From: Derek Magee <derek.magee@adur-worthing.gov.uk> on behalf of Derek Magee
Sent: 15 September 2022 10:08
To: markn@meridiancivils.co.uk
Cc: Peter Barnett
Subject: Fwd: Consultee Comments for Planning Application AWDM/0945/22
Attachments: DSA000015689.pdf

Flag Status: Flagged

Hi Mark
I am satisfied that the conditions relating to Surface water Drainage can be discharged.
regards
Derek

On Thu, 8 Sept 2022 at 12:13, <markn@meridiancivils.co.uk> wrote:

> Derek,
>
> With regards to Southern Water and Lauras comment regarding specific approval for the use of the permeable paving Southern Water have issued the attached letter stating they have no objection to the surface water design proposed.
>
> We trust this allows the condition to be discharged with the final outstanding element confirmed.
>
> Kind regards,
>
> Mark Naumann BEng(Hons) CEng MICE
>
> Director
>
> MERIDIAN
> CIVIL ENGINEERING CONSULTANCY
>
> **e:** markn@meridiancivils.co.uk
>
> **w:** www.meridiancivils.co.uk
>
> **p:** 01273 102743

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From: Martyn Payne <martyn.payne@adur-worthing.gov.uk>
Sent: 07 September 2022 16:55
To: markn@meridiancivils.co.uk; Derek Magee <derek.magee@adur-worthing.gov.uk>
Subject: Re: Consultee Comments for Planning Application AWDM/0945/22

Dear Mark,

I have copied Derek Magee who will be covering part of Laura's position during the meantime.

He will review and provide comment in due course based on resources.

regards

Martyn Payne
Senior Engineer, Adur & Worthing Councils
Phone: 01903 221375
Email: martyn.payne@adur-worthing.gov.uk
Website: http://www.adur-worthing.gov.uk/
Address: Technical Services, Adur and Worthing Councils, Room 45, Town Hall, Chapel Road, Worthing, West Sussex BN11 1HA

On Wed, 7 Sept 2022 at 16:00, <markn@meridiancivils.co.uk> wrote:

> Martyn,
>
> Further to the comments from Laura Gibbons in her email on the 02/09/22 below (who we understand has now left Adur&Worthing employ) please see attached the requested information. (we`ve attached the original comments for convenience)
>
> Points:

1: .

2: We have run a rainfall event with the outfall located close to the paving level as requested – we have plotted all storms and not just the critical events. It can be seen that the quayside paving floods in the high intensity 1in100yr +45% events (between the 30 min and 120min storms)- This because the paving is full as the outfall is unable to operate until the water level reaches the surcharge level and no capacity is left in the paving. The paving is designed only to be used for conveyance and treatment and has not been designed for storage (just treatment and conveyance) and has an unrestricted outflow to the lock basin. The flooding only occurs in the very short intense storm durations for longer storms the water level drains down sufficiently to prevent flooding. Any overland flow would drain overland to the lock basin and not affect others as it can be seen from the topograpical survey that all paving locally falls to the lock basin. It seems onerous to impose a below ground storage requirement for these limited events which can only happen on the coincidence between very extreme high tide events when the tide opens the lock gates and a high intensity rainfall event. Adding sufficient storage to the network would likely not be feasible due to the very shallow depths between paving and the lock water levels. The permeable paving design was included and approved at planning permission stage.

3: Invert levels are at the upstream and downstream of all pipe runs apart from the dispersion pipe at the outfall by the 2 outfalls from the paving which is provided to collect water in the permeable paving and to allow redundancy on the outfall to reduce the likelihood of water backing up in the paving.

4.

5. Confirmation from southern water awaited. If southern water object to the permeable paving then a solid traditional paving with an ‘over the wall’ drainage solution through a road gully with

Naylor ‘smartgully’ adaptors may be the only feasible option for paving drainage.

6. all chambers have cover and inverts

7.

8. as per point 2

9. Separate management and maintenance plan is attached.

We trust the attached allows you to now discharge the conditions.

Kind regards,

Mark Naumann BEng(Hons) CEng MICE

Director

e: <mailto:markn@meridiancivils.co.uk> markn@meridiancivils.co.uk

w: <http://www.meridiancivils.co.uk/> www.meridiancivils.co.uk

p: 01273 102743

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From: Laura Gibbons <laura.gibbons@adur-worthing.gov.uk>
Sent: 02 September 2022 11:55
To: markn@meridiancivils.co.uk
Cc: Dan Whittaker <dan@osm.construction>; Jimmy Reading <jimmyr@qedstructures.co.uk>; Sam Sykes <ssykes@eceplanning.com>; Peter Barnett <peter.barnett@adur-worthing.gov.uk>
Subject: Re: Consultee Comments for Planning Application AWDM/0945/22

Hi Mark,

Thank you for your response. Our further response is as follows.

Condition 7 1. Okay, point closed. 2. Noted. It appears that the top of quay level is around or below (depending upon which section is examined) the

future MHWS level. There is potential in the future for the water within the basin to be frequently just below the quay level, i.e. it is likely during a future extreme rainfall event. In such an instance, where tidal water level is just below quay level, the tidal water would not overflow into the sub-base but locking of the outfall would occur. Please model a surcharged water level just below the top of quay level with a 1 in 30 year plus climate change event (to demonstrate no flooding) and with a 1 in 100 year plus climate change rainfall event (to demonstrate that the development is safe and exceedance flows do not flow inland off site). The porosity of permeable paving modelled in current calculations is incorrect. 3. This is not clearly labelled on plans. Permeable pipe runs should achieve minimum falls. 4. As per previous. 5. Confirmation from southern water awaited. Proprietary treatment devices are not supported unless there is no alternative. The removal of permeable paving and loss of storage would need to be accounted for in calculations should this be required. It appears likely that alternative storage would be required if the permeable paving needs to be removed. 6. As per previous. 7. Okay. 8. As per above. 9. Okay.

Condition 8 An updated maintenance manual is awaited.

Kind regards,

Laura Gibbons

Engineer, Facilities & Technical Services

01903 221374

Adur & Worthing Councils

Worthing Town Hall, Chapel Road, Worthing, West Sussex, BN11 1HA

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On Thu, 25 Aug 2022 at 20:00, <markn@meridiancivils.co.uk <mailto:markn@meridiancivils.co.uk> > wrote:

Laura,

Many thanks for your comments – we have attached updated drawings and calculations.

We would respond to your comments as follows:

Condition 7

1. There is 30% void in the lined permeable paving. The mass of the sub base in the paving at circa 15kN/m3 would be greater than the void buoyancy at approx. 10kN/m3
2. See attached to show a network model run for the 1in100yr rainfall event +45% climate change with no tide.

The lock basin levels are maintained roughly 300mm above the highest tide of the day by Shoreham harbour. If water levels are high enough the lock gates do not prevent water levels in the lock rising above the quayside wall level. This is documented to have occurred in December 2013. The quayside wall is level with the external paving on this project. Once the paving is inundated water from the roof would drain into the sea. If the paving is inundated then the unsealed bottle gullies at the front of the building would overflow onto the permeable walkway and into the sea. The rear paving would likely drain as the height difference is significant and the pressure head would push water to the low level but if not an overflow to the rear gravel access strip has been provided through the retaining structure at 150MM below the FFL level of the building. This would act to protect the structure from flooding internally in extreme rainfall events during tidal inundation of the paving up to the levels detailed. It seems onerous to request detailed calcs for each rainfall event when inundation of the paving can occur present day during very high tides. Hence we have shown how the network can overflow to prevent backing up of the drainage at roof level or backing up to flood internally. The overflow mechanism can be seen to not adversely affect either the proposed development or other parties.

From the Pryce&Myres FRA the FFL of the structure is set above predicted

high tides at extreme tide levels as listed below

3. The levels of the permeable pipe run are shown on the drawing. There is shown to be a 147mm fall from the catchpit at the structure to the paving edge chamber. The permeable pipe along the rear of the quayside wall is shown flat as this is the collector pipe for the permeable paving.
4. .
5. We are in the process of obtaining this – If lined permeable paving is not preferred would you accept a traditional block paving with gully system fitted with smartsponge as an alternative? Assuming you would need to see some form of water treatment to the runoff from the turning head rather than just draining this over the side into the lock?
6. .
7. Added to DR02
8. As stated above once the water level in the lock reaches 4.1m AOD the turning head would begin to be inundated by the sea and drainage would outfall directly to the sea. As stated previously if the paving is inundated then the unsealed bottle gullies at the front of the building would overflow onto the permeable walkway and into the sea. The rear paving would likely drain as the height difference is significant and the pressure head would push water to the low level but if not an overflow to the rear gravel access strip has been provided through the retaining structure at 150MM below the FFL level of the building. This would act to protect the structure from flooding internally in extreme rainfall events during tidal inundation of the paving up to the levels detailed.
9. We have updated the MH details and HBGM detail as requested.

Condition 8 - We will issue a separate maintenance plan in due course once our client has confirmed who will be responsible for the maintenance in the long term.

We trust the attached clarifies that the drainage would perform as design and would not adversely affect others once implemented or during extreme tide events and that condition 7 can be discharged.

Should you have any questions or require any further information please contact us.

Regards,

Mark Naumann BEng(Hons) CEng MICE

Director

e: <mailto:markn@meridiancivils.co.uk> markn@meridiancivils.co.uk

w: <http://www.meridiancivils.co.uk/> www.meridiancivils.co.uk

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From: Laura Gibbons <laura.gibbons@adur-worthing.gov.uk <mailto:laura.gibbons@adur-worthing.gov.uk> >
Sent: 17 August 2022 09:42
To: markn@meridiancivils.co.uk <mailto:markn@meridiancivils.co.uk>
Cc: Dan Whittaker <dan@osm.construction <mailto:dan@osm.construction> >; Jimmy Reading <jimmyr@qedstructures.co.uk <mailto:jimmyr@qedstructures.co.uk> >; Sam Sykes <ssykes@eceplanning.com <mailto:ssykes@eceplanning.com> >; Peter Barnett <peter.barnett@adur-worthing.gov.uk <mailto:peter.barnett@adur-worthing.gov.uk> >
Subject: Re: Consultee Comments for Planning Application AWDM/0945/22

Hi Mark,

Our further comments are as follows.

Condition 7

1. The lined permeable paving sub-base is located below ground level, any storage located below ground level should be accompanied by winter groundwater monitoring results. As a minimum please supply flotation calculations assuming groundwater at ground level to demonstrate that proposals are sound. 2. All applications must demonstrate that surface water drainage proposals will not flood the site or increase the risk of flooding elsewhere. We are not stating that the discharge volume to the tidal body will increase off site flood risk. However, we are stating that you have not supplied evidence to demonstrate that your proposals are appropriately sized and will be able to cope when water levels within the tidal body are high. Calculations must be supplied to evidence an adequate pipe network and depth of storage in extreme events. These should consider flood levels within the harbour both now and in the future and be run with climate change rainfall events. The following scenarios, or equivalent, should be modelled: a) a 30 year climate change rainfall event combined with a 2121 MHWS tide, to demonstrate no flooding; b) a 100 year climate change rainfall event combined with a 2121 MHWS tide, to demonstrate flooding on site is safely managed and does not increase flood risk elsewhere; and c) a 2 year climate change rainfall rainfall event combined with a 2121 200 year tide, to demonstrate flooding on site is safely managed and does not increase flood risk 3. Please detail the fall of perforated pipe proposed within the permeable paving sub-base. 4. Okay, will be reviewed in further detail once adequate responses to other points are provided. 5. Please provide specific written evidence that southern water accept the proposals for lined permeable paving over the public sewer, or that they confirm there is no public sewer here. 6. Okay, will be reviewed in further detail once adequate responses to other points are provided. 7. Please provide a construction detail drawing of the proposed bottle trapped gullies. 8. Invert level is below modelled flood levels. Please detail MHWS in the current and future day and provide calculations as requested in point 2 above. 9. We note that you have stated a minimum of 1 course of bricks. However, we would recommend that this is a minimum of 2 courses and a maximum of 4, this allows for potential future changes in ground level and ensures that unsafe "chimney" type construction does not occur. SSG states a maximum distance to the first step rung, which acts as a control on the maximum length of entry shaft, however you are not showing step rungs on your details, therefore you should state a maximum number of courses. Regarding the permeable paving detail, the HBGM should as a very minimum detail no fines.

Condition 8 Appendix C does not meet the requirements we previously detailed: A separate maintenance manual should be supplied fully detailing the requirements for maintenance. This document should: - outline the proposed drainage strategy; - outline who will complete maintenance and how this will be funded; -set out the regular and occasional maintenance, remedial actions and monitoring required for each key drainage component including pipes, gullies and permeable paving. We would recommend looking further at CIRIA SuDS manual for example tables for occasional, remedial and monitoring requirements for each drainage feature.

Kind regards,

Laura Gibbons

Engineer, Facilities & Technical Services

01903 221374

Adur & Worthing Councils

Worthing Town Hall, Chapel Road, Worthing, West Sussex, BN11 1HA

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On Mon, 25 Jul 2022 at 16:13, <markn@meridiancivils.co.uk
<mailto:markn@meridiancivils.co.uk> > wrote:

Laura,

We have been passed your comments relating to the discharge of conditions application Planning Application AWDM/0945/22

We have since updated the drainage to suit architectural changes and client comments since the initial submission was made. The updated drawing is attached for reference and covers quite a few of the comments you have made. The main points are that the extent of new external paving is limited to the new turning head area only. The storm strategy is 'over the wall' as per the Shoreham port/LLFA design guidance and as outlined in the approved FRA. There is no storage as the external paving is very low lying and the basin is tidally influenced so additional water would not adversely affect others. With regards to your comments please see our responses below:

Condition 7

Item 1 - as there is no infiltration proposed (in line with the FRA as approved at planning AWDM/1000/21) and the proximity of the Shoreham Port lock basin directly adjacent to the site – what benefit would ground water monitoring in this instance provide? We would expect groundwater to be influenced in part by the lock water level. Shoreham port state: The water level in the canal is generally maintained around 300mm (or one foot) above the highest tide of the day,

Item 2 – The scheme has been design to have an 'over the wall' design solution We would not normally expect to provide storage on a scheme that outfalls to the sea. If the site were behind a flood defence we would agree that tidal locking would be an issue but in this instance there is no defence and the site drains directly to a tidally influenced basin. Additional water runoff from the site would not be considered have a material impact on the tidal water levels and there would be no increase in risk to others as a result. As defined in the approved FRA - 'The LLFA have produced a design guidance document for surface water drainage for waterfront developments, particularly for Shoreham Harbour Regeneration. The LLFA promotes an alternative more sustainable approach to below ground drainage systems that will discharge rooftop runoff from the buildings over the sea wall which is referred to as 'over the wall' drainage' the scheme proposes this solution therefore specific storage and attenuation is not necessary in this instance as discharge ot the sea does not materially affect others.

Item 3 – Updated as attached

Item 4 – Updated as attached.

Item 5 – Our client has tried to confirm the location of the public sewer but it cannot be located, despite their efforts, and it is not believed to be located as shown on the sewer record. A foul sewer is present in the quayside water frontage but is shown to drain to MH ref 4001 as per the CCTV plan in the discharge of conditions pack submitted and extracted below. Our client is currently in contact with Southern Water about this issue to resolve matters. As such the location of lined paving is not over the main Southern Water asset so would be acceptable – Southern Water did not object to the proposal for lined paving as outlined in the FRA/SWDS provided at planning permission stage.

Item 6 – Updated as attacted.

Item 7 – The A trapped bottle gully is specified at all rainwater bases and a silt trap is provided before outfall to the permeable paving.

Item 8 – Invert levels of outfall provided. Flood levels haven been considered within the FRA as approved at planning AWDM/1000/21. Potential water depths are well above the quayside level.

Item 9 – The permeabel paving detail is now lim ited to just the trafficked area – not sure how we can make the sub base more defined as the HBGM is hatch a different shade to the standard 6-20mm sub base? We have added the 'min 1 course' note to the MH brickwork at the covers as per the SSG Apprendix c DCG detail for adoptable manholes.

Condition 8 –

Management and maintenance is coved on our DOC document – Section 3. It can be seen this section covers :

- outline the proposed drainage strategy;

- outline who will complete maintenance and how this will be funded;

- set out the regular and occasional maintenance, remedial actions and monitoring required for each key drainage component including pipes, gullies and permeable paving.

We trust the above and the attached DOC document (and drawings therein) explain the scheme and allow you to approve the discharge of conditions application.

Kind regards,

Mark Naumann BEng(Hons) CEng MICE

Director

e: <mailto:markn@meridiancivils.co.uk> markn@meridiancivils.co.uk

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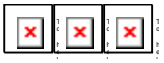
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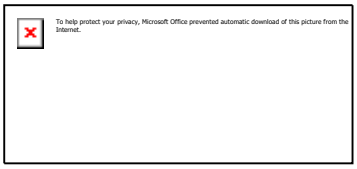
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Derek Magee
Engineer (Major Projects) Available Tuesdays Wednesdays & Thursdays, Facilities & Technical Services
1903221373
Adur & Worthing Councils
Worthing Town Hall, Chapel Road, Worthing, West Sussex, BN11 1HA
www.adur-worthing.gov.uk





from Southern Water

Planning Services
Adur and Worthing Councils
Portland House
Richmond Road
Worthing
West Sussex
BN11 1LF

Your ref
AWDM/1000/21

Our ref
DSA000015689

Date
08/09/2022

Contact
Tel 0330 303 0119

Dear Sir/Madam,

Proposal: Condition 07 and 08 of planning permission AWDM/1000/21.
Site: AWDM/1000/21: - Former Nautical Training Corps, Riverside, Southwick, West Sussex.

Southern Water have no objections to discharge condition 07 relating to foul drainage.

The Council's technical staff and the relevant authority for land drainage should be consulted regarding the discharge condition 07 for surface water disposal.

The applicant proposes to retain the SuDS within private ownership and maintenance. Hence, Southern Water would have no comments for condition 08 relating Suds management and maintenance.

For further advice, please contact Southern Water, Southern House, Yeoman Road, Worthing, West Sussex, BN13 3NX (Tel: 0330 303 0119).

Website: southernwater.co.uk or by email at: SouthernWaterPlanning@southernwater.co.uk

Yours faithfully,

Future Growth Planning Team
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