

[REDACTED]

From: Daniel O'Shea (Drew Smith) [REDACTED]
Sent: 17 January 2020 14:20
To: Simon Davis <Simon.Davis@arun.gov.uk>
Cc: Adrian Barker [REDACTED]
Subject: RE: Summer Lane, Pagham P/70/19/RES

Good afternoon Simon,

Many thanks for forwarding on the latest consultee responses.

I appreciate we have a site meeting next Wednesday to discuss the drainage in detail. However, we would like to provide our initial response in advance of the meeting.

1. Drawing 1177 PD100 Rev P10, indicates 5 potential crossings over the ditch adjacent to Summer Lane. This is a reduction over previous proposals and is acceptable in principle. The crossings will need to take the form of culverts/pipes in order to avoid maintenance difficulties associated with bridges of such lengths/widths. The detailed design will be agreed via planning condition and Land Drainage consent.

Agreed.

2. The RCP report discusses the known erosion/undermining issues associated with previous excavations carried out in the northern boundary ditch. The ditch itself consists of unregistered land (owner unknown) whereby riparian responsibility lies with landowners either side, up to the centre of the ditch. As a result, Crayfern Homes need to be fully on board in terms of the proposals, since they are responsible for the northern half of the ditch. Whilst the report references the undermined surface water outfalls from the Crayfern Development, it appears that no detailed discussions have been had with them in terms of finding a solution. It should be noted that the issues arose as a result of the contractors acting for the owners of the southern land parcel at that time and not as a result of Crayfern's actions. Whilst it is recognised that remedial works are required to correct the issues, it is recommended that dialog is commenced with Crayfern Homes as soon as possible so the principles can be established/agreed between all parties. The detailed design would be dealt with via Land Drainage consent as mentioned.

It is acknowledged that the issues created in the northern ditch are as a result of the previous owners actions, rather than Crayfern's. As such, Drew Smith have approached Crayfern with a view to arranging a meeting to discuss potential solutions in more detail.

3. The Ardent report discusses capacities of the existing boundary ditches and the existing 300mm diameter culvert downstream of the proposed point of connection from the development site. There appears to be no mention in the report of taking account of groundwater in the capacity calculations which could have a significant impact.

Ardent made an assessment of likely peak flows based on the ReFH2 method and loH124 method. The former method takes into consideration the impact of baseflow within the calculation of peak flow, and therefore,

makes an allowance for assessment of groundwater conditions. However, the loH124 method resulted in a larger peak flow rate and was therefore considered to be a more conservative approach. However, if there is something that you are aware of which is not picked up in the SFRA and SWMP please let us know.

The calculated loH124 peak flow in the 1 in 100 year plus 40% climate change event was 482 l/s. As demonstrated in Ardent's report, the carrying capacity of Ditch B has been calculated to be over five times this amount at 2640 l/s. Therefore, considering a highly unlikely 100% increase in flow rate due to the presence of ground water, Ditch B would still not be expected to be at half capacity and would not flood.

The British Geological Survey (BGS) online mapping resource indicates that the local area is characterised by a London Clay bedrock overlain by superficial river terrace deposits of sand, silt and clay. This is supported by the Site Investigation (SI) Report carried out by Geo-Environmental in the Appendices of the RCP FRA. The geology does not necessarily lend itself to groundwater emergence, however if there is evidence to the contrary please advise.

Please note that Ditch B is also likely to receive flows from roofs/hardstanding's, etc associated with existing properties alongside Summer Lane, as we know of some of these connections existence, and possibly from Sylvia Close too, since are aware of a possible culvert exiting Sylvia Close and connecting to the Summer Lane culvert. This will need to be investigated as it may encroach into the development site's SE corner and if this is the case further discussion will need to be had. It should also be noted that a disused weir exists some 140 metres downstream of the 300mm diameter culvert which hasn't been mentioned in the report and may impact flows.

With regard to urban contributions, Ardent's hydrological assessment compared the loH124 and ReFH2 methods of peak flow calculation. The ReFH2 calculation allows for an urbanisation factor to be applied. This brings the peak flow in the 1 in 100 year plus 40% climate change event for the whole of Catchment B up to 0.22 m³/s (220 l/s). As stated Ditch B has capacity to convey 2640 l/s.

loH 124 method estimate for Catchment B provided a peak flow of 482 l/s in the 1in 100 year plus 40% climate change event, derived from the HR Wallingford online greenfield runoff calculator (available at www.uksuds.com). MicroDrainage Source Control module also has a rural runoff calculator that also allows to factor in urbanisation. Ardent have adopted this method in response to the Drainage Officer's comments and determined that the peak runoff in the 1 in 100 year event (plus 40% climate change) derived from the loH124 method, with urbanisation factor applied is 609 l/s. Again, Ditch B has sufficient capacity to convey these flows.

As an ultra-conservative approach, Ardent have calculated the runoff from 15 properties and associated hardstanding surfaces on Summer Lane and Sylvia Close that are potentially contributing runoff towards Ditch B by adopting the Modified Rational Method. Ardent have calculated that this totals approximately 0.22 ha of hardstanding surfaces . This would result in a peak runoff rate of 123 l/s from these surfaces during the 1 in 100 year event plus 40% climate change. This rate, in addition to the rural runoff rates described in the report would still be easily conveyed by Ditch B. The proposed development is restricting runoff from the combined Site to less than 8 l/s which is equivalent to the Qbar rate of 7.9 l/s. Therefore this rate can be considered relatively insignificant when compared to the contributions from the surrounding rural (and potential urban) areas.

Ardent are unable to comment on the presence of the weir until photographs / survey data is provided or we attend on Site and observe the structure in person.

I have undertaken investigations downstream, focusing on the Mill Farm Park Home Estate. I observed the situation where 'normal' flows from the proposed development site flow into the Mill Farm Park Home Estate via a void/pipe beneath the flood defence bund surrounding the park (SW corner). These flows then gravitate to an onsite pumping station, which then pumps the water back into the Pagham Rife on their northern boundary. Ditch B on the western boundary of Mill Farm Park Home Estate, would appear to act as an overflow arrangement when water levels reach a certain level. The pumping arrangement is far from ideal in terms of it taking flows from outside of the low lying park itself and not to mention water breaching the flood defence

bund via the void/pipes beneath. The park itself has a history of flooding and pump failure is a significant risk and something that needs to be considered.

As the Drainage Officer states, the existing system serving the Mill Farm Park Home Estate is not fit for purpose, as it suffers from existing flooding problems and is dependent on a pumped system. The proposals put forward by RCP are therefore hugely beneficial by reducing pressure on this system and allowing for a gravity connection from the Site westwards to Pagham Rife. The scheme would mean surface water arising from the existing site will bypass both the void/pipe and flood defence bund and not enter the Mill Park Farm Estate providing betterment to this area. The risk of flooding to the built up area in terms of volume of flows entering the pumping station will be reduced and hence the risk of flooding. Flows from the proposed development are still ending up in the watercourse to the north west of the Site away from existing more vulnerable use (Residential). The proposals provide significant betterment in terms of reducing the pressure on the pumping station and result in less flood flows entering the residential development.

Additional pipes within the south west section of the Mill Farm Park Home Estate were also observed, and may also extend under the bund into the southern adjoining land and/or development site. These will need to be investigated to ensure they are not affected by the proposed development. I would suggest that a meeting takes place to discuss these findings and explore opportunities.

Appendix D of the RCP FRA identified a 150 mm pipe at the western end of Ditch A which was also in need of remedial works. This is clearly insufficient to manage flow from either the Crayfern or proposed development Site. This information alongside other anecdotal evidence suggests that the Mill Farm Park Home Estate drainage network as a whole is not fit for purpose and is under pressure. Ardent would recommend avoiding connecting into this system at all costs and the proposed scheme by RCP allows for this.

Ardent would welcome the opportunity to sit down and discuss these issues in further detail as well as walk over the Site and possibly some initial onsite investigation.

In terms of the proposal to redirect the northern ditch into the onsite suds system, and the fact that groundwater (which cannot be quantified) will enter the system via the northern ditch, is not a proposal that we would entertain, due to the unknown groundwater effects on capacity, operation of the suds, etc. A more satisfactory option would be to;

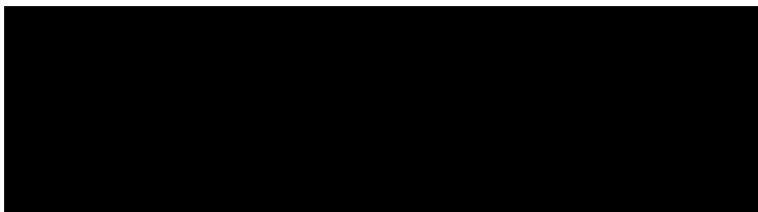
1. Keep the northern ditch independent of the onsite suds and work together to further investigate the existing culvert downstream (ie. on southern boundary of Mill Farm Park Estate) to ensure the free flow of water in a westerly direction.
 - *As stated, Mill Farm Park Estate assets should be avoided. Ditch A (northern ditch) has sufficient capacity to take flow from Crayfern and eastern portion of Site.*
2. Connect the surface water drainage from the eastern portion of the development into the western portion, rather than connecting the eastern portion directly into the northern ditch. Of course this will mean laying a pipe across third party land, but this can be achieved by either negotiation with the landowner or by approaching Southern Water to use their statutory powers to requisition a pipe across the land in question.
 - *This is not considered to be a feasible option for the developer due to timescales involved.*
3. The 300mm pipe downstream of the developments discharge will need upsizing based upon the unknown groundwater influence in terms of capacity and to also reduce blockage risk.
 - *As the 300mm diameter pipe is on third party lands, it is down to the landowners and their duties as a riparian owners to maintain this 300mm diameter pipe. However, if the Council in their role as LLFA facilitates this work in terms of securing landowner approvals, the developer would be more than happy to upsize.*
4. The disused weir should be investigated and removed if found to be detrimental/not required. We don't believe this is of relevance as we are maintaining greenfield runoff rates from the development.

We look forward to meeting on site next week, where we can hopefully reach an agreeable solution.

Many thanks.

Kind regards,

Daniel O'Shea
Planning Manager



www.vistrypartnerships.co.uk
www.drewsmithhomes.co.uk



From: Simon Davis <Simon.Davis@arun.gov.uk>

Sent: 08 January 2020 11:20

To: Adrian Barker [REDACTED]

Cc: Daniel O'Shea (Drew Smith) [REDACTED]

Subject: RE: Summer Lane, Pagham P/70/19/RES

CAUTION EXTERNAL EMAIL: This message originated outside the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Dear Adrian,

Thanks for your email.

I have received the attached responses from Drainage and Highways and provide these for your information. I have spoken with our drainage engineer Paul Cann and he suggests that a meeting on site would be the best way forward in relation to drainage. The Highways response requires no further action.

I can confirm that the decision will be delegated but it is difficult to advise of anticipated timescales with the drainage still to agree.

Kind Regards

Simon J Davis MRTPI | Principal Planning Officer, Planning Department, Directorate of Place, Arun District Council |
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Save the environment - think before you print.

From: Adrian Barker [REDACTED]

Sent: 06 January 2020 09:52

To: Simon Davis <Simon.Davis@arun.gov.uk>

Cc: Daniel O'Shea (Drew Smith) [REDACTED]

Subject: Summer Lane, Pagham

Simon

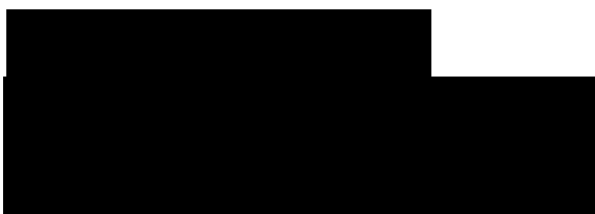
Happy New Year to you- I hope you had a good break.

Further to communications before Christmas, we remain keen to move the referenced application to determination ASAP. In this regard, can you please advise of any outstanding issues, confirm that the decision is still to be made under delegated authority, detail next steps and advise of anticipated timescales.

Your thoughts would be much appreciated. As always, I am happy to discuss.

Regards

Adrian Barker
Director



<http://www.arun.gov.uk>

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