAINTENANCE STRATEGY

Maintenance Responsibility

1. All areas of Highway verge, footway and carriageway are to be adopted and maintained by Lincolnshire County Highways under a S38 Agreement.

2. All other hard surfaces, and the foul and surface water chambers and sewers will be the responsibility of the Management Company.

Recommended Maintenance Requirements

Hard Surfaces

All drives to be swept quarterly to clear leaves and to ensure they are clean, tidy and free from dust and debris.

At times of sweeping, inspections to take place to assess any damage to road, kerbs, lighting etc., and any maintenance carried out to ensure user safety is maintained.

General Drainage Areas

A system of regular inspections should be established. Initially these inspections should be carried out in October and March, however, this may be modified to suit observations over time.

Items to be observed and cleared are high levels of grit, leaves and other such detritus.

The main aim of these inspections will be to prevent siltation of the surface water system, which, if allowed to develop will reduce the effectiveness of the system and may, over time, reduce the attenuation volumes provided.

Continued

The following elements should be inspected and cleaned as part of this preventative routine:

Chambers, particularly catchpits

Road gullies and laterals

Additional Maintenance Requirements for owner/occupiers

It is also recommended that each owner/occupier regularly cleans and inspects gullies/linear drainage channels and permeable paving, where located within their plot curtilage as a preventative measure to minimise the ingress of detritus into the storm water system.

It is suggested that new owner/occupiers are informed of such responsibilities and the use and function of the drainage systems in their welcome packs or within their conveyance.

It is further recommended that the 'Bag it and Bin it' leaflet is handed to new owners to ensure unsuitable items are not flushed into the foul drainage system. [See Appendix G]

Street Lighting

Please refer to the lighting designer's implementation and maintenance information pack.

Columns should be inspected annually for damage and repairs made as soon as practicable. Lamps should be checked and replaced as and when required.

A system to enable owner/occupiers to report problems in the unadopted areas is to be set up by the Management Company.