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Response to the Local Planning Authority's and Third Party Representations

G E Waller C Eng MICE MICWEM MAE

in respect of Lancing Manor Filling Station

Old Shoreham Road, LANCING, BN15 0QS

Planning Authority Reference: AWDM/1128/14

Planning Inspectorate Reference APP/Y3805/W/16/3143400

On behalf of

Kato Holdings Ltd

April 2016

1. The Lancing Manor (SE) Residents Network makes some points in respect of The Lancing Surface Water Management Plan which raises several issues in respect of geology, sewer catchment areas and groundwater flooding that had not been identified at the time of the production of the Flood Risk Assessment. This document forms a response to those comments which will be beneficial to the Inspector considering this appeal in understanding the surface water drainage and flood risk matters.

2. Foul and Surface Water Flooding

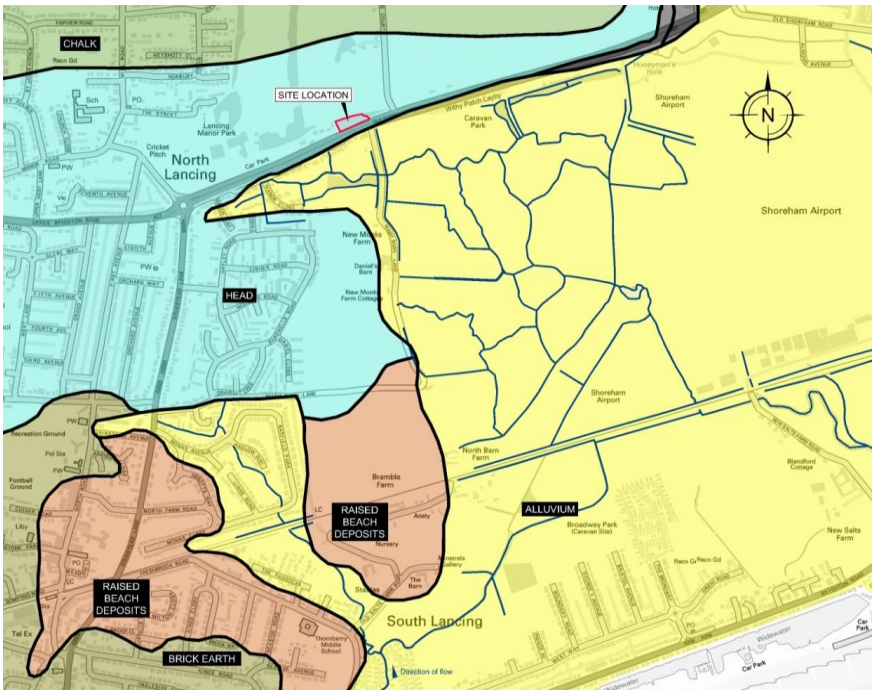
2.1 Source Data

Extracts from the West Sussex County Council's Lancing Surface Water Management Plan covering Hydrogeological conceptual model and flooding in the Manor Road / Manor Way / Grinstead Lane area are contained at the rear of this document.

2.2 Hydrogeological Conceptual Model - Watercourses

Paragraph 3.4 of this Plan relates to a Hydrogeological conceptual model of the entire catchment area such that the words and diagrams are not directly related to the Appeal site but create an understanding of the ground water regime in the area.

The plan below is a sketch of the surface geology in the area which shows the site location against the various layers of geological deposits.



The plan shows in blue lines the ditches and watercourses that cross New Monks Farm. This shows that they flow in a west east direction and that the areas of ground water flooding identified by the Lancing Manor (SE) Residents Group are upstream of the Appeal Site.

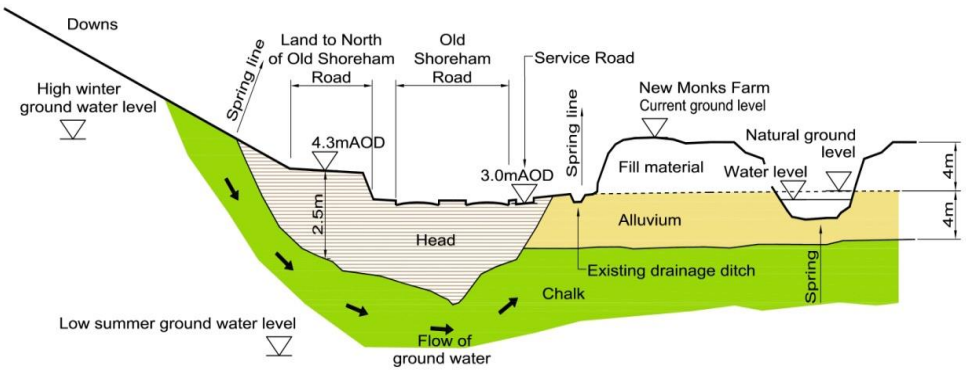
The pink (Raised Beach Deposit), blue (Head) and fawn (Brick Earth) areas are clay type materials that have low permeability which will not support the use of soakaways and will restrict vertical flow of water through them. The yellow (Alluvium) area is similar in nature to the river mud that can be seen in the River Adur at low tide and will permit water to flow through it.

These variations in types of material leads to the various drainage areas shown on the plan being that which will not be capable of supporting soakaways, those which will permit under pressure the vertical flow water through them and create springs, ditches and watercourses and then the waterlogged areas as experienced towards the east of the diagram on Shoreham Airport.

Springs will appear at times when the ground water table is high which leads to ground water emerging above ground level thus creating flooding

2.3 Hydrogeological Conceptual Model - Cross Section Sketch of Geology

In order to provide a visualisation of the situation described in the Lancing Surface Water Management Plan I produce below a cross section through the Appeal site and on into the New Monks Farm Area.



CROSS SECTION THROUGH OLD SHOREHAM ROAD

The sketch shows that the existing ground level of the Service Road adjoining the south side of Old Shoreham Road is approximately 3.0m AOD. This is the area that is shown on the photograph at the top of page 2 of the email to Ken Argent dated 1 February 2016 at 11:26 submitted by the Lancing Manor (SE) Residents Group described as being 'A27 mini crescent'.

The sketch also shows that the ground level of the proposed development is at 4.3m AOD as noted within the Flood Risk Assessment submitted in support of the Planning Application.

The ground level of the Appeal site is therefore in terms of ground water significantly above that of Old Shoreham Road and the environs to the south. The Appeal site is located on a layer of virtually impermeable Head (clay) deposit which site investigation has determined as being 2.5m thick. This material will not permit flow of water through it in either upward or downward direction.

2.4 Manor Way / Grinstead Lane Area (Catchment Area A)

The Lancing Surface Water Management Plan contains a section in Chapter 5 relating to flooding, both surface water and foul water sewer.

The surface water flooding in this area is caused by high ground water levels as described in the previous paragraphs.

The foul water system in the area is not watertight and therefore at times of high levels of ground water this enters the drainage system. The quantities of ground water entering the system far exceed the capacity of the foul water sewerage system leading to flooding on the surface which leads to the inability of the drainage appliances such as toilets, baths etc to discharge correctly.

As with the surface water system these areas of flooding are upstream of the Appeal site. Without the entry of ground water into the foul drainage system there is adequate capacity to accept the flow generated by the Appeal site into the system.

3. Discharge of Surface Water from the Appeal Site

3.1 Proposed Drainage Strategy

Section 8 of the Flood Risk Assessment submitted with the Planning Application confirms the following:

8.2.1 Surface water drainage will be discharged to the Lancing Ditches at an attenuated rate using the existing on site surface water drainage connection.

8.2.2 The surface water drainage system will incorporate a SuDS drainage system with sufficient on site storage to cater for water volumes in excess of the 1:100 year rainfall event including an additional allowance for future climatic change.

8.2.3 The attenuation will be set at the lowest practical level achievable at 5l/s and will provide a significant reduction from the existing rate of runoff from the site to the highway drain providing a nett benefit to the wider area.

8.2.4 Preliminary calculations indicate that a total storage volume of 30m^3 will be required.

These works will have no effect on any upstream surface water drainage area as the discharge will be into the open drain on New Monks Farm at the rate of green field run off.

A copy of the Proposed Site Drainage Plan has already been supplied with the appeal documents.

3.2 Below Ground Level Tanks

There are existing fuel tanks located on the Appeal site. There are two surface water storage tanks proposed to be located on the Appeal site.

The fuel tanks are referred to the report produced by Soils Limited, Geotechnical & Environmental Consultants entitled Phase I Desk Study at Former Lancing Filling Station, A27 Old Shoreham Road, Lancing, West Sussex BN15 0QZ under reference 14386/DS. This was submitted in support of the planning application and contains Appendix 8 at paragraph 4.1 the following:

A review of Ordnance Survey mapping for the site and data from the Petroleum Officer (West Sussex County Council Trading Standards Department) suggests that the site remained as undeveloped farmland until 1960. The site was initially developed as a service station with three 3000 gallon (14000 litre) underground storage tanks (USTs). A surface tank for diesel was installed in 1976. A suspected leaking petroleum line was discovered in 1990, resulting in a prosecution at Steyning Magistrates Court on 26 June 1991. The site appears to have closed shortly after and the USTs were decommissioned by concrete slurry filling in July 1994. All the surface works were subsequently demolished, apart from the surface diesel tank and bund, which remain in-situ.

The tank appears to be located beneath one of the proposed dwellings and will therefore need to be removed. The base of the tank is likely to be below the level of the upper surface of the head deposit.

The proposed surface water storage tanks will be constructed with the base located within the head deposit. These tanks will be wrapped with a waterproof membrane in order to ensure water will not escape into the surrounding ground and therefore discharge onto the lower level of the ground surface of Old Shoreham Road.

From the sketch provided at 3.1.3 above it can be seen that ground water flow passes under pressure beneath this head deposit. However the surface of the main ground water table at the lower end of the head intrusion cannot exceed 3m AOD without creating ground water flooding far deeper than has ever been recorded as this is the ground level of the ditch / watercourse on New Monks Farm.

The ground water regime in the area will therefore be maintained with ground water passing beneath the lower level of the base of the excavation to remove the existing fuel tanks and the base of the proposed surface water storage tanks and emerge in the ditch on the south side of Old Shoreham Road on New Monks Farm.

3.3 Surface Water Connection from Appeal Site into Ditch on New Monks Farm.

An as built record drawing of surface water drainage works carried out by Balfour Beatty Mott MacDonald in 2013 shows a connection from the Appeal site which is not a highway drain into the drainage ditch on the south side of Old Shoreham Road on New Monks Farm. This drawing was included with the appeal documentation.

Whilst there may be concerns regarding the structural integrity of this pipe there is no doubt about its presence.

It is a technical matter to replace this pipe in accordance with a normal legal s.278 Agreement with Highways England.

As it not appropriate in this instance Kato Holdings Ltd accepts that an application would not be made Southern Water for a connection into the foul sewer.

4. In conclusion, no works are required in respect of additional off site drainage works specifically needed for the development.

The ground water flooding described in the Planning Authority's Written Representations and Lancing Manor (SE) Residents Group's submission is located in areas that are upstream of the Appeal site. It is the intent that the existing surface water connection into an open section of drainage ditch will be maintained at current rates of flow. Therefore there is no effect that can be created by the proposed development on upstream surface water catchment from this source.

The proposed foul water connection is into an existing connection from the site into the public foul sewer. Ground water flooding of the foul sewerage system is not the responsibility of the developer.

The excavation for the removal of the existing fuel tanks and construction of the proposed surface water retention tanks will not disrupt the flow of ground water beneath the site as the minor local adjustment of the ground water table will not affect the current discharge of ground water into the ditch on New Monks Farm.

The replacement of the defective surface water outlet from the site which is not a highway drain is a technical matter that can be carried out in accordance with a normal legal s.278 Agreement with Highways England.

The requirements of Paragraphs 100 to 104 of the National Planning Policy Framework are met and accord with the document subsequently produced by West Sussex County Council entitled The Lancing Surface Water Management Plan.

G E Waller CEng MICE MCIWEM MAE

Managing Director

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April 2016