

From: Michael Eastham
Sent: 16 January 2018 12:21
To: Planning.Responses
Subject: FW: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Please upload on Ocella as additional comment from ADC Drainage Engineer.

Thanks,

Michael

From: Paul Cann
Sent: 16 January 2018 11:41
To: 'John Freeman'
Cc: [REDACTED]
Subject: RE: BN/28/17/RES - The former Lillies Caravan Park, Barnham

John

The 'detailed' drainage design would be dealt with under a 'Discharge of condition' application, however, the proposed drainage drawing provided to date has been lacking in terms of suds features to provide adequate water treatment, etc. You will note on application BN/32/15/OUT, we made comments mentioning the use of permeable surface driveways (see enclosed). Whilst infiltration has now been ruled out, there is no reason why tanked permeable driveways cannot be incorporated. These structures would provide attenuation and water treatment. The risk of pollution is highest from vehicles standing on driveways, due to oil leaks, etc.

The pond itself will provide minimal water treatment as it is offline, and normal flows will not pass through it. Therefore, at this stage we are looking for a slightly more detailed drainage layout incorporating measures to provide water treatment in order to reduce the pollution risk. Further detail can be dealt with at DOC stage.

By incorporating, the permeable paving, you may also be able to reduce the size of the pond (subject to calculation). If you wanted to go a step further and use permeable roads, then again treatment would be greatly improved and offer the potential of further reductions in the size of the pond.

Reducing the size of the pond may help with the current issues associated with the public open space provision?

Regards

Paul Cann
Senior Engineer (Drainage & Coastal)

Paul Cann | Senior Engineer (Drainage & Coastal), Engineering Services, Arun District Council | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF



From: [REDACTED]
Sent: 08 January 2018 07:54
To: Paul Cann
[REDACTED]
Subject: RE: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Paul,

I have been forwarded your comments in relation to the above application.

While I understand your comments below the proposals are fully compliant with the FRA approved at the outline (BN/32/15/OUT). Therefore, can you please outline further your objection to the reserved matters application based on the requirements of the approved FRA?

Kind regards

For Woods Hardwick Infrastructure LLP

John Freeman

Partner

From: M [REDACTED]
Sent: 06 January 2018 20:14
To: Mahsa Pourebrahimi; Matthew Driver
Subject: FW: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Hi Matthew and Mahsa,

Please see the comments from Paul Cann, the ADC Drainage Engineer below.

Paul is requesting details on the SuDS on the site.

I look forward to receiving your response.

Kind regards,

Michael

From: Paul Cann
Sent: 04 January 2018 11:55
To: Michael Eastham

Cc: Sue Howell

Subject: RE: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Hi Michael

To date, I have not seen any proposals to incorporate other suds storage features in the development ie. tanked permeable paving. This could reduce the size/depth of pond required, as additional water storage will be provided.

We did make it clear to them that we wanted to see other suds features on the development to help provide further water treatment, etc. This is now particularly important as the pond will be 'offline' ie. normal flows will not pass through the pond, and water treatment will therefore be limited based upon their current scheme.

Until such time that they have addressed the overall drainage arrangements, and provided revised calculations to suit, I cannot really comment on Sue's concerns.

Please note that the pond will also need to be tanked/lined to ensure that it does not fill with groundwater (high water table here).

Regards

Paul Cann

Senior Engineer (Drainage & Coastal)

Paul Cann | Senior Engineer (Drainage & Coastal), Engineering Services, [Arun District Council](#) | Location: First Floor, Arun Civic Centre, Maltravers Road, Littlehampton, BN17 5LF

Internal: 37819 | External: +44 (0) 1903 737819 | Fax: +44 (0) 1903 716019 | E-mail: Paul.Cann@arun.gov.uk

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Save the environment - think before you print.

From: Michael Eastham

Sent: 04 January 2018 11:16

To: Paul Cann

Subject: FW: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Hi Paul,

Please see Sue Howell's comments below, which I have highlighted.

Could you send me a reply?

Regards,

Michael

From: Sue Howell

Sent: 03 January 2018 17:15

To: Michael Eastham

Subject: RE: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Dear Michael

Thank you for forwarding the supporting documentation as requested. I have the following comment to make re this proposal.

- I still remain to be convinced that a basin with a 1.0m depression taking the majority of the POS provides safe and useable POS? I would recommend that now that this detail has been supplied that it is run past our Drainage Engineers for their view on the 1 in 100 year storm event scenario and whether they concur that this area would otherwise remain dry in reality? I now refer this to them for an expert opinion.
- The repositioning of Block A I feel has just shifted the issue not resolved it. The omission of Block A would be a better outcome.
- The drawing MAT21212 11E Sheet 2 now details Informal play space adjacent to the SuDS depression. The requirement for this site regarding play is for on-site LEAP, detail of this has still not been provided or detail of such specified ('informal play' annotation does not provide this detail) Please therefore ask for the detail of the play offer detail; as previously requested below, to be provided.

I would still recommend that play information is outstanding and that the SuDS proposal requires additional consultation.

Regards

Sue

Sue Howell | Leisure and Landscape Officer, Greenspace, Engineering and Emergency Planning, Arun District Council | Location: Bognor
Regis Town Hall, Clarence Road, Bognor Regis, West Sussex, PO21 1LD
Internal: 37943 | External: +44 (0) 1903 737943 | E-mail: sue.howell@arun.gov.uk

Visit Arun's web site at www.arun.gov.uk



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From: Michael Eastham
Sent: 15 December 2017 11:00
To: Sue Howell
Subject: FW: BN/28/17/RES - The former Lillies Caravan Park, Barnham
Importance: High

Hi Sue,

Please find attached the amended plans for BN/28/17/RES.

Regards,

Michael

From: [REDACTED]
Sent: 15 December 2017 10:39
To: Michael Eastham
Cc: [REDACTED]
Subject: RE: BN/28/17/RES - The former Lillies Caravan Park, Barnham
Importance: High

Dear Michael,

Thanks for your Email. Please find attached revised drawings updated to address the landscape officer's comments including:

- Landscaping drawing 11E-sheet 1 & 2 demonstrating the position of informal play area
- Drawing No. 17748-5-SK003, Section illustrating the cross-section of the basin in relation to the apartment block.

We trust you have everything to determine the application. However please do not hesitate to contact us if you require any further information or clarification.

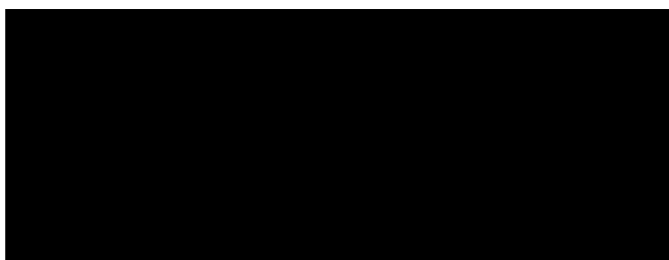
Read receipt for this Email is much appreciated.

Kind regards



Formerly Tetlow King Ltd.

Mahsa Pourebrahimi RIBA
Chartered Architect



The office will be closed from
on Tuesday 2nd January 2018

Please also note we will also
December for our Christmas

Merry
Christmas

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From: Michael Eastham [<mailto:Michael.Eastham@arun.gov.uk>]
Sent: 11 December 2017 11:07

To: Mahsa Pourebrahimi
Subject: FW: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Hi Mahsa,

In Matthew's absence, please could you address the email request below.

Kind regards,

Michael

From: Michael Eastham
Sent: 11 December 2017 11:00
To: 'Matthew Driver'
Subject: FW: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Hi Matthew,

Please see the email from Sue Howell, below requesting a cross section through the south western corner of the site so that the basin shape in relation to the repositioned apartment block can be viewed as proposed build; and confirmation of where the play offer is to be sited in relation to the open space on the site.

I look forward to receiving the requisite plans.

Kind regards,

Michael

From: Sue Howell
Sent: 15 November 2017 12:53
To: Michael Eastham
Subject: RE: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Hi Michael

Thanks for the attached, good to see that thought being put into improving the offer here.

- I note that the proposer has suggested '**Attenuation basin shape revised and relocated to south western corner**' please can you request a copy of cross section through this area so that the basin shape in relation to the repositioned apartment block can be viewed as proposed build?
- Please can they also confirm where the play offer is to be sited in relation to the open space on the site?

Thanks and regards

Sue

Sue Howell | Leisure and Landscape Officer, Greenspace, Engineering and Emergency Planning, Arun District Council | Location: Bognor Regis Town Hall, Clarence Road, Bognor Regis, West Sussex, PO21 1LD
Internal: 37943 | External: +44 (0) 1903 737943 | E-mail: sue.howell@arun.gov.uk

Visit Arun's web site at www.arun.gov.uk



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From: Michael Eastham
Sent: 15 November 2017 08:56
To: Sue Howell
Subject: FW: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Hi Sue,

For your information, the applicant has come back with a revised layout for the POS and the apartment building at The former Lillies Caravan Park, Barnham.

What do you think of the amended layout?

Regards,

Michael

From: [REDACTED]
Sent: 10 November 2017 11:23
To: Neil Crowther; Daniel Vick
Cc: 'Ian Carey'; Michael Eastham
Subject: RE: BN/28/17/RES - The former Lillies Caravan Park, Barnham

Dear All

The design team have had discussions and we have sketched the attached which we think goes a long way to addressing the below concerns.

We have reworked the area around the POS to the south which I summarise as below;

- Repositioning of the apartment block so it sits to the southern edge of the development, pushing this back now opens up the area of POS making a more attractive setting as requested.
- The apartment block still acts as a vista stop as we enter the site on Yapton Road progressing south, also as the adjacent development looks into our site from the west.
- Apartment block has active frontage to all sides.
- Low hedge row shown around apartment block defining defensible and private space, note that the apartment block do have Juliette balconies which will open on the POS area.
- Pumping station location revised to western side.
- Attenuation basin shape revised and relocated to south western corner.

We would hope that this solution is now feasible with yourselves and has had a positive impact on the scheme, should this be acceptable then we will arrange for the relevant revisions to be made to the drawing pack and be re-issued to you shortly.

Should you need to speak with me on the phone then please do so as we wish to take this forwards with a positive outcome today.

Kind regards
Matthew



Formerly Tattow King Ltd.

Matthew Driver
Associate Director



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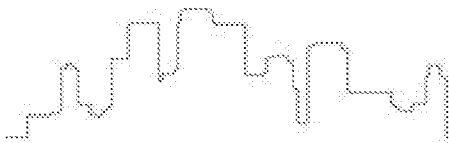
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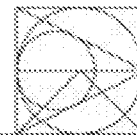
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From: Thomas Callaway
Sent: 16 September 2015 15:55
To: Planning.Responses
Subject: RE: Planning Consultation on: BN/32/15/OUT

Engineers comments in respect to surface water drainage:

The applicant states that surface water will be discharged to the ditch system. Infiltration must be investigated and utilised where possible, for example permeable paving in driveways.

Please apply standard conditions ENGD2A, ENGD4A, ENGD5A and ENGD6A.

Infiltration rates for soakage structures are to be based on percolation tests undertaken in the winter period and at the location and depth of the proposed structures. The percolation tests must be carried out in accordance with BRE 365, CIRIA R156 or a similar approved method and cater for the 1 in 10 year storm between the invert of the entry pipe to the soakaway, and the base of the structure. It must also have provision to ensure that there is capacity in the system to contain below ground level the 1 in 100 year event plus 30% on stored volumes, as an allowance for climate change. Adequate freeboard must be provided between the base of the soakaway structure and the highest recorded annual groundwater level identified in that location.

Any SuDS or soakaway design must include adequate groundwater monitoring data to determine the highest winter groundwater table in support of the design. The applicant is advised to discuss the extent of groundwater monitoring with the Council's Engineers. Supplementary guidance notes are also enclosed for information.

This response covers the detail of a response to a previous application consultation at this site. The conditions cover drainage design and the required investigation into infiltration, discharging to the watercourse, maintenance of the surface water system and the requirement for a three metre easement for access and maintenance to the ditch.

The ditch requires clearance and possible regrading, including beyond the application site boundaries. There are known flooding issues from this system at Hill Lane, and it would be beneficial to undertake work over a significant section of this ditch to allay fears about increased flooding here.

Previous infiltration testing and groundwater monitoring results suggest that very shallow soakage may be feasible in some parts of the site, although infiltration rates are slow.

The existing site potentially drains some surface water to the foul system (Fortridge Consulting Ltd undertook an investigation into this for the last planning application at this location). All surface water connections are to be removed from the foul system, and calculated allowable runoff rates should take this into account.

Regards

Tom Callaway

From: planning.responses@arun.gov.uk [<mailto:planning.responses@arun.gov.uk>]
Sent: 13 August 2015 16:03
To: Thomas Callaway
Subject: Planning Consultation on: BN/32/15/OUT

To: **Engineers (Fluvial Flooding)**

NOTIFICATION FROM ARUN DISTRICT COUNCIL

Town & Country Planning Act 1990 (as amended)

**Town & country Planning (Development Management Procedure) (England) Order 2015 -
Article 5**

Outline Consent

APPLICATION **BN/32/15/OUT**

NO:

Registered: 13th August
2015

Site Address: Rear of the Lillies Yapton Road Barnham PO22 0AY

Grid Reference: 496425 104064

Description of Works: Outline applicaiton with all matters reserved for the erection of 38 No. dwellings including open space, landscaping & new access. This application is a Departure from the Development Plan.

The Council have received the above application. I shall be pleased to receive any observations you may wish to make.

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

**Should you have any comments to make, these should be sent by replying to this email
by 17-SEP-15.**

You can also monitor the progress of this application through the Council web site:
www.arun.gov.uk/planning

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.

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

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 as can the leaflet which deals with material planning considerations.

Should the application go to appeal the Planning Inspectorate will publish any comments made to the Council on their website:

www.planningportal.gov.uk/planning/appeals/ but they will protect personal details.

The officer dealing with this application is Mr N Crowther who can be contacted on telephone number 01903737500 Ex 37839.

Regards

Planning Officer

consultee_email

Supplementary Requirements for Surface Water Drainage Proposals

Any proposed surface water scheme must consider sustainable drainage principles.

SuDS Selection

The following destinations must be considered for surface runoff in order of preference:

1. Discharge into the ground (infiltration);
2. Controlled discharge to a surface water body;
3. Controlled discharge to a surface water sewer.

Surface water must not be discharged into the foul sewer system. Infiltration structures include soakaways, basins, swales and permeable paving. Discharge to surface water bodies and surface water sewers must be restricted to an agreed rate.

SuDS selection hierarchy based on:

CIRIA C697 - The SuDS Manual

BS8582:2013 – Code of Practice for Surface Water Management for Development Sites

Approved Document H of the Building Regulations

Infiltration Drainage Design

Infiltration rates for soakage structures are to be based on percolation tests undertaken in the winter period at the location and depth of the proposed structures. The percolation tests must be carried out in accordance with BRE 365, CIRIA R156 or a similar approved method, and cater for the 1 in 10 year storm event between the invert of the lowest entry pipe into the infiltration structure and the base. For the purpose of design, the percolation rate must be applied to the sides of the infiltration structure only and the rate for the base must be zero. This does not apply to infiltration basins or permeable pavements, whereby the percolation rate is applied to the base only. There must be provision to ensure that there is capacity in the system to contain the 1 in 100 year storm event plus 30% on stored volumes, as an allowance for climate change. The infiltration structure should also drain 50% of its total volume in 24 hours or less for both the 1 in 10 and 1 in 100 year (plus 30%) storm events, in order to provide spare capacity for subsequent storms.

Any infiltration drainage design must include adequate winter groundwater monitoring data to determine the highest winter groundwater table. Residential developments in excess of five properties will require ground water monitoring to be carried out between October and March inclusive. The extent of monitoring required for smaller developments will be subject to agreement with the Council's Engineers.

Adequate freeboard must be provided between the base of the soakaway structure and the highest recorded groundwater level identified in that location.

Restricted Discharge

Discharge to a watercourse or surface water sewer must be restricted to the estimated mean greenfield runoff rate (Q_{bar}) by means of a controlled outflow (or restricted to existing runoff rates for brownfield sites). This can be derived from IH124 or a similar approved method. Any storage design must be submitted with groundwater monitoring data where applicable to ensure there will be no detrimental effect on the structure or storage. Storage areas are preferred to be in an 'open' form such as ponds, rather than underground tanks.

Flow Exceedance Routes

The drainage design should show flow routes through the proposed development, demonstrating where surface water will be conveyed for three types of flow:

1. Low flow routes

Regular flow from source control features such as permeable pavements should travel in low flow channels through the development in a controlled way contributing to landscape quality.

2. Overflows

In the event of local blockages or surcharge a simple overflow arrangement should allow water to bypass the obstruction and return to the management train sequence until conditions return to normal.

3. Exceedance routes

When SuDS are overwhelmed by exceptional rainfall, then exceedance routes are required to protect people and property. These provide unobstructed overland flow routes from the development and should be considered for all drainage schemes. Exceedance routes should also be protected from future changes in land use.

Culverting a Watercourse

Culverting (piping) a watercourse is not advised unless there is no alternative. The resulting reduction in storage volume, flow capacity and habitat potential would be unacceptable. Culverted watercourses are also more difficult to maintain due to the limited accessibility.

Land Drainage Consent must be sought from the Lead Local Flood Authority (West Sussex County Council), or its agent (Arun District Council – land.drainage@arun.gov.uk), prior to starting any works (temporary or permanent) that affect the flow of water in the watercourse. Such works may include culverting, channel diversion and the installation of trash screens.

The development layout must take account of any existing watercourses (open or culverted) to ensure that future access for maintenance is not restricted.

See also:

Land Drainage Act 1991 (amended 1994)

Maintenance and Management

Ditches and watercourses should retain a three metre easement with access that allows for its future maintenance.

Details of the maintenance and management of the SuDS system are to be set out in writing in a site specific maintenance manual. This manual shall include details of the financial management and arrangements for the replacement of components at the end of the manufacturers recommended design life. This document is then to be submitted as part of the planning process.

References

The Building Regulations 2000
Drainage and waste disposal
Approved document H
ISBN: 1-859462-08-1

Building Research Establishment,
Soakaway Design – Digest 365 (BRE 365)
ISBN: 1 86081 604 5, 1991

Centre for Ecology and Hydrology
Flood Estimation for Small Catchments - IH Report 124
Marshall, D.C.W. & Bayliss, A.C.
ISBN: 0948540621, 1994

CIRIA
C697 The SUDs Manual
Woods-Ballard, B.; Kellagher, R. et al
ISBN: 978-0-86017-697-8, 2007

CIRIA
R156 Infiltration Drainage – Manual of Good Practice
Bettess, R.
ISBN: 0 86017 457 3

British Standards Institution
BS8582:2013 – Code of Practice for Surface Water Management for Development Sites
ISBN: 978 0 580 76700 5