[redacted]

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From: Anita Gardner <Anita.Gardner@arun.gov.uk>
Sent: 31 March 2020 10:28
To: Planning.Responses <Planning.Responses@arun.gov.uk>
Subject: FW: FW: Pound Place A/18/20/DOC

Please scan as correspondence with consultee

Anita Gardner | Principal Planner, Directorate of Place, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF
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From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Sent: 31 March 2020 10:11

To: Anita Gardner <Anita.Gardner@arun.gov.uk>
Subject: RE: FW: Pound Place A/18/20/DOC

Hi Anita,

This is the only feedback from Paul (regarding point 11). The others are fine.

"3202 shows a junction – still needs 90 degrees option removed (bad practice to connect at 90 degrees, 45 degrees provides better flow arrangement). Junctions are far more robust than saddles. Sewers for adoption extract enclosed – shows junction. Water companies will allow saddle connections when the pipe being connected to is greater than 300mm diameter and the connecting pipe is less than or equal to 50% of the diameter of the pipe being connected to. Don't think we have this situation? Not a fan of saddles anyway – seen too many fail in the past. Hope this makes sense. SFA text extraction below;

4. The vertical angle between the connecting pipe and the horizontal should be greater than 0o and not more than 60o (see Figure B.24).
5. Where the connection is being made to a sewer with a nominal internal diameter of 300 mm or less, connections should be made using 45o angle, or 90o angle, curved square junctions (see Figure B.24).
6. Connections made with junction fittings should be made by cutting the existing pipe, inserting the junction fitting and jointing with flexible repair couplings or slip couplers.
7. Where the connection is being made to a sewer with a nominal internal diameter greater than 300 mm:
a) where the diameter of the connecting pipe is greater than half the diameter of the sewer, the connection of an access point should be constructed; or
b) where the diameter of the connecting pipe is less than or equal to half the diameter of the sewer, then the connection should be made using a preformed saddle fitting.
8. Connections made with saddle fittings should be made by cutting and safely removing a core from the pipe and jointing the saddle fitting to the pipe, in accordance with the manufacturer's instructions, to ensure a watertight joint. The connecting pipe should not protrude into the sewer."

Kind Regards

Sarah Burrow
Engineering Assistant

From: Anita Gardner <Anita.Gardner@arun.gov.uk>
Sent: 31 March 2020 09:24
To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Subject: FW: FW: Pound Place A/18/20/DOC

Hi Sarah,
Does this additional info now provide adequate info to allow discharge of the condition?
Thanks
Anita

Anita Gardner | Principal Planner, Directorate of Place, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF
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From: Paul Laverty [redacted]
Sent: 31 March 2020 06:01
To: Anita Gardner <Anita.Gardner@arun.gov.uk>
[redacted]
Subject: Re: FW: Pound Place A/18/20/DOC

Dear Anita,

Please see below our responses to your comments in your email last week. I've attached the relevant drawings that been updated as per our responses which are 5 drawings in total.

11. It is widely considered best practice to design all drainage for a development to the same standard set for all sewerage authorities first, that being Sewers For Adoption (SFA), regardless if the drainage is to be adopted or remain private and any aspects of the design not covered by this standard designed to Document H. SFA states that blind connections are to use a saddle connection as shown by figure B.24 of SFA 7th Ed.. The submitted design follows this philosophy with the saddle connection shown on our drainage details drawing PP-ISS-XX-XX-DR-C-3202, detailed labelled as "Connections to Sewers".

As this connection method is used nationally by all sewer authorities, as outlined by the SFA document which is in affect a national policy, compiled by the Water Research Centre (WRC), please provide us with what overriding legislation or reasons why this method has become invalid.

12. The detail does not need to be site specific for the same reasons that only typical manholes, petrol interceptors, Hydrobrakes etc. are drawn with key information that varies between each unit or group of units provided in table form. The key information specific for each groups of cellular units / soakaway is provided in a summary table on the drainage plan adjacent each soakaway. The drawing has been amended to make these more clear.

The depth of water in the soakaway units for SCS1 -SCS4 in order for the 10yr event is 0.428, 1.036, 0.900, 0.492m. As the crates are 0.4m high with an inlet at its base and midpoint, units SCS1 & SCS4 have been adjusted so the inlet is 0.6m from the base and SCS2 & SCS3 set 1.2m from their base. The notes on the drainage plan listing their key information has been amended accordingly.

19. The diffuser detail has been amended to make this more clear.

23. SFA Type 3 manhole can be constructed using flexible material (SFA figure B.16) or rigid material (SFA figure B.19). To avoid confusion, between the two they are referred to as 3a and 3b respectively. While SFA type 4 manhole is a rectangular chamber, it is for manholes with a maximum depth from cover level to soffit being 1m whereas Type 3 is for a maximum depth of 3m. All manholes that are to be rectangular in shape for this site are more than 1m but not greater than 3m in depth, therefore they are classified as being Type 3 and their reference on the manhole schedule as 3b is correct.

29. A backdrop has been added as requested to flatten the gradient.

If you would like to discuss any of the points above, please feel free to contact myself.

PAUL LAVERTY | Civil Engineer
HND

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[redacted]

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On Thu, 26 Mar 2020 at 16:13, Shivani Bhardwaj [redacted] wrote:

> Paul & Tom,
>
> Please see the response from the planner below with regards to the discharge of the planning condition. There are still some items to address, please can you ensure this is done as a priority as we have also been given a timescale to ensure this is done and returned to them.

Kind regards,

SAVISTA
DESIGN AND BUILD

SHIVANI BHARDWAJ
Technical Coordinator

[redacted]

3 Woodbrook Crescent, Radford Way
Billericay, Essex CM12 0EQ

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From: Anita Gardner <Anita.Gardner@arun.gov.uk>
Sent: 26 March 2020 16:01
To: Shivani Bhardwaj [redacted]
Subject: FW: Pound Place A/18/20/DOC

Hi Shivani,

Please see e-mail below from our Drainage Engineers. I await your comments in due course. The DOC expires next Friday. If we can't agree to discharge by that time then we will need to agree an EOT.

Regards

Anita

Anita Gardner | Principal Planner, Directorate of Place, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF
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From: Paul Cann <Paul.Cann@arun.gov.uk>
Sent: 26 March 2020 14:58
To: Planning.Responses <Planning.Responses@arun.gov.uk>; Anita Gardner <Anita.Gardner@arun.gov.uk>
Cc: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Subject: RE: Pound Place A/18/20/DOC

Hi Anita

Sarah and myself have looked at this now and whilst we are happy the applicant has cleared most of the points (and made it easier to assess by highlighting changes on the plans – thank you), the following still require addressing: (I have put my original point followed by their reply in blue and our response in red).

1: We are concerned that the calculations show flooding on every catchment in the 1 in 100 year +40% event. Given the excellent infiltration rates on the site we would be keen to see all surface water kept underground and infiltrating, particularly given that there is not a constraint on space. If the applicant is insistent about allowing flooding in the 1 in 100 year +40%, then they must show that the flood water can be contained on site without detriment to access and the building and show clearly at which points the system will flood. The Source Control output is misleading as the flooded volume is held in the upstream network as shown by the network modelling results with only Network 3 flooding by 0.027m3 during the 100yr event. The Source Control also is not as accurate as the network model results as this does not take into account that the storm water enters the network at different points and therefore does not converge at the infiltrating structure at the same time. For these reasons we have removed the source control results from the submission to avoid confusion and have included the graphs for the infiltration device showing the Volume vs Time and Depth vs Time relationship. The graphs for all infiltration devices are all less than the allowable limit. I note the source control output which as you say is misleading, as it appears to be only modelling the individual crate soakaways as opposed to the whole network and therefore not taking into account the true time of concentration and storage within pipework and manholes. I can confirm that the network simulations show the systems to store the 1 in 100 yr + 40% below ground level, which exception of network 3 where there is minimal above ground flooding, which is not an issue. Therefore, there are no further issues to address on this point.

11: Need a construction detail for an oblique junction. Saddle connection detail added to the construction details, now spread over 2 drawings. There has been some confusion here over what we were asking for, we just wanted a

detail for an oblique junction, not a saddle. Oblique being 45 degrees and therefore any reference to 90 degrees to be removed. Saddle connections would not be permitted. Please adjust.

12: Soakaway detail shows pipes at the top of the soakaway, which we agree with. However on the plan the invert levels are the same as the base level, implying that they come in at the base. Please adjust. Infiltration detail is typical with exact levels, dimensions and pipe configuration shown on the

drainage plan. Due to the depth of the inlet(s), the lowest inlet is set to the base of the unit to reduce excavations. In addition to this, there are no negative impacts that will cause flooding or other issues for the site and surrounding area by having the inlets set to the base of the unit. Design has not been amended. The construction drawing should be site specific. Good practice is to make connections at as high a level as possible to allow for some siltation in the soakaway (will avoid causing issues to inflow due to any silt) and prevent most storm events impeding flow into the soakaway, BRE365 states that the 1 in 10 year storm must be stored below the lowest incoming pipe. Please therefore adjust to achieve as higher connections as possible.

19: Please show pipe diameters from diffuser units. Pipe diameter shown on detail. Can't see this on the diffuser detail or the plans.

23: Please make it clear what each of the manhole types are on the key. Manhole types are included in the manhole schedule now included in the submission. Fine, although the manhole schedule does not refer to Type 4, Type 3b instead? Please ensure that the naming is consistent.

29: Fall between S2.07 and pipe to S2.04 is too steep. Please insert a manhole with backdrop at the pipes' connection. Fall is not to steep, gradient left as is. Flow from a 1:5 could interfere/obstruct flow in the carrier drain. A manhole is required with a backdrop to reduce the gradient to something more acceptable.

Kind Regards

Sarah Burrow

Engineering Assistant

&

Paul Cann

Principal Engineer (Drainage)

Paul Cann | Principal Engineer (Drainage), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF
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From: Anita Gardner <Anita.Gardner@arun.gov.uk>
Sent: 11 March 2020 09:35
To: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Subject: FW: Pound Place A/18/20/DOC
Importance: High

Hi Sarah,

I think you have seen the attached details, just in case you haven't here they are. Can you let me have your comments when you are ready?

Thanks

Anita

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From: Shivani Bhardwaj [redacted]
Sent: 11 March 2020 08:26
To: Anita Gardner <Anita.Gardner@arun.gov.uk>
Cc: Andrew Burns [redacted]
Subject: RE: Pound Place A/18/20/DOC
Importance: High

Hi Anita,

Thank you for the response, Sarah Burrows did get this to us on Friday in your absence, please find attached amended drawings and information for her review.

Our Civil engineer did issue this to her last night, but should have sent this directly to yourself, apologies for that.

We have reviewed the comments and attached is:

- a response to each item in the attached letter
- the amended report with revised design including drawings and calculations
- the original email listing the LLFA comments on the submitted

If there are any issues with the PDFS, would like to discuss any of our response or anything else, please feel free to contact myself.

Kind regards,

SAVISTA
DESIGN AND BUILD

SHIVANI BHARDWAJ
Techncial Coordinator

[redacted]

3 Woodbrook Crescent, Radford Way
Billericay, Essex CM12 0EQ

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From: Anita Gardner <Anita.Gardner@arun.gov.uk>
Sent: 09 March 2020 11:20
To: Shivani Bhardwaj [redacted]
Subject: FW: Pound Place A/18/20/DOC

Dear Shivani,

Please see the Drainage Engineer's comments below. Can you let me have receipt of the additional information as soon as possible ?

Regards

Anita Gardner

Anita Gardner | Principal Planner, Directorate of Place, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF
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From: Sarah Burrow <Sarah.Burrow@arun.gov.uk>
Sent: 06 March 2020 16:58
Subject: FW: Pound Place A/18/20/DOC

Engineers Comments Regarding Surface Water Drainage

At present we are not able to recommend that condition 3 is discharged. Please address the following points, the majority of which will enable a contractor to be able to construct the scheme from the plans with confidence. Points 1 and 2 may influence the nature of the design and require immediate attention if work is due to or has already commenced on site (bearing in mind that this is a pre-commencement condition).

1. We are concerned that the calculations show flooding on every catchment in the 1 in 100 year +40% event. Given the excellent infiltration rates on the site we would be keen to see all surface water kept underground and infiltrating, particularly given that there is not a constraint on space. If the applicant is insistent about allowing flooding in the 1 in 100 year +40%, then they must show that the flood water can be contained on site without detriment to access and the building and show clearly at which points the system will flood.
2. We question why there is no permeable paving to the parking at the south of the site? We would be keen to see this for water treatment.
3. Please check that the impermeable areas correlate between the calculations and the plans.
4. On Drwg3000 the foul and surface water pipes are mis-labelled on the key.
5. Need construction detail drawings for permeable paving.
6. Need construction detail drawings for diffuser units.
7. The ACO Channel construction detail requires dimensions.
8. Need a silt trap detail drawing for the ACO Channel.
9. Need road gully details (these should be trapped).
10. All non-manhole junctions to be oblique.
11. Need a construction detail for an oblique junction.
12. Soakaway detail shows pipes at the top of the soakaway, which we agree with. However on the plan the invert levels are the same as the base level, implying that they come in at the base. Please adjust.
13. Manholes S2.04, S1.04 and S1.3 are assumed to be rectangular brick construction. A detail is shown for the backdrop but no the manhole itself. Please clarify and/or show a detail to illustrate this.
14. Please make it clear that the Catch Pit construction detail is a modification of "Type 2 Manhole" and increase the concrete thickness at the base to 225mm.

15. Remove Class B bedding.
16. Specify when Class Z or Class S should be used (depth of cover) on the detail drawing.
17. Please show cover levels and base levels of permeable paving on the plan.
18. Please show outlet invert level from the diffuser units.
19. Please show pipe diameters from diffuser units.
20. Please show cover levels for all soakaways.
21. Please make it clearer which dimension is the depth for the soakaway (eg "@0.8m depth").
22. Make it clear that all pipes are to connect soffit to soffit.
23. Please make it clear what each of the manhole types are on the key.
24. Amend invert level IL(x) for S4.03(CATCHPIT), this is currently the same as invert level of Soakaway CS4 (zero gradient) – shown on calcs as 11.970.
25. S1.07 IL(x) is 12.4 on drawing but 12.450 on calcs. Please correct.
26. Two manholes are identical (S1.23), it is assumed that one is in fact S1.15 with CL14.670 and IL13.1. Please correct.
27. Junction directly south of S3.12 is not appropriate (all should be oblique). Please insert manhole here.
28. Manhole S1.06 is incorrectly labelled, assumed to be S3.05, please correct.
29. Fall between S2.07 and pipe to S2.04 is too steep. Please insert a manhole with backdrop at the pipes' connection.

Kind Regards

Sarah Burrow

Engineering Assistant

and

Paul Cann

Principal Drainage Engineer

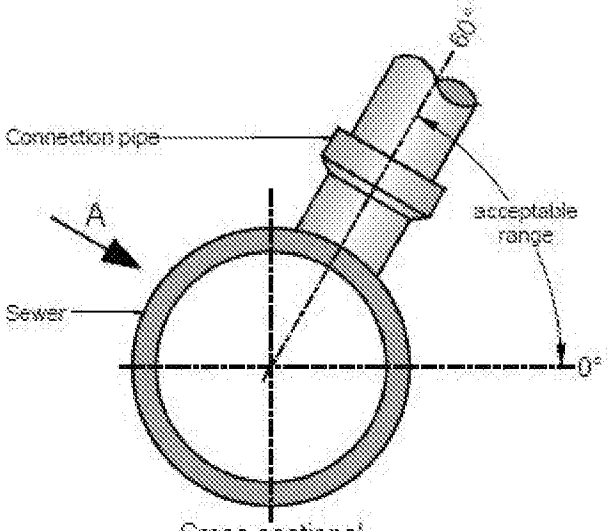
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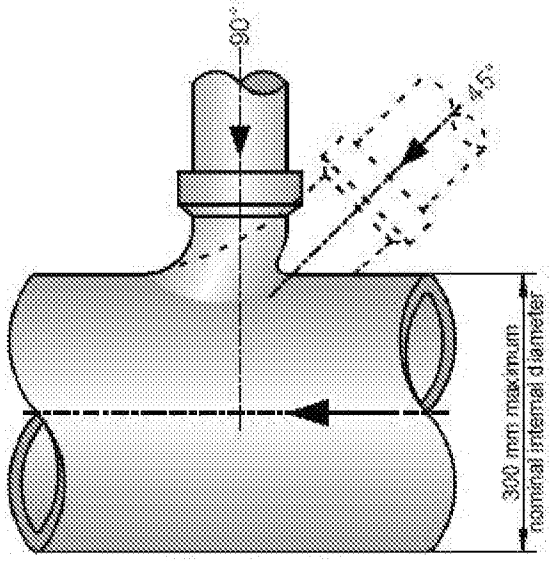
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FIGURE B.24
CONNECTIONS TO SEWER



Cross-sectional view of sewer



Plan viewed in direction of arrow - A