



THAKEHAM

PARTNERSHIPS

Mr S Davis
Arun District Council
Maltravers Road
Littlehampton
West Sussex
BN17 5LF

1st March 2022

Dear Simon,

Re: Land North of Lee's Yard, Woodgate – AL/141/21/RES

I am writing in relation to the submitted Reserved Matters application (Ref: AL/141/21/RES) at Land North of Lee's Yard, Woodgate and the comments received on the 11th January 2022 from your Drainage engineer, Laura Gibbons.

As you are aware, our engineering team have been liaising directly with Ms Gibbons regarding her comments and following these discussions we are now in a position to provide a comprehensive response detailing how we have responded to the observations raised. For ease I have pulled out relevant comments and detailed our response below, please also find enclosed a revised Flood Risk Assessment as referred to below.

Drainage Engineer Comment: *'Some groundwater monitoring has been completed to date. This shows groundwater to be shallow in some parts of the site. We expect monitoring to continue through until the end of March. In any areas where groundwater permits permeable paving should be left unlined to allow infiltration in summer months.'*

The climate change allowance section within the report is inaccurate. An allowance of 40% must be applied to design, not just as a sensitivity, as per national requirements "For flood risk assessments and strategic flood risk assessments, assess both the central and upper end allowance....Design your drainage system to make sure there is no increase in the rate of runoff discharge from the site for the upper end allowance.'

Response: We have noted this comment, this is covered in the submitted report which adheres to the requirements of the National Planning Policy Framework. The calculations have been further refined as highlighted therein.

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Drainage Engineer Comment: *Infiltration testing was completed in early October and at depth. The infiltration testing failed, likely as a result of being below groundwater level. This is not sufficient evidence to rule out infiltration. We will review any potential for infiltration once further groundwater monitoring has been completed.*

Response: As agreed through discussion with Ms Gibbons, a programme for continued monitoring and testing has been agreed.

Drainage Engineer Comment: *The proposed attenuation basin is proposed within very close proximity of the watercourse. The basin must be located a minimum of 3m from ordinary watercourse. The location of existing trees should also be carefully considered with basin design. The basin is proposed to be bunded above surrounding ground level, this will result in water being held above surrounding ground level. Water should be retained below existing ground level as much as possible to remove the risk of breach.*

Response: The SW basin location, shape and elevation have been revised in coordination with the project Arboriculturist. This now clarifies this also complies with a 3m buffer between the top of bank (watercourse) and top of bank (SW Basin).

Drainage Engineer Comment: *The proposals include significant land raising across the majority of the site, this is not compliant with policy. Ground raising should be minimised to ensure it does not result in an increase in offsite flood risk. Wider planning considerations regarding land raising are also likely.*

Response: The level design for this site is informed by numerous factors. We must consider the high groundwater levels to ensure surface water storage provision remains unsaturated. There is also a possibility to achieve a gravity foul drain solution subject to further investigations of existing apparatus. Typically, most developments raise land by 0.3m – 0.5m to balance cut and fill so we exceeded this threshold by a marginal amount, at the worst case incorporating a raising of 0.8m for the eastern part of the site. Importantly, the proposals will not alter the historic overland flow exceedance routing to the eastern boundary (watercourse valley).

Drainage Engineer Comment: *We have the following comments on the information submitted to support this reserved matters application. These points should be resolved prior to determination of this application to evidence that there is sufficient room for surface water drainage within the proposed layout.*

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1. *Please adjust the basin position to ensure a minimum of 3m between the top of bank of watercourse and toe of retaining bund.*

Response: As discussed with Ms Gibbons, we have aligned this buffer to be top of bank (watercourse) and top of bank (SW Basin). This can therefore be conditioned accordingly as the two features can share the 3.0m buffer.

2. *Please adjust the basin position to ensure a minimum of 3m between the toe of bund of the detention basin and existing tree root areas.*

Response: This has been reviewed and coordinated with our Arb consultant and the RPZ areas are now shown on the drainage plan. The basin footprint (to top of bank) has been adjusted and shifted back slightly to be clear of the RPZ. We are permitted to locally batter down slightly within these areas noting the tree boles are set back.

3. *Please adjust the basin size to ensure that 300mm of freeboard is provided above peak anticipated water level.*

Response: The 24hr half drain down times have been reviewed against the current flow controlled rated of 2.0l/sec so we can consider if the flow rate (currently pro-rata QBAR) is too low. The calculations have also been expanded to demonstrate a wider selection of return periods to observe the peak water levels/freeboard within the SW basin. Firstly please note the 'inflow' figures are a 'rolling figure' due to the dynamic hydraulic analysis, however the SW basin node should still be reporting a similar figure here for the 24hr period as below:

Return Period (+45%)	Inflow	Outflow	% Drain Down
2yr	366m3	254m3	69%
10yr	520m3	261m3	50%
30yr	654m3	285m3	43%
100yr	835m3	309m3	37%

It can be seen with all return periods that a flow rate of 2.0l/sec does not achieve 50% drain down upwards of the 10yr event (i.e. we are not tracking greenfield increases per return period so it will get worse). Adhering to standard milestones, peak water levels/freeboard are annotated on the SW basin sections as follows:

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- 30yr + 40% + 5% No flooding, 219mm freeboard
- 100yr + 20% + 5% No flooding, 151mm freeboard
- 100yr + 40% + 5% No flooding, 21mm freeboard

There is some risk of reduced storage with secondary rainfall occurrences on day two, however should the SW basin fail (breach of bank) exceedance flow falls easterly, directly into the existing surface water 'valley' without affecting new residential dwellings and/or 3rd parties, as per the current scenario. This is therefore a trade off between 'flow control' and 'freeboard'. Given that post completion run-off will be reduced to QBAR for all return periods (significant betterment), we consider the freeboard to be more than sufficient as the exceedance flow strategy is controlled. In light of this appraisal the LPA may permit a slightly higher flow rate to appease the 24hr drain down, or include a variable flow rate set at the 30yr water level, the preliminary design proves the worst case strategy can be accepted.

4. *Please adjust the basin so that it is set lower in the ground.*

Response: Whilst the groundwater levels are observed to be shallow, the proposed SW basin has been lowered slightly which also slightly improves the surrounding tie-ins.

5. *Please supply details of the improvements that will be completed to the ordinary watercourse.*

Response: An Additional annotation is now shown. This allows for the lower section of the watercourse to be cleared of debris/siltation and locally re-graded so the base and top of banks will be re-worked to ensure this blends with the SW basin with a minimum 1:4 maintenance slope.

6. *Flotation calculations should be supplied to evidence that it will be possible to deliver the basin as proposed and that design will adequately consider the risk of flotation.*

Response: A flotation calculation has been included within the calculations section of the report which confirms a standard liner construction with a soft finish can be implemented. This is of course subject to review of all seasonal groundwater data.

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Following discussions, we trust the above and accompanying revised Flood Risk Assessment provides a satisfactory response to the observations raised in the response received on the 11th January 2022 (appended for ease).

Yours Sincerely



Sarah Sutcliffe
Planning Manager

Enc. As above

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From: Amanda Scholes on behalf of Planning.Responses
Sent: 12 January 2022 08:00
To: Planning Scanning
Subject: FW: Planning Consultation on: AL/141/21/RES

AMANDA SCHOLES
PLANNING RECEPTIONIST



To register to receive notification of planning applications in your area please go to
<https://www1.arun.gov.uk/planning-application-finder>

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www.arun.gov.uk

Sign up to our newsletter [here](#)



From: Laura Gibbons [REDACTED]
Sent: 11 January 2022 15:04
To: Planning.Responses [REDACTED]
Cc: Simon Davis [REDACTED]
Subject: RE: Planning Consultation on: AL/141/21/RES

Engineers Comments Regarding Surface Water Drainage

Some groundwater monitoring has been completed to date. This shows groundwater to be shallow in some parts of the site. We expect monitoring to continue through until the end of March. In any areas where groundwater permits permeable paving should be left unlined to allow infiltration in summer months.

The climate change allowance section within the report is inaccurate. An allowance of 40% must be applied to design, not just as a sensitivity, as per national requirements "For flood risk assessments and strategic flood risk assessments, assess both the central and upper end allowance....Design your drainage system to make sure there is no increase in the rate of runoff discharge from the site for the upper end allowance."

Infiltration testing was completed in early October and at depth. The infiltration testing failed, likely as a result of being below groundwater level. This is not sufficient evidence to rule out infiltration. We will review any potential for infiltration once further groundwater monitoring has been completed.

The proposed attenuation basin is proposed within very close proximity of the watercourse. The basin must be located a minimum of 3m from ordinary watercourse. The location of existing trees should also be carefully considered with basin design. The basin is proposed to be bunded above surrounding ground level, this will result in

water being held above surrounding ground level. Water should be retained below existing ground level as much as possible to remove the risk of breach.

The proposals include significant land raising across the majority of the site, this is not compliant with policy. Ground raising should be minimised to ensure it does not result in an increase in off site flood risk. Wider planning considerations regarding land raising are also likely.

We have the following comments on the information submitted to support this reserved matters application. These points should be resolved prior to determination of this application to evidence that there is sufficient room for surface water drainage within the proposed layout.

1. Please adjust the basin position to ensure a minimum of 3m between the top of bank of watercourse and toe of retaining bund.
2. Please adjust the basin position to ensure a minimum of 3m between the toe of bund of the detention basin and existing tree root areas.
3. Please adjust the basin size to ensure that 300mm of freeboard is provided above peak anticipated water level.
4. Please adjust the basin so that it is set lower in the ground.
5. Please supply details of the improvements that will be completed to the ordinary watercourse.
6. Flotation calculations should be supplied to evidence that it will be possible to deliver the basin as proposed and that design will adequately consider the risk of floatation.

In summary, insufficient detail regarding the existing ordinary watercourse network has been supplied to support the proposed layout. We wish to raise a **holding objection** to this application. Surface water drainage must be considered at the earliest opportunity and form part of the layout development process. Furthermore, inadequately considering drainage at this stage could potentially result in a lack of sufficient capacity being provided for surface water drainage and therefore the development could lead to an increased risk of flooding elsewhere.

Please re-consult us once further information has been supplied.

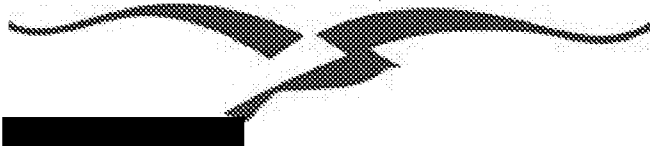
Kind regards,

Laura Gibbons

Drainage Engineer

Engineering Services

Please note that I work Tuesdays 08:00-16:00 for Arun only.



Arun District Council, Civic Centre, Maltravers Rd, Littlehampton, West Sussex, BN17 5LF

From: Planning.Responses <[REDACTED]>
Sent: 11 January 2022 07:34
To: Land Drainage <[REDACTED]>
Subject: Planning Consultation on: AL/141/21/RES

To: **Engineers (Drainage)**

NOTIFICATION FROM ARUN DISTRICT COUNCIL

The Town & Country Planning Act 1990 (as amended)

Town & country Planning (Development Management Procedure) (England) Order 2015 - Article 6

Approval of Reserved Matters Following Outline Approval

Application No: AL/141/21/RES
Registered: 20th December 2021
Site Address: Land North of Lee's Yard Lidsey Road Woodgate PO20 3SU
Grid Reference: 493870 104003
Description of Works: Approval of reserved matters following outline planning permission AL/21/20/OUT for the approval of the appearance, layout, scale and landscaping for 5 No 4-bed dwellings, 14 No 3-bed dwellings & 19 No 2-bed dwellings. This site is in CIL Zone 3 and is CIL Liable as new dwellings.

The Council have received the above application.

[Click here to view the application details](#)

This application has been identified as CIL Liable. Therefore please be aware that, in accordance with Appendix 2 of the Arun CIL Charging Schedule, your consultation response should only include requests for Section 106 for onsite mitigation, Pagham Harbour Management Contributions (if applicable) or Affordable Housing. "Off" Site mitigation measures directly related to this development should be dealt with by condition if possible to ensure the scaling back of Section 106 if possible. CIL contributions will be used for "off" site infrastructure mitigation schemes. Therefore if this proposal triggers the need for "off" site mitigation, please ensure that you engage in the CIL Infrastructure List Consultation process upon receipt of a consultation letter.

Should you have any comments to make, these should be sent by replying to this email by 10th February 2022 . You can also monitor the progress of this application through the Council web site:

<https://www.arun.gov.uk/planning-application-search>

The application will be determined having regard to the development plan policies (if any are relevant) and other material considerations. The development plan can be accessed via the website

<https://www.arun.gov.uk/development-plan> as can information on what comments we can consider

<https://www.arun.gov.uk/planning-application-comments>

Please be aware that any comments you may make will be available on our website so please do not insert personal details or signatures on your reply.

Should the application go to appeal the Planning Inspectorate will publish any comments made to the Council on their website: <https://app.planninginspectorate.gov.uk/> but they will protect personal details.

In the absence of a reply within the period stated, I shall assume that you have no observations to make

Yours sincerely

Mr S Davis

Planning Officer- Arun District Council

[REDACTED]

[REDACTED]

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