Orchard House
Emsworth

Flood Risk Assessment
and Drainage Statement
(Part 3 of 3)

McCarthy & Stone

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Appendix D

170511 SSD42788: Orchard House, Western Avenue, Emsworth, Hampshire – Flood Risk Enquiry

SSD Enquiries <SSDEnquiries@environment-agency.gov.uk>

Thu 11/05/2017 16:05

[redacted]

1 attachments (2 MB)

16093_TPlan_Option.pdf;

Dear Aaron,

Thank you for clarifying the nature and extent of the proposed development at Orchard House, I would like to apologise for my delay in providing you with a response. If you have not done so already, we recommend that you contact Southern Water to ensure that the proposed connection to the Southern Water foul sewer is possible.

If you do decide to use soakaways as you have proposed, you will need to ensure that percolation tests are carried out by a suitable drainage consultant.

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.

We are committed to providing a professional customer service. Please help us understand more about what is important to you by completing our two minute survey.

Kind regards,

Tom Baker

Customers & Engagement | Solent and South Downs Area | Environment Planning and Engagement Environment Agency | Guildbourne House | Chatsworth Road | Worthing| West Sussex | BN11 1LD
Tel: +44 20302 57046 Int: 57046 or contact our National Contact Call Centre 03708 506506
email: ssdenquiries@environment-agency.gov.uk

www.gov.uk/floodsdestroy

From: Aaron McLean [redacted]
Sent: 28 April 2017 11:54
To: SSD Enquiries <SSDEnquiries@environment-agency.gov.uk>
Subject: 170428 (2) SSD42788: Orchard House, Western Avenue, Emsworth, Hampshire – Flood Risk Enquiry

Hi Tom

Thanks for your email. A copy of the proposed development drawing is attached. The development proposals would involve the construction of 24 retirement residential dwellings, reception and lounge areas within a multi-story block, associated car parking, open space and landscaping etc. Vehicle access would be provided from Western Avenue via the existing access. The red line boundary is 4550m^2.

It is proposed that the foul water generated by the development would be discharged into a Southern Water foul sewer which runs through the western part of the site. The existing site connection point would be utilised.

With regards to surface water run-off, the preferred option would be to use soakaways, however the feasibility of this has yet to be confirmed by infiltration testing. If the results of the testing show unfavourable ground conditions, then the development would need to discharge to the Southern Water surface water sewer in Havant Road. It is proposed that any surface water discharge to the Southern Water network would be restricted to 5 l/s.

Hopefully this information clarifies, however if you require any additional information then please don't hesitate to get back to me.

Kind regards
Aaron

From: SSD Enquiries <SSDEnquiries@environment-agency.gov.uk>
Sent: 28 April 2017 09:06:28
To: Aaron McLean
Subject: 170428 SSD42788: Orchard House, Western Avenue, Emsworth, Hampshire – Flood Risk Enquiry

Dear Aaron,

Thank you for your request for information relating to the site occupied by Orchard House, Western Avenue, Emsworth, Hampshire, which we received on 3 April 2017.

With regards to your third question, we do not hold any records of groundwater levels within 1 km of the site in question. We also do not hold any records of groundwater flooding at the site in question.

In order to ensure that we provide you with the correct information regarding your fourth question, could you please clarify the size and nature of the development in question? Could you please also clarify for us whether it is your intention to connect to foul or install a sewage treatment plant and then discharge to ground via an infiltration system? Please could you also clarify what the proposed discharge rate of 5l/s relates to?

We are committed to providing a professional customer service. Please help us understand more about what is important to you by completing our two minute survey.

Kind regards,

Tom Baker

Customers & Engagement | Solent and South Downs Area | Environment Planning and Engagement Environment Agency | Guildbourne House | Chatsworth Road | Worthing| West Sussex | BN11 1LD
Tel: +44 20302 57046 Int: 57046 or contact our National Contact Call Centre 03708 506506
email: ssdenquiries@environment-agency.gov.uk

www.gov.uk/floodsdestroy

From: Aaron McLean [redacted]
Sent: 03 April 2017 01:48
To: SSD Enquiries <SSDEnquiries@environment-agency.gov.uk>
Subject: Orchard House, Western Avenue, Emsworth, Hampshire – Flood Risk Enquiry

Dear Sir/Madam,

Orchard House, Western Avenue, Emsworth, Hampshire – Flood Risk Enquiry

We are writing regarding the proposed development of a parcel of land currently occupied by Orchard House, Western Avenue, Emsworth, Hampshire. The Site is located at the approximate postcode PO10 7LP, please find attached a location plan for your information.

The Site is located within Flood Zone 1, however we have been commissioned to investigate the risk of flooding to the site from other sources of flood risk. I would be grateful if you could provide your Product 4 dataset and information relating to the following:

1. Our initial investigations into flood risk indicate that the Site lies within Flood Zone 1, based on the current information indicated on the Environment Agency website. Please could you confirm this and provide a more detailed Flood Zone map if one exists.

2. Please provide us with details of any historic flooding affecting, or in the vicinity of the Site, including dates, the extent and cause of flooding, if known. Please could you confirm any details of flooding attributed to fluvial, overland flow, lack of sewer capacity, or alternatively confirm that you hold no records of such events.

3. Please could you provide us with further information on likely groundwater levels in the vicinity of the Site (within 1km) as well as any records of groundwater flooding incidents.

4. Please advise if you have any requirements on surface water and foul drainage at this stage, relating to the Site. It is currently envisioned that, surface water runoff would be discharged to ground by infiltration. However if ground conditions were unconducive to infiltration techniques then a discharge would be made to a Southern Water surface water sewer. The proposed discharge rate would be a design rate of 5 l/s. Please could you confirm that this would be acceptable.

We are also writing to Southern Water and Havant Borough Council requesting details of flooding records. If you are aware of any other parties that may have useful information then please provide their details.

If you require any further information to enable you to process our request for information then please feel free to contact me.

Kind regards
Aaron McLean

Engineer

Paul Basham Associates

Southampton Office

t +44 (0) 1489 668134

p Lancaster Court, 8 Barnes Wallis Road, Fareham, Hampshire, PO15 5TU

w www.paulbashamassociates.com

Oxford Office

t +44 (0) 1865 552855

p Cranbrook House, 287-291 Banbury Road, Oxford, OX2 7JQ

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Flood Risk Information for Western Avenue - Ref: SSD/42788

Partnership and Strategic Overview team, HIOW <psohiow@environment-agency.gov.uk>

Wed 03/05/2017 10:47

To: [redacted]

Cc: SSD Enquiries <SSDEnquiries@environment-agency.gov.uk>;

7 attachments (9 MB)

Flood Map for Planning (Rivers and Sea).pdf; Risk of Flooding from Surface Water.pdf; Open Government Licence.pdf; uFMfSW Fact Sheet.pdf; Charging for Planning Advice from the Environment Agency leaflet.pdf; Detailed Advice Request Form.docx; Pre-app advice note.pdf;

Dear Aaron,

Provision of Flood Risk Information for The Orchard House, Western Avenue, Emsworth, PO10 7LP

Thank you for your request to use Environment Agency data, in the development of The Orchard House, Western Avenue, Emsworth, PO10 7LP. The information is attached.

Further details about the Environment Agency information supplied can be found on the GOV.UK website:

https://www.gov.uk/browse/environment-countryside/flooding-extreme-weather

If you have requested this information to help inform a development proposal, then you should note the information on GOV.UK on the use of Environment Agency Information for Flood Risk Assessments

https://www.gov.uk/planning-applications-assessing-flood-risk
https://www.gov.uk/government/publications/pre-planning-application-enquiry-form-preliminary-opinion

We can confirm that the above site is located in Flood Zone 1 - an area where the chance of flooding from both rivers and the sea has been assessed as less than 0.1% in any year (1 chance in 1,000 in any year).

The Environment Agency has no record of flooding to this area, but not all flooding events are reported to us and further information may be available from Havant Borough Council.

Surface Water Flooding – Please see the attached map and information.

This information is provided subject to the enclosed *notice*, which you should read.

I hope that we have correctly interpreted your request. Please see the attached Standard Notice or licence for details of permitted use.

We respond to requests for recorded information that we hold under the Freedom of Information Act 2000 (FOIA) and the associated Environmental Information Regulations 2004 (EIR).

If you are not satisfied with our response to your request for information you can contact us within 2 calendar months to ask for our decision to be reviewed.
If you have any queries or would like to discuss the content of this letter further please call us on 08708 506506.

If you have any queries or would like to discuss the content of this letter further please contact the Partnership and Strategic Overview Team at the Environment Agency.

Yours faithfully

Aimee Cox
Partnership and Strategic Overview team, Hampshire and Isle of Wight
Environment Agency

Direct dial 020 8474 5815
Email psohiow@environment-agency.gov.uk
Part Time Tuesday, Wednesday, Thursday and Friday

protect invest improve Planning for the future of water FLOODS DESTROY BE PREPARED

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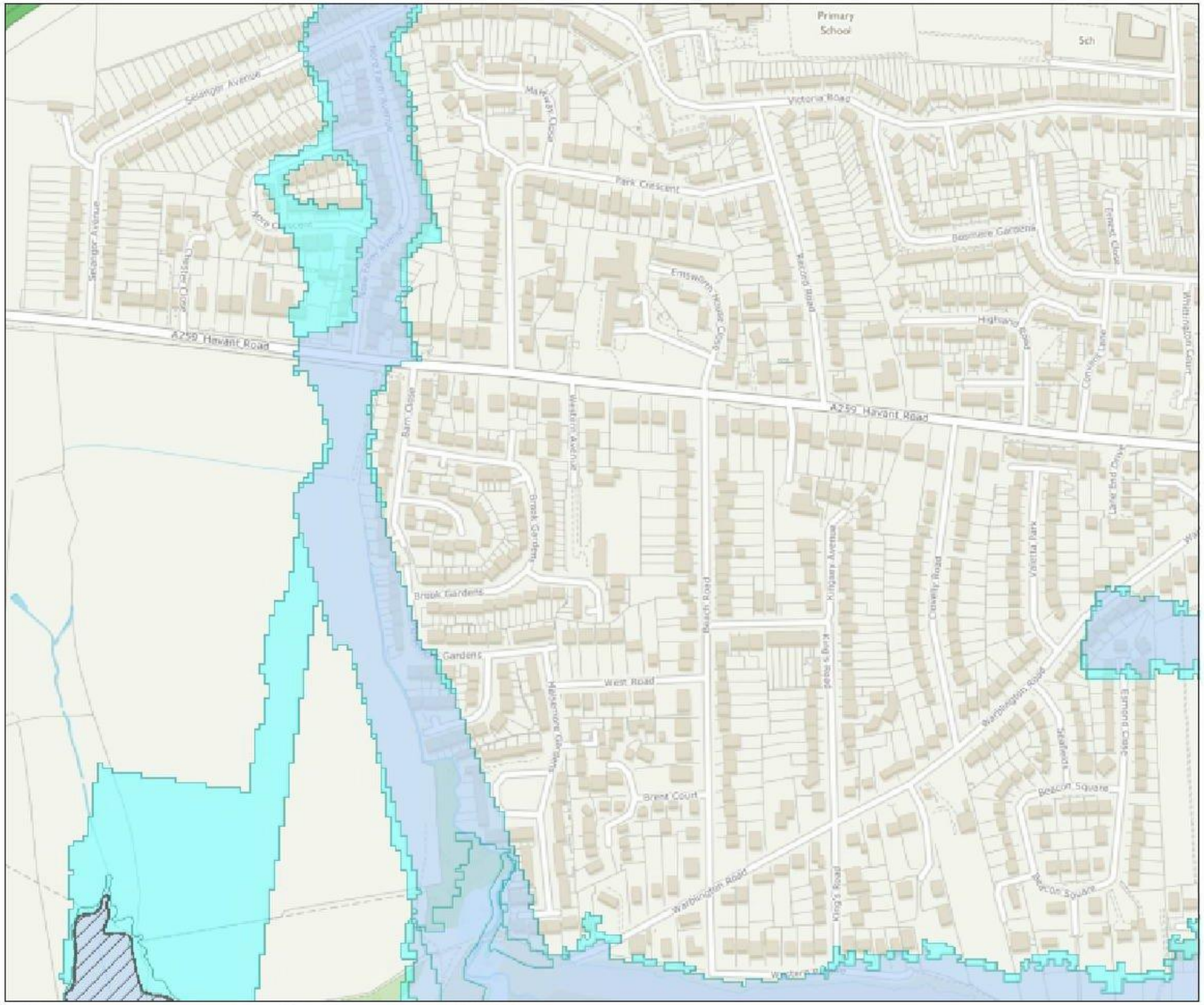
Flood Map for Planning (Rivers and Sea) Centred on Western Avenue - Created 2 May 2017



Environment Agency

Scale 1: 6,250

N W E S

Flood Map for Planning (Rivers & Sea)

- Local Authority
- Defences
- Flood Storage Areas
- Areas benefiting from flood defences
- Flood Zone 3
- Flood Zone 2

Flood Map Areas (assuming no defences)

Flood Zone 3 shows the area that could be affected by flooding:

- from the sea with a 1 in 200 or greater chance of happening each year
- or from a river with a 1 in 100 or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to a 1 in 1000 chance of occuring each year

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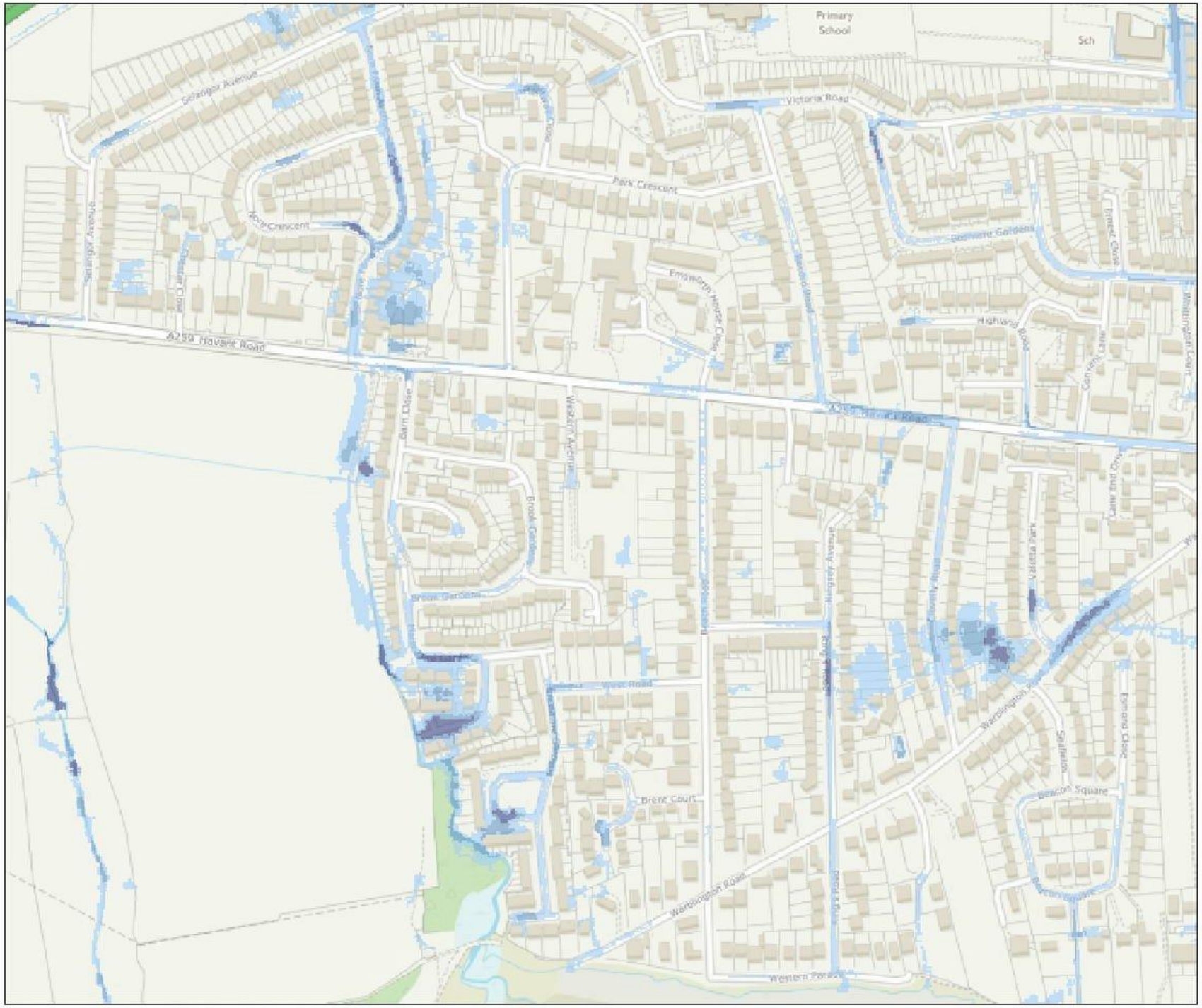
Risk of flooding from Surface Water Centred on Western Avenue - Created 2 May 2017



Environment Agency

Scale 1:6,250

N W E S

Likelihood of flooding from Surface Water

- Local Authority
- High (>= 3.3%)
- Medium (3.3% - 1%)
- Low (1% - 0.1%)
- Very Low

Likelihood of flooding from Surface Water

High:	Greater than or equal to 3.3% (1 in 30) chance in any given year
Medium:	Less than 3.3% (1 in 30) but greater than or equal to 1% (1 in 100) chance in any given year
Low:	Less than 1% (1 in 100) but greater than or equal to 0.1% (1 in 1,000) chance in any given year
Very Low:	Less than 0.1% (1 in 1,000) chance in any given year

This information is shown on the Risk of Flooding from Surface Water map on our website.

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Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). E-mail: enquires@environment-agency.gov.uk

Your query for Havant Borough Council

Havant Borough Council <customer.services@havant.gov.uk>

Mon 03/04/2017 01:42

To: Aaron McLean [redacted]

Thank you for completing the online form. We will get in touch with you using the contact details you supplied if a response is required.

Your reference number for this form is 329/31787

You submitted the form on Monday, 3 April, 2017 - 00:42

The details you gave us are:

--Your contact details--
Your Name: Aaron McLean
Your last name:
House number/name:
Road name:
Town/village:
Post code:
Preferred contact method: Email
Your email address: [redacted]
Secondary contact method:
Do you require responses to be in a certain format? No

--Which team would you like to contact?--
Service: Flooding

--Your reason for contacting us--
Your query or comment:
Dear Sir/Madam,

Orchard House, Western Avenue, Emsworth, Hampshire – Flood Risk Enquiry

We are writing regarding the proposed development of a parcel of land currently occupied by Orchard House, Western Avenue, Emsworth, Hampshire. The Site is located at the approximate postcode PO10 7LP.

The Site is located within Flood Zone 1, however we have been commissioned to investigate the risk to the site from other sources of flood risk whilst ensuring that the proposed development would not increase the existing level of risk to third parties. We would be grateful if you could provide information relating to the following:

1. Details of any historic flooding affecting, or in the vicinity of the Site, including dates, the extent and cause of flooding, if known. Please could you confirm any details of flooding attributed to fluvial, overland flow, lack of sewer capacity, or alternatively confirm that you hold no records of such events.

2. Please could you provide us with further information on likely groundwater levels in the vicinity of the Site (within 1km) as well as any records of groundwater flooding incidents.

3. Please advise if you have any requirements on surface water and foul drainage at this stage, relating to the Site. It is currently envisioned that, surface water runoff would be discharged to ground by infiltration. However if ground conditions were unconducive to infiltration techniques then a discharge would be made to a Southern Water surface water sewer. The proposed discharge rate would be 5 l/s (subject to Southern Water approval). Please could you confirm that this would be acceptable.

We are also writing to Southern Water and the Environment Agency requesting details of flooding records. If you are aware of any other parties that may have useful information then please provide their details.

If you require any further information to enable you to process our request for information then please feel free to contact me.

Kind regards
Aaron McLean
Engineer
Paul Basham Associates

Southampton Office
□□t +44 (0) 1489 668134
□□p Lancaster Court, 8 Barnes Wallis Road, Fareham, Hampshire, PO15 5TU
□□w www.paulbashamassociates.com

RE: Orchard House, Western Avenue, Emsworth, Hampshire - Flood Risk Enquiry

Developer Services <Developer.Services@southernwater.co.uk>

Mon 03/04/2017 10:15

To: Aaron McLean [redacted]

Dear Mr McLean,

Thank you for your email below.

Unfortunately, we do not hold any flood risk data for this area and are unable to answer the queries you have raised. You may be able to obtain further information from the Environmental Agency.

Copies of Southern Water's sewer plans can be obtained from our Land Search department. They can be contacted on 0330 303 0276 or by email at searches@southernwater.co.uk

If you want to know about capacity for a development then you should request a capacity check. The appropriate application forms and guidance notes can be downloaded from Southern Water's website at https://www.southernwater.co.uk/property-and-developers

Southern Water do not adopt SUDs systems. Any sewer systems that are to be adopted have to comply with Sewers for Adoption 6th or 7th Edition standards.

Yours sincerely,

Developer Services
Southern Water
0330 303 0119, option 5
www.southernwater.co.uk

From: Aaron McLean [redacted]
Sent: 03 April 2017 01:32
To: Developer Services
Subject: Orchard House, Western Avenue, Emsworth, Hampshire – Flood Risk Enquiry

Dear Sir/Madam

Orchard House, Western Avenue, Emsworth, Hampshire – Flood Risk Enquiry

We are writing regarding the proposed development of a parcel of land currently occupied by Orchard House, Western Avenue, Emsworth, Hampshire. The Site is located at the approximate postcode PO10 7LP, please find attached a location plan for your information.

We have been commissioned to investigate the risk of flooding to the proposed development and produce a Flood Risk Assessment report. We would be grateful if you could provide information relating to the following:

1. Details of any historic flooding affecting or in the vicinity of the site, including dates, the extent and cause of flooding, if known. Please also inform us of any other known sources of flooding in the area, including lack of

sewer capacity.

2. A drainage survey has recently been undertaken and it was identified that there is level monitoring equipment in Manhole 0801 (see below). We assume that this equipment was installed due to previous flood incidents associated with this foul sewer. Could you please provide further details as this may pose a risk to the site.

We are also writing to the Environment Agency and Havant Borough Council requesting details of flooding records. If you are aware of any other parties that may have useful information please could you advise.

If you require any further information to enable you to process our request for information then please feel free to contact me.

Kind regards
Aaron McLean

Engineer

Paul Basham Associates

Southampton Office

☎ t +44 (0) 1489 668134

p Lancaster Court, 8 Barnes Wallis Road, Fareham, Hampshire, PO15 5TU

w www.paulbashamassociates.com

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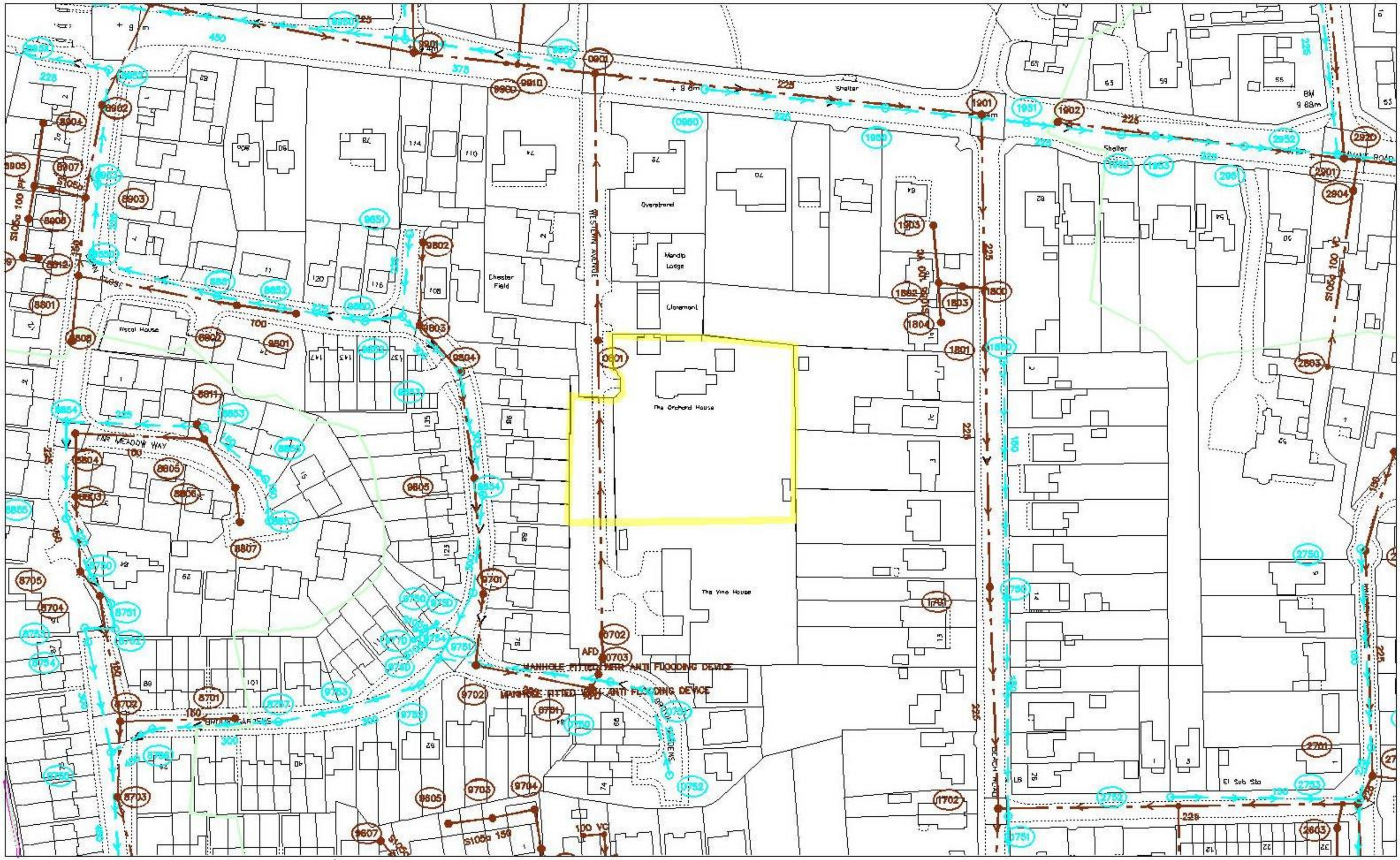
Appendix E

SEWER RECORDS PAGE 1 OF 2

105976



105688

473805

474277

O.S. REF. SU7405NW	Drawn by: kumarla	The positions of pipes shown on this plan are believed to be correct, but Southern Water Services Ltd accept no responsibility in the event of inaccuracy. The actual positions should be determined on site.
	Scale: 1:1250	WARNING: BAC pipes are constructed of Bonded Asbestos Cement. WARNING: Unknown (UNK) materials may include Bonded Asbestos Cement
Title: 217087_The Orchard Houe, Weste	Date: 10/06/2016	Based upon Ordnance Survey Digital Data with the permission of the controller of H.M.S.O. Crown Copyright Reserved Licence No. WU 298530.

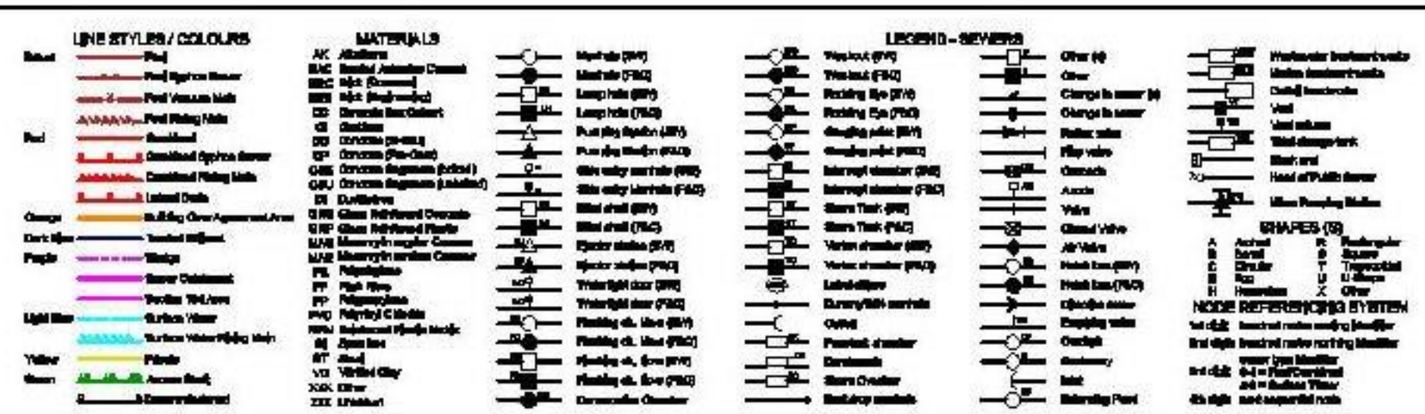
N

Southern Water

SEWER RECORDS PAGE 2 OF 2

Node	Cover	Invert	Size	Material	Shape
060DX			100	VC	CIRC
061DX			100	VC	CIRC
0701X	8.22	6.07	UNK	UNK	CIRC
0702X			UNK	UNK	CIRC
0703X			UNK	UNK	CIRC
0750X	8.209	6.159	UNK	UNK	CIRC
0751X	8.149	6.219	225	UNK	CIRC
0752X	7.842	6.382	225	UNK	CIRC
0901X			UNK	UNK	CIRC
0901X	9.726		225	UNK	CIRC
0950X	9.615	8.945	225	UNK	CIRC
1701X	8.169	3.944	225	UNK	CIRC
1702X	7.46		225	UNK	CIRC
1750X	8.128	7.228	150	UNK	CIRC
1751X	7.432	6.292	225	UNK	CIRC
1801X	9.007	4.16	225	UNK	CIRC
1802X			100	VC	CIRC
1803X			100	VC	CIRC
1804X			100	VC	CIRC
1900X			225	UNK	CIRC
1950X	8.968	7.718	150	UNK	CIRC
1901X	9.571	4.377	225	UNK	CIRC
1902X	9.522	7.397	225	UNK	CIRC
1903X			100	VC	CIRC
1950X	9.554	8.944	225	UNK	CIRC
1951X	9.586	8.806	225	UNK	CIRC
1952X	9.541	8.721	UNK	UNK	CIRC
1953X	9.496	8.696	225	UNK	CIRC
2603X			150	VC	CIRC
2701Y	6.571	4.596	225	UNK	CIRC
2702X	6.958		225	UNK	CIRC
2703X	7.666	6.306	225	UNK	CIRC
270DX			225	UNK	CIRC
271DX			225	UNK	CIRC
2750X	7.631	6.983	150	UNK	CIRC
2751X	6.936	6.288	225	UNK	CIRC
2752X	7.156	5.676	150	UNK	CIRC
2753X	6.541	5.301	225	UNK	CIRC
2901X	7.658	6.791	150	UNK	CIRC
2803X			100	VC	CIRC
2901X	9.135		225	UNK	CIRC
2904X			UNK	UNK	CIRC
292DX			225	UNK	CIRC
2951X	9.404	8.594	UNK	UNK	CIRC
2952X	9.212		225	UNK	CIRC
8701X			150	UNK	CIRC
8702X			UNK	UNK	CIRC
8703X			UNK	UNK	CIRC
8704X	7.87	5.23	150	UNK	CIRC
8705X	7.71	5.39	UNK	UNK	CIRC
8750X	7.728	5.97	225	UNK	CIRC
8751X	7.646	5.615	225	UNK	CIRC
8752X	7.428	5.45	225	UNK	CIRC
8753X	7.379	5.139	UNK	UNK	CIRC
8754X	7.203	5.033	300	UNK	CIRC
8755X	6.276	4.656	450	UNK	CIRC
8756X	6.886	4.636	450	UNK	CIRC
8757X	7.205	5.365	300	UNK	CIRC
8801X	8.79	7.67	150	UNK	CIRC
8802X	9.296	7.946	UNK	UNK	CIRC
8803X	7.832	5.59	150	UNK	CIRC
8804X	8.008	5.86	225	UNK	CIRC
8805X	8.356	6.295	150	UNK	CIRC
8806X	8.364	6.36	UNK	UNK	CIRC
8807X	8.111	6.5	UNK	UNK	CIRC

Node	Cover	Invert	Size	Material	Shape
8808X	8.79	7.59	UNK	UNK	CIRC
8809X			100	PF	CIRC
8811X			100	VC	CIRC
8812X			UNK	UNK	CIRC
8850X	9.021	7.831	225	UNK	CIRC
8851X	9.169	8.059	225	UNK	CIRC
8852X	9.511		225	UNK	CIRC
8853X	8.323	6.56	225	UNK	CIRC
8854X	7.853	6.19	225	UNK	CIRC
8855X	7.797	6.04	225	UNK	CIRC
8856X	8.33	6.65	150	UNK	CIRC
8857X	8.109	6.925	150	UNK	CIRC
8901X	9.136		225	UNK	CIRC
8902X	8.971	6.811	UNK	UNK	CIRC
8903X	9.084	7.094	UNK	UNK	CIRC
8904X			100	PF	CIRC
8905X			UNK	UNK	CIRC
8906X			100	PF	CIRC
8907X			UNK	UNK	CIRC
8952X	8.631	7.481	225	UNK	CIRC
8953X	9.178	7.578	225	UNK	CIRC
895XX	8.833	7.263	525	UNK	CIRC
9605X			150	UNK	CIRC
9606X			150	UNK	CIRC
9701X	8.36	6.64	UNK	UNK	CIRC
9702X	8.28	6.68	225	UNK	CIRC
9703X			150	UNK	CIRC
9704X			150	UNK	CIRC
9750X	8.469	6.259	300	UNK	CIRC
9751X	8.314		300	UNK	CIRC
9752X	7.948	5.808	300	UNK	CIRC
9753X	7.515	5.485	300	UNK	CIRC
9754X			UNK	UNK	CIRC
976DX			UNK	UNK	CIRC
977DX			UNK	UNK	CIRC
9801X	9.479	8.079	100	UNK	CIRC
9802X	9.17	7.95	UNK	UNK	CIRC
9803X	9.29	7.58	UNK	UNK	CIRC
9805X	8.64		UNK	UNK	CIRC
9850X	9.902	7.262	225	UNK	CIRC *
9850Y	9.902		225	UNK	CIRC *
9851X	9.294	7.509	225	UNK	CIRC
9852X	9.998	7.078	300	UNK	CIRC
9853Y	9.131		300	UNK	CIRC *
9853X	9.131	6.911	UNK	UNK	CIRC *
9854X	8.73	6.46	300	UNK	CIRC
9901X	9.461	4.937	UNK	UNK	CIRC
990DX			UNK	UNK	CIRC
991DX			UNK	UNK	CIRC
9950X	9.466		450	UNK	CIRC
9951X	9.589	5.759	375	UNK	CIRC



Drawn by:	kumarla
Title:	217087_The Orchard Houe, Waste
Date:	10/06/2016

Southern Water

Appendix F

Southern Water

Department of Planning and
Development
Havant Borough Council
Public Service Plaza
Civic Centre Road
Havant
Hampshire
PO9 2AX

Developer Services
Southern Water
Sparrowgrove House
Sparrowgrove
Otterbourne
Hampshire
SO21 2SW

Tel: 0330 303 0119
Email: developerservices@southernwater.co.uk

Your Ref
APP/17/00633
Our Ref
PLAN-019283
Date
26/07/2017

Dear Sirs,

Proposal: Demolition of existing dwelling and erection of 25no. retirement living apartments with communal facilities, car parking and landscaping to include the removal of some onsite protected trees (subject to an Area Tree Protection Order 2068/2017) and provision of replacement tree planting
Site: The Orchard House, Western Avenue, Emsworth, PO10 7LP.
APP/17/00633

Thank you for your letter of 25/07/2017.

Further to our previous correspondence regarding the above planning application consultation and discussions with the developer regarding the proposed foul flow rates to be discharged in to the system: Southern Water can provide foul sewage disposal for a discharge rate of 0.0651 l/s to service the proposed development. Southern Water requires a formal application for a connection to the public sewer to be made by the applicant or developer.

We request that should this application receive planning approval, the following informative is attached to the consent:
"A formal application for connection to the public sewerage system is required in order to service this development, Please contact Southern Water, Sparrowgrove House, Sparrowgrove, Otterbourne, Hampshire SO21 2SW (Tel: 0330 303 0119) or www.southernwater.co.uk".

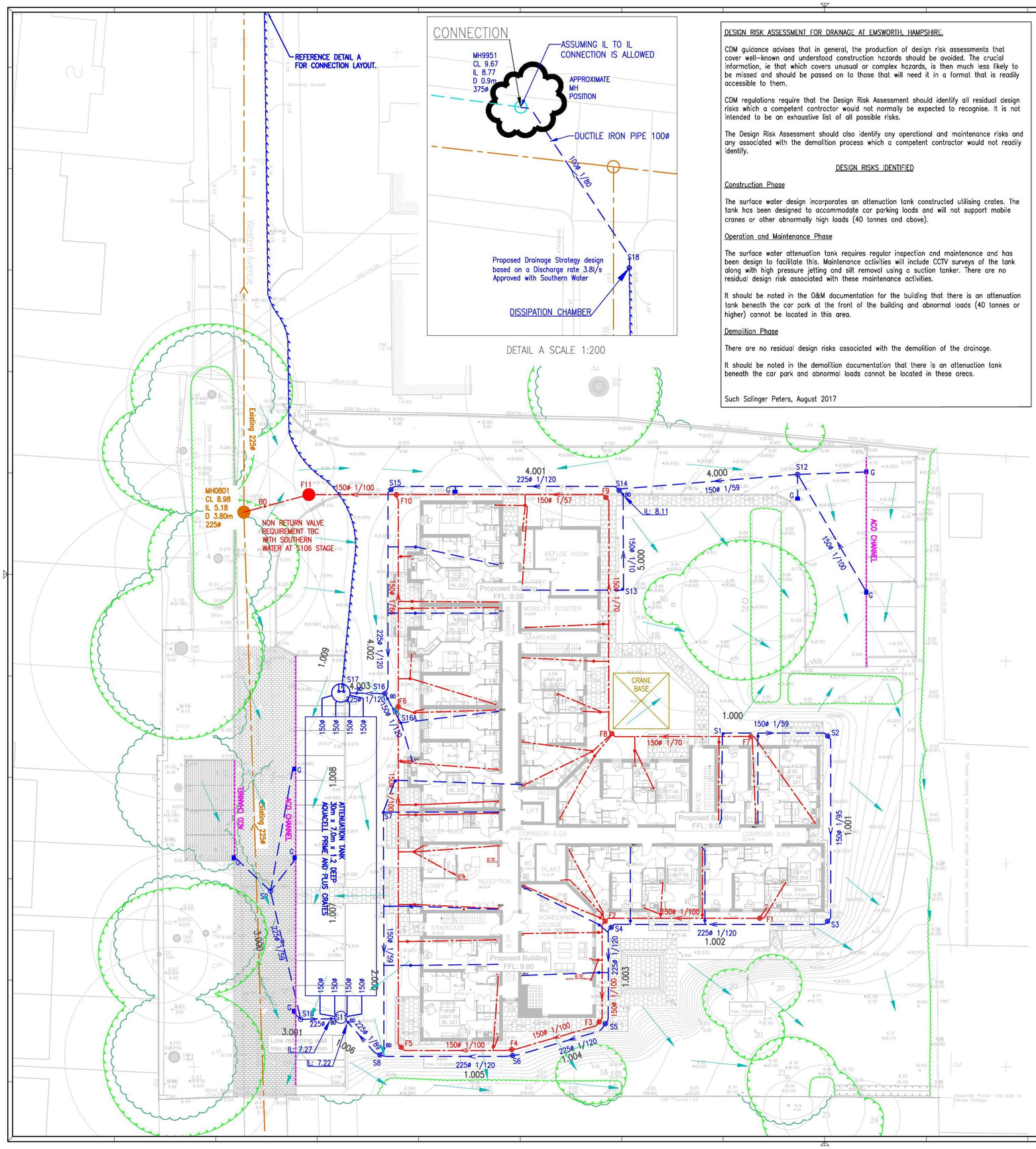
All other comments in our previous response dated 05/07/2017 remain unchanged and valid.

Yours sincerely

[redacted]

Developer Services

Appendix G



DETAIL A SCALE 1:200

DESIGN RISK ASSESSMENT FOR DRAINAGE AT EMSWORTH, HAMPSHIRE.

CDM guidance advises that in general, the production of design risk assessments that cover well-known and understood construction hazards should be avoided. The crucial information, ie that which covers unusual or complex hazards, is then much less likely to be missed and should be passed on to those that will need it in a format that is readily accessible to them.

CDM regulations require that the Design Risk Assessment should identify all residual design risks which a competent contractor would not normally be expected to recognise. It is not intended to be an exhaustive list of all possible risks.

The Design Risk Assessment should also identify any operational and maintenance risks and any associated with the demolition process which a competent contractor would not readily identify.

DESIGN RISKS IDENTIFIED

Construction Phase

The surface water design incorporates an attenuation tank constructed utilising crates. The tank has been designed to accommodate car parking loads and will not support mobile cranes or other abnormally high loads (40 tonnes and above).

Operation and Maintenance Phase

The surface water attenuation tank requires regular inspection and maintenance and has been design to facilitate this. Maintenance activities will include CCTV surveys of the tank along with high pressure jetting and silt removal using a suction tanker. There are no residual design risk associated with these maintenance activities.

It should be noted in the O&M documentation for the building that there is an attenuation tank beneath the car park at the front of the building and abnormal loads (40 tonnes or higher) cannot be located in this area.

Demolition Phase

There are no residual design risks associated with the demolition of the drainage.

It should be noted in the demolition documentation that there is an attenuation tank beneath the car park and abnormal loads cannot be located in these areas.

Such Salinger Peters, August 2017

KEY

- TYPE 4 INSPECTION CHAMBER – 250 DIA.
- TYPE 3 INSPECTION CHAMBER – 450 DIA.
- TYPE 2 P.C. MANHOLE – MIN 1200ø < 3m DEEP
- TYPE 1 P.C. MANHOLE – MIN 1200ø 3m–6m DEEP
- FOUL WATER SEWER
- SURFACE WATER SEWER
- EXISTING FOUL WATER SEWER
- EXISTING SURFACE WATER SEWER
- SURFACE WATER RISING MAIN
- BOUNDARY
- ACO DRAINAGE CHANNEL
- SURFACE WATER FLOWS

NOTES:

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS IN METRES ABOVE ORDNANCE DATUM.
3. SURFACE WATER DESIGN BASED ON A 1 IN 100 YEAR RAINFALL EVENT (PLUS 40% CLIMATE CHANGE) REMAINING BELOW GROUND WITH NO RISK OF SURFACE FLOODING ON OR OFF THE SITE.
4. MANHOLE TYPES ON THE SCHEDULES RELATE TO TYPES AS USED IN SEWERS FOR ADOPTION 7TH EDITION. REFER TO CONSTRUCTION DRAWINGS IN THE SERIES FOR STANDARD DETAILS.
5. WHERE A SPECIFIC DIAMETER IS SHOWN IN THE MANHOLE SCHEDULE (EG. 2100), THE MANHOLE SHOULD BE CONSTRUCTED TO THE STANDARDS FOR EITHER A TYPE 1 OR TYPE 2 MANHOLE IN SEWERS FOR ADOPTION 7TH EDITION.
6. MANHOLES NOT SCHEDULED ARE TYPE 4 INSPECTION CHAMBERS.
7. ALL RWP AND SVP CONNECTING PIPEWORK TO BE 100ø UNLESS NOTED OTHERWISE.
8. 100ø FOUL PIPEWORK TO BE LAID NO FLATTER THAN 1 IN 40 INTERNALLY AND 1 IN 70 EXTERNALLY.
9. MINIMUM DEPTH AT HEAD OF INTERNAL SURFACE WATER TO BE 450MM AND FOUL WATER RUNS TO BE 750MM BELOW FINISHED FLOOR LEVEL UNLESS OTHERWISE STATED.
10. FOUNDATIONS TO BE LOCALLY STEPPED WHERE NECESSARY AS PER STRUCTURAL ENGINEERS DETAILS. WHERE STUB STACKS ARE USED, SPECIAL DETAILS WILL BE PROVIDED.
11. PUBLIC MANHOLE DETAILS FROM PUBLIC SEWER RECORDS.
12. AREA CONTRIBUTING TO THE SW SYSTEM TAKEN AS 2350 m2.
13. THIS DRAWING IS FOR STRATEGY PURPOSES ONLY AND MUST NOT BE USED FOR CONSTRUCTION.
14. FORMAL APPLICATION AND APPROVAL FOR CONNECTIONS INTO PUBLIC SYSTEM MUST BE OBTAINED BEFORE WORKS.
15. SOIL INVESTIGATION LOOKING @ 500mm INFILTRATION TESTS AFTER PLANNING FOR POSSIBLE PERMEABLE PAVING OPTION.

FOUL MANHOLE SCHEDULE

MH No.	COVER	INVERT LEVEL		DEPTH	MAX PIPE	MH	COVER TYPE
		IN	OUT				
F1	8.95	7.84	7.84	1.11	150	3	A15
F2	8.85	7.69	7.69	1.16	150	3	A15
F3	8.80	7.59	7.59	1.21	150	3*	A15
F4	8.80	7.50	7.50	1.30	150	3*	A15
F5	8.85	7.39	7.39	1.46	150	3*	A15
F6	9.00	7.06	7.06	1.94	150	3*	A15
F7	8.90	7.69	7.69	1.21	150	3	A15
F8	8.80	7.50	7.50	1.30	150	3*	A15
F9	9.07	7.17	7.17	1.90	150	3*	A15
F10	9.05	6.75	6.75	2.30	150	3*	A15
F11	9.02	6.65	6.65	2.37	150	2	D400

ALL LEVELS TBC BEFORE WORKS AND REPORTED BACK TO ENGINEER.
ALL PIPEWORK TO BE 100 ø AT MIN. 1/70 UNLESS STATED OTHERWISE.
* RESTTRICTED ACCESS.

SURFACE WATER MANHOLE SCHEDULE

MH No.	COVER	INVERT LEVEL		DEPTH	MAX PIPE	MH	COVER TYPE
		IN	OUT				
S1	8.95	–	8.30	0.65	150	4	A15
S2	8.95	8.03	8.03	0.92	150	3	A15
S3	8.80	7.85	7.85	0.95	150	3	A15
S4	8.85	7.63	7.56	1.29	225	3*	A15
S5	8.82	7.46	7.46	1.36	225	3*	A15
S6	8.70	7.38	7.38	1.32	225	3*	A15
S7	8.94	–	8.30	0.64	150	4	A15
S8	8.75	7.27	7.27	1.48	225	3*	A15
S9	8.80	–	7.55	1.25	225	3*	D400
S10	8.70	7.33	7.33	1.37	225	3*	D400
S11	8.70	7.21	6.45	2.25	225	1200	D400
S12	8.78	–	7.55	1.23	150	3*	D400
S13	8.95	–	8.30	0.65	100	4	A15
S14	9.00	7.25	7.25	1.75	150	3*	D400
S15	8.97	7.02	6.95	2.02	225	3*	D400
S16A	9.02	–	8.30	0.72	150	4	A15
S16	9.05	6.70	6.70	2.35	225	3*	A15
S17	9.00	6.74	6.35	2.65	225	2100	D400
S18	9.56	9.01	9.01	0.55	150	3	D400
9951	9.67	8.77	8.77	0.90	375	Ex	Ex

ALL LEVELS TBC BEFORE WORKS AND REPORTED BACK TO ENGINEER.
ALL PIPEWORK TO BE 100 ø AT MIN. 1/80 UNLESS STATED OTHERWISE.
* RESTRICTED ACCESS.
S14 TO HOUSE PUMPING STATION WITH 2 PUMPS WORKING; ONE DUTY AND ANOTHER STANDBY AT 3.8L/s.
S8 AND S14 TO HAVE ADDITIONAL 500mm DEEP SILT TRAP

ATTENUATION TANK SCHEDULE

PLAN DIMENSIONS	EFFECTIVE DEPTH	TOP OF TANK	BASE OF TANK	LOWEST COVER LEVEL	LOWEST IL IN	MAX. CONSTRUCTION DEPTH
30 x 7m	1.2	7.65–7.55	6.45–6.35	8.85	6.45	2.50

PRELIMINARY ONLY

MK	REVISIONS	DRN	CHK	APP	DATE
G					
F	New RWP locations added into layout. Indicative directional flow of runoff added.	DL	KD	KD	03.08.2017
E	Updated drawing with proposed levels. Updated cover levels on manholes.	DL	KD	KD	02.08.2017
D	Added the CDM note onto the drawing.	DL	KD	KD	24.07.2017
C	Rising main route amended	DL	PP	KD	06.06.2017
B	Rising Main route amended	KD	PP	KD	25.05.2017
A	Rising main and attenuation tank moved as requested. F11 moved back and RP'Ss added.	KD	DL	KD	25.05.2017
–	FIRST ISSUE	DL	KD	KD	19.05.2017

Such·Salinger·Peters
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Tel (01202) 293 213
enquiries@sspconsulting.co.uk
www.sspconsulting.co.uk

CLIENT: MCCARTHY AND STONE SOUTHERN REGION

PROJECT: THE ORCHARD HOUSE EMSWORTH

DRAWING TITLE: 'T' BUILDING DRAINAGE LAYOUT

SCALE	DATE		
1:200	03/08/2017		
	DRAWN	CHECKED	APPROVED
	DL	KD	KD

McCarthy & Stone
Later Life. Greater Life

McCarthy & Stone drawing Ref: SO-2379-03-DE-003

DRAWING No. 64007–03

REVISION F