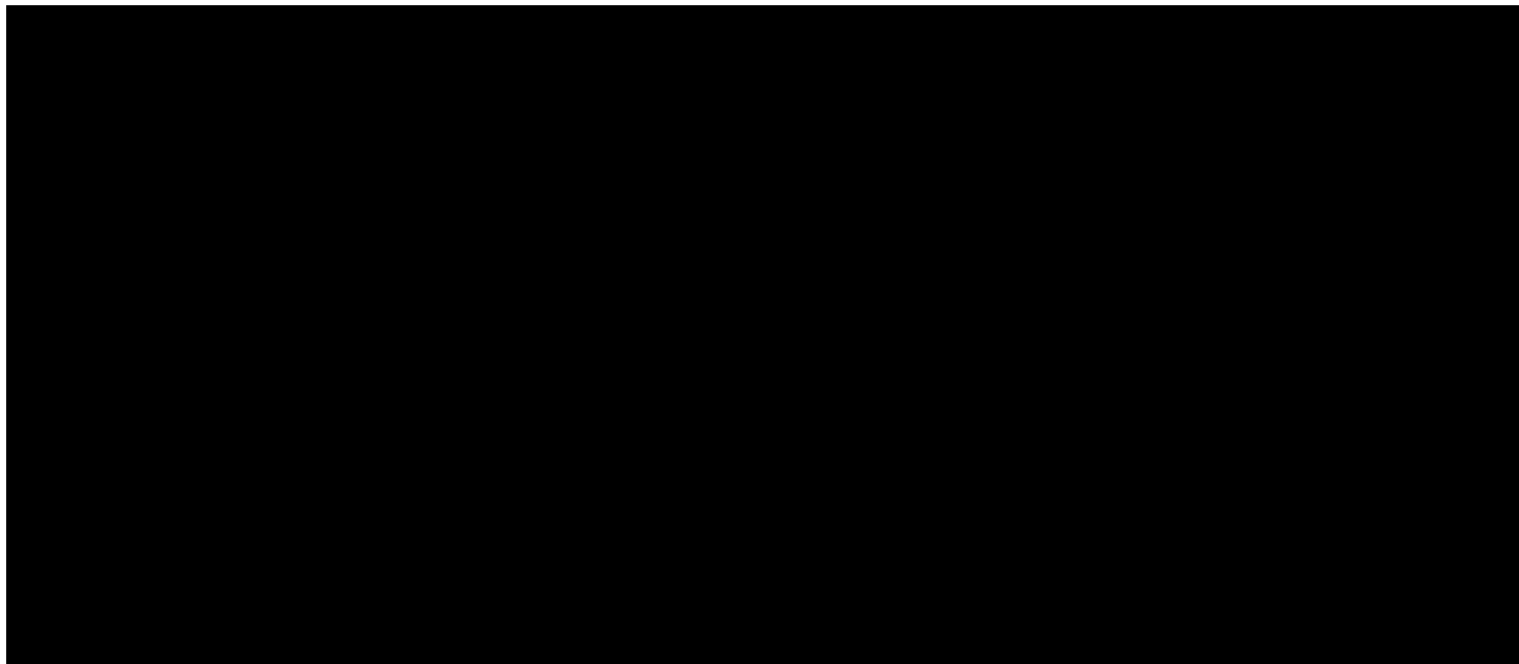



From: Aldingbourne Parish 
Sent: 03 April 2017 12:08
To: Lucy Harding
Cc: Martin Beaton; Cathy + Dan Turner
Subject: AL/107/16 RES Land west of Westergate St and east of Hook Lane

Dear Lucy

Please see attached comments from the Parish Council's drainage consultant. It would appear the applicant has still not submitted a drainage scheme that is fit for purpose despite a second attempt.

Paul Cann also has a copy of the letter. Please take all the points that Richard Allitt makes into consideration in particular the conditions that he recommends.

At this stage Aldingbourne Parish Council continues to object to the drainage proposals as submitted. No construction should be allowed until a satisfactory scheme is submitted.

Please ensure the Parish Council is consulted should the applicant change the drainage proposals again.

Kind Regards

Joanne Brown

--

Mrs Joanne Brown, ACIS

Clerk to Aldingbourne Parish Council



Richard Allitt Associates Ltd
CONSULTING ENGINEERS

Our Ref: W1950/RCA/4434

Your Ref:

31 March 2017

Mrs Joanne Brown ACIS
Clerk to Aldingbourne Parish Council
c/o Red House
100 Middleton Road
Middleton on Sea
PO22 6DL

Suite 3
The Forge Offices
Cuckfield Road
Staplefield
Haywards Heath
West Sussex
RH17 6ET

Tel: 01444 401840
www.raaltd.co.uk

Dear Mrs Brown

Re: Planning Application AL/107/16/RES : Land West of Westergate Street and East of Hook Lane, Westergate, PO20 3TE
Comments in relation to Flood Risk Matters

As requested I have studied the relevant substitute information on the Arun DC website in respect of the above planning application from a drainage and flood risk perspective. My observations and comments are as follows:-

Foul Sewage:- the proposals appear to be conventional and should be adopted by Southern Water. It would be worthwhile requesting a planning condition that the foul drainage system and pumping station are (a) built to adoptable standards and (b) that they are adopted by Southern Water.

Groundwater:- the site investigation revealed variable groundwater levels across the site and it is clear from this that there is no consistency and they are likely to be pockets of perched groundwater near the surface. The designers have not considered in any way the effects of groundwater except to note that soakaways would not work. I will come back to groundwater issues later in this letter.

Surface Water:- The surface water drainage strategy drawing shows a complex layout of surface water drains. A cause for concern are the large areas of road or hardstanding which do not appear to have any drainage provision. The access road for example has no drainage provision.

I have not done a detailed check on the capacity of the surface water drainage system or the balancing ponds & underground storage crates. I will refer to the balancing ponds later.

The drainage strategy has a relatively small area draining to a ditch in the north-east corner of the site but it is unclear how the discharge will be controlled as the outlet shown from the balancing pond (Swale 3) is inaccessible. It will be necessary to have a control structure here which can be easily accessed. It is unclear whether Swale 2 is intended to be part of the drainage arrangement for this north-east corner as no drainage pipes are shown.

The existing site (apart from the north east corner) drains in two directions; to a 225mm diameter pipe midway along the eastern boundary and to a drain (possibly buried) in the south-east corner of the site. The drainage strategy does not replicate this arrangement and instead appears to comprise draining the whole site to the 225mm diameter drain on the eastern boundary even though the exceedance flow path shows the site falling to the south-east corner. It is of considerable concern that the strategy proposals rely on a one metre wide easement

alongside the eastern boundary ditch which only has an access at one end and that is over an area of private car parking; there is a high probability that adequate maintenance of this ditch will not be feasible.

The substitute drainage strategy now has a number of what are termed “roadside swales” with many of them located in what would normally be considered as the front gardens of properties. There is a pipe shown from these swales to connect to the main surface water drains but it is not clear how these swales are intended to be filled and control flows. The table on the drainage strategy drawing shows that these roadside swales will only be “*effective storage during exceedance events only*” and if they are used so infrequently the residents are unlikely to understand why they are there and there will be pressure for them to be filled in and grassed. It is therefore likely that at the time they are needed they will no longer exist.

The drainage strategy shows that there will be a pumping station on the surface water drainage system with a link back to the balancing pond; this is presumably to divert flows which are in excess of the pump rate back into the balancing pond for storage. For this to function it would be necessary to either have the surface water sewer system surcharged for prolonged periods (or maybe always) or the balancing pond would need to be very deep. The surface water pumping station shown on the plan is very small, has no vehicular access and is highly unlikely to meet adoptable standards. Southern Water will not adopt the surface water pumping station in its current format (and almost certainly would also not adopt the surface water sewer system either). If the surface water sewers are surcharged for prolonged periods (or always) their effectiveness would be seriously prejudiced and would result in serious long term maintenance problems and in the event of a significant storm occurring would result in flooding within the site.

Southern Water has stated what their requirements are in respect of the foul sewage pumping station and the strategy drawing generally shows compliance with these requirements. There is no fundamental difference in terms of operation between the foul sewage pumping station and the surface water pumping station and therefore in respect of compound area, access etc there should be no difference if the surface water pumping station is to be built to a standard whereby it can be satisfactorily operated and maintained.

There is very little fall across the site and it is therefore inevitable that the proposed underground storage crates will be relatively deep and probably below the groundwater level so measures will be needed to prevent them floating. The surface water drains will progressively deepen (in order to have a gradient on them) and by the time the drainage system gets to the pumping station the sewers are likely to be several metres deep; the cross section drawing shows these drains to be almost 4 metres deep. The balancing pond nearest the pumping station is shown as having a base level at 9.0m AOD and a top water level of 9.75m AOD giving an operating range of 750mm. However, the surface water drains will need to surcharge by over 3 metres before any water gets into the pond; this means that the pond will not actually attenuate any flows and will probably be used infrequently.

At times when there is a high groundwater level and/or groundwater emergence (flooding) the base of the ponds will be below the groundwater level and the attenuation storage will no longer be available. This could perhaps be overcome by lining of the ponds but these would need to be heavy enough to prevent floatation.

The topography of the land is very flat and it is inevitable that there will be localised depressions which currently more than likely form puddles and/or marshy ground. There is no provision in the drainage proposals to ensure that gardens do not flood. The soakage potential is very, very low and it is inevitable that some gardens will collect water. If the developers do not

make provision then the individual householders will probably install their own land drainage and connect it to the foul or surface water drainage systems. If they connect to the foul system that will further overload the sewerage system in the area. As the surface water drainage system is not adoptable there is scope for some land drainage provision to be incorporated in order to drain the gardens.

The "Typical SuDS Construction Details" drawing shows a detail for the permeable block paving areas. In my view that is highly unsatisfactory and is not in accordance with the standard details provided by manufacturers. This detail shows a layer of tarmac beneath the blocks and this will form an impenetrable layer and the designers have stated that a hole should be punched through at 1 metre centres. This arrangement will result in significant horizontal water movement through the sand layer beneath the blocks - this will result in considerable movement of the blocks and is likely to result in blockage of the perforations. The "Owner's Manual" states that these permeable block paving areas will have a sub-drain which connects to the surface water drains but these are not shown on any drawings and many such areas are remote from the drainage network.

The drainage network shows a petrol interceptor upstream of the pumping station but this will be surcharged for prolonged periods and will therefore not function in accordance with the manufacturers specifications.

Maintenance:- it is unclear who will be responsible for the different aspects of maintenance. The driveway and parking area surfaces will be in private ownership and it is unclear whether the individual householders will be required to maintain these areas or whether there will be a management company will maintain them.

Overall, my concerns are that the surface water drainage system and strategy as currently proposed is not adequate for the particular constraints and characteristics of this site. The existing drainage regime of the site is not being replicated and reliance is being placed on a single outfall which is accessed via a very narrow access easement. The design of the surface water pumping station is inadequate with no vehicular access and there has been no consideration of what would happen if there is a substantial rise in groundwater levels which is already a known factor in this area. There is also no provision to allow for adequate drainage of the garden areas, especially at localised low spots.

I recommend that you request a planning condition that the surface water drainage system and pumping station are built to adoptable standards (even though it is unlikely that they are adopted by Southern Water) and that an adequate long term maintenance regime is approved and implemented.

Yours sincerely,



R. C. ALLITT BSc FICE CEng CEnv
Director