Application for an environmental permit Part A – About you

You will need to fill in this part A if you are applying for a new permit, applying to change an existing permit or surrender your permit, or want to transfer an existing permit to yourself. Please check that this is the latest version of the form available from our website.

You can apply online for Waste standard rules environmental permits, bespoke waste permits and bespoke Medium combustion plant permits

Apply online for an environmental permit.

Please read through this form and the guidance notes that came with it.

The form can be:

1) **saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.**
2) **printed off and filled in by hand. Please write clearly in the answer spaces.**

Note: if you believe including information on a public register would not be in the interests of national security you must enclose a letter telling us that you have told the Secretary of State. We will not include the information in the public register unless directed otherwise.

It will take less than one hour to fill in this part of the application form.

Where you see the term 'document reference' on the form, give the document references and send the documents with the application form when you've completed it.

Contents

1 About you

Are you applying as an individual, an organisation of individuals (for example, a partnership), a company (this includes Limited Liability Partnerships) or a public body?

An individual	☐ Now go to section 2 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1
An organisation of individuals (for example, a partnership)	☐ Now go to section 3 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1
A public body	☐ Now go to section 4
A registered company or other corporate body	☑ Now go to section 5 and if you are applying for a new permit or transferring a permit for an installation or waste activity please also fill in Appendix 1

2 Applications from an individual

2a Please give us the following details

Name

Title (Mr, Mrs, Miss and so on) _____

First name _____

Last name _____

Now go to section 6

3 Applications from an organisation of individuals or charity

3a Type of organisation

For example, a charity, a partnership, a group of individuals or a club

3b Details of the organisation or charity

If you are an organisation of individuals, please give the details of the main representative below. If relevant, provide details of other members (please include their title Mr, Mrs and so on) on a separate sheet and tell us the document reference you have given this sheet

Contact name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Now go to question 3c or section 6

3c Details of charity

Full name of charity

This should be the full name of the legal entity not any trading name.

3d Company registration number

If you are registered with Companies House please tell us your registration number

3e Charity Commission number

If you are registered with the Charity Commission please tell us your registration number

Now go to section 6

4 Applications from public bodies

4a Type of public body

For example, NHS trust, local authority, English county council

4b Name of the public body

4c Please give us the following details of the executive

An officer of the public body authorised to sign on your behalf

Name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Position

Now go to section 6

5 Applications from companies or corporate bodies

5a Name of the company

Oil Salvage Limited

5b Company registration number

01857473

Date of registration (DD/MM/YYYY)

22/10/1984

If you are applying as a corporate organisation that is not a limited company, please provide evidence of your status and tell us below the reference you have given the document containing this evidence.

Document reference

5 Applications from companies or corporate bodies, continued

5c Please give details of the directors

If relevant, provide details of other directors and company secretary, if there is one, on a separate sheet and tell us the reference you have given this sheet.

Document reference: Supporting Documentation Form A Q. 5c

Details of company secretary (if relevant) and director/s

Title (Mr, Mrs, Miss and so on)

First name

Last name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Now go to section 6

6 Your address

6a Your main (registered office) address

For companies this is the address on record at Companies House.

Contact name

Title (Mr, Mrs, Miss and so on)

First name

Last name

Address: Oil Salvage Limited
c/o Seymour Chambers
92 London Road
Liverpool

Postcode: L3 5NW

Contact numbers, including the area code

Phone

Fax

Mobile

Email

For an organisation of individuals every partner needs to give us their details, including their title Mr, Mrs and so on. So, if necessary, continue on a separate sheet and tell us below the reference you have given the sheet.

Document reference

6b Main UK business address (if different from above)

Contact name

Title (Mr, Mrs, Miss and so on): Mr

First name: Mitchel

Last name: Vernon

Address: Oil Salvage Limited
Lyster Road
Bootle
Liverpool

Postcode: L20 1AS

6 Your address, continued

Contact numbers, including the area code

Phone	0151 933 4084
Fax	
Mobile	
Email	mitchvernon@oilsalvage.com

Now go to section 7

7 Contact details

7a Who can we contact about your application?

It will help us if there is someone we can contact if we have any questions about your application. The person you name should have the authority to act on your behalf.

Please add a second contact on a separate sheet if this person is not always available.

Document reference of this separate sheet

This can be someone acting as a consultant or an 'agent' for you.

Contact name

Title (Mr, Mrs, Miss and so on)	Dr
First name	Amanda
Last name	Owen
Address	Environmental Visage Limited
	Stroud House
	Russell Street
	Stroud, Gloucestershire
Postcode	GL5 3AN

Contact numbers, including the area code

Phone	
Fax	
Mobile	
Email	

7b Who can we contact about your operation (if different from question 7a)?

Contact name

Title (Mr, Mrs, Miss and so on)	Mr
First name	Mitchel
Last name	Vernon
Address	Oil Salvage Limited
	Lyster Road
	Bootle
	Liverpool
Postcode	L20 1AS

Contact numbers, including the area code

Phone	0151 933 4084
Fax	
Mobile	
Email	mitchvernon@oilsalvage.com

7 Contact details, continued

7c Who can we contact about your billing or invoice?

Note: Please provide the name and address that all invoices should be sent to for your subsistence fees.

As in question 7a ☐

As in question 7b ☐

Please give details below if different from question 7a or 7b.

Contact name

Title (Mr, Mrs, Miss and so on)	Ms
First name	Linzi
Last name	Vernon
Address	Oil Salvage Limited
	Lyster Road
	Bootle
	Liverpool
Postcode	L20 1AS

Contact numbers, including the area code

Phone	0151 933 4084
Fax	
Mobile	
Email	linzivernon@oilsalvage.com

8 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it. More information on how to do this is available at: www.gov.uk/government/organisations/environment-agency/about/complaints-procedure.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

9 Where to send your application

For how many copies to send see the guidance note on part A.

For water discharges by email to PSC-WaterQuality@environment-agency.gov.uk

For waste and installations by email to PSC@environment-agency.gov.uk

For flood risk activity permits send 1 copy only to enquiries@environment-agency.gov.uk or to the local Environment Agency office for where the work is proposed to be carried out.

Or

Permitting Support, NPS Sheffield
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19101
Clarity approved by Plain English Campaign

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

Appendix 1 – Date of birth information for installation and waste activities (applications for a new permit or transferring a permit) only

Date of birth information in this appendix will not be put onto our Public Register

Are you applying as an individual, an organisation of individuals (for example, a partnership) or a company (this includes Limited Liability Partnerships)?

An individual	☐ Now go to 2
An organisation of individuals (for example, a partnership)	☐ Now go to 3
A registered company or other corporate body	☑ Now go to 4

2 Applications from an individual

Please give us the following details

Name

Date of birth (DD/MM/YY)

3 Applications from an organisation of individuals or charity

Details of the organisation or charity

If you are an organisation of individuals, please give the date of birth details of the main representative below. If relevant, provide details of other members on a separate sheet and tell us the document reference you have given this sheet.

Name

Date of birth (DD/MM/YY)

Document reference

4 Applications from companies or corporate bodies

Name of the company: Oil Salvage Limited

Please give the date of birth details for all directors and company secretary if there is one. If relevant, provide those details of other directors on a separate sheet and tell us the document reference you have given this sheet.

Details of company secretary (if relevant) and director/s

Name: Supporting Documentation Form A Q. 5c

Date of birth (DD/MM/YY)

Name

Date of birth (DD/MM/YY)

Name

Date of birth (DD/MM/YY)

Document reference

Application for an environmental permit
Part B2 – General – new bespoke permit

Environment Agency

Fill in this part of the form together with parts A and F1 if you are applying for a new bespoke permit. You also need to fill in part B3, B4, B5, B6, or B7 (this depends on what activities you are applying for). Please check that this is the latest version of the form available from our website.

You can apply online for waste bespoke environmental permits.

Apply online for an environmental permit.

Please read through this form and the guidance notes that came with it.

The form can be:

1) saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.
2) printed off and filled in by hand. Please write clearly in the answer spaces

It will take less than two hours to fill in this part of the application form.

Contents

1 About the permit

1a Discussions before your application

If you have had discussions with us before your application, give us the permit reference or details on a separate sheet. Tell us below the reference you have given this extra sheet.

Permit or document reference

1b Is the permit for a site or for mobile plant?

Site ☑ Now go to section 2

Mobile plant ☐ Now go to question 1c

Note: The term 'mobile plant' does not include mobile sheep dipping units.

Mobile plant

1c Have we told you during pre-application discussions that we believe that a mobile permit is suitable for your activity?

No ☐

Yes ☐

1d Have there been any changes to your proposal since this discussion?

No ☐ Now go to section 3

Yes ☐ You should send us a description of the activity you want to carry out, highlighting the changes you have made since our pre-application discussions

Document reference

Now go to section 3

2 About the site

But not mobile plant

2a What is the site name, address, postcode and national grid reference?

Site name: Bishop's Stortford Oil Storage Depot

2 About the site, continued

Address: Farnham Road
Bishop's Stortford
East Hertfordshire

Postcode: CM23 1JB

National grid reference for the site (for example, ST 12345 67890): TL 48581 23459

2b What type of regulated facility are you applying for?

Note: if you are applying for more than one regulated facility then go to 2c.

Installation	☑
Waste operation	☐
Mining waste operation	☐
Water discharge activity	☐
Groundwater activity (point source)	☐
Groundwater activity (discharge onto land)	☐

What is the national grid reference for the regulated facility (if only one)? (See the guidance notes on part B2.)

As in 2a above	☑
Different from that in 2a	☐ Please fill in the national grid reference below
National grid reference for the regulated facility	

Now go to question 2d

2 About the site, continued

2c If you are applying for more than one regulated facility on your site, what are their types and their grid references?

See the guidance notes on part B2.

Regulated facility 1

National grid reference

What is the regulated facility type?

Installation ☐

Waste operation ☐

Mining waste operation ☐

Water discharge activity ☐

Groundwater activity (point source) ☐

Groundwater activity (discharge onto land) ☐

Regulated facility 2

National grid reference

What is the regulated facility type?

Installation ☐

Waste operation ☐

Mining waste operation ☐

Water discharge activity ☐

Groundwater activity (point source) ☐

Groundwater activity (discharge onto land) ☐

Use several copies of this page or separate sheets if you have a long list of regulated facilities. Send them to us with your application form. Tell us below the reference you have given these extra sheets.

Document reference

Now go to question 2d

2 About the site, continued

2d Low impact installations (installations only)

Are any of the regulated facilities low impact installations?

No ☑

Yes ☐ If yes, tell us how you meet the conditions for a low impact installation (see the guidance notes on part B2 – Appendix 1).

Document reference

Tick the box to confirm you have filled in the low impact installation checklist in appendix 1 for each regulated facility ☐

2e Treating batteries

Are you planning to treat batteries? (See the guidance notes on part B2.)

No ☑

Yes ☐ Tell us how you will do this, send us a copy of your explanation and tell us below the reference you have given this explanation

Document reference for the explanation

2f Ship recycling

Is your activity covered by the Ship Recycling Regulations 2015? (See the guidance notes on part B2.)

No ☑

Yes ☐ Tell us how you will do this. Please send us a copy of your explanation and your facility recycling plan, and tell us below the reference numbers you have given these documents

Document reference for the explanation

Document reference for the facility recycling plan

2g Multi-operator installation

If the site is a multi-operator site (that is there is more than one operator of the installation) then fill in the table below the application reference for each of the other permits.

Table 1 – Other permit application references

3 Your ability as an operator

If you are only applying for a standalone water discharge or for a groundwater activity, you only have to fill in question 3d.

3a Relevant offences

Applies to all except standalone surface water discharges and groundwater discharges (see the guidance notes on part B2).

3a1 Have you, or any other relevant person, been convicted of any relevant offence?

No ☑ Now go to question 3b

Yes ☐ Please give details below

Name of the relevant person

Title (Mr, Mrs, Miss and so on)

First name

Last name

Position held at the time of the offence

Name of the court where the case was dealt with

Date of the conviction (DD/MM/YYYY)

3 Your ability as an operator, continued

Offence and penalty set

Date any appeal against the conviction will be heard (DD/MM/YYYY)

If necessary, use a separate sheet to give us details of other relevant offences and tell us below the reference number you have given the extra sheet.

Document reference

Now go to question 3b

Please also complete the details in Appendix 2.

3b Technical ability

Relevant waste operations only (see the guidance notes on part B2).

Please indicate which of the two schemes you are using to demonstrate you are technically competent to operate your facility and the evidence you have enclosed to demonstrate this.

ESA/EU skills

Please select **one** of the following:

I have enclosed a copy of the current Competence Management System certificate ☐

or

We will have a certified Competence Management System within 12 months and have enclosed evidence of the contract with an accredited certification body ☐

CIWM/WAMITAB scheme

Please select **one** of the following:

- I have enclosed a copy of:
  - the relevant qualification certificate/s ☑

  or
  - evidence of deemed competence ☐

  or
  - Environment Agency assessment ☐

  or
  - evidence of nominated manager status under the transitional provisions for previously exempt activities ☐

  and, if deemed competent or Agency-assessed, or nominated manager, or if the original qualification is over two years old:

  I have enclosed a copy of the relevant current continuing competence certificate/s ☑
- I will complete my qualification within four weeks of starting the permitted activities and have enclosed evidence of my registration with WAMITAB or my EPOC booking as appropriate ☐
- **For medium- and high-risk tier activities other than landfill**
  I will complete the qualification within 12 months and have enclosed evidence of registration with WAMITAB and, where relevant, EPOC booking. I understand I must complete either four specified units of the relevant qualification or an EPOC within four weeks of the permitted activities commencing ☐

For each technically competent manager please give the following information. If necessary, use a separate sheet to give us these details and tell us below the document reference you have given the extra sheet.

Title (Mr, Mrs, Miss and so on)	Mr
First name	Vincent
Last name	Vernon
Phone	0151 933 4084
Mobile	
Email	vinvernon@oilsalvage.com

3 Your ability as an operator, continued

Please provide the environmental permit number/s and site address for **all** other waste activities that the proposed technically competent manager provides technical competence for, including permits held by other operators. Continue on a separate sheet as required.

Permit number	Site address	Postcode
MP3734SC	Oil Salvage Limited, Lyster Road, Merseyside	L20 1AS

Document reference

Now go to question 3c

Please also complete the details in Appendix 2.

3c Finances

Installations, waste operations and mining waste operations only.

Please note that if you knowingly or carelessly make a statement that is false or misleading to help you get an environmental permit (for yourself or anyone else), you may be committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

Do you or any relevant person or a company in which you were a relevant person have current or past bankruptcy or insolvency proceedings against you?

No ☑

Yes ☐ Please give details below, including the required set-up costs (including infrastructure), maintenance and clean up costs for the proposed facility against which a credit check may be assessed

We may want to contact a credit reference agency for a report about your business's finances.

Landfill, Category A mining waste facilities and mining waste facilities for hazardous waste only

How do you plan to make financial provision (to operate a landfill or a mining waste facility you need to show us that you are financially capable of meeting the obligations of closure and aftercare)?

Renewable bonds ☐

Cash deposits with the Environment Agency ☐

Other – provide comprehensive details ☐

Document reference

Provide a cost profile and expenditure plan of your estimated costs throughout the aftercare period of your site.

Document plan reference

Now go to question 3d

3d Management systems (all)

You must have an effective, written management system in place that identifies and reduces the risk of pollution. You may show this by using a certified scheme or your own system.

Your permit requires you (as the operator) to ensure that you manage and operate your activities in accordance with a written management system.

You need to be able to explain what happens at each site and which parts of the overall management system apply. For example at some sites you may need to show you are carrying out additional measures to prevent pollution because they are nearer to sensitive locations than others.

You can find guidance on management systems on our website at www.gov.uk/government/organisations/environment-agency

3 Your ability as an operator, continued

Tick this box to confirm that you have read the guidance and that your management system will meet our requirements ☐

What management system will you provide for your regulated facility?

ISO 14001 ☑

BS 8555 (Phases 1–5) ☐

Green dragon ☐

Own management system ☐

EC Eco-Management and Audit Scheme (EMAS) ☐

EMAS Easy ☐

Please make sure you send us a summary of your management system with your application.

Document reference/s

4 Consultation

Fill in 4a to 4c for installations and waste operations and 4d for installations only.

Could the waste operation or installation involve releasing any substance into any of the following?

4a A sewer managed by a sewerage undertaker?

No ☑

Yes ☐ Please name the sewerage undertaker

4b A harbour managed by a harbour authority?

No ☑

Yes ☐ Please name the harbour authority

4c Directly into relevant territorial waters or coastal waters within the sea fisheries district of a local fisheries committee?

No ☑

Yes ☐ Please name the fisheries committee

4d Is the installation on a site for which:

4d1 a nuclear site licence is needed under section 1 of the Nuclear Installations Act 1965?

No ☑

Yes ☐

4d2 a policy document for preventing major accidents is needed under regulation 5 of the Control of Major Accident Hazards Regulations 2015, or a safety report is needed under regulation 7 of those Regulations?

No ☑

Yes ☐

5 Supporting information

5a Provide a plan or plans for the site

But not any mobile plant

Clearly mark the site boundary or discharge point, or both. Also include site drainage plans, site layout plans, and plant design drawings/process flow diagrams (as required). (See the guidance notes on part B2.)

Document reference/s of the plans: Figures 2, 6 and 7 in Supporting Documentation

5b Provide the relevant sections of a site condition/baseline report if this applies

See the guidance notes on part B2 for what needs to be marked on the plan.

Document reference of the report: Supporting Documentation Form B2 Q. 5b and App. 1

If you are applying for an installation, tick the box to confirm that you have sent in a baseline report ☑

5 Supporting information, continued

5c Provide a non-technical summary of your application

See the guidance notes on part B2.

Document reference of the summary: Supporting Documentation Form B2 Q. 5c

5d Are you applying for an activity that includes the storage of combustible wastes?

This applies to all activities excluding standalone water and groundwater discharges.

No ☑

Yes ☐ Provide a fire prevention plan (see the guidance notes on part B2). You need to highlight any changes you have made since your pre-application discussions.

Document reference of the plan:

6 Environmental risk assessment

Provide an assessment of the risks each of your proposed regulated facilities poses to the environment. The risk assessment must follow the methodology set out in 'Risk assessments for your environmental permit' at www.gov.uk/government/collections/technical-guidance-for-regulated-industry-sectors-environmental-permitting or an equivalent method.

Document reference for the assessments: Supporting Documentation Form B2 Q. 6

For Waste and Installation Permits only

All bespoke waste and installations permit applications must carry out a climate change risk assessment if the planned duration of the operation is more than 5 years. This will normally be reviewed and discussed with you as part of our compliance activities. However, we may require you to submit your climate change risk assessment as part of your application depending on your risk screening score. We will consider the information contained within your climate change risk assessment when we grant your permit. Conditions may be applied to some permits to manage climate risks.

6b Climate change risk screening

See the guidance to Part B2.

Mark your score in each category in the table below. Add each individual score to give a total.

CATEGORY	SCREENING QUESTIONS	SCORE	YOUR SCORE
1 TIMESCALES	How long will a permit be required for this site/activity?		
	5 years or less of operation. No need to fill in the rest of the screening. You do not need to fill in a risk assessment. Please go straight to question 7.	0	
	Less than 20 years of operation	1	
	Until between 2040 and 2060 (between 20 and 40 years from now)	3	3
	Until 2060 or beyond (more than 40 years from now)	5	
2 FLOODING	What is your site's risk of flooding from rivers or the sea?		
	Not in a flood-risk zone	0	
	Very low or Low	1	
	Medium	2	2
	High	5	
3 WATER USE	If you use water for your site operations or fire prevention, what is the source of your water?		
	Water not required	0	0
	Mains water	1	
	Surface water or groundwater abstraction	5	
		TOTAL SCREENING SCORE	5

If your total screening score is 5 or more, complete the climate change risk assessment and submit it with your permit application.

If you expect to operate for 5 years or less, you do not need to submit a risk assessment with your application, regardless of your screening score.

You must enter your score for every category in the table above. If you expect to operate for 5 years or less you may enter 'Not Applicable' for categories 2 and 3.

6 Environmental risk assessment, continued

Document reference of the risk assessment (if submitted with application)

Supporting Documentation Form B2 Q. 6b

If your total screening score is less than 5 we may still request your risk assessment as part of determining this application if we believe you face unmanaged climate risks.

If we do not review your risk assessment as part of your application, it will form part of your Environmental Management System and we will discuss it with you as part of our compliance activities.

7 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19103
Clarity approved by Plain English Campaign

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

Plain English Campaign's Crystal Mark does not apply to appendix 1.

Appendix 1 – Low impact installation checklist

See the guidance notes on part B2.

Installation reference				
Condition	Response			Do you meet this?
A – Management techniques	Provide references to show how your application meets A			Yes ☐ No ☐
	References			
B – Aqueous waste	Effluent created		m^3/day	Yes ☐ No ☐
C – Abatement systems	Provide references to show how your application meets C			Yes ☐ No ☐
	References			
D – Groundwater	Do you plan to release any hazardous substances or non-hazardous pollutants into the ground?		Yes ☐ No ☐	Yes ☐ No ☐
E – Producing waste	Hazardous waste		Tonnes per year	Yes ☐ No ☐
	Non-hazardous waste		Tonnes per year	
F – Using energy	Peak energy consumption		MW	Yes ☐ No ☐
G – Preventing accidents	Do you have appropriate measures to prevent spills and major releases of liquids? (See 'How to comply'.)		Yes ☐ No ☐	Yes ☐ No ☐
	Provide references to show how your application meets G			
	References			
H – Noise	Provide references to show how your application meets H			Yes ☐ No ☐
	References			
I – Emissions of polluting substances	Provide references to show how your application meets I			Yes ☐ No ☐
	References			
J – Odours	Provide references to show how your application meets J			Yes ☐ No ☐
	References			
K – History of keeping to the regulations	Say here whether you have been involved in any enforcement action as described in Compliance History Appendix 1 explanatory notes		Yes ☐ No ☐	

Appendix 2 – Date of birth information for Relevant offences and/or Technical ability questions only

Date of birth information in this appendix will not be put onto our Public Register

Have you filled in the Relevant Offences question?

Yes ☐

No ☐

Have you filled in the Technical ability question?

Yes ☐

No ☐

2 Relevant Offences - date of birth information

Please give us the following details

Name

Date of birth (DD/MM/YY)

3 Technical ability - date of birth information

Name

Date of birth (DD/MM/YY)

APPLICATION FORM B2; QUESTION 3B
TECHNICAL COMPETENCE

COPIES OF WAMITAB CONTINUING COMPETENCE CERTIFICATES 5184845 AND 5185034

Continuing Competence Certificate

This certificate confirms that

Vincent Vernon

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 15/09/2021

TSH	Transfer - Hazardous Waste

Expiry Date: 15/09/2023

Verification date: 14/09/2021

Authorised:

Director of Qualifications and Standards

Learner ID: 9061

Certificate No.: 5184845

Date of Issue: 15/09/2021

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

00156743

Continuing Competence Certificate

This certificate confirms that

Vincent Vernon

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 20/09/2021

TMH Treatment - Hazardous Waste

Expiry Date: 20/09/2023

Verification date: 18/09/2021

Authorised:

Director of Qualifications and Standards

Learner ID: 9061

Certificate No.: 5185034

Date of Issue: 20/09/2021

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

00156882

Application for an environmental permit
Part B3 – New bespoke installation permit

If you are applying for a new bespoke permit for an installation, fill in this part of the form, together with parts A, B2 and F1. Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that came with it.

The form can be:

1) saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.
2) printed off and filled in by hand. Please write clearly in the answer spaces.

It will take less than three hours to fill in this part of the application form.

Contents

1 What activities are you applying for?

Fill in Table 1a below with details of all the activities listed in schedule 1 or other references (see note 1) of the Environmental Permitting Regulations (EPR) and all directly associated activities (DAAs) (in separate rows), that you propose to carry out at the installation.

Fill in a separate table for each installation you are applying for. Use a separate sheet if you have a long list and send it to us with your application form. Tell us below the reference you have given the document.

Document reference: Supporting Documentation Form B3 Q1; Table 1a

1 What activities are you applying for?, continued

Table 1a – Types of activities

Schedule 1 listed activities						
Installation name	Schedule 1 or other references (See note 1)	Description of the Activity (See note 2)	Activity capacity (See note 3)	Annex I (D codes) and Annex II (R codes) and descriptions	Hazardous waste treatment capacity (if this applies) (See note 3)	Non-hazardous waste treatment capacity (if this applies) (See note 3)
Add extra rows if you need them. If you do not have enough room, go to the line below or send a separate document and give us the document reference here	Put your main activity first			For installations that take waste only	For installations that take waste only	For installations that take waste only

Directly associated activities (See note 4) Also note: if the DAA is a Medium Combustion Plant or Specified Generator (MCP/SG) please also fill in part B2.5.		
Name of DAA	Description of the DAA (please identify the schedule 1 activity it serves)	
Add extra rows if you need them		
For installations that take waste (See note 5 below)	Total storage capacity	
	Annual throughput (tonnes each year)	

1 What activities are you applying for?, continued

Notes

1 Quote the section number, part A1 or A2 or B, then paragraph and sub-paragraph number as shown in either part 2 of schedule 1, schedule 13 and 14 for Local Authority regulated activities or schedule 25 for MCP to the regulations.

2 Use the description from the relevant schedule of the regulations. Include any extra detail that you think would help to accurately describe what you want to do.

3 By 'capacity', we mean:

- the total incineration capacity (tonnes every hour) for waste incinerators
- the total landfill capacity (cubic metres) for landfills
- the total treatment capacity (tonnes each day) for waste treatment operations
- the total storage capacity (tonnes) for waste storage operations
- the processing and production capacity for manufacturing operations, or
- the thermal input capacity for combustion activities

4 Fill this in as a separate line and give an accurate description of any other activities associated with your schedule 1 activities. You cannot have DAAs as part of a mobile plant application. If the DAA is a Medium Combustion Plant or Specified Generator (MCP/SG) please fill in the table in Appendix 1 question 13.

5 By 'total storage capacity', we mean the maximum amount of waste, in tonnes, you store on the site at any one time.

Types of waste accepted

For those installations that take waste, for each line in Table 1a (including DAAs), fill in a separate document to list those wastes you will accept on to the site for that activity. Give the List of Wastes catalogue code and description (search for 'Technical guidance on how to assess and classify waste' at www.gov.uk/government/organisations/environment-agency).

If you need to exclude waste from your activity or facility by restricting the description, quantity, physical nature, hazardous properties, composition or characteristic of the waste, include these in the document. Send it to us with your application form.

Please provide the reference for each document.

You can use Table 1b as a template.

If you want to accept any waste with a code ending in 99, you must provide more information and a full description of the waste in the document, (for example, detailing the source, nature and composition of the waste). Where you only want to receive specific wastes within a waste code you can provide further details of the waste you want to receive. Where a waste is dual coded you should use both codes for the waste.

Document reference of this extra information: Supporting Documentation Form B3 Q1; Table 1b

Table 1b – Template example – types of waste accepted and restrictions

Waste code	Description of the waste
Example	Example
02 01 08*	Agrochemical waste containing hazardous substances
18 01 03*	Infectious clinical waste, not contaminated with chemicals or medicines – human healthcare (may contain sharps) for alternative treatment
17 05 03*/17 06 05*	Non-hazardous soil from construction or demolition contaminated with fragments of asbestos cement sheet

2 Point source emissions to air, water and land

Fill in Table 2 below with details of the point source emissions that result from the operating techniques at each of your installations.

Fill in one table for each installation.

Table 2 – Emissions (releases)

Installation name	Supporting Documentation Form B3 Q.2; Table 2			
Point source emissions to air				
Emission point reference and location	Source	Parameter	Quantity	Unit
Point source emissions to water (other than sewers)				
Emission point reference and location	Source	Parameter	Quantity	Unit
Point source emissions to sewers, effluent treatment plants or other transfers off site				
Emission point reference and location	Source	Parameter	Quantity	Unit
Point source emissions to land				
Emission point reference and location	Source	Parameter	Quantity	Unit

Supporting information

3 Operating techniques

3a Technical standards

Fill in Table 3a for each activity at the installation you refer to in Table 1a above and list the 'Best Available Techniques' you are planning to use. If you use the standards set out in the relevant BAT conclusion(s), BAT reference document(s) (BREF) and/or technical guidance(s) (TGN) there is no need to justify using them within your documents in Table 3a.

For Part A(2) activities refer to https://www.gov.uk/government/collections/integrated-pollution-prevention-and-control-sector-guidance-notes and for Part B and Schedule 14 activities see https://www.gov.uk/government/collections/local-air-pollution-prevention-and-control-lappc-process-guidance-notes.

You must justify your decisions in a separate document if:

- there is no technical standard
- the technical guidance provides a choice of standards, or
- you plan to use another standard

This justification could include a reference to the Environmental Risk Assessment provided in part B2 (General bespoke permit) of the application form.

For each of the activities listed in Table 1a, the documents in Table 3a should summarise:

- the operations undertaken
- the measures you will use to control the emissions from your process, as identified in your risk assessment or the relevant BAT conclusions, BREF or technical guidance
- how you will meet other standards set out in the relevant BAT conclusions document, BREF or technical guidance

Table 3 – Technical standards

Fill in a separate table for each activity at the installation.

Installation name Bishop's Stortford Oil Storage Depot		
Description of the schedule 1 activity or directly associated activity Add extra rows if you need them	Best available technique (BATC, BREF or TGN reference) (see footnote below)	Document reference (if appropriate)
Hazardous waste storage > 10 T / day	Waste Treatment BREF and BAT-Conclusions	Supporting Documentation

* Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control)

In all cases, describe the type of facility or operation you are applying for and provide site infrastructure plans, location plans and process flow diagrams or block diagrams to help describe the operations and processes undertaken. Give the document references you use for each plan, diagram and description.

Document reference: Supporting Documentation Form B3 Q.3

3b General requirements

Fill in a separate Table 4 for each installation.

Table 4 – General requirements

Name of the installation	Bishop's Stortford Oil Storage Depot
If the technical guidance or your risk assessment shows that emissions of substances not controlled by emission limits are an important issue, send us your plan for managing them	Document reference or references N/A
Where the technical guidance or your risk assessment shows that odours are an important issue, send us your odour management plan	Document reference or references N/A
If the technical guidance or your risk assessment shows that noise or vibration are important issues, send us your noise or vibration management plan (or both)	Document reference or references N/A

3 Operating techniques, continued

Search for 'Risk assessment for your environmental permit' at www.gov.uk/government/organisations/environment-agency.

3c Types and amounts of raw materials

Fill in Table 5 for all schedule 1 activities. Fill in a separate table for each installation.

Table 5 – Types and amounts of raw materials

Name of the installation		Bishop's Stortford Oil Storage Depot		
Capacity (See note 1 below)		352.00		
Schedule 1 activity	Description of raw material and composition	Maximum amount (tonnes) (See note 2 below)	Annual throughput (tonnes each year)	Description of the use of the raw material including any main hazards (include safety data sheets)
Ch. 5.6 A(1) (a)	N/A - spill kits only			

Notes

1 By 'capacity', we mean the total storage capacity (tonnes) or total treatment capacity (tonnes each day).

2 By 'maximum amount', we mean the maximum amount of raw materials on the site at any one time.

Use a separate sheet if you have a long list of raw materials, and send it to us with your application form. Please also provide the reference of this extra sheet.

Document reference: Capacity above includes contaminated water storage

3d Information for specific sectors

For some of the sectors, we need more information to be able to set appropriate conditions in the permit. This is as well as the information you may provide in sections 5, 6 and 7. For those activities listed below, you must answer the questions in the related document.

Table 6 – Questions for specific sectors

Sector	Appendix
Combustion	See the questions in appendix 1
Chemicals	See the questions in appendix 2
Incinerating waste	See the questions in appendix 3
Landfill	See the questions in appendix 4

General information

4 Monitoring

4a Describe the measures you use for monitoring emissions by referring to each emission point in Table 2 above

You should also describe any environmental monitoring. Tell us:

- how often you use these measures
- the methods you use
- the procedures you follow to assess the measures

Document reference: None proposed

4b Point source emissions to air only

Provide an assessment of the sampling locations used to measure point source emissions to air. The assessment must use M1 (search for 'M1 sampling requirements for stack emission monitoring' at www.gov.uk/government/organisations/environment-agency).

Document reference of the assessment: N/A

5 Environmental impact assessment

5a Have your proposals been the subject of an environmental impact assessment under Council Directive 85/337/EEC of 27 June 1985 [Environmental Impact Assessment] (EIA)?

No ☑ Now go to section 6

Yes ☐ Please provide a copy of the environmental statement and, if the procedure has been completed:

- a copy of the planning permission
- the committee report and decision on the EIA

Document reference of the copy

6 Resource efficiency and climate change

If the site is a landfill, you only need to fill in this section if the application includes landfill gas engines.

6a Describe the basic measures for improving how energy efficient your activities are

Document reference of the description: Supporting Documentation Form B3 Q.6a

6b Provide a breakdown of any changes to the energy your activities use up and create

Document reference of the breakdown: N/A

6c Have you entered into, or will you enter into, a climate change levy agreement?

No ☑ Describe the specific measures you use for improving your energy efficiency

Document reference of the description: Supporting Documentation Form B3 Q.6c

Yes ☐ Please give the date you entered (or the date you expect to enter) into the agreement (DD/MM/YYYY)

Please also provide documents that prove you are taking part in the agreement.

Document reference of the proof

6d Explain and justify the raw and other materials, other substances and water that you will use

Document reference of the justification: Supporting Documentation Form B3 Q.6d

6e Describe how you avoid producing waste in line with Council Directive 2008/98/EC on waste

If you produce waste, describe how you recover it. If it is technically and financially impossible to recover the waste, describe how you dispose of it while avoiding or reducing any effect it has on the environment.

Document reference of the description: Supporting Documentation Form B3 Q.6e

7 Installations that include a combustion plant (excluding waste incinerators)

7a List all your combustion plant at the site and provide thermal input and operating hours for each

Document reference: N/A

7b Do any of your combustion plants have a net rated thermal input of one or more MW and is not an excluded MCP?

No ☐ Go to 7c

Yes ☐ Please fill in the table in Appendix 1 question 13

7c Is the aggregated net thermal input of your combustion plant more than 20 MW?

No ☐

Yes ☐ Please go to Appendix 1 question 11

8 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, please tell us how we can improve it.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

Crystal Mark 19104
Clarity approved by Plain English Campaign

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

Yes ☐ Amount received

£

Plain English Campaign's Crystal Mark does not apply to appendices 1 to 4

Appendix 1 – Specific questions for the combustion sector

1 Identify the type of fuel burned in your combustion units (including when your units are started up, shut down and run as normal). If your units are dual fuelled (that is, use two types of fuel), list both the fuels you use

Fill in a separate table for each installation.

Installation reference			
Type of fuel	When run as normal	When started up	When shut down
Coal			
Gas oil			
Heavy fuel oil			
Natural gas			
WID waste			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Biomass (see notes 1 and 2 below)			
Other			

Notes

1 Not covered by Industrial Emissions Directive 2010/75/EU.

2 'Biomass' is referred to in www.opsi.gov.uk/si/si2002/20020914.htm.

Give extra information if it helps to explain the fuel you use.

Document reference

2 Give the composition range of any fuels you are currently allowed to burn in your combustion plant

Fill in a separate table for each installation.

Fuel use and analysis					
Installation reference					
Parameter	Unit	Fuel 1	Fuel 2	Fuel 3	Fuel 4
Maximum percentage of gross thermal input	%				
Moisture	%				
Ash	% wt/wt dry				
Sulphur	% wt/wt dry				
Chlorine	% wt/wt dry				
Arsenic	% wt/wt dry				
Cadmium	% wt/wt dry				
Carbon	% wt/wt dry				
Chromium	% wt/wt dry				
Copper	% wt/wt dry				
Hydrogen	% wt/wt dry				
Lead	% wt/wt dry				
Mercury	% wt/wt dry				
Nickel	% wt/wt dry				
Nitrogen	% wt/wt dry				
Oxygen	% wt/wt dry				
Vanadium	mg/kg dry				
Zinc	mg/kg dry				
Net calorific value	MJ/kg				

Appendix 1 – Specific questions for the combustion sector, continued

3 If NOx factors are necessary for reporting purposes (that is, if you do not need to monitor emissions), please provide the factors associated with burning the relevant fuels

Fill in a separate table for each installation.

Installation reference	
Fuel	NOx factor (kgt^{-1})
Fuel 1	
Fuel 2	
Fuel 3	
Fuel 4	

Note: kgt^{-1} means kilograms of nitrogen oxides released for each tonne of fuel burned.

4 Will your combustion plant be subject to Chapter III of the Industrial Emissions Directive 2010/75/EU?

See Government Guidance.

No ☐ Now fill in part F

Yes ☐

5 What is your plant?

an existing one ☐ A plant licensed before 1 July 1987

a new one ☐ A plant licensed on or after 1 July 1987 but before 27 November 2002, or a plant for which an application was made before 27 November 2002 and which was put into operation before 27 November 2003

a new-new one ☐ A plant for which an application was made on or after 27 November 2002

6 If you run more than one type of plant or a number of the same type of plant on your installation, please list them in the table below

Fill in a separate table for each installation.

Installation reference	
Type of plant	Number within installation
Existing	
New	
New-new	
Gas turbine (group A)	
Gas turbine (group B)	

7 If you run an existing plant, have you submitted a declaration for the 'limited life derogation' set out in Article 33 of Chapter III of the Industrial Emissions Directive?

No ☐ Now go to question 9

Yes ☐

8 Have you subsequently withdrawn your declaration?

No ☐

Yes ☐

9 List the existing large combustion plants (LCPs) which have annual mass allowances under the National Emission Reduction Plan (NERP), and those with emission limit values (ELVs) under the LCPD

Installation reference	
LCPs under NERP	LCPs with ELVs

Appendix 1 – Specific questions for the combustion sector, continued

10 Do you meet the monitoring requirements of Chapter III of the Industrial Emissions Directive?

No ☐

Yes ☐ Document reference number

11 Have you carried out a cost–benefit assessment (CBA) of opportunities for cogeneration (combined heat and power) or district heating under Article 14 of the Energy Efficiency Directive?

No ☐ Please provide supporting evidence of why a CBA is not required (for example, an agreement from us)

Document reference number of this evidence

Yes ☐ Please submit a copy of your CBA

Document reference number of the CBA

12 Does your installation need to be combined heat and power-ready (CHP-ready)?

No ☐ Please provide supporting evidence of why a CHP-ready assessment is not required (for example, an agreement from us)

Document reference number of this evidence

Yes ☐ Please provide a copy of your CHP-ready assessment

Document reference number of the CHP-ready assessment

13 Information to be provided by the operator to the competent authority for each Medium Combustion Plant as identified in Annex I of Medium Combustion Plant Directive (EU/2015/2193)

MCP specific identifier*	
12-digit grid reference or latitude/longitude	
Rated thermal input (MW) of the MCP	
Type of MCP (diesel engine, gas turbine, other engine or other MCP)	
Type of fuels used: gas oil (diesel), natural gas, gaseous fuels other than natural gas	
Date when the new MCP was first put into operation	
Sector of activity of the MCP or the facility in which it is applied (NACE code)	
Expected number of annual operating hours of the MCP and average load in use	
Where the option of exemption under Article 6(8) is used the operator (as identified on Form A) should sign a declaration here that the MCP will not be operated more than the number of hours referred to in this paragraph	

* identifier – the MCP must be traceable via a serial number or other unique identifier, name plate, manufacturer and or model

NACE code means Nomenclature of Economic Activities and is the European statistical classification of economic activities (http://www.export.gov.il/files/EEN/ListNACEcodes.pdf).

To find out the 12-digit grid reference you can search on the UK Grid Reference Finder website at http://www.gridreferencefinder.com

Appendix 2 – Specific questions for the chemical sector

1 Please provide a technical description of your activities

The description should be enough to allow us to understand:

- the process
- the main plant and equipment used for each process
- all reactions, including significant side reactions (that is, the chemistry of the process)
- the material mass flows (including by products and side streams) and the temperatures and pressures in major vessels
- the all emission control systems (both hardware and management systems), for situations which could involve releasing a significant amount of emissions – particularly the main reactions and how they are controlled

Appendix 2 – Specific questions for the chemical sector, continued

- a comparison of the indicative BATs and benchmark emission levels standards: technical guidance notes (TGNs); additional guidance 'The production of large volume organic chemicals' (EPR 4.01); 'Speciality organic chemicals sector' (EPR 4.02); 'Inorganic chemicals sector' (EPR 4.03); and best available techniques reference documents (BREFs) for the chemical sector

Document reference

2 If you are applying for a multi-purpose plant, do you have a multi-product protocol in place to control the changes?

No ☐

Yes ☐ Provide a copy of your protocol to accompany this application

Document reference

3 Does Chapter V of the Industrial Emissions Directive (IED) apply to your activities?

No ☐

Yes ☐ Fill in the following

3a List the activities which are controlled under the IED

Installation reference	
Activities	

3b Describe how the list of activities in question 3a above meets the requirements of the IED

Document reference

Appendix 3 – Specific questions for the waste incineration sector

If you are proposing to accept clinical waste please also fill in questions 1, 2 and 3 of appendix 4 above.

1a Do you run incineration plants as defined by Chapter IV of the Industrial Emissions Directive (IED)?

No ☐ You do not need to answer any other questions in this appendix

Yes ☐ IED applies

1b Are you subject to IED as

An incinerator? ☐

A co-incinerator? ☐

2 Do any of the installations contain more than one incineration line?

No ☐ Now go to question 4

Yes ☐

3 How many incineration lines are there within each installation?

Fill in a separate table for each installation.

Installation reference	
Number of incineration lines within the installation	
Reference identifiers for each line	

You must provide the information we ask for in questions 4, 5 and 6 below in separate documents. The information must at least include all the details set out in section 2 ('Key Issues') of S5.01 'Incineration of waste: additional guidance' (under the sub heading 'European legislation and your application for an EP Permit').

You must answer questions 7 to 13 on the form below.

4 Describe how the plant is designed, equipped and will be run to make sure it meets the requirements of IED, taking into account the categories of waste which will be incinerated

Document reference

Appendix 3 – Specific questions for the waste incineration sector, continued

5 Describe how the heat created during the incineration and co-incineration process is recovered as far as possible (for example, through combined heat and power, creating process steam or district heating)

Document reference

6 Describe how you will limit the amount and harmful effects of residues and describe how they will be recycled where this is appropriate

Document reference

For each line identified in question 3, answer questions 7 to 13 below

Question 3 identifier, if necessary

7 Do you want to take advantage of the Article 45 (1)(f) allowance (see below) if the particulates, CO or TOC continuous emission monitors (CEM) fail?

No ☐

Yes ☐ This allows 'abnormal operation' of the incineration plant under certain circumstances when the CEM for releases to air have failed. Annex VI, Part 3(2) sets maximum half hourly average release levels for particulates (150 mg/m^3), CO (normal ELV) and TOC (normal ELV) during abnormal operation

Describe the other system you use to show you keep to the requirements of Article 13(4) (for example, using another CEM, providing a portable CEM to insert if the main CEM fails, and so on)

8 Do you want to replace continuous HF emission monitoring with periodic hydrogen fluoride (HF) emission monitoring by relying on continuous hydrogen chloride (HCl) monitoring as allowed by IED Annex VI, Part 6 (2.3)?

Under this you do not have to continuously monitor emissions for hydrogen fluoride if you control hydrogen chloride and keep it to a level below the HCl ELVs.

No ☐

Yes ☐ Please give your reasons for doing this

Appendix 3 – Specific questions for the waste incineration sector, continued

9 Do you want to replace continuous water vapour monitoring with pre-analysis drying of exhaust gas samples, as allowed by IED Annex VI, Part 6 (2.4)?

Under this you do not have to continuously monitor the amount of water vapour in the air released if the sampled exhaust gas is dried before the emissions are analysed.

No ☐

Yes ☐ Please give your reasons for doing this

10 Do you want to replace continuous hydrogen chloride (HCl) emission monitoring with periodic HCl emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for hydrogen chloride if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

11 Do you want to replace continuous HF emission monitoring with periodic HF emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for hydrogen fluoride if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

Appendix 3 – Specific questions for the waste incineration sector, continued

12 Do you want to replace continuous SO_2 emission monitoring with periodic sulphur dioxide (SO_2) emission monitoring, as allowed by IED Annex VI, Part 6 (2.5), first paragraph?

Under this you do not have to continuously monitor emissions for sulphur dioxide if you can prove that the emissions from this pollutant will never be higher than the ELVs allowed.

No ☐

Yes ☐ Please give your reasons for doing this

13 If your plant uses fluidised bed technology, do you want to apply for a derogation of the CO WID ELV to a maximum of 100 mg/m³ as an hourly average, as allowed by IED Annex VI, Part 3?

No ☐

Does not apply ☐

Yes ☐ Please give your reasons for doing this

14 Have you carried out a cost–benefit assessment (CBA) of opportunities for cogeneration (combined heat and power) or district heating under Article 14 of the Energy Efficiency Directive?

No ☐ Please provide supporting evidence of why a CBA is not required (for example, an agreement from us)

Document reference number of this evidence

Yes ☐ Please submit a copy of your CBA

Document reference number of the CBA

15 Does your installation need to be combined heat and power-ready (CHP-ready)?

No ☐ Please provide supporting evidence of why a CHP-ready assessment is not required (for example, an agreement from us)

Document reference number of this evidence

Yes ☐ Please provide a copy of your CHP-ready assessment

Document reference number of the CHP-ready assessment

Appendix 4 – Specific questions for the landfill sector

1 Provide your Environmental Setting and Installation Design (ESID) report

Document reference

2 Provide your hydrogeological risk assessment (HRA) for the site

Document reference

3 Provide your stability risk assessment (SRA) for the site

Document reference

4 Provide your landfill gas risk assessment (LFGRA) for the site

Document reference

We have developed templates for these four reports which can be found at www.gov.uk/government/collections/environmental-permitting-landfill-sector-technical-guidance.

5 Provide your proposed plan for closing the site and your procedures for looking after the site once it has closed

Document reference

Application for an environmental permit
Part F1 – Charges and declarations

Environment Agency

Fill in this part for all applications for installations, waste operations, mining waste operations, water discharges, point source groundwater discharges and groundwater discharges onto land. Please check that this is the latest version of the form available from our website.

Please read through this form and the guidance notes that came with it.

The form can be:

1) **saved onto a computer and then filled in. Please note that the form follows a logic that means questions will open or stay closed depending on a previous answer. So you may not be able to enter text in some boxes.**
2) **printed off and filled in by hand. Please write clearly in the answer spaces.**

It will take less than two hours to fill in this part of the application form.

Contents

Each individual who is applying for their name to appear on the permit must complete the declaration in section 5. You will have to print a separate copy of the declaration page for each additional individual to complete.

1 Working out charges

You must fill in this section.

You have to submit an application fee with your application. You can find out the charge by searching for 'Environment Agency charging scheme and guidance: environmental permits' at www.gov.uk/government/organisations/environment-agency.

Please remember that the charges are revised on 1 April each year and that there is an annual subsistence charge to cover the costs we incur in the ongoing regulation of the permit.

Table 1 – Type of application (fill number of activity being applied for in each column)

Installation	Waste	Mining waste	Medium Combustion Plant (MCP)/Specified Generator (SG)	Water discharge/point source discharge to groundwater	Groundwater spreading onto land
1	0	0	0	0	0

Table 2 – Charge type (A)

Charge activity reference	Charge activity description	What are you applying to do? E.g. new, minor variation, normal variation, substantial variation, surrender, low risk surrender, transfer	Amount
e.g. 1.17.3	e.g. Sect 5.2 landfill for hazardous waste	e.g. transfer	e.g. £5,561
1.16.4	Hazardous waste storage > 10 T / day	New Permit	£ 13,519.00
Total A			£ 13,519.00

1 Working out charges (you must fill in this section), continued

Table 3 – Additional assessment charges (B)

Part 1.19 Charges for plans and assessments			Tick appropriate
Reference	Plan or assessment	Charge	
1.19.1	Waste recovery plan	£1,231	☐
1.19.2	Habitats assessment (except where the application activity is a flood risk activity)	£779	☐
1.19.3	Fire prevention plan (except where the application activity is a farming installation)	£1,241	☐
1.19.4	Pests management plan (except where the application activity is a farming installation)	£1,241	☐
1.19.5	Emissions management plan (except where the application activity is a farming installation)	£1,241	☐
1.19.6	Odour management plan (except where the application activity is a farming installation)	£1,246	☐
1.19.7	Noise and vibration management plan (except where the application activity is a farming installation)	£1,246	☐
1.19.8	Ammonia emissions risk assessment (intensive farming applications only)	£620	☐
1.19.9	Dust and bio-aerosol management plan (intensive farming applications only)	£620	☐
	Advertising	£500	☐
Total B			

Total charges

Total A plus total B £ 13,519.00

2 Payment

Tick below to show how you have paid.

Cheque ☐

Postal order ☐

Cash ☐ Tick below to confirm you are enclosing cash with the application

Credit or debit card ☐

Electronic transfer (for example, BACS) ☑

Remittance number 390765SO0U4S

Date paid (DD/MM/YYYY) 25/10/2021

How to pay

Paying by cheque, postal order or cash

Cheque details

Cheque made payable to

Cheque number

Amount £

You should make cheques or postal orders payable to 'Environment Agency' and make sure they have 'A/c Payee' written across them if it is not already printed on.

Please write the name of your company and application reference number on the back of your cheque or postal order. **We will not** accept cheques with a future date on them.

We do not recommend sending cash through the post. If you cannot avoid this, please use a recorded delivery postal service and enclose your application reference details. Please tick the box below to confirm you are enclosing cash.

I have enclosed cash with my application ☐

2 Payment, continued

Paying by credit or debit card

If you are paying by credit or debit card we can call you. We will destroy your card details once we have processed your payment. We can accept payments by Visa, MasterCard or Maestro card only.

Please call me to arrange payment by debit or debit card ☐

Paying by electronic transfer BACS reference

If you choose to pay by electronic transfer you will need to use the following information to make your payment.

Company name	Environment Agency
Company address	SSCL (Environment Agency), PO Box 797, Newport Gwent, NP10 8FZ
Bank	RBS/NatWest
Address	London Corporate Service Centre, CPB Services, 2nd Floor, 280 Bishopsgate, London EC2M 4RB
Sort code	60-70-80
Account number	10014411
Account name	EA RECEIPTS
Payment reference number	PSCAPPXXXXXYYY

You need to create your own reference number. It should begin with PSCAPP (to reflect that the application is for a permitted activity) and it should include the first five letters of the company name (replacing the X's in the above reference number) and a unique numerical identifier (replacing the Y's in the above reference number). The reference number that you supply will appear on our bank statements.

If you are making your payment from outside the United Kingdom, it must be in sterling. Our IBAN number is GB23NWK60708010014411 and our SWIFTBIC number is NWBKGB2L.

If you do not quote your reference number, there may be a delay in processing your payment and application.

Provide a unique reference number for the application, i.e. do not only use the company name only: PSCAPPOILSA878

State who is paying (full name and whether this is the agent/ applicant/other): Oil Salvage Limited (Applicant)

Fee paid: £ 13,519.00

Date payment sent (DD/MM/YYYY): 25/10/2021

Now read section 3 below

You should also email your payment details and reference number to ea_fsc_ar@gov.sscl.com.

3 Privacy notice

The Environment Agency runs the environmental permit application service.

We are the data controller for this service. A data controller determines how and why personal information is processed.

Our personal information charter explains:

- your rights
- what we do with your personal information

We're allowed to process your personal information because we have official authority as the environmental regulator. We need this information to carry out a task in the public interest that is set out in law. As the data controller, when you apply for an environmental permit, we have a legal obligation to process your personal data under the Environmental Permitting Regulations. The second lawful basis for processing your personal data is to comply with this legal obligation.

We need your personal information to process your environmental permit application. If you do not give us this information we cannot issue a permit to you. After we've issued a permit to you, we use your personal information:

- to check that you're complying with your permit
- during any potential enforcement action

What personal information we collect

If you're the individual applicant, director or company secretary of a company applying or a technically competent manager we need your:

- name
- date of birth

3 Privacy notice, continued

- address
- email address

If you're the agent, consultant, employee responsible for the activity or the employee responsible for billing and invoicing we need your:

- name
- address
- email address

If you're the applicant we need details of any:

- convictions
- bankruptcy

We also collect any questions or feedback you leave, including your email address if you contact us.

Your responsibility with other people's personal information

If you've included personal information about other people on your application, you must tell them. You must provide them with a copy of this privacy notice so that they know how their personal information will be used.

What we do with your personal information

We use your personal information to help us decide whether to issue you with a permit.

The information (except dates of birth) is available online on our consultation website during the consultation period. This website is available to everyone so your information may be seen outside the European Economic Area.

After consultation we put all the information (except dates of birth) you give us in your application on our public register.

If you can demonstrate that any information you send us is commercially or industrially confidential, we'll consider withholding that information from our public register.

If you think that the information you'll send us may be a threat to national security you must contact the Secretary Of State before you apply. You must still send us that information with your application. We will not include this information on our public register unless the Secretary of State decides it can be included.

See the environmental permitting guidance for guidance on national security.

We may use your email address to contact you for user research to improve our service. You don't have to take part in the research.

Where your personal information is processed and stored

We store and process your personal information on servers in the UK. We will not host your personal information outside the European Economic Area.

We do not use your personal information to make an automated decision or for automated profiling.

How long we keep your personal information

We keep your personal information while your permit is in use and for 7 years after you surrender your permit. If the permit is for a landfill site, we keep the data for 10 years after surrender.

Removing personal information from the public register

We will remove your personal information from the public register if:

- you withdraw your application
- we refuse your application and the time limit for appealing the decision has expired or an appeal is dismissed
- the information is no longer relevant for public participation purposes under the Environmental Permitting Regulations

Contact

Our Data Protection Team gives independent advice. They monitor how the Environment Agency uses your personal information.

If you have questions or concerns about how we process personal information, or to make a complaint or request relating to data protection, please contact:

Address: Data Protection Team
Environment Agency
Horizon House
Deanery Road
Bristol
BS1 5AH

3 Privacy notice, continued

Email: dataprotection@environment-agency.gov.uk

You can also make a complaint to the Information Commissioner's Office (ICO).

The ICO is the supervisory authority for data protection legislation. The ICO website has a full list of your rights under data protection legislation.

Now read section 4 below

4 Confidentiality and national security

Confidentiality

We will normally put all the information in your application on a public register of environmental information. However, we may not include certain information in the public register if this is in the interests of national security, or because the information is confidential.

You can ask for information to be made confidential by enclosing a letter with your application giving your reasons. If we agree with your request, we will tell you and not include the information in the public register. If we do not agree with your request, we will let you know how to appeal against our decision, or you can withdraw your application. You can find guidance on confidentiality in 'Environmental permitting guidance: core guidance', published by Defra and available via our website at www.gov.uk/government/organisations/environment-agency.

Only tick the box below if you wish to claim confidentiality for your application

Please treat the information in my application as confidential ☐

National security

You can tell the Secretary of State that you believe including information on a public register would not be in the interests of national security. You must enclose a letter with your application telling us that you have told the Secretary of State and you must still include the information in your application. We will not include the information in the public register unless the Secretary of State decides that it should be included.

You can find guidance on national security in 'Environmental permitting guidance: core guidance', published by Defra and available via our website at www.gov.uk/government/organisations/environment-agency.

You cannot apply for national security via this application.

Now fill in section 5

5 Declaration

If you knowingly or carelessly make a statement that is false or misleading to help you get an environmental permit (for yourself or anyone else), you may be committing an offence under the Environmental Permitting (England and Wales) Regulations 2016.

A relevant person should make the declaration (see the guidance notes on part F1). An agent acting on behalf of an applicant is NOT a relevant person.

Each individual (or individual trustee) who is applying for their name to appear on the permit must complete this declaration. You will have to print a separate copy of this page for each additional individual to complete.

If you are transferring all or part of your permit, both you and the person receiving the permit must make the declaration. You must fill in the declaration directly below; the person receiving the permit must fill in the declaration under the heading 'For transfers only'.

Note: we will issue a letter to both current and new holders to confirm the transfer. If you are changing address we will need to send this letter to your new address; therefore please tell us your new address in a separate letter.

If you are unable to trace one or more of the current permit holders please see below under the transfers declaration.

I declare that the information in this application is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

If you deliberately make a statement that is false or misleading in order to get approval you may be prosecuted.

I confirm that my standard facility will fully meet the rules that I have applied for (this only applies if the application includes standard facilities) ☐

Tick this box to confirm that you understand and agree with the declaration above, then fill in the details below (you do not have to provide a signature as well) ☑

Tick this box if you do not want us to use information from any ecological survey that you have supplied with your application (for further information please see the guidance notes on part F1) ☐

5 Declaration, continued

Name

Title (Mr, Mrs, Miss and so on)	Mr
First name	Vincent
Last name	Vernon
on behalf of (if relevant; for example, a company or organisation and so on)	Oil Salvage Limited
Position (if relevant; for example, in a company or organisation and so on)	Director
Today's date (DD/MM/YYYY)	01/11/2021

For transfers only – declaration for person receiving the permit

A relevant person should make the declaration (see the guidance notes on part F1). An agent acting on behalf of an applicant is NOT a relevant person.

I declare that the information in this application to transfer an environmental permit to me is true to the best of my knowledge and belief. I understand that this application may be refused or approval withdrawn if I give false or incomplete information.

Note: If you cannot trace a person or persons holding the permit you may be able to transfer the permit without their declaration as above. Please contact us to discuss this and supply evidence in your application to confirm you are unable to trace one or all of the permit holders.

If you deliberately make a statement that is false or misleading in order to get approval you may be prosecuted.

Tick this box to confirm that you understand and agree with the declaration above, then fill in the details below (you do not have to provide a signature as well)	☐

Name

Title (Mr, Mrs, Miss and so on)	
First name	
Last name	
on behalf of (if relevant; for example, a company or organisation and so on)	
Position (if relevant; for example, in a company or organisation and so on)	
Today's date (DD/MM/YYYY)	

Now go to section 6

6 Application checklist

You must fill in this section.

If your application is not complete we will return it to you. If you aren't sure about what you need to send, speak to us before you submit your application.

You must do the following:

Complete legibly all parts of this form that are relevant to you and your activities	☑
Identify relevant supporting information in the form and send it with the application	☑
List all the documents you are sending in the table below. If necessary, continue on a separate sheet. This separate sheet also needs to have a reference number and you should include it in the table below	☑
For new permits or any changes to the site plan, provide a plan that meets the standards given in the guidance note on part F1	☑
Provide a supporting letter for any claim that information is confidential	☐
Get the declaration completed by a relevant person (not an agent)	☑
Send the correct fee	☑

6 Application checklist, continued

Question reference	Document title	Document reference
App. Form A; B2; B3; F1	Application Forms	Completed Forms
App. Form B2; Q3b	WAMITAB Continuing Competence Certs	Nos: 5184845 and 5185034
App. Form A; B2; B3; F1	OSL EPR Application 2021 Supporting Doc	Supporting documentation and all appendices
App. Form B2; Q6	H1 Environmental Risk Assessment	Access File

7 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

If you are happy with our service, please tell us. It helps us to identify good practice and encourages our staff. If you're not happy with our service, or you would like us to review a decision we have made, please let us know. More information on how to do this is available at: https://www.gov.uk/government/organisations/environment-agency/about/complaints-procedure.

Please tell us if you need information in a different language or format (for example, in large print) so we can keep in touch with you more easily.

8 Where to send your application

For how many copies to send see the guidance note on part F1.

Please send your filled in application form to:

For water discharges by email to PSC-WaterQuality@environment-agency.gov.uk

For waste and installations by email to PSC@environment-agency.gov.uk

Or

Permitting Support, NPS Sheffield
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 4WF

Do you want all information to be sent to you by email?

Please tick this box if you wish to have all communication about this application sent via email (we will use the details provided in part A) ☑

Feedback

(You don't have to answer this part of the form, but it will help us improve our forms if you do.)

We want to make our forms easy to fill in and our guidance notes easy to understand. Please use the space below to give us any comments you may have about this form or the guidance notes that came with it.

How long did it take you to fill in this form?

We will use your feedback to improve our forms and guidance notes, and to tell the Government how regulations could be made simpler.

Would you like a reply to your feedback?

Yes please ☐

No thank you ☐

For Environment Agency use only

Date received (DD/MM/YYYY)

Our reference number

Payment received?

No ☐

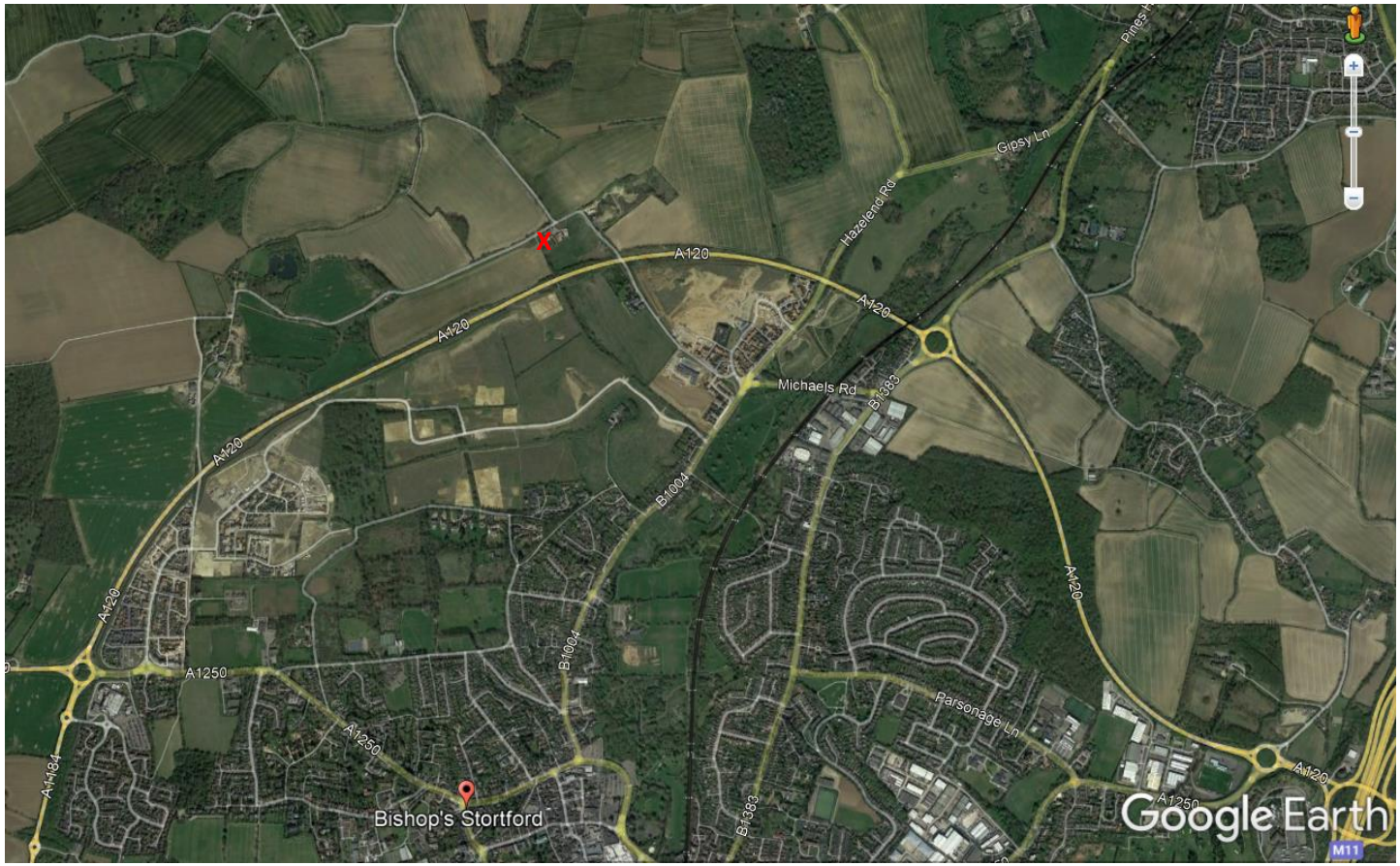
Yes ☐ Amount received

£

Question 5a – Site Plans

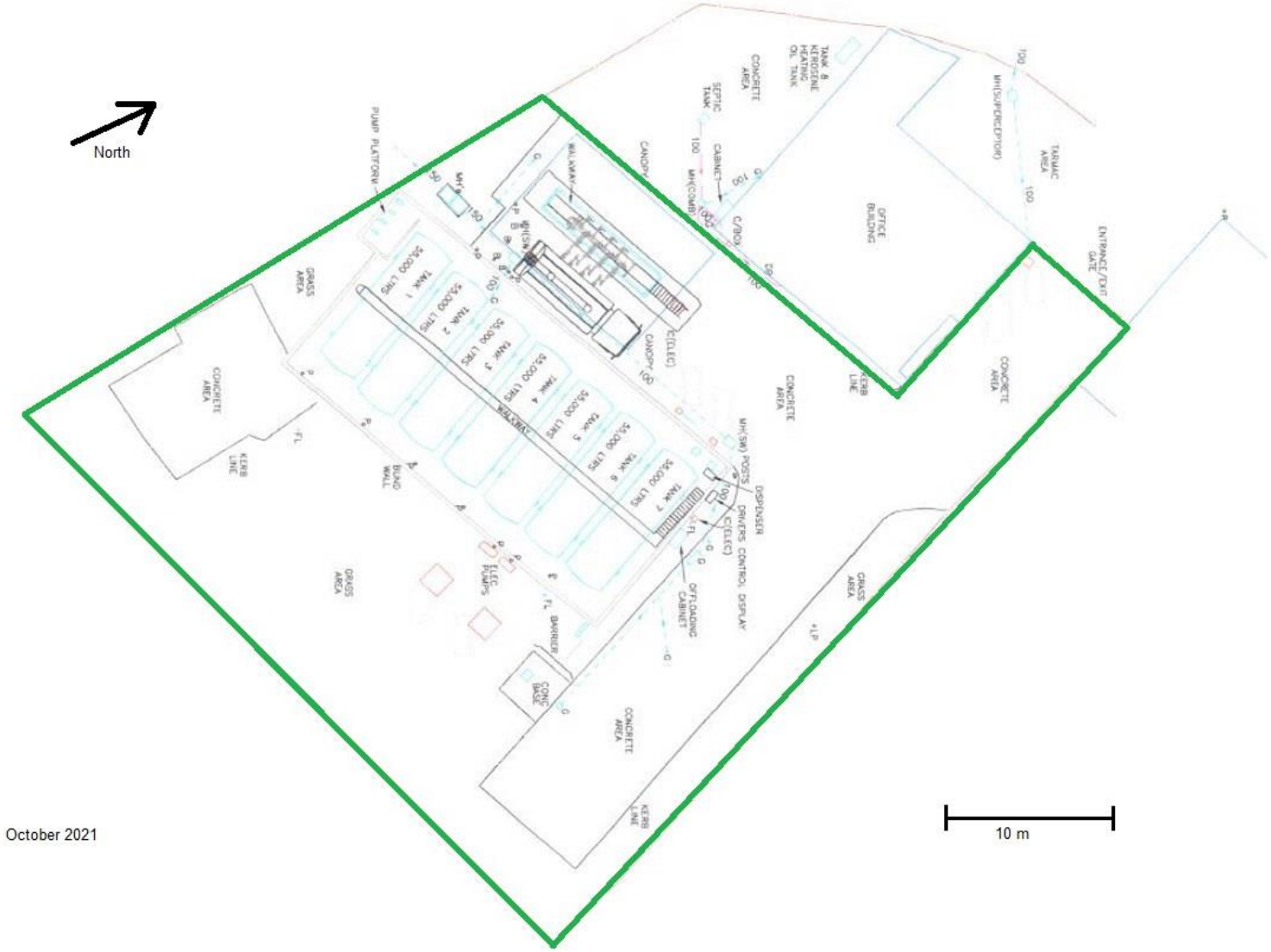
The general site location and the installation boundary are shown in Figures 1 and 2.

Figure 1 Location of the Bishop's Stortford Oil Storage Depot



Imagery in Figure 1 courtesy of Google Earth 2021
Red 'X' denotes site location

Figure 2 Bishop's Stortford Oil Storage Depot Installation Boundary



Question 5b – Site Condition Report

A Phase I and II assessment of the site has been undertaken by BWB Consulting Limited and a Baseline Site Condition Report has been prepared. This is included in full in Appendix 1.

In summary, the Site Condition Report notes that development of the site began in the 1960's and the site layout has remained effectively unchanged since 1974. The site has previously operated as a fuel storage depot and there is evidence of some historical contamination at the site.

Made ground is present across the site, albeit to limited depths, and is underlain by superficial Head Deposits (clay, silt, sand and gravel). The underlying bedrock geology comprises undifferentiated Lewes Nodular Chalk and Seaford Chalk Formations. The Head deposits are categorised by the Environment Agency as undifferentiated Secondary Aquifers. The underlying Chalk is classified as a Principal Aquifer. The site lies within a Zone 1 Source Protection Zone centred around a potable groundwater abstraction 890m southeast.

Groundwater levels were recorded between 4.63m and 5.9m below ground level, with flow tentatively indicated to flow in a northerly or easterly direction.

Preliminary gas monitoring has recorded elevated Carbon Dioxide, Methane and VOC vapours at the site, emanating from the contaminated soils and groundwater at concentrations which represent a risk to future site users. Contaminant levels within the soils are not indicated to represent a risk to future site users in the context of a commercial end use however, although, asbestos was recorded in all made ground samples.

Relatively low leachate concentrations were recorded in the made ground. However, high concentrations of hydrocarbons and light non-aqueous phase liquids have been recorded in the groundwater at the site.

The full Site Condition Report is presented in Appendix 1.

Question 5c – Non-Technical Summary

This request for an Environmental Permit considers the regulation of the temporary storage of hazardous waste at a site in Bishop's Stortford. The operation will involve the bulk storage of mixed waste oils for transfer to other sites for treatment and recovery, recycling or disposal. No treatment of the waste will be facilitated at the Bishop's Stortford site.

The Bishop's Stortford Oil Storage Depot is located off Farnham Road to the north of Bishop's Stortford. The site comprises a yard area which includes an off-load gantry and seven bunded storage tanks, with an office and rest-room facilities also located at the site. Oil Salvage Limited has purchased the site and intends to use it for the bulking and storage of collected mixed waste oils, prior to transfer to their oil treatment plant in Bootle on Merseyside.

The site is generally un-manned and, aside from waste storage, is only operational when a driver or drivers attend site to load waste oil into or draw waste oil out of the storage tanks. The site has a secure perimeter fence, the gates to which are locked at all times when the site is not manned.

The Bishop's Stortford Oil Storage Depot receives and stores mixed waste oils which are collected by Company drivers on a daily basis, Monday to Friday. Deliveries or collections are intermittent and could usually occur at any time between 06:00 and 22:00 hours Monday to Friday, although Saturday operations may also occasionally be required where demand dictates.

All site tanks and pipework are labelled with a unique numbering system to identify which load / off-load point serves which tank. Additionally, each of the tanks will be fitted with a level meter enabling the available capacity (ullage) to be assessed prior to any transfer. The level meters can also be viewed remotely from the Company Head Office in order to manage bulk collections, and the monitoring and labelling systems enable the drivers to have full control over any transfer made, ensuring that the correct delivery goes to the correct tank and no tank is over-loaded.

Drivers are assigned an individual tank or tanks for their own loads and with detailed Consignment Note and level meter records, this enables detailed tracking of each load from the point of collection. The drivers use their vehicle pumps to transfer oils into or from the storage tanks and as such, the energy requirements of the site operations are minimal, relating only to sump pumps, lighting and security infrastructure across the site and operations within the site building. All drivers are fully trained in the operations that they are required to undertake, and in the management of any potential accident or incident. Drivers carry spill kits on their vehicles and are trained in their use, and additional kits are located at the site should further materials be required.

Each tank has a breather vent and an over-flow, and thus, the installation has fourteen points which potentially release emissions to air. Tank number 7 will be used to store potentially contaminated water only, and therefore any potential for emissions to occur from this tank will be very low / negligible. Emissions from tanks will only occur during transfer, being caused by the displacement of the air within the tank. In the case of the waste oil tanks, the displaced air will also include some volatile organic compounds (VOCs) from the oil. Some fugitive emissions to air will also occur during site operations, such as from tanker manways or in the event of a spillage, however there are limited releases from either point or fugitive sources.

The site will not include any discharge to sewer. Surface water run-off from around the operational areas of the site passes through a full retention, three-stage interceptor to ensure that any oil that the run-off might have collected from site surfacing is removed before the clean surface water is released into the Bourne Brook. The release point includes a penstock valve which can be operated either on site or remotely by OSL management to ensure that no release can occur during waste oil transfers or in the event of an identified emergency. Additionally, water collected within the storage bund, which may contain higher levels of oil or emulsified oils, will be pumped into a dedicated storage tank for transfer from site before treatment and disposal at an alternative facility.

Surface water from other hardstanding areas of the site, namely the concrete apron which runs alongside the office block and provides access to the main operational area, is also discharged to the Bourne Brook via a separate full retention, three-stage interceptor to ensure that any oil that the run-off might have collected from site surfacing is removed before the clean surface water is released into the water course.

The installation activities are generally not odorous or noisy and, with few sensitive receptors in the vicinity, it is not anticipated that the site operations may result in any nuisance issue.

The Company aims to manage its environmental impacts through maintaining and continually improving its Environmental Management System (EMS), which is certified to ISO14001 and currently applies to Company collection operations, and the storage and treatment facility in Bootle. The EMS will be extended to formally cover the operations at the Bishop's Stortford Oil Storage Depot, and key procedures have already been updated to reflect the operations at the Bishop's Stortford site. All staff are fully trained in their roles, and the company has a technically competent manager who retains their WAMITAB Certificate of Technical Competence, providing cover at both the main storage and treatment site in Bootle, and the Bishop's Stortford Oil Storage Depot. Copies of WAMITAB certificate numbers 5184845 and 5185034 certifying competence in hazardous waste transfer and treatment, both of which are valid to September 2023, have been provided with this application.

As no treatment or processing is undertaken at the site, the requirement for raw materials is low, the key material at the site being waste oil. The site is also equipped with a number of spill-kits for clean-up operations, and has a potable water supply for domestic use within the office. The office will not initially be used either for administrative functions or to provide welfare facilities, although may be used in the future. All oil transfers are facilitated using the tanker's own vehicle pumps and the only other energy requirement at the installation is for the operation of site sump pumps and to facilitate lighting and security systems. The site is generally un-manned and therefore, no specific energy efficiency systems are in place or proposed.

The site stores waste which is considered hazardous and protective measures such as containment and secondary containment equipment are in place. The site's normal operations are from 06:00 - 22:00 hours Monday to Friday, although the site is only operational during deliveries or collections and these occur on an intermittent basis. Some Saturday working may also occasionally be required.

Question 6 – Environmental Risk Assessment

An Environmental Risk Assessment has been prepared which considers the site and the proposed operations. This is presented in Appendix 2.

Additionally, an 'H1' Environmental Assessment has been completed and is included in electronic format with this application. The outcome of the assessment is that process contributions screen as insignificant.

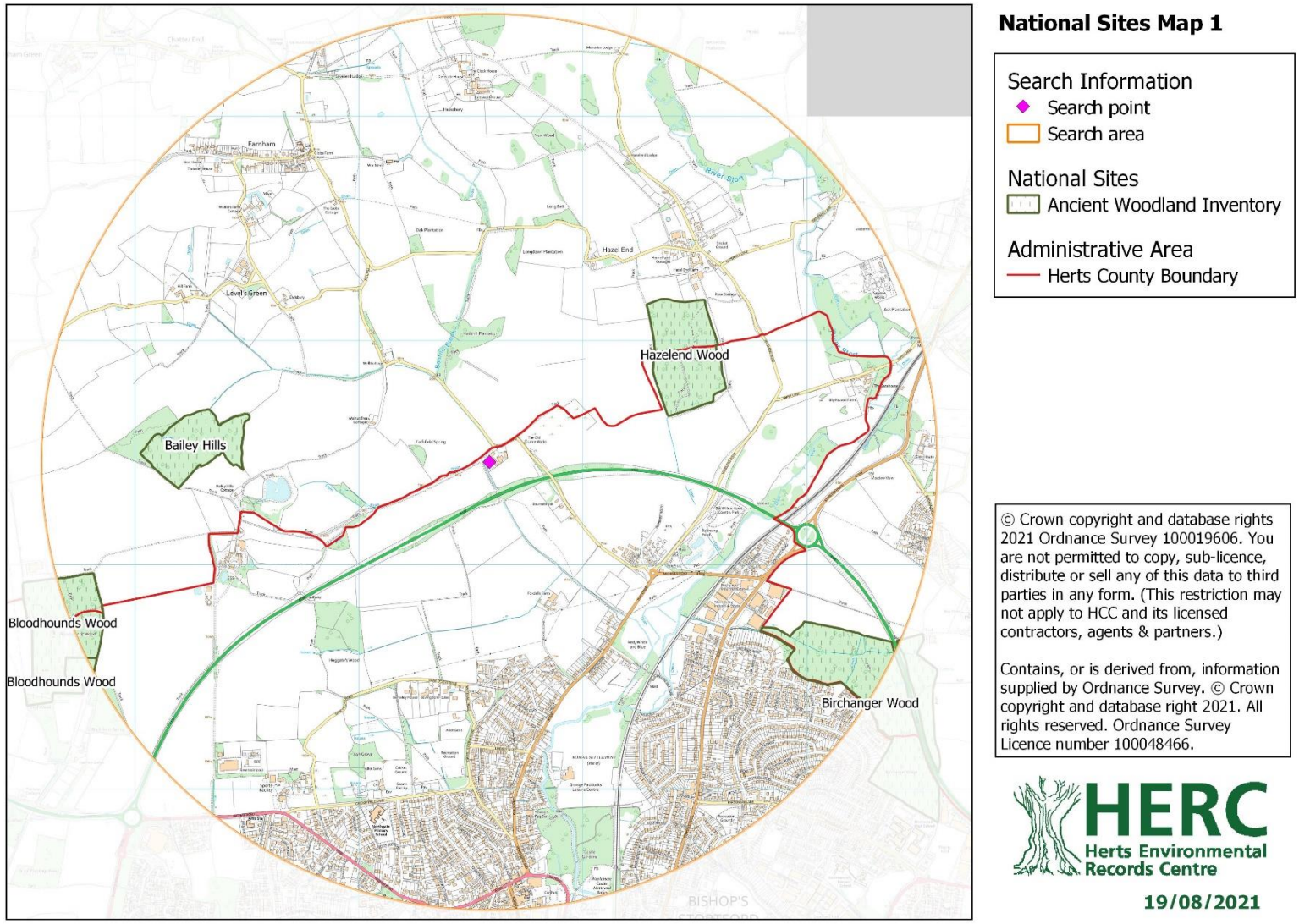
Ecological sites in the vicinity of the installation are listed below and are identified in Figures 3 to 5.

There are no Sites of Special Scientific Interest within 2 km of the installation. Nor are there any Ramsar or National Site Network areas within 10 km of the installation. The following ancient woodland and local wildlife sites are however, located within 2 km of the site boundary:

Bailey Hills (Herts and Essex Ancient Woodland)
Birchanger Wood (Herts and Essex Ancient Woodland)
Bloodhounds Wood (Herts and Essex Ancient Woodland and Local Wildlife Site)
Hazelend Wood (Herts and Essex Ancient Woodland and Local Wildlife Site)
Hoggates Wood (Herts Local Wildlife Site)
Dane O'Coys Meadows (Herts Local Wildlife Site)
Whitehall Field (Bishop's Stortford) (Herts Local Wildlife Site)
Bishop's Stortford Marsh (Herts Local Wildlife Site)
Farnham Churchyard (Essex Local Wildlife Site)
Stansted Marsh (Essex Local Wildlife Site)

The nearest sensitive ecological receptors to the site are all located more than 800 m away. With limited emissions to atmosphere and no direct connection to these sites via water courses, the potential for any significant negative environmental impact to occur at these sensitive ecological receptors is negligible.

Figure 3 Local Woodland Sites - Hertfordshire



National Sites Map 1

Search Information
- Search point
- Search area

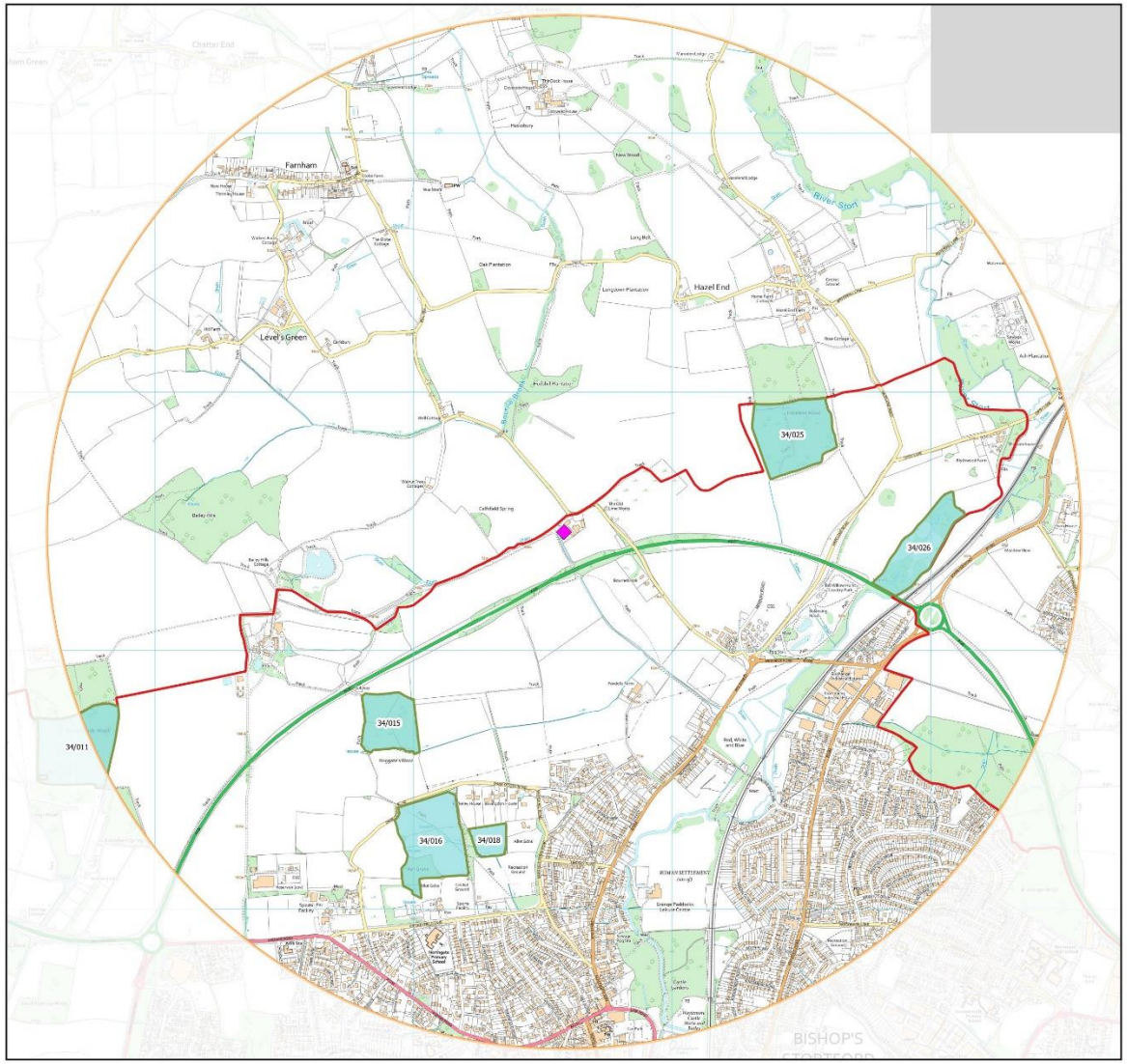
National Sites
- Ancient Woodland Inventory

Administrative Area
- Herts County Boundary

HERC
Herts Environmental Records Centre

19/08/2021

Figure 4 Local Ecological Sites - Hertfordshire



Local Sites Map 1

Search Information
- Search point
- Search area

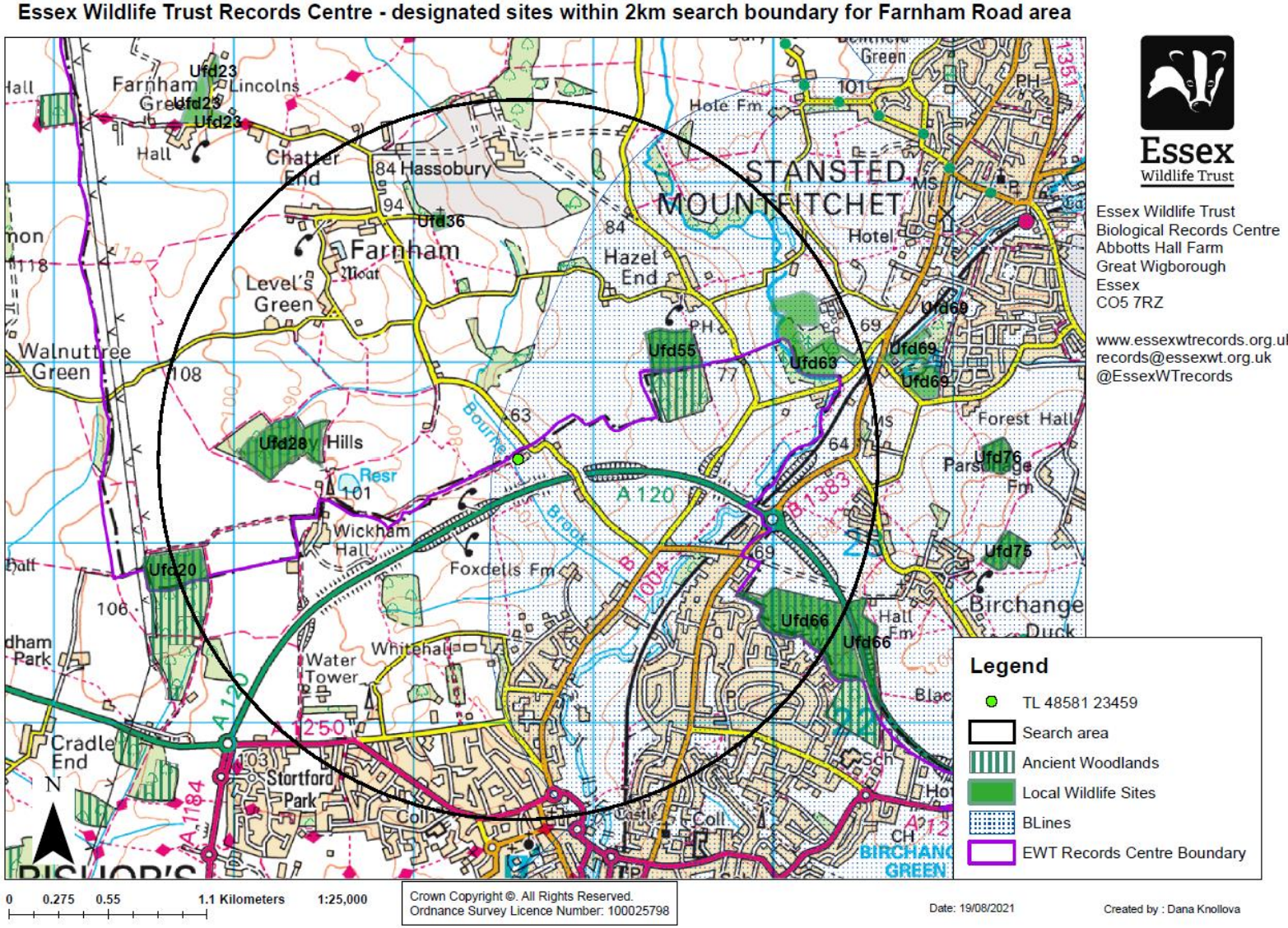
Local Sites
- Local Wildlife Sites

Administrative Area
- Herts County Boundary

HERC
Herts Environmental Records Centre

19/08/2021

Figure 5 Local Ecological Sites – Essex



Question 6b – Climate Change Assessment

A Climate Change Assessment has been prepared which considers the site and the proposed operations. This is presented in Appendix 3.

The Climate Change Risk Assessment for the site will be reviewed and updated on a regular basis, as part of the site management system.

3. Application Form Part B3

Question 1; Table 1a – Types of Activities

Installation Name	Bishop's Stortford Oil Storage Depot				
Schedule 1 / Other Reference	**Description of the Activity**	**Activity Capacity**	**Annex I and II Codes**	**Hazardous Waste Treatment Capacity**	**Non-Hazardous Waste Treatment Capacity**
Activity Reference 1 Sch. 1; Part 2; Section 5.6 A(1) (a)	Temporary storage of hazardous waste with total capacity exceeding 50 T Six tanks store mixed waste oils. One stores potentially contaminated water from the bund	385 m^3 (total tank capacity). Six waste oil tanks (330 m^3) approximately 300 tonnes. One water tank (55 m^3) approximately 55 tonnes.	R13 (on site), with removal for off-site recovery (R9, R3, R1)	No treatment proposed	No treatment proposed
Directly Associated Activities		**Description**			
Activity Reference 2		Release of clean, uncontaminated surface water to the Bourne Brook, via release points W1 and W2			
Activity Reference 3		Collection and storage of bund and interceptor water for removal from site			
Activity Reference 4		Collection and storage of site wastes for off-site recycling, recovery or disposal			
Activity Reference 5		Utilities use for sump pumps, lighting and security			
Capacity					
Total mixed waste oil or oily water storage capacity (T)		352 tonnes			
Annual throughput (T)		20,000 tonnes			

Question 1; Table 1b – List of Wastes

The wastes to be received at the site comprise waste engine, gear and lubricating oils as follows:

Waste Code	Description
12 01 wastes from shaping and physical and mechanical treatment of metals and plastics	
12 01 06*	mineral-based machining oils containing halogens (except emulsions and solutions)
12 01 07*	mineral-based machining oils free of halogens (except emulsions and solutions)
12 01 09*	machining emulsions and solutions free of halogens
12 01 10*	synthetic machining oils
12 01 19*	readily biodegradable machining oil
13 01 waste hydraulic oils	
13 01 01*	hydraulic oils, containing PCBs
13 01 05*	non-chlorinated emulsions
13 01 09*	mineral-based chlorinated hydraulic oils
13 01 10*	mineral based non-chlorinated hydraulic oils
13 01 11*	synthetic hydraulic oils
13 01 12*	readily biodegradable hydraulic oils
13 01 13*	other hydraulic oils
13 02 waste engine, gear and lubricating oils	
13 02 04*	mineral-based chlorinated engine, gear and lubricating oils
13 02 05*	mineral-based non-chlorinated engine, gear and lubricating oils
13 02 06*	synthetic engine, gear and lubricating oils
13 02 07*	readily biodegradable engine, gear and lubricating oils
13 02 08*	other engine, gear and lubricating oils
13 03 waste insulating and heat transmission oils	
13 03 01*	insulating or heat transmission oils containing PCBs
13 03 06*	mineral-based chlorinated insulating and heat transmission oils other than those mentioned in 13 03 01
13 03 07*	mineral-based non-chlorinated insulating and heat transmission oils
13 03 08*	synthetic insulating and heat transmission oils
13 03 09*	readily biodegradable insulating and heat transmission oils
13 03 10*	other insulating and heat transmission oils
13 05 oil / water separator contents	
13 05 02*	sludges from oil/water separators
13 05 03*	interceptor sludges
13 05 06*	oil from oil/water separators
13 05 07*	oily water from oil/water separators
13 07 waste liquid fuels	
13 07 01*	fuel oil and diesel
13 07 03*	other fuels (including mixtures)
13 08 oil waste not otherwise specified	
13 08 02*	other emulsions

Question 2 - Emissions

The bulk storage of waste oil has few emissions. The oil is stored within bunded storage tanks, and fill and discharge points are double valved and are located within the bund or over drip trays. All drips and spillages are cleared away immediately or at the end of the transfer.

Each tank has an over-flow, which discharges downwards into the bund. Tanks also include a breather vent to avoid the pressurisation of the tank during transfers. However, as the vapour pressure of mixed waste oil is lower than atmospheric pressure, vapour is only emitted from the tanks or the road tankers, through displacement during filling. Therefore, the period of any release is very short.

Emissions monitoring has been undertaken across the waste oil industry and was reported to participating companies in Enviro-Lex report: Report of sampling of emissions to air and water arising from the treatment of used oil. July 2006. The relevant results from the Enviro-Lex monitoring campaign have been applied in this application.

The Enviro-Lex campaign reported a tank filling rate of 47.5 m^3 per hour. The OSL Bishop's Stortford site intends to receive up to 20,000 tonnes (22,222 m^3) of waste oil each year and hence emissions through displacement of the tank head-space may occur for approximately 468 hours (5.34 %) of any year. The measured emissions from the transfer of inland waste oil sources are detailed in Table 2a below and are referred to thereafter as 'emissions from displacement'.

Question 2; Table 2a – Emissions to Air from Displacement

Pollutant	Concentration (mg m^{-3})	Release Rate (g s^{-1})	Annual Release (kg $annum^{-1}$)
Ammonia	2.1	1.48E-06	0.047
Benzene	145	1.02E-04	3.222
Butane	99	6.98E-05	2.200
Butene	50.5	3.56E-05	1.122
Dichloromethane	164	1.16E-04	3.644
Heptane	140	9.87E-05	3.111
Hexane	124	8.74E-05	2.756
Hexene	103	7.26E-05	2.289
Hydrogen Sulphide	0.01	7.05E-09	0.00022
Methylbutane	197	1.39E-04	4.378
Methylhexane	84.7	5.97E-05	1.882
Methylpentane	78.2	5.51E-05	1.738
Pentane	414	2.92E-04	9.200
Pentene	352	2.48E-04	7.822
Toluene	1050	7.40E-04	23.333
Xylenes	350	2.47E-04	7.778

The existing site, which has historically been a fuel oil storage depot includes two full retention, three-stage interceptors to separate any oil from surface water discharges which might otherwise enter the Bourne Brook. OSL will ensure that the interceptors are cleaned and inspected by a competent engineer, with repair or replacement works being undertaken as required prior to use. A penstock valve will also be incorporated into the system serving the main operational area (releasing via W1) in order that the release point can be sealed during oil transfers at the site and in the event of any emergency. The new penstock system can be controlled manually or remotely, and operational procedures incorporate instructions to ensure its use.

Water collecting in the bund may be more heavily contaminated or may contain emulsified oils and as such, this will be collected on site for removal to and treatment at the OSL Lyster Road site in Bootle. In order to ensure that the bund retains sufficient capacity, collected rainwater and spillages will be managed by the drivers attending site who will be responsible for checking the bund and, as required, pumping its contents into a dedicated storage tank during their visit. The site operational procedure incorporates instructions to ensure that the bund is checked and emptied.

There are no discharges to sewer or land from the installation. The office building within the confines of the site does have a domestic water supply with waste-water being collected in a package sewage treatment plant for treatment prior to discharge into the Bourne Brook. The office will not be used initially and, although it may be used in the future for administrative or welfare facilities, there is no intention for this to become a directly associated activity of the installation, e.g. through use as a laboratory. As such, the office facilities and the package sewage treatment plant, which is regulated under a separate Environmental Permit for its discharge to the brook, are not considered within this application.

Question 2; Table 2b – Discharge Points and Emissions

Installation Name	Bishop's Stortford Oil Storage Depot	
Emission Point Reference and Location	**Source**	**Parameter / Pollutant**
A1 – Tank 1; 55m^3 waste oil storage tank	Vapour release from mixed waste oil to air. Release occurs during displacement only. One vent and one over-flow on each tank.	Emissions from displacement (see Table 2a)
A2 – Tank 1; 55m^3 waste oil storage tank		
A3 – Tank 2; 55m^3 waste oil storage tank		
A4 – Tank 2; 55m^3 waste oil storage tank		
A5 – Tank 3; 55m^3 waste oil storage tank		
A6 – Tank 3; 55m^3 waste oil storage tank		
A7 – Tank 4; 55m^3 waste oil storage tank		
A8 – Tank 4; 55m^3 waste oil storage tank		
A9 – Tank 5; 55m^3 waste oil storage tank		
A10 – Tank 5; 55m^3 waste oil storage tank		
A11 – Tank 6; 55m^3 waste oil storage tank		
A12 – Tank 6; 55m^3 waste oil storage tank		
A13 – Tank 7; 55m^3 water storage tank	Displacement only	Limited potential for vapour release from contaminated water
A14 – Tank 7; 55m^3 water storage tank		
W1 – Site interceptor release to Bourne Brook	Surface water run-off	Clean surface water run-off from site operational and parking areas – Rainfall only
W2 – Site interceptor release to Bourne Brook	Surface water run-off	Clean surface water run-off from site entrance area – Rainfall only

There are no other releases to air or water course proposed, and none to sewer or land.

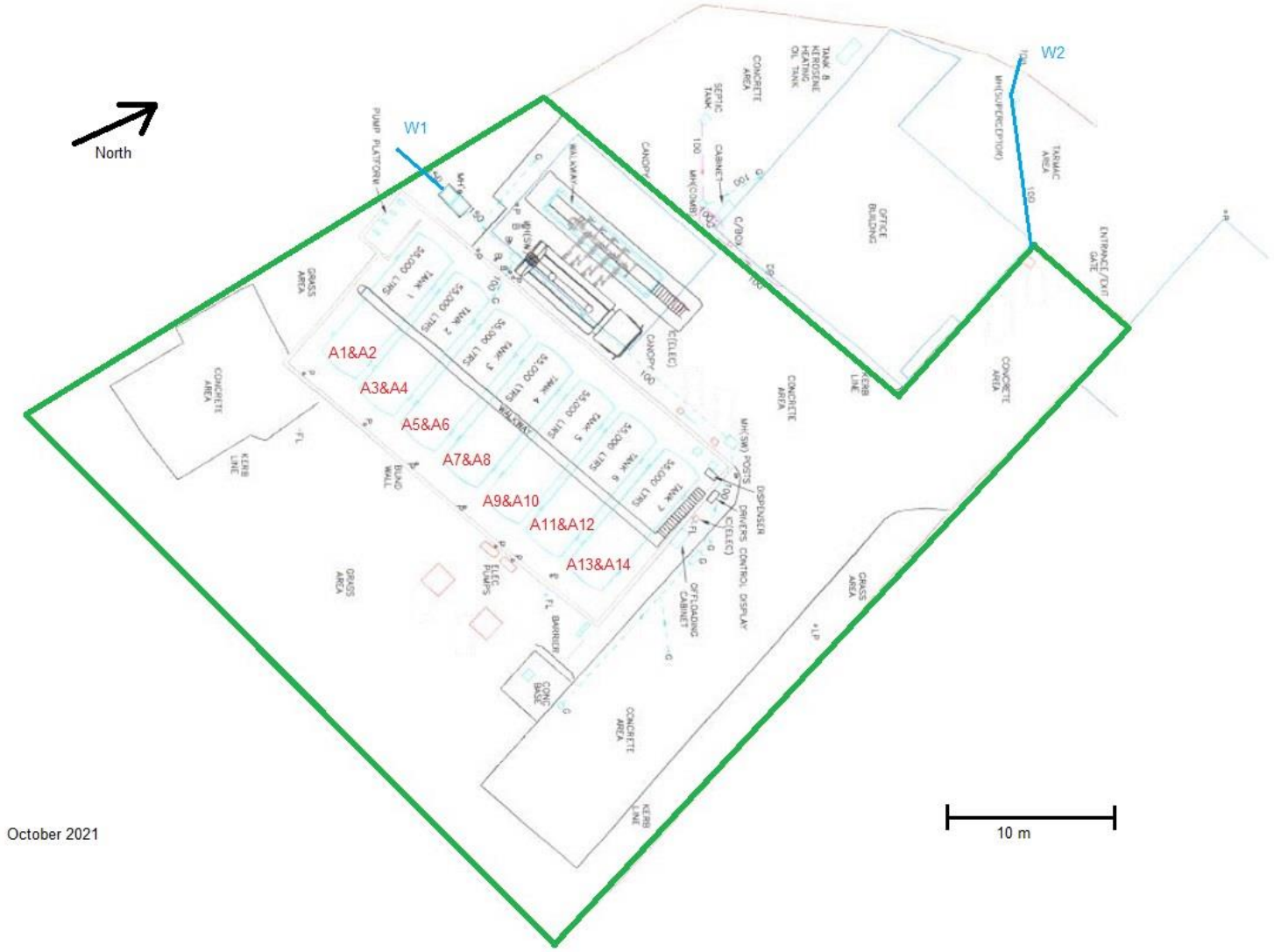
All release points are identified in Figure 6 over page. Figure 6 also denotes the wider site drainage.

Prior to the site becoming operational, OSL intends to paint the site manholes and gullies according to the standard code:

- blue for surface water
- red for foul water

The marking on manholes will include the direction of flow. Identifying the drainage routing in this way will remind drivers of the importance of protecting the drains during site operations.

Figure 6 Emission Point Diagram – Bishop's Stortford Oil Storage Depot



3. Operating Techniques

Technical Standards

Oil Salvage Limited is a long-standing and well-established oil recovery and recycling Company which has operated from its main site on Merseyside since 1986. The main Company operation, located on Lyster Road in Bootle already holds an Environmental Permit (EPR/MP3734SC) for their operations and hence all Company staff whose activities could affect compliance with the Permit conditions are familiar with the requirements of the Permit and the procedures in place to ensure that the Company operations comply with Best Available Techniques (BAT).

Oil Salvage Limited already offers a nationwide waste collection and fuel delivery service, although in commissioning a new transfer station in Bishop's Stortford, Oil Salvage Limited will likely employ new and local drivers for waste collections. That said, the majority of the Company procedures and practices which are already in place and comply with the BAT requirements, will be suitable for application to the Bishop's Stortford Oil Storage Depot operations. The procedures are discussed in detail in this section.

BAT 1 Oil Salvage Limited maintains and adheres to an Environmental Management System (EMS).

OSL maintains an EMS which is certified to ISO14001 for their collection service for waste oil and hazardous wastes from garages, shipping and industrial sources, and associated reprocessing. The Company has held its' ISO14001 certification since June 2009. The current certificate reflects the 2015 standard requirements and is set to expire in March 2024. Procedures will be expanded as necessary to include the operations at the Bishop's Stortford Oil Storage Depot, and once the installation is operational, OSL will aim to extend their certification to formally include the Bishop's Stortford site.

The BAT requirements are different from those within ISO14001 and are detailed in the table that follows. References to relevant policies and procedures confirms OSL's compliance with BAT.

BAT 1 Required Features of an EMS and OSL Compliance

Ref	Requirement	Procedure
I	Management commitment	PO5 (Environmental Policy) and MP5 (Environmental Planning)
II	Environmental policy, including commitment to continuous improvement	PO5 (Environmental Policy)
III	Established necessary procedures, objectives, targets and financial planning	MP5 (Environmental Planning) and MP6 (Env. Implementation and Operational Control)
IV	Implementing procedures which include consideration of and reference to: a) structure and responsibility b) recruitment, training, awareness and competence c) communication d) employee involvement e) documentation f) effective process control g) maintenance programmes h) emergency preparedness and response i) safeguarding compliance with legislation	MP6 (Env. Implementation and Operational Control)

Ref	Requirement	Procedure
V	Checking performance and taking corrective action with particular attention to: a) monitoring and measurement b) corrective and preventative action c) maintenance of records d) independent auditing	MP6 (Env. Implementation and Operational Control)
VI	Review by senior management of the EMS and its continuing suitability, adequacy and effectiveness	MP5 (Environmental Planning)
VII	Following the development of cleaner technologies	MP5 (Environmental Planning)
VIII	Considering the environmental impacts from decommissioning when designing new plant	PO5 (Environmental Policy) and MP5 (Environmental Planning)
IX	Regular sectoral benchmarking	Membership of industry body, of which one OSL Director is currently the Chair
X	Waste stream management	MP6 (Env. Implementation and Operational Control)
XI	Inventory of waste-water and waste gas streams	Permit application, and waste tracking
XII	Residues management plan	Regular inspection and periodic emptying and cleaning of tanks and interceptors
XIII	Accident management plan	OP23 (Spillage and Accidental Release Procedure) OP38 (Bishops Stortford Operating Procedure)
IX	Odour management plan	EA02 (Odour Management Plan)
XV	Noise management plan	EA03 (Noise management Plan)

BAT 2 and BAT 5 Oil Salvage Limited maintains suitable and sufficient waste pre-acceptance, acceptance, tracking, storage and rejection procedures which comply with the requirements of the BAT-Conclusion's document and other relevant guidance. Additionally, to reduce the environmental risk associated with the handling and transfer of waste, Oil Salvage Limited maintain and implement handling and transfer procedures.

The BAT-Conclusions require the following techniques to be applied:

Ref	Requirement	Procedure
a	Waste characterisation and pre-acceptance procedures	WM01 Waste pre-acceptance, acceptance and rejection procedure-Oil
b	Waste acceptance procedures	
c	Waste tracking system and inventory	
d	Output quality management system	Company Quality Management System, oils are re-refined or treated to the Processed Fuel Oil (PFO) standard and laboratory is UKAS accredited (ISO/IEC 17025)
e	Ensure waste segregation	WM01 Waste pre-acceptance, acceptance and rejection procedure-Oil
f	Ensure waste compatibility prior to mixing or blending	
g	Sort incoming solid waste	N/A

WM01 is the Company waste pre-acceptance, acceptance and rejection procedure for oils.

OSL ensures that, prior to arranging a collection of waste oils, they are satisfied that the have the following details: the type of process producing the waste, the specific process from which the waste derives, the quantity of waste, the form the waste takes, any known hazards associated with the waste, any compatibility issues, sample storage and preservation techniques.

Sales and technical staff roles within the Company operations are completely separate, with sales staff retaining a copy of the acceptable list of wastes, from which they must not deviate.

Routine collections of oils from garages / workshops, ships / harbours, commercial premises, industrial processes, civic amenity sites, scrap yards and farms have been historically assessed and are deemed to be low risk sources. As such, no pre acceptance sampling is required for these wastes.

However, where the collection is a 'one-off' such as a factory shutdown or a collection of transformer oil, then these are deemed higher risk and a sample will be taken prior to collection from the customer. Where samples are obtained, the customer is responsible for providing these, and advice can be provided as to how the sample should be taken. Should there be any uncertainty over the representative nature of the sample delivered, OSL would collect a sample for themselves or would arrange for an appropriate third-party to collect one. On receipt, the sample is logged, tested and the results recorded, determining whether or not the waste can be accepted or should not be collected, by the Company analysts in the Company laboratory. Samples are clearly labelled and marked with any hazardous properties. The analysis and record of waste oil samples includes:

- all hazardous characteristics
- physical appearance
- colour
- pH
- presence, strength and description of odour assessment
- flashpoint
- presence of sulphide
- chlorine
- sulphur
- metals
- PCBs

The Company laboratory is ISO/IEC 17025 certified and operates to full testing and reporting procedures. Incoming pre-acceptance samples are retained on site at Lyster Road for at least one week, and for at least two days after processing and dispatch.

As a leading waste oil recovery Company, all of the oils entering the Bishop's Stortford Oil Storage Depot have a clear treatment and recovery route, via the Company processing facility in Bootle. Incoming oils are collected by trained Company drivers. Where new drivers are employed, they are fully trained prior to working a collection round and this involves receiving a full Company induction, including health, safety and environmental considerations, and training in all relevant policies and procedures. From that point, drivers would commence a round with a 'buddy' for a minimum of two weeks, and for as long as they require to gain the relevant experience, and their progress is assessed during the buddying-up period. Once Company management determine that a driver has sufficient experience and is capable of undertaking their role safely and effectively, they can commence their own round.

Waste inputs and outputs are monitoring across the Company activities in order to ensure that efficiency and environmental performance is optimised.

Driver training includes full familiarisation with Standard Operating Procedure OP02, Road Tanker Deliveries and Collections. Amongst other things, this procedure includes information on daily vehicle checks and a detailed collection and delivery procedure. Personal Protective Equipment (PPE) must be worn and in order to protect the environment during any collection or delivery, the driver is responsible for covering any drains in the immediate vicinity of the connection point. During collections, they must also liaise with the site host to determine which tank is to be emptied and to identify the correct connection. Once connected, the driver is required to complete a final check, ensuring that everything is connected before starting the vehicle pump.

Only correctly sized couplings are used and the driver must stay with the vehicle at all times during the transfer to monitor for any leaks and fill levels. Should the coupling not fit the connection or should any leak or split in a hose occur, the transfer will not be made or will be stopped immediately, and a clean-up would be facilitated.

Once complete, the driver should shut of the tank discharge valve, or as appropriate, request that the site host does so. The transfer hose is allowed to empty before the driver shuts off the tanker valve and switches off the pump. Finally, the driver must dip the pot after each collection and record the amount collected on the consignment note.

Incoming oils to the Bishop's Stortford site are not analysed prior to collection, unless they are from a higher risk course, or on receipt at the Bishop's Stortford facility. The driver is responsible for accepting the waste oils from the customer based on an assessment undertaken at collection. The driver will confirm that the paperwork describing the waste oil is correctly completed and accurately describes the load in line with any available pre-acceptance information, and in doing so will confirm that the waste is acceptable under the terms of the Permit. They will also undertake a visual and olfactory assessment of the waste oil to confirm that the waste is not obviously contaminated. At that point, the waste oil will be pumped into the collection vessel and may mix with other, similar wastes stored in the same vessel or chamber of the tanker, and the driver will continue his rounds.

Waste oils will not be collected by the driver, thereby effectively being rejected, if:

- there is evidence to suggest that it may have a flash point of less than 30 ^{o}C, usually detected by smell; or
- the waste carries an EWC code that is not included on and acceptable under the Bishop's Stortford Permit.

OSL provides their relevant waste oil customers with a mixed waste fuels drum in order to minimise the potential for contamination of the waste oils. However, on the limited occasions that a driver is unable to collect a load due to its unsuitability, the customer will be informed verbally by the driver and, where the customer does not immediately contact Head Office, a follow-up call or e-mail is facilitated to discuss the reason behind the failed collection and to advise on practices and procedures to avoid subsequent rejections.

On arrival at the Bishop's Stortford Oil Storage Depot, the driver will unlock the gates and deactivate the security system, before entering the yard and undertaking visual checks across the site, including the condition of the floor surface, any damage to the tanks, valves and pipework, bund, building or security measures, and confirming the availability of fire extinguishers and spill kits. Prior to initiating a transfer and as per the Bishop's Stortford Operating Procedure (see OP38 in Appendix 4) the penstock valve serving the interceptor releasing to W1 is closed, and the sump pumps from the interceptor and bund are activated.

Drivers are advised by the transport team which tank they should deposit their load into. The transport team in-turn receives instruction from a Company Director who has direct access to information on the tank contents, including previous deposits and the total quantity of oil / available ullage. This ensures that the Lyster Road treatment site maintains full control over the nature and quantities of oil in each tank. Drivers attending the Bishop's Stortford site check their own tanker content against the available ullage in the receiving tank before discharging.

Drivers load and unload from the tanks following the Company wide procedure for Road Tanker Deliveries and Collections (OP02), whilst adhering to the Bishop's Stortford Operating Procedure (OP38) when on site.

As the drivers' tip into their own dedicated tanks with waste oil being removed from site on a single tank per load basis, and each collected load is recorded using a consignment note, the waste oil can subsequently be tracked through to its delivery and receipt at the Lyster Road site. All site tanks and pipework are labelled with a unique numbering system to identify which load / off-load point serves which tank. Additionally, each of the tanks will be fitted with a level meter enabling the available capacity (ullage) to be assessed prior to any transfer.

Prior to the commissioning and use of the site for waste oil storage, the site infrastructure will be assessed and certified as suitable for use in accordance with 'CIRIA 736 Containment systems for the prevention of pollution, secondary, tertiary and other measures for industrial and commercial premises'.

The level meters to be employed on the tanks will be appropriate for the measurement of mixed waste oils and waste-water, employing a guided microwave and comprehensive diagnostic possibilities to enable maintenance-free operation and hence a high plant availability. The level meters will be suitable for use at the Bishop's Stortford site, with temperature and pressure ranges appropriate for the storage of waste oil. They will have an on-site read-out and can also be viewed remotely from the Company Head Office in order to manage bulk collections. The site monitoring and labelling systems therefore enable the drivers to have full control over any transfer made, ensuring that the correct delivery goes to the correct tank and no tank is over-loaded.

Drivers carry spill kits on their vehicles and are trained in their use, and additional kits are located at the site. Standard Operating Procedure 'OP23 Spillage and Accidental Release Procedure' details the actions taken in the event of a spillage and is presented in Appendix 5. In the event of a spillage being caused or discovered, and where it is safe to do so, OP23 specifies that drivers should:

- Isolate the area do not let others pass through or near the substance.
- Switch off any equipment being used, isolate and remove any ignition sources.
- Apply any PPE required. This information will be present in the COSHH assessment.
- Contain the spill to as small an area as possible by using rags, absorbents or spill socks.
- Collect the spilled material by working from the outer edge inward.
- Collect materials used (including contaminated PPE) in an appropriate container.
- Ensure the container is disposed of in the correct manner.
- Report equipment used so items from the spill kit can be replenished, and record the use of any spill kits provided by the customer.

All spillages of hazardous wastes will be logged and where any spillage is of more than 200 litres, this will be reported to the Environment Agency. Reporting will be completed by the Compliance Manager in line with local regulations and Permit requirements.

Waste oil transfers are generally undertaken immediately, although oil may be left in the vehicle barrel, locked within the yard should the driver not have sufficient time in his working day to unload. Waste oil will not be stored in collection vehicles for longer than is necessary, and will always be transferred into bulk storage within five days of arrival at the site.

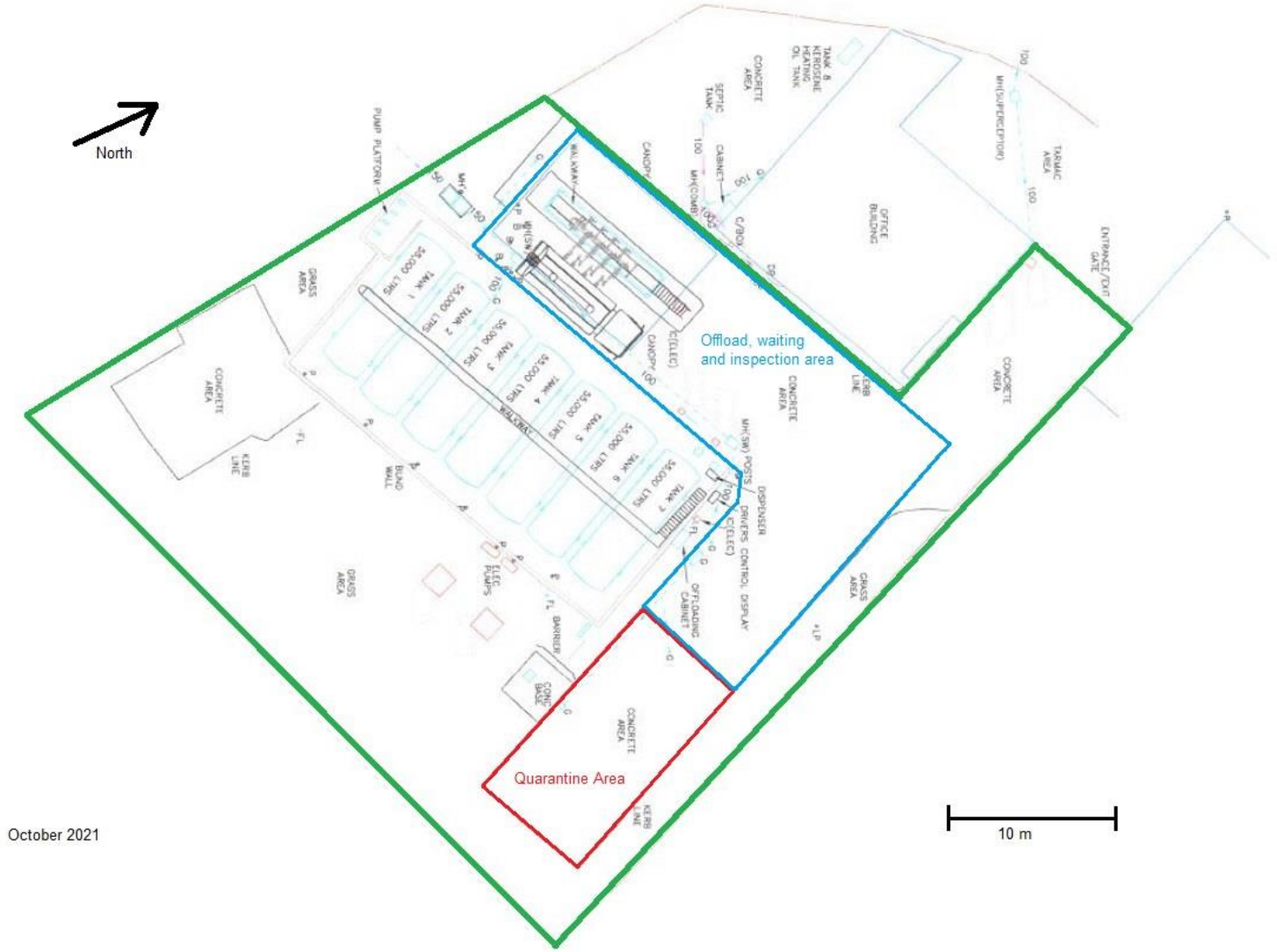
The operational area of the site comprises the off-load area and has an impervious surface with self-contained drainage, to prevent any spillage escaping off-site. The inspection, unloading and waiting area is shown in Figure 7. Drainage in this area passes to surface water via an interceptor which is shut-off from release during site operations, resulting in a sealed drainage system.

As the waste is effectively accepted at the point of collection, there should be no subsequent rejection from the Bishop's Stortford installation. However, a quarantine area will be designated at the site in the event that an oil collection vehicle cannot be un-loaded for any reason. This is shown on the site plan in Figure 7 and is located within the kerbed yard area. The quarantine area is sufficiently sized to retain a waste oil collection vehicle but will usually remain empty. Any quarantined waste will be removed from site within 5 working days of receipt.

Although no sampling or analysis is undertaken on the incoming waste oil, once collected from site the waste oil is transferred to the main OSL site in Bootle on Merseyside and is sampled and analysed there prior to acceptance at the storage and treatment facility. The laboratory is UKAS accredited to ISO/IEC 17025 and the Company analyst(s) are qualified to degree level. Should the waste collected by the drivers based at the Bishop's Stortford site be deemed to be unsuitable under the terms of the Bootle site's Permit, the waste will be rejected at that point.

The OSL Lyster Road treatment site can recover waste oils to the Processed Fuel Oil (PFO) standard, but can also re-refine incoming oils to recover and recycle the base oil in support of the Government's Circular Economy policies and objectives.

Figure 7 Operational Areas Diagram – Bishop's Stortford Oil Storage Depot



The Consignment Note system applied by OSL is completely electronic and automatically ensures that the customers receive copies of the notes, as well as forming the basis of the waste tracking system. The driver's vehicle registration is included on the Consignment Note and each driver off-loads into a dedicated and specified tank. The Consignment Note is also automatically linked to the information generated during pre-acceptance, acceptance, storage, and subsequent treatment and / or removal off-site. All records are maintained on an ongoing basis to reflect deliveries, on-site treatment and despatches. The tracking system thereby effectively operates as a waste inventory / stock control system and includes:

- date of arrival on-site;
- producer's details;
- all previous holders;
- a unique reference number;
- any pre-acceptance and acceptance analysis results;
- intended treatment / disposal route;
- the nature and quantity of wastes held on site;
- where the waste is physically located in relation to a site plan;
- where the waste is in the designated disposal route;
- identification of staff who have taken any decisions regarding acceptance or rejection of waste streams and decided upon recovery or disposal options.

Incoming waste oils are all classified as hazardous waste. Oils will be stored at site only prior to transfer for treatment elsewhere. The tracking system can be interrogated to confirm the total quantity of waste present in each of the tanks on-site at any one time, the quantity of waste stored on site compared with the total permitted storage capacity and the time the waste has been on-site against the permitted limit.

All documented waste records are held for a minimum of two years after the waste has been treated or removed from the Company sites. Records are held electronically to ensure their accessibility during any emergency, and are backed-up remotely in 'the cloud'.

Waste is only accepted into the site where there is sufficient capacity for it. With a total storage capacity of 385 m^3, and with all transfers and available storage monitored daily from OSL Head Office, the site will always have capacity to receive incoming loads from Company collection drivers. Bulk collections from the site will be arranged as required and no waste will be stored on site for more than 6 months.

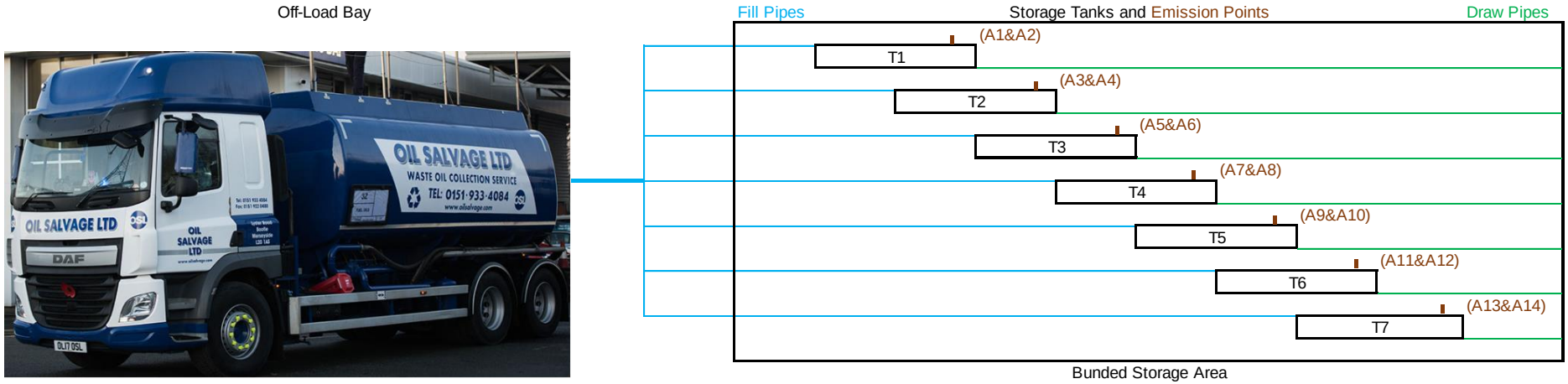
BAT 3 In order to facilitate the reduction of emissions to water and air, an inventory of waste-water and waste gas streams are maintained.

The Bishop's Stortford Oil Storage Depot receives and stores mixed waste oils only. The oils are transferred from the small oil collection vehicles into one of seven fully bunded storage tanks. Each tank has an over-flow, which discharges downwards into the bund. Tanks also include a breather vent to avoid the pressurisation of the tank during transfers. However, as the vapour pressure of mixed waste oil is lower than atmospheric pressure, vapour is only emitted from the tanks or from the manways on the road tankers, through displacement during the short periods of transfer.

Only discharges of clean, surface water run-off are released to watercourse, and there are no discharges to sewer, or land from the installation. A documented procedure is in place for site operations, specifically the transfer of oils, which includes the requirement to ensure that the W1 interceptor penstock valve is closed prior to transfer and remains closed until such time as the operation, including any clean-up, is complete. Any spillage is cleared away immediately or once the transfer is complete using spill kits, with used materials being appropriately bagged, labelled and stored for disposal. The penstock valve can also be closed remotely by OSL staff at Head Office in the event of an identified emergency or incident which might otherwise result in a release to the water course. Any water collected within the bund is pumped into a dedicated storage tank for removal from site, being transferred to the OSL site in Bootle for treatment prior to discharge.

The simplified process flow diagram and inventory over page summarises the activities at the site and the potential emissions from the process.

Process Flow Diagram and Site Waste Inventory



Simplified Process Flow Diagram of Storage Area (above)
Site Infrastructure and Characteristics (below)

Description of the Waste	Mixed Waste Oils (hazardous): 12 01 codes; 13 01 codes; 13 02 codes; 13 03 codes; 13 05 codes; 13 07 codes and 13 08 codes						
Characteristicts of the Waste	Liquid						
	Hazardous						
	Typical Flash Point > 65 oC						
	Auto-Ignition temperature > 220 oC						
	Typical pH = 6 (slightly acidic)						
	Practically insoluble in water and a typical specific gravity of 0.9 kg m^{-3}						
Storage Tank	T1	T2	T3	T4	T5	T6	T7
Storage Capacity (m^3)	55	55	55	55	55	55	55
Potential Emissions to Air	Displaced vapour emissions to atmosphere during transfer. Emitted species may include VOCs, Ammonia and small quantities of Hydrogen Sulphide						
Emission Point to Air	A1&A2	A3&A4	A5&A6	A7&A8	A9&A10	A11&A12	A13&A14
Emission Pint to Water (W1 and W2)	Clean surface water run-off only						
Other Emissions	No emissions to sewer, or land.						

BAT 4 Wastes will be stored in such a manner that reduces environmental risks.

The Bishop's Stortford Oil Storage Depot is located off Farnham Road to the north of Bishop's Stortford. The local area has limited development and the nearest residential receptors to site comprise 6 houses located approximately 340 m distant. The next nearest residential properties are more than 500 m away from the site and, although the area is undergoing substantial residential development, there is currently no plan for any residential areas to the north of the A120. The site is not therefore in an area expected to experience much in the way of opportunistic unauthorised entry or vandalism, although a footpath and a bridleway run alongside two of the site boundaries. The site is fully and securely fenced, and the gates remain locked at all times unless the site is in use and manned by staff.

The nearest sensitive environmental receptor is however, located in the immediate vicinity of the site, being the Bourne Brook which runs parallel to the western site boundary, and the OSL site releases surface water run-off, via two interceptors, into the brook. The process is carefully managed however, as the site operations include the transfer of hazardous waste oils. As such, all waste oil handling and storage areas are impermeable and are kerbed, directing surface water run-off to the full-retention, three-stage interceptors.

A documented procedure requires that drivers ensure that the interceptor penstock valve serving the main operational area is closed prior to any oil transfer, and remains closed until such time as the operation, including any clean-up, is complete. As such, the interceptor effectively becomes a sump during site operations and staff can ensure that the site surfaces are not contaminated with free product that might readily wash into the interceptor prior to opening the release. Drivers are instructed to run the interceptor pump when the penstock valve is closed in order that any spilled and captured oils and oily water are transferred into the dedicated oily water storage tank. In the event of no incident occurring during transfers, drivers switch the pump back to auto operation and open the penstock valve before leaving the site. The penstock valve can also be closed remotely as required by OSL staff located in Bootle.

Additionally, the interceptors will be cleaned and maintained at least once every six months, more frequently as required and, in the case of W1, prior to the re-opening of the penstock valve in the event of any significant spillage that might have impacted on the interceptor. When cleaning the interceptors, wastes will be added to the driver's waste oil tank for subsequent removal from site with other collected oils. Ensuring the integrity and efficacy of the interceptors, and their protection and use as a sump during oil transfers, as well as OSL's strict housekeeping requirements for site operations, results in a low loading on the interceptors during normal operations and the release of only clean, surface water run-off to the Bourne Brook at all times.

Surface waters which are collected within the bund which may be more heavily contaminated and may result in a more emulsified oil and water mixture are not discharged via either of the interceptors, instead being pumped out into the dedicated oily water storage tank for removal from site and treatment at the OSL Bootle facility. Following procedure OP38, the bund is checked by each driver attending the site and as required, the collected effluent is pumped out using the dedicated sump pump and is transferred into the waste-water storage tank prior to removal from site. Whilst this does result in the double handling of a small volume of effluent, it ensures that the bund capacity is always adequate and appropriate and also enables the efficient removal of waste from the site, with the collection drivers removing full loads of oil or water directly from the storage tanks, rather than collecting any unknown quantity from the bund during their visits to site.

Each of the tanks and the pipelines serving them are clearly labelled with their number, volume and contents, and the only requirement for any double handling of wastes occurs when emptying the bund.

The site storage infrastructure is as follows:

Infrastructure	Size
Storage tanks x 7	55 m^3 each
Total waste oil / oily water storage	385 m^3
Bund dimensions	24 m x 13 m x 0.45 m
Bund Capacity	140 m^3 total. Est. 20 % volume for cradles etc. **Assume 112 m^3 available capacity**
Capacity as a percentage of the total storage	29 % of the total capacity of the tanks, and more than 200 % of the capacity of an individual tank
Interceptor volume	2 x 20 m^3

Although the site has historically included underground storage vessels, these and their associated pipework are empty and are scheduled for removal. As such, these do not form part of the operational installation and will be removed completely in due course. OSL will inform the Environment Agency of the detail and timing of the removal project for the redundant infrastructure, which may occur once the site is operational. All necessary precautions will be taken to ensure to security of the site operations and the local environment during the project.

All of the installation storage tanks and transfer lines are above ground and, aside from the interceptors and drainage channels, there is no below-ground infrastructure associated with the operation of the Bishop's Stortford Oil Storage Depot. Each of the storage tanks will be fitted with a level meter enabling the ullage to be assessed by the delivery and collection drivers prior to any transfer. The level meters can also be viewed remotely from the Company Head Office in order to manage bulk collections, ensuring that the correct delivery goes to the correct tank, no tank is over-loaded, and waste is removed from site in a timely manner.

The seven tanks are located on an impervious surface with sealed construction joints, that is resistant to oils, and within a bunded area with a capacity equating to more than 110 % of any individual container and more than 25 % of the total tankage volume. None of the tanks are connected to abatement systems to control of releases to air. However, due to the low vapour pressure of mixed waste oils, emissions of vapour will only occur through displacement during tank filling (through the breather vent and over-flow) or emptying (through the tanker manway). With limited emission potential, it is not considered that emissions to air require abating, and this has been confirmed by the results of the H1 Environmental Risk Assessment, which concludes that the emissions to atmosphere are insignificant and require no further assessment.

In addition to the checks made by each delivery and collection driver when attending site, a documented management visit and inspection will be performed monthly and will comprise a visual inspection of tanks, pavements and the site bund, as well as all other associated infrastructure. Inspections will pay particular attention to signs of damage, deterioration and leakage and thorough records will be maintained detailing any action taken, either during the visit or subsequently, to repair or replace faulty or damaged equipment. A copy of 'M150 Monthly Maintenance Checks Bishop Stortford' is provided in Appendix 6 for information.

Faults will be repaired as soon as practicable. Where containment capacity or the capability of bund, sump or pavement is compromised, and unless effecting a repair is more expedient, then the waste will be removed until the repair is completed. These regular inspections and maintenance visits ensure that all infrastructure and equipment is maintained in an undamaged state.

As all of the tanks are used for storing similar materials, that is, mixed waste oils and oily water, there is no requirement for pipework to be colour coded. However, all tanks, pipework and valves are provided with a unique identification number and the Maintenance Department retain full details of all plant including:

- capacity;
- construction including materials;
- maintenance schedules and inspection results;
- fittings (including joints and gaskets etc.);
- waste types that may be stored / treated in the vessel including flashpoint limit.

Vessels will not be used beyond the specified design life or used in a manner or for substances that they were not designed. Tanks are periodically (5 yearly) thickness tested by a suitably qualified engineer to the relevant EEMUA standard, with documented reports confirming the suitability (or otherwise) of the tank operation and the date before which the tanks should be re-tested. Tanks will also be periodically de-sludged, although no set regularity is proposed for de-sludging which is undertaken at the site as required.

The nature of the mixed waste oils collected is such that they are not sensitive to ambient heat, light, air or water, although activities that create a clear fire risk such as grinding, welding or brazing of metal-work will not generally be carried out within the installation. Where any such works are required, the necessary risk assessments and precautions will be undertaken first with storage facilities emptied as required, and Permits to Work being enforced. The entire site is a no smoking area.

BAT 10, BAT 12, BAT 13 and BAT 14 OSL maintains an Odour Management Plan (OMP) which includes consideration of the Bishop's Stortford Oil Storage Depot operations. The current version of the OMP, document EA02, is included in Appendix 7. Drivers are instructed to report unusual odours when attending any of the Company sites and a quarterly odour assessment (sniff test) will be performed and recorded when site EHS audits are completed. The results from sniff tests are recorded on form M122 located within the quality management system.

Additionally, high-integrity equipment is employed in order to minimise the potential for odour emissions to occur from fugitive sources and accidental releases. This includes the use of pumps fitted with mechanical seals instead of packing and the lining or coating of equipment and painting of pipes with corrosion inhibitors. Drivers are responsible for reporting any damage that they observe to the infrastructure during their visits to site and monthly maintenance audits will be undertaken by the Maintenance Manager or other delegated Company manager.

Waste oil has a specific but localised odour and it is not considered that the activities at the Bishop's Stortford Oil Storage Depot will likely result in any notable odour at any sensitive receptor locations. The nearest human receptor would be staff in the neighbouring industrial yard, with the animal rescue charity, Foxdells located 170 m away. The nearest residential receptors are all located more than 300 m distant from the site and, with the transfer and storage activities resulting in minimal potential for odours to occur, the potential for nuisance is limited. A footpath and a bridleway pass the site and the area is used by walkers, runners and riders. However, with vapours only being displaced from the tanks or tanker manways through displacement, any discharge and potential odour nuisance to these transient receptors would be minimal, if indeed any odour were to be observable. OSL limits the storage period for all wastes at the site to a maximum of six months, and as such, the stored mixed waste oil is unlikely to degrade in that time such that the potential for an odour nuisance to occur may increase.

BAT 11 OSL does monitor the use of energy at the Bishop's Stortford Oil Storage Depot, albeit only through the consideration of electricity bills. The site has minimal electricity consumption, with electrical supplies only required for yard lighting, the bund and interceptor pumps, and the site security system. The office building is not part of the installation and is currently un-used and the only water consumption is for domestic purposes within the office.

BAT 17 and BAT 18 OSL maintains a Noise Management Plan (NMP) which includes consideration of the Bishop's Stortford Oil Storage Depot operations. The current version of the NMP, document EA03, is included in Appendix 8.

Sources of noise generated at the site are limited to heavy duty vehicle movements to and from the site, and the loading or unloading of materials. The site operations are generally intermittent and are associated with approximately 8 HGV visits (17 vehicle movements) per day between the hours of 06:00 and 22:00 Monday to Friday, although some occasional work on Saturdays may be required. Any noise produced will therefore also be intermittent depending on the delivery and collection schedules.

The nearest human receptor would be staff in the neighbouring industrial yard, with the animal rescue charity, Foxdells located 170 m away. The nearest residential receptors are all located more than 300 m distant from the site and, with the transfer and storage activities resulting in minimal potential for noise to occur, the potential for nuisance is limited. A footpath and a bridleway pass the site and the area is used by walkers, runners and riders. However, with intermittent vehicle movements and the operation of pumps being the only noise sources, any potential noise nuisance to these transient receptors would be minimal.

Drivers are responsible for undertaking daily checks on their vehicles prior to use and for reporting any unusual or increased operational noise that they observe during their visits to site. The use of trained drivers and the regular planned preventative maintenance of all vehicles, pumps and other plant ensure that equipment is operated correctly and is maintained in optimum condition.

BAT 21 OSL aims to prevent or limit the potential environmental consequences of accidents and incidents by maintaining an Accident Management Plan (AMP).

Whilst the Spillage and Accidental Release Procedure (see OP23 in Appendix 4) considers the actions to be taken in the event of a spillage and includes actions to, amongst other things, isolate the area, contain the spill, and report the equipment used in order that they can be replenished etc., the Bishop's Stortford Operating Procedure (OP38) considers additional incidents such as actions to be taken at the site in the event of a fire or a flood.

Although the site is only manned during relatively short and intermittent operational periods, the neighbouring site is manned and contact details have been shared for use in the event of an emergency.

The Bishop's Stortford Oil Storage Depot is securely fenced with gates that remain locked unless Company staff are attending site. The site also incorporates a CCTV system which can be monitored both from the Head Office in Bootle, and remotely by the Company Directors, and will be fitted with an alarm system with motion detectors. In the event of a break-in, an alert will be sent to the Company Directors. As noted previously, the site is not situated in any built-up area and is located a significant distance from any residential or frequented areas. Although a public footpath and a bridleway pass the site, it is not expected that the site will experience much in the way of opportunistic unauthorised entry or vandalism.

Foam fire extinguishers will be positioned in strategic locations around the site prior to commissioning and drivers will be trained on the actions they should take in the event of a fire. With storage areas limited to the bunded tanks and a penstock valve to close the main operational area interceptor release such that it effectively becomes a sump, any extinguisher foam or fire-waters would be retained within the bunded area or collected in the closed interceptor and across the yard. Collected effluent will be pumped into the oily water tank and / or bund as appropriate before being transferred to the Bootle site, using the OSL tanker fleet, for treatment and recovery or disposal.

It is a Company requirement that all vehicles and trailers are checked prior to use on the public road to ensure they are safe and legal to enter service, and that any check undertaken is both thorough and is documented. This includes any remedial repair work required following the discovery of a defect.

Should any items listed on the daily vehicle checks be found to be faulty then the driver is required to write the details of the fault on his / her daily defect sheet and bring it to the attention of the appointed person to allow for a decision to be made on the required action and for the fault to be rectified.

Any accident, incident or near miss must be reported to the driver's Manager, the Company Compliance Manager or a Company Director. HS03, the Accident and Safety Incident Reporting Procedure describes the nature of incidents and details the Company reporting and investigation procedure.

BAT 22 The fundamental purpose of the Bishop's Stortford Oil Storage Depot is to collect mixed waste oils for treatment and recycling. OSL treats used waste oils into Processed Fuel Oil (PFO) or re-refined base oil, both of which meet the end of waste criteria and can therefore be used as new, non-waste oils once processed.

As a simple transfer station with no treatment facilities, the Bishop's Stortford Oil Storage Depot uses few raw materials. Electricity is used for yard lighting, security, the bund and interceptor pumps and office uses, and water is only used for domestic purposes within the office. Spill kits are available at the site for use by the drivers should any spillage occur, and these are the only consumable items required by the installation.

6. Resource Efficiency and Climate Change

6a. Basic Energy Efficiency Measures and Improvements

BAT 23 Minimal electricity is required by the site operations, and uses are limited to yard lighting, security, the bund and interceptor pumps and office uses. Drivers use their vehicle pumps to load and unload their trailers. Energy use is however minimised with a regular and planned preventative maintenance regime ensuring that all plant remains in optimal working condition.

6c. Specific Measures for Improving Energy Efficiency

With minimal energy requirements and a regular planned preventative maintenance programme, there are limited opportunities and no specific measures proposed for improving energy efficiency.

6d. Explain and Justify Raw Materials and Water Use

The only consumables used at the installation, other than small amounts of electricity for pumps and lighting etc, are spill kits which are available for use in the event of a spillage. These are used, disposed of, and replaced as required.

6e. Describe How the Site Avoids Producing Waste in Line with Council Directive 2008/98/EC on Waste

The fundamental purpose of the Bishop's Stortford Oil Storage Depot is to facilitate the recycling of mixed waste oils into non-waste products, either through re-refining the waste into base oil, or treatment to the PFO standard. Although the depot does not treat the incoming waste oils, the storage facility location in the south-east of England, enables wider and more efficient collections by Oil Salvage Limited, to support the Company treatment plant located in Bootle on Merseyside.

As such, and with minimal waste creation of its own, amounting to used spill kits in the event that clean-up is required, the Bishop's Stortford Oil Storage Depot fully supports the implementation of the waste hierarchy, promoting recycling or other recovery, over disposal options.

APPENDICES

APPENDIX 1
BASELINE SITE CONDITION REPORT

OIL SALVAGE LIMITED
BUTLER FUELS, FARNHAM ROAD
BISHOP STORTFORD

BWB CONSULTING
OCTOBER 2021

A CAF GROUP COMPANY

ENVIRONMENT

Oil Salvage Ltd
Butler Fuels, Farnham Road
Bishop Stortford

Baseline Site Condition Report

www.bwbconsulting.com

ENVIRONMENT

Oil Salvage Ltd
Butler Fuels, Farnham Road
Bishop Stortford
Baseline Site Condition Report

Birmingham
Livery Place, 35 Livery Street, Colmore Business District, Birmingham, B3 2PB
T: 0121 233 3322

Leeds
Whitehall Waterfront, 2 Riverside Way, Leeds
LS1 4EH
T: 0113 233 8000

London
11 Borough High Street
London, SE1 9SE
T: 0207 407 3879

Manchester
11, Portland Street, Manchester M1 3HU
T: 0161 233 4260

Market Harborough
Harborough Innovation Centre, Wellington Way, Airfield Business Park,
Leicester Road, Market Harborough, Leicestershire, LE16 7WB
T: 01858 455020

Nottingham
Waterfront House, Station Street, Nottingham NG2 3DQ
T: 0115 924 1100

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			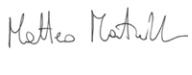		

Notice

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY	
Site Address	Former Butler Fuels Site, Farnham Road, Bishop's Stortford, CM23 1JB
Site Setting	The site is currently occupied by a disused oil storage depot located on Farnham Road, on the outskirts of Bishop Stortford. A small one storey office building is present in the north of the site, with fuel pumps and a gantry in the centre of the site and an above ground tank farm in the south of the site. Two 45,000 litre underground storage tanks (USTs) were indicated to be present in the south of the site. Bourne Brook is an ephemeral water course which flows along the northern and western site boundary following heavy rainfall events.
Site History	Historically, the site has remained undeveloped until the 1960s when a small building is mapped in the north of the site. From 1974 the site appears in its current layout with the office building in the north and tanks towards the south. A former quarry located 125m northeast has subsequently been used as a landfill site.
Published Ground Conditions	The site is underlain by superficial Head Deposits (clay, silt, sand and gravel). The underlying bedrock geology is indicated to comprise undifferentiated Lewes Nodular Chalk and Seaford Chalk Formations. The Head deposits are categorised by the Environment Agency as undifferentiated Secondary Aquifers. The underlying Chalk is classified as a Principal Aquifer. The site lies within a Zone 1 Source Protection Zone centred around a potable groundwater abstraction 890m southeast.
Site Investigation	Ground investigation has identified limited Made Ground (typically less than 0.5m) over cohesive Head Deposits proven to between 3.9m and 5.5m bgl, overlying chalk. Deeper Made Ground with abundant waste was identified in one location in the west of the site, possibly reflective of imported waste materials used to raise site levels. Groundwater levels were recorded between 4.63m and 5.9m bgl or 58.03m to 59.12m above ordnance datum (AOD), with flow tentatively indicated to flow in a northerly or easterly direction.
Ground Conditions Encountered	Ground investigation has identified limited Made Ground (typically less than 0.5m) over cohesive Head Deposits proven to between 3.9m and 5.5m bgl, overlying chalk. Deeper Made Ground with abundant waste was identified in one location in the west of the site, possibly reflective of imported waste materials used to raise site levels. Groundwater levels within the Principal Aquifer were recorded between 4.63m and 5.9m bgl or 58.03m to 59.12m above ordnance datum (AOD), with flow tentatively indicated to flow in a northerly or easterly direction.
This summary should be read in conjunction with BWB's full report (ref. BFFR-BWB-ZZ-XX-RP-YE-0003-BSCR) and reflects an assessment of the Site based on information received by BWB at the time of production.	

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1. INTRODUCTION

Instruction

1.1 BWB Consulting (BWB) was instructed by Oil Salvage Ltd (the Client) to produce a Baseline Site Condition Report for the site known as Butler Fuels, Farnham Road, Bishop's Stortford. Details of the project brief are included in BWB proposal reference 20200603/R3/0001/NTG2113/RTR/KES dated June 2020.

1.2 The Client owns the site and intends on utilising it as a waste oil transfer station. Therefore, a Baseline Site Condition Report is required to be submitted to the Environment Agency in order for the Client to gain an environmental permit for site in accordance with the Environmental Permitting (England and Wales) Regulations 2016 (EPR).

Objectives

1.3 The objectives of the Baseline Site Condition Report include the following:

- Confirm the environmental setting at the site, including the geology, hydrogeology and hydrology.
- To review existing site investigation and remediation information available for the site.

Scope of Works

1.4 The ground investigation scope of works had been completed between 18th and 19th June 2020 and comprised the following:

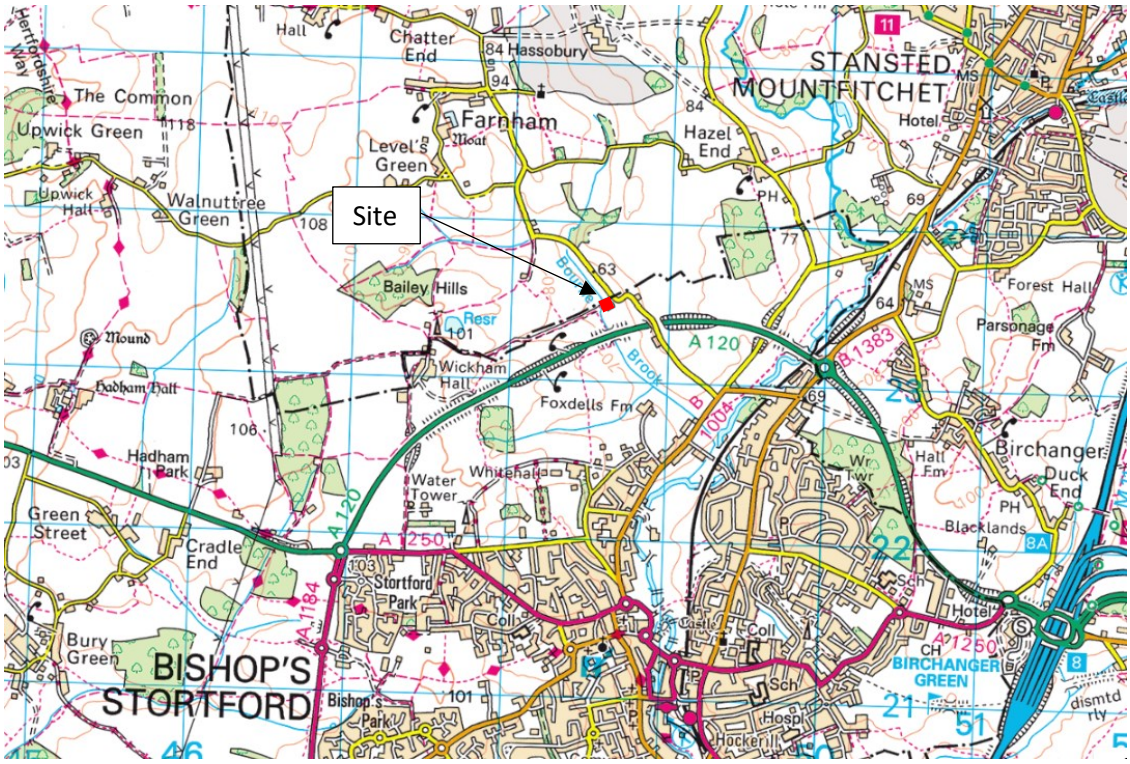
- Non-intrusive survey of excavation locations for underground utilities.
- Five dynamic sampler borehole to depths of between 7m and 8m below ground level (bgl).
- One hand pit to a depth of 0.8m.
- Five subsequent gas and groundwater monitoring visits.
- Chemical analysis of soils and groundwater.

2. THE SITE

Site Location

2.1 The site is located at Farnham Road, Bishops Stortford located at National Grid reference 548581 223459. The location of the site is shown in **Figure 2:1**.

Figure 2:1: Site Location Plan



2.2 A site walkover was completed on 10 June 2020 by BWB. The site comprised a disused oil storage depot located on the outskirts of Bishop Stortford. The site forms a roughly rectangular shaped plot of land and is relatively flat at an elevation of c. 64m above ordinance datum (AOD).

2.3 The entrance to the site is along the northern boundary off Farnham Road. A small one storey office building is present in the north of the site, with fuel pumps and a gantry in the centre of the site and an above ground tank farm in the south.

2.4 Two 45,000 litre underground storage tanks (USTs) were indicated to be present in the south of the site as indicated on a site drawing and presence of manhole covers. The above ground storage tank (AST) farm comprised seven 55,000 litre tanks utilised for kerosene, gas oil and diesel oil. A small brick bund was present around the base of the ASTs. A 2,500 litre kerosene heating oil tank was located along the northwestern boundary.

2.5 A two-stage interceptor drain was present along the western site boundary receiving drainage from both the AST bund and the refilling point under the gantry. The interceptor subsequently drained into the stream along the western boundary. At the

time of the ground investigation, shortly after a heavy rainfall event, the interceptor was noted to be inundated, with both chambers full and surface water pooling in the refilling point. It is not clear whether the interceptor drainage is damaged or simply inadequate to handle the volumes of surface water run off.

2.6 A septic tank was noted to be actively pumping treated sewage into Bourne Brook to the west.

2.7 The majority of the site was covered in hardstanding with small areas of soft landscaping present along the southern and eastern boundaries. Trees were present around the majority of the site boundary.

2.8 Water sampling pipework, oxygen release compounds and slow release socks were observed on site, indicating groundwater remedial works have been undertaken in the past. Several boreholes were noted during the walkover with a number present in clusters and of variable diameter suggesting varying uses. It was hypothesised that they had been used for initial ground investigation (50mm diameter well) and subsequent treatment (125mm wells). Groundwater levels were recorded at a number of locations during the walkover indicating resting groundwater levels to be between circa 5 and 6m below ground level (bgl).

2.9 Surrounding land use is largely agricultural, with Bourne Brook present along the western and northern boundary (c. 1-2m below the level of the site), and a storage facility/warehouse located to the east.

3. PUBLISHED GROUND CONDITIONS

Published Geology

3.1 BGS mapping indicates that the site is underlain by superficial Head Deposits (clay, silt, sand and gravel). The underlying bedrock geology is indicated to comprise undifferentiated Lewes Nodular Chalk and Seaford Chalk Formations.

3.2 BGS borehole logs mapped 100m south of the site recorded ground conditions to comprise head deposits to between 3.75m and 4.75m bgl overlying chalk. The Head deposits were recorded as soft to stiff silty sandy clay with increased gravels at depth. The thickness of Head deposits was reduced/ absent with increased distance from Bourne Brook.

3.3 Five pollution incidents are listed between 165m and 290m north east relating to tyres, metal waste, household waste and commercial waste indicated to have a minor impact on land quality. These are likely related to the landfill site.

Hydrogeology

3.4 The Head deposits are categorised by the Environment Agency as undifferentiated Secondary Aquifer. The underlying Chalk is classified as a Principal Aquifer.

3.5 The site lies within a Zone 1 Source Protection Zone (SPZ) – Inner Catchment. The inner catchment covers a large area of land extending to over 1.5km to the north east.

3.6 The nearest groundwater abstraction is listed 890m south east of the site and is for potable purposes. It is likely that this abstraction forms the centre of the SPZ.

3.7 A discharge consent is listed 360m south east issuing to groundwater relating to treated sewage effluent.

3.8 Groundwater strikes recorded in the historical off site BGS boreholes were recorded as seepages at between 8m and 8.3m.

Hydrology

3.9 The closest mapped surface water feature to the site is Bourne Brook which is present along the northern and western site boundaries. It is understood that Bourne Brook is an ephemeral water course which only flows following heavy rainfall (c. 10% of the year). Based on the anticipated depth to groundwater (c. 6m bgl), and the elevation of Bourne Brook (c. 2m below site level), it is considered that Bourne Brook is not in continuity with the groundwater in the Chalk Aquifer.

3.10 The site holds an active discharge consent issuing treated effluent into Bourne Brook. No further active discharge consents are listed as issuing into Bourne Brook within 500m of the site.

3.11 There are no other surface water receptors within 1km of the site.

Site History

On site

3.12 The site has remained undeveloped from the earliest mapping (1876) until 1950. From 1960, a small building is present in the north of the site. 1974 mapping shows the site in its current layout with the office building in the north and tanks towards the south.

Off site

3.13 The surrounding land use is largely agricultural from the earliest mapping with Bourne Brook immediately north and west of site, with Farnham Road 40m north and an old chalk pit 125m north east. 1921 plans indicate a building mapped immediately north east of the site, with the chalk pit to the north east no longer referred to as 'old'. Between 1950 and 1981, the chalk pit is expanding and is referred to as a Lime Quarry from the 1970s. The site immediately north east is described as a depot from 1974 plans, and the A120 is mapped 100m south from 1978.

3.14 Only from 2020 is the quarry to the north east described as The Old Lime Works.

Mining

3.15 The Groundsure Report confirmed that two former mines are present in close proximity to the site, Foxdells Chalk Pit, also known as The Old Lime Works and Stortford Lime Works, located between 160m and 270m north east of site adjacent to each other. These entries correlate with the quarrying observed in the historical mapping review.

3.16 There is no indication that mining has occurred at the site.

Landfill

3.17 The aforementioned opencast quarry sites have subsequently been utilised as a single landfill site covering both quarries, with the Groundsure Report indicating that the landfill was operational between 1950 and 1994, and handled inert waste.

3.18 According to a due diligence report provided by the Client, a separate landfill license listed in the same location handled waste streams including cement & similar bonded asbestos, inert/non-hazardous/non-toxic construction/demolition materials, hardcore and rubble, and non-hazardous waste.

3.19 Given the location, the landfill sites may represent a source of leachate and elevated ground gasses which could migrate towards the site.

Ground Gas

3.20 The site is not located in an area where naturally elevated Radon is indicated to occur, as less than 1% of properties are above the Action Level.

3.21 The nearby landfill site could possibly represent a source of ground gas, as could any contamination within the underlying soils and groundwater.

4. ENVIRONMENTAL GROUND INVESTIGATION

4.1 Intrusive ground investigation works were undertaken between 18th and 19th June 2020. Following clearance of the investigation locations from buried services, the investigation comprised the advancement of five dynamic sampler boreholes (DS01 – DS05) to depths of 7-8m with installations of gas and groundwater monitoring wells in the Principal Aquifer, the advancement of one hand excavated pit (DS06) to a depth of 0.8m bgl, collection of environmental soil and groundwater water samples for chemical analysis at a UKAS and MCERTS accredited laboratory. Collection of coordinates and elevations of exploratory hole locations (including historic boreholes) was also undertaken during the sitework.

4.2 An exploratory hole location plan is presented as **Drawing 1**. BWB exploratory hole records are presented as **Appendix 1** and the post investigation gas and groundwater monitoring data is presented as **Appendix 2**.

4.3 The site investigation works were carried out in general accordance with BS5930:2015 'Code of Practice for Site Investigations' and BS10175:2011 'Investigation of Potentially Contaminated Sites'. Investigation locations were situated around the USTs and ASTs as the primary source of contamination at the site, whilst also maintaining good coverage across the site.

Soil Chemical Analytical Strategy

4.4 Selected soil samples collected from exploratory hole locations were sent to i2 Analytical (UKAS and MCERTS accredited) for chemical analysis. The following chemical analytical testing was undertaken:

- Ten soil samples tested for a soil suite (BWB Standard Suite) comprising arsenic, barium, beryllium, water soluble boron, cadmium, chromium, hexavalent chromium, copper, lead, mercury, nickel, selenium, vanadium, zinc, water soluble sulphate (2:1 extract), total phenols, total cyanide, free cyanide, complex cyanide, fraction of organic carbon, pH, Polycyclic Aromatic Hydrocarbons (PAHs) (United States Environment Protection Agency priority 16 compounds) and Total Petroleum Hydrocarbons (TPH) C6-C40;
- Ten soil samples tested for TPH speciated to the UK Criteria Working Group (TPHCWG) aliphatic and aromatic compounds.
- Six soil samples for asbestos screening.
- Six soil samples for asbestos quantification.
- Two soil samples tested for a suite of common leachable contaminants, namely arsenic, barium, beryllium, water soluble boron, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, zinc, water soluble sulphate (2:1 extract), sulphate, total cyanide and pH.

4.5 The results of the soil chemical testing are presented as **Appendix 3**.

Monitoring of ground gas and groundwater conditions

4.6 BWB have undertaken five ground gas and groundwater monitoring visits, the initial two separated by one week during the 26th July and 3rd July 2020, within subsequent visits undertaken on 23/24 September 2020, 9/10 December 2020, and 28/29 June 2021.

4.7 Five of the historic boreholes were also utilised for groundwater sampling across the site. With the absence of any borehole logs for these locations, they have been labelled HBH1 – HBH5 as shown on **Drawing 1**.

4.8 Groundwater samples were obtained during all monitoring visits from within the Principal Aquifer. Samples were obtained using a bailer following the removal of 3 times the well volume of water during the first two visits. During the latter three visits, groundwater samples were obtained using low flow sampling techniques to obtain a more representative sample of the groundwater. The groundwater samples were sent to i2 Analytical (UKAS and MCERTS accredited) for the following suite of groundwater chemical testing:

- Ten water samples tested for arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, vanadium, zinc, conductivity, soluble sulphate, ammoniacal nitrogen, total phenols, total cyanide, pH, total organic carbon.
- Twenty water samples tested for PAHs (US EPA priority 16 compounds) and TPHCWG.

4.9 The latter three sampling visits were all scheduled for PAHs (US EPA priority 16 compounds) and TPHCWG.

4.10 The results of the water chemical testing are presented as **Appendix 4**. Water Quality Monitoring Parameter data sheets are presented in **Appendix 5**.

Limitations and Uncertainty

4.11 Accurate coordinates and ground level data could not be obtained for selected boreholes (DS02, DS04, HBH3 and HBH4) due to the presence of high trees interfering with GPS signal. Where this has occurred, coordinates have been estimated from online mapping websites, and ground levels estimated from topographical drawings.

4.12 DS06 encountered asbestos containing materials (ACMs) within the hand pit and was terminated for health and safety reasons. The arisings were dampened and reintroduced into the hole.

5. GROUND CONDITIONS ENCOUNTERED

Geological Summary

5.1 The ground conditions recorded confirmed the published geology comprising superficial Head Deposits and the underlying undifferentiated Lewes Nodular Chalk and Seaford Chalk Formations, with the addition of superficial Made Ground deposits.

5.2 The recorded ground conditions are summarised in **Table 5:1** below. Uncorrected SPT results collected from the borehole locations are presented on the exploratory hole records presented in **Appendix 1**.

Table 5:1 : Summary of Ground Conditions

Stratum	Top Depth (m)		Base Depth (m)		Thickness (m)	
	Min	Max	Min	Max	Min	Max
Made Ground	Ground Level		0.30	>0.80	0.30	>0.80
Head Deposits	0.30	0.45	3.90	5.50	3.60	5.10
Lewes Nodular Chalk Formation and Seaford Chalk Formation	3.90	5.50	>7.00	>8.00	>1.70	>4.10

Geological Descriptions

Made Ground

5.3 Made Ground was encountered within all exploratory holes with thicknesses ranging between 0.3m and >0.8m.

5.4 In the south of the site, Made Ground was relatively thin, predominantly comprising occasionally clayey gravelly sand. Concrete was encountered in DS01 (0.1m - 0.2m), DS02 (0 – 0.3m), DS04 (0 – 0.3m), DS05 (0 – 0.2m) and DS06 (0 – 0.08m).

5.5 Made Ground was only encountered in excess of 0.45m in one location; DS06, where it was recorded in excess of 0.8m. Under the concrete in this location there was sandy gravel over a layer of large concrete and brick boulders to a depth of 0.4m. Below this, the Made Ground was recorded as soft gravelly clay with inclusions (becoming abundant below 0.7m) of glass, wood, metal, fabric, rubber and possible ACMs.

Head Deposits

5.6 Head Deposits were recorded across the site, under the Made Ground (excluding DS06) to depths of between 3.9m and 5.5m bgl. The depth of the Head deposits was slightly increased in the southeast (DS02 and DS04), however, this is likely representative of the typically undulating topography of the surface of the underlying chalk.

5.7 The Head Deposits were commonly encountered as firm to stiff light brown clay typically with minor gravel, silt and sand fractions, over a very soft to firm greenish grey gravelly clay at between 3m and 3.5m bgl. At DS05, the initial light brown horizon was not

encountered, with greenish grey slightly gravelly clay present from 0.3m to 4.1m bgl. At DS04, the soft greenish grey clay was only present to 1.8m bgl, with varying bands of very soft to soft light brown, orangish brown and greyish brown gravelly clay recorded to 5.3m bgl.

5.8 At the boundary with the underlying chalk, the Head Deposits were occasionally recorded as soft pale brown gravelly clay (DS02), or a light brown clayey sandy gravel (DS04).

Lewes Nodular Chalk Formation and Seaford Chalk Formation

5.9 The chalk was encountered underlying the Head Deposits in all borehole locations and was described as white gravelly putty chalk with occasional grey staining. Gravels were recorded as subangular chalk and rounded to angular flint.

5.10 The chalk was proven to depths in excess of 8m bgl.

Hydrogeology

5.11 During the ground investigation, groundwater strikes were not readily observable due to the drilling techniques. During the initial two post investigation monitoring visits, groundwater levels were recorded between 4.63m and 5.9m bgl or 58.03m to 59.12m AOD within the Principal Aquifer.

5.12 Groundwater recharge rates were noted to be relatively poor during the groundwater sampling, with the majority of monitoring wells bailed dry and allowed to recharge prior to sampling.

5.13 Due to the difficulties encountered with obtaining accurate coordinates and ground levels across much of the site, only a limited number of data points were able to be used. Groundwater levels from DS03, DS05, HBH1 and HBH2 were used to infer the groundwater flow direction, with the indicative flow indicated to be to the north and east over the two monitoring visits. Considering the limited data points the flow direction is considered to be an estimate at this stage.

Hydrology

5.14 The levels of Bourne Brook were not measured; however, they were noted to be between 1m and 2m below the levels of the site. The brook was noted to be dry during the site walkover but flowing following heavy rainfall during the ground investigation. Based on the groundwater levels recorded the groundwater is not considered to be in continuity with water flow within Bourne Brook.

5.15 As discussed in the site walkover section, the outflow from the interceptor drain and the septic tank feed directly into Bourne Brook. Based on the drainage plans, it is likely that all surface water drainage feeds into the Brook, whether it is via standard drainage, the interceptor, or infiltrating through soft landscaping and migrating laterally across the top of the Head Deposits.

Contamination Observations During Intrusive Investigations

5.16 A summary of the contamination observations and volatile vapour concentrations recorded using a photo ionisation detector (PID) (calibrated against isobutylene) noted during the intrusive investigation works are summarised in **Table 5:2** below.

Table 5:2: Summary of Contamination Observations

Location	Depth (m bgl)	Observations	PID Concentration (ppm)
DS01	3.5 – 4.3	Hydrocarbon odour	183
	4.3 – 5.0	Mild hydrocarbon odour and grey staining	20
	5.0 – 6.0	Mild hydrocarbon odour with less grey staining	-
	6.0 -8.0	Strong hydrocarbon odour	289
DS02	3.5 – 3.9	Hydrocarbon odour	132
	4.9 – 5.1	Grey staining and hydrocarbon odour	-
	5.3 – 6.0	Grey staining and hydrocarbon odour	16.1
	6.0 - 7.0	Faint hydrocarbon odour	345
DS03	3.0 – 3.9	Hydrocarbon odour	125
	3.9 – 8.0	Grey staining and mild hydrocarbon odour	17.7 at 4.5m 236 at 7.5m
DS04	3.3 – 4.0	Hydrocarbon odour and black staining at 3.9 – 4.0m	0
	4.3 – 4.4	Black staining	1
	5.5 – 8.0	Grey staining and hydrocarbon odour. Strong hydrocarbon odour below 6.0m	363
DS05	2.0 – 2.5	Faint hydrocarbon odour	253 at 2.5m 411 at 4.2m
	2.5 – 4.1	Hydrocarbon odour	
	4.6 – 8.0	Hydrocarbon odour and occasional grey staining	114
DS06	0.5	Made Ground with inclusion of waste	8.6
	0.8	Made Ground with abundant inclusion of waste	14.2

5.17 The observations identified hydrocarbon contamination roughly at the interface between the Head Deposits and underlying Chalk, with increased contamination odours and PID readings noted below 6m, associated with impact in the groundwater.

Observations during monitoring visits

5.18 During the initial two monitoring visits, the oil/water interface metre was inconsistent at recording light non-aqueous phase liquids (LNAPL), also referred to as free phase product, within each monitoring well. This can be caused following the introduction of an oxygen releasing compound into the groundwater which can emulsify the free

phase contamination and affect the readings. Due to the issues with the interface meter, the product thicknesses were also measured by the observed thicknesses within the bailer. A summary of the LNAPL thicknesses is presented in **Table 5:3**.

Table 5:3: Summary of LNAPL Observations

Location	LNAPL - Interphase meter readings (mm)					LNAPL – Bailer Observations (mm)				
	GW1	GW2	GW3	GW4	GW5	GW1	GW2	GW3	GW4	GW5
DS01	NR	<10	NR	30	10	700	400*	NR	30	10
DS02	NR	70	NR	110	NR	100	100*	NR	110*	10*
DS03	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
DS04	310	10	NR	160	NR	NR	160	NR	160*	30
DS05	NR	60	NR	110	70	NR	50	NR	120*	70*
HBH1	10	NR	NR	NR	NR	NR	NR	NR	NR	NR
HBH2	NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
HBH3	NR	<10	NR	10	10	30	50	NR	10	10
HBH4	<10	NR	NR	NR	NR	NR	NR	NR	NR	NR
HBH5	10	NR	NR	NR	NR	NR	NR	NR	NR	NR

NR = None recorded. * Does not include foamy emulsion between LNAPL and groundwater.

6. GROUNDWATER AND GAS MONITORING VISITS

Ground Gas Monitoring Results

6.1 Ground gas monitoring has been undertaken during the first two visits to assess the risks associated with ground gases and volatile vapours to new buildings and their occupants. As the monitoring programme targeted mainly groundwater, gas concentrations associated with shallow deposits (principally Made ground) have not been assessed, although no significant organic matter has been identified at shallow depth that would suggest shallow soils would give rise to a significant gas generation concern.

6.2 The concentrations recorded for borehole flow, oxygen, carbon dioxide and methane are summarised below in **Table 6:1**. The full ground gas monitoring results are presented in **Appendix 2**.

Table 6:1: Summary of Recorded Ground Gas Results

Borehole ID	Targeted Geology	Steady Flow (l/hr)		Carbon Dioxide (%v/v)		Methane (%v/v)	
		min.	max.	min.	max.	min.	max.
DS01	Chalk	<0.1	<0.1	13.9	14.3	4.3	5.3
DS02		<0.1	<0.1	6.3	9.9	8.9	18.4
DS03		<0.1	<0.1	7.3	14.4	<0.1	<0.1
DS04		<0.1	<0.1	2.0	5.3	27.7	42.0
DS05		<0.1	<0.1	4.0	13.9	13.7	41.8

6.3 The atmospheric pressures were recorded at 1004mB and 1007mB, with regional trends over the previous 12 hours indicated to have been falling.

6.4 Hydrogen sulphide concentrations were not recorded above the limit of detection of the equipment during the monitoring visits. Carbon monoxide concentrations were recorded at a maximum of 33ppm during the first visit, and 10ppm during the second visits.

6.5 PID concentrations were recorded between <0.4ppm and a maximum of 125ppm in DS01 during the second monitoring visit.

Soil Contaminant Distribution

6.6 The soil chemical laboratory results are presented as **Appendix 3**.

Made Ground

6.7 Generally low levels of heavy metals were recorded in the Made Ground, with concentrations all appearing in a similar order of magnitude. Slightly elevated lead was recorded at DS02 (890mg/kg at 0.4m), DS05 (410mg/kg at 0.25m), and DS06 (420mg/kg – 0.8m), with marginally elevated copper (870mg/kg) and zinc (1,900mg/kg) at DS06 (0.8m).

6.8 Slightly elevated Total TPH was recorded at DS03 (580mg/kg at 0.2m) and DS06 (1,200mg/kg at 0.8m). Elevated Total PAH was recorded in most Made Ground samples with a maximum of 105mg/kg recorded at DS02 (0.4m).

6.9 Asbestos has been recorded in all six samples of Made Ground tested, the results are summarised in **Table 6:2**. Across much of the site, the quantity of asbestos is either below, or around, the limit of detection (<0.001%), however, two types of asbestos have been recorded in the Made Ground at DS06 constituting nearly 10% of the material analysed.

Table 6:2: Asbestos Testing Results

Location	Depth	Asbestos Type	Asbestos Quantification (%)
DS02	0.40	Chrysotile - Hard/Cement Type Material & Loose Fibres	0.002
DS03	0.20	Amosite - Loose Fibres	< 0.001
DS01	0.30	Chrysotile - Loose Fibrous Debris	0.006
DS06	0.50	Chrysotile & Amosite - Loose Fibres	< 0.001
DS06	0.80	Chrysotile & Crocidolite - Hard/Cement Type Material & Insulation Board/Tile	9.85
DS05	0.25	Chrysotile - Loose Fibres	< 0.001

6.10 Leachate analysis was undertaken on the Made Ground samples obtained from DS06. Results are presented in Appendix 3, with a summary of the recorded concentrations is presented in **Table 6:3**.

Table 6:3: Summary of Leachate Exceedances

Contaminant	Range of Concentrations
Copper	5.9 – 6.8
Lead	2.9 – 6.0
Nickel	1.5 – 5.0
Zinc	19.0 – 56.0

Natural Soils

6.11 Eight samples from the Head Deposits and three from the chalk were scheduled for analysis. Low concentrations of heavy metals were recorded in both strata, at a similar order of magnitude.

6.12 Slightly elevated total TPH was recorded in several locations, with only one sample where total TPH was recorded above 500mg/kg (790mg/kg at 4.2m in DS05). Relatively low concentrations of speciated TPH were recorded in the natural soils, with a maximum Aliphatic C5-35 of 600mg/kg (4.2m in DS05) and Aromatic C5-35 of 460mg/kg (DS01 at 3.9m), both within the Head Deposits. The TPH fractions were both short and long chain, with Aliphatic in the C6-35 range and Aromatic in the C8-35 range. TPH concentrations in the chalk were noted to be either below the limits of detection, or marginally above them.

6.13 Concentrations of ethylbenzene (16µg/kg) and xylene (75µg/kg) were recorded at 5.9m in DS02, located immediately adjacent to the USTs.

6.14 PAH concentrations within the natural soils were all below the limits of detection

Groundwater

6.15 Five rounds of groundwater sampling have been undertaken at the site. Some tests could not be conducted due to the presence of trace concentrations of LNAPL within the samples interfering with the analysis process. These test results are labelled US on the lab report (**Appendix 4**).

6.16 Low concentrations of heavy metals were recorded during the first round of groundwater sampling. Marginally elevated localised arsenic (max 43.1µgl at HBH1), nickel (max 120µgl at HBH3) and zinc (max 15µgl at DS05) concentrations were recorded. Heavy metal analysis was not conducted after the first monitoring visit.

6.17 Elevated Total PAH has been recorded in the groundwater samples also, with the most significant impact recorded in recently installed BWB wells (DS01 to DS05) (**Table 6:4**). Speciated analysis indicates that naphthalene, fluorene and phenanthrene are more elevated than the other PAH compounds.

Table 6:4: Summary of Groundwater Chemical Testing Results – Total PAH

Location	Total PAH (µg/l)				
	Rd 1	Rd 2	Rd 3	Rd 4	Rd 5
DS01	6,370	1,080	22.1	5.63	48.3
DS02	5,430	250	84	158	114
DS03	233	2320	1,970	4.97	26.9
DS04	112	215,000	68.1	23.9	133
DS05	2,120	6,810	2,060	185	137
HBH1	286	44.3	33.6	18.3	16.8
HBH2	16.1	10.2	< 0.16	2.41	1.16
HBH3	96.4	3210	68.6	20.9	28.1
HBH4	201	36.0	22.2	210	483
HBH5	22.4	456	22.6	8.47	7.87

6.18 Significantly elevated hydrocarbons and BTEX have been recorded in the groundwater with a summary of TPH concentrations presented in **Table 6:5** and BTEX presented in **Table 6:6**.

Table 6:5: Summary of Groundwater Chemical Testing Results - TPH

Location	Round 1 (mg/l)		Round 2 (mg/l)		Round 3 (mg/l)		Round 4 (mg/l)		Round 5 (mg/l)	
	Aliphatics C5-35	Aromatics C5-35	Aliphatics C5-35	Aromatics C5-35	Aliphatics C5-35	Aromatics C5-35	Aliphatics C5-35	Aromatics C5-35	Aliphatics C5-35	Aromatics C5-35
DS01	15,000	3,400	200	78	12	5.1	<0.01	2.7	100	16
DS02	180,000	49,000	260	100	11	6.6	160	150	68	9.4
DS03	25	7.3	190	100	4,200	1,200	<0.01	5	32	7.8
DS04	1,000	110	99,000	34,000	61	21	3	3.9	100	38
DS05	390	170	860	420	1,400	660	110	120	85	21
HBH1	22	5	17	8.4	7.4	5.7	53	54	50	10
HBH2	19	6	23	12	0.55	0.75	0.85	1.2	1.5	0.45
HBH3	38	11	190	99	2	2.3	1.9	5.4	8.2	4
HBH4	130	56	51	12	2.6	2.4	650	190	430	50
HBH5	11	2.9	88	38	5.1	4.1	14	9.2	3.2	2.4

Table 6:6: Summary of Groundwater Chemical Testing Results - BTEX

Location	Benzene (µg/l)					Toluene (µg/l)					Ethylbenzene (µg/l)					Xylene (µg/l)				
	Rd 1	Rd 2	Rd 3	Rd 4	Rd 5	Rd 1	Rd 2	Rd 3	Rd 4	Rd 5	Rd 1	Rd 2	Rd 3	Rd 4	Rd 5	Rd 1	Rd 2	Rd 3	Rd 4	Rd 5
DS01	< 1.0	< 1.0	4.4	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	387	< 1.0	<1.0	2.1	1,240	1540	44.6	<1.0	6.3
DS02	578	< 1.0	42.6	<1.0	< 1.0	< 1.0	< 1.0	9.9	<1.0	< 1.0	22,000	2,600	16.4	<1.0	< 1.0	37,700	5,640	739	66.5	71.2
DS03	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0
DS04	< 1.0	927	5.3	<1.0	< 1.0	< 1.0	2,220	< 1.0	<1.0	< 1.0	4,350	24,000	78.9	<1.0	< 1.0	19,340	50,400	760.9	<1.0	300.8
DS05	48.2	< 1.0	130	67.6	90.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	99.8	228	<1.0	< 1.0	< 1.0	260	71.6	18.1	32.2
HBH1	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	7.4	<1.0	5.0	< 1.0	< 1.0	12.5	<1.0	8.1
HBH2	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	<1.0
HBH3	55.1	70.7	112	27.8	54.3	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	14	187	8.8	<1.0	< 1.0	96.5	820	98.4	9.2	14.2
HBH4	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0
HBH5	< 1.0	< 1.0	11.2	1.5	< 1.0	< 1.0	< 1.0	< 1.0	1.5	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0	< 1.0	< 1.0	< 1.0	<1.0	< 1.0

6.19 The most significant hydrocarbon impact has been observed within the newly installed boreholes, with lower concentrations recorded in the historic boreholes.

7. CONCLUSIONS

7.1 The site is currently occupied by a disused oil storage depot located on Farnham Road, on the outskirts of Bishop Stortford. A small one storey office building is present in the north of the site, with fuel pumps and a gantry in the centre of the site and a tank farm in the south of the site. Two 45,000 litre underground storage tanks (USTs) were indicated to be present in the south of the site. Bourne Brook is an ephemeral water course which flows along the northern and western site boundary following heavy rainfall events.

7.2 The site is underlain by superficial Head Deposits (clay, silt, sand and gravel). The underlying bedrock geology is indicated to comprise undifferentiated Lewes Nodular Chalk and Seaford Chalk Formations. The Head deposits are categorised by the Environment Agency as undifferentiated Secondary Aquifers. The underlying Chalk is classified as a Principal Aquifer. The site lies within a Zone 1 Source Protection Zone centred around a potable groundwater abstraction 890m southeast.

7.3 Historically, the site has remained undeveloped until the 1960s when a small building is mapped in the north of the site. From 1974 site appears in its current layout with the office building in the north and tanks towards the south. A former quarry located 125m northeast has subsequently been used as a landfill site.

7.4 Ground investigation has identified limited Made Ground (typically less than 0.5m) over cohesive Head Deposits proven to between 3.9m and 5.5m bgl, overlying chalk. Deeper Made Ground with abundant waste was identified in one location in the west of the site, possibly reflective of imported waste materials used to raise site levels. Groundwater levels were recorded between 4.63m and 5.9m bgl or 58.03m to 59.12m AOD.

7.5 Preliminary gas monitoring has recorded elevated carbon dioxide, methane and VOC vapours at the site, emanating from the contaminated soils and groundwater at concentrations which represent a risk to future site users.

7.6 Contaminant levels within the soils are not indicated to represent a risk to future site users in the context of a commercial end use. However, asbestos has been recorded in all Made Ground samples.

7.7 Relatively low leachate concentrations in the Made Ground have been recorded.

7.8 High concentrations of hydrocarbons and LNAPL have been recorded in the groundwater,

8. REFERENCES

1. British Standards Institution, (BSI), BS 8485:2015, Code of Practice for the characterization and remediation from ground gas in affected developments

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5. British Standards Institution, (BSI), BS EN 1997-2:2007 Incorporating corrigendum June 2010, Eurocode 7 – Geotechnical Design – Part 2: Ground Investigation and testing.

6. Building Research Establishment Special Digest 1 *Third Edition*. Concrete in Aggressive Ground (2005)

7. Construction Industry Research and Information Association (CIRIA). 2007, Report C665, Assessing Risk Posed by on Hazardous Ground Gases to Buildings

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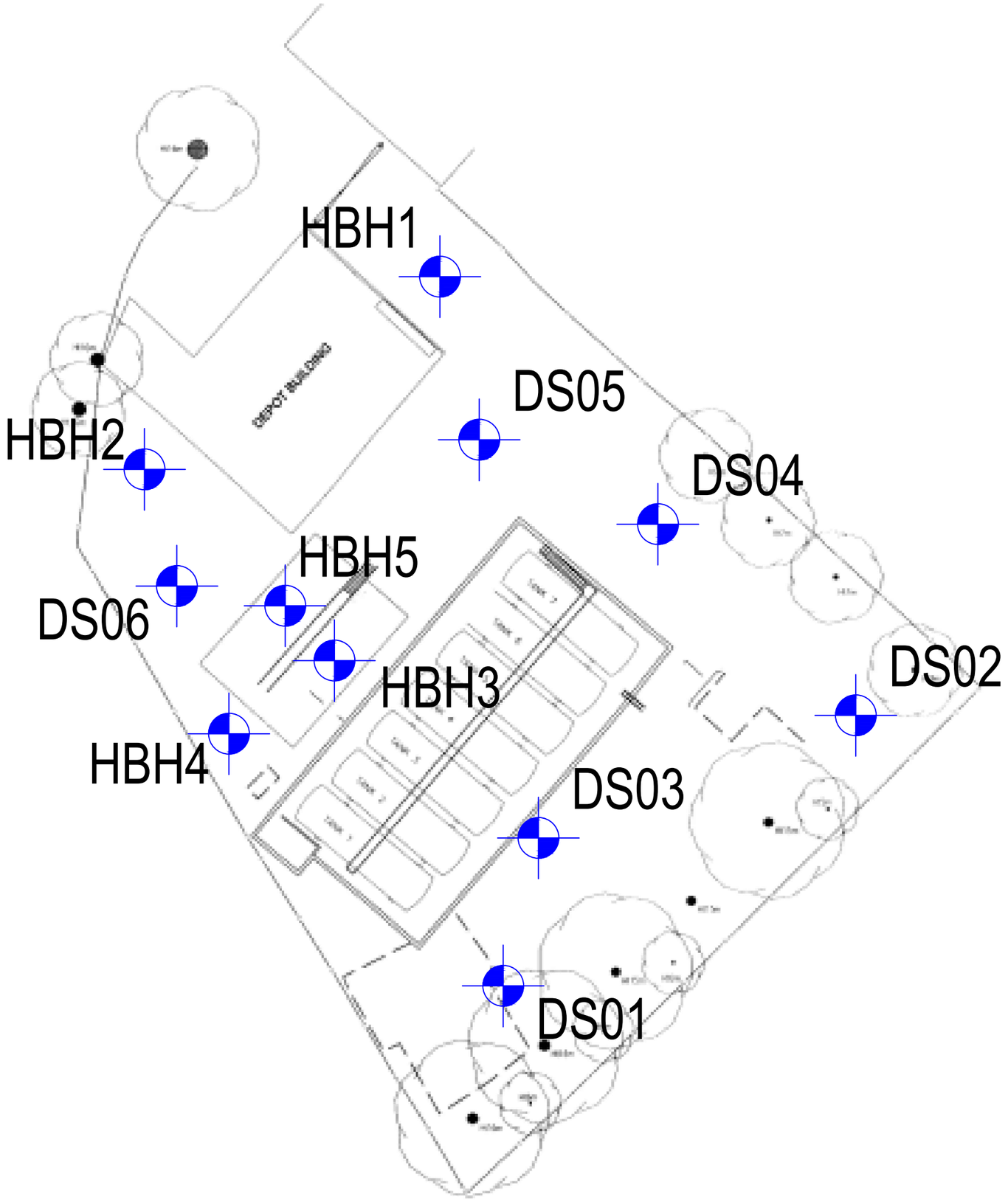
11. Environment Agency 2008, Human health toxicological assessment of contaminants in soil Science Report – SC050021/SR2

12. Environment Agency, 2006, Remedial Targets Methodology, Hydrogeological Risk Assessment for Land Contamination

13. Health and Safety Executive (HSE) 'Protection of workers and the general public during the Development of Contaminated Land (1991).

DRAWINGS

Drawing 1: Exploratory Hole Location Plan



Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Key Plan

Legend

Rev	Date	Details of issue / revision	Drw	Rev

Issues & Revisions

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Client
Oil Salvage Ltd

Project Title
Farnham Road, Bishop's Stortford

Drawing Title
Indicative Exploratory Hole Location Plan

Drawn:	CR		Reviewed:	
BWB Ref:	NTG2113	Date:	July 2020	Scale@A3: NTS

Drawing Status
Final

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
BFFR-BWB-ZZ-XX-DR-YE-0001	S1	P1

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APPENDICES

Appendix 1: Exploratory Hole Logs

BOREHOLE LOG

Scale 1:50 Sheet 1 of 1

LOCATION ID					
DS01	**Project Name:** Butler Fuels, Farnham Road			**Ground Level (m AOD):**	63.90
	Project Number: NTG2113			**Eastings:**	548584.70
	Client: Oil Salvage Ltd			**Northings:**	223425.61
Hole Type: WLS	**Rig:** Premier 110	**Start & End Date:**	18/06/2020	**Engineer:** CR	**Checker:**

Boring		Strata				Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & (Thickness (m))	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
		[0.10]	Brown gravelly SAND with frequent rootlets.		0.10							
		63.80 [0.10]	(Made Ground)		0.20	ES7	0.30	0.30	PID	0.30	0ppm	
		63.70 [0.20]	Weak concrete.		0.40							
		63.50 [3.10]	(Made Ground)									
			Brown gravelly SAND. Gravel is fine to coarse angular to rounded quartzite flint, and brick. (Made Ground)									
			Stiff light brown slightly gravelly slightly silty CLAY with low cobble content. Gravel is fine to coarse angular to rounded flint and chalk. (Head Deposits)									
			Slightly sandy at 2.8 - 3.0m.									
		60.40 [0.80]	Soft to firm greenish grey gravelly CLAY. Gravel is fine to coarse angular to rounded flint and quartzite. Hydrocarbon odour. (Head Deposits)		3.50	ES8	3.90	3.90	PID	3.90	183ppm	
		59.60 [3.70]	White gravelly putty chalk with grey staining and mild hydrocarbon odour. Gravel is fine to coarse subangular to rounded chalk and flint. (Lewes Nodular Chalk Formation And Seaford Chalk Formation)		4.30	ES9	4.90	4.90	PID	4.90	20ppm	
			Less staining below 5.0m.									
			Strong hydrocarbon odour below 6m.									
						D3	7.60	7.60	PID	7.60	289ppm	
		55.90	Hole Terminated at 8.00m bgl.		8.00							

Chiseling		
From (m bgl)	To (m bgl)	Time (hh:mm)

Water Added		
From (m bgl)	To (m bgl)	Volume (l)

Remarks

Reason for Termination:

Terminated at target depth.

Groundwater Remarks:

No groundwater encountered.

Other Remarks:

1. Borehole installed with 50mm HDPE pipe, rubber bung, gas tap and flush cover. 2. Hydrocarbon contamination encountered in Chalk and directly overlying Head Deposits. 3. Coordinates and ground level could not be obtained and estimated from plans.

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BOREHOLE LOG

Scale 1:50 Sheet 1 of 1

LOCATION ID					
DS02	**Project Name:** Butler Fuels, Farnham Road			**Ground Level (m AOD):**	63.80
	Project Number: NTG2113			**Eastings:**	548614.00
	Client: Oil Salvage Ltd			**Northings:**	223441.00
Hole Type: WLS	**Rig:** Premier 110	**Start & End Date:**	18/06/2020	**Engineer:** CR	**Checker:**

Boring		Strata				Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
		[0.20]	Concrete.		0.20							
		63.60 [0.10]	(Made Ground)		0.30							
		63.50 [0.15]	Weak concrete.		0.45	ES1	0.40	0.40	PID	0.40	0.3ppm	
		63.35 [3.05]	(Made Ground)									
			Light brown slightly clayey gravelly SAND. Gravel is fine to coarse angular to rounded brick, concrete, quartzite, flint and chalk. Occasional inclusion of metal and possible ACM. (Made Ground)									
			Stiff friable light brown slightly gravelly slightly sandy CLAY. Gravel is fine angular chalk. Occasional carbonaceous flecks. (Head Deposits)									
			Slightly gravelly from 2.0m. Gravel is fine to coarse angular to rounded flint.									
		60.30 [0.40]	Soft to firm greenish grey gravelly CLAY. Gravel is fine to coarse angular to rounded flint and quartzite. Hydrocarbon odour. (Head Deposits)		3.50	ES2	3.70	3.70	PID	3.70	132ppm	
		59.90 [1.40]	Soft to firm pale brown gravelly CLAY. Gravel is fine to coarse subangular to angular chalk and occasional flint. (Head Deposits)		3.90							
			Grey staining and hydrocarbon odour at 4.9 - 5.1m.									
		58.50 [1.70]	White putty chalk with grey staining and hydrocarbon odour. (Lewes Nodular Chalk Formation And Seaford Chalk Formation)		5.30	ES3	5.90	5.90	PID	5.90	16.1ppm	
			Faint hydrocarbon odour below 6.0m.									
		56.80	Hole Terminated at 7.00m bgl.		7.00	D1	6.90	6.90	PID	6.90	345ppm	

Chiseling		
From (m bgl)	To (m bgl)	Time (hh:mm)

Water Added		
From (m bgl)	To (m bgl)	Volume (l)

Remarks

Reason for Termination:

Terminated at target depth.

Groundwater Remarks:

No groundwater encountered.

Other Remarks:

1. Borehole installed with 50mm HDPE pipe, rubber bung, gas tap and flush cover. 2. Hydrocarbon contamination encountered in Chalk and directly overlying Head Deposits. 3. Coordinates and ground level could not be obtained and estimated from plans.

BWB CONSULTANCY | ENVIRONMENT INFRASTRUCTURE | BUILDINGS

BOREHOLE LOG

Scale 1:50 Sheet 1 of 1

LOCATION ID					
DS03	**Project Name:** Butler Fuels, Farnham Road			**Ground Level (m AOD):**	64.02
	Project Number: NTG2113			**Eastings:**	548588.45
	Client: Oil Salvage Ltd			**Northings:**	223435.22
Hole Type: WLS	**Rig:** Premier 110	**Start & End Date:**	18/06/2020	**Engineer:** CR	**Checker:**

Boring		Strata				Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
		[0.10]	Dark brown sandy GRAVEL. Gravel is fine to coarse angular to rounded quartzite and flint. (Made Ground)		0.10	ES4	0.20	0.20	PID	0.20	4ppm	
		63.92 [0.20]			0.30							
		63.72 [0.30]	Light brown slightly clayey sandy GRAVEL. Gravel is fine to coarse angular to rounded quartzite, flint, brick, concrete and limestone. (Made Ground)		0.60							
		63.42 [2.40]	Firm to stiff friable brown slightly silty CLAY. (Head Deposits)									
			Firm to stiff friable light brown slightly silty slightly gravelly CLAY. Gravel is fine to coarse angular to subangular flint. Low cobble content of flint. (Head Deposits)									
		61.02 [0.90]	Firm greenish greyish brown slightly gravelly CLAY. Gravel is fine to coarse angular to subangular flint. Low cobble content of flint. Hydrocarbon odour. (Head Deposits)		3.00	ES5	3.50	3.50	PID	3.50	125ppm	
		60.12 [4.10]	White gravelly putty chalk with grey staining and mild hydrocarbon odour. Gravel is fine to coarse subangular to rounded chalk and flint. (Lewes Nodular Chalk Formation And Seaford Chalk Formation)		3.90	ES6	4.50	4.50	PID	4.50	17.7ppm	
						D2	7.50	7.50	PID	7.50	236ppm	
		56.02	Hole Terminated at 8.00m bgl.		8.00							

Chiseling		
From (m bgl)	To (m bgl)	Time (hh:mm)

Water Added		
From (m bgl)	To (m bgl)	Volume (l)

Remarks

Reason for Termination:

Terminated at target depth.

Groundwater Remarks:

No groundwater encountered.

Other Remarks:

1. Borehole installed with 50mm HDPE pipe, rubber bung, gas tap and flush cover. 2. Hydrocarbon contamination encountered in Chalk and directly overlying Head Deposits.

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BOREHOLE LOG

Scale 1:50 Sheet 1 of 1

LOCATION ID					
DS04	**Project Name:** Butler Fuels, Farnham Road			**Ground Level (m AOD):**	63.75
	Project Number: NTG2113			**Eastings:**	548601.00
	Client: Oil Salvage Ltd			**Northings:**	223454.00
Hole Type: WLS	**Rig:** Premier 110	**Start & End Date:**	19/06/2020	**Engineer:** CR	**Checker:**

Boring		Strata				Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
		[0.30]	Reinforced concrete.									
		63.45 [0.10]	(Made Ground)		0.30							
		63.35 [1.40]	Light brown and dark grey sandy GRAVEL. Gravel is fine to coarse angular to rounded flint, brick and quartzite. (Made Ground)		0.40							
			Soft greenish greyish brown silty CLAY. (Head Deposits)			ES10	1.50	1.50	PID	1.50	1ppm	
		61.95 [0.90]	Soft light brown gravelly CLAY. Gravel is fine to coarse angular to rounded flint. (Head Deposits)		1.80							
		61.05 [0.60]	Very soft orangish brown and white gravelly CLAY with low cobble content. Gravel is fine to coarse angular to rounded flint and chalk. (Head Deposits)		2.70							
		60.45 [0.70]	Very soft greyish brown gravelly CLAY. Gravel is fine to coarse angular to rounded flint. Hydrocarbon odour. (Head Deposits)		3.30	ES11	3.50	3.50	PID	3.50	0ppm	
			Very gravelly and black stained at 3.9 - 4.0m									
		59.75 [1.30]	Soft light brown slightly sandy very gravelly CLAY. Gravel is fine to coarse angular flint and chalk. (Head Deposits)		4.00	ES12	4.30	4.40	PID	4.30	1ppm	
			Black staining in sandy clayey gravel band at 4.3 - 4.4m.									
		58.45 [0.20]	Light brown clayey sandy GRAVEL. Gravel is fine to coarse angular to rounded chalk and flint. (Head Deposits)		5.30							
		58.25 [2.50]	White gravelly putty chalk with grey staining and hydrocarbon odour. Gravel is fine to coarse subangular to rounded chalk and flint. (Lewes Nodular Chalk Formation And Seaford Chalk Formation)		5.50							
			Strong hydrocarbon odour below 6m.			D4	7.50	7.50	PID	7.50	363ppm	
		55.75	Hole Terminated at 8.00m bgl.		8.00							

Chiseling		
From (m bgl)	To (m bgl)	Time (hh:mm)

Water Added		
From (m bgl)	To (m bgl)	Volume (l)

Remarks

Reason for Termination:

Terminated at target depth.

Groundwater Remarks:

No groundwater encountered.

Other Remarks:

1. Borehole installed with 50mm HDPE pipe, rubber bung, gas tap and flush cover. 2. Hydrocarbon contamination encountered in Chalk and directly overlying Head Deposits. 3. Coordinates and ground level could not be obtained and estimated from plans.

BWB CONSULTANCY | ENVIRONMENT INFRASTRUCTURE | BUILDINGS

BOREHOLE LOG

Scale 1:50 Sheet 1 of 1

LOCATION ID					
DS05	**Project Name:** Butler Fuels, Farnham Road			**Ground Level (m AOD):**	63.83
	Project Number: NTG2113			**Eastings:**	548583.70
	Client: Oil Salvage Ltd			**Northings:**	223458.10
Hole Type: WLS	**Rig:** Premier 110	**Start & End Date:**	19/06/2020	**Engineer:** CR	**Checker:**

Boring		Strata				Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
		[0.20]	Concrete.		0.20							
		63.63 [0.10]	(Made Ground)		0.30	ES15	0.25	0.25	PID	0.25	5.6ppm	
		63.53 [2.20]	Black clayey GRAVEL. Gravel is fine to coarse angular to rounded brick and flint. (Made Ground)									
			Soft greenish grey slightly gravelly CLAY. Gravel is fine to coarse angular to rounded flint and chalk. (Head Deposits)									
			Grey speckled to 0.5m.									
			Faint hydrocarbon odour from 2.0m.									
		61.33 [1.60]	Soft to firm greenish grey very gravelly CLAY with hydrocarbon odour. (Head Deposits)		2.50	ES16	2.50	2.50	PID	2.50	253ppm	
			Gravelly below 3.5m.									
		59.73 [0.50]	Very soft greyish brown, grey and white very gravelly CLAY. Gravel is fine to coarse angular to rounded flint and chalk. (Head Deposits)		4.10	ES17	4.20	4.20	PID	4.20	411ppm	
		59.23 [3.40]	White gravelly putty chalk with occasional grey staining and hydrocarbon odour throughout. Gravel is fine to coarse subangular to rounded chalk and flint. (Lewes Nodular Chalk Formation And Seaford Chalk Formation)		4.60							
			Very gravelly from 4.8 - 4.9m.									
			White below 5.5m.									
			White mottled pale brown from 7.0m.									
						D5	7.80	7.80	PID	7.80	114ppm	
		55.83	Hole Terminated at 8.00m bgl.		8.00							

Chiseling		
From (m bgl)	To (m bgl)	Time (hh:mm)

Water Added		
From (m bgl)	To (m bgl)	Volume (l)

Remarks

Reason for Termination:

Terminated at target depth.

Groundwater Remarks:

No groundwater encountered.

Other Remarks:

1. Borehole installed with 50mm HDPE pipe, rubber bung, gas tap and flush cover. 2. Hydrocarbon contamination encountered in Chalk and directly overlying Head Deposits.

BWB CONSULTANCY | ENVIRONMENT INFRASTRUCTURE | BUILDINGS

BOREHOLE LOG

Scale 1:50 Sheet 1 of 1

LOCATION ID					
DS06	**Project Name:** Butler Fuels, Farnham Road			**Ground Level (m AOD):**	63.68
	Project Number: NTG2113			**Eastings:**	548566.69
	Client: Oil Salvage Ltd			**Northings:**	223451.13
Hole Type: WLS	**Rig:** Premier 110	**Start & End Date:**	19/06/2020	**Engineer:** CR	**Checker:**

Boring		Strata			Samples			In-Situ Tests			
Strike	Well	Level (m AOD) & [Thickness (m)]	Description	Legend	Depth (m bgl)	Type (Ublows)	From (m)	To (m)	Type	Depth (m)	Result	Casing Depth & (Water Level)
		[0.08] 63.60	Concrete. (Made Ground)		0.08							
		[0.22] 63.38	Light brown and greyish brown sandy GRAVEL, Gravel is fine to coarse angular to rounded flint, quartzite and chalk. (Made Ground)		0.30							
		[0.10] 63.28			0.40	ES13	0.50	0.50	PID	0.50	8.6ppm	
		[0.30] 62.98	Boulders of concrete and brick. (Made Ground)		0.70							
		[0.10] 62.88	Soft greyish brown gravelly CLAY. Gravel is fine to coarse angular to subangular brick, concrete and flint, Inclusions of glass and wood. (Made Ground)		0.80	ES14	0.80	0.80	PID	0.80	14.2ppm	
			Soft greyish brown gravelly CLAY. Gravel is fine to coarse angular to subangular brick, concrete and flint. Abundant inclusions of glass, metal, material, rubber and possible ACMs. (Made Ground)									
			Hole Terminated at 0.80m bgl.									

Chiseling		
From (m bgl)	To (m bgl)	Time (hh:mm)

Water Added		
From (m bgl)	To (m bgl)	Volume (l)

Remarks

Reason for Termination:

Terminated due to possible ACMs.

Groundwater Remarks:

No groundwater encountered.

Other Remarks:

1. Borehole backfilled with arisings. 2. Possible ACM encountered in hand pit.

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Appendix 2: Ground Gas and Groundwater Monitoring Results

BWB GAS AND GROUNDWATER MONITORING

Site:		Butlers Fuels, Farnham Road
Client:		Oil Salvage Ltd
Job No.:		NTG2113
Date:		26 June 2020
Start / End Time:		8.30am-9.30am
Engineer:		JA
Monitoring Equipment:	**Gas Meter ID**	**BWB00994**
	PID ID	**BWB00998**
	Dip Tape	**BWB00978**
	Other	

NR = Not Recorded
Dry = No Groundwater

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Weather Conditions	Start	End
(Dry / Raining)	Dry	Dry
Wind Strength (m/s)	3.6	1.8
Wind Direction (from)	SW	SW
Temperature (°C)	17.0	19.0
Barometric Pressure (h Pa / mB)	1004.0	1003.0
App 12 Hour Pressure (h Pa / mB)	1001.0	
12 Hour Pressure Trend	Rising then falling.	
PID - Air	<0.1	<0.1
PID - Calibration Gas		

Location Reference	Relative Pressure (Pa)	Flow (l/hr)		Methane (%v/v)		Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)	Carbon Monoxide (ppm)	PID (ppm)	Depth to water (m)	Base of Response Zone (m)	Free-Phase Product Level Top (m)	Groundwater Elevation (m AOD)	Notes
		Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady								
Ambient Air Start (Calibration)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	21.0	21.0	<1	-1	<0.1					
Ambient Air Finish (Calibration)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	20.7	20.7	<1	<1	<0.1					
DS01	<0.1	<0.1	<0.1	4.3	4.3	14.3	14.3	3.1	3.1	<1	3.0	6.8	5.72	7.80		58.18	Dipmeter- identified no product. 70cm of product in bailer.
DS02	<0.1	<0.1	<0.1	8.9	8.9	6.3	6.3	11.1	11.1	<1	22.0	17.0	5.47	6.90		58.33	Dipmeter- identified no product. 10cm of product in bailer.
DS03	<0.1	<0.1	<0.1	<0.1	<0.1	7.3	7.3	11.2	11.2	<1	5.0	24.1	5.58	7.65		58.44	No product however hydrocarbon odour.
DS04	<0.1	<0.1	<0.1	27.7	27.7	2.0	2.0	13.8	13.8	<1	10.0	0.8	5.63	7.90	5.32	58.12	
DS05	**<0.1**	<0.1	<0.1	13.7	13.7	4.0	4.0	10.3	10.3	<1	33.0	<0.1	5.48	7.82		58.35	No product however hydrocarbon odour.
HBH1													5.64	8.14	5.63	58.34	
HBH2													5.37	7.80		58.38	No product however hydrocarbon odour and sheen on water.
HBH3													5.51	12.00		58.24	Dipmeter- identified no product. 3cm of product in bailer.
HBH4													5.56	6.52	5.56	58.19	
HBH5													5.50	10.00	5.49	58.25	

BWB GAS AND GROUNDWATER MONITORING

Site:		Butlers Fuels, Farnham Road
Client:		Oil Salvage Ltd
Job No.:		NTG2113
Date:		03/07/2020
Start / End Time:		8.30am-9.30am
Engineer:		JA
Monitoring Equipment:	**Gas Meter ID**	**RENTED GMF436**
	PID ID	**BWB00998**
	Dip Tape	**BWB00978**
	Other	

NR = Not Recorded
Dry = No Groundwater

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Weather Conditions	Start	End
(Dry / Raining)	Dry	Dry
Wind Strength (m/s)	4.9	4.9
Wind Direction (from)	SW	SW
Temperature (°C)	13.0	14.0
Barometric Pressure (h Pa / mB)	1007.0	1006.0
App 12 Hour Pressure (h Pa / mB)	1007.0	
12 Hour Pressure Trend	Falling	
PID - Air	<0.1	<0.1
PID - Calibration Gas		

Location Reference	Relative Pressure (Pa)	Flow (l/hr)		Methane (%v/v)		Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)	Carbon Monoxide (ppm)	PID (ppm)	Depth to water (m)	Base of Response Zone (m)	Free-Phase Product Level Top (m)	Groundwater Elevation (m AOD)	Notes
		Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady								
Ambient Air Start (Calibration)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	20.9	20.9	<1	<1	<0.1					
Ambient Air Finish (Calibration)	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	20.5	20.5	<1	<1	<0.1					
DS01	<0.1	<0.1	<0.1	5.3	5.3	13.9	13.9	3.6	3.6	<1	<1	125.0	5.87	7.80	5.87	58.03	Approx 40cm of product in bailer and 15cm of foam below.
DS02	<0.1	<0.1	<0.1	18.4	18.4	9.9	9.9	6.7	6.7	<1	10	0.4	5.66	6.90	5.53	58.14	Approx 10cm of product in bailer and 10cm of foam product below.
DS03	<0.1	<0.1	<0.1	<0.1	<0.1	14.4	14.4	4.5	4.5	<1	<1	112.0	5.90	7.65		58.12	No product however hydrocarbon odour and droplets on water.
DS04	<0.1	<0.1	<0.1	42.0	42.0	5.3	5.3	9.5	9.5	<1	10	14.1	5.46	7.90	5.36	58.29	Approx 16cm of product in bailer. 7cm of foam substance below produc
DS05	**<0.1**	<0.1	<0.1	41.8	41.8	13.9	13.9	3.8	3.8	<1	10	7.1	5.70	7.82	5.64	58.13	Approx 5cm of product in bailer.
HBH1													5.79	8.14	5.78	58.19	
HBH2													4.90	7.80		58.85	No product however hydrocarbon odour and sheen on water.
HBH3													5.65	12.00	5.65	58.10	Approx 5mm of product in bailer.
HBH4													4.63	6.52		59.12	No product however hydrocarbon odour and sheen on water.
HBH5													5.42	10.00		58.33	No product however hydrocarbon odour and sheen on water.

BWB GAS AND GROUNDWATER MONITORING

Site:		Butlers Fuels, Farnham Road
Client:		Oil Salvage Ltd
Job No.:		NTG2113
Date:		9/12/2020 - 10/12/20
Start / End Time:		
Engineer:		MOK and LC
Monitoring Equipment:	**Gas Meter ID**	
	PID ID	
	Dip Tape	
	Other	

NR = Not Recorded
Dry = No Groundwater

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Weather Conditions	Start	End
(Dry / Raining)		
Wind Strength (m/s)		
Wind Direction (from)		
Temperature (°C)		
Barometric Pressure (h Pa / mB)		
App 12 Hour Pressure (h Pa / mB)		
12 Hour Pressure Trend		
PID - Air		
PID - Calibration Gas		

Location Reference	Relative Pressure (Pa)	Flow (l/hr)		Methane (%v/v)		Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)	Carbon Monoxide (ppm)	PID (ppm)	Depth to water (m)	Base of Response Zone (m)	Free-Phase Product Level Top (m)	Groundwater Elevation (m AOD)	Notes
		Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady								
Ambient Air Start (Calibration)																	
Ambient Air Finish (Calibration)																	
DS01													4.20	7.79	4,17	59.70	3 cm of product, sheen and odour to GW
DS02													4.02	6.84	3.91	59.78	11 cm of product, sheen and odour to GW
DS03													4.16	7.68		59.86	No Product, no sheen but odour to GW
DS04													3.74	7.69	3.58	60.01	bailer- 3.57 free phase product level, 16 cm product, 2mm of foan under
DS05													4.33	7.66	4.21	59.50	12 cm product in bailer, 1-2 mm of foam on water, 12cm with interface b
HBH1													4.44	8.12		59.54	2 mm foam using bailer, sheen and odour to GW
HBH2													4.91	7.78		58.84	No sheen to GW
HBH3													4.28	11.24	4.27	59.47	1cm of product, sheen and odour to GW
HBH4													3.73	7.78		60.02	sheen and odour to GW
HBH5													4.07	9.95		59.68	No sheen but odour to GW

BWB GAS AND GROUNDWATER MONITORING

Site:		Butlers Fuels, Farnham Road
Client:		Oil Salvage Ltd
Job No.:		NTG2113
Date:		28/06/2021
Start / End Time:		
Engineer:		mok
Monitoring Equipment:	Gas Meter ID	
	PID ID	
	Dip Tape	
	Other	

NR = Not Recorded
Dry = No Groundwater

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Weather Conditions	Start	End
(Dry / Raining)		
Wind Strength (m/s)		
Wind Direction (from)		
Temperature (°C)		
Barometric Pressure (h Pa / mB)		
App 12 Hour Pressure (h Pa / mB)		
12 Hour Pressure Trend		
PID - Air		
PID - Calibration Gas		

Location Reference	Relative Pressure (Pa)	Flow (l/hr)		Methane (%v/v)		Carbon Dioxide (%v/v)		Oxygen (%v/v)		Hydrogen Sulphide (ppm)	Carbon Monoxide (ppm)	PID (ppm)	Depth to water (m)	Base of Response Zone (m)	Free-Phase Product Level Top (m)	Groundwater Elevation (m AOD)	Notes
		Peak	Steady	Peak	Steady	Peak	Steady	Min	Steady								
Ambient Air Start (Calibration)																	
Ambient Air Finish (Calibration)																	
DS01													4.37	7.71	4.36	59.53	1cm of product in bailer, no sheen but odour to GW
DS02													4.13	6.80		59.67	1cm black viscous layer in bailer, sheen and odour to GW
DS03													4.27	7.65		59.75	No sheen but odour to GW
DS04													4.16	7.69		59.59	1cm black and 2cm black layer in bailer, sheen and odour to GW
DS05													4.39	7.58	4.32	59.44	7cm of product and 18cm of product and orangish brown foamy texture
HBH1													4.54	8.07		59.44	No sheen but odour to GW
HBH2													4.11	7.72		59.64	No sheen but odour to GW
HBH3													4.48	11.11	4.47	59.27	1cm of product in bailer, sheen and odour to GW
HBH4													3.95	6.58		59.80	Sheen and odour to GW
HBH5													4.20	9.89		59.55	No sheen but odour to GW

Appendix 3: Soil Chemical Analysis Results

Chris Rhodes
BWB Consulting Limited
5th Floor
Waterfront House
Nottingham
NG2 3DQ

e: Chris.Rhodes@bwbconsulting.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-15385

Project / Site name:	Farnham Rd	**Samples received on:**	19/06/2020
Your job number:	NTG2113	**Sample instructed/ Analysis started on:**	22/06/2020
Your order number:	POR031686	**Analysis completed by:**	26/06/2020
Report Issue Number:	1	**Report issued on:**	26/06/2020
Samples Analysed:	2 leachate samples - 14 soil samples		

Signed:

Will Fardon

Technical Reviewer (CS Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-15385

Project / Site name: Farnham Rd

Lab Sample Number				1540346	1540347	1540348	1540349	1540350
Sample Reference				DS02	DS02	DS02	DS03	DS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	3.70	5.90	0.20	3.50
Date Sampled				18/06/2020	18/06/2020	18/06/2020	18/06/2020	18/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	8.5	14	22	8.6	15
Total mass of sample received	kg	0.001	NONE	1.2	0.60	0.60	1.2	0.60
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	-	-	Amosite	-
Asbestos in Soil	Type	N/A	ISO 17025	Detected	-	-	Detected	-
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	0.002	-	-	< 0.001	-
Asbestos Quantification Total	%	0.001	ISO 17025	0.002	-	-	< 0.001	-
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.3	-	-	8.4	-
Total Cyanide	mg/kg	1	MCERTS	3	-	-	< 1	-
Complex Cyanide	mg/kg	1	MCERTS	3	-	-	< 1	-
Free Cyanide	mg/kg	1	MCERTS	< 1	-	-	< 1	-
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	1.6	-	-	0.021	-
Total Sulphur	mg/kg	50	MCERTS	3200	-	-	330	-
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.012	-	-	0.016	-
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Fluorene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Phenanthrene	mg/kg	0.05	MCERTS	4.6	-	-	< 0.05	-
Anthracene	mg/kg	0.05	MCERTS	3.5	-	-	< 0.05	-
Fluoranthene	mg/kg	0.05	MCERTS	20	-	-	< 0.05	-
Pyrene	mg/kg	0.05	MCERTS	19	-	-	< 0.05	-
Benzo(a)anthracene	mg/kg	0.05	MCERTS	13	-	-	< 0.05	-
Chrysene	mg/kg	0.05	MCERTS	7.5	-	-	< 0.05	-
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	12	-	-	< 0.05	-
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	4.9	-	-	< 0.05	-
Benzo(a)pyrene	mg/kg	0.05	MCERTS	9.9	-	-	< 0.05	-
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	5.5	-	-	< 0.05	-
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	-	-	< 0.05	-
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	5.8	-	-	< 0.05	-
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	105	-	-	< 0.80	-
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	-	-	15	-
Barium (aqua regia extractable)	mg/kg	1	MCERTS	450	-	-	43	-
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.62	-	-	0.58	-
Boron (water soluble)	mg/kg	0.2	MCERTS	3.5	-	-	1.6	-
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	-	-	1.3	-
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	-	-	< 4.0	-
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	23	-	-	19	-
Copper (aqua regia extractable)	mg/kg	1	MCERTS	96	-	-	30	-
Lead (aqua regia extractable)	mg/kg	1	MCERTS	890	-	-	34	-
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.7	-	-	< 0.3	-
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	27	-	-	20	-
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	-	-	< 1.0	-
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	28	-	-	29	-
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	620	-	-	190	-

Analytical Report Number: 20-15385

Project / Site name: Farnham Rd

Lab Sample Number				1540346	1540347	1540348	1540349	1540350
Sample Reference				DS02	DS02	DS02	DS03	DS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				0.40	3.70	5.90	0.20	3.50
Date Sampled				18/06/2020	18/06/2020	18/06/2020	18/06/2020	18/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Toluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	16	-	< 1.0
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	46	-	< 1.0
o-xylene	µg/kg	1	MCERTS	-	< 1.0	29	-	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0	-	< 1.0
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	190	-	-	580	-
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	-	-	< 0.1	-
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	1.2	< 0.001	-	< 0.001
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	15	0.36	-	15
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	39	< 1.0	-	100
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	170	< 2.0	-	230
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	86	< 8.0	-	100
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	8.7	< 8.0	-	9.5
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	320	< 10	-	460
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001	-	< 0.001
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	7.7	0.18	-	4.2
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	18	< 1.0	-	78
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	86	< 2.0	-	200
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	56	< 10	-	130
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	< 10	< 10	-	34
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	170	< 10	-	440

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Project / Site name: Farnham Rd

Lab Sample Number				1540351	1540352	1540353	1540354	1540355
Sample Reference				DS03	DS01	DS01	DS01	DS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	0.30	3.90	4.90	0.50
Date Sampled				18/06/2020	18/06/2020	18/06/2020	18/06/2020	18/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	N/A	NONE	25	9.1	16	23	18
Total mass of sample received	kg	0.001	NONE	0.60	1.2	0.60	0.60	1.2
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	-	Chrysotile	-	-	Chrysotile & Amosite
Asbestos in Soil	Type	N/A	ISO 17025	-	Detected	-	-	Detected
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	-	0.006	-	-	< 0.001
Asbestos Quantification Total	%	0.001	ISO 17025	-	0.006	-	-	< 0.001
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	-	8.2	-	8.7	9.7
Total Cyanide	mg/kg	1	MCERTS	-	< 1	-	< 1	< 1
Complex Cyanide	mg/kg	1	MCERTS	-	< 1	-	< 1	< 1
Free Cyanide	mg/kg	1	MCERTS	-	< 1	-	< 1	< 1
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	-	0.050	-	0.015	0.52
Total Sulphur	mg/kg	50	MCERTS	-	370	-	230	1600
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	-	0.016	-	0.0013	0.018
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	-	< 0.05	-	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	-	1.2	-	< 0.05	1.8
Anthracene	mg/kg	0.05	MCERTS	-	0.37	-	< 0.05	0.37
Fluoranthene	mg/kg	0.05	MCERTS	-	3.5	-	< 0.05	3.8
Pyrene	mg/kg	0.05	MCERTS	-	3.7	-	< 0.05	3.9
Benzo(a)anthracene	mg/kg	0.05	MCERTS	-	2.0	-	< 0.05	1.2
Chrysene	mg/kg	0.05	MCERTS	-	1.6	-	< 0.05	1.7
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	-	3.2	-	< 0.05	1.9
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	-	1.1	-	< 0.05	0.98
Benzo(a)pyrene	mg/kg	0.05	MCERTS	-	2.6	-	< 0.05	1.3
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	-	1.9	-	< 0.05	0.83
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	-	0.63	-	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	-	2.4	-	< 0.05	1.1
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	-	24.1	-	< 0.80	18.9
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	-	16	-	< 1.0	16
Barium (aqua regia extractable)	mg/kg	1	MCERTS	-	180	-	9.9	190
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	-	0.93	-	< 0.06	0.75
Boron (water soluble)	mg/kg	0.2	MCERTS	-	0.6	-	< 0.2	1.3
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	-	0.5	-	0.2	2.9
Chromium (hexavalent)	mg/kg	4	MCERTS	-	< 4.0	-	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	-	27	-	1.8	36
Copper (aqua regia extractable)	mg/kg	1	MCERTS	-	52	-	3.1	94
Lead (aqua regia extractable)	mg/kg	1	MCERTS	-	120	-	1.0	190
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	-	< 0.3	-	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	-	25	-	2.1	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	-	< 1.0	-	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	-	39	-	3.1	34
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	-	270	-	9.4	260

Analytical Report Number: 20-15385

Project / Site name: Farnham Rd

Lab Sample Number				1540351	1540352	1540353	1540354	1540355
Sample Reference				DS03	DS01	DS01	DS01	DS06
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				4.50	0.30	3.90	4.90	0.50
Date Sampled				18/06/2020	18/06/2020	18/06/2020	18/06/2020	18/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Toluene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Ethylbenzene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
p & m-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
o-xylene	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	< 1.0	-	< 1.0	< 1.0	-
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	-	110	-	< 10	490
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	-	< 0.1	-	3.6	< 0.1
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	11	-	0.78	2.5	-
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	2.3	-	54	< 1.0	-
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	14	-	230	< 2.0	-
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	< 8.0	-	110	< 8.0	-
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	< 8.0	-	38	< 8.0	-
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	35	-	430	< 10	-
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	< 0.001	-	< 0.001	< 0.001	-
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	0.72	-	0.19	0.81	-
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	3.4	-	50	< 1.0	-
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	27	-	220	< 2.0	-
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	30	-	130	< 10	-
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	22	-	53	< 10	-
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	83	-	460	< 10	-

Analytical Report Number: 20-15385

Project / Site name: Farnham Rd

Lab Sample Number				1540356	1540357	1540358	1540359	
Sample Reference				DS06	DS04	DS04	DS04	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.80	1.50	3.50	4.30-4.40	
Date Sampled				18/06/2020	18/06/2020	18/06/2020	18/06/2020	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	
Moisture Content	%	N/A	NONE	24	14	16	8.9	
Total mass of sample received	kg	0.001	NONE	1.2	0.60	0.60	0.60	
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile & Crocidolite	-	-	-	
Asbestos in Soil	Type	N/A	ISO 17025	Detected	-	-	-	
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	9.852	-	-	-	
Asbestos Quantification Total	%	0.001	ISO 17025	9.85	-	-	-	
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.2	7.7	-	-	
Total Cyanide	mg/kg	1	MCERTS	2	< 1	-	-	
Complex Cyanide	mg/kg	1	MCERTS	2	< 1	-	-	
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	-	-	
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.34	0.018	-	-	
Total Sulphur	mg/kg	50	MCERTS	2200	200	-	-	
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.042	0.0077	-	-	
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	-	
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	
Phenanthrene	mg/kg	0.05	MCERTS	2.1	< 0.05	-	-	
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	
Fluoranthene	mg/kg	0.05	MCERTS	5.5	< 0.05	-	-	
Pyrene	mg/kg	0.05	MCERTS	6.2	< 0.05	-	-	
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.0	< 0.05	-	-	
Chrysene	mg/kg	0.05	MCERTS	2.3	< 0.05	-	-	
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	2.7	< 0.05	-	-	
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.2	< 0.05	-	-	
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.9	< 0.05	-	-	
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	1.6	< 0.05	-	-	
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	-	-	
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	1.9	< 0.05	-	-	
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	27.3	< 0.80	-	-	
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	25	11	-	-	
Barium (aqua regia extractable)	mg/kg	1	MCERTS	340	72	-	-	
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.54	1.1	-	-	
Boron (water soluble)	mg/kg	0.2	MCERTS	2.6	1.4	-	-	
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	22	0.2	-	-	
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	-	-	
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	89	29	-	-	
Copper (aqua regia extractable)	mg/kg	1	MCERTS	870	13	-	-	
Lead (aqua regia extractable)	mg/kg	1	MCERTS	420	15	-	-	
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.5	< 0.3	-	-	
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	59	25	-	-	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	-	-	
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	29	46	-	-	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	1900	61	-	-	

Analytical Report Number: 20-15385

Project / Site name: Farnham Rd

Lab Sample Number				1540356	1540357	1540358	1540359	
Sample Reference				DS06	DS04	DS04	DS04	
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	
Depth (m)				0.80	1.50	3.50	4.30-4.40	
Date Sampled				18/06/2020	18/06/2020	18/06/2020	18/06/2020	
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0	
Toluene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0	
Ethylbenzene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0	
p & m-xylene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0	
o-xylene	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0	
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	-	< 1.0	< 1.0	

Petroleum Hydrocarbons

TPH C10 - C40	mg/kg	10	MCERTS	1200	< 10	-	-	
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	-	-	
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001	
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	3.1	
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	45	
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	-	< 8.0	40	
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	-	28	50	
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	28	140	
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	-	< 0.001	< 0.001	
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	-	< 1.0	1.8	
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	-	< 2.0	33	
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	-	< 10	36	
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	-	< 10	12	
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	-	< 10	83	

Analytical Report Number: 20-15385
Project / Site name: Farnham Rd
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1540346	DS02	0.40	127	Hard/Cement Type Material & Loose Fibres	**Chrysotile**	0.002	**0.002**
1540349	DS03	0.20	157	Loose Fibres	**Amosite**	< 0.001	**< 0.001**
1540352	DS01	0.30	138	Loose Fibrous Debris	**Chrysotile**	0.006	**0.006**
1540355	DS06	0.50	159	Loose Fibres	**Chrysotile & Amosite**	< 0.001	**< 0.001**
1540356	DS06	0.80	119	Hard/Cement Type Material & Insulation Board/Tile	**Chrysotile & Crocidolite**	9.852	**9.85**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number: 20-15385

Project / Site name: Farnham Rd

Lab Sample Number				1540360	1540361			
Sample Reference				DS06	DS06			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.50	0.80			
Date Sampled				18/06/2020	18/06/2020			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Leachate Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	7.8	7.6			
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10			
Sulphate as SO_4	mg/l	0.1	ISO 17025	102	93.4			
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	1.1	ISO 17025	< 1.1	4.8			
Barium (dissolved)	µg/l	0.05	ISO 17025	83	120			
Beryllium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2			
Boron (dissolved)	µg/l	10	ISO 17025	83	220			
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08			
Chromium (dissolved)	µg/l	0.4	ISO 17025	< 0.4	< 0.4			
Copper (dissolved)	µg/l	0.7	ISO 17025	5.9	6.8			
Lead (dissolved)	µg/l	1	ISO 17025	6.0	2.9			
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5			
Nickel (dissolved)	µg/l	0.3	ISO 17025	1.5	5.0			
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0			
Vanadium (dissolved)	µg/l	1.7	ISO 17025	< 1.7	< 1.7			
Zinc (dissolved)	µg/l	0.4	ISO 17025	19	56			

Analytical Report Number : 20-15385

Project / Site name: Farnham Rd

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1540346	DS02	None Supplied	0.40	Brown loam and sand with gravel and brick.
1540347	DS02	None Supplied	3.70	Brown loam and clay with gravel and chalk.
1540348	DS02	None Supplied	5.90	Grey clay with chalk and gravel
1540349	DS03	None Supplied	0.20	Brown loam and clay with gravel and vegetation.
1540350	DS03	None Supplied	3.50	Brown loam and clay with gravel.
1540351	DS03	None Supplied	4.50	White clay with chalk and gravel
1540352	DS01	None Supplied	0.30	Brown loam and clay with gravel and vegetation.
1540353	DS01	None Supplied	3.90	Brown clay with gravel and vegetation.
1540354	DS01	None Supplied	4.90	White clay with chalk and gravel
1540355	DS06	None Supplied	0.50	Brown clay and loam with rubble and vegetation.
1540356	DS06	None Supplied	0.80	Brown clay and loam with rubble and fibres.
1540357	DS04	None Supplied	1.50	Brown clay.
1540358	DS04	None Supplied	3.50	Brown clay.
1540359	DS04	None Supplied	4.30-4.40	Brown clay with gravel.

Analytical Report Number : 20-15385

Project / Site name: Farnham Rd

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BS EN 12457-1 (2:1) Leachate Prep	2:1 (as recieved, moisture adjusted) end over end extraction with water for 24 hours. Eluate filtered prior to analysis.	In-house method based on BSEN12457-1.	L043-PL	W	NONE
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Complex Cyanide in soil	Determination of complex cyanide by calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH at 20oC in leachate	Determination of pH in leachate by electrometric measurement.	In house method.	L005-PL	W	ISO 17025
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS

Analytical Report Number : 20-15385

Project / Site name: Farnham Rd

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in leachates	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 1986 Methods for the Determination of Metals in Soil""	L039-PL	W	ISO 17025
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total cyanide in leachate	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	W	MCERTS
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Chris Rhodes
BWB Consulting Limited
11 Borough High Street
London
SE1 9SE

t: 0203 1027844

e: Chris.Rhodes@bwbconsulting.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-15427

Project / Site name:	Farnham Road	**Samples received on:**	22/06/2020
Your job number:	BTG2113	**Sample instructed/ Analysis started on:**	22/06/2020
Your order number:	POR031686	**Analysis completed by:**	29/06/2020
Report Issue Number:	1	**Report issued on:**	29/06/2020
Samples Analysed:	3 soil samples		

Signed:

Will Fardon

Technical Reviewer (CS Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-15427

Project / Site name: Farnham Road

Lab Sample Number				1540516	1540517	1540518		
Sample Reference				DS05	DS05	DS05		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.25	2.50	4.20		
Date Sampled				19/06/2020	19/06/2020	19/06/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	15	8.3	7.7		
Total mass of sample received	kg	0.001	NONE	1.0	0.50	0.50		
Asbestos in Soil Screen / Identification Name	Type	N/A	ISO 17025	Chrysotile	-	-		
Asbestos in Soil	Type	N/A	ISO 17025	Detected	-	-		
Asbestos Quantification (Stage 2)	%	0.001	ISO 17025	< 0.001	-	-		
Asbestos Quantification Total	%	0.001	ISO 17025	< 0.001	-	-		
General Inorganics								
pH - Automated	pH Units	N/A	MCERTS	8.2	8.0	8.4		
Total Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Complex Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Free Cyanide	mg/kg	1	MCERTS	< 1	< 1	< 1		
Water Soluble SO4 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.80	0.018	0.033		
Total Sulphur	mg/kg	50	MCERTS	4100	110	130		
Fraction Organic Carbon (FOC)	N/A	0.001	MCERTS	0.014	0.0031	0.0041		
Total Phenols								
Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Speciated PAHs								
Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	3.0	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	1.7	< 0.05	< 0.05		
Anthracene	mg/kg	0.05	MCERTS	1.4	< 0.05	< 0.05		
Fluoranthene	mg/kg	0.05	MCERTS	6.7	< 0.05	< 0.05		
Pyrene	mg/kg	0.05	MCERTS	5.4	< 0.05	< 0.05		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	2.3	< 0.05	< 0.05		
Chrysene	mg/kg	0.05	MCERTS	2.0	< 0.05	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	1.5	< 0.05	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	1.1	< 0.05	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	1.1	< 0.05	< 0.05		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.57	< 0.05	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.77	< 0.05	< 0.05		
Total PAH								
Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	27.5	< 0.80	< 0.80		

Analytical Report Number: 20-15427

Project / Site name: Farnham Road

Lab Sample Number				1540516	1540517	1540518		
Sample Reference				DS05	DS05	DS05		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				0.25	2.50	4.20		
Date Sampled				19/06/2020	19/06/2020	19/06/2020		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Heavy Metals / Metalloids								
Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	19	6.5	16		
Barium (aqua regia extractable)	mg/kg	1	MCERTS	230	38	36		
Beryllium (aqua regia extractable)	mg/kg	0.06	MCERTS	0.89	0.63	0.92		
Boron (water soluble)	mg/kg	0.2	MCERTS	0.8	0.3	0.3		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.3	< 0.2	0.2		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	21	22	31		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	85	8.1	12		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	410	9.6	13		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.9	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	16	18	29		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Vanadium (aqua regia extractable)	mg/kg	1	MCERTS	33	29	50		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	180	45	83		
Monoaromatics & Oxygenates								
Benzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Toluene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Ethylbenzene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
p & m-xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
o-xylene	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
MTBE (Methyl Tertiary Butyl Ether)	µg/kg	1	MCERTS	-	< 1.0	< 1.0		
Petroleum Hydrocarbons								
TPH C10 - C40	mg/kg	10	MCERTS	410	460	790		
TPH2 (C6 - C10)	mg/kg	0.1	MCERTS	< 0.1	11	20		
TPH-CWG - Aliphatic >EC5 - EC6	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC6 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001		
TPH-CWG - Aliphatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	11	18		
TPH-CWG - Aliphatic >EC10 - EC12	mg/kg	1	MCERTS	-	20	44		
TPH-CWG - Aliphatic >EC12 - EC16	mg/kg	2	MCERTS	-	130	390		
TPH-CWG - Aliphatic >EC16 - EC21	mg/kg	8	MCERTS	-	52	110		
TPH-CWG - Aliphatic >EC21 - EC35	mg/kg	8	MCERTS	-	100	45		
TPH-CWG - Aliphatic (EC5 - EC35)	mg/kg	10	MCERTS	-	320	600		
TPH-CWG - Aromatic >EC5 - EC7	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC7 - EC8	mg/kg	0.001	MCERTS	-	< 0.001	< 0.001		
TPH-CWG - Aromatic >EC8 - EC10	mg/kg	0.001	MCERTS	-	< 0.001	2.0		
TPH-CWG - Aromatic >EC10 - EC12	mg/kg	1	MCERTS	-	9.0	12		
TPH-CWG - Aromatic >EC12 - EC16	mg/kg	2	MCERTS	-	85	120		
TPH-CWG - Aromatic >EC16 - EC21	mg/kg	10	MCERTS	-	27	58		
TPH-CWG - Aromatic >EC21 - EC35	mg/kg	10	MCERTS	-	18	< 10		
TPH-CWG - Aromatic (EC5 - EC35)	mg/kg	10	MCERTS	-	140	200		

Analytical Report Number: 20-15427
Project / Site name: Farnham Road
Your Order No:

Certificate of Analysis - Asbestos Quantification

Methods:

Qualitative Analysis

The samples were analysed qualitatively for asbestos by polarising light and dispersion staining as described by the Health and Safety Executive in HSG 248.

Quantitative Analysis

The analysis was carried out using our documented in-house method A006-PL based on HSE Contract Research Report No: 83/1996: Development and Validation of an analytical method to determine the amount of asbestos in soils and loose aggregates (Davies et al, 1996) and HSG 248. Our method includes initial examination of the entire representative sample, then fractionation and detailed analysis of each fraction, with quantification by hand picking and weighing.

The limit of detection (reporting limit) of this method is 0.001 %.

The method has been validated using samples of at least 100 g, results for samples smaller than this should be interpreted with caution.

Both Qualitative and Quantitative Analyses are UKAS accredited.

Sample Number	Sample ID	Sample Depth (m)	Sample Weight (g)	Asbestos Containing Material Types Detected (ACM)	PLM Results	Asbestos by hand picking/weighing (%)	Total % Asbestos in Sample
1540516	DS05	0.25	126	Loose Fibres	**Chrysotile**	< 0.001	**< 0.001**

Opinions and interpretations expressed herein are outside the scope of UKAS accreditation.

Analytical Report Number : 20-15427

Project / Site name: Farnham Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1540516	DS05	None Supplied	0.25	Brown loam and clay with gravel.
1540517	DS05	None Supplied	2.50	Brown loam and clay with gravel.
1540518	DS05	None Supplied	4.20	Brown loam and clay with gravel.

Analytical Report Number : 20-15427

Project / Site name: Farnham Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Asbestos Quantification - Gravimetric	Asbestos quantification by gravimetric method - in house method based on references.	HSE Report No: 83/1996, HSG 248, HSG 264 & SCA Blue Book (draft).	A006-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
BTEX and MTBE in soil (Monoaromatics)	Determination of BTEX in soil by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Complex Cyanide in soil	Determination of complex cyanide by calculation.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Fraction of Organic Carbon in soil	Determination of fraction of organic carbon in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-PL	D	MCERTS
Free cyanide in soil	Determination of free cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In house method.	L038-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS

Analytical Report Number : 20-15427

Project / Site name: Farnham Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In house method.	L038-PL	D	MCERTS
TPH Banding in Soil by FID	Determination of hexane extractable hydrocarbons in soil by GC-FID.	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	W	MCERTS
TPH2 (Soil)	Determination of hydrocarbons C6-C10 by headspace GC-MS.	In-house method based on USEPA8260	L088-PL	W	MCERTS
TPHCWG (Soil)	Determination of hexane extractable hydrocarbons in soil by GC-MS/GC-FID.	In-house method with silica gel split/clean up.	L088/76-PL	W	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Appendix 4: Groundwater Chemical Analysis Results

Jade Allen
BWB Consulting Limited
Livery Place
35 Livery Street Birmingham
B3 2PB

t: 01217962087

e: jade.allen@bwbconsulting.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-16515

Project / Site name:	Bishops Stortford	**Samples received on:**	29/06/2020
Your job number:	NTG2113	**Sample instructed/ Analysis started on:**	29/06/2020
Your order number:	POR031689	**Analysis completed by:**	17/07/2020
Report Issue Number:	1	**Report issued on:**	17/07/2020
Samples Analysed:	10 water samples		

Signed:

Will Fardon

Technical Reviewer (CS Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-16515

Project / Site name: Bishops Stortford

Your Order No: POR031689

Lab Sample Number				1546496	1546497	1546498	1546499	1546500
Sample Reference				DS01	DS02	DS03	DS04	DS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/06/2020	26/06/2020	26/06/2020	26/06/2020	26/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.5	6.8	6.7	6.8	6.5
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	690000	250000	630000	590000	1100000
Total Cyanide	µg/l	10	ISO 17025	< 10	U/S	< 10	U/S	< 10
Sulphate as SO_4	µg/l	45	ISO 17025	U/S	U/S	5820	U/S	24300
Sulphate as SO_4	mg/l	0.045	ISO 17025	U/S	U/S	5.82	U/S	24.3
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	U/S	U/S	5800	U/S	U/S
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	54.5	87.5	119	62.9	15.9
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	U/S	< 10	U/S	11
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	1020	U/S	18.5	102	374
Acenaphthylene	µg/l	0.01	ISO 17025	297	< 0.01	14.2	< 0.01	114
Acenaphthene	µg/l	0.01	ISO 17025	369	< 0.01	16.3	< 0.01	131
Fluorene	µg/l	0.01	ISO 17025	889	1510	17.6	6.55	156
Phenanthrene	µg/l	0.01	ISO 17025	907	1080	18.9	2.80	142
Anthracene	µg/l	0.01	ISO 17025	269	321	12.6	0.16	118
Fluoranthene	µg/l	0.01	ISO 17025	274	263	15.5	0.12	124
Pyrene	µg/l	0.01	ISO 17025	335	302	15.8	0.31	129
Benzo(a)anthracene	µg/l	0.01	ISO 17025	276	265	14.7	< 0.01	112
Chrysene	µg/l	0.01	ISO 17025	282	275	15.1	< 0.01	126
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	271	263	14.1	< 0.01	116
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	272	263	14.3	< 0.01	119
Benzo(a)pyrene	µg/l	0.01	ISO 17025	255	241	13.0	< 0.01	113
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	210	219	10.1	< 0.01	83.0
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	228	220	11.4	< 0.01	81.8
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	214	203	11.0	< 0.01	78.1
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	6370	5430	233	112	2120
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	U/S	U/S	3.23	U/S	40.3
Barium (dissolved)	µg/l	0.06	ISO 17025	U/S	U/S	97	U/S	250
Beryllium (dissolved)	µg/l	0.1	ISO 17025	U/S	U/S	< 0.1	U/S	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	U/S	U/S	72	U/S	85
Cadmium (dissolved)	µg/l	0.02	ISO 17025	U/S	U/S	< 0.02	U/S	0.03
Calcium (dissolved)	mg/l	0.012	ISO 17025	U/S	U/S	190	U/S	200
Chromium (hexavalent)	µg/l	5	ISO 17025	U/S	U/S	U/S	U/S	U/S
Chromium (dissolved)	µg/l	0.2	ISO 17025	U/S	U/S	< 0.2	U/S	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	U/S	U/S	8.7	U/S	7.0
Lead (dissolved)	µg/l	0.2	ISO 17025	U/S	U/S	< 0.2	U/S	2.6
Mercury (dissolved)	µg/l	0.05	ISO 17025	U/S	U/S	< 0.05	U/S	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	U/S	U/S	20	U/S	110
Selenium (dissolved)	µg/l	0.6	ISO 17025	U/S	U/S	< 0.6	U/S	< 0.6
Vanadium (dissolved)	µg/l	0.2	ISO 17025	U/S	U/S	< 0.2	U/S	0.7
Zinc (dissolved)	µg/l	0.5	ISO 17025	U/S	U/S	5.8	U/S	15

Analytical Report Number: 20-16515

Project / Site name: Bishops Stortford

Your Order No: POR031689

Lab Sample Number				1546496	1546497	1546498	1546499	1546500
Sample Reference				DS01	DS02	DS03	DS04	DS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/06/2020	26/06/2020	26/06/2020	26/06/2020	26/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	578	< 1.0	< 1.0	48.2
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	22000	< 1.0	4350	< 1.0
p & m-xylene	µg/l	1	ISO 17025	1240	37700	< 1.0	17200	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	2140	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH1 (C10 - C40)	µg/l	10	NONE	17000000	230000000	27000	130000	550000
TPH2 (C6 - C10)	µg/l	10	ISO 17025	930000	2200000	5200	990000	8400
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	3800	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	150000	420000	< 1.0	75000	1600
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	720000	1600000	5200	840000	6500
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	3800000	68000000	5000	38000	140000
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	7100000	97000000	7800	49000	200000
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	2500000	11000000	3500	2800	26000
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	620000	1700000	3300	200	13000
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	15000000	180000000	25000	1000000	390000
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	580	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	45000	180000	< 1.0	74000	370
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	1300000	14000000	2700	16000	81000
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	1600000	31000000	2900	18000	80000
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	500000	3100000	1200	1000	10000
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	35000	760000	500	< 10	3000
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	3400000	49000000	7300	110000	170000

Please note the sampe matrix (oily/water) interfered with several of the analytical methods and viable results could not be produced
U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-16515

Project / Site name: Bishops Stortford

Your Order No: POR031689

Lab Sample Number				1546501	1546502	1546503	1546504	1546505
Sample Reference				HBH1	HBH2	HBH3	HBH4	HBH5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/06/2020	26/06/2020	26/06/2020	26/06/2020	26/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
General Inorganics								
pH	pH Units	N/A	ISO 17025	6.5	7.0	6.8	7.1	7.0
Electrical Conductivity at 20 °C	µS/cm	10	ISO 17025	1000000	460000	960000	480000	720000
Total Cyanide	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Sulphate as SO_4	µg/l	45	ISO 17025	1390	3570	2220	3960	1840
Sulphate as SO_4	mg/l	0.045	ISO 17025	1.39	3.57	2.22	3.96	1.84
Ammoniacal Nitrogen as N	µg/l	15	ISO 17025	140	1100	8500	U/S	4800
Dissolved Organic Carbon (DOC)	mg/l	0.1	NONE	11.2	5.42	24.9	28.2	15.9
Total Phenols								
Total Phenols (monohydric)	µg/l	10	ISO 17025	< 10	< 10	< 10	< 10	< 10
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	37.4	10.3	78.2	97.5	15.5
Acenaphthylene	µg/l	0.01	ISO 17025	16.7	0.72	1.70	8.02	0.79
Acenaphthene	µg/l	0.01	ISO 17025	18.5	0.65	2.35	11.6	1.10
Fluorene	µg/l	0.01	ISO 17025	19.1	1.67	6.08	33.4	2.22
Phenanthrene	µg/l	0.01	ISO 17025	18.8	1.68	5.87	37.1	2.21
Anthracene	µg/l	0.01	ISO 17025	15.4	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	18.6	0.49	0.77	4.08	0.17
Pyrene	µg/l	0.01	ISO 17025	18.6	0.55	1.37	9.72	0.43
Benzo(a)anthracene	µg/l	0.01	ISO 17025	16.5	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	17.8	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	17.0	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	17.1	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	17.0	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	13.2	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	12.5	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	12.1	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	286	16.1	96.4	201	22.4
Heavy Metals / Metalloids								
Arsenic (dissolved)	µg/l	0.15	ISO 17025	43.1	21.4	10.6	4.09	4.30
Barium (dissolved)	µg/l	0.06	ISO 17025	320	190	160	71	420
Beryllium (dissolved)	µg/l	0.1	ISO 17025	0.1	< 0.1	< 0.1	< 0.1	< 0.1
Boron (dissolved)	µg/l	10	ISO 17025	70	33	170	74	89
Cadmium (dissolved)	µg/l	0.02	ISO 17025	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Calcium (dissolved)	mg/l	0.012	ISO 17025	190	140	180	130	140
Chromium (hexavalent)	µg/l	5	ISO 17025	U/S	< 5.0	U/S	U/S	U/S
Chromium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Copper (dissolved)	µg/l	0.5	ISO 17025	3.2	30	47	17	12
Lead (dissolved)	µg/l	0.2	ISO 17025	< 0.2	0.2	0.4	< 0.2	< 0.2
Mercury (dissolved)	µg/l	0.05	ISO 17025	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Nickel (dissolved)	µg/l	0.5	ISO 17025	14	12	120	7.3	16
Selenium (dissolved)	µg/l	0.6	ISO 17025	< 0.6	1.2	< 0.6	2.0	< 0.6
Vanadium (dissolved)	µg/l	0.2	ISO 17025	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Zinc (dissolved)	µg/l	0.5	ISO 17025	3.8	3.6	5.4	3.7	9.2

Analytical Report Number: 20-16515

Project / Site name: Bishops Stortford

Your Order No: POR031689

Lab Sample Number				1546501	1546502	1546503	1546504	1546505
Sample Reference				HBH1	HBH2	HBH3	HBH4	HBH5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				26/06/2020	26/06/2020	26/06/2020	26/06/2020	26/06/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	55.1	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	14.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	96.5	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH1 (C10 - C40)	µg/l	10	NONE	15000	20000	35000	180000	6600
TPH2 (C6 - C10)	µg/l	10	ISO 17025	12000	4700	15000	3400	7700
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	12000	4700	15000	3400	7700
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	2100	4300	6900	30000	1300
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	3600	8000	12000	54000	2000
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	2500	1900	3300	30000	400
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	2000	< 10	1000	10000	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	22000	19000	38000	130000	11000
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	250	< 1.0	97	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	1400	2300	4900	18000	1400
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	1500	3000	5000	22000	1400
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	1000	700	1000	15000	150
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	800	< 10	400	1000	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	5000	6000	11000	56000	2900

Please note the sampe matrix (oily/water) interfered with several of the analytical method
U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 20-16515

Project / Site name: Bishops Stortford

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Ammoniacal Nitrogen as N in water	Determination of Ammonium/Ammonia/ Ammoniacal Nitrogen by the discrete analyser (colorimetric) salicylate/nitroprusside method. Accredited matrices SW, GW, PW.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L082-PL	W	ISO 17025
Boron in water	Determination of boron in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW	In-house method based on MEWAM	L039-PL	W	ISO 17025
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Dissolved Organic Carbon in water	Determination of dissolved inorganic carbon in water by TOC/DOC NDIR Analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton	L037-PL	W	NONE
Electrical conductivity at 20oC of water	Determination of electrical conductivity in water by electrometric measurement. Accredited Matrices SW, GW, PW	In-house method	L031-PL	W	ISO 17025
Hexavalent chromium in water	Determination of hexavalent chromium in water by acidification, addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method by continuous flow analyser. Accredited Matrices SW, GW, PW.	L080-PL	W	ISO 17025
Metals in water by ICP-MS (dissolved)	Determination of metals in water by acidification followed by ICP-MS. Accredited Matrices: SW, GW, PW except B=SW,GW, Hg=SW,PW, Al=SW,PW.	In-house method based on USEPA Method 6020 & 200.8 "for the determination of trace elements in water by ICP-MS.	L012-PL	W	ISO 17025
Metals in water by ICP-OES (dissolved)	Determination of metals in water by acidification followed by ICP-OES. Accredited Matrices SW, GW, PW, PrW.(Al, Cu,Fe,Zn).	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Monohydric phenols in water	Determination of phenols in water by continuous flow analyser. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
pH at 20oC in water	Determination of pH in water by electrometric measurement. Accredited matrices: SW PW GW	In house method.	L005-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
Sulphate in water	Determination of sulphate in water by acidification followed by ICP-OES. Accredited matrices: SW PW GW, PrW.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Total cyanide in water	Determination of total cyanide by distillation followed by colorimetry. Accredited matrices: SW PW GW	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	ISO 17025
TPH1 (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS.	In-house method	L070-PL	W	NONE
TPH2 (Waters)	Determination of hydrocarbons C6-C10 by headspace GC-MS. Accredited Matrices SW, PW. GW.	In-house method based on USEPA8260	L088-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample ID	Other_ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
DS01		W	20-16515	1546496	c	Ammoniacal Nitrogen as N in water	L082-PL	c
DS01		W	20-16515	1546496	c	Electrical conductivity at 20oC of water	L031-PL	c
DS01		W	20-16515	1546496	c	pH at 20oC in water	L005-PL	c
DS02		W	20-16515	1546497	c	Ammoniacal Nitrogen as N in water	L082-PL	c
DS02		W	20-16515	1546497	c	Electrical conductivity at 20oC of water	L031-PL	c
DS02		W	20-16515	1546497	c	pH at 20oC in water	L005-PL	c
DS03		W	20-16515	1546498	c	Ammoniacal Nitrogen as N in water	L082-PL	c
DS03		W	20-16515	1546498	c	Electrical conductivity at 20oC of water	L031-PL	c
DS03		W	20-16515	1546498	c	pH at 20oC in water	L005-PL	c
DS04		W	20-16515	1546499	c	Ammoniacal Nitrogen as N in water	L082-PL	c
DS04		W	20-16515	1546499	c	Electrical conductivity at 20oC of water	L031-PL	c
DS04		W	20-16515	1546499	c	pH at 20oC in water	L005-PL	c
DS05		W	20-16515	1546500	c	Ammoniacal Nitrogen as N in water	L082-PL	c
DS05		W	20-16515	1546500	c	Electrical conductivity at 20oC of water	L031-PL	c
DS05		W	20-16515	1546500	c	pH at 20oC in water	L005-PL	c
HBH1		W	20-16515	1546501	c	Ammoniacal Nitrogen as N in water	L082-PL	c
HBH1		W	20-16515	1546501	c	Electrical conductivity at 20oC of water	L031-PL	c
HBH1		W	20-16515	1546501	c	pH at 20oC in water	L005-PL	c
HBH2		W	20-16515	1546502	c	Ammoniacal Nitrogen as N in water	L082-PL	c
HBH2		W	20-16515	1546502	c	Electrical conductivity at 20oC of water	L031-PL	c
HBH2		W	20-16515	1546502	c	pH at 20oC in water	L005-PL	c
HBH3		W	20-16515	1546503	c	Ammoniacal Nitrogen as N in water	L082-PL	c
HBH3		W	20-16515	1546503	c	Electrical conductivity at 20oC of water	L031-PL	c
HBH3		W	20-16515	1546503	c	pH at 20oC in water	L005-PL	c
HBH4		W	20-16515	1546504	c	Ammoniacal Nitrogen as N in water	L082-PL	c
HBH4		W	20-16515	1546504	c	Electrical conductivity at 20oC of water	L031-PL	c
HBH4		W	20-16515	1546504	c	pH at 20oC in water	L005-PL	c
HBH5		W	20-16515	1546505	c	Ammoniacal Nitrogen as N in water	L082-PL	c
HBH5		W	20-16515	1546505	c	Electrical conductivity at 20oC of water	L031-PL	c
HBH5		W	20-16515	1546505	c	pH at 20oC in water	L005-PL	c

Key: a - No sampling date b - Incorrect container
c - Holding time d - Headspace e - Temperature

Jade Allen
BWB Consulting Limited
Livery Place
35 Livery Street Birmingham
B3 2PB

t: 01217962087

e: jade.allen@bwbconsulting.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-17830

Replaces Analytical Report Number : 20-17830, issue no. 1

Additional analysis undertaken.

Project / Site name:	Bishops Storford	**Samples received on:**	06/07/2020
Your job number:	NTG2113	**Sample instructed/ Analysis started on:**	06/07/2020
Your order number:		**Analysis completed by:**	23/07/2020
Report Issue Number:	2	**Report issued on:**	24/07/2020
Samples Analysed:	10 water samples		

Signed: A. Czerwińska

Agnieszka Czerwińska

Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-17830

Project / Site name: Bishops Storford

Lab Sample Number				1553446	1553447	1553448	1553449	1553450
Sample Reference				HBH1	HBH2	HBH3	HBH4	HBH5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				03/07/2020	03/07/2020	03/07/2020	03/07/2020	03/07/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	35.3	< 0.01	2520	27.0	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	1.50	< 0.01	72.5	0.86	19.0
Acenaphthene	µg/l	0.01	ISO 17025	1.21	< 0.01	80.2	1.18	< 0.01
Fluorene	µg/l	0.01	ISO 17025	4.38	< 0.01	242	3.10	131
Phenanthrene	µg/l	0.01	ISO 17025	1.93	8.45	231	3.84	212
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	21.5
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	0.38	15.3	< 0.01	15.0
Pyrene	µg/l	0.01	ISO 17025	< 0.01	1.39	53.3	< 0.01	40.4
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	5.33
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	5.52
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	2.46
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	0.84
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	1.57
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	0.56
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	0.70
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	44.3	10.2	3210	36.0	456
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	70.7	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	187	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	820	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	2700	< 1.0	50000*	26000*	2700*
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	2200	3000	25000	3900	28000
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	9200	17000	83000	6600	39000
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	2700	2700	25000	4000	14000
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	160	420	5900	11000	4800
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	17000	23000	190000	51000	88000
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	71	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	9700	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	3100	2100	45000	4700	8700
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	4700	8700	36000	3400	18000
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	560	1400	8900	3600	6200
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	5100
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	8400	12000	99000	12000	38000

*Over range data, sample was diluted and results are estimated from an extrapolated calibration. Results should be interpreted with care.

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-17830

Project / Site name: Bishops Storford

Lab Sample Number				1553451	1553452	1553453	1553454	1553455
Sample Reference				DS01	DS02	DS03	DS04	DS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				03/07/2020	03/07/2020	03/07/2020	03/07/2020	03/07/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	708	212	< 0.01	177000*	5330*
Acenaphthylene	µg/l	0.01	ISO 17025	48.1	6.32	191	6570*	187*
Acenaphthene	µg/l	0.01	ISO 17025	43.2	4.43	< 0.01	10100*	159*
Fluorene	µg/l	0.01	ISO 17025	109	15.5	743	14100*	621*
Phenanthrene	µg/l	0.01	ISO 17025	133	10.3	1190	6650*	434*
Anthracene	µg/l	0.01	ISO 17025	14.7	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	9.12	0.20	47.5	174*	19.1*
Pyrene	µg/l	0.01	ISO 17025	16.6	0.73	147	599*	61.0*
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	3.94	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	1.61	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	2.16	17.3*	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	1080	250	2320	215000	6810
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	927	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	2220	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	387	2600	< 1.0	24000*	99.8
p & m-xylene	µg/l	1	ISO 17025	1540	5640	< 1.0	40100*	260
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	10300*	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	95000	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	140000*	180000*	1500	300000*	31000*
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	17000	26000	58000	38000000*	220000
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	33000	51000	78000	56000000*	480000
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	11000	8400	43000	4300000*	100000
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	3000	830	9800	450000*	21000
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	200000	260000	190000	99000000	860000
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	930	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	2200	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	35000	52000	170	160000*	4200
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	19000	23000	17000	9400000*	160000
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	19000	22000	56000	23000000*	200000
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	4900	5400	23000	1800000*	56000
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	7300	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	78000	100000	100000	34000000	420000

*Over range data, sample was diluted and results are estimated from an extrapolated calibration. Results should be interpreted with care.

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 20-17830

Project / Site name: Bishops Storford

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

4041

Chris Rhodes
BWB Consulting Limited
5th Floor
Waterfront House
Nottingham
NG2 3DQ

e: Chris.Rhodes@bwbconsulting.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-32218

Project / Site name:	NTG2113	**Samples received on:**	25/09/2020
Your job number:	NTG2113	**Samples instructed on/ Analysis started on:**	28/09/2020
Your order number:	POR032373	**Analysis completed by:**	05/10/2020
Report Issue Number:	1	**Report issued on:**	05/10/2020
Samples Analysed:	10 water samples		

Signed:

Rachel Bradley
Deputy Quality Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-32218
Project / Site name: NTG2113

Your Order No: POR032373

Lab Sample Number				1631627	1631628	1631629	1631630
Sample Reference				DS01	DS02	DS03	DS04
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				23/09/2020	23/09/2020	23/09/2020	23/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Speciated PAHs							
Naphthalene	µg/l	0.01	ISO 17025	13.2	81.9	< 0.01	59.7
Acenaphthylene	µg/l	0.01	ISO 17025	0.84	0.53	196	1.52
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	1.77
Fluorene	µg/l	0.01	ISO 17025	3.57	1.6	776	3.73
Phenanthrene	µg/l	0.01	ISO 17025	3.59	< 0.01	848	1.35
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	0.3	< 0.01	34.9	< 0.01
Pyrene	µg/l	0.01	ISO 17025	0.61	< 0.01	112	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH							
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	22.1	84	1970	68.1
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	4.4	42.6	< 1.0	5.3
Toluene	µg/l	1	ISO 17025	< 1.0	9.9	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	16.4	< 1.0	78.9
p & m-xylene	µg/l	1	ISO 17025	44.6	739	< 1.0	695
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	65.9
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	1100	3400	1200000	24000
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	6000	7000	2200000	34000
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	3200	1000	700000	3000
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	2000	< 10	160000	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	12000	11000	4200000	61000
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	4.4	43	< 1.0	5.3
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	9.9	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	660	2200	18	1800
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	2000	2500	400000	10000
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	1800	1900	530000	8000
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	600	< 10	150000	700
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	120000	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	5100	6600	1200000	21000

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-32218
Project / Site name: NTG2113

Your Order No: POR032373

Lab Sample Number				1631631	1631632	1631633	1631634
Sample Reference				DS05	HBH1	HBH2	HBH3
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				23/09/2020	24/09/2020	24/09/2020	24/09/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**				
Speciated PAHs							
Naphthalene	µg/l	0.01	ISO 17025	1610	23.6	< 0.01	65
Acenaphthylene	µg/l	0.01	ISO 17025	76.2	1.86	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	< 0.01	2.05	< 0.01	0.46
Fluorene	µg/l	0.01	ISO 17025	208	4.35	< 0.01	1.19
Phenanthrene	µg/l	0.01	ISO 17025	135	1.75	< 0.01	1.45
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	8.36	< 0.01	< 0.01	0.15
Pyrene	µg/l	0.01	ISO 17025	21.4	< 0.01	< 0.01	0.33
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH							
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	2060	33.6	< 0.16	68.6
Monoaromatics & Oxygenates							
Benzene	µg/l	1	ISO 17025	130	< 1.0	< 1.0	112
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	228	7.4	< 1.0	8.8
p & m-xylene	µg/l	1	ISO 17025	71.6	12.5	< 1.0	98.4
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	127	47.2	< 1.0	49.2
Petroleum Hydrocarbons							
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	7900	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	50000	2500	< 10	990
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	1200000	4500	470	800
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	150000	400	80	180
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	1400000	7400	550	2000
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	130	< 1.0	< 1.0	110
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	3400	120	< 1.0	420
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	300000	2200	400	1000
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	330000	3000	300	700
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	30000	350	48	100
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	660000	5700	750	2300

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 20-32218
Project / Site name: NTG2113

Your Order No: POR032373

Lab Sample Number				1631635	1631636
Sample Reference				HBH4	HBH5
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				24/06/2020	24/09/2020
Time Taken				None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**		
Speciated PAHs					
Naphthalene	µg/l	0.01	ISO 17025	15.8	8.58
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	1	1.86
Fluorene	µg/l	0.01	ISO 17025	2.74	6.08
Phenanthrene	µg/l	0.01	ISO 17025	2.16	4.54
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	0.15	0.33
Pyrene	µg/l	0.01	ISO 17025	0.43	1.18
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01
Total PAH					
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	22.2	22.6
Monoaromatics & Oxygenates					
Benzene	µg/l	1	ISO 17025	< 1.0	11.2
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	15.3
Petroleum Hydrocarbons					
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	1200	1800
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	1100	2500
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	240	800
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	2600	5100
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	11
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	14	7.3
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	1300	1600
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	930	2000
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	150	500
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	2400	4100

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 20-32218
Project / Site name: NTG2113

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample Deviation Report

Analytical Report Number : 20-32218
Project / Site name: NTG2113

Sample ID	Other ID	Sample Type	Lab Sample Number	Sample Deviation	Test Name	Test Ref	Test Deviation
HBH4	None Supplied	W	1631635	c	BTEX and MTBE in water (Monoaromatics)	L073B-PL	c
HBH4	None Supplied	W	1631635	c	Speciated EPA-16 PAHs in water	L102B-PL	c
HBH4	None Supplied	W	1631635	c	TPHCWG (Waters)	L070-PL	c

Key: **a** - No sampling date **b** - Incorrect container
c - Holding time **d** - Headspace **e** - Temperature

Chris Rhodes
BWB Consulting Limited
5th Floor
Waterfront House
Nottingham
NG2 3DQ

e: Chris.Rhodes@bwbconsulting.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 20-46963

Project / Site name:	Bishops Stortford	**Samples received on:**	14/12/2020
Your job number:	NTG2113	**Samples instructed on/ Analysis started on:**	14/12/2020
Your order number:	POR033147	**Analysis completed by:**	21/12/2020
Report Issue Number:	1	**Report issued on:**	21/12/2020
Samples Analysed:	10 water samples		

Signed: A. Czerwińska

Agnieszka Czerwińska
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 20-46963
Project / Site name: Bishops Stortford

Your Order No: POR033147

Lab Sample Number				1715217	1715218	1715219	1715220	1715221
Sample Reference				HBH2	HBH4	HBH5	HBH3	DS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/12/2020	09/12/2020	09/12/2020	09/12/2020	09/12/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	0.78	< 0.01	< 0.01	17.8	160
Acenaphthylene	µg/l	0.01	ISO 17025	0.22	< 0.01	0.58	0.28	3.36
Acenaphthene	µg/l	0.01	ISO 17025	0.34	< 0.01	1.34	0.67	4.05
Fluorene	µg/l	0.01	ISO 17025	0.72	69.5	2.99	1.48	9.31
Phenanthrene	µg/l	0.01	ISO 17025	0.35	105	2.38	0.7	6.81
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	10.6	0.34	< 0.01	0.49
Pyrene	µg/l	0.01	ISO 17025	< 0.01	24.9	0.84	< 0.01	0.92
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	2.41	210	8.47	20.9	185
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	1.5	27.8	67.6
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	1.5	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	9.2	18.1
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	170000	2000	670	34000
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	700	300000	9000	1300	56000
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	150	140000	3000	< 10	12000
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	44000	< 10	< 10	4400
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	850	650000	14000	1900	110000
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	1.5	28	68
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	1.5	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	6.8	< 1.0	11	110	350
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	600	47000	3800	2400	53000
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	500	93000	4700	2900	47000
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	99	41000	700	< 10	11000
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	11000	< 10	< 10	4000
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	1200	190000	9200	5400	120000

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Analytical Report Number: 20-46963
Project / Site name: Bishops Stortford

Your Order No: POR033147

Lab Sample Number				1715222	1715223	1715224	1715225	1715226
Sample Reference				HBH1	DS04	DS02	DS01	DS03
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				09/12/2020	09/12/2020	10/12/2020	10/12/2020	10/12/2020
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	9.28	22.1	133	3.09	1.07
Acenaphthylene	µg/l	0.01	ISO 17025	1.42	0.17	3.87	0.2	0.27
Acenaphthene	µg/l	0.01	ISO 17025	1.74	0.51	4.62	0.41	0.74
Fluorene	µg/l	0.01	ISO 17025	4.22	0.97	9.46	1.28	1.81
Phenanthrene	µg/l	0.01	ISO 17025	1.68	0.23	6.15	0.65	1.08
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.3	< 0.01	< 0.01
Pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	0.58	< 0.01	< 0.01
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	18.3	23.9	158	5.63	4.97
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	59	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	7.5	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	55	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	21000	850	38000	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	26000	1400	110000	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	3100	280	13000	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	2800	380	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	53000	3000	160000	< 10	< 10
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	2.2	4.6	220	19	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	30000	1200	30000	720	2000
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	21000	2200	100000	1700	3000
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	3400	520	19000	220	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	4100	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	54000	3900	150000	2700	5000

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 20-46963
Project / Site name: Bishops Stortford

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Tim Hull
BWB Consulting Limited
5th Floor
Waterfront House
Nottingham
NG2 3DQ

e: tim.hull@bwbconsulting.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404
f: 01923 237404
e: reception@i2analytical.com

Analytical Report Number : 21-84167

Replaces Analytical Report Number: 21-84167, issue no. 1
Additional analysis undertaken.

Project / Site name:	Bishops Stortford	**Samples received on:**	29/06/2021
Your job number:	NTG2113	**Samples instructed on/ Analysis started on:**	30/06/2021
Your order number:	POR034918	**Analysis completed by:**	19/07/2021
Report Issue Number:	2	**Report issued on:**	19/07/2021
Samples Analysed:	10 water samples		

Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.

Analytical Report Number: 21-84167
Project / Site name: Bishops Stortford

Your Order No: POR034918

Lab Sample Number				1922064	1922065	1922066	1922067	1922068
Sample Reference				DS01	DS02	DS03	DS04	DS05
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				29/06/2021	29/06/2021	28/06/2021	28/06/2021	28/06/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	94.4	< 0.01	111	107
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	5.77	4.40	3.78	4.90	5.96
Fluorene	µg/l	0.01	ISO 17025	21.2	9.67	11.0	12.2	14.2
Phenanthrene	µg/l	0.01	ISO 17025	18.5	4.86	10.6	4.40	8.81
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	0.78	0.21	0.43	0.18	0.56
Pyrene	µg/l	0.01	ISO 17025	2.06	0.41	1.16	0.46	1.25
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	48.3	114	26.9	133	137
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	90.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	2.1	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	6.3	60.7	< 1.0	262	32.2
o-xylene	µg/l	1	ISO 17025	< 1.0	10.5	< 1.0	38.8	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	95.9
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	31000	24000	6500	53000	31000
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	51000	41000	19000	48000	48000
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	19000	3100	6300	2400	6100
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	100000	68000	32000	100000	85000
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	92
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	110	180	< 1.0	770	580
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	2600	6400	2700	16000	12000
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	11000	2800	4300	21000	7700
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	2200	< 10	830	< 10	910
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	16000	9400	7800	38000	21000

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 21-84167
Project / Site name: Bishops Stortford

Your Order No: POR034918

Lab Sample Number				1922069	1922070	1922071	1922072	1922073
Sample Reference				HBH1	HBH2	HBH3	HBH4	HBH5
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				28/06/2021	28/06/2021	28/06/2021	28/06/2021	28/06/2021
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Water Analysis)	**Units**	**Limit of detection**	**Accreditation Status**					
Speciated PAHs								
Naphthalene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	19.8	< 0.01	< 0.01
Acenaphthylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Acenaphthene	µg/l	0.01	ISO 17025	3.82	0.29	1.44	59.5	2.14
Fluorene	µg/l	0.01	ISO 17025	8.98	0.67	3.71	157	3.99
Phenanthrene	µg/l	0.01	ISO 17025	3.25	0.20	2.44	187	0.80
Anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Fluoranthene	µg/l	0.01	ISO 17025	0.24	< 0.01	0.21	23.5	0.34
Pyrene	µg/l	0.01	ISO 17025	0.51	< 0.01	0.49	55.9	0.60
Benzo(a)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Chrysene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(b)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(k)fluoranthene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(a)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Indeno(1,2,3-cd)pyrene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Dibenz(a,h)anthracene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Benzo(ghi)perylene	µg/l	0.01	ISO 17025	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
Total PAH								
Total EPA-16 PAHs	µg/l	0.16	ISO 17025	16.8	1.16	28.1	483	7.87
Monoaromatics & Oxygenates								
Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0	54.3	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	5.0	< 1.0	< 1.0	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	8.1	< 1.0	14.2	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	1	ISO 17025	38.7	< 1.0	23.1	< 1.0	< 1.0
Petroleum Hydrocarbons								
TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	740	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	16000	380	2300	91000	600
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	32000	940	4800	230000	1700
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	3100	130	1100	100000	920
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	50000	1500	8200	430000	3200
TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0	53	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	110	< 1.0	170	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	5600	150	1100	7200	1400
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	4000	270	2400	32000	820
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	340	29	290	10000	140
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10	< 10	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	10000	450	4000	50000	2400

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 21-84167
Project / Site name: Bishops Stortford

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Speciated EPA-16 PAHs in water	Determination of PAH compounds in water by extraction in dichloromethane followed by GC-MS with the use of surrogate and internal standards. Accredited matrices: SW PW GW	In-house method based on USEPA 8270	L102B-PL	W	ISO 17025
TPHCWG (Waters)	Determination of dichloromethane extractable hydrocarbons in water by GC-MS, speciation by interpretation.	In-house method	L070-PL	W	NONE
BTEX and MTBE in water (Monoaromatics)	Determination of BTEX and MTBE in water by headspace GC-MS. Accredited matrices: SW PW GW	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.
For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.
Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Appendix 5: Water Quality Parameter Sheets

Low-Flow Test Report:

Test Date / Time: 12/9/2020 2:30:03 PM
Project: NTG2113
Operator Name: Megan okelly

Location Name: DS04 **Total Depth: 7.69 m** **Initial Depth to Water: 3.74 m**	**Pump Type: Peristaltic** **Flow Cell Volume: 90 ml** **Final Draw Down: 0 m**	**Instrument Used: SmarTROLL MP** **Serial Number: 528157**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water
		+/- 0.1	+/- 0.5	+/- 3 %	+/- 0.3	+/- 10	+/- 10	+/- 5
12/9/2020 2:30 PM	00:00	6.99 pH	11.36 °C	983.89 µS/cm	0.60 mg/L		73.9 mV	374.00 cm
12/9/2020 2:31 PM	01:00	6.99 pH	11.77 °C	978.60 µS/cm	0.50 mg/L		88.7 mV	374.00 cm
12/9/2020 2:32 PM	02:00	6.99 pH	11.99 °C	975.55 µS/cm	0.46 mg/L		96.1 mV	374.00 cm
12/9/2020 2:33 PM	03:00	6.99 pH	12.13 °C	975.49 µS/cm	0.50 mg/L		101.1 mV	374.00 cm
12/9/2020 2:34 PM	04:00	6.99 pH	12.26 °C	975.65 µS/cm	0.49 mg/L		104.6 mV	374.00 cm
12/9/2020 2:35 PM	05:00	6.99 pH	12.33 °C	975.09 µS/cm	0.58 mg/L		107.6 mV	374.00 cm
12/9/2020 2:36 PM	06:00	6.99 pH	12.32 °C	976.43 µS/cm	0.57 mg/L		110.2 mV	374.00 cm
12/9/2020 2:37 PM	07:00	6.99 pH	12.39 °C	976.50 µS/cm	0.58 mg/L		112.0 mV	374.00 cm
12/9/2020 2:38 PM	08:00	6.99 pH	12.40 °C	977.69 µS/cm	0.56 mg/L		113.5 mV	374.00 cm
12/9/2020 2:39 PM	09:00	6.99 pH	12.41 °C	979.12 µS/cm	0.63 mg/L		112.1 mV	374.00 cm
12/9/2020 2:40 PM	10:00	6.99 pH	12.38 °C	981.07 µS/cm	0.62 mg/L		111.6 mV	374.00 cm
12/9/2020 2:41 PM	11:00	6.99 pH	12.37 °C	982.04 µS/cm	0.61 mg/L		115.8 mV	374.00 cm
12/9/2020 2:42 PM	12:00	6.99 pH	12.34 °C	983.19 µS/cm	0.60 mg/L		117.2 mV	374.00 cm
12/9/2020 2:43 PM	13:00	6.99 pH	12.34 °C	983.91 µS/cm	0.57 mg/L		118.3 mV	374.00 cm
12/9/2020 2:44 PM	14:00	6.99 pH	12.35 °C	986.01 µS/cm	0.59 mg/L		117.7 mV	374.00 cm
12/9/2020 2:45 PM	15:00	6.99 pH	12.39 °C	986.80 µS/cm	0.57 mg/L		119.0 mV	374.00 cm
12/9/2020 2:46 PM	16:00	6.99 pH	12.44 °C	986.96 µS/cm	0.55 mg/L		118.1 mV	374.00 cm
12/9/2020 2:47 PM	17:00	6.99 pH	12.48 °C	986.81 µS/cm	0.54 mg/L		119.0 mV	374.00 cm

12/9/2020 2:48 PM	18:00	6.99 pH	12.48 °C	986.93 µS/cm	0.57 mg/L		117.5 mV	374.00 cm

Samples

Sample ID:	Description:
DS04	Stabilised after 18 mins

Low-Flow Test Report:

Test Date / Time: 12/10/2020 9:05:31 AM
Project: NTG2113
Operator Name: Megan O'Kelly

Location Name: DS02 **Total Depth: 6.84 m** **Initial Depth to Water: 4.02 m**	**Pump Type: Peristaltic** **Flow Cell Volume: 90 ml** **Final Draw Down: 0 m**	**Instrument Used: SmarTROLL MP** **Serial Number: 528157**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water
		+/- 0.1	+/- 0.5	+/- 3 %	+/- 0.3	+/- 10	+/- 10	+/- 5
12/10/2020 9:05 AM	00:00	7.01 pH	7.99 °C	1,440.8 µS/cm	0.88 mg/L		271.8 mV	402.00 cm
12/10/2020 9:06 AM	01:00	7.00 pH	9.41 °C	1,404.2 µS/cm	0.85 mg/L		201.3 mV	402.00 cm
12/10/2020 9:07 AM	02:00	7.00 pH	10.26 °C	1,371.4 µS/cm	0.88 mg/L		181.1 mV	402.00 cm
12/10/2020 9:08 AM	03:00	7.00 pH	10.73 °C	1,342.6 µS/cm	1.12 mg/L		173.2 mV	402.00 cm
12/10/2020 9:09 AM	04:00	7.00 pH	11.10 °C	1,306.1 µS/cm	1.16 mg/L		169.1 mV	402.00 cm
12/10/2020 9:10 AM	05:00	7.00 pH	11.29 °C	1,281.2 µS/cm	1.28 mg/L		166.4 mV	402.00 cm
12/10/2020 9:11 AM	06:00	7.00 pH	11.44 °C	1,262.1 µS/cm	1.29 mg/L		164.3 mV	402.00 cm
12/10/2020 9:12 AM	07:00	7.00 pH	11.56 °C	1,249.5 µS/cm	1.30 mg/L		162.6 mV	402.00 cm
12/10/2020 9:13 AM	08:00	7.00 pH	11.61 °C	1,240.4 µS/cm	1.23 mg/L		161.3 mV	402.00 cm
12/10/2020 9:14 AM	09:00	7.00 pH	11.65 °C	1,238.3 µS/cm	1.24 mg/L		160.1 mV	402.00 cm
12/10/2020 9:15 AM	10:00	7.00 pH	11.75 °C	1,235.3 µS/cm	1.20 mg/L		159.1 mV	402.00 cm
12/10/2020 9:16 AM	11:00	7.00 pH	11.75 °C	1,241.5 µS/cm	1.19 mg/L		158.1 mV	402.00 cm
12/10/2020 9:17 AM	12:00	7.00 pH	11.79 °C	1,243.9 µS/cm	1.11 mg/L		157.3 mV	402.00 cm
12/10/2020 9:18 AM	13:00	7.00 pH	11.79 °C	1,247.7 µS/cm	1.03 mg/L		156.6 mV	402.00 cm
12/10/2020 9:19 AM	14:00	7.00 pH	11.84 °C	1,252.1 µS/cm	0.96 mg/L		155.9 mV	402.00 cm
12/10/2020 9:20 AM	15:00	7.00 pH	11.84 °C	1,256.1 µS/cm	0.97 mg/L		155.2 mV	402.00 cm
12/10/2020 9:21 AM	16:00	7.00 pH	11.86 °C	1,258.2 µS/cm	0.95 mg/L		154.6 mV	402.00 cm
12/10/2020 9:22 AM	17:00	7.00 pH	11.87 °C	1,261.6 µS/cm	0.94 mg/L		154.0 mV	402.00 cm

12/10/2020 9:23 AM	18:00	7.00 pH	11.88 °C	1,270.2 µS/cm	0.88 mg/L		153.4 mV	402.00 cm
12/10/2020 9:24 AM	19:00	7.00 pH	11.93 °C	1,180.8 µS/cm	0.86 mg/L		152.9 mV	402.00 cm
12/10/2020 9:25 AM	20:00	7.00 pH	11.92 °C	1,279.2 µS/cm	0.81 mg/L		152.3 mV	402.00 cm
12/10/2020 9:26 AM	21:00	7.00 pH	11.93 °C	1,281.0 µS/cm	0.70 mg/L		151.9 mV	402.00 cm
12/10/2020 9:27 AM	22:00	7.00 pH	11.93 °C	1,286.1 µS/cm	0.67 mg/L		151.4 mV	402.00 cm
12/10/2020 9:28 AM	23:00	7.00 pH	11.96 °C	1,288.4 µS/cm	0.62 mg/L		150.9 mV	402.00 cm
12/10/2020 9:29 AM	24:00	7.00 pH	11.96 °C	1,290.7 µS/cm	0.58 mg/L		150.4 mV	402.00 cm
12/10/2020 9:30 AM	25:00	7.00 pH	11.96 °C	1,293.3 µS/cm	0.57 mg/L		149.9 mV	402.00 cm

Samples

Sample ID:	Description:
DS02	Stabilised after 25 mins

Low-Flow Test Report:

Test Date / Time: 12/10/2020 9:44:23 AM
Project: NTG2113
Operator Name: Megan O'Kelly

Location Name: DS03 **Total Depth: 7.68 m** **Initial Depth to Water: 4.16 m**	**Pump Type: Peristaltic** **Flow Cell Volume: 90 ml** **Final Draw Down: 0 m**	**Instrument Used: SmarTROLL MP** **Serial Number: 528157**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water
		+/- 0.1	+/- 0.5	+/- 3 %	+/- 0.3	+/- 10	+/- 10	+/- 5
12/10/2020 9:44 AM	00:00	7.00 pH	10.56 °C	1,105.1 µS/cm	2.63 mg/L		151.8 mV	416.00 cm
12/10/2020 9:45 AM	01:00	7.00 pH	10.77 °C	1,108.8 µS/cm	1.04 mg/L		151.8 mV	416.00 cm
12/10/2020 9:46 AM	02:00	7.00 pH	11.00 °C	1,104.5 µS/cm	0.69 mg/L		151.1 mV	416.00 cm
12/10/2020 9:47 AM	03:00	7.00 pH	11.12 °C	1,102.9 µS/cm	0.56 mg/L		150.2 mV	416.00 cm
12/10/2020 9:48 AM	04:00	7.00 pH	11.21 °C	1,100.5 µS/cm	0.52 mg/L		149.1 mV	416.00 cm
12/10/2020 9:49 AM	05:00	7.00 pH	11.28 °C	1,096.8 µS/cm	0.49 mg/L		147.9 mV	416.00 cm
12/10/2020 9:50 AM	06:00	7.00 pH	11.31 °C	1,095.6 µS/cm	0.46 mg/L		146.9 mV	416.00 cm
12/10/2020 9:51 AM	07:00	7.00 pH	11.33 °C	1,093.2 µS/cm	0.50 mg/L		145.1 mV	416.00 cm
12/10/2020 9:52 AM	08:00	7.00 pH	11.32 °C	1,091.2 µS/cm	0.55 mg/L		144.8 mV	416.00 cm
12/10/2020 9:53 AM	09:00	7.00 pH	11.29 °C	1,093.7 µS/cm	0.56 mg/L		144.0 mV	416.00 cm
12/10/2020 9:54 AM	10:00	7.00 pH	11.24 °C	1,095.8 µS/cm	0.56 mg/L		143.2 mV	416.00 cm
12/10/2020 9:55 AM	11:00	7.00 pH	11.22 °C	1,097.2 µS/cm	0.56 mg/L		142.5 mV	416.00 cm
12/10/2020 9:56 AM	12:00	7.00 pH	11.19 °C	1,101.6 µS/cm	0.51 mg/L		141.6 mV	416.00 cm
12/10/2020 9:57 AM	13:00	7.00 pH	11.23 °C	1,102.1 µS/cm	0.47 mg/L		140.7 mV	416.00 cm
12/10/2020 9:58 AM	14:00	7.00 pH	11.28 °C	1,101.4 µS/cm	0.44 mg/L		140.0 mV	416.00 cm
12/10/2020 9:59 AM	15:00	7.00 pH	11.30 °C	1,100.5 µS/cm	0.42 mg/L		139.2 mV	416.00 cm
12/10/2020 10:00 AM	16:00	7.00 pH	11.33 °C	1,099.4 µS/cm	0.42 mg/L		138.6 mV	416.00 cm
12/10/2020 10:01 AM	17:00	7.00 pH	11.33 °C	1,098.5 µS/cm	0.41 mg/L		138.0 mV	416.00 cm

Samples

Sample ID:	Description:
DS03	Stabilised after 17 mins

Low-Flow Test Report:

Test Date / Time: 12/10/2020 10:14:50 AM
Project: NTG2113
Operator Name: Megan O'Kelly

Location Name: DS01 **Total Depth: 7.79 m** **Initial Depth to Water: 4.2 m**	**Pump Type: Peristaltic** **Flow Cell Volume: 90 ml** **Final Draw Down: 0 m**	**Instrument Used: SmarTROLL MP** **Serial Number: 528157**

Test Notes:

Low-Flow Readings:

Date Time	Elapsed Time	pH	Temperature	Specific Conductivity	RDO Concentration	Turbidity	ORP	Depth To Water
		+/- 0.1	+/- 0.5	+/- 3 %	+/- 0.3	+/- 10	+/- 10	+/- 5
12/10/2020 10:14 AM	00:00	7.00 pH	10.45 °C	1,113.2 µS/cm	1.77 mg/L		118.7 mV	420.00 cm
12/10/2020 10:15 AM	01:00	7.00 pH	10.71 °C	1,114.1 µS/cm	1.84 mg/L		133.1 mV	420.00 cm
12/10/2020 10:16 AM	02:00	7.00 pH	10.91 °C	1,112.1 µS/cm	1.78 mg/L		137.0 mV	420.00 cm
12/10/2020 10:17 AM	03:00	7.00 pH	11.06 °C	1,100.8 µS/cm	1.61 mg/L		138.5 mV	420.00 cm
12/10/2020 10:18 AM	04:00	7.00 pH	11.19 °C	1,106.3 µS/cm	1.90 mg/L		139.2 mV	420.00 cm
12/10/2020 10:19 AM	05:00	7.00 pH	11.24 °C	1,105.0 µS/cm	2.39 mg/L		139.4 mV	420.00 cm
12/10/2020 10:20 AM	06:00	7.00 pH	11.30 °C	1,105.3 µS/cm	2.60 mg/L		139.3 mV	420.00 cm
12/10/2020 10:21 AM	07:00	7.00 pH	11.35 °C	1,087.6 µS/cm	3.16 mg/L		139.1 mV	420.00 cm
12/10/2020 10:22 AM	08:00	7.00 pH	11.37 °C	1,104.4 µS/cm	2.07 mg/L		138.9 mV	420.00 cm
12/10/2020 10:23 AM	09:00	7.00 pH	11.42 °C	1,094.0 µS/cm	2.24 mg/L		138.6 mV	420.00 cm
12/10/2020 10:24 AM	10:00	7.00 pH	11.44 °C	1,097.2 µS/cm	3.41 mg/L		138.2 mV	420.00 cm
12/10/2020 10:25 AM	11:00	7.00 pH	11.45 °C	1,104.3 µS/cm	2.70 mg/L		137.8 mV	420.00 cm
12/10/2020 10:26 AM	12:00	7.00 pH	11.47 °C	1,112.8 µS/cm	3.31 mg/L		137.4 mV	420.00 cm
12/10/2020 10:27 AM	13:00	7.00 pH	11.49 °C	1,110.9 µS/cm	2.10 mg/L		137.0 mV	420.00 cm
12/10/2020 10:28 AM	14:00	7.00 pH	11.51 °C	1,107.7 µS/cm	3.06 mg/L		136.4 mV	420.00 cm
12/10/2020 10:29 AM	15:00	7.00 pH	11.51 °C	1,102.1 µS/cm	3.27 mg/L		136.0 mV	420.00 cm
12/10/2020 10:30 AM	16:00	7.00 pH	11.56 °C	1,085.3 µS/cm	3.38 mg/L		135.4 mV	420.00 cm
12/10/2020 10:31 AM	17:00	7.00 pH	11.56 °C	1,109.4 µS/cm	3.09 mg/L		135.0 mV	420.00 cm

12/10/2020 10:32 AM	18:00	7.00 pH	11.58 °C	1,096.0 µS/cm	3.06 mg/L		134.5 mV	420.00 cm
12/10/2020 10:33 AM	19:00	7.00 pH	11.60 °C	1,102.7 µS/cm	3.60 mg/L		134.0 mV	420.00 cm
12/10/2020 10:34 AM	20:00	7.00 pH	11.61 °C	1,109.2 µS/cm	2.54 mg/L		133.6 mV	420.00 cm
12/10/2020 10:35 AM	21:00	7.00 pH	11.61 °C	1,111.6 µS/cm	3.29 mg/L		133.1 mV	420.00 cm
12/10/2020 10:36 AM	22:00	7.00 pH	11.62 °C	1,106.0 µS/cm	3.30 mg/L		132.8 mV	420.00 cm
12/10/2020 10:37 AM	23:00	7.00 pH	11.64 °C	1,103.2 µS/cm	3.56 mg/L		132.2 mV	420.00 cm
12/10/2020 10:38 AM	24:00	7.00 pH	11.63 °C	1,099.4 µS/cm	3.58 mg/L		131.8 mV	420.00 cm
12/10/2020 10:39 AM	25:00	7.00 pH	11.65 °C	1,087.4 µS/cm	1.67 mg/L		131.3 mV	420.00 cm
12/10/2020 10:40 AM	26:00	7.00 pH	11.65 °C	1,098.9 µS/cm	2.57 mg/L		130.9 mV	420.00 cm

Samples

Sample ID:	Description:
DS01	Did not stabilise after 26 mins

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APPENDIX 2
EA04 ENVIRONMENTAL RISK ASSESSMENT

OIL SALVAGE LIMITED
BISHOP STORTFORD

Environmental Risk Assessment

Scope of Assessment	Reference Number	EA04
This Assessment is to assess the potential environmental impact of the Bishops Stortford Site		

Assessed By	Signature	Date
Neil Redmond		19th October 2021
Approved By		
Mitch Vernon		19th October 2021

Potential Environmental Hazards *(Please tick)*					
Odour	✓	Noise & Vibration	✓	Emissions to water & land	✓
Emission to Air	✓	Mud & Litter	✓	Pest, Vermin Insects	✓
Leaks & Spills	✓	Process generated Waste	✓	Dust & Particulate	

Other Hazards Identified (*please state below)*

Arson and acts of vandalism.
Accidental fire.
Flood

What do you do that can harm and what could be harmed			Managing the risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm	What is at risk what do I wish to protect	How can the hazard get to the receptor	What measures will you take to reduce the risk – who is responsible	How likely is this contact	What is the harm that can be caused	What is the risk that remains? The balance of probability and consequence
Odour associated with the storage and transfer of liquids	Farmland around the site, public footpaths, and highway A120 within 200m of plant, small residential area (6 houses).	Air	Waste types accepted are not considered odourless in nature. Strict waste acceptance procedures in place audited to ISO standards. Only permitted waste accepted on site. Liquids stored within enclosed tanks liquids pumped between vehicles and tanks. Drivers are instructed to report any unusual or strong odours when attending site. A sniff test will be completed on a quarterly basis.	Low	Odour Nuisance	Not significant due to the type of waste accepted on site
Noise and Vibration from plant operation and vehicular movements	Farmland around the site, public footpaths and highway A120 within 200m of plant, small residential area (6 houses).	Air	Little increase in traffic expected above current traffic movements. Vehicles undergo regular maintenance and inspections. Regular maintenance of transfer pumps to reduce noise and vibration. Pumps changed at end of working life. Speed limits implemented on site.	Low	Noise Disturbance	Not Significant due to the location and mitigation methods implemented on site.

What do you do that can harm and what could be harmed			Managing the risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm	What is at risk what do I wish to protect	How can the hazard get to the receptor	What measures will you take to reduce the risk – who is responsible	How likely is this contact	What is the harm that can be caused	What is the risk that remains? The balance of probability and consequence
Contaminated site run off	Surface Water. Ground Water. Waterfowl. Aquatic life. A small brook runs along the west of the site.	Runoff and percolation	Site is concreated concreted to prevent percolation to ground water. Surface water is direct towards an interceptor. All liquids stored in tanks. All tankers and ancillary equipment undergo regular maintenance and inspection. All tanks undergo regular inspection and maintenance. Discharge valve to the brook isolated, surface water captured by the interceptor and rainwater collected in the bund will be removed by tanker and taken to Lyster Road for treatment. All storage tanks are contained within regularly inspected and maintained bund walls capable of holding 110% of content.	Low	Ground water and surface water contamination	Not Significant due to mitigation methods implemented on site

What do you do that can harm and what could be harmed			Managing the risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm	What is at risk what do I wish to protect	How can the hazard get to the receptor	What measures will you take to reduce the risk – who is responsible	How likely is this contact	What is the harm that can be caused	What is the risk that remains? The balance of probability and consequence
Emissions to Air	Farmland around the site, public footpaths, and highway A120 within 200m of plant, small residential area (6 houses).	Air	Site is not situated within air protection zone. The site is not permanently occupied and access to the site will be limited. Fleet being upgraded to Euro 6 vehicles. Vehicles will spend a short amount of time on site to load / unload. Emissions from tanks and tanker manways occur during oil transfer only, as the result of displacement.	Low	Air pollution and Nuisance from VOC contamination	Not Significant due to mitigation methods implemented on site.
Leakage of fuel and oils from Tanks	Surface Water. Ground Water. Waterfowl. Aquatic life. A small brook runs along the west of the site. Local land quality.	Overland Surface Water	See contaminated site run off section. Site is not situated in wildlife protection zones. Visual and electronic overfill detection on all storage tanks. Tanks sit within bunds. Flexi pipes are inspected on a regular basis. Site employees trained to deal with spills. Site is operated by drivers who are all ADR trained and carry the necessary equipment and PPE needed for the control and clean-up of small to medium spillages. Company operates a Spillage and Accidental Release Standard Operating Procedure	Low	Ground water and surface water contamination Land contamination	Not Significant due to mitigation methods implemented on site.

What do you do that can harm and what could be harmed			Managing the risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm	What is at risk what do I wish to protect	How can the hazard get to the receptor	What measures will you take to reduce the risk – who is responsible	How likely is this contact	What is the harm that can be caused	What is the risk that remains? The balance of probability and consequence
Pests, vermin, and Insects	Farmland around the site, public footpaths, and highway A120 within 200m of plant, small residential area (6 houses).	Through the air and over land	Liquids stored do not attract pests and vermin. Drivers instructed to not dispose of any rubbish at the site. Regular inspections of site if any indication of pest, vermin activity arrangements will be made with a pest control company to manage the situation. Records will be kept monitoring the effectiveness of control measures. Site is regularly maintained to prevent vegetation overgrowth.	Low	Ground water and surface water contamination Damage to plant and equipment Hazard to human health	Not Significant due to mitigation methods implemented on site
Arson and vandalism causing the	Farmland around the site, public footpaths, and highway A120	Air Spillages and contaminated	Site is located a significant distance from any built-up area or residential properties. Mischievous	Medium	Air pollution Ground water and surface	Not Significant due to mitigation

release of polluting materials to air, water, or land.	within 200m of plant, small residential area (6 houses).	fire water run off	attempts at unauthorised access are unlikely to occur. Site is surrounded by a robust security fence topped with barbed wire. Intruder alarm with perimeter sensors in place the system is linked to company directors' phones. Security gates locked outside of times of occupation. Tanks sit within bunds built with fire retardant sealant, rope, and joint filler. Fire water run off would be collected within an interceptor that would then be pumped into a tank and transferred off site for proper disposal.		water contamination Damage to plant and equipment	methods implemented on site
What do you do that can harm and what could be harmed			Managing the risk	Assessing the Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Probability of exposure**	**Consequence**	**What is the overall risk**
What has the potential to cause harm	What is at risk what do I wish to protect	How can the hazard get to the receptor	What measures will you take to reduce the risk – who is responsible	How likely is this contact	What is the harm that can be caused	What is the risk that remains? The balance of probability and consequence
Accidental Fire Explosion	Farmland around the site, public footpaths and highway A120 within 200m of plant, small residential area (6 houses).	Air Spillages and contaminated fire water run off	Tanks sit within bunds which are built with fire retardant sealant, rope, and joint filler. All plant, equipment and electrical installations will be kept maintained and in good working condition and subject to routine inspection and maintenance. No smoking is permitted on the site. Strict waste acceptance procedures in place audited to ISO standards. Only permitted waste accepted on site.	Low	Air pollution Ground water and surface water contamination Damage to plant and equipment	Not Significant due to mitigation methods implemented on site

			Only a small amount of potential flammable liquids is stored on site. Drivers ADR trained.			
Flood	Surface Water. Ground Water. Waterfowl. Aquatic life. A small brook runs along the south of the site. Local land quality.	Overland Surface Water Runoff and percolation	OSL has signed up to weather watch, flood notifications. In the event of a flood all tanks will be emptied, all unsecured plant will be stowed safely or removed from site.	Low	Ground water and surface water contamination	Not Significant due to mitigation methods implemented on site.

APPENDIX 3
CLIMATE CHANGE RISK ASSESSMENT

OIL SALVAGE LIMITED
BISHOP STORTFORD

Thames river basin district: climate change risk assessment worksheet

Name (as on your part A application form): **Bishop's Stortford Oil Storage Depot**

Our permit reference number (if you have one): None yet assigned

Your document reference number: **OSL BS CCRA**

Risk assessment worksheet for the 2050s

Thames river basin district

Note: Scoring for Likelihood and Severity is 1 (low) to 4 (high)

Potential changing climate variable	**A** **Impact**	**B** **Likelihood**	**C** **Severity**	**D** **Risk** (BxC)	**E** **Mitigation** (what mitigates the risk)	**F** **Likelihood** (with mitigation)	**G** **Severity** (with mitigation)	**H** **Residual Risk** (FxG)
1. Summer daily maximum temperature may be around 7°C higher compared to average summer temperatures now.	Flash point of mixed waste oil typically >65ºC and auto-ignition >220ºC. Possibility of temperature increase but no / minimal impact.	1	1	1	No additional controls required.	1	1	1
2. Winter daily maximum temperature could be 4°C more than the current average, with the potential for more extreme temperatures, both warmer and colder than present.	Flash point of mixed waste oil typically >65ºC and auto-ignition >220ºC. Possibility of temperature increase but no / minimal impact.	1	1	1	No additional controls required.	1	1	1
3. The biggest rainfall events are up to 20% more intense than current extremes (peak rainfall intensity).	Site is known to have suffered from fluvial flooding in the past (2001) and has a medium to high risk of such flooding. Pluvial flooding is not reported, but site is predicted (at today's conditions) to potentially be inundated during a 1 in 30-year return storm to 0.3 – 1m deep, and greater than 1 m deep in some areas of the site. See data below.	3	2	6	The site has the potential to flood. OSL will 'weather watch' and sign up to flood alerts, and will take action in the event that a flood may be likely to occur. As required, tanks will be emptied and unsecured plant will be safely stowed or removed from site.	3	1	3

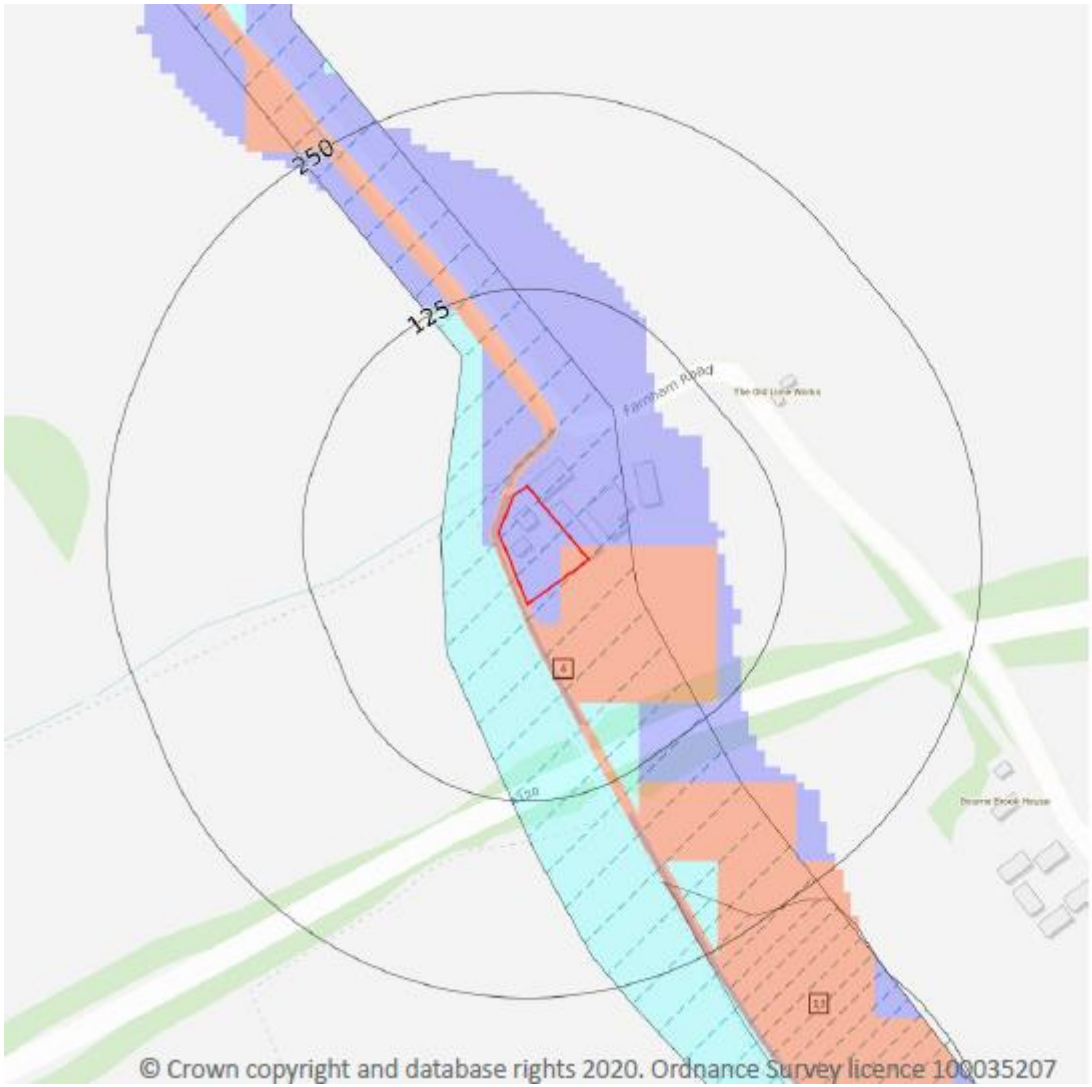
Potential changing climate variable	**A** **Impact**	**B** **Likelihood**	**C** **Severity**	**D** **Risk** (BxC)	**E** **Mitigation** (what mitigates the risk)	**F** **Likelihood** (with mitigation)	**G** **Severity** (with mitigation)	**H** **Residual Risk** (FxG)
4. Average winter rainfall may increase by 36% on today's averages.	Site is known to have suffered from fluvial flooding in the past (2001) and has a medium to high risk of such flooding. Pluvial flooding is not reported, but site is predicted (at today's conditions) to potentially be inundated during a 1 in 30-year return storm to 0.3 – 1m deep, and greater than 1 m deep in some areas of the site. See data below.	3	2	6	The site has the potential to flood. OSL will 'weather watch' and sign up to flood alerts, and will take action in the event that a flood may be likely to occur. As required, tanks will be emptied and unsecured plant will be safely stowed or removed from site.	3	1	3
5. Sea level could be as much as 0.6m higher compared to today's level.	Site is not in a coastal location or one that might be affected by tidal influence. Possibility of occurrence but no impact.	1	1	1	No additional controls required.	1	1	1
6. Drier summers, potentially up to 42% less rain than now.	Potential reduction and lowering of ground water table. Geology comprises Made Ground and Head Deposits above Lewes Nodular Chalk Formation and Seaford Chalk Formation. Groundwater sits within the Chalk. There will be no underground structures used at the site and therefore, the impact of any soil shrinkage would be readily seen.	1	1	1	Regular visual inspections and maintenance of the site infrastructure and plant.	1	1	1

Potential changing climate variable	**A** **Impact**	**B** **Likelihood**	**C** **Severity**	**D** **Risk** (BxC)	**E** **Mitigation** (what mitigates the risk)	**F** **Likelihood** (with mitigation)	**G** **Severity** (with mitigation)	**H** **Residual Risk** (FxG)
7. At its peak, the flow in watercourses could be 35% more than now, and at its lowest it could be 75% less than now.	Site is known to have suffered from fluvial flooding in the past (2001) and has a medium to high risk of such flooding. Bourne Brook is an ephemeral water course which only flows following heavy rainfall, currently approximately 10% of the year. The brook is also approximately 2 m below the site level. See data below.	3	2	6	The site has the potential to flood. OSL will 'weather watch' and sign up to flood alerts, and will take action in the event that a flood may be likely to occur. As required, tanks will be emptied and unsecured plant will be safely stowed or removed from site.	3	1	3

Summary of Current Flood Potential

River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
Risk of Flooding from Rivers and Sea (RoFRaS)	High (within 50m)				
Historical Flood Events	1	0	1	-	-
Flood Defences	0	0	0	-	-
Areas Benefiting from Flood Defences	0	0	0	-	-
Flood Storage Areas	0	0	0	-	-
Flood Zone 2	Identified (within 50m)				
Flood Zone 3	Identified (within 50m)				
Surface water flooding					
Surface water flooding	1 in 30 year, Greater than 1.0m (within 50m)				
Groundwater flooding					
Groundwater flooding	Low (within 50m)				

River and Coastal Flooding



Site Outline

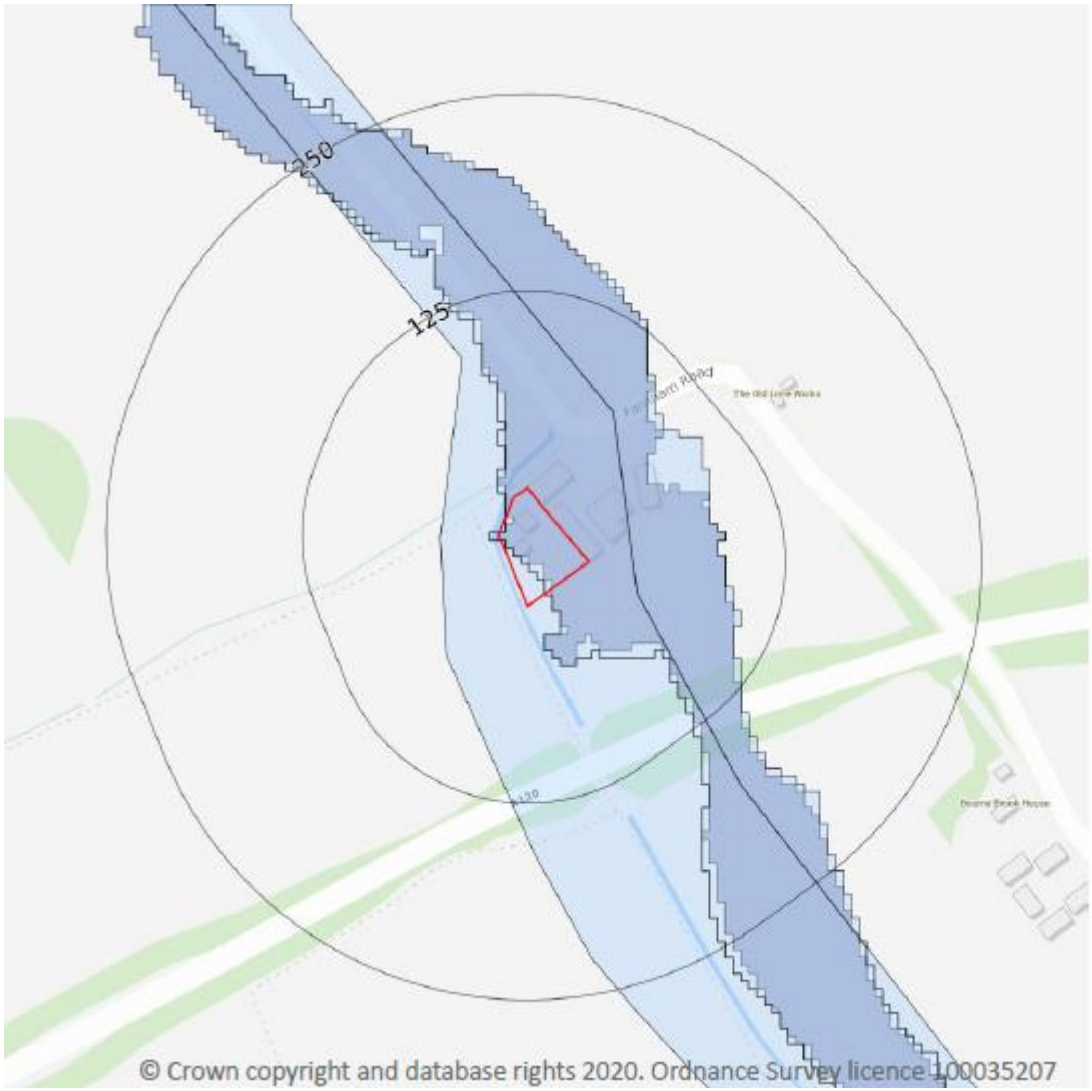
Search buffers in metres (m)

Environment Agency river and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

Site is reported to have flooded between 21st and 22nd October 2001 due to the main river channel capacity being exceeded (fluvial flooding). The flood zoning of the site is shown over page.

River and Coastal Flood Zones



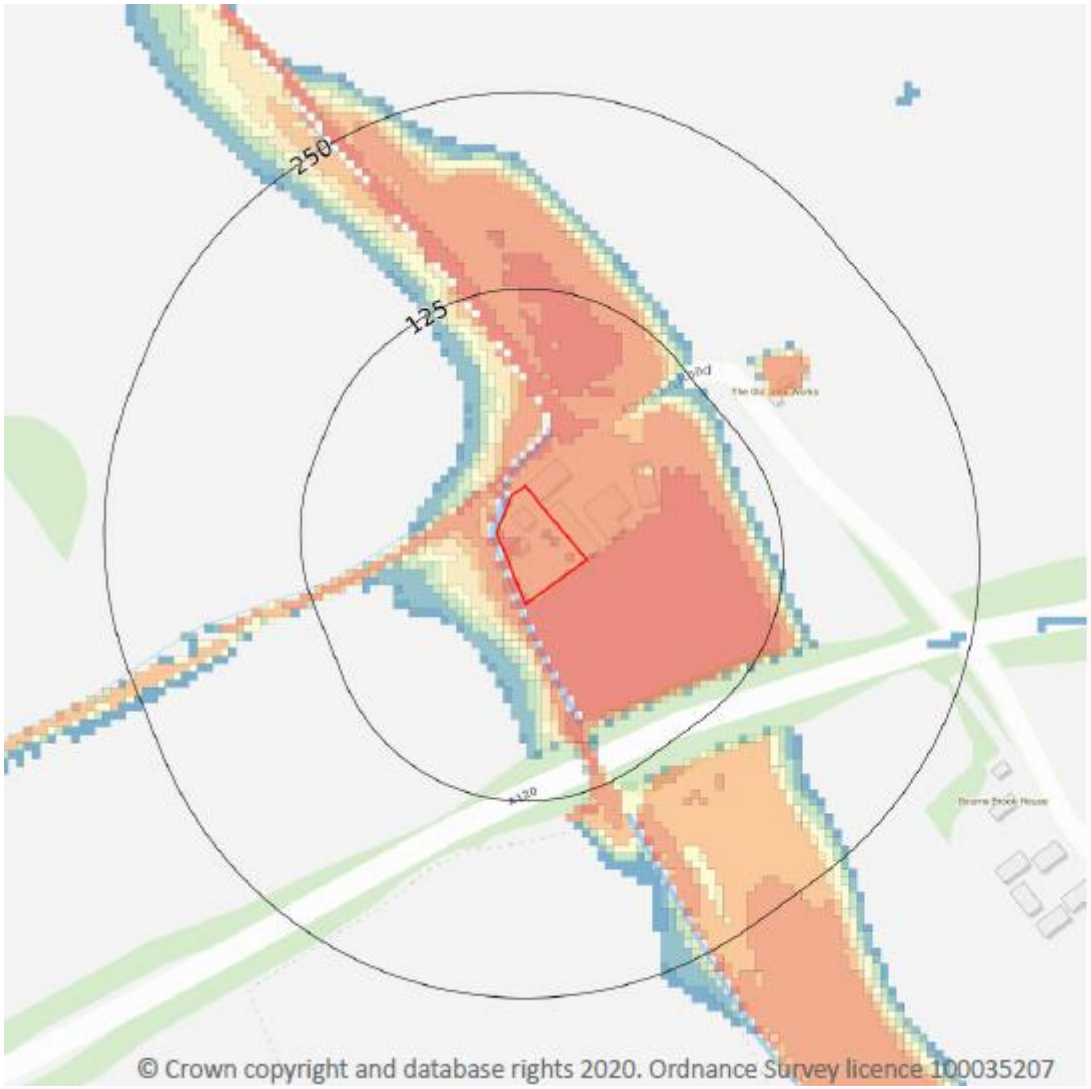
Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

Surface Water Flooding



Site Outline

Search buffers in metres (m)

1 in 1000 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period

- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

APPENDIX 4
OP38 OPERATING PROCEDURE

OIL SALVAGE LIMITED
BISHOP STORTFORD

OIL SALVAGE LTD
WASTE OIL RECOVERY SPECIALISTS

Standard Operating Procedure

Process / Task	Document Ref Number	OP38
Bishops Stortford operating procedure		

Issue/version	Date	Comments
1.0	11th October 2021	New Procedure

Prepared By		
Name	Signature	Position
Neil Redmond		EHS Compliance Manager

Approved By		
Name	Signature	Position
Mitch Vernon		EHS Director

Tools or Equipment Required

Road tanker (Rigid or Articulated).
Flexi hoses.
Assortment of pipe fitting adapters.
Hose locking tool.
ADR kit (if required).
Spill kit.

PPE Requirements

Overall's.
Safety glasses.
Safety boots.
Gauntlet protection gloves.

Safety and Environmental Requirements

- All site checks listed within this procedure must be completed at every visit.
- PPE must be worn when leaving the vehicle whilst on site.
- The site is to be left in a tidy state, no litter is to be left on site.
- In the event of an emergency contact the emergency services on 999 giving the following address:
  Farnham Road
  Bishops Stortford
  CM23 1TB
- In the event of fire:
  - Stop transfer.
  - If safe to do so, and trained and authorised proceed to tackle fire if this is not possible:
  - Evacuate to the main entrance.
  - Contact the fire brigade on 999, then contact the Transport Department on 0151 933 4084.

- Spill kits are to be used in an emergency only, if a spill kit is opened it must be reported to the Compliance Manager.
- In the event of a flood:
  - Management will subscribe to weather alerts for the bishop Stortford area, in order to proactively manage and monitor the weather conditions for site.
  - The site is fitted with a remote pen stock so that in the event of a potential flood this can be remotely closed from Lyster road.
  - There is a sump pump fitted with a float switch connected to the wastewater tank within the site boundary, this will pump potentially contaminated surface water in to the waste water tank.
  - As above a sump pump will be fitted within the bund, also connected to the wastewater tank.

Introduction

The Bishops Stortford site is used for temporary storage of oils in the south of the country before being transferred to Liverpool for processing at the company's processing facility at Lyster Road. The Bishops Stortford site will allow rigid tankers to unload locally without the need to return to Lyster Road throughout the week. An articulated trailer can then transfer oils in bulk providing a significant cost saving. The site will be unmanned but will be monitored via CCTV with monitoring throughout the day at Lyster Road and directors able to monitor 24/7, the site will be protected by an intruder alarm system fitted with motion detector devices.

Scope

This procedure applies to drivers and maintenance staff attending the Bishops Stortford site.

Responsibilities

Person/role	Responsibilities
Directors	Ensuring adequate resources are provided to support the implementation of this procedure.
Transport Manager / coordinators	Ensure any issues reported by the drivers are followed up with the relevant departments.
Drivers	Ensure that this procedure is followed. Ensure that pre use checks of equipment and PPE is completed. Report any issues with the vehicle, equipment and site. Report any accidents and incidents. Responsible for ensuring the security of the vehicle and contents. Report any leaks or excess odour. Ensure site is properly secured when leaving (lock gates and set alarm).
Maintenance	Ensure all maintenance inspections are completed at the required frequency. Report any defects and rectify as soon as reasonably practicable. Report any unsafe conditions. Ensure site is properly secured when leaving (lock gates, and set alarm).

Instructions

The driver is responsible for accepting the waste oils from the customer based on an assessment undertaken at collection. The driver will confirm that the paperwork describing the waste oil is correctly completed and accurately describes the load in line with any available pre-acceptance information, and in doing so will confirm that the waste is acceptable under the terms of the

Permit. They will also undertake a visual and olfactory assessment of the waste oil to confirm that the waste is not obviously contaminated. At that point, the waste oil will be pumped into the collection vessel and may mix with other, similar wastes stored in the same vessel or chamber of the tanker, and the driver will continue his rounds.
Waste oils will not be collected by the driver, thereby effectively being rejected, if:

- There is evidence to suggest that it may have a flash point of less than 30°C, usually detected by smell; or
- The waste carries an EWC code that is not included on and acceptable under the Bishop's Stortford Permit.

1.0 Arriving at site

1.1 Unlock the gates and deactivate the alarm using the keypad (if you arrive on site and the alarm is deactivated report to the Transport Deaprtment).

1.2 A visual check of the following areas must be completed before loading / unloading:

General Site
- Condition of the floor surface.
- Any litter.
- Any damage to the building.
- Any damage to the general area.
- Any damage to the security fence.

Bunds
- Any damage to the bund walls (check inside and out).
- Any rainwater in the bund walls.
- Any signs of oil in the bund walls.
- Any weed growth around the base of the bund walls.

Emergency Equipment
- Check fire extinguishers are in place.
- Check spill kits and ensure seals are in tact.

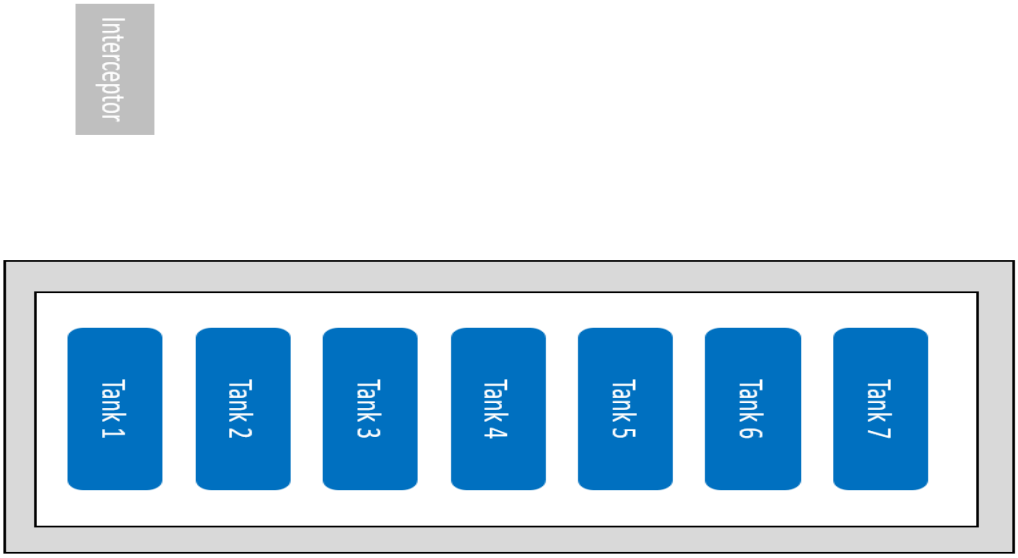
Tanks Pipes and Valves
- Visually check tanks for any sign of damage and leaks.
- Visually check pipework for any sign of damage and leaks.
- Visually check valves for any sign of damage or leaks.

2.0 **Bund and Interceptor Pumps**

2.1 If there is water in the bund switch on the bund pump, this will remove liquid from the bund. Ensure the pump is switched off before you leave the site.

2.2 Check the interceptor levels, close the interceptor penstock valve and run the pump during your site visit. Ensure that the pump is switched back to auto before leaving site.

Pump Locations



3.0 Loading / Unloading

3.1 The driver will identify their designated tank which will correspond with their instructions from the transport team, they will be informed of the tank number and ullage, they can then cross check their tanker contents to ensure there is sufficient tank capacity to accept the load.

3.2 The drivers will load / unload from the tanks following existing procedure OP02.

4.0 Exiting the Site

4.1 The following tasks will need to be completed by the driver before leaving the site:

- Check for and clear away any spillages
- Check and switch off all pumps(except those left on auto)
- Open the interceptor penstock valve
- Switch off lights if operating during hours of darkness.
- Switch on alarm system
- Lock the gates

4.2 Any issues found at the Bishops Stortford site must be reported to the Transport Department.

Maintenance Inspections

5.0 Tanks will be checked visually and for structural integrity (thickness testing) on a 5 yearly cycle. This testing will be completed by a qualified engineer and reports sent to Oil Salvage Ltd.

5.1 Once a month a Maintenance technician will attend site and perform a visual inspection of the tanks, pipework, valves and any static pumps on site, as well and assessing the site surfacing and bund.

5.2 Once a year a maintenance technician will attend site and complete a service of the valves and static pumps.

5.3 The tanks will be monitored and de-sludged as required, existing tank clean and confined space entry procedures will apply.

5.4 For any repair involving hot work a dynamic risk assessment must be completed and existing permit to work procedures followed.

Training

All staff who visit site are to be trained in this procedure, they will sign to confirm that they have read, understood and will follow this procedure.

APPENDIX 5
OP23 SPILLAGE AND ACCIDENTAL RELEASE PROCEDURE

OIL SALVAGE LIMITED
BISHOP STORTFORD

OIL SALVAGE LTD
WASTE OIL RECOVERY SPECIALISTS

Standard Operating Procedure

Process / Task	Document Ref Number	OP23
Spillage and Accidental Release Procedure		

Issue/version	Date	Comments
1.1	15 Feb 19	Procedure revised and rewritten into the new standard format.

Prepared By		
Name	Signature	Position
Gareth Perry		EHS Compliance Manager

Approved By		
Name	Signature	Position
Mitch Vernon		EHS Director

Tools or Equipment Required

Spill Kits.
Rags.
Shovels.

PPE Requirements

Safety Glasses.
Safety Shoes.
Overalls.
Addition PPE may be required depending on the area you are working in and nature of the substance being cleaned up consult the COSHH Assessments for information.
ADR kit contains additional PPE such as respiratory Protection (emergency escape mask).

Safety and Environmental Requirements

The most critical objective is the safety of the driver or employee dealing with the spill do not attempt to clean up a spill unless you are comfortable to do so, seek advice if required.
Cordon off the spill area to prevent others walking through or passing close to the spill.
Try to prevent the spill reaching drains, culverts, ditches and water ways.
Consult the COSHH Assessments on advice for substances involved in spills.
Drivers operating tankers must be vigilant when transferring waste liquids between vehicles and tanks to ensure spillages do not occur from overfilling and they can react to spills in a timely manner.
OFFICE PHONE NUMBER: 0151 933 4084
OAMPS 24HR EMERGENCY RESPONSE NUMBER: 0800 75 75 76 (office use only)

OIL SALVAGE LTD
WASTE OIL RECOVERY SPECIALISTS

Introduction

Accidental release or spills could have a catastrophic effect on the environment, this procedure outlines the actions to take in the event of an accidental release or spill.
When cleaning up spills think of the following hierarchy: People, Environment and Property.
Accidental releases of spills must be controlled immediately by stopping the source of the accidental release or spill if possible, stopping the spread of the substance, clean up and proper disposal of the substance and any absorbents used. All Oil Salvage Ltd drivers are ADR trained and carry the necessary equipment and PPE needed for minor control and clean ups.

Scope

This procedure covers all spills on site, roadways, vehicles and customer sites.

Responsibilities

Person/role	Responsibilities
Transport Manager	Ensures that daily vehicle pre checks are completed and documented. Ensures that vehicle spill kits are replenished when requested by the drivers. Report significant and large spills to the Compliance Manager.
Drivers	Comply with the guidance in this procedure. Ensure that spill kits are checked each day. Report any spillages and request replacement items for their spill kits.

Instructions

1.0 Discovering a Spill

1.1 **Keep as calm as possible**

1.2 Take measures to protect life, including your own. If possible remove injured persons from danger. And request first aid if required.

1.3 In the case of large spills take measurements to prevent access to the area and inform the Transport Department for assistance and further advice.

1.4 If safe to do so try to control the spill to prevent further escape to the environment. Switch off any pumping equipment immediately and try to prevent the spread of the substance by using spill kits and rags and seal any drain covers that may be affected by the spread of the substance.

1.5 Do not leave the spill, site someone should remain present continuously until the spill is cleaned up.

2.0 Small Spill Procedure – Spills you can handle by yourself

2.1 Isolate the area do not let others pass through or near the substance.

2.2 Switch off any equipment being used, isolate and remove any ignition sources.

2.3 Apply any PPE required this information will be present in the COSHH assessment.

2.4 Contain the spill to as small an area as possible by using rags, absorbents or spill socks.

2.5 Clollect the spilled material by working from the outer edge inward.

2.6 Collect materials used (including contaminated PPE) in an appropriate container.

2.7 Ensure the container is disposed of in the correct manor.

2.8 Report equipment used so items from your spill kit can be replenished

2.9 If a customers spill kit has been used make a note of what has been used as Oil Salvage Ltd may have to reimburse the customer, this record should also be signed by a representative of the customer.

3.0 Larger Spills

3.1 1 Refer to section **1.0 Discovering a Spill.**

3.2 Contact the Transport Department for advice and assistance.

3.3 If there has been an road traffic accident and a spill has resulted from the accident contact the emergency services for assistance.

4.0 Reporting

4.1 Significant spills must be reported to the Transport Department when they occur at customer sites or on the public highway.

4.2 There may be a need to report certain spills to the appropriate enfocing authority. This will be completed by the Compliance Manager in line with local regulations and permit requirements.

Training

Drivers are required to read this procedure and understand actions to be taken in the event of a spill.

APPENDIX 6
M150 MONTHLY MAINTENANCE CHECKS

OIL SALVAGE LIMITED
BISHOP STORTFORD

Monthly Maintenance Checks Bishops Stortford

Plant Items Checked	Condition	Signed
Pump 1 - includes all seals, excessive noise and vibration, wear, grease where required, check oil level, high level alarms working, valves operate freely.		
Pump 2 - includes all seals, excessive noise and vibration, wear, grease where required, check oil level, high level alarms working, valves operate freely.		
Pump 3 - includes all seals, excessive noise and vibration, wear, grease where required, check oil level, high level alarms working, valves operate freely.		
Pump 4 - includes all seals, excessive noise and vibration, wear, grease where required, check oil level, high level alarms working, valves operate freely.		
Pump 5 - includes all seals, excessive noise and vibration, wear, grease where required, check oil level, high level alarms working, valves operate freely.		
Pump 6 - includes all seals, excessive noise and vibration, wear, grease where required, check oil level, high level alarms working, valves operate freely.		
Pump 7 - includes all seals, excessive noise and vibration, wear, grease where required, check oil level, high level alarms working, valves operate freely.		
Pen stock operational, all parts free from deterioration.		
Tank 1 inc pipework) – general condition, free from damage, free from leaks, free from corrosion, vent pipes clear, valves operate freely.		
Tank 2 inc pipework) – general condition, free from damage, free from leaks, free from corrosion, vent pipes clear, valves operate freely.		
Tank 3 inc pipework) – general condition, free from damage, free from leaks, free from corrosion, vent pipes clear, valves operate freely.		
Tank 4 inc pipework) – general condition, free from damage, free from leaks, free from corrosion, vent pipes clear, valves operate freely.		
Tank 5 inc pipework) – general condition, free from damage, free from leaks, free from corrosion, vent pipes clear, valves operate freely.		
Tank 6 inc pipework) – general condition, free from damage, free from leaks, free from corrosion, vent pipes clear, valves operate freely.		
Tank 7 inc pipework) – general condition, free from damage, free from leaks, free from corrosion, vent pipes clear, valves operate freely.		
Septic tank in working order and any associated pumps and pipework		
Safety Checks	Condition	Signed
Walkways / gantry's are clean, clear, secure and free from hazards		
Access ladders are in good condition and secure.		
Lighting in working order and sufficient.		
First aid kit and eyewash in place and in date		
Spill kit in place		
Bund in good condition and free from cracks, holes, leaks.		
Signage in place and correct		
Fire extinguishers in place and serviced in date		

Notes – Please use this section to note any abnormalities during the check quoting the date, defect details, actions taken, any further action required.			
Checks completed by	**Name:**	**Signature:**	**Date:**

APPENDIX 7
EA02 ODOUR MANAGEMENT PLAN

OIL SALVAGE LIMITED
BISHOP STORTFORD

OIL SALVAGE LTD
WASTE OIL RECOVERY SPECIALISTS

Odour Management Plan

Issue/Version	Date	Comments
1.0	May 18	Initial Document
1.1	October 18	Updated to include Re refinery
1.2	October 2021	Updated to include the Bishops Stortford Site, removed weekly sniff test requirement, now quarterly.

1.0 Introduction

This Odour Management Plan (OMP) provides details of the steps required to manage potential odours associated with the activities at Oil Salvage Ltd.'s sites at Lyster Road Bootle and Bishops Stortford. Guidance is taken from H4 Odour Management.

Existing odour risk is deemed low at the site as outlined in section 3.3 of permit EPR/MP3734SC where the following conditions apply (Lyster Road site only).

3.3.2 The operator shall:

(a) If notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, a new or revised odour management plan;
(b) Implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.0 Site Layout

2.0.1 Lyster Road.

The 1.6Ha site is dissected by Lyster Road, Site 1 consists of a tank farm, lab building and re refinery, site 2 consists of a garage and offices, weighbridge, shredding plant and a yard area for sorting waste.

2.0.2 Bishops Stortford.

The site consists of an office building and storage tanks along with a yard area.

2.1 Surrounding Land Uses

2.1.1 Lyster Road

The land surrounding the site is an industrial area and is within the designated operational port area there are no sensitive users within the locality.

2.1.2 Bishops Stortford.

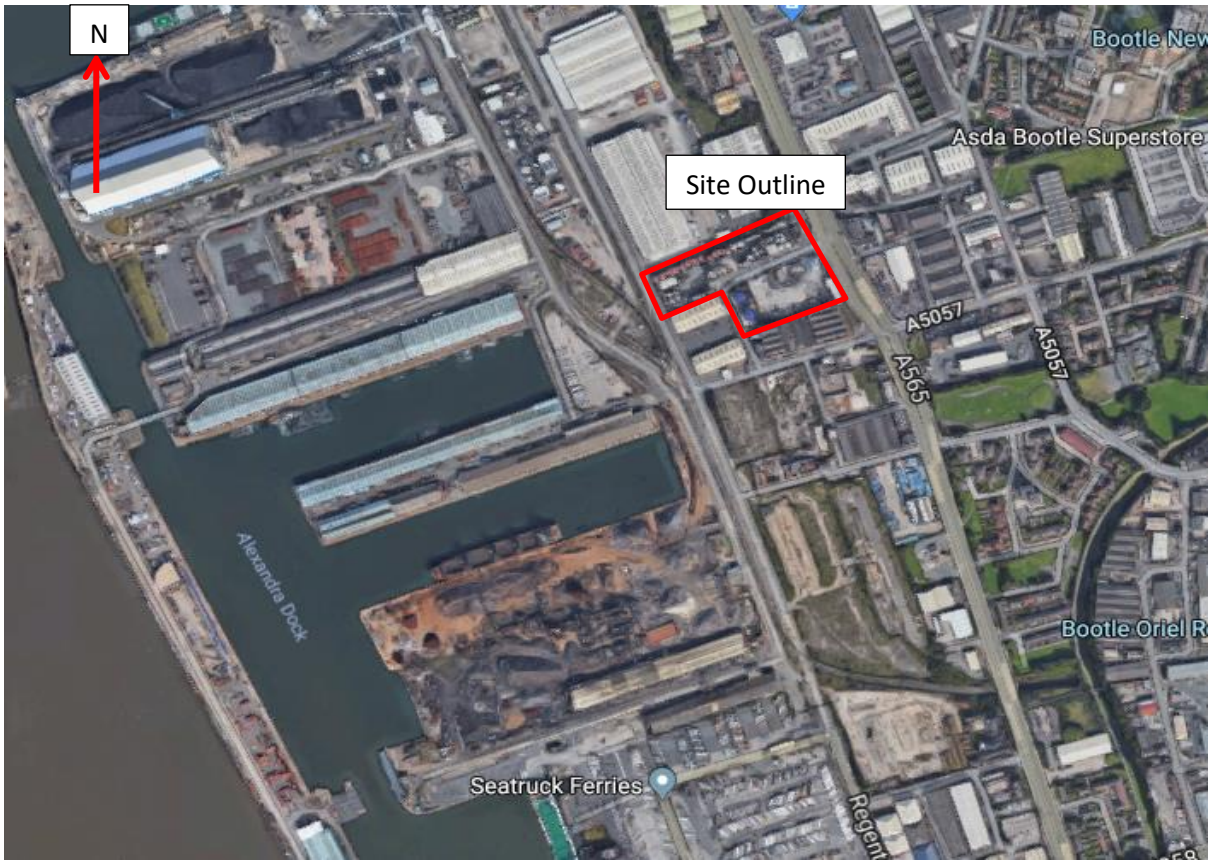
The surrounding land is farmland a yard next door appears to be disused and containing shipping containers and no sensitive users within the locality.

2.2 Potential Receptors

2.2.1 Lyster Road

The table below shows the potential receptors located near to the site.

Receptor	Distance from Plant (meters)	Direction from the plant
Peel Ports Industrial / warehousing	Adjacent	North, South and West
A565 (N-S)	100	East
Commercial properties	>500m	East



2.2.2 Bishops Stortford

The table below shows the potential receptors located near to the site.

Receptor	Distance from site (meters)	Direction from the site
Industrial yard	Adjacent	East
Residential Properties approx. 6	500m	Southeast

3.0 Control Measures

Potential Issue	Control Measure
Managing Inventory	Strict procedures are in place to ensure only permitted wastes are accepted on site managed by the ISO certified management system. Waste arrives on site in tankers and is pumped into storage tanks reducing exposure to air. Storage tanks are sealed except for breather tubes located on the top of the tanks, waste is not stored in open air containers or tanks. Waste is pumped around site reducing exposure to air. Waste is tested on arrival at the site to ensure it is suitable for treatment. Pre acceptance tests are completed for any waste to be accepted by new customers or changes in wastes from existing customers. Spill procedures are in place with operators trained in spill management.
	Tank levels in Bishops Stortford will be monitored at Lyster Road via a real time electronic monitoring system, once a tank reaches 30,000 litres a road tanker will be sent to empty the tank. Drivers will be instructed to visually monitor levels during visits to site.
Controlling Evaporation	Heating of oils is controlled by thermostatic controlled heating coils. All Storage and production tanks are lagged. There are no open tanks or oil pits on site. Production will take place within a closed system. Maintenance and inspection schedules are in place to prevent and detect leaks and damage from the plant.
	There is no heating or processing of oils at Bishops Stortford. Tanks are sealed and there is no open storage of oils (pits, drums etc).
Containment, abatement and dispersion	A carbon scrubber is used from the shaker shed emission point. Regular monitoring of VOC takes place in key locations around the site. Emissions from the plant will be processed by a BAT Thermal Oxidiser which will be monitored to ensure VOC, are limited to 50mg/m^3. Emissions from The Thermal Oil Heater will be controlled through elevated stack with the height calculated to meet the clean air act. A odour neutraliser system is fitted to the Thermal Oxidizer Stack. Other methods of abatement will be considered if nuisance odours are highlighted.
	There are no emission points at Bishops Stortford, no plant will be operational.
Reducing Impacts	Other methods of abatement will be considered if nuisance odours are highlighted.

3.1 Responding to complaints.

Any complaints will be investigated details will be recorded on the odour complaint recording form which is kept within the quality management system.

On receipt of the complaint the Compliance Manager will be informed and will complete the form and begin the investigation.

Regular contact between the complainant and Oil Salvage Ltd will be kept.

Additional monitoring maybe required during this process to substantiate the odour as employees may have come accustomed to the odour.

4.0 Monitoring

4.1 Lyster Road

Odour will be monitored using sniff testing on a quarterly basis. This will only be required for the Re Refinery.

Monitoring will take place at the following locations:

- Bottom Access gate Lyster Road
- Top of Lyster Road on the junction of A565
- Regent Road adjacent to the west

Sniff tests will be recorded on form M122 which is kept within the quality management system.

Other monitoring will be used in the event of complaints where sniff testing may not be sufficient this will be completed in line with the Environment Agency's H4 Odour Guidance Management.

4.2 Bishops Stortford

A sniff test will be completed on a quarterly basis.

Drivers are instructed to report any unusual or strong odours when attending site.

Sniff tests will be recorded on form M122 which is kept within the quality management system.

Other monitoring will be used in the event of complaints where sniff testing may not be sufficient this will be completed in line with the Environment Agency's H4 Odour Guidance Management.

5.0 Contingency and Incident Management

In instances where Oil Salvage Ltd Staff identify a noticeable moderately objectionable or offensive odour, or a complaint is made.

Details of complaints are to be recorded on form M121 held within the Quality Management System

Oil Salvage staff are to locate the odour source and identify if the source can be quickly neutralised or mitigated. In such instances, the necessary action must be taken to stop the odour.

Actions could include:

- Removing and containing (i.e. remove or bury contaminated soil) the odorous material and washing the area down with water or spray with deodorant.
- Dampening the area with water or deodorant spray.
- Disposing of odorous material in a manner that does not cause further release of odour.

Where the odour source cannot be quickly located and mitigated, then an element of judgement is required, and management strategies should be applied according to the circumstance.

Management options may include but are not restricted to:

- Inform and cooperate with the local council.
- Identify the source of the odour. Consider the predicted wind direction and potential downwind effects on adjacent properties. Bear in mind that weather and wind direction are highly variable.
- Identify the chemicals, materials and equipment needed to control the odour.
- Plan the necessary measures and implement as soon as practicable.
- Treat and contain areas which have been identified as the potential odour source.
- Modify the treatment process to reduce odour whilst also ensuring that treated effluent quality requirements are met.
- Erect and operate a deodorizing system.

Once the identified odour has been mitigated, repeat an odour check at the boundary and if necessary, repeat the appropriate remedy procedure(s) until the emission has been rectified.

Where the odour is suspected to be from an off-site source (and there are no reasonable grounds for the operator to remedy the problem) relevant notes should be recorded.

APPENDIX 8
EA03 NOISE MANAGEMENT PLAN

OIL SALVAGE LIMITED
BISHOP STORTFORD

OIL SALVAGE LTD
WASTE OIL RECOVERY SPECIALISTS

Noise Management Plan

Issue/Version	Date	Comment
1.0	May 18	Initial Document
1.1	October 18	Updated to include Re refinery
1.2	19th October 2021	Updated to include the Bishops Stortford site

1.0 Introduction

This Noise Management Plan outlines the methods by which Oil Salvage Ltd will systematically assess and minimise the potential impacts of noise generated at the site located on Lyster Road Bootle and Bishops Stortford. The Noise Management Plan is a working document with the specific aim of ensuring that

- Noise impact is considered as part of routine inspection.
- Noise is primarily controlled at source by purchasing of equipment, good operational practices, including physical and management control measures.
- All appropriate measures are taken to prevent or, where that is not reasonably practicable, to reduce noise emissions from the site at nearby receptors.

This noise management plan addresses the impact of noise and the control measures employed to mitigate the risk. These are supported through monitoring procedures to identify both elevated levels and review complaints should they arise.

2.0 Site Layout

2.0.1 Lyster Road

The site is located on Lyster Road, Bootle, Merseyside. The site slopes towards the Mersey Estuary, to the west and the associated docks, centres at grid reference SJ 3338 9539, and occupies an area of approximately 1.6ha. To the east of the site is the Derby Road (also known as the Dock road) which runs from north to south. To the north of the site is an area occupied by warehouses. To the south is an industrial yard.
There are no Sites of Special Scientific Interest (SSSI's) within 2km of the regulated facilities. There are five designated habitats with 10km of the installation, which comprise two Special Protection Areas (SPA), three Special Areas of Conservation (SAC) and two RAMSARs.
These are:

- Ribble and Alt Estuaries SPA and RAMSAR.
- Mersey Estuary SPA and RAMSAR.
- Dee Estuary SAC (Wales), Dee Estuary SAC (England).
- Sefton Coast SAC.

2.0.2 Bishops Stortford

The site sits within farmland to the north of the town of Bishops Stortford, there are no Sites of Special Scientific Interest (SSSI's) within 2km of the site, there are no Special Areas of Conservation or Special Protection Areas within 10km of the site. There is a designated habitat (Ancient Woodland) within 10km of the site.

2.2 Potential Receptors

2.2.1 Lyster Road

The table (1.0) below shows the potential receptors that may be affected by noise from the site.

Receptor	Distance from Plant (meters)	Direction form the plant
Peel Ports Industrial / warehousing	Adjacent	North, South and West
A565 (N-S)	100	East
Commercial properties	>500m	East

2.2.1 Bishops Stortford

The table (1.1) below shows the potential receptors that may be affected by noise from the site.

Receptor	Distance from Plant (meters)	Direction from the site
A120	200m	South
Small Residential area (6 houses)	500m	Southeast

3.0 Description of Site Operations

3.1 Hours of Operation

3.1.1 Lyster Road

Waste will be delivered to the site between the following hours.

Monday to Friday 06:00 to 18:00 but can be 24/7.

Production and processing equipment will operate between the following hours.

Monday to Sunday 24/7.

3.1.2 Bishops Stortford

The site will only be accessed between 0600 – 2200 Monday to Friday.

At present there will be no access during the weekend or bank holidays, this may change in the future depending on demand.

The site is not permanently occupied.

3.2 Sources, Releases and Impacts

3.2.1 Lyster Road

Sources of noise generated at the site is limited to:

- Unloading of materials at the site.
- Mechanical separation, waste oil processing equipment.

- On site vehicle movement including mobile plant.
- HGV vehicles arriving and departing from the site.

Noise from vehicles exiting and entering the site is restricted between the hours of 06:00 and 18:00 Monday to Friday noise will be intermittent depending on vehicle schedules.

Noise from mechanical separation will be restricted to 07:00 to 18:00 Monday to Friday and will be intermittent, taking place once box vans have returned to site to unload.

Noise from the waste oil processing equipment will be continuous 24 hours a day Monday to Friday although the amount of noise generated will fluctuate as various pieces of equipment do not run simultaneously.

Noise from the Re Refinery will be continuous 24 hours a day Monday to Friday the noise generated from this plant will be restricted to pumping equipment.

Once generated the pathway for noise will be air transport. Sensitive receptors listed in Table 1.0, noise sampling and an Environmental Risk Assessment completed on the site have indicated that these receptors are not adversely affected by noise generated on the site.

3.2.2 Bishops Stortford

Sources of noise generated at the site is limited to:

- Unloading / loading of materials at the site.
- HGV vehicles arriving and departing from the site.

Noise from vehicles exiting and entering the site is restricted between the hours of 06:00 and 22:00 Monday to Friday noise will be intermittent depending on vehicle schedules.

Once generated the pathway for noise will be air transport. Sensitive receptors listed in Table 1.1; an Environmental Risk Assessment completed on the site have indicated that these receptors are not adversely affected by noise generated on the site.

4.0 Noise Control Measures

4.1 Physical Control Measures

Oil Salvage Ltd propose to implement physical control measures to the site should complaints of noise arise. In deciding what level of control constitutes best practice for the site several factors need to be considered and balanced. These include:

- Costs and benefits
- The technical characteristics of the machinery concerned
- Geographical location
- In all cases the specific requirements relating to a source will be reviewed as part of the decision making process

If all management, operational and maintenance issues have been satisfactorily addressed, once noise has been generated there are several physical factors involved in determining how much noise is generated and how much reaches the receiver. Noise levels at sensitive receptors can be minimised by:

- The use of barriers will be used where machinery can't be moved between the source of the noise and the sensitive receptor for example enclosing within a building, fencing.
- Where enclosure is not possible Oil Salvage Ltd will reduce noise by other engineering means such as:
    - Lining guards/panels with noise dampening material.
    - Fitting acoustic screens.
    - Fitting anti vibration mountings.
    - Fitting silencers where possible.

4.2 Management Control Measures

A comprehensive range of management control measures will be implemented at the site including

- Regular Planned Preventative Maintenance of equipment to ensure it is kept in good working order.
- All plant and equipment will be operated in a manner to minimise noise emissions.
- Traffic movement from vehicles will take place during operational hours.
- A speed limit of 5 mph is enforced on site.
- Site road surfaces are maintained.
- Compressors, pumps and engines will be switched off when not in use.
- Care to be taken when unloading/loading vehicles to avoid un-necessary noise generated, items not to be dropped from height.
- When replacing plant and equipment noise will be factored into the purchasing decision.

5.0 Emissions Monitoring

All operational staff will be responsible for reporting any noise problems immediately to the relevant supervision.

Quantitative routine noise monitoring is proposed, however qualitative monitoring of noise levels will be included as a factor in site inspections and walk rounds

Routine maintenance and safety checks of all equipment including vehicles, will also identify equipment operating at elevated noise levels and work will be undertaken to repair the defect.

6.0 Reporting of Complaints

A complaints procedure is in place to respond to any noise complaints made about any Oil Salvage Ltd's operations at Lyster Road or Bishops Stortford. Complaints will be recorded on the Noise Complaints Form M123 and passed to the Compliance Manager for action as below:

- The complaint is investigated to identify the source of the noise.

- The presence of abnormal activity is assessed and if necessary preventative action is taken that will prevent a reoccurrence of the same problem.
- The complainant may be contacted and given information on the investigations conducted and actions taken.
- Complaints will be reported to the company Directors and discussed in site meetings.