North

Box indicates approximate location of drawing 21.133/02

Scale 1: 50,000 @ A4

A F Howland Associates
Geotechnical Engineers

Site: Castle Point, Hadleigh

SITE LOCATION PLAN

Client : Stantec

Date : May 2021 **Dwg :** 21.133/01

Appendix G Environment Agency Records and Correspondence

Davison, Max

From: Davison, Max
Sent: 05 February 2021 12:28
To: enquiries@environment-agency.gov.uk
Cc: Knowles, Stephanie
Subject: Hadleigh Flood Risk Enquiry
Attachments: 47268 GIS001a Site Location_Report.jpg

Dear Sir/Madam,

Stantec has been commissioned to undertake a Flood Risk Assessment and Drainage Strategy (both surface water and foul) to support an outline planning application for Land at Hadleigh, Essex, SS7 3NZ (National Grid Ref: 580366E, 189099N). This site is allocated in the adopted Castle Point Borough Council's Draft Submission Local Plan under allocation site HO13. A site plan is attached.

The site is in Flood Zone 1 'Low Probability' of river/tidal flooding according to the Flood Map for Planning. The site is not located within an EA Groundwater Source Protection Zone (SPZ).

We would be grateful if you could provide the following information:

- Any records of previous flooding of the site;
- The latest modelled flood levels, depth and rate of flooding for the Eastwood Brook in the vicinity of the site if available, with and without climate change allowance if available;
- Regional groundwater level and flow direction data;
- Any EA owned apparatus within the site;
- Any Water Framework Directive related assessments required to be undertaken to support planning application.

Additionally, it would be beneficial if you could answer these questions please:

- Will hydraulic modelling be required to form the basis for a site-specific Flood Risk Assessment at this site, and if so, what works would be required;
- What scope of work will be required for the flood risk assessment;
- What mitigation measures would be acceptable at the site.

We are also speaking to Anglian Water, Castle Point Borough Council, and Essex County Council (LLFA).

Any help is greatly appreciated.

Kind regards,

Max Davison
BSc(Hons) MSc GradCIWEM
Graduate Engineer

3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH
Direct: +44 1223802939
max.davison@stantec.com

Stantec

Davison, Max

From: Enquiries_EastAnglia <Enquiries_EastAnglia@environment-agency.gov.uk>
Sent: 09 March 2021 11:36
To: Davison, Max
Subject: EAn/2021/206131 - Hadleigh Flood Risk Enquiry - Final response to your request
Attachments: Birches Thundersley TQ78_890.csv; EX ESW PS TQ78_780.csv

Dear Max

Thank you for your request of the 5th February 2021.

We respond to requests under the Freedom of Information Act 2000 and Environmental Information Regulations 2004.

We have liaised with our technical teams and can confirm the following in response to your questions.

Groundwater flow direction data
Modelled flow of the groundwater within the chalk aquifer in this location is to the east (this is partially influenced by a large abstraction approximately 2.3km to the east of the site, but is also expected to be the natural flow direction here). Groundwater flow within the superficial deposits is towards the north east.
In an average climatic month (based on May 1994), the water table is modelled as close to the surface. (0-1m below ground level). The chalk piezometric surface is at approximately 0mAOD in this location – therefore between 65-70m below ground level.

Information is from the Essex Regional Groundwater Model and, as with all modelled data, should be treated with some caution as it may not accurately reflect real life.

Apparatus within the site
There are no Environment Agency assets within the red marked site boundary.

Water Framework Directive related assessments
For non-estuarine WFD assessments our guidance can be found at https://www.gov.uk/government/publications/water-framework-directive-how-to-assess-the-risk-of-your-activity

Advice regarding a site specific Flood Risk Assessment
The site is in flood zone 1 and therefore not appropriate for us to comment on the flood risk assessment. Any Flood Risk Assessment that is submitted in flood zone 1 development is under the remit of the local planning authority. Please contact them with regards to the Flood Risk Assessment and what is required.

Please refer to the Open Government Licence available here: http://www.nationalarchives.gov.uk/doc/open-government-licence/version/3/ which explains the permitted use of this information.

Groundwater level data
There are two Environment Agency Groundwater Level monitoring boreholes in the vicinity of the site, please note these are outside of the site boundary marked.
:

- Birches Thundersley (chalk – showing recovery trend)
- EX ESW PS (chalk)

We have attached the data we hold. This information is not available with the Open Government Licence but we may be able to license to you under the Environment Agency Conditional Licence:

- **Groundwater Level Measurements (AfA075),** – This dataset comprises groundwater level time series data taken at approximately 6000 borehole monitoring stations located across England and Wales. Discrete station information is stored for each site including identifier, spatial reference, parameter type and time series type. This dataset contains sites for operational and closed monitoring stations. Data is collected from Environment Agency borehole monitoring stations that are collated by Area staff normally by either downloading the station 'Logger

Data' or manually 'Dipping' to determine borehole water level. This is a large dataset with high extraction costs, and we do not normally expect to supply it as a whole. Larger requests will be assessed against our normal procedures for charging for, and refusing access to information. If we receive a request for the entire dataset we would consider refusal, or a full cost of extraction charge.

- **Conditions** The location of observation boreholes must not be published to a resolution more detailed than 1km2.

However, you MUST first check the supporting information available online to determine if the conditions on use are suitable for your purposes. If they aren't, this information is not provided with a licence for use, and the data is provided for read right only.

Previous flooding & modelled flood levels, depth and rate of flooding
We hold no records of flooding at this location and we do not hold any modelled data for the area.

We have considered your request under the provisions of the Freedom of Information Act 2000 / Environmental Information Regulations 2004 (EIR). The Act requires that we respond to requests by advising you whether or not information is held, and if so by providing you with that information.

EIR Regulation 3(2) states that information is held if it is in our possession and has been produced or received by us, or it is held by another person on our behalf at the time the request is received.

Information not held
In this case, the previous flooding & modelled flood levels, depth and rate of flooding information you have requested is not held by us. Therefore we are refusing this part of your request on the grounds that there is no information we can provide.

Where a request is for environmental information, the Regulations allow us to refuse to disclose it if the exception at EIR Regulation 12(4)(a) applies. The regulation states that a public authority may refuse to disclose environmental information to the extent that it does not hold that information when an applicant's request is received.

It is not possible for us to conduct a public interest balancing test because the reason for non-disclosure is that the information is not held.

Rights of appeal
If you are not satisfied you can contact us within 2 calendar months to ask for our decision to be reviewed. We shall review our response to your request and give you our decision in writing within 40 working days.

If you are still not satisfied following this, you can raise a concern with the Information Commissioner, who is the statutory regulator for Freedom of Information and the Environmental Information Regulations. The contact details are:

Information Commissioner's Office
Wycliffe House
Water Lane
Wilmslow
Cheshire
SK9 5AF
Tel: 0303 123 1113
Website: http://ico.org.uk.

Please get in touch if you have any further queries or contact us within two months if you would like us to review the information we have sent.

Kind regards

Sam

Samantha Clemens
Customers & Engagement Officer, Customers & Engagement Team, East Anglia Area
~~**Environment Agency** | Iceni House, Cobham Road, Ipswich IP3 9JD~~
~~**Environment Agency** | Bromholme Lane, Brampton, Huntingdon, Cambridgeshire, PE28 4NE~~

Please note that we are currently unable to receive post due to office closures- please contact us electronically.

Email : enquiries_eastanglia@environment-agency.gov.uk
Telephone: 0203 02 55472

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DATA.GOV.UK
Opening up Government

If you use the Defra **Data Sharing Platform** (DPS) you can use this link to find out about new and updated datasets and much more. Not using DPS yet? **Register for an account** here and you will receive email notifications direct.

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Appendix H Essex County Council information and Correspondence

Essex County Council
Environment and Planning
Flood and Water Management Team
E3 County Hall
Chelmsford
CM1 1QH

Essex County Council

Max Davison
Third Floor
50-60 Station Road
Cambridgeshire
United Kindgdom
CB1 2JH

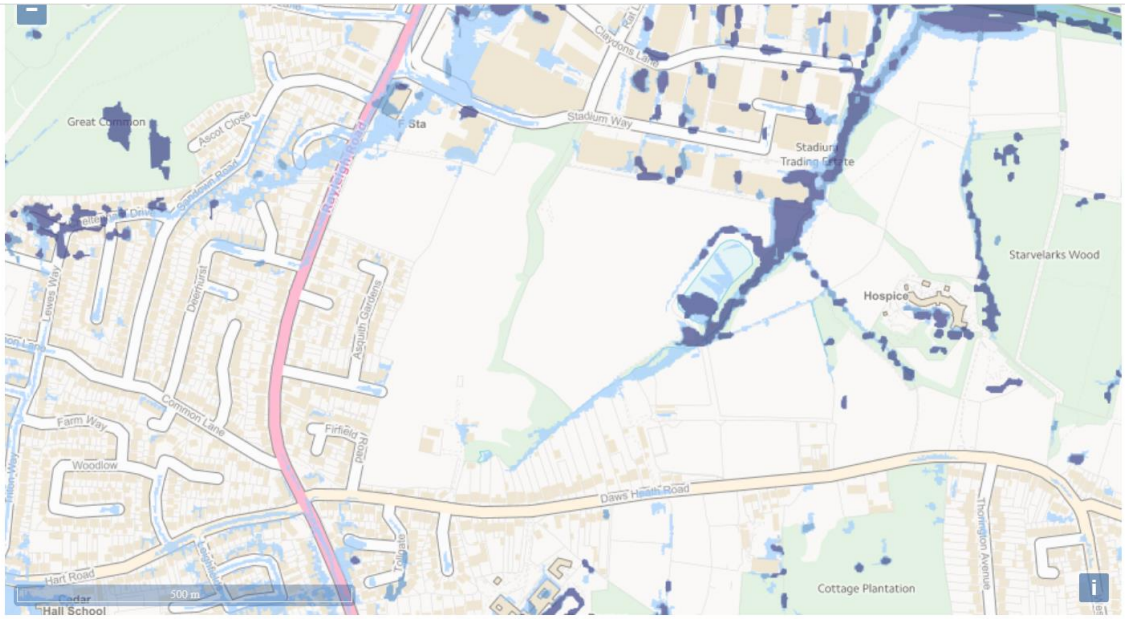
Date: 09.03.2021
Our Ref: FIIR-000965

Dear Mr Davison,

Detailed Information Request for data held by LLFA

Thank you for contacting us for information held on the above site. I have checked our records for reported surface water flooding in the area you have provided on your plans. The majority of the site in question is shown to be at a very low risk of surface water flooding according to the gov.uk 'flood risk from Surface Water' map. However, the eastern boundary of the site is shown to have a medium to high risk of flooding around the lake on the property. Further information can be found on the Gov.uk website: https://flood-warning-information.service.gov.uk/long-term-flood-risk/map.

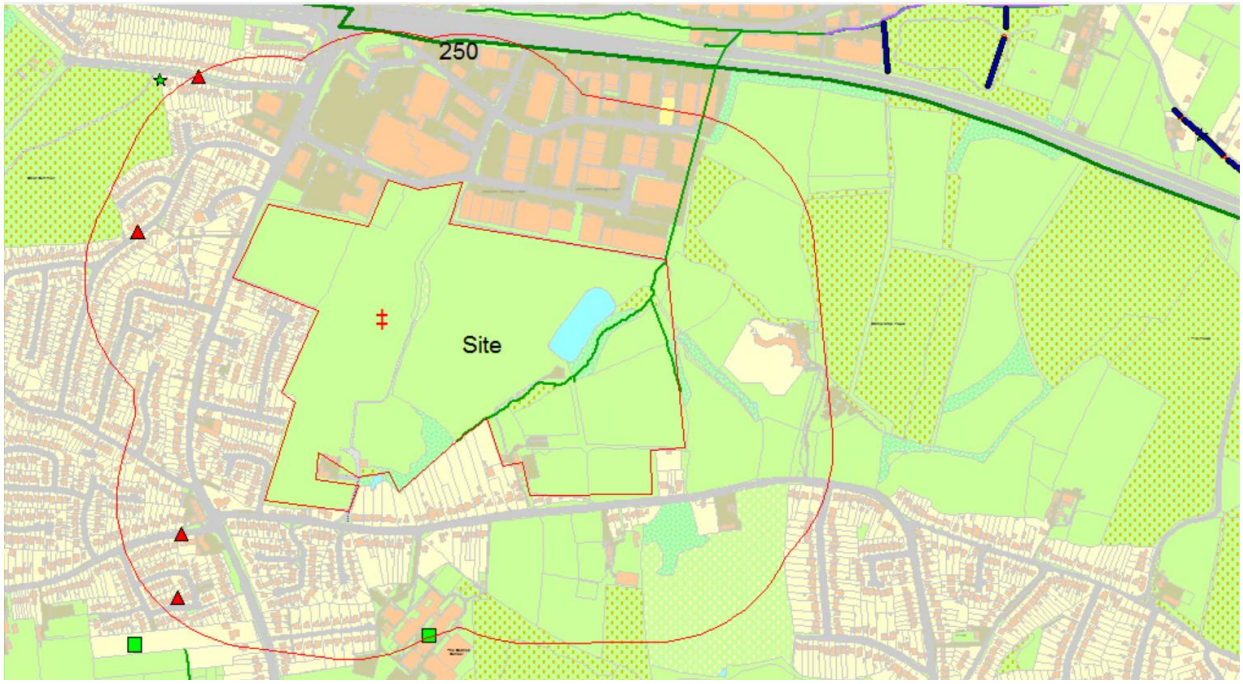
Figure 1: Flood risk from surface water – SS7 3NZ



Surface Water Management Plans
The Surface Water Management Plan (SWMP) produces more detailed modelling and identifies Critical Drainage Area's (CDA); highlighting areas most at risk. Essex County Council has completed a SWMP for the South Essex area, including the Castle Point District, which I have attached to this report for your perusal.

Watercourses and rivers
Analysis has been completed using all of our data sets to a distance of 250m from the aforementioned site and within the site boundaries itself, as detailed in Figure 2 below.

Figure 2: Site plan including 250m 'buffer zone'



0 metres 1000

Our database has confirmed the presence of the Eastwood Brook to the east of your site. We have no record of any flooding issues relating to the brook and would advise you to contact the Environment Agency for further information.

It should also be noted that smaller ordinary watercourses are not always mapped, therefore site investigation should be carried out to verify information supplied.

I have discussed this site with our Watercourse Engineers, none of whom can recall any historic issues with the watercourse or historic flooding in regards to the fishing lake on the property.

If proposed works entail temporary or permanent alterations to a watercourse, consent will be required. At this point, you can also request for an engineer to attend and offer on-site guidance. Further information can be found on our website www.essex.gov.uk/flooding.

Flood risk assets
Our search has not found any flood risk assets within your site or the 250m buffer zone. Not all flood risk assets will be mapped so further investigation is recommended.

Flood Incidents and Investigations
I can confirm that there are 4 recorded flood incidents within your site or within the 250m buffer zone:

- FI-000142 Kingsley Lane, pre-2011
- FI-000141 Sandown Road, pre-2011
- FI-000148 Hart Road, pre-2011
- FI-000126 Kingshawes, pre-2011

We also have a record of 1 Sustainable Drainage Consultation within the buffer zone as detailed below:

- SUDS-002961 The Deanes School, Daws Heath Road, 2018.

For more information regarding Sustainable Drainage Systems (SuDS) and development requirements, please contact suds@essex.gov.uk

Due to our limited access to highways flooding records, we have limited access to highway flooding incidents. Please contact Essex Highways at highway.enquiries@essex.gov.uk for further information.

For information regarding the Water Framework Directive (WFD), you may wish to contact the Environment Agency at the following email: enquiries@environment-agency.gov.uk

I would note however that we only have a limited number of records as we have only been a Lead Local Flood Authority since 2010. Whilst we are working to build a comprehensive database of flood incidents, unlike main rivers we have no formal system of monitoring water levels and being aware when flooding occurs. We rely on reports from residents and in particular district councils to report flood incidents to us. As such all we can provide is an indication of the flood history that we have available to us, if we have no recorded incidents then it does not necessarily mean that flooding has never occurred there, merely that it has not been reported to us.

I hope that the above assists you with your enquiry.

Yours sincerely,

Amanda Rossell
Essex County Council
Flood and Water Management Team

Please reply to: Flood & Water Management Team
Email: watercourse.regulation@essex.gov.uk
Internet: www.essex.gov.uk/flooding

Riley, Yvonne

From:	Zahida Yousaf - Senior Development and Flood Risk Officer <Zahida.Yousaf@essex.gov.uk>
Sent:	14 April 2022 10:56
To:	Riley, Yvonne
Cc:	Knowles, Stephanie; Alison Vaughan - Development and Flood Risk Officer; Green Infrastructure
Subject:	SuDS Planning Advice - Land East of Rayleigh Road, Thundersley, Essex (SUDSPA338915273)
Attachments:	332210105_003_Land East of Rayleigh Road Technical Note - Information for ECC.pdf

Hi Yvonne,
Thank you for the email.
I recall our pre-app meeting that the site proposal will be put forward for getting outline planning permission. The outline application usually reflect the SuDS principles to be achieved which in this case I can see sufficient information on SuDS strategy is given. Please be minded that I couldn't get chance to review the drainage technical note but just had a quick look through to respond to you.

I don't think at this stage you need another pre-app meeting unless there are issues which are critical to achieve SuDS principles or any further information or site constraints which affects the drainage proposal and it requires significant change in the drainage strategy.

I would recommend to submit an outline proposal when all documents are prepared to support outline proposal. You may need to engage LLFA in future planning stages when more detailed information is available for the site.

I have copied ECC Green infrastructure team, who are commenting on planning application and master plans for the provision of Green infrastructure. The team is newly set up and commenting where required as part of SuDS pre-app advice. At the moment there are no additional charges for the service.

I would recommend to consult GI team to have recommendations on existing Green Infrastructure and use of multifunctional space.

Many Thanks
Zahida

Zahida Yousaf
Senior Development & Flood Risk Officer
Climate Adaptation and Mitigation
Environment & Climate Action
Essex County Council

Essex County Council | C422- C428 County Hall | Chelmsford | CM1 1QH

From: Riley, Yvonne <Yvonne.Riley@stantec.com>
Sent: 13 April 2022 16:09
To: Zahida Yousaf - Senior Development and Flood Risk Officer <Zahida.Yousaf@essex.gov.uk>; Alison Vaughan - Development and Flood Risk Officer <Alison.Vaughan@essex.gov.uk>
Cc: Knowles, Stephanie <stephanie.knowles@stantec.com>
Subject: RE: SuDS Planning Advice - Land East of Rayleigh Road, Thundersley, Essex (SUDSPA338915273)

Good Afternoon Zahida and Alison,

I hope you are both well.

We have undertaken further sensitivity tests in accordance with your comments during our last meeting, specifically a surcharged outfall review on attenuation basins discharging to the watercourse and a review of half drain down times.

I would like to issue the technical note as attached which includes this supporting information (ref: 332210105_003) for your review and discussion, if acceptable. However, if we are required to apply using the online pre-app form and make payment through the online system for any further discussion on this please let me know.

Please do not hesitate to get in touch should you have any queries. Many thanks.

Kind regards,

Yvonne

Yvonne Riley
BSc(Hons) MSc
Graduate Engineer

Waterloo House, Victoria Square, Birmingham, B2 5TB
Direct: 01217968244
yvonne.riley@stantec.com

Stantec

Davison, Max

From: Floods <Floods@essex.gov.uk>
Sent: 08 February 2021 12:05
To: Davison, Max
Subject: RE: Hadleigh Flood Risk Enquiry

Good afternoon,

Thank you for your email.

You can make an information request at the following link:

https://flood.essex.gov.uk/know-your-flood-risk/make-an-information-request/

We have sent a copy of the SWMP for South Essex (including Castle Point) via our gmail account. This is the closest SWMP we have for your location.

Kind regards,

Amanda Rossell
Sustainability & Resilience Officer
Essex County Council | County Hall, Chelmsford, CM1 1QH
floods@essex.gov.uk

From: Davison, Max <Max.Davison@stantec.com>
Sent: 05 February 2021 12:31
To: Floods <Floods@essex.gov.uk>
Cc: Knowles, Stephanie <stephanie.knowles@stantec.com>
Subject: Hadleigh Flood Risk Enquiry

Dear Sir/Madam,
Stantec has been commissioned to undertake a Flood Risk Assessment and Drainage Strategy (both surface water and foul) to support an outline planning application for Land at Hadleigh, Essex, SS7 3NZ (National Grid Ref: 580366E, 189099N). This site is allocated in the adopted Castle Point Borough Council's Draft Submission Local Plan under allocation site HO13. A site plan is attached.

The site is in Flood Zone 1 'Low Probability' of river/tidal flooding according to the Flood Map for Planning. The site is not located within an EA Groundwater Source Protection Zone (SPZ).

Most of the site is shown to be at very low risk of surface water flooding with some localised areas towards the eastern boundaries as being low to high risk of surface water flooding. A map showing this is attached.

Could you also please provide us with any information in your possession regarding flood records (fluvial, pluvial, or groundwater) and/or data for the site? May we also request a copy of your most recent SWMP that covers the site?

We are also speaking to Anglian Water, Castle Point Borough Council, and the Environment Agency.

Additionally, we would be grateful if you could answer these questions please:

- We have assumed that by leaving the areas shown as being at risk from flooding will negate the need for any hydraulic modelling for the site-specific Flood Risk Assessment please confirm if this is acceptable;
- What scope of work will be required for the flood risk assessment;

- Confirmation on requirements for the emerging drainage strategy;
- We aim to apply a sequential approach to development, placing development outside areas at risk of surface water flooding. If this is not possible, what works will be required to allow development within an area at risk of surface water flooding;
- Will groundwater monitoring be required for the site;
- Confirm on easements applied to ordinary watercourses;
- Confirm the costs for any flood risk and drainage pre-application advice.

We will be adhering to your SUDS Drainage Guide (2020) to inform the drainage strategy regarding use of SUDS and the discharge of surface water drainage.

Thank you for your assistance. If you require any further information, please contact myself on this contact email address.

Please let us know as soon as possible if there is a charge for this information so that we can raise the necessary payment.

Kind regards,

Max Davison
BSc(Hons) MSc GradCIWEM
Graduate Engineer

3rd Floor, 50-60 Station Road, Cambridge, CB1 2JH
Direct: +44 1223802939
max.davison@stantec.com

Rochford Surface Water Management Plan Area

CDA District	Rochford
CDA ID	NRoch_001
CDA Name	Eastwood

Property Counts Per CDA

AEP	Depth Threshold		
	100mm	300mm	500mm
10%	164	36	10
5%	292	69	25
3.33%	389	117	40
1.33%	648	250	118
1%	725	298	155
0.5%	949	420	243
1% Lower Climate Change	917	396	233
1% Upper Climate Change	1106	509	304
Frequency Weighted	66.70	17.74	6.443
Proposed Rank (/87)	3	3	2

Legend

New CDA Boundary

Existing CDA Boundary

1% AEP Flood Extent

Model Boundary

Event of of First Flood Impact

10% AEP

5% AEP

3.33% AEP

1.33% AEP

1% AEP

0.5% AEP

1% AEP CCL

1% AEP CCU

Not Impacted

0 400 800 1200 1600 2000 m

Essex County Council

BMT WBM

Filepath: "U:\L20144_ECC_Property_Counts\GIS\Mapping\NEW_CDA_Atlas.qgs"

Essex County Council
Development and Flood Risk
Waste & Environment
E3 County Hall
Chelmsford
Essex CM1 1QH

Essex County Council

Stephanie Knowles

Date: 17th August 2021
Our Ref SUDS-005423

Dear Ms Knowles,

Pre-application Response – SUDSPA338915273 - Land East of Rayleigh Road, Thundersley, Essex

Thank you for contacting us for pre-application advice which provides Essex County Council (ECC) with the opportunity to assess and advise on the proposed surface water drainage strategy for the aforementioned planning application.

As the Lead Local Flood Authority (LLFA) ECC provides advice on SuDS schemes for major developments. ECC have been statutory consultee on surface water since the 15th April 2015.

In providing advice this Council looks to ensure sustainable drainage proposals comply with the required standards as set out in the following documents:

- Non-statutory technical standards for sustainable drainage systems
- Essex County Council's (ECC's) adopted Sustainable Drainage Systems Design Guide
- The CIRIA SuDS Manual (C753)
- BS8582 Code of practice for surface water management for development sites.

Lead Local Flood Authority position

After reviewing the submitted documents please see a summary of our comments below:

ECC is statutory consultee to ensure the adoption of sustainable ways of surface water management where above ground storage is our preferred option when considering drainage strategies for new developments. Above ground storage options maximize the amenity and biodiversity benefits of SUDS. It is preferable that these are implemented throughout the development and integrated into the proposed landscaping as extensively as practicable.

Overall Drainage Strategy

The SuDS Planning Advice meeting was arranged to discuss the development Land East of Rayleigh Road, Hadleigh, Thundersley, Essex. The master plan discussion for the site was done to help understand onsite drainage and further betterment applied to outline drainage proposal. The proposed site is greenfield allocated site in the current/ emerging local plan and have proposed residential development up to 455 new homes, multi-use community hall, healthcare facility, early years and childcare nursery with associated infrastructure.

The site has existing features of significant importance such as existing fishing lake and drainage ditches. The fishing lake is located to the east, which is proposed to be retained, existing ordinary watercourse running through the site and will be retained as an open feature.

The site topography forms the five different drainage catchments and hence can be used to manage surface water on catchment scale with ultimate discharge to Sewer/water course.

The master plan drainage strategy consists of multiple catchments and attenuation basin are proposed at topographically lower parts of the site. These serve as a strategic feature to provide attenuation and surface water runoff treatment. We discuss areas that can deliver multifunctional spaces and suds storage. Two of the basins have been modelled as multi-purpose basins, with an upper tier of the basin used for climate change events. This enables the basin to be used as informal play areas. It is recommended the features should be well designed to manage water and provide amenity and biodiversity benefits. Elements such as low flow channels, steppingstones could be used to allow public access to the feature during smaller storm events.

During the meeting we have discussed our concerns about fishing lake as an existing features/reservoir and it was explained the long-term management plan for reservoir will be provided and will update the capacity of reservoir to receive restricted runoff from watercourse and any implications cause by inflow outflow arrangement from reservoir/ watercourse.

It was discussed during the meeting that indicative layout for additional SuDS features is required at each catchment or plot scale. We would recommend open features such a Swales, and Source Control measures such as Permeable Paving, Green/ Blue Roofs and Water Butts should be considered, as extensively as possible to provide additional SuDS benefits. These features should be integrated into the Landscaping Strategy for the proposed development as multi-functional space, where this is practical to do so. As discussed above to support outline application the indicative layout would be considered acceptable and intentions to be delivered at detailed design stage.

Sewer Network Design should demonstrate that there is No Surcharging for the 1 in 1yr RP, No Flooding for the 1 in 30yr RP and if not contained within the system, details of overland flood flow routes should be provided for the 1 in 100yr +CC RP, which should demonstrate no internal flooding to properties.

Flood Risk Assessment

A flood risk assessment should consider all forms of flood risk.

These include:

- Flooding from the sea or tidal flooding;
- Flooding from land;
- Flooding from groundwater;
- Flooding from sewers; and
- Flooding from reservoirs, canals, and other artificial sources.

It should be considered how any existing flood risk will interact with the proposed development and associated drainage scheme.

Our records indicate that the proposed development is within a Critical Drainage Area (CDA) Ref. NRoch_001 Eastwood, falling within the Rochford Surface Water Management Plan (SWMP) Study Area.

Run off Destinations

Surface water run- off should be disposed of in line with the discharge hierarchy and should be investigated in the below order:

- Rainwater reuse
- Discharge via infiltration
- A hybrid Approach
- Discharge to a watercourse/surface water body
- Discharge to a surface water sewer
- Discharge to a combined sewer

Rainwater re-use

In line with the updated 2020 Essex County Council SuDS Design Guide, rainwater re-use should be considered as part of any development. If this is not proposed as part of an application a clear explanation should be provided to demonstrate why this is not a viable option of source control on site. Essex is likely to experience increasing water scarcity in the near future so rainwater re-use needs to be strongly considered as part of any application for larger sites, however it should also be considered for smaller sites. If rainwater re-use is excluded without explanation, then the ECC SuDS team will ask for further information. For more detailed advice please read the following section in our new design guide:
https://www.essexdesignguide.co.uk/suds/discharge-locations/rainwater-re-use/

Infiltration

If infiltration is proposed, groundwater testing and infiltration testing in line with BRE 365 will need to be submitted to show that infiltration is feasible. Any infiltration storage devices should have 1m between the base of the storage device and seasonal high groundwater level.

If infiltration is unlikely to be possible at the site due to ground conditions, then we will still require high level ground investigations in order to prove that this is not a viable option.

We discussed Surface Water Run-off destinations and it was explained that the ground conditions on site are unlikely to be suitable for infiltration. The infiltration test has been conducted which results no infiltration for most of the test pits, however one location was identified where the test was completed. We discussed if the infiltration rate for this site is very slow to achieve full infiltration then hybrid infiltration can be utilized. The LLFA accepts the minimum infiltration rate at 1×10^{-6}. We also discuss the site may be susceptible for ground water fluctuation. It was agreed if the selected site is prone to high ground water levels then infiltration may not be an option to discharge. However further information with regard to ground water levels and depth of infiltration features would be required to fully understand whether or not the infiltration is a viable option.

Watercourse or Sewer

If discharge to a watercourse or sewer is proposed, it must be ensured that the site discharges at a suitable rate and any appropriate permissions are in place. Details in regard to the level of the outfall in relation surface water in the outfall feature should also be submitted.

Where the discharge is to a watercourse, the outfall should be above the 1 in 100 plus climate change level or alternatively the effect of surcharging of the outfall should be modelled and appropriate measures should be put in place.

We discussed the outfall surcharge sensitivity is required for the outline planning application and it was agreed due to unavailability of data it is not required for outline planning application, however it can be discussed later in the planning process when more detail information will be available.

Surface water discharge from the site would be to an Anglian Water Sewer as well as into the watercourse from the catchments adjacent to watercourse/ditch. We discussed the Anglian Water outfall orifice requirements where AW don not accept outfall orifice smaller than 75mm. The discharge rate from the site to any outfall would be limited to 1-year greenfield runoff rates as discussed in below section.

Peak Flow

If following the discharge hierarchy infiltration is not found to be feasible on site, discharge from the site should be limited to the Greenfield 1 in 1 year rate.

Alternatively, surface water can be discharged at equivalent Greenfield rates with the inclusion of long-term storage. Information would need to be provided about the values used to calculate this rate and these would be reviewed on submission.

Please also note that we do not accept a flat rate of 5l/s discharging from the site if the Greenfield 1 in1 year rate is below 5l/s. Historically 5l/s was applied to an outlet where Qbar was lower than 5l/s, as most devices would require an outlet orifice size smaller than 50mm, which would increase the susceptibility of blockage and failure.

There are now vortex flow control devices which can be designed to discharge at 1l/s, with 600mm shallow design head and still provide more than a 50mm diameter orifice. Furthermore, it is expected that appropriate measures should be put in place to remove materials that are likely to cause blockage before they reach the flow control device.

It was discussed the surface water runoff from the site would be limited to 1 year green field rates. The runoff rate should be calculated using the entire developable area for the site redline plan. It is recommended the combined discharge from the catchments should not in excess of 1 year greenfield rate calculated for the entire developable area for the site redline plan.

Storage requirements

It should be demonstrated how surface water up to the 1 in 100 year plus climate change event is managed within the development.

The Environment Agency updated their climate change allowance in February 2016 and we require the design to be to the upper end allowance (i.e. 40%), unless this can be shown to make the development unviable, in which case the central allowance should be used with a sensitivity analysis carried out for the effects of the upper allowance. Please see the following link for more information on revised climate change allowances: https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances

Furthermore a 10% allowance in storage calculations should be provided for urban creep on roof areas. Details regarding the half-drain time of any storage device should also be submitted for review. If half drain time is in excess of 24 hours a follow up 1 in 10 year storm event can be modelled to evidence sufficient capacity. It is preferred to maintain 300mm freeboard for storage features.

As part of the planning application, detailed calculations considering a range of summer and winter storms should be submitted for storage requirements.

We have discussed an overland flow routes from north or north west site of the development where attenuation for that catchment is proposed. if storage is placed in a path of a surface water flow that comes from off site, it should be demonstrated that any storage features will be sized appropriately for surface water created by the site and off site flows that may enter the storage features.

Water Quality

There should be treatment in line with Chapter 26 of the CIRIA SuDS Manual C753 for all areas of the site.

Whether the site is considered a medium or low pollutant risk depends on the traffic movements expected on the development. If the development is expected to have over 300 traffic movements then the medium pollution indices should be applied whereas the low pollution indices should be applied if less than 300 daily traffic movements are expected.

Considering impact of water pollution, in line with Paragraph 170 of the NPPF, priority should be given to SuDS and all SuDS options should be explored. If proprietary features are used however, it should be shown how these features will provide enough treatment in terms of total suspended solids, hydrocarbons and metals in line with Chapter 26.

It should be noted that trapped gullies and catch pits are generally not considered appropriate forms of pollution mitigation because of the high risk of remobilisation of pollutants using this method of treatment.

Residual Flood Risk

As part of any planning application it should be ensured that surface water is managed so that there is no flooding in a 1 in 30 year storm event and no internal flooding in a 1 in 100 year, inclusive of climate change storm event. Detail should also be given in regards to exceedance routes above the critical 1 in 100 year, inclusive of climate change storm event, which should be directed away from properties.

Maintenance and Adoption

The on-going maintenance of any features will be necessary to ensure that flooding does not occur due to failure of components. A maintenance plan should be provided as part of the planning application process detailing the maintenance activities and frequencies as well as who will be maintaining the system.

We understand that Anglian Water do adopt SuDS schemes within this region upon a scheme meeting their Adoption Criteria. If you intend to have them adopt your scheme, you will also need to provide proof that you have sent an Expression of Interest to them, or an Approval in Principle of your design.

Additional comments:

For a summary of what we require and when, please see the following link: https://www.essexdesignguide.co.uk/suds/what-we-expect/what-we-expect-to-see/

Our ECC suds design guide 2020 can be found at the following link:https://www.essexdesignguide.co.uk/suds

Our ECC new suds proforma can be found at the following link: https://www.essexdesignguide.co.uk/media/2272/essex-suds-water-quantity-and-quality-proforma-v11.pdf

At some point during the planning stage, you would need to show how surface water will be managed during the construction phase.

You would also need to demonstrate how surface water impacts on the drainage system before and after development, and how the new development improves existing land drainage or surface water management.

Under Section 23 of the Land Drainage act (1991) any proposed structure that impacts on the cross-sectional area of a watercourse will require Ordinary Watercourse consent to be sought from Essex County Council. Such applications are separate from and are required in addition to the planning process.

Please note:

The advice provided by the Council's Officers is informal opinion only and is made without prejudice to any formal decision that may be given in the event of an application being submitted.

In particular, any advice given will not constitute a formal response or recommendation of the County Council. Any views of opinions expressed are in good faith and to the best of ability, without prejudice to the formal consideration of any application, which will ultimately be decided by the Local Planning Authority. The County Council cannot guarantee that new issues will not be raised following submission of a planning application and consultation upon it.

Officers cannot give guarantees about the final formal decision that will be made on planning or related applications. However, the advice contained within the written response will be considered by officers when considering any future planning application. This is subject to the proviso that circumstances and information may change or come to light that could alter the position. It should be noted that the weight given to pre-application advice will change if new material considerations arise.

Whilst we have no further comments at this stage, we strongly recommend you engage in pre-application consultation with any other organisations that maybe relevant to the proposed drainage strategy to avoid potential delays at the application stage. If you have any queries about any advice we have given please do not hesitate to contact us.

Yours sincerely,

Dr Zahida Yousaf
Senior Development and Flood Risk Officer
Team: Development and Flood Risk
Service: Waste & Environment
Essex County Council

Internet: www.essex.gov.uk
Email: suds@essex.gov.uk

Appendix I Castle Point Borough Council Correspondence