

# Oath to Burrowbridge Dredging and Associated Activities

Volume 3: Appendices Part 3















# APPENDIX 2B: SOIL SCREENING









# **River Parrett Oath to Burrow Bridge Dredge**

Soils Screening Report

On Behalf of

**Somerset Drainage Boards Consortium** 

# **Quality Management**

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Drawing 1 Sample Location Plan

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Appendix A ALS Laboratory Certificates

Appendix B Soil Screening Table

## 1 Introduction

The Somerset Drainage Boards Consortium intends to undertake maintenance dredging of the River Parrett between Burrow Bridge and Oath Lock. During the dredging works, the river banks will be restored to a design profile to increase flow rates to alleviate flooding. It is intended that dredged sediment will be placed upon the right hand bank (north-eastern bank) of the River Parrett. An extract showing the reach to be dredged is shown in Figure 1.

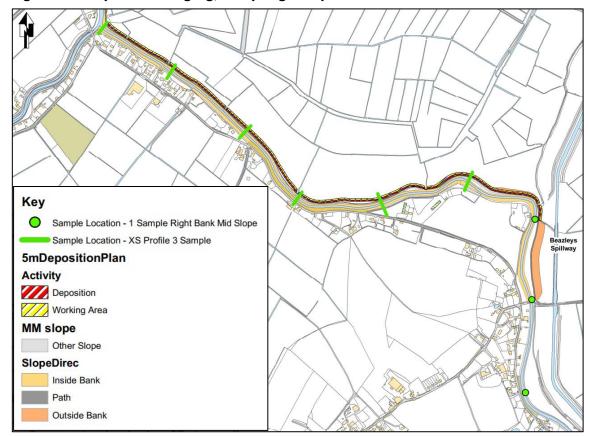


Figure 1 - Proposed dredging, sampling and placement of sediment

Hydrogeo have been commissioned to undertake chemical analyses and screening of the sediment to ensure that there is no risk to human health or the environment from the deposited sediment. Options for spreading the sediment to agricultural land and waste disposal have also been explored. Geotechnical analysis in the form of Particle Size Distribution testing has been carried out to determine the grading of the sediment.

# 2 Sediment Testing

## 2.1 Sediment Sampling

Sediment sampling was undertaken using a 1m long hand-driven auger, collecting 15mm sediment cores. In total, 21 samples were collected comprising three individual samples and six transects each consisting of three samples. A plan showing the location of each sample is appended as Drawing 1.

A photographic record was made of each sediment core. The core was then subsampled into laboratory containers for chemical analysis and bulk bags for geotechnical analysis. Chemical samples were packed into cool boxes with ice packs before dispatch to ensure sample stability.

The sampled sediment in all 21 locations generally consisted of *Firm brown slightly clayey silt*. No deleterious material, staining or odours was noted in any of the sediment cores. Representative photographs of the sediment are shown in Figure 2 and Figure 3.



Figure 2 - Sediment sample no. 2

Figure 3 - Sediment sample no.12



# 2.2 Chemical Test Scheduling

All 21 samples were scheduled for the following chemical analyses:

- Soil Organic Matter;
- pH;
- Toxic metals suite;
- Additional metals Antimony, Cobalt, Molybdenum, Silver, Vanadium;
- Salinity chloride and sodium, plus fluoride;
- Nitrate, nitrite, and ammoniacal nitrogen;
- Extractable nutrients including magnesium, potassium and phosphorus;
- Total petroleum hydrocarbons (screen banded);
- Polyaromatic Hydrocarbons (PAH speciated 16).

Five samples were scheduled for additional analyses consisting of the following suite:

- Semi-volatile organic compounds (SVOCs);
- Poly Chlorinated Biphenyls (PCBs) 7 congeners;
- Combined Herbicides and Pesticides 35 in total.



All chemical testing was undertaken by ALS Environmental, a MCERTS and UKAS accredited laboratory.

# 2.3 Chemical Screening Criteria

Sediment samples have been screened against the following screening criteria:

- Suitable 4 Use Levels (S4ULs) Human health screening criteria produced using the CLEA mode, used to assess the risk posed to human health by the deposited sediment. These values determine the suitability of materials kept as bank-side retention. 'Residential With produce' values have been selected as they provide the most conservative screening criteria, although less a stringent 'Public Open Space' end use would be more applicable for the land use at the site.
- Environment Agency Ecological Soils Screening Values (SSVs) Produced by the
  EA in 2017, the SSVs are used for screening waste and waste derived materials
  to be used as soil improvers on agricultural land. The values assess the hazard
  posed by 19 substances to soil fauna, flora and ecosystems. These values asses
  the suitability of the materials for agricultural spreading, taking into account
  background concentrations which have been sourced from the NSIV survey.
- Sewage Sludge on Farmland Potentially Toxic Elements (PTEs) the sediment
  has also been screened using the same values which are applied to sewage
  sludge spreading on agricultural land.
- NSIV Survey Normal Background Concentrations These values represent the normal background concentration of substances in the local area. Background concentrations are primarily the result of the material's parent geology.
- Soil nutrients in the sediment have also been expressed as DEFRA Nutrient Index Values, used in formulating nutrient balances for agriculture.

# 2.4 Chemical Testing Results

Laboratory certificates are attached as Appendix A. The soil screening tables are attached as Appendix B.

### Soil Organic Matter and pH

The average Soil Organic Matter (SOM) content was 6.12%, and the average pH was 7.96, indicating the sediments are organic matter rich and slightly alkaline. S4UL screening criteria using the 6% SOM content have been selected for further screening.



## **Inorganics**

The average values for sodium, chloride and fluoride were 368mg/kg, 28.67mg/kg and 1.32mg/kg respectively. The recorded concentrations of sodium and fluoride are lower than the levels previously recorded during the Hook Bridge to Raymond's Farm dredging; presumably this is due to the recent sampling being a greater distance from the river estuary. The recorded concentrations of fluoride are also well below the PTE, which is 500mg/kg.

#### **Nutrients**

The sediment is high in extractable magnesium, potassium and phosphate, with average eluate values of 119.1mg/l, 140.12mg/l and 77.08mg/l recorded respectively.

If converted to the DEFRA nutrient index values, these would equate to soils with a magnesium index of 3, a potassium index of 2 and a phosphate index of 5. The levels of nutrients within the sediment would and the receiving field would have to be assessed if agricultural spreading was required.

#### Metals

Metals content in the sediments was generally low, and was close to the background concentrations recorded in the NSIV soil survey. The background concentrations have been included on the soil screening table in Appendix B.

None of the S4UL or PTE screening criteria were exceeded. The Ecological SSV was exceeded for Vanadium, with an average value of 25.60mg/kg recorded versus a SSV of 2.00mg/kg. The Ecological SSV for zinc was exceeded, with an average value of 114.23mg/kg recorded versus a SSV of 35.60mg/kg.

The Ecological SSVs relate to the increase in the amount of a compound which is added to a soil during a spreading activity, rather than a limiting value. The background concentration of vanadium in the local area is 100.70mg/kg, and the background concentration of zinc is 104.00mg/kg. As the recorded concentrations are close to or below the background value, the materials would not exceed the SSV during spreading activities.

### **Hydrocarbons**

Total Petroleum hydrocarbons screening shows an average C6 to C40 concentration of 171mg/kg, and a maximum concentration of 250mg/kg. The lowest 'Residential – with produce' S4UL for a banded TPH is 150mg/kg for Aliphatic C8 to C10 hydrocarbons. For



a 'Public Open Space' end use the S4UL is 21,000mg/kg for Aliphatic C8 to C10 hydrocarbons.

The recorded concentrations are likely to be due to natural organics present in the silt such as humus (which can be co-extracted in the TPH extraction), rather than anthropogenic contamination. At these levels total TPH concentrations are unlikely to pose a risk to human health, and further banded testing for mineral oils and fuels is not required.

Speciated Polyaromatic hydrocarbons (PAH) were below their corresponding S4UL value for each species. Benzo(a)pyrene (BaP) exceeded the SSV, with an average value of 0.43mg/kg recorded against an SSV of 0.15mg/kg. The normal background concentration of BaP in rural soils is 0.50mg/kg; as such, the SSV would not be exceeded during spreading activities and does not pose a risk to the environment.

## Semi Volatile Organic Compounds (SVOCs)

Of the five samples analysed for SVOCs, only Sample 1 was reported as containing an SVOC. Sample 1 recorded a concentration of 0.163mg/kg of bis(2-Ethylhexyl)phthalate, a common plasticizer used in plastics and household products. The SSV for bis(2-Ethylhexyl)phthalate is 13mg/kg, indicating that the SSV would not be exceeded during spreading activities.

No other SVOCs were recorded during the analyses.

## **Poly Chlorinated Biphenyls (PCBs)**

Of the five samples tested for PCBs, PCB congener 28 was detected in four samples. The maximum recorded concentration was 0.00746mg/kg in sample 21; the average recorded concentration was 0.006mg/kg. No other PCB congeners were detected.

There is no soil standard for PCB congener 28; DEFRA has produced soil standards for dioxin-like PCBs, a grouping which does not include PCB Congener 28. The inert waste limit for waste categorisation is 1mg/kg total PCBs. On the basis of the very low recorded concentrations and non-dioxin properties, the recorded level of PCB congener 28 is unlikely to pose a risk to human health or the environment.

#### **Pesticides and Herbicides**

Pesticides and herbicides were below the limit of detection in all five analysed samples.



## 2.5 Geotechnical Test Scheduling

All 21 samples were scheduled for the following geotechnical testing:

- Particle Size Distribution by Wet Sieve Analysis (BS1377:1990, Clause 9.2);
- Mechanical analysis by Pipette method (BS1377:1990, Clause 9.4).

This allows for a full PSD curve to be determined for each sample, from clay to cobble sized particles.

All geotechnical testing was undertaken by Geolabs, a UKAS accredited geotechnical laboratory.

The geotechnical samples are currently undergoing testing, which will be completed by the 3<sup>th</sup> of July. Hydrogeo will report the results of the geotechnical testing as an addendum to this report.

## 2.6 Discussion and Recommendations

Overall the sediment appears to be of good chemical quality, with no exceedances of any of the screening criteria recorded in any of the samples. The sediment can be classified as 'Dredging spoil not containing hazardous substances' with the European Waste Code (EWC) 170506.

#### **Bankside Retention**

Based on the analyses carried out, the sediment is suitable for bankside retention, and does not pose a risk to human health. Chemical sampling shows that the sediment passed the 'Residential – with produce' screening criteria, which is more stringent than the 'Public Open Space' end use screening criteria. The sediment can be deposited bankside under a D1 waste exemption., this exemption allows you to deposit dredging spoil (dredgings) on the banks of the waters it was dredged from and to treat it by screening and removing water.

Under this exemption, over any 12 month period you can deposit or treat up to 50 cubic metres of dredgings for each metre length of land on which waste is deposited.

The waste must be deposited as close as possible to where it was dredged from.

The waste must be deposited either:



- on the bank of the waters from where it was dredged
- or on land next to the water it was dredged from (the dredgings must be removed from the waterway and deposited mechanically in one operation)

This means that you can't deposit onto a bank and then move it further away by the same or another machine.

## **Spreading on Land for Agricultural Benefit**

The sediment passed the SSV and PTE screening criteria, indicating that there are no contaminants present which would be detrimental to agricultural land. The Soil organic Matter content is high. Concentrations of metals and BaP are close to normal background levels. Sodium levels are lower than recorded in previous maintenance dredging works.

If spreading on land used for agriculture is required, further assessment of nutrient balances once receptor fields are identified would need to be performed. Whether the sediment would be suitable for spreading depends on the nutrient balance, cropping and spreading area of the receiving field. As the sediments are rather high in nutrients, it may only be possible to spread them on fields which are deficient in magnesium, potassium and phosphate. The sediment could then be spread to land under a U10 waste exemption.

### **Waste Disposal**

From the testing carried out to date, it appears that the sediment contains no anthropogenic contaminants of concern which would complicate disposal.

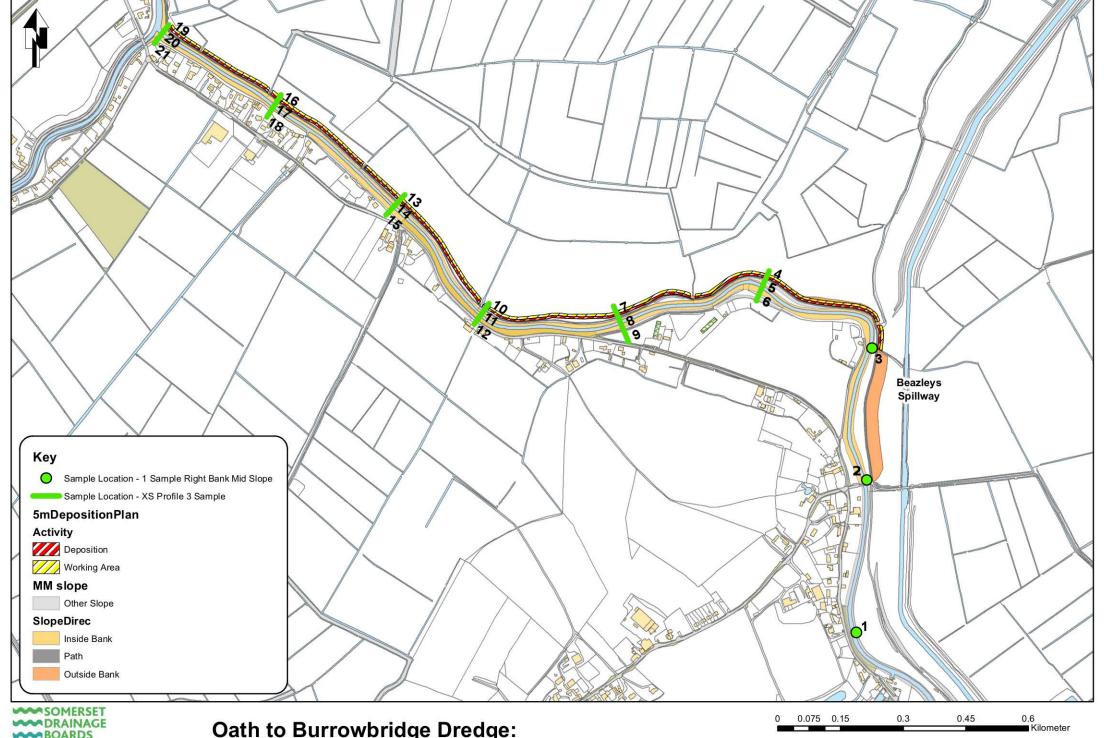
The sediment has Soil Organic Matter in the order of 6 to 7% which approximates to Total Organic Carbon values of 3.5 to 4.0%. This can result in waste falling into a "stable non-reactive hazardous waste in non-hazardous" waste classification, even if the material presents no risk to human health or the environment.

If disposal to a licensed facility is required, the sediment would need to be subject to Waste Acceptance Criteria (WAC) testing to determine leachable concentrations of compounds.



# **Drawings**





Oath to Burrowbridge Dredge: Sediment Sample Locations. 21 Samples.

**CONSORTIUM** 

# **Appendices**



# Appendix A

# **ALS Laboratory Certificates**



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Hydrogeo Ltd Waddington House Unit 4 Llanover Business Centre Llanover Abergavenny Monmouthshire NP7 9HA

Attention: Matt Johns

## **CERTIFICATE OF ANALYSIS**

**Date:** 18 June 2018

Customer: H\_HYDROGEO\_MON

Sample Delivery Group (SDG): 180608-108
Your Reference: JOO281

Location: Oath Burrow Bridge

**Report No:** 460496

This report has been revised and directly supersedes 460325 in its entirety.

We received 21 samples on Friday June 08, 2018 and 21 of these samples were scheduled for analysis which was completed on Friday June 15, 2018. Accredited laboratory tests are defined within the report, but opinions, interpretations and on-site data expressed herein are outside the scope of ISO 17025 accreditation.

Should this report require incorporation into client reports, it must be used in its entirety and not simply with the data sections alone.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

Approved By:

Sonia McWhan
Operations Manager









SDG: 180608-108 Oath Burrow Bridge Location

Client Reference: Order Number:

JOO281

Report Number: Superseded Report:

460496 460325

Validated

# **Received Sample Overview**

		•		
Lab Sample No(s)	Customer Sample Ref.	AGS Ref.	Depth (m)	Sampled Date
17706866	OATH 1		1.00 - 1.00	07/06/2018
17706868	OATH 2		1.00 - 1.00	07/06/2018
17706869	OATH 3		1.00 - 1.00	07/06/2018
17706870	OATH 4		1.00 - 1.00	07/06/2018
17706871	OATH 5		1.00 - 1.00	07/06/2018
17706873	OATH 6		1.00 - 1.00	07/06/2018
17706874	OATH 7		1.00 - 1.00	07/06/2018
17706876	OATH 8		1.00 - 1.00	07/06/2018
17706877	OATH 9		1.00 - 1.00	07/06/2018
17706878	OATH 10		1.00 - 1.00	07/06/2018
17706880	OATH 11		1.00 - 1.00	07/06/2018
17706881	OATH 12		1.00 - 1.00	07/06/2018
17706882	OATH 13		1.00 - 1.00	07/06/2018
17706883	OATH 14		1.00 - 1.00	07/06/2018
17706884	OATH 15		1.00 - 1.00	07/06/2018
17706885	OATH 16		1.00 - 1.00	07/06/2018
17706886	OATH 17		1.00 - 1.00	07/06/2018
17706887	OATH 18		1.00 - 1.00	07/06/2018
17706888	OATH 19		1.00 - 1.00	07/06/2018
17706889	OATH 20		1.00 - 1.00	07/06/2018
17706892	OATH 21		1.00 - 1.00	07/06/2018

Maximum Sample/Coolbox Temperature (°C):

18.4

ISO5667-3 Water quality - Sampling - Part3 - During Transportation samples shall be stored in a cooling device capable of maintaining a temperature of (5±3)°C.

ALS have data which show that a cool box with 4 frozen icepacks is capable of maintaining pre-chilled samples at a temperature of  $(5\pm3)^{\circ}$ C for a period of up to 24hrs.

Only received samples which have had analysis scheduled will be shown on the following pages.

## **CERTIFICATE OF ANALYSIS**

ALS

 SDG:
 180608-108
 Client Reference:
 JOO281
 Report Number:
 460496

 Location:
 Oath Burrow Bridge
 Order Number:
 Superseded Report:
 460325

(ALS) Location:	Oath Burrow	Order Number: Superseded Report: 460325																				
Results Legend  X Test  N No Determination	Lab Sample I	No(s)	17706866	17706868	17706869	17706870	17706871	17706873	17706874	17706876	17706877	17706878	17706880	17706881	17706882	17706883	17706884	17706885	17706886	17706887	17706888	17706889
Customer Sample Reference				OATH 2	ОАТН 3	OATH 4	OATH 5	OATH 6	OATH 7	OATH 8	OATH 9	OATH 10	OATH 11	OATH 12	OATH 13	OATH 14	OATH 15	OATH 16	OATH 17	OATH 18	OATH 19	OATH 20
Sample Types - S - Soil/Solid UNS - Unspecified Solid GW - Ground Water SW - Surface Water LE - Land Leachate	AGS Refere	nce																				
PL - Prepared Leachate PR - Process Water SA - Saline Water TE - Trade Effluent TS - Treated Sewage US - Untreated Sewage	Depth (m	)	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00
RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid SL - Sludge G - Gas OTH - Other	Containe	r	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)	250g Amber Jar (ALE210)
OTT GUIGI	Sample Tyլ	ре	တ	S	ဟ	S	ဟ	S	S	S	S	S	S	တ	S	ဟ	S	တ	S	တ	S	တ
Alkali Metals by iCap-OES (Soil)	All	NDPs: 0 Tests: 21	X	Х	Х	Х	Х	X	X	X	Х	Х	Х	X	Х	Х	X	Х	X	X	X	Х
Alkali Metals in Agricultural soils	All	NDPs: 0 Tests: 21	х	Х	X	Х	X	X	Х	X	Х	Х	Х	X	Х	х	X	Х	Х	X	X	х
Ammonium Soil by Titration	All	NDPs: 0 Tests: 21	х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	X	Х	х	х	Х	Х	Х	Х	Х
Anions by Kone (soil)	All	NDPs: 0 Tests: 21	х	Х	Х	Х	Х	Х	Х	Х	Х	Х	Х	X	Х	Х	х	Х	Х	X	X	Х
Fluoride (soluble)	All	NDPs: 0 Tests: 21	Х	X	X	Х	X	Х	Х	Х	Х	X	Х	Х	Х	X	X	Х	X	X	Х	Х
Metals in solid samples by OES	All	NDPs: 0 Tests: 21	х	Х	X	Х	X	X	X	X	X	Х	X	X	X	Х	X	X	X	X	X	Х
NO3, NO2 and TON by KONE (s)	All	NDPs: 0 Tests: 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Х
OC, OP Pesticides and Triazine Herb	All	NDPs: 0 Tests: 6	X			X				X				Х				Х				X
PAH by GCMS	All	NDPs: 0 Tests: 21	х	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
PCBs by GCMS	All	NDPs: 0 Tests: 6	x			X				X				X				Х				X
pH	All	NDPs: 0 Tests: 21	х	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Phosphate (Bicarbonate Extractable)	All	NDPs: 0 Tests: 21	х	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	х
Sample description  Semi Volatile Organic Compounds	All	NDPs: 0 Tests: 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
	All	NDPs: 0 Tests: 6	х			X				X				X				X				X
Silver	Ail	NDPs: 0 Tests: 21	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

X

X

X

#### **CERTIFICATE OF ANALYSIS**



Report Number: Superseded Report: 460496 SDG: 180608-108 JOO281 Client Reference: 460325 Location: Oath Burrow Bridge **Order Number Results Legend** 17706885 17706889 17706870 17706874 17706878 17706881 17706886 7706871 7706873 Lab Sample No(s) Test Х No Determination Possible Customer OATH 8 OATH 9 Sample Reference 6 Sample Types -S - Soil/Solid UNS - Unspecified Solid GW - Ground Water **AGS Reference** SW - Surface Water LE - Land Leachate PL - Prepared Leachate PR - Process Water 1.00 - 1.00 1.00 1.00 .00 .00 . .0 . . .0 .00 .00 . .00 . .0 . . . .00 - 1.00 SA - Saline Water Depth (m) - 1.00 - 1.00 - 1.00 1.00 1.00 1.00 1.00 1.00 1.00 TE - Trade Effluent 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 TS - Treated Sewage US - Untreated Sewage 250g Amber Ja (ALE210) RE - Recreational Water DW - Drinking Water Non-regulatory UNL - Unspecified Liquid Container SL - Sludge Jar Jar . Jar Jar Jar Jar Jar Jar Jar Jar Jar Jar Jar Jar Jar G - Gas OTH - Other Sample Type S S S S S S S S S S S S S S S Total Organic Carbon All NDPs: 0 Tests: 21 X Х Χ Х X X X X X X X Х Х X Х Х Х Х Х TPH c6-40 Value of soil All NDPs: 0 Tests: 21 Х X X X X X Х Х Х Х Х Х Х Х X Х Х X Х





SDG: 180608-108
Location: Oath Burrow Bridge

Client Reference: Order Number: JOO281

Report Number: Superseded Report: 460496 460325

# **Sample Descriptions**

### **Grain Sizes**

17706866 OATH 1 1.00 17706868 OATH 2 1.00 17706869 OATH 3 1.00	- 1.00	n Silt Loam n Silt Loam n Clay Loam n Clay Loam	Stones  Vegetation  Vegetation  Vegetation	Vegetation  None  None  None	
17706868 OATH 2 1.00 17706869 OATH 3 1.00	- 1.00 Light Brow - 1.00 Dark Brow - 1.00 Dark Brow	n Silt Loam n Clay Loam n Clay Loam	Vegetation Vegetation Vegetation	None None	
17706869 OATH 3 1.00	- 1.00 Dark Brow - 1.00 Dark Brow	n Clay Loam	Vegetation Vegetation	None	
	- 1.00 Dark Brow	n Clay Loam	Vegetation		
17706870 OATH 4 1.00		•		None	
	- 1.00 Dark Brow	n Clay Loam			
17706871 OATH 5 1.00			Vegetation	None	
17706873 OATH 6 1.00	- 1.00 Dark Brow	n Silt Loam	Vegetation	None	
17706874 OATH 7 1.00	- 1.00 Dark Brow	n Clay Loam	Vegetation	None	
17706876 OATH 8 1.00	- 1.00 Dark Brow	n Clay Loam	Vegetation	None	
17706877 OATH 9 1.00	- 1.00 Dark Brow	n Clay Loam	Vegetation	None	
17706878 OATH 10 1.00	- 1.00 Dark Brow	n Clay Loam	Vegetation	None	
17706880 OATH 11 1.00	- 1.00 Dark Brow	n Clay Loam	Vegetation	None	
17706881 OATH 12 1.00	- 1.00 Dark Brow	n Silt Loam	Vegetation	None	
17706882 OATH 13 1.00	- 1.00 Light Brow	n Silty Clay	Vegetation	None	
17706883 OATH 14 1.00	- 1.00 Light Brow	n Silt Loam	Vegetation	None	
17706884 OATH 15 1.00	- 1.00 Dark Brow	n Silt Loam	Vegetation	None	
17706885 OATH 16 1.00	- 1.00 Dark Brow	n Clay Loam	Vegetation	None	
17706886 OATH 17 1.00	- 1.00 Dark Brow	n Silt Loam	Vegetation	None	
17706887 OATH 18 1.00	- 1.00 Light Brow	n Clay Loam	Vegetation	None	
17706888 OATH 19 1.00	- 1.00 Dark Brow	n Silt Loam	None	None	
17706889 OATH 20 1.00	- 1.00 Light Brow	n Clay Loam	Vegetation	None	
17706892 OATH 21 1.00	- 1.00 Light Brow	n Silty Clay	Vegetation	None	

These descriptions are only intended to act as a cross check if sample identities are questioned, and to provide a log of sample matrices with respect to MCERTS validation. They are not intended as full geological descriptions.

We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials - whether these are derived from naturally ocurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample.

Other coarse granular materials such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.



180608-108 Oath Burrow Bridge SDG: Client Reference: Location: Order Number:

JOO281

Report Number: Superseded Report:

460496 460325

Results Legend # ISO17025 accredited.		Customer Sample Ref.	OATH 1		OATH 2		OATH 3	OATH 4	OATH 5	OATH 6
M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample. * Subcontracted test.		Depth (m) Sample Type Date Sampled	1.00 - 1.00 Soil/Solid (S) 07/06/2018		1.00 - 1.00 Soil/Solid (S) 07/06/2018		1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018
** % recovery of the surrogate standa check the efficiency of the method		Sampled Time Date Received	08/06/2018		. 08/06/2018		08/06/2018	08/06/2018	. 08/06/2018	08/06/2018
results of individual compounds w samples aren't corrected for the re		SDG Ref	180608-108		180608-108		180608-108	180608-108	180608-108	180608-108
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	17706866		17706868		17706869	17706870	17706871	17706873
Component	LOD/Units	Method								
Moisture Content Ratio (% of as received sample)	%	PM024	26		29		22	26	29	32
Exchangeable Ammonia as N	<12 mg/kg	TM024	<12	М	<12 N	Л	<12 M	<12 M	<12 M	<12 M
Soil Organic Matter (SOM)	<0.35 %	TM132	6.65	#	6.67	#	6.76	7.09	5.93	6.26 #
pH	1 pH Units	TM133	8.06	M	7.87 N		7.96 M	7.72 M	7.8	7.77 M
TPH >C6-C40	<10	TM154	247		195	VI	200	245	243	138
PCB congener 28	mg/kg <0.003	TM168	<0.003	•			•	0.00391	<b>+</b>	•
<b>3</b>	mg/kg			М				М		
PCB congener 52	<0.003 mg/kg	TM168	<0.003	М				<0.003		
PCB congener 101	<0.003 mg/kg	TM168	<0.003	М				<0.003		
PCB congener 118	<0.003 mg/kg	TM168	<0.003	М				<0.003		
PCB congener 138	<0.003 mg/kg	TM168	<0.003	М				<0.003		
PCB congener 153	<0.003 mg/kg	TM168	<0.003	M		$\top$		<0.003		
PCB congener 180	<0.003 mg/kg	TM168	<0.003					<0.003		
Sum of detected PCB 7	<0.021 mg/kg	TM168	<0.021	M		$^{+}$		<0.021		
Congeners Antimony	<0.6	TM181	<0.6	,,	<0.6	"	<0.6	<0.6	<0.6	<0.6
Arsenic	mg/kg <0.6	TM181	13.8	#	10.3	#	8.83	8.45	9.09	9.17
Cadmium	mg/kg <0.02	TM181	0.643	<u>M</u>	0.471		0.424	0.381	0.325	0.37
Chromium	mg/kg <0.9	TM181	73.5	M	46		42.3	35.8	26.3	31.6
Cobalt	mg/kg <0.1	TM181	11.1	M	9.74		8.39	7.88	8.63	8.55
Copper	mg/kg <1.4	TM181	34.5	M	28.1		22.6	21.7	18.8	21.1
Lead	mg/kg <0.7	TM181	39.6	M	28.6	И	27.9	26.6	30.3	29.2
Mercury	mg/kg <0.14	TM181	<0.14	M	<0.14	И	<0.14	<0.14	<0.14	<0.14
Molybdenum	mg/kg <0.1	TM181	2.11	M	1.8	И	1.23	1.13	0.738	1.04
Nickel	mg/kg <0.2	TM181	29.2	#	25.2	#	21	# 19.9	20.8	# 21.3
Selenium	mg/kg <1	TM181	1.09	M	<1 N	И	<1 M	<1 M	<1 M	<1 M
Vanadium	mg/kg <0.2	TM181	44.8	#		#	29.7	26.3		26.4
Zinc	mg/kg <1.9	TM181	159	#		#	115	111		# 120
Sodium	mg/kg	TM224	189	М	222	И	M	308		330 M
	mg/kg	TM229	170		137	$\perp$	130	113	93.3	108
Phosphate (Bicarbonate Extractable) as mg/l P	mg/l			#	#	#	#	#	#	#
Fluoride, 2:1 water soluble	<1 mg/kg	TM242	<1		<1	$\perp$	<1	<1	1.36	<1
Chloride (soluble)	<5 mg/kg	TM243	17.1	М	20.1 M	И	15.6 M	22.8 M		25.8 M
Nitrate as N, 2:1 water soluble	<0.226 mg/kg	TM243	3.85		6.35	$\perp$	3.5	5.33	1.33	3.73
Nitrite (soluble) as N	<0.03 mg/kg	TM243	2.99		2.24		0.426	0.795	0.227	0.459





SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

Results Legend # ISO17025 accredited.		Customer Sample Ref.	OATH 1	OATH 2	OATH 3	OATH 4	OATH 5	OATH 6
M mCERTS accredited.  aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.  Subcontracted test.  " recovery of the surrogate stands check the efficiency of the method	ard to	Depth (m) Sample Type Date Sampled Sampled Time	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018
results of individual compounds w samples aren't corrected for the re (F) Trigger breach confirmed 1-58+§@ Sample deviation (see appendix)	ithin	Date Received SDG Ref Lab Sample No.(s)	08/06/2018 180608-108 17706866	08/06/2018 180608-108 17706868	08/06/2018 180608-108 17706869	08/06/2018 180608-108 17706870	08/06/2018 180608-108 17706871	08/06/2018 180608-108 17706873
Component	LOD/Units	AGS Reference Method						
Extractable Potassium (Top Soil)	<20 mg/l	TM244	159	165	139	107	140	71.6
Extractable Magnesium (Top Soil)	<40 mg/l	TM244	106	114	108	103	108	71.4
Silver	<10 mg/kg	TM250	<10	<10	<10	<10	<10	<10

## **CERTIFICATE OF ANALYSIS**



 SDG:
 180608-108

 Location:
 Oath Burrow Bridge

Client Reference: Order Number: JOO281

Report Number: Superseded Report: 460496 460325

Results Legend	OATH 11  1.00 - 1.00 Soil/Solid (S) 07/06/2018 - 08/06/2018 18/0608-108 17706880	0ATH 12 1.00 - 1.00 Soil/Solid (S) 07/06/2018 08/06/2018
M	Soil/Solid (S) 07/06/2018 08/06/2018 180608-108	Soil/Solid (S) 07/06/2018
Dissolved / filtered sample.   Disposite of / filtered sample.   Sample Type   Soil/Soilid (S)   Soi	Soil/Solid (S) 07/06/2018 08/06/2018 180608-108	Soil/Solid (S) 07/06/2018
** Subcontracted test. ** Subcontracted test. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery (F) trigger breach confirmed 1-58-\$\frac{1}{2}\$ Sample deviation (see appendix)  ** Subcontracted test. ** % recovery of the surrogate standard to check the efficiency of the method. The results of individual compounds within samples aren't corrected for the recovery trigger breach confirmed \$\frac{1}{2}\$ SDG Ref \$\frac{1}{2}\$ Lab Sample No.(s) AGS Reference  ** Component**  ** Date Sampled**	07/06/2018 08/06/2018 180608-108	07/06/2018
**	08/06/2018 180608-108	
Substitute   Content Ratio (% of as received sample)   Fundamental Ratio (% of as received sample)   Substitute   Substi	180608-108	08/06/2018
Lab Sample No.(s)   17706876   17706877   17706878		180608-108
Component         LOD/Units         Method           Moisture Content Ratio (% of as received sample)         PM024         27         27         29         25           Exchangeable Ammonia as N         <12		17706881
Moisture Content Ratio (% of as received sample)         PM024         27         27         29         25           Exchangeable Ammonia as N         <12		
received sample)         %           Exchangeable Ammonia as N         <12		
Exchangeable Ammonia as N         <12         TM024         <12         <12         <12         <12         <12	26	31
mg/kg l M l M l M l M l	<12	<12
	M	M
Soil Organic Matter (SOM)   <0.35   TM132   7.22   5.12   5.88   6.81	5.69	5.78
% # # # # 	##_	7.00
PH 1 TM133 7.92 7.9 8.1 7.81 PH Units M M M M	8.01	7.93
	159	142
	•	0.00646
mg/kg   M   PCB congener 52		<0.003
mg/kg M		√0.003 M
PCB congener 101 <0.003 TM168 <0.003		<0.003
mg/kg M		10.000 M
PCB congener 118 <0.003 TM168 <0.003		<0.003
mg/kg M		M
PCB congener 138 <0.003 TM168 <0.003		<0.003
mg/kg M		М
PCB congener 153 <0.003 TM168 <0.003		<0.003
mg/kg M		М
PCB congener 180 <0.003 TM168 <0.003		<0.003
mg/kg M		М
Sum of detected PCB 7         <0.021         TM168         <0.021		<0.021
Congeners mg/kg		
Antimony <0.6 TM181 <0.6 <0.6 <0.6 <0.6	<0.6	<0.6
mg/kg # # # #	#	#
Arsenic <0.6 TM181 8.51 8.76 8.1 9.3	8.48	8.42
mg/kg   M   M   M   M	M	M
Cadmium <0.02 TM181 0.389 0.284 0.292 0.418	0.306	0.298
mg/kg M M M M	M	M
Chromium <0.9 TM181 34.7 22.3 23.6 42.1	21.4	22.3
mg/kg         M         M         M         M           Cobalt         <0.1	7.85	7.84
Cobalt   <0.1   IM181   7.9   8.5   7.36   8.34	7.03 M	7.04 M
Copper <1.4 TM181 20.3 17.2 15.6 22.7	16.7	16.4
mg/kg M M M M	М	М.
Lead <0.7 TM181 27.6 29.4 25.2 27.5	27.7	27.1
mg/kg M M M M	М	М
Mercury <0.14 TM181 <0.14 <0.14 <0.14 <0.14 <0.14	<0.14	<0.14
mg/kg M M M	М	М
Molybdenum <0.1 TM181 0.987 0.686 0.726 1.24	0.725	0.745
mg/kg # # # #	#	#
Nickel <0.2 TM181 19.6 20.6 18.2 21.2	19.1	19.1
mg/kg M M M	M	M
Selenium         <1         TM181         <1         <1         <1         <1         <1	<1	<1
mg/kg # # # #	#	#
Vanadium <0.2 TM181 25 24.4 20.6 28	22.6	22.4
mg/kg # # # #	#	#
Zinc <1.9 TM181 109 116 96.9 116	104	104
mg/kg         M         M         M         M           Sodium         <7	M 358	416
mg/kg   10/1224   350   390   395   261	330	410
Phosphate (Bicarbonate <2 TM229 48.3 78.9 89.4 128	79.6	69.1
Extractable) as mg/l P mg/l # # # #	75.0	#
Fluoride, 2:1 water soluble <1 TM242 1.21 1.32 1.31 1.03	1.41	1.45
mg/kg	1.11	1.10
Chloride (soluble) <5 TM243 18 31 21.9 19.1	29.2	24.4
mg/kg M M M M	М	М.
Nitrate as N, 2:1 water soluble <0.226 TM243 4.21 1.86 4 7.82	2.92	1.29
mg/kg		
Nitrite (soluble) as N <0.03 TM243 0.321 0.202 0.127 0.475	0.143	0.157
mg/kg		





SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

Results Legend # ISO17025 accredited.		Customer Sample Ref.	OATH 7	OATH 8	OATH 9	OATH 10	OATH 11	OATH 12
M mCERTS accredited.  aq Aqueous / settled sample. diss.filit Dissolved / filtered sample. tot.unfilit Total / unfiltered sample. Subcontracted test. ** % recovery of the surrogate stands	ard to	Depth (m) Sample Type Date Sampled Sampled Time	Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018
check the efficiency of the method results of individual compounds w samples aren't corrected for the re  (F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)	ithin	Date Received SDG Ref Lab Sample No.(s)	08/06/2018 180608-108 17706874	08/06/2018 180608-108 17706876	08/06/2018 180608-108 17706877	08/06/2018 180608-108 17706878	08/06/2018 180608-108 17706880	08/06/2018 180608-108 17706881
Component	LOD/Units	AGS Reference Method						
Extractable Potassium (Top Soil)	<20 mg/l	TM244	86.7	166	96.9	96.3	114	111
Extractable Magnesium (Top Soil)	<40 mg/l	TM244	80.9	129	89	86.9	91.7	102
Silver	<10 mg/kg	TM250	<10	<10	<10	<10	<10	<10

## **CERTIFICATE OF ANALYSIS**



SDG: 180608-108
Location: Oath Burrow Bridge

Client Reference: Order Number: JOO281

Report Number: Superseded Report: 460496 460325

Results Legend # ISO17025 accredited.		Customer Sample Ref.	OATH 13	OATH 14	OATH 15	OATH 16	OATH 17	OATH 18
M mCERTS accredited.								
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m) Sample Type	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00 Soil/Solid (S)	1.00 - 1.00 Soil/Solid (S)	1.00 - 1.00	1.00 - 1.00
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Date Sampled	Soil/Solid (S) 07/06/2018	Soil/Solid (S) 07/06/2018	07/06/2018	07/06/2018	Soil/Solid (S) 07/06/2018	Soil/Solid (S) 07/06/2018
** % recovery of the surrogate stands check the efficiency of the method		Sampled Time Date Received			08/06/2018			
results of individual compounds w samples aren't corrected for the re	rithin	SDG Ref	08/06/2018 180608-108	08/06/2018 180608-108	180608-108	08/06/2018 180608-108	08/06/2018 180608-108	08/06/2018 180608-108
(F) Trigger breach confirmed 1-5&+\$@ Sample deviation (see appendix)	,	Lab Sample No.(s)	17706882	17706883	17706884	17706885	17706886	17706887
Component	LOD/Units	AGS Reference Method						
Moisture Content Ratio (% of as	202/011110	PM024	29	19	32	26	30	32
received sample)	%	1 11102 1	20	10	02	20	00	02
Exchangeable Ammonia as N	<12	TM024	<12	<12	<12	<12	<12	<12
_	mg/kg		М	М	М	М	M	М
Soil Organic Matter (SOM)	<0.35	TM132	5.84	6.43	7	4.98	6.05	6.55
	%		#		#	#	#	#
рН	1	TM133	7.88	8.2	8.04	7.94	7.9	7.87
TPUL: 00 040	pH Units	T1454	M		M	M	M	M
TPH >C6-C40	<10 mg/kg	TM154	123	158	145	147	185	144
PCB congener 28	<0.003	TM168	•	•	•	0.00601	<b>*</b>	•
1 02 doligonor 20	mg/kg	1111100				0.00001 M		
PCB congener 52	<0.003	TM168				<0.003		
	mg/kg					М		
PCB congener 101	<0.003	TM168				<0.003		
	mg/kg	1				М		
PCB congener 118	<0.003	TM168				<0.003		
PCB congener 138	mg/kg <0.003	TM168				<0.003		
POB congener 130	mg/kg	1101100				<0.003 M		
PCB congener 153	<0.003	TM168				<0.003		
J	mg/kg					М		
PCB congener 180	<0.003	TM168				<0.003		
	mg/kg					M		
Sum of detected PCB 7	<0.021	TM168				<0.021		
Congeners	mg/kg	TM181	<0.6	<0.6	<0.6	<0.6	<0.6	<0.6
Antimony	<0.6 mg/kg	1101101	\ \0.6 #	1	1 1	<0.6 #	<0.6 #	~0.6 #
Arsenic	<0.6	TM181	8.54	10.4	8.01	8.36	8.57	8.46
	mg/kg		М	1	М	М	М	М
Cadmium	<0.02	TM181	0.228	0.418	0.226	0.281	0.233	0.232
	mg/kg		М	M	M	M	M	M
Chromium	<0.9	TM181	14.6	24.9	14.8	19.9	15.3	14.2
Cobalt	mg/kg	TM181	8.07	7.56	7.89	8.38	8.17	7.93
Cobait	<0.1 mg/kg	TIVITOT	0.07 M		1	0.36 M	0.17 M	7.93 M
Copper	<1.4	TM181	15.1	18.8	15.3	15.9	15.3	15.7
"	mg/kg		М	М	М	М	M	М
Lead	<0.7	TM181	29.6	27.7	29.1	29.2	30.6	29.2
	mg/kg		M			M	M	M
Mercury	<0.14	TM181	<0.14	<0.14	<0.14	<0.14	<0.14	<0.14
Molybdenum	mg/kg <0.1	TM181	0.544	0.868	0.544	0.683	0.535	0.572
oryodoridii1	mg/kg	TWITOT	U.J44 #		1	0.003	0.555	U.372 #
Nickel	<0.2	TM181	19.2	19.1	18.9	20	19.4	18.8
	mg/kg		М			М	M	М
Selenium	<1	TM181	<1	<1	<1	<1	<1	<1
Vanadium	mg/kg	T1404	#			#	#	#
Vanadium	<0.2 mg/kg	TM181	21.9 #	23.9	21.5	23.8	22.3 #	21.1
Zinc	<1.9	TM181	108	98	106	111	111	# 105
	mg/kg	1101	М			м	М	M
Sodium	<7	TM224	433	314	454	408	434	439
	mg/kg							
Phosphate (Bicarbonate	<2	TM229	34.6	65.2	37.2	71.7	28.3	31.6
Extractable) as mg/l P	mg/l <1	TM242	1.38	1.16	1.4	1.13	# 1.18	# 1.15
Fluoride, 2:1 water soluble	mg/kg	I IVIZ4Z	1.30	1.10	1.4	1.13	1.10	1.15
Chloride (soluble)	<5	TM243	34.2	39.7	37	23.7	37.3	37.3
, , , , , , , , , , , , , , , , , , ,	mg/kg		М	1			M	М
Nitrate as N, 2:1 water soluble	<0.226	TM243	<0.226	5.3	0.504	2.83	<0.226	0.702
N9.71 / 1.11.2 N	mg/kg	T140:0	244	1.00	2212	2 224	2 422	2.27
Nitrite (soluble) as N	<0.03 mg/kg	TM243	0.141	1.23	0.213	0.204	0.138	0.277
	ilig/ng			1	<u> </u>			





SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

#	Results Legend SO17025 accredited.		Customer Sample Ref.	OATH 13	OATH 14	OATH 15	OATH 16	OATH 17	OATH 18
aq diss.filt tot.unfilt * **	mCERTS accredited. Aqueous / settled sample. Dissolved / filtered sample. Total / unfiltered sample. Subcontracted test. For ecovery of the surrogate standscheck the efficiency of the method. Trigger breath confirmed Sample deviation (see appendix)	. The ithin	Depth (m) Sample Type Date Sampled Sampled Time Date Received SDG Ref Lab Sample No.(s)	1.00 - 1.00 Soil/Solid (S) 07/06/2018	1.00 - 1.00 Soil/Solid (S) 07/06/2018 	1.00 - 1.00 Soil/Solid (S) 07/06/2018 	1.00 - 1.00 Soil/Solid (S) 07/06/2018 	1.00 - 1.00 Soil/Solid (S) 07/06/2018 	1.00 - 1.00 Soil/Solid (S) 07/06/2018 
Compon		LOD/Units	AGS Reference Method						
	le Potassium (Top	<20	TM244	158	122	201	123	200	162
Soil)		mg/l							-
	le Magnesium (Top	<40	TM244	152	92.3	148	131	167	135
Soil) Silver		mg/l <10	TM250	<10	<10	<10	<10	<10	<10
		mg/kg							





180608-108 Oath Burrow Bridge SDG: Client Reference: JOO281 Location: Order Number:

Report Number: Superseded Report: 460496 460325

Results Legend # ISO17025 accredited.		Customer Sample Ref.	OATH 19	OATH 20	OATH 21		
M mCERTS accredited.							
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00		
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Sample Type Date Sampled	Soil/Solid (S) 07/06/2018	Soil/Solid (S) 07/06/2018	Soil/Solid (S) 07/06/2018		
** % recovery of the surrogate standa		Sampled Time					
check the efficiency of the method. results of individual compounds wi		Date Received	08/06/2018	08/06/2018	08/06/2018		
samples aren't corrected for the red		SDG Ref	180608-108 17706888	180608-108 17706889	180608-108 17706892		
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	1110000	1110000	11100002		
Component	LOD/Units	_					
Moisture Content Ratio (% of as		PM024	28	26	31		
received sample)	%						
Exchangeable Ammonia as N	<12	TM024	<12	<12	<12		
Exchangeable / Illinonia as IV	mg/kg	TIVIOZA	M	M	M		
Soil Organic Matter (SOM)	<0.35	TM132	5.21	5.31	5.24		
3011 Organic Matter (30M)	%	1101132					
		T14400	#	#	#		
pН	1 pH Units	TM133	8	8.04	8.37		
TDU. 00 040		T14454	M	M	M		
TPH >C6-C40	<10	TM154	140	145	79.4		
	mg/kg		•	<b>*</b>	•		
PCB congener 28	<0.003	TM168		0.00746			
	mg/kg			M			
PCB congener 52	<0.003	TM168		<0.003			
	mg/kg			M			
PCB congener 101	<0.003	TM168		<0.003			
	mg/kg			M			
PCB congener 118	<0.003	TM168		<0.003			
	mg/kg			M			
PCB congener 138	<0.003	TM168		<0.003			
	mg/kg			М			
PCB congener 153	< 0.003	TM168		<0.003			
Ŭ	mg/kg			М			
PCB congener 180	<0.003	TM168		<0.003			
	mg/kg			М			
Sum of detected PCB 7	<0.021	TM168		<0.021			
Congeners	mg/kg	1111100		-0.021			
Antimony	<0.6	TM181	<0.6	<0.6	<0.6		
Antimony	mg/kg	TIVITOT	<b>~</b> 0.0 #	<b>~</b> 0.0 #	~0.0 #		
Arasais	<0.6	TM181	8.13	8.56	9.22		
Arsenic		TIVITOT					
On destinate	mg/kg	TN4404	0.226	M	0.22		
Cadmium	<0.02	TM181		0.227			
OL :	mg/kg	T14404	M	M	M		
Chromium	<0.9	TM181	14.7	15.1	17.3		
	mg/kg		M	M	M		
Cobalt	<0.1	TM181	7.97	8.17	9.04		
	mg/kg		M	M	М		
Copper	<1.4	TM181	14.1	15.4	15.8		
	mg/kg		M	М	М		
Lead	<0.7	TM181	29.2	30.6	33.4		
	mg/kg		M	M	M		
Mercury	<0.14	TM181	<0.14	<0.14	<0.14		
	mg/kg		M	M	М		
Molybdenum	<0.1	TM181	0.49	0.552	0.482		
	mg/kg		#	#	#		
Nickel	<0.2	TM181	19	19.5	21.6		
	mg/kg		M	M	М	<u> </u>	<u>                                      </u>
Selenium	<1	TM181	<1	<1	<1		
	mg/kg		#	#	#		
Vanadium	<0.2	TM181	21.7	22.1	25.3		
	mg/kg		#	#	#		
Zinc	<1.9	TM181	106	111	123		
	mg/kg		M	М	123 M		
Sodium	<7	TM224	447	427	425		
Codium	mg/kg	1 101224	771	741	723		
Phosphate (Bicarbonate	111g/kg <2	TM229	37.1	32.4	36		
Extractable) as mg/l P		1 IVI229					
	mg/l	T14040	4 22	4 50	4 97		<del>                                     </del>
Fluoride, 2:1 water soluble	<1	TM242	1.22	1.59	1.87		
011 :1 ( 1 : : )	mg/kg	71.0.0	44.0	44.0	20.4		
Chloride (soluble)	<5	TM243	44.3	44.2	23.4		
	mg/kg		M	M	M		
Nitrate as N, 2:1 water soluble	<0.226	TM243	<0.226	0.887	0.579		
	mg/kg						
Nitrite (soluble) as N	<0.03	TM243	0.168	0.17	0.125		
	mg/kg						





SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

## DOPPING Concentration ## DOPPING Concentration ## DOPPING Concentration ## DOPPING CONTINUED ## DOPPING CONTINU	
M	
SDG Ref   180608-108   180608-108   17706892   177068	
Component         LOD/Units         Method           Extractable Potassium (Top Soil)         <20 TM244 165 192 167	
Soil)   mg/l	
Extractable Magnesium (Top	
Silver <10 TM250 <10 <10 <10	$\neg$
	$\dashv$
	-
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## **CERTIFICATE OF ANALYSIS**

ALS

SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

OC, OP Pesticides and	Triazine I							
Results Legend # ISO17025 accredited. M mCERTS accredited.		Customer Sample Ref.	OATH 1	OATH 4	OATH 8	OATH 12	OATH 16	OATH 20
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00
tot.unfilt Total / unfiltered sample.  * Subcontracted test.		Sample Type Date Sampled	Soil/Solid (S) 07/06/2018	Soil/Solid (S) 07/06/2018	Soil/Solid (S) 07/06/2018	Soil/Solid (S) 07/06/2018	Soil/Solid (S) 07/06/2018	Soil/Solid (S) 07/06/2018
** % recovery of the surrogate standa	ard to	Sampled Time	07/00/2010	07/00/2016	07/00/2016	07/00/2016	07/00/2010	07/00/2010
check the efficiency of the method results of individual compounds w		Date Received	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018
samples aren't corrected for the re		SDG Ref	180608-108	180608-108	180608-108	180608-108	180608-108	180608-108
(F) Trigger breach confirmed		Lab Sample No.(s)	17706866	17706870	17706876	17706881	17706885	17706889
1-5&+§@ Sample deviation (see appendix)	LOD/Units	AGS Reference Method						
Component								
Tecnazene	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Hexachlorobenzene	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Trifluralin	< 0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Phorate	< 0.05	TM073	<0.5	<0.25	<0.25	<0.05	< 0.05	< 0.05
	mg/kg							
alpha-Hexachlorocyclohexane	< 0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
(HCH)	mg/kg	1111070	-0.0	10.20	10.20	10.00	10.00	10.00
Quintozene (PCNB)	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
Quintozene (FCNB)	mg/kg	TIVIO73	<b>\0.5</b>	V0.25	\0.25	V0.00	<b>\0.00</b>	<b>\0.00</b>
Triallate		TM072	<b>√</b> 0 E	<0.0F	<0.0F	<0.0E	<0.0E	<0.0E
Triallate	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
name that the state	mg/kg	T14070	.0.5	.0.05	.0.05	-0.05	-0.05	-0.05
gamma-Hexachlorocyclohexane	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
(HCH / Lindane)	mg/kg							
Disulfoton	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Heptachlor	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Aldrin	< 0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Chlorothalonil	<0.05	TM073	<1	<0.5	<0.5	<0.05	<0.05	< 0.05
	mg/kg							
Telodrin	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
Toloum	mg/kg	1111070	-0.0	10.20	10.20	10.00	10.00	10.00
beta-Hexachlorocyclohexane	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
(HCH)	1	TIVIO73	<b>\0.5</b>	V0.25	V0.25	V0.05	V0.05	V0.05
	mg/kg	T14070	.0.5	.0.05	.0.05	-0.05	-0.05	-0.05
Isodrin	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Heptachlor epoxide	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Triadimefon	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Pendimethalin	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
o,p-DDE	< 0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Endosulphan I	< 0.05	TM073	<0.5	<0.25	<0.25	< 0.05	< 0.05	< 0.05
	mg/kg							
Trans-chlordane	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
cis-Chlordane	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
1	mg/kg							
n n DDE	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
p,p-DDE	mg/kg	TIVIU/3	``	\0.23	\0.23	\0.00	\U.UJ	<b>\0.00</b>
Diolekia		TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
Dieldrin	<0.05	1101073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
LDDD (TDE)	mg/kg	711070	0.5	0.05	0.05	0.05	0.05	0.05
o,p'-DDD (TDE)	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Endrin	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
o,p-DDT	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
p,p-TDE (DDD)	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Endosulphan II	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
p,p-DDT	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
o,p-Methoxychlor	< 0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
,	mg/kg		· · · ·					
p,p-Methoxychlor	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
F.Fcu.oxyonioi	mg/kg	1						
<u> </u>		-		<u> </u>	<u> </u>	ı	<u> </u>	





SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

OC. OP Pesticides and Triazine Herb

OC, OP Pesticides and Triazine Herb								
Results Legend		Customer Sample Ref.	OATH 1	OATH 4	OATH 8	OATH 12	OATH 16	OATH 20
# ISO17025 accredited.								
M mCERTS accredited.  aq Aqueous / settled sample.								
diss.filt Dissolved / filtered sample.		Depth (m)	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
* Subcontracted test.		Date Sampled	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018
** % recovery of the surrogate stands	ard to	Sampled Time						
check the efficiency of the method results of individual compounds w	ithin	Date Received	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018
samples aren't corrected for the re		SDG Ref	180608-108	180608-108	180608-108	180608-108	180608-108	180608-108
(F) Trigger breach confirmed		Lab Sample No.(s)	17706866	17706870	17706876	17706881	17706885	17706889
1-5&+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Units	Method						
Endosulphan sulphate	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
Endodaphan daphato		1111070	-0.0	10.20	10.20	10.00	10.00	10.00
	mg/kg							
Permethrin I	< 0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
	mg/kg							
Permethrin II	<0.05	TM073	<0.5	<0.25	<0.25	<0.05	<0.05	<0.05
remediiii ii		1101073	<b>\0.5</b>	V0.25	V0.25	<0.05	<b>\0.03</b>	V0.05
	mg/kg							
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## **CERTIFICATE OF ANALYSIS**

Report Number: Superseded Report: 180608-108 Oath Burrow Bridge SDG: Client Reference: JOO281 460496 460325 Location: Order Number:

PAH by GCMS  Results Legend		Customer Sample Ref.	OATH 1	OATH 2	OATH 3	OATH 4	OATH 5	OATH 6
# ISO17025 accredited. M mCERTS accredited.		·			-			-
aq Aqueous / settled sample.		Depth (m)	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
* Subcontracted test.  ** % recovery of the surrogate stand	ard to	Date Sampled Sampled Time	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018
check the efficiency of the method	d. The	Date Received	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018
results of individual compounds v samples aren't corrected for the re		SDG Ref	180608-108	180608-108	180608-108	180608-108	180608-108	180608-108
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	17706866	17706868	17706869	17706870	17706871	17706873
Component	LOD/Units							
Naphthalene-d8 % recovery**		TM218	90.7	98.5	93.7	99.2	93.1	93.1
Naphthalene-do // recovery	%	TIVIZIO	30.1	30.5	30.1	33.2	30.1	33.1
Acenaphthene-d10 %	70	TM218	93.1	85.3	94.5	92.2	88.4	91.4
recovery**	%	1101210	30.1	00.0	54.0	JZ.2	00.4	J1.4
Phenanthrene-d10 % recovery**	70	TM218	97.1	80.8	98.4	97.9	90.7	93.9
Thenantinene a to 70 recevery	%	1101210	37.1	00.0	30.4	37.5	30.7	50.5
Chrysene-d12 % recovery**	7.0	TM218	83.1	83.6	86.5	101	81.5	80.3
Onlysene-diz /orecovery	%	TIVIZIO	00.1	05.0	00.5	101	01.5	00.5
Perylene-d12 % recovery**	7.0	TM218	79.3	95.9	84.1	104	79.2	79.6
1 crylene d 12 /0 recovery	%	1101210	75.5	30.3	04.1	104	10.2	13.0
Naphthalene	<0.009	TM218	0.0229	0.0254	0.0571	0.0479	0.0433	0.0473
Naphthalene	mg/kg	1101210	0.0223 M	0.020∓ ♦ M	0.007 T	• M	0.0400 <b>♦</b> M	• M
Acenaphthylene	<0.012	TM218	0.0364	<0.024	0.0588	0.0455	0.0312	0.0378
Acenaphunyiene	mg/kg	TIVIZIO	0.0004 M	◆ M	0.0300 <b>♦</b> M	0.0435 ♦ M	0.0512 <b>♦</b> M	0.0070 ♦ M
Acenanhthene	<0.008	TM218	0.0131	<0.016	0.0289	0.0266	0.0251	0.0284
Acenaphthene	mg/kg	1 IVIZ 10						
Fluorene	<0.01	TM218	0.0144	◆ M <0.02	◆ M 0.0544	◆ M 0.0455	◆ M 0.0371	◆ M 0.0421
Fluorene		11/12/10						
Phenanthrene	mg/kg <0.015	TM218	0.168	◆ M 0.16	◆ M 0.343	◆ M 0.289	◆ M 0.241	◆ M 0.29
Prienantifierie		11/12/10						
Anthropon	mg/kg	TM218	0.0561	◆ M 0.0567	◆ M 0.254	◆ M 0.0971	◆ M 0.0926	◆ M 0.109
Anthracene	<0.016 mg/kg	11/1/21/0						
The second secon	_	TM040	M	◆ M	◆ M	◆ M	◆ M	<u> </u>
Fluoranthene	<0.017	TM218	0.588	0.502	0.934	0.807	0.549	0.74
D	mg/kg	TM040	M	◆ M	◆ M 0.74	◆ M	◆ M	<u> </u>
Pyrene	<0.015	TM218	0.536	0.4		0.648	0.437	0.6
D () "	mg/kg	T14040	M	◆ M	◆ M	◆ M	<b>♦</b> M	◆ M
Benz(a)anthracene	<0.014	TM218	0.319	0.291	0.505	0.482	0.282	0.379
OI.	mg/kg	T14040	M	◆ M	◆ M	◆ M	<b>♦</b> M	◆ M
Chrysene	<0.01	TM218	0.305	0.356	0.512	0.56	0.282	0.367
D/b\fl	mg/kg	TM040	M	◆ M	◆ M	◆ M	◆ M	<u> </u>
Benzo(b)fluoranthene	<0.015	TM218	0.644	0.657	0.714	0.907	0.396	0.6
D(1)\fl	mg/kg	TM040	M 0.400	◆ M	◆ M	◆ M	◆ M	◆ M
Benzo(k)fluoranthene	<0.014	TM218	0.186	0.212	0.251	0.281	0.136	0.195
Denza (alaurene	mg/kg	TM218	M 200	◆ M 0.374	◆ M 0.539	◆ M	♦ M	◆ M
Benzo(a)pyrene	<0.015 mg/kg	1101210	0.388			0.524	0.275	0.418
Indeno(1,2,3-cd)pyrene	<0.018	TM218	0.439	◆ M 0.386	◆ M 0.434	◆ M 0.424	◆ M 0.224	◆ M 0.338
indeno(1,2,3-cd)pyrene	mg/kg	1101210	0.439 M	0.366	0.434 ♦ M	0.424 ♦ M	0.224 ♦ M	0.556 ♦ M
Dibenzo(a,h)anthracene	<0.023	TM218	0.0676	<0.046	0.0962	0.0829	0.0541	0.0692
Diberizo(a,ri)aritiracerie	mg/kg	TIVIZIO	0.0070 M	◆ M	0.0302 ♦ M	0.0025 ♦ M	0.0541 ♦ M	0.0032 ♦ M
Benzo(g,h,i)perylene	<0.024	TM218	0.355	0.315	0.394	0.369	0.201	0.295
Denzo(g,n,n)peryiene	mg/kg	1101210	0.000 M	• M	• M	• M	0.201 ♦ M	• M
PAH, Total Detected USEPA 16	<0.118	TM218	4.14	3.74	5.92	5.64	3.31	4.56
1711, 18tal 28t8688 88E17118	mg/kg	1111210	1.11	0.71	0.02	0.01	0.01	1.00
		+ +						
		_						

#### **CERTIFICATE OF ANALYSIS**



SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

PAH by GCMS Results Legend		Customer Sample Ref.	OATH 7	OATH 8	OATH 9	OATH 10	OATH 11	OATH 12
# ISO17025 accredited.  M mCERTS accredited.		campic Non	UAITI I	UAITIO	OAIDS	OATH IU	OAIH II	OATH 12
aq Aqueous / settled sample.		Depth (m)	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid (S)					
* Subcontracted test.  ** % recovery of the surrogate stand	ard to	Date Sampled Sampled Time	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018
check the efficiency of the method results of individual compounds w	i. The	Date Received	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018
samples aren't corrected for the re		SDG Ref Lab Sample No.(s)	180608-108 17706874	180608-108 17706876	180608-108 17706877	180608-108 17706878	180608-108 17706880	180608-108 17706881
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Units	Method						
Naphthalene-d8 % recovery**		TM218	99.7	96.1	93.3	92.8	93.6	92.6
	%						20.1	
Acenaphthene-d10 %	0/	TM218	90.7	88.9	90.3	92.2	92.1	92.3
Phononthropo d10 % recovery**	%	TM218	02.6	90.5	93.1	96.3	90.1	96.9
Phenanthrene-d10 % recovery**	%	1 IVIZ 10	92.6	89.5	93.1	90.3	90.1	90.9
Chrysene-d12 % recovery**	,,	TM218	98.3	94.8	83.1	79	79.1	84.8
0,000 d.12 /0.100010	%	12.0	00.0	00	33	. •		00
Perylene-d12 % recovery**		TM218	102	98.6	80.7	79.8	79.2	85.2
	%							
Naphthalene	<0.009	TM218	0.0624	0.0456	0.0607	0.0503	0.0599	0.0466
	mg/kg		<b>♦</b> M	<b>♦</b> N				
Acenaphthylene	<0.012	TM218	0.0537	0.034	0.0448	0.0475	0.0475	0.0416
Assaulthans	mg/kg	T14040	◆ M	• M	◆ M	◆ M	<b>♦ M</b>	• M
Acenaphthene	<0.008 mg/kg	TM218	0.0318	0.0262	0.0386	0.0272	0.0295	0.032
Fluorene	mg/kg <0.01	TM218	◆ M 0.0491	◆ M 0.0445	◆ M 0.0536	◆ M 0.0437	◆ M 0.0437	◆ M 0.0406
riuotette	mg/kg	1 1012 10	0.0491 ♦ M	0.0445 ♦ M	0.0536 ♦ M	0.0437 ♦ M	0.0437 ♦ M	0.0400 ♦ M
Phenanthrene	<0.015	TM218	0.349	0.257	0.345	0.284	0.318 vivi	0.296
	mg/kg		<b>♦</b> M	• M	<b>♦</b> M	• M	• M	◆ M
Anthracene	<0.016	TM218	0.137	0.0894	0.138	0.112	0.123	0.123
	mg/kg		<b>♦</b> M					
Fluoranthene	<0.017	TM218	0.896	0.66	0.808	0.783	0.766	0.722
	mg/kg		<b>♦</b> M	<b>→</b> M				
Pyrene	<0.015	TM218	0.702	0.531	0.628	0.637	0.592	0.568
D () "	mg/kg	T14040	◆ M	<b>♦</b> M	◆ M	◆ M	<b>♦</b> M	◆ M
Benz(a)anthracene	<0.014 mg/kg	TM218	0.564	0.4	0.435	0.42	0.404	0.369
Chrysene	<0.01	TM218	◆ M 0.529	◆ M 0.457	◆ M 0.418	◆ M 0.389	◆ M 0.394	◆ M 0.367
Onlysone	mg/kg	1101210	• M	• M	0.410 ♦ M	• M	• M	• M
Benzo(b)fluoranthene	<0.015	TM218	0.933	0.626	0.606	0.67	0.615	0.529
. ,	mg/kg		<b>♦</b> M					
Benzo(k)fluoranthene	<0.014	TM218	0.31	0.221	0.194	0.217	0.171	0.179
	mg/kg		<b>♦</b> M	<b>♦</b> M	<b>◆</b> M	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M
Benzo(a)pyrene	<0.015	TM218	0.552	0.381	0.423	0.452	0.406	0.375
1.1. (4.0.0)	mg/kg	T14040	◆ M	◆ M	◆ M	◆ M	<b>♦</b> M	◆ M
Indeno(1,2,3-cd)pyrene	<0.018 mg/kg	TM218	0.42 ◆ M	0.303 ◆ M	0.33 <b>♦</b> M	0.388 <b>♦</b> M	0.363 <b>♦</b> M	0.304 ◆ M
Dibenzo(a,h)anthracene	<0.023	TM218	0.097	0.0636	0.0787	0.0805	0.0723	0.0658
Dibenzo(a,n)ananacene	mg/kg	110210	• M	0.0000 <b>♦</b> M	• M	• M	0.0725 ♦ M	• M
Benzo(g,h,i)perylene	<0.024	TM218	0.362	0.241	0.27	0.316	0.276	0.245
	mg/kg		<b>♦</b> M					
PAH, Total Detected USEPA 16	<0.118	TM218	6.05	4.38	4.87	4.92	4.68	4.3
	mg/kg	+						
		+						
		T T						
		+						
		+						
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#### **CERTIFICATE OF ANALYSIS**

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SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

PAH by GCMS  Results Legend		Customer Sample Ref.	OATH 13	OATH 14	OATH 15	OATH 16	OATH 17	OATH 18
# ISO17025 accredited.  M mCERTS accredited.			5/11110	O/11114	5,11110	5/11110	3/III II	5/11110
aq Aqueous / settled sample. diss.filt Dissolved / filtered sample.		Depth (m)	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00
tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid (S)					
* Subcontracted test.  ** % recovery of the surrogate stand	ard to	Date Sampled Sampled Time	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018
check the efficiency of the method results of individual compounds w		Date Received	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018
samples aren't corrected for the re		SDG Ref Lab Sample No.(s)	180608-108 17706882	180608-108 17706883	180608-108 17706884	180608-108 17706885	180608-108 17706886	180608-108 17706887
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Units	Method						
Naphthalene-d8 % recovery**		TM218	86.4	88	96.3	91	90.6	91.4
	%	=,,,,,,				21.2		
Acenaphthene-d10 %	%	TM218	92.1	92.8	83.9	91.2	91.4	93.2
recovery** Phenanthrene-d10 % recovery**	70	TM218	96	98.4	81.9	91.1	94.4	94.6
Thenantillene and Artecovery	%	110210	30	30.4	01.5	31.1	J-1T	34.0
Chrysene-d12 % recovery**		TM218	85.3	82.7	88.2	81.5	82.7	86
,	%							
Perylene-d12 % recovery**		TM218	80.9	77.1	102	79.9	80.2	86
	%							
Naphthalene	<0.009	TM218	0.0786	0.0661	0.0591	0.05	0.0501	0.104
	mg/kg	=,,,,,,	M	M	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M	<u> </u>
Acenaphthylene	<0.012	TM218	0.0545	0.0468	0.0444	0.0336	0.0345	0.0623
Acenanhthens	mg/kg <0.008	TM218	0.0411	0.0206	◆ M 0.0422	◆ M 0.0271	◆ M 0.0315	◆ M 0.0545
Acenaphthene	<0.008 mg/kg	I IVI∠ Iŏ	0.0411 M	0.0206 M	0.0422 ♦ M	0.0271 ♦ M	0.0315 ◆ M	0.0545 ♦ M
Fluorene	<0.01	TM218	0.0634	0.0434	0.0603	0.0473	0.0426	0.0958
Tidolollo	mg/kg	1111210	M	0.0 10 1 M	• M	• M	• M	• M
Phenanthrene	<0.015	TM218	0.402	0.271	0.362	0.28	0.272	0.488
	mg/kg		М	М	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M
Anthracene	<0.016	TM218	0.166	0.103	0.129	0.109	0.107	0.206
	mg/kg		M	M	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M
Fluoranthene	<0.017	TM218	0.884	0.671	0.867	0.668	0.638	1.15
<u> </u>	mg/kg	T14040	M	M	◆ M	◆ M	<b>♦</b> M	◆ M
Pyrene	<0.015 mg/kg	TM218	0.679	0.535	0.638	0.524	0.492	0.947
Benz(a)anthracene	<0.014	TM218	0.485	0.383	◆ M 0.538	◆ M 0.333	◆ M 0.329	◆ M 0.663
Deliz(a)alitillacelle	mg/kg	1101210	0.403 M	0.363 M	0.556 ♦ M	0.555 <b>♦</b> M	0.529 ♦ M	0.003 <b>♦</b> M
Chrysene	<0.01	TM218	0.521	0.409	0.604	0.32	0.323	0.664
<b>,</b>	mg/kg		M	M	<b>♦</b> M	• M	+ M	<b>♦</b> M
Benzo(b)fluoranthene	<0.015	TM218	0.575	0.648	0.844	0.505	0.44	0.853
	mg/kg		M	M	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M
Benzo(k)fluoranthene	<0.014	TM218	0.206	0.183	0.291	0.186	0.141	0.276
<b>D</b> ()	mg/kg	T14040	M	M	◆ M	◆ M	<b>♦</b> M	◆ M
Benzo(a)pyrene	<0.015 mg/kg	TM218	0.428	0.349	0.537	0.345	0.308	0.569
Indeno(1,2,3-cd)pyrene	<0.018	TM218	0.355	0.334	◆ M 0.382	◆ M 0.266	◆ M 0.233	◆ M 0.499
macho(1,2,0 ca)pyrene	mg/kg	1101210	0.000 M	0.004 M	• M	• M	0.200 ♦ M	• M
Dibenzo(a,h)anthracene	<0.023	TM218	0.0766	0.0656	0.0883	0.0584	0.0571	0.0971
,	mg/kg		М	М	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M
Benzo(g,h,i)perylene	<0.024	TM218	0.276	0.267	0.333	0.239	0.198	0.362
	mg/kg		M	M	<b>◆</b> M	<b>♦</b> M	<b>♦</b> M	<b>♦</b> M
PAH, Total Detected USEPA 16	<0.118	TM218	5.29	4.39	5.82	3.99	3.7	7.09
	mg/kg	+						
		+ +						
		1						
		1						
		+						
		1						

#### **CERTIFICATE OF ANALYSIS**



SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

DALI by CCMS							
PAH by GCMS Results Legend		Customer Sample Ref.	OATH 19	OATH 20	OATH 21	I	
# ISO17025 accredited.		Sacromor Gumple Nel.	OAITIB	OATH 20	UAITI ZI		
M mCERTS accredited. aq Aqueous / settled sample.		Depth (m)	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00		
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)		
* Subcontracted test.     ** % recovery of the surrogate stan	dard to	Date Sampled Sampled Time	07/06/2018	07/06/2018	07/06/2018		
check the efficiency of the methor results of individual compounds	d. The	Date Received	08/06/2018	08/06/2018	08/06/2018		
samples aren't corrected for the		SDG Ref Lab Sample No.(s)	180608-108 17706888	180608-108 17706889	180608-108 17706892		
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		AGS Reference					
Component	LOD/Unit	ts Method					
Naphthalene-d8 % recovery**		TM218	92.3	87.1	96.4		
Accordithese d40 0/	%	TM218	93.3	92.4	90.9		
Acenaphthene-d10 % recovery**	%	1 IVIZ 18	93.3	92.4	90.9		
Phenanthrene-d10 % recovery**	70	TM218	95	96	83.3		
Thenanament are processing	%	2.0			33.3		
Chrysene-d12 % recovery**		TM218	86.8	81.6	88.7		
	%						
Perylene-d12 % recovery**		TM218	85	83.4	98.3		
	%						
Naphthalene	<0.009	TM218	0.0719	0.0767	0.0543		
Acenaphthylene	mg/kg <0.012	TM218	◆ M 0.043	◆ M 0.0492	◆ M 0.0338		
7 too hapharytono	mg/kg	1 1012 10	0.043 ♦ M	0.0492 ♦ M	0.0338 ◆ M		
Acenaphthene	<0.008	TM218	0.0367	0.0436	0.0354		
'	mg/kg		<b>♦</b> M	<b>♦</b> M	<b>♦</b> M		
Fluorene	<0.01	TM218	0.062	0.0776	0.0532		
	mg/kg		<b>♦</b> M	<b>♦</b> M	<b>♦</b> M		
Phenanthrene	<0.015	TM218	0.357	0.396	0.303		
Anthropono	mg/kg <0.016	TM218	◆ M 0.151	◆ M 0.17	◆ M 0.114		
Anthracene	mg/kg	1 1/12 10	0.151 <b>♦</b> M	0.17 ♦ M	0.114 <b>♦</b> M		
Fluoranthene	<0.017	TM218	0.832	0.885	0.693		
	mg/kg		<b>♦</b> M	<b>♦</b> M	<b>♦</b> M		
Pyrene	<0.015	TM218	0.653	0.664	0.526		
	mg/kg		<b>♦</b> M	<b>◆</b> M	<b>♦</b> M		
Benz(a)anthracene	<0.014	TM218	0.437	0.456	0.429		
Ohnana	mg/kg	TM040	◆ M	◆ M	◆ M 0.486		
Chrysene	<0.01 mg/kg	TM218	0.406 ◆ M	0.417 <b>♦</b> M	0.486 ♦ M		
Benzo(b)fluoranthene	<0.015	TM218	0.516	0.613 V W	0.693		
	mg/kg		<b>♦</b> M	+ M	<b>♦</b> M		
Benzo(k)fluoranthene	<0.014	TM218	0.214	0.215	0.244		
	mg/kg		<b>♦</b> M	<b>→</b> M	<b>♦</b> M		
Benzo(a)pyrene	<0.015	TM218	0.426	0.429	0.437		
Indeno(1,2,3-cd)pyrene	mg/kg <0.018	TM218	◆ M 0.307	◆ M 0.343	◆ M 0.294		
indeno(1,2,5-cd)pyrene	mg/kg	1 1/12 10	0.307 <b>♦</b> M	0.343 ♦ M	0.294 <b>♦</b> M		
Dibenzo(a,h)anthracene	<0.023	TM218	0.075	0.0706	0.0732		
( , ,	mg/kg		<b>♦</b> M	<b>♦</b> M	<b>♦</b> M		
Benzo(g,h,i)perylene	<0.024	TM218	0.271	0.267	0.259		
	mg/kg		<b>♦</b> M	<b>♦</b> M	<b>♦</b> M		
PAH, Total Detected USEPA 16	<0.118 mg/kg	TM218	4.86	5.17	4.73		
	IIIg/kg						
		1					
		+					
		1					
		_					
		+					

#### **CERTIFICATE OF ANALYSIS**

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SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

Semi Volatile Organic Compounds

Semi Volatile Organic C	ompoun	ds						
# ISO17025 accredited.		Customer Sample Ref.	OATH 1	OATH 4	OATH 8	OATH 12	OATH 16	OATH 20
M mCERTS accredited.  aq Aqueous / settled sample.		Depth (m)	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00
diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Sample Type	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
* Subcontracted test.     ** % recovery of the surrogate standa	ard to	Date Sampled Sampled Time	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018
check the efficiency of the method.	The	Date Received	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018
results of individual compounds wi samples aren't corrected for the re-		SDG Ref	180608-108 17706866	180608-108 17706870	180608-108 17706876	180608-108 17706881	180608-108 17706885	180608-108 17706889
(F) Trigger breach confirmed 1-5&+§@ Sample deviation (see appendix)		Lab Sample No.(s) AGS Reference	17700000	17700070	17700070	17700001	17700000	17700009
Component	LOD/Units							
Phenol	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
Pentachlorophenol	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
n-Nitroso-n-dipropylamine	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg				2.1			
Nitrobenzene	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
laanharana	mg/kg <0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Isophorone	mg/kg	1101137	<b>\0.1</b>	<b>\0.1</b>	<b>NO.1</b>	<b>\0.1</b>	<b>\0.1</b>	<b>NO.1</b>
Hexachloroethane	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
110,000,000,000	mg/kg		<b>5</b>	<b></b>	<b>5</b>	<b>5</b>	•	· · ·
Hexachlorocyclopentadiene	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
Hexachlorobutadiene	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
Hexachlorobenzene	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
a Disated ablabata	mg/kg	TM457	<b>-0.4</b>	-0.4	40.4	-0.4	-0.4	40.4
n-Dioctyl phthalate	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dimethyl phthalate	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Simonyi prididide	mg/kg	1111101	-0.1	-0.1		-0.1		
Diethyl phthalate	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
n-Dibutyl phthalate	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
Dibenzofuran	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
0-4	mg/kg	TM457	<b>-0.4</b>	-0.4	40.4	-0.4	<b>-0.4</b>	40.4
Carbazole	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Butylbenzyl phthalate	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
y	mg/kg					• • • • • • • • • • • • • • • • • • • •		
bis(2-Ethylhexyl) phthalate	<0.1	TM157	0.163	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
bis(2-Chloroethoxy)methane	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1: (2.21)	mg/kg	T) 1 / 5 7	0.4	2.4	2.4	0.4	0.4	2.4
bis(2-Chloroethyl)ether	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Azobenzene	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
7 EGGGIEGIG	mg/kg	1111101	-0.1	-0.1		-0.1		30.1
4-Nitrophenol	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
4-Nitroaniline	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
444	mg/kg							
4-Methylphenol	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4-Chlorophenylphenylether	mg/kg <0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
4-Onlorophenyiphenyiether	mg/kg	1101137	<b>\0.1</b>	<b>~</b> 0.1	<b>\0.1</b>	<b>~</b> 0.1	<b>\0.1</b>	<b>\\\</b> 0.1
4-Chloroaniline	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
4-Chloro-3-methylphenol	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
4-Bromophenylphenylether	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
3-Nitroaniline	mg/kg <0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
5-MILLOGITHINE	<0.1 mg/kg	/CIIVII	<b>~</b> U.1	<b>~</b> U.1	<b>SU. I</b>	<b>\U.</b> 1	<b>\U.</b> 1	<b>~</b> U.1
2-Nitrophenol	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
The state of the s	mg/kg		<del></del>				<u></u>	"
2-Nitroaniline	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
	mg/kg							
2-Methylphenol	<0.1	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1.0.4 Triphlorahousses	mg/kg	T14457	-0.4	-0.1	<b>20.4</b>	z0.4	-0.4	-0.4
1,2,4-Trichlorobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
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#### **CERTIFICATE OF ANALYSIS**



SDG:180608-108Client Reference:JOO281Report Number:460496Location:Oath Burrow BridgeOrder Number:Superseded Report:460325

Semi Volatile Organic C	ompoun	ds						
Results Legend # ISO17025 accredited.		Customer Sample Ref.	OATH 1	OATH 4	OATH 8	OATH 12	OATH 16	OATH 20
M mCERTS accredited. aq Aqueous / settled sample. diss.filt Dissolved / filtered sample. tot.unfilt Total / unfiltered sample.		Depth (m) Sample Type	1.00 - 1.00 Soil/Solid (S)	1.00 - 1.00 Soil/Solid (S)	1.00 - 1.00 Soil/Solid (S)	1.00 - 1.00 Soil/Solid (S)	1.00 - 1.00 Soil/Solid (S)	1.00 - 1.00 Soil/Solid (S)
* Subcontracted test.     ** % recovery of the surrogate standa	ird to	Date Sampled Sampled Time	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018
check the efficiency of the method. results of individual compounds w		Date Received	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018	08/06/2018
samples aren't corrected for the re-		SDG Ref Lab Sample No.(s)	180608-108 17706866	180608-108 17706870	180608-108 17706876	180608-108 17706881	180608-108 17706885	180608-108 17706889
1-5&+§@ Sample deviation (see appendix)		AGS Reference						
Component	LOD/Units				2.1		2.1	
2-Chlorophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,6-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-Dinitrotoluene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-Dimethylphenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4-Dichlorophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,6-Trichlorophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2,4,5-Trichlorophenol	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,4-Dichlorobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,3-Dichlorobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
1,2-Dichlorobenzene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Chloronaphthalene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
2-Methylnaphthalene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthylene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Acenaphthene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Anthracene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Benzo(a)anthracene	<0.1 mg/kg	TM157	0.286	0.338	0.19	0.159	0.176	0.135
Benzo(b)fluoranthene	<0.1 mg/kg	TM157	0.354	0.378	0.19	0.159	0.19	<0.1
Benzo(k)fluoranthene	<0.1 mg/kg	TM157	0.299	0.257	0.19	<0.1	0.163	<0.1
Benzo(a)pyrene	<0.1 mg/kg	TM157	0.381	0.351	0.204	0.159	0.217	<0.1
Benzo(g,h,i)perylene	<0.1 mg/kg	TM157	0.354	0.27	0.163	<0.1	0.149	<0.1
Chrysene	<0.1 mg/kg	TM157	0.367	0.432	0.286	0.202	0.271	0.162
Fluoranthene	<0.1 mg/kg	TM157	0.558	0.689	0.394	0.318	0.379	0.216
Fluorene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Indeno(1,2,3-cd)pyrene	<0.1 mg/kg	TM157	0.299	0.243	0.136	<0.1	0.136	<0.1
Phenanthrene	<0.1 mg/kg	TM157	0.15	0.284	0.177	0.145	0.176	<0.1
Pyrene	<0.1 mg/kg	TM157	0.503	0.567	0.34	0.275	0.325	0.189
Naphthalene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dibenzo(a,h)anthracene	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Bis(2-chloroisopropyl) ether	<0.1 mg/kg	TM157	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1





 SDG:
 180608-108
 Client Reference:
 JOO281
 Report Number:
 460496

 Location:
 Oath Burrow Bridge
 Order Number:
 Superseded Report:
 460325

## **Table of Results - Appendix**

Method No	Reference	Description
PM001		Preparation of Samples for Metals Analysis
PM024	Modified BS 1377	Soil preparation including homogenisation, moisture screens of soils for Asbestos Containing Material
TM024	Method 4500A & B, AWWA/APHA, 20th Ed., 1999	Determination of Exchangeable Ammonium and Ammoniacal Nitrogen as N by titration on solids
TM073	MEWAM BOOK 60 1980,95 1985, HMSO / Modified: US EPA Method 8081A & 8141A	Determination of organochlorine and organophosphorous pesticides by GCMS
TM132	In - house Method	ELTRA CS800 Operators Guide
TM133	BS 1377: Part 3 1990;BS 6068-2.5	Determination of pH in Soil and Water using the GLpH pH Meter
TM154	In - house Method	Determination of Petroleum Hydrocarbons by EZ Flash GC-FID in the Carbon range C6-C40
TM157	HP 6890 Gas Chromatograph (GC) system and HP 5973 Mass Selective Detector (MSD).	Determination of SVOC in Soils by GC-MS extracted by sonication in DCM/Acetone
TM168	EPA Method 8082, Polychlorinated Biphenyls by Gas Chromatography	Determination of WHO12 and EC7 Polychlorinated Biphenyl Congeners by GC-MS in Soils
TM181	US EPA Method 6010B	Determination of Routine Metals in Soil by iCap 6500 Duo ICP-OES
TM218	Shaker extraction - EPA method 3546.	The determination of PAH in soil samples by GC-MS
TM224	US EPA Method 6010B	Determination of Alkaline Metals by iCap 6500 Duo ICP-OES
TM229	The Analysis of Agricultural Materials, MAFF, Third Edition 1986.	Determination Of Extractable Phosphorus in Agricultural Soils using MAFF Extraction Procedures.
TM242	Method 340.3, Fluoride, EPA, 1997.	Determination of Fluoride in Soil Samples using the Kone Analyser
TM243		Mixed Anions In Soils By Kone
TM244	The Analysis of Agricultural Materials, MAFF, Third Edition 1986.	Determination Of Extractable Magnesium and Potassium in Agricultural Soils using MAFF Extraction Procedures
TM250		Determination of Silver in Soil by ICP-OES
TM339		

NA = not applicable.

Chemical testing (unless subcontracted) performed at ALS Environmental Hawarden (Method codes TM) or ALS Environmental Aberdeen (Method codes S).

#### **CERTIFICATE OF ANALYSIS**



 SDG:
 180608-108

 Location:
 Oath Burrow Bridge

Client Reference: Order Number: JOO281

Report Number: Superseded Report: 460496 460325

#### **Test Completion Dates**

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Lab Sample No(s)	17706866	17706868	17706869	17706870	17706871	17706873	17706874	17706876	17706877	17706878
Customer Sample Ref.	OATH 1	OATH 2	OATH 3	OATH 4	OATH 5	OATH 6	OATH 7	OATH 8	OATH 9	OATH 10
oustomer oampie Kei.										
AGS Ref.										
	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00	4.00, 4.00	4.00, 4.00
Depth	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00	1.00 - 1.00
Туре	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)	Soil/Solid (S)
Alkali Metals by iCap-OES (Soil)	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018
Alkali Metals in Agricultural soils	13-Jun-2018	13-Jun-2018	13-Jun-2018	14-Jun-2018	13-Jun-2018	13-Jun-2018	14-Jun-2018	14-Jun-2018	13-Jun-2018	13-Jun-2018
Ammonium Soil by Titration	12-Jun-2018	13-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	13-Jun-2018
Anions by Kone (soil)	14-Jun-2018	14-Jun-2018	15-Jun-2018	14-Jun-2018	15-Jun-2018	14-Jun-2018	15-Jun-2018	15-Jun-2018	15-Jun-2018	15-Jun-2018
Fluoride (soluble)	15-Jun-2018	15-Jun-2018	15-Jun-2018	15-Jun-2018	15-Jun-2018	15-Jun-2018	15-Jun-2018	15-Jun-2018	15-Jun-2018	15-Jun-2018
Metals in solid samples by OES	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018	12-Jun-2018
NO3, NO2 and TON by KONE (s)	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018
OC, OP Pesticides and Triazine Herb	14-Jun-2018			14-Jun-2018				14-Jun-2018		
PAH by GCMS	13-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018
PCBs by GCMS	14-Jun-2018			14-Jun-2018				14-Jun-2018		
pH	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018
Phosphate (Bicarbonate Extractable)	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018
Sample description	09-Jun-2018	09-Jun-2018	09-Jun-2018	09-Jun-2018	09-Jun-2018	09-Jun-2018	09-Jun-2018	09-Jun-2018	09-Jun-2018	09-Jun-2018
Semi Volatile Organic Compounds	14-Jun-2018			14-Jun-2018				14-Jun-2018		
Silver	15-Jun-2018	15-Jun-2018	15-Jun-2018	15-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018
Total Organic Carbon	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018	14-Jun-2018
TPH c6-40 Value of soil	14-Jun-2018	12-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018	13-Jun-2018
Lab Sample No(s)	17706880	17706881	17706882	17706883	17706884	17706885	17706886	17706887	17706888	17706889
Lab Sample No(s)	17706880 OATH 11	17706881 OATH 12	17706882 OATH 13	17706883 OATH 14	17706884 OATH 15	17706885 OATH 16	17706886 OATH 17	17706887 OATH 18	17706888 OATH 19	17706889 OATH 20
Lab Sample No(s) Customer Sample Ref.										
Customer Sample Ref.										
Customer Sample Ref.  AGS Ref.	OATH 11	OATH 12	OATH 13	OATH 14	OATH 15	OATH 16	OATH 17	OATH 18	OATH 19	OATH 20
Customer Sample Ref. AGS Ref. Depth	0ATH 11 1.00 - 1.00	0ATH 12 1.00 - 1.00	OATH 13	OATH 14 1.00 - 1.00	OATH 15	OATH 16	0ATH 17 1.00 - 1.00	OATH 18	OATH 19 1.00 - 1.00	0ATH 20 1.00 - 1.00
Customer Sample Ref.  AGS Ref.	OATH 11	OATH 12	OATH 13	OATH 14	OATH 15	OATH 16	OATH 17	OATH 18	OATH 19	OATH 20
Customer Sample Ref. AGS Ref. Depth	0ATH 11 1.00 - 1.00	0ATH 12 1.00 - 1.00	OATH 13	OATH 14 1.00 - 1.00	OATH 15	OATH 16	0ATH 17 1.00 - 1.00	OATH 18	OATH 19 1.00 - 1.00	0ATH 20 1.00 - 1.00
Customer Sample Ref. AGS Ref. Depth Type	0ATH 11 1.00 - 1.00 Soil/Solid (S)	1.00 - 1.00 Soil/Solid (S)	0ATH 13 1.00 - 1.00 Soil/Solid (S)	0ATH 14 1.00 - 1.00 Soil/Solid (S)	0ATH 15 1.00 - 1.00 Soil/Solid (S)	0ATH 16 1.00 - 1.00 Soil/Solid (S)	1.00 - 1.00 Soil/Solid (S)	0ATH 18 1.00 - 1.00 Soil/Solid (S)	0ATH 19  1.00 - 1.00  Soil/Solid (S)	1.00 - 1.00 Soil/Solid (S)
Customer Sample Ref.  AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil)	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018
Customer Sample Ref.  AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018
Customer Sample Ref.  AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018
Customer Sample Ref.  AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (soil)	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 13-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 13-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018
Customer Sample Ref.  AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (soil) Fluoride (soluble)	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 15-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 13-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018
Customer Sample Ref.  AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (soil) Fluoride (soluble) Metals in solid samples by OES	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	0ATH 13  1.00 - 1.00  Soil/Solid (S)  13-Jun-2018  14-Jun-2018  14-Jun-2018  15-Jun-2018  12-Jun-2018  14-Jun-2018	0ATH 14  1.00 - 1.00  Soil/Solid (S)  13-Jun-2018  13-Jun-2018  14-Jun-2018  15-Jun-2018  12-Jun-2018  14-Jun-2018	0ATH 15  1.00 - 1.00  Soil/Solid (S)  13-Jun-2018  13-Jun-2018  14-Jun-2018  15-Jun-2018  12-Jun-2018  14-Jun-2018	0ATH 16  1.00 - 1.00  Soil/Solid (S)  13-Jun-2018  14-Jun-2018  15-Jun-2018  15-Jun-2018  12-Jun-2018  14-Jun-2018  14-Jun-2018	0ATH 17  1.00 - 1.00  Soil/Solid (S)  13-Jun-2018  14-Jun-2018  14-Jun-2018  15-Jun-2018  12-Jun-2018  14-Jun-2018	0ATH 18  1.00 - 1.00  Soil/Solid (S)  13-Jun-2018  14-Jun-2018  14-Jun-2018  15-Jun-2018  12-Jun-2018  14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018
Customer Sample Ref.  AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (Soil) Fluoride (Soluble) Metals in solid samples by OES NO3, NO2 and TON by KONE (s) OC, OP Pesticides and Triazine Herb PAH by GCMS	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018 15-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 13-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 15-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 13-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018
Customer Sample Ref.  AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (soil) Fluoride (soluble) Metals in solid samples by OES NO3, NO2 and TON by KONE (s) OC, OP Pesticides and Triazine Herb PAH by GCMS PCBs by GCMS	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 13-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018
Customer Sample Ref.  AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (soil) Fluoride (soluble) Metals in solid samples by OES NO3, NO2 and TON by KONE (s) OC, OP Pesticides and Triazine Herb PAH by GCMS PCBs by GCMS pH	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 13-Jun-2018
AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (soil) Fluoride (soluble) Metals in solid samples by OES NO3, NO2 and TON by KONE (s) OC, OP Pesticides and Triazine Herb PAH by GCMS PCBs by GCMS pH Phosphate (Bicarbonate Extractable)	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018 13-Jun-2018 13-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018
AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (soil) Fluoride (soluble) Metals in solid samples by OES NO3, NO2 and TON by KONE (s) OC, OP Pesticides and Triazine Herb PAH by GCMS PCBs by GCMS pH Phosphate (Bicarbonate Extractable) Sample description	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018
AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (soil) Fluoride (soluble) Metals in solid samples by OES NO3, NO2 and TON by KONE (s) OC, OP Pesticides and Triazine Herb PAH by GCMS PCBs by GCMS PH Phosphate (Bicarbonate Extractable) Sample description Semi Volatile Organic Compounds	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 12-Jun-2018 13-Jun-2018 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 13-Jun-2018 14-Jun-2018 09-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 14-Jun-2018 13-Jun-2018 13-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 09-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 13-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018
AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (soil) Fluoride (soluble) Metals in solid samples by OES NO3, NO2 and TON by KONE (s) OC, OP Pesticides and Triazine Herb PAH by GCMS PCBs by GCMS PH Phosphate (Bicarbonate Extractable) Sample description Semi Volatile Organic Compounds Silver	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 13-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018
AGS Ref. Depth Type  Alkali Metals by iCap-OES (Soil) Alkali Metals in Agricultural soils Ammonium Soil by Titration Anions by Kone (soil) Fluoride (soluble) Metals in solid samples by OES NO3, NO2 and TON by KONE (s) OC, OP Pesticides and Triazine Herb PAH by GCMS PCBs by GCMS PH Phosphate (Bicarbonate Extractable) Sample description Semi Volatile Organic Compounds	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018 12-Jun-2018 13-Jun-2018 13-Jun-2018 13-Jun-2018 13-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 13-Jun-2018 12-Jun-2018 14-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 13-Jun-2018 14-Jun-2018 09-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 15-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 14-Jun-2018 15-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 14-Jun-2018 13-Jun-2018 13-Jun-2018 13-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 09-Jun-2018	1.00 - 1.00 Soil/Solid (S) 13-Jun-2018 14-Jun-2018 12-Jun-2018 15-Jun-2018 12-Jun-2018 14-Jun-2018 14-Jun-2018 13-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018 14-Jun-2018

Lab Sample No(s)	17706892
Customer Sample Ref.	OATH 21
AGS Ref.	
Depth	1.00 - 1.00
Туре	Soil/Solid (S)
Alkali Metals by iCap-OES (Soil)	13-Jun-2018
Alkali Metals in Agricultural soils	13-Jun-2018
Ammonium Soil by Titration	12-Jun-2018
Anions by Kone (soil)	14-Jun-2018
Fluoride (soluble)	15-Jun-2018
Metals in solid samples by OES	12-Jun-2018
NO3, NO2 and TON by KONE (s)	14-Jun-2018
PAH by GCMS	14-Jun-2018
pH	13-Jun-2018
Phosphate (Bicarbonate Extractable)	14-Jun-2018
Sample description	09-Jun-2018
Silver	14-Jun-2018
Total Organic Carbon	14-Jun-2018
TPH c6-40 Value of soil	13-Jun-2018



SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

## Chromatogram

Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17712729

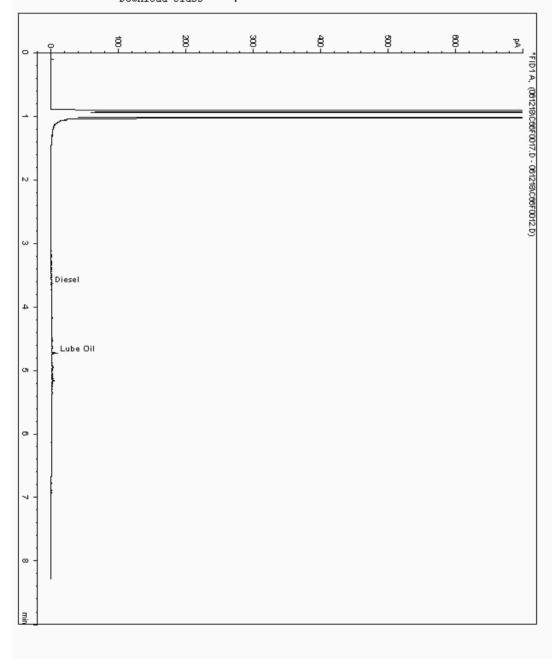
OATH 3

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641808-: 12/06/2018 17:32:50 PM : mg/kg : 1.695

Date Acquired Units Sample Multiplier Dilution 1.000 Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

## Chromatogram

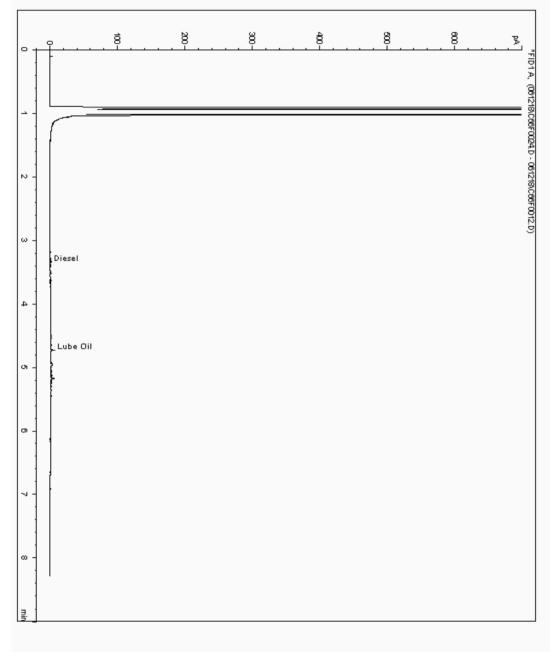
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17712764 OATH 5

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641848-: 12/06/2018 19:41:28 PM : mq/kq : 1.808

Date Acquired Units Sample Multiplier Dilution 1.000 Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 460325 Oath Burrow Bridge Location Order Number:

## Chromatogram

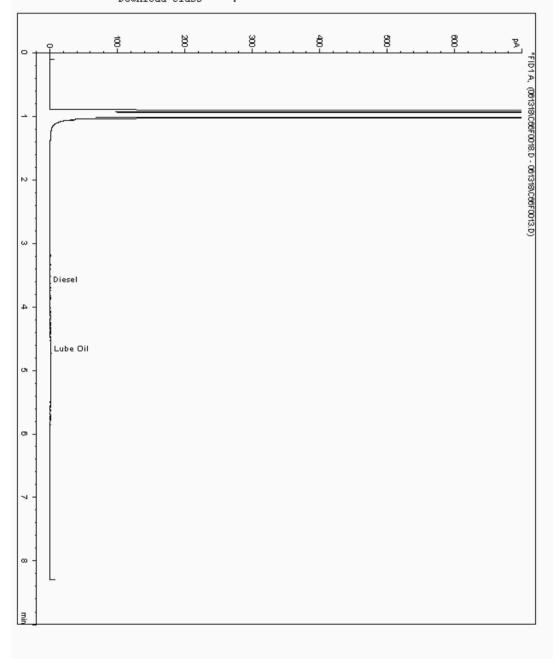
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17712795

OATH 18

Flash GC TM154 ( C6 - C40 )

Sample Identity

16642156-13/06/2018 20:34:11 PM mg/kg 2.451 1.000 Date Acquired Units Sample Multiplier Dilution Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 460325 Oath Burrow Bridge Location Order Number:

## Chromatogram

Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17712904

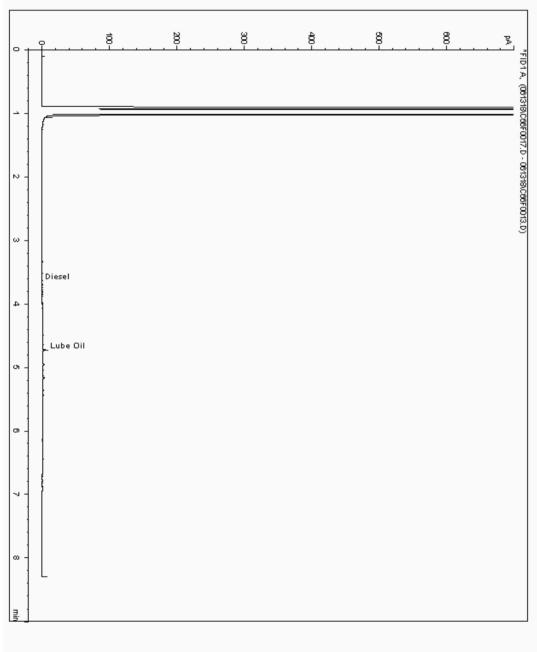
OATH 1

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641768-: 13/06/2018 20:15:51 PM : mq/kq : 2.075 : 1.000 Date Acquired Units Sample Multiplier Dilution

Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

## Chromatogram

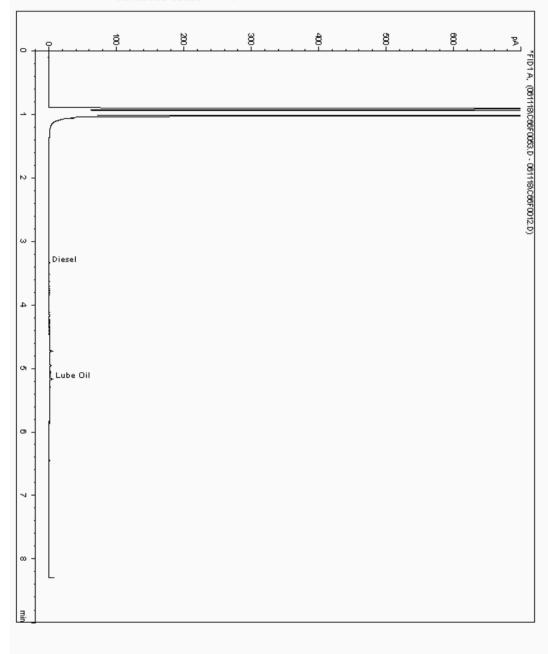
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713029 OATH 2

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641788-: 12/06/2018 02:16:56 PM : mg/kg : 1.821

Date Acquired Units Sample Multiplier Dilution 1.000 Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

## Chromatogram

Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713091

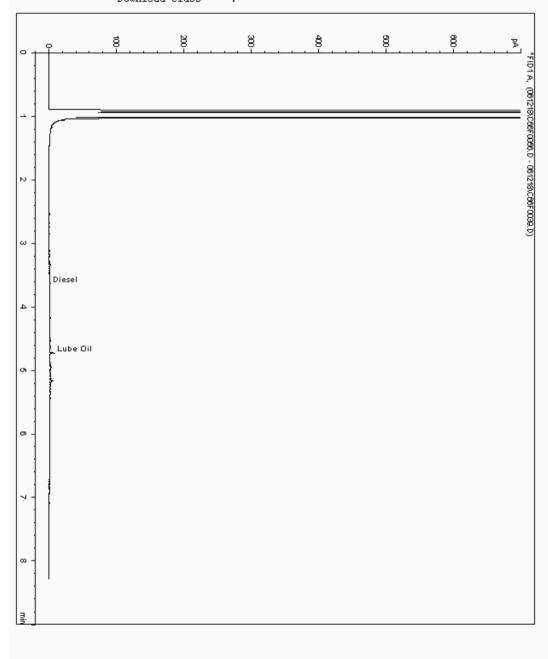
OATH 4

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641828-: 13/06/2018 05:18:20 PM : mq/kq : 1.923 : 1.000 Date Acquired Units Sample Multiplier

Dilution Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

Chromatogram

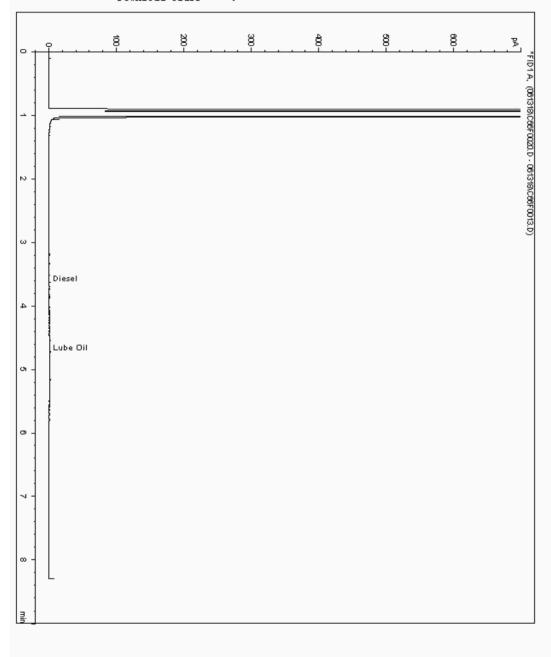
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713108

OATH 20

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16642196-: 13/06/2018 21:10:31 PM : mq/kq : 2.088 : 1.000 Date Acquired Units Sample Multiplier Dilution Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 460325 Oath Burrow Bridge Location Order Number:

## Chromatogram

Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713127

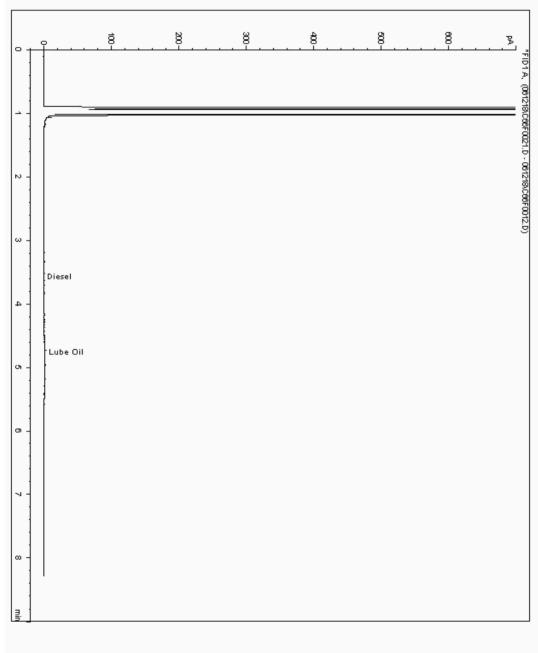
OATH 16

Flash GC TM154 ( C6 - C40 )

Sample Identity

16642113-12/06/2018 18:46:22 PM mg/kg 2.004 1.000 Date Acquired Units Sample Multiplier Dilution

Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 460325 Oath Burrow Bridge Location Order Number:

## Chromatogram

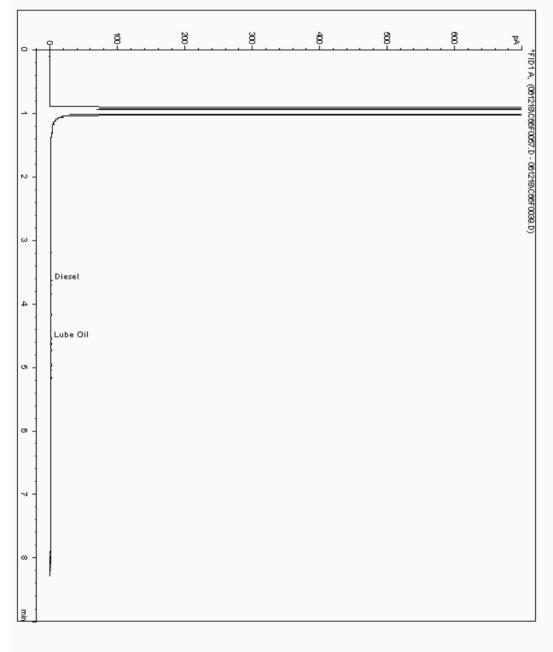
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713202 OATH 21

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16642230-: 13/06/2018 05:36:24 PM : mq/kq : 1.808

Date Acquired Units Sample Multiplier Dilution 1.000 Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

## Chromatogram

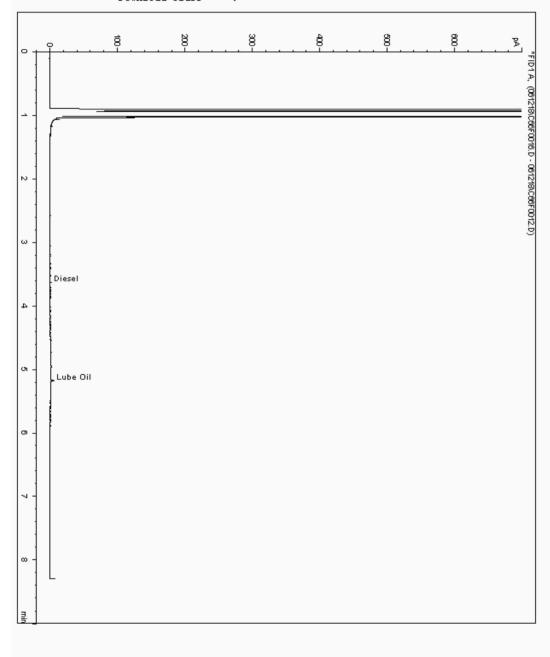
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713216 OATH 17

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16642135-: 12/06/2018 17:14:23 PM : mq/kq : 1.992 : 1.000

Date Acquired Units Sample Multiplier Dilution Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

## Chromatogram

Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713283

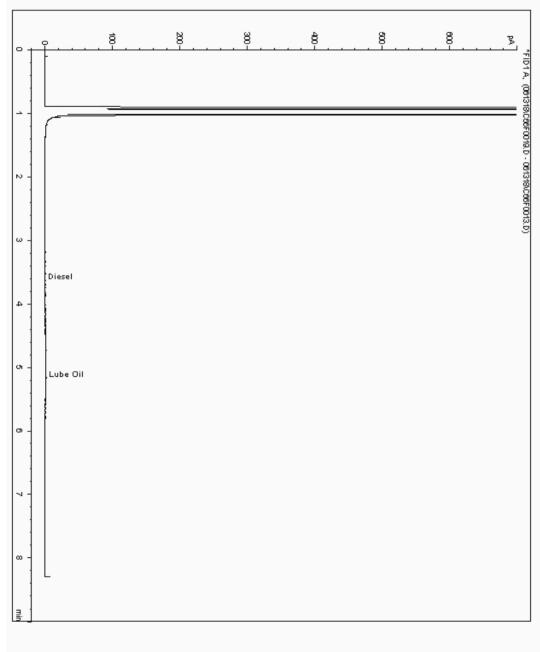
OATH 13

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16642029-: 13/06/2018 20:52:26 PM : mq/kq : 2.146 : 1.000 Date Acquired Units Sample Multiplier Dilution

Download class





SDG: 180608-108 Oath Burrow Bridge Location

Client Reference: Order Number:

JOO281

Report Number: Superseded Report:

460496 460325

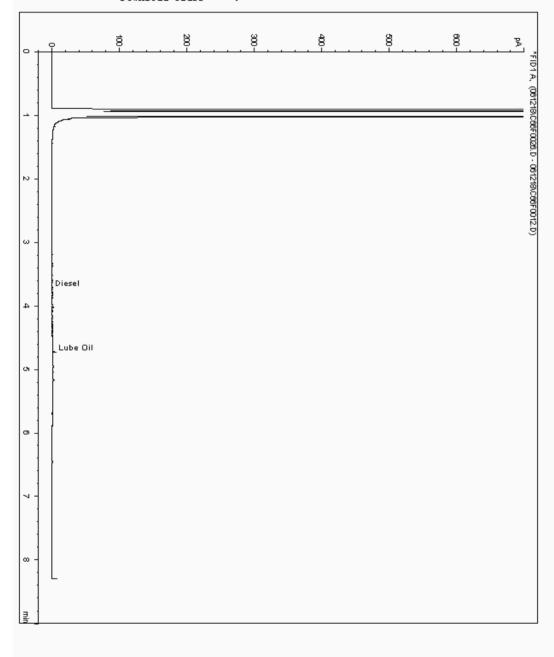
### Chromatogram

Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713305 OATH 14

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16642061-: 12/06/2018 20:18:08 PM : mq/kq : 2.217 : 1.000 Date Acquired Units Sample Multiplier Dilution Download class







SDG: 180608-108 Oath Burrow Bridge Location

Client Reference: Order Number:

JOO281

Report Number: Superseded Report:

460496 460325

### Chromatogram

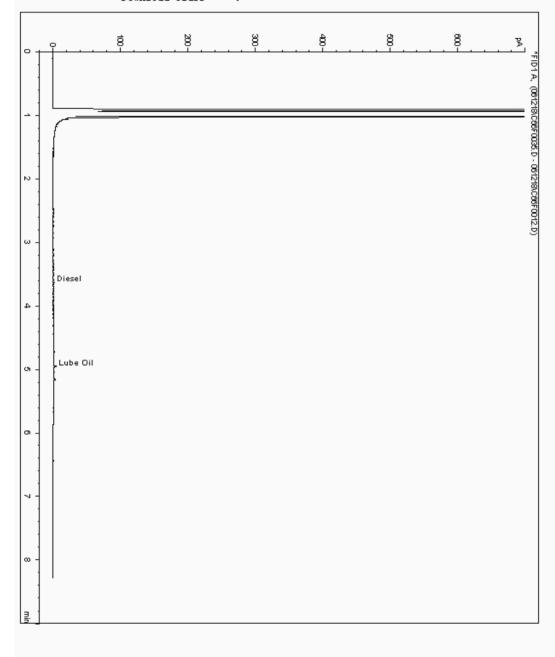
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713331 OATH 15

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16642092-: 12/06/2018 23:01:23 PM : mq/kq : 2.037 : 1.000

Date Acquired Units Sample Multiplier Dilution Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 460325 Oath Burrow Bridge Location Order Number:

Chromatogram

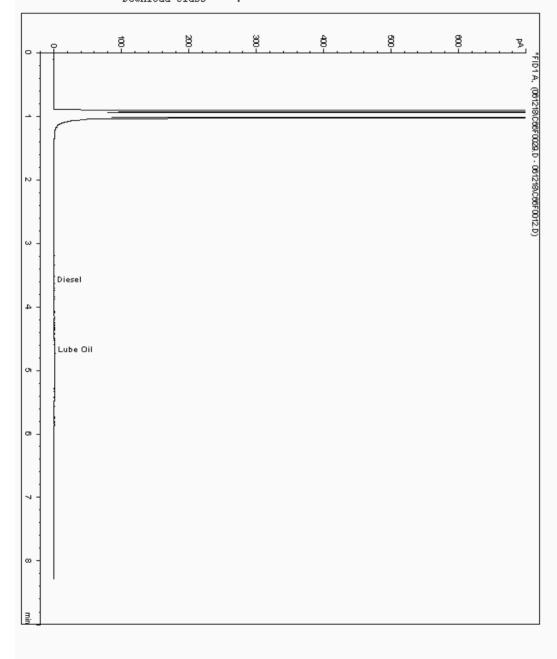
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713394

OATH 19

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16642176-: 12/06/2018 21:12:51 PM : mq/kq : 2.012 : 1.000 Date Acquired Units Sample Multiplier Dilution Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

Chromatogram

Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713460

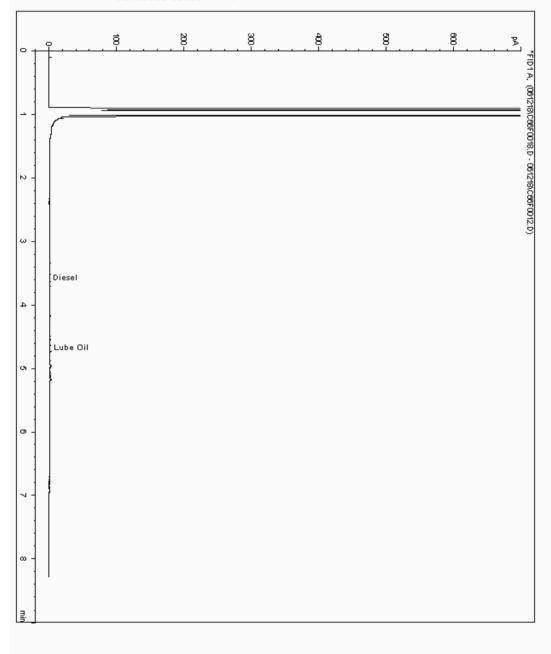
OATH 6

Flash GC TM154 ( C6 - C40 )

Sample Identity

16641868-12/06/2018 17:51:12 PM mg/kg 1.721 1.000

Date Acquired Units Sample Multiplier Dilution Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 460325 Oath Burrow Bridge Location Order Number:

Chromatogram

Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713500

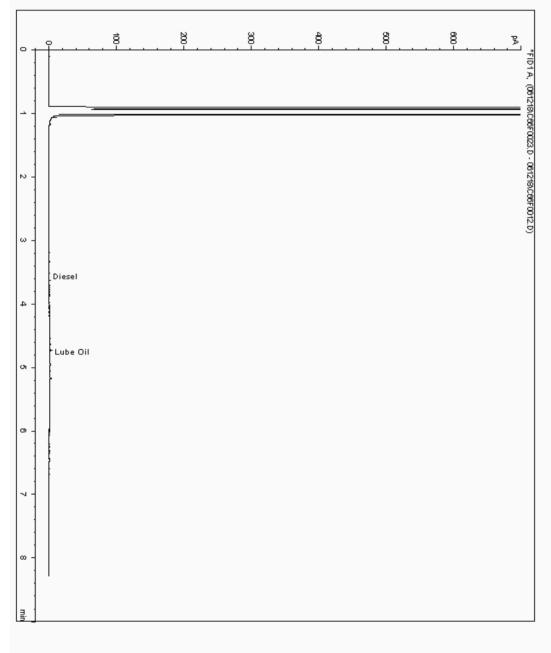
OATH 7

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641888-: 12/06/2018 19:23:07 PM : mg/kg : 1.894

Date Acquired Units Sample Multiplier Dilution 1.000 Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

## Chromatogram

Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713545

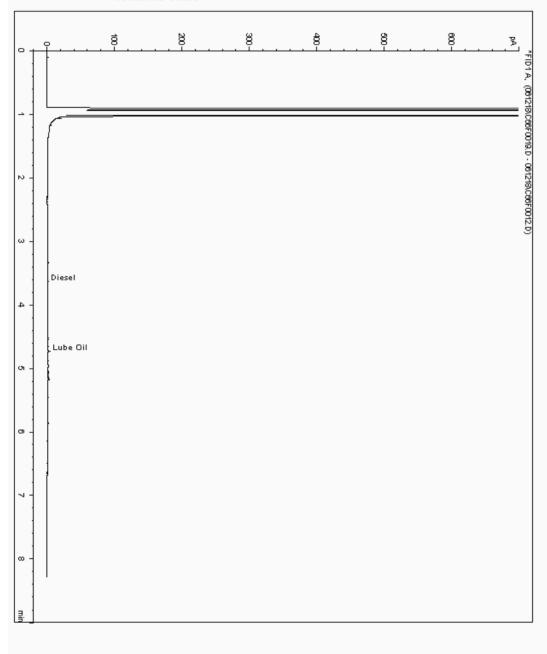
OATH 8

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641908-: 12/06/2018 18:09:35 PM : mq/kq : 2.058 : 1.000 Date Acquired Units Sample Multiplier

Dilution Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

## Chromatogram

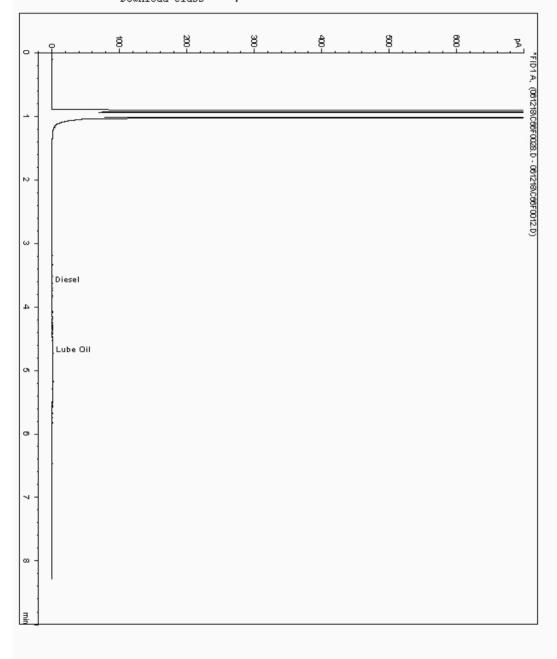
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713580

OATH 12

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641991-: 12/06/2018 20:54:36 PM : mq/kq : 1.923 : 1.000 Date Acquired Units Sample Multiplier Dilution Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

## Chromatogram

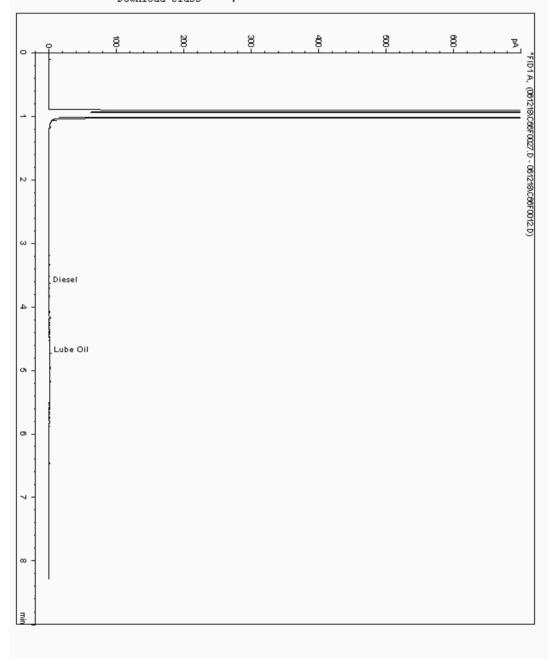
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713601 OATH 11

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641968-: 12/06/2018 20:36:23 PM : mq/kq : 1.821

Date Acquired Units Sample Multiplier Dilution 1.000 Download class





SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: 460496 Oath Burrow Bridge 460325 Location Order Number:

## Chromatogram

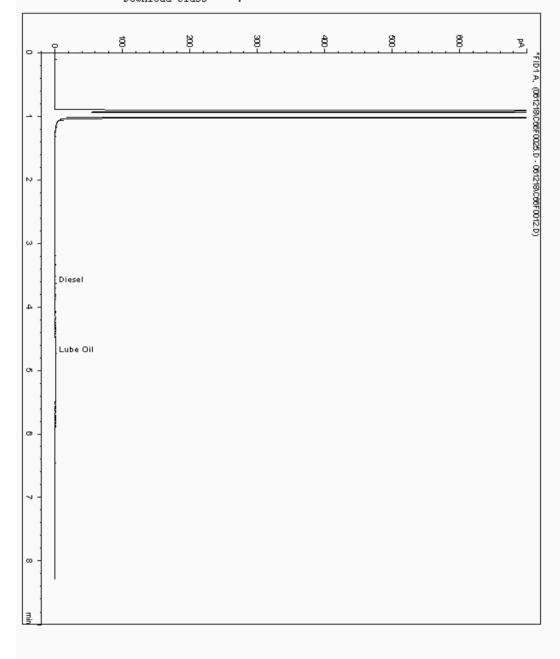
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713637

OATH 9

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641928-: 12/06/2018 19:59:52 PM : mq/kq : 1.894 Date Acquired Units Sample Multiplier Dilution 1.000 Download class



460496

460325

#### **CERTIFICATE OF ANALYSIS**



SDG: 180608-108 Client Reference: JOO281 Report Number: Superseded Report: Oath Burrow Bridge Location Order Number:

Chromatogram

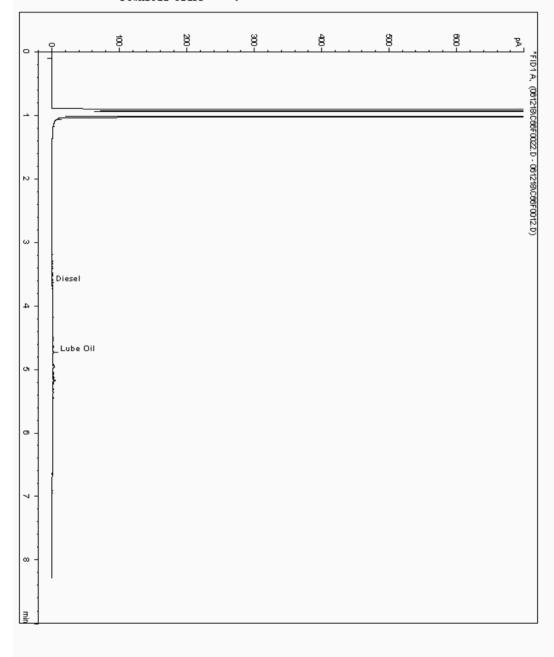
Sample No : Sample ID : Analysis: TPH c6-40 Value of soil **Depth:** 1.00 - 1.00 17713653

OATH 10

Flash GC TM154 ( C6 - C40 )

Sample Identity

: 16641948-: 12/06/2018 19:04:45 PM : mg/kg : 1.953 : 1.000 Date Acquired Units Sample Multiplier Dilution Download class



ALS

SDG: Location: 180608-108 Oath Burrow Bridge Client Reference: Order Number: JOO281

Report Number: Superseded Report: 460496 460325

## **Appendix**

#### General

- 1. Results are expressed on a dry weight basis (dried at 35°C) for all soil analyses except for the following: NRA and CEN Leach tests, flash point LOI, pH, ammonium as NH4 by the BRE method, VOC TICs and SVOC TICs.
- 2. Samples will be run in duplicate upon request, but an additional charge may be incurred.
- 3. If sufficient sample is received a sub sample will be retained free of charge for 30 days after analysis is completed (e-mailed) for all sample types unless the sample is destroyed on testing. The prepared soil sub sample that is analysed for asbestos will be retained for a period of 6 months after the analysis date. All bulk samples will be retained for a period of 6 months after the analysis date. All samples received and not scheduled will be disposed of one month after the date of receipt unless we are instructed to the contrary. Once the initial period has expired, a storage charge will be applied for each month or part thereof until the client cancels the request for sample storage. ALS reserve the right to charge for samples received and stored but not analysed.
- 4. With respect to turnaround, we will always endeavour to meet client requirements wherever possible, but turnaround times cannot be absolutely guaranteed due to so many variables beyond our control.
- 5. We take responsibility for any test performed by sub-contractors (marked with an asterisk). We endeavour to use UKAS/MCERTS Accredited Laboratories, who either complete a quality questionnaire or are audited by ourselves. For some determinands there are no UKAS/MCERTS Accredited Laboratories, in this instance a laboratory with a known track record will be utilised.
- 6. When requested, the individual sub sample scheduled will be analysed in house for the presence of asbestos fibres and asbestos containing material by our documented in house method TM048 based on HSG 248 (2005), which is accredited to ISO17025. If a specific asbestos fibre type is not found this will be reported as "Not detected". If no asbestos fibre types are found all will be reported as "Not detected" and the sub sample analysed deemed to be clear of asbestos. If an asbestos fibre type is found it will be reported as detected (for each fibre type found). Testing can be carried out on asbestos positive samples, but, due to Health and Safety considerations, may be replaced by alternative tests or reported as No Determination Possible (NDP). The quantity of asbestos present is not determined unless specifically requested.
- 7. If no separate volatile sample is supplied by the client, or if a headspace or sediment is present in the volatile sample, the integrity of the data may be compromised. This will be flagged up as an invalid VOC on the test schedule and the result marked as deviating on the test certificate.
- 8. If appropriate preserved bottles are not received preservation will take place on receipt . However, the integrity of the data may be compromised.
- 9. NDP No determination possible due to insufficient/unsuitable sample.
- 10. Metals in water are performed on a filtered sample, and therefore represent dissolved metals total metals must be requested separately.
- 11. Results relate only to the items tested.
- 12. LoDs (Limit of Detection) for wet tests reported on a dry weight basis are not corrected for moisture content
- 13. Surrogate recoveries Surrogates are added to your sample to monitor recovery of the test requested. A % recovery is reported, results are not corrected for the recovery measured. Typical recoveries for organics tests are 70-130%, they are generally wider for volatiles analysis, 50-150%. Recoveries in soils are affected by organic rich or clay rich matrices. Waters can be affected by remediation fluids or high amounts of sediment. Test results are only ever reported if all of the associated quality checks pass; it is assumed that all recoveries outside of the values above are due to matrix affect.
- 14. **Product analyses** Organic analyses on products can only be semi-quantitative due to the matrix effects and high dilution factors employed.
- 15. Phenols monohydric by HPLC include phenol, cresols (2-Methylphenol, 3-Methylphenol and 4-Methylphenol) and Xylenols (2,3 Dimethylphenol, 2,4 Dimethylphenol, 2,5 Dimethylphenol, 2,6 Dimethylphenol, 3,4 Dimethylphenol, 3,5 Dimethylphenol).
- 16. Total of 5 speciated phenols by HPLC includes Phenol, 2,3,5-Trimethyl Phenol, 2-Isopropylphenol, Cresols and Xylenols (as detailed in 15).
- 17. Stones/debris are not routinely removed. We always endeavour to take a representative sub sample from the received sample.
- 18. In certain circumstances the method detection limit may be elevated due to the sample being outside the calibration range. Other factors that may contribute to this include possible interferences. In both cases the sample would be diluted which would cause the method detection limit to be raised.
- 19. Mercury results quoted on soils will not include volatile mercury as the analysis is performed on a dried and crushed sample.
- 20. For leachate preparations other than Zero Headspace Extraction (ZHE) volatile loss may occur.

- 21. For the BSEN 12457-3 two batch process to allow the cumulative release to be calculated, the volume of the leachate produced is measured and filtered for all tests. We therefore cannot carry out any unfiltered analysis. The tests affected include volatiles GCFID/GCMS and all subcontracted analysis.
- 22. We are accredited to MCERTS for sand, clay and loam/topsoil, or any of these materials whether these are derived from naturally occurring soil profiles, or from fill/made ground, as long as these materials constitute the major part of the sample. Other coarse granular material such as concrete, gravel and brick are not accredited if they comprise the major part of the sample.
- 23. Analysis and identification of specific compounds using GCFID is by retention time only, and we routinely calibrate and quantify for benzene, toluene, ethylbenzenes and xylenes (BTEX). For total volatiles in the C5-C12 range, the total area of the chromatogram is integrated and expressed as ug/kg or ug/l. Although this analysis is commonly used for the quantification of gasoline range organics (GRO), the system will also detect other compounds such as chlorinated solvents, and this may lead to a falsely high result with respect to hydrocarbons only. It is not possible to specifically identify these non-hydrocarbons, as standards are not routinely run for any other compounds, and for more definitive identification, volatiles by GCMS should be utilised.
- 24. Tentatively Identified Compounds (TICs) are non-target peaks in VOC and SVOC analysis. All non-target peaks detected with a concentration above the LoD are subjected to a mass spectral library search. Non-target peaks with a library search confidence of >75% are reported based on the best mass spectral library match. When a non-target peak with a library search confidence of <75% is detected it is reported as "mixed hydrocarbons". Non-target compounds identified from the scan data are semi-quantified relative to one of the deuterated internal standards, under the same chromatographic conditions as the target compounds. This result is reported as a semi-quantitative value and reported as Tentatively Identified Compounds (TICs). TICs are outside the scope of UKAS accreditation and are not moisture corrected.

#### Sample Deviations

If a sample is classed as deviated then the associated results may be compromised.

1	Container with Headspace provided for volatiles analysis
2	Incorrect container received
3	Deviation from method
4	Holding time exceeded before sample received
5	Samples exceeded holding time before presevation was performed
§	Sampled on date not provided
•	Sample holding time exceeded in laboratory
@	Sample holding time exceeded due to sampled on date
&	Sample Holding Time exceeded - Late arrival of instructions.

#### **Asbestos**

Identification of Asbestos in Bulk Materials & Soils

The results for identification of asbestos in bulk materials are obtained from supplied bulk materials which have been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

The results for identification of asbestos in soils are obtained from a homogenised sub sample which has been examined to determine the presence of asbestos fibres using ALS (Hawarden) in-house method of transmitted/polarised light microscopy and central stop dispersion staining, based on HSG 248 (2005).

Asbe stos Type	Common Name
Chrysof le	White Asbests
Amosite	Brown Asbestos
Cro d dolite	Blue Asbe stos
Fibrous Act nolite	-
Fib to us Anthop hyll ite	-
Fibrous Tremolite	-

#### Visual Estimation Of Fibre Content

Estimation of fibre content is not permitted as part of our UKAS accredited test other than: - Trace - Where only one or two asbestos fibres were identified.

Further guidance on typical asbestos fibre content of manufactured products can be found in HSG 264.

The identification of asbestos containing materials and soils falls within our schedule of tests for which we hold UKAS accreditation, however opinions, interpretations and all other information contained in the report are outside the scope of UKAS accreditation.

## Appendix B

## **Soil Screening Tables**





Part   Part	ALS	1						Customer	Sample ID	OATH 1	OATH 2	OATH 3	OATH 4	OATH 5	OATH 6	OATH 7	OATH 8	OATH 9	OATH 10	OATH 11	OATH 12	OATH 13	OATH 14	OATH 15	OATH 16	OATH 17	OATH 18	OATH 19	OATH 20	OATH 21
**************************************		-						Customer																						
Part																														
Part	· · · · · · · · · · · · · · · · · · ·				Potentially	,		-																						
Part   Part	All results expressed on a dry weight basis	-																												
	∆nalysis	Units	LOD							10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010	10/00/2010
Section   Sect		- Cime	202	4 00	( )	- 551	070 00111	inux /	worage																					
Mary   Mary		No units	. T			T T	Т	$\Box$		Light Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Light Brown	Dark Brown	Dark Brown	Dark Brown	Light Brown	Dark Brown	Light Brown	Light Brown
Marche   M											V											<u> </u>								
March   Marc																														
West	Inclusion 2)																										·			
West   West	Moisture Content Ratio (% of as received sample)							32	27.71	·													19							31
The secretary of the control of the	Nutrients					1	•								,										,					
Segregation of the segregation o	Soil Organic Matter (SOM)	%	<0.35				-	7.22	6.12	6.65	6.67	6.76	7.09	5.93	6.26	7.22	5.12	5.88	6.81	5.69	5.78	5.84	6.43	7	4.98	6.05	6.55	5.21	5.31	5.24
The proposed	Extractable Potassium (Top Soil)	mg/l	<20					201	140.12	159	165	139	107	140	71.6	86.7	166	96.9	96.3	114	111	158	122	201	123	200	162	165	192	167
Service Servic	Extractable Magnesium (Top Soil)	mg/l	<40					194	119.10	106	114	108	103	108	71.4	80.9	129	89	86.9	91.7	102	152	92.3	148	131	167	135	145	194	147
Martine   Mart	Phosphate (Bicarbonate Extractable) as mg/l P	mg/l	<2					170	77.08	170	137	130	113	93.3	108	48.3	78.9	89.4	128	79.6	69.1	34.6	65.2	37.2	71.7	28.3	31.6	37.1	32.4	36
March   Marc	Inorganics		_			_							,						,				,				,			
Martin September   Martin Sept	Chloride (soluble)						-									- 1-	0.											44.3		
Secretary Secret	pH						-											8.1										8		8.37
Marco   Service   Marco   Ma	Nitrate as N, 2:1 water soluble					-	-		3.17									4												0.579
Service Servic	Exchangeable Ammonia as N						-		<12																					
Note   1964   1965	Nitrite (soluble) as N		_				-																							
meny may will be a property of the control of the c		mg/kg	<1		500	וי		1.87	1.32	<1	<1	<1	<1	1.36	<1	1.21	1.32	1.31	1.03	1.41	1.45	1.38	1.16	1.4	1.13	1.18	1.15	1.22	1.59	1.87
See See See See See See See See See See	, ,	m-#	-0.0		.[	1 ^-	,	-0.0	-0.0	-0.0	-0.0	-0.0	اء ء ا	-0.0	اء م	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
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net meters in page 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Nickel		<0.2	37.1	110.0	28.2	18	0 29.2	20.51	29.2	25.2	21	19.9	20.8	21.3	19.6	20.6	18.2	21.2	19.1	19.1	19.2	19.1	18.9	20	19.4	18.8	19	19.5	21.6
Submin will be submini will be submin will be submi	Selenium			1.1	3.0	0	25	0 1.09	1.09	1.09	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1	<1
weedly and the part of the par	Silver	mg/kg	<10	-		0.3	3	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
The Service (E Flash)  The Service (E Flash)	Sodium	mg/kg	<7	-				454	368.14	189	222	314	308	387	330	356	396	393	281	358	416	433	314	454	408	434	439	447	427	425
PM SCOR   Type   10	Vanadium	mg/kg	<0.2	100.7		2	410	0 44.8	25.60	44.8	38.3	29.7	26.3	25.6	26.4	25	24.4	20.6	28	22.6	22.4	21.9	23.9	21.5	23.8	22.3	21.1	21.7	22.1	25.3
Price Color   Price Color	Zinc	mg/kg	<1.9	104.0	300.0	35.6	370	0 159	114.23	159	151	115	111	118	120	109	116	96.9	116	104	104	108	98	106	111	111	105	106	111	123
Part with the mark may 0.00	TPH Screen (EZ Flash)																										,			
## 100   10   10   10   10   10   10   1	TPH >C6-C40	mg/kg	<10					250	170.83	247	195	200	245	243	138	215	127	160	250	159	142	123	158	145	147	185	144	140	145	79.4
Compatiple   Compatiple   Compatiple   Compatible   Com	PAH		_			,																					,			
comperhence mg/lg 0.08	Naphthalene		_				<del>                                     </del>																					0.0719		0.0543
Note   May   901	Acenaphthylene																													0.0338
Procedure   Proc	Acenaphthene		_	<b>—</b>		-																								0.0354
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rere mg/kg 40.05	Anthracene					+		1																						
enticiplanthraceme mg/kg 40.014	Fluoranthene					-																								
Integrated Minyage 40.01	Pyrene  Repr/s) anthresens																													
encyclyfundamethree						1	_																							
enzo(k)fluoranthene mg/kg																														
enzo(p)gymee mg/g							_																							
denot(1,2,3-od)pyrene   mg/kg   <0.018	``			0.5		0.45		_																						
berzo(a,h)anthracene mg/kg <0.023				0.5		0.13							-								-				- 1	- 1			- 1	
enzo(g,h,)perylene mg/kg							_																							
AH, Total Detected USEPA 16 mg/kg < 0.118 7.09 4.84 4.14 3.74 5.92 5.64 3.31 4.56 6.05 4.38 4.87 4.92 4.68 4.3 5.29 4.39 5.82 3.99 3.7 7.09 4.86 5.17 4.75 CB congener 28 mg/kg < 0.003 0 0.00746 0.006 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.003 < 0.00							_																							
CB congener 28 mg/kg < 0.003 0.00746 0.006 < 0.003 - 0.00391 - 0.000601 - 0.000601 - 0.000601 - 0.000601 - 0.000746 CB congener 52 mg/kg < 0.003	PAH, Total Detected USEPA 16					1	1 35																							4.73
CB congener 28	PCB's - (Solids)	g				1			1.54		54	0.02	0.0 1	0.0.		0.00						0.20		5.52	0.00	5	55		0.11	0
CB congener 52 mg/kg < 0.003	PCB congener 28	mg/kg	<0.003			I		0.00746	0.006	<0.003	-		0.00391	_			0.00601	_	-	_	0.00646	_	-	_	0.00601	-	-	_	0.00746	-
CB congener 101	PCB congener 52			1							-	_		-	-	-		-	-	-		-	-	-		-	-	-		-
CB congener 118	PCB congener 101						1				-			-	-	_		-	-	-		-	-	-		-	-	-		-
CB congener 138 mg/kg < 0.003	PCB congener 118										-	-		-	-	-		-	-	-		-	-	-		-	-	-		-
CB congener 153 mg/kg < 0.003	PCB congener 138							<0.003		< 0.003			< 0.003				<0.003				< 0.003			-	< 0.003			-	< 0.003	-
CB congener 180 mg/kg < 0.003	PCB congener 153									<0.003			<0.003				<0.003			_	<0.003				<0.003			-	<0.003	
	PCB congener 180							<0.003	<0.003	<0.003			<0.003				<0.003				< 0.003			-	<0.003			-	< 0.003	-
	Sum of detected PCB 7 Congeners							<0.021	<0.021	<0.021		-	<0.021	-	-	-	<0.021	-	-	-	<0.021	-		-	<0.021	-	-	-	<0.021	



ALS		I				Customer Sample ID	OATH 1	OATH 2	OATH 3	OATH 4	OATH 5	OATH 6	OATH 7	OATH 8	OATH 9	OATH 10	OATH 11	OATH 12	OATH 13	OATH 14	OATH 15	OATH 16	OATH 17	OATH 18	OATH 19	OATH 20	OATH 21
Hydrogeo Ltd Abergavenny (8818)						Depth	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0
Oath Burrow Bridge						Sample Type	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLID		SOLID	SOLID	SOLID	SOLID	SOLID	SOLID	SOLIE
All results expressed on a dry weight basis			Potentially			Sampled Date		07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018		07/06/2018
	1	Normal	Toxic	F1ii	S4UL	Report Completed Date	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018		18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018		18/06/2018
Analysis	Units LOD	Backgroun d Conc.	Elements (PTEs)	Ecological SSV	6% SOM	Max Average																					
Semi-Volatile Organic Compounds	(SVOCs)			<u> </u>			<u> </u>			<u> </u>		<u> </u>		<u> </u>		<u> </u>		<u> </u>			<u> </u>	<u> </u>		·			
Phenol	mg/kg <0.1				1100	<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	_	-	<0.1	-	-	-	<0.1	
Pentachlorophenol	mg/kg <0.1			0.6	4.5		<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
n-Nitroso-n-dipropylamine	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
Nitrobenzene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
Isophorone	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
Hexachloroethane	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
Hexachlorocyclopentadiene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
Hexachlorobutadiene	mg/kg <0.1				1.6	<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
Hexachlorobenzene	mg/kg <0.1	<b>_</b>		0.002		<0.1 <0.1	<0.1		-	<0.1	-	-	-	<0.1	-		-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
n-Dioctyl phthalate	mg/kg <0.1					<0.1 <0.1	<0.1		-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
Dimethyl phthalate	mg/kg <0.1					<0.1 <0.1	<0.1		-	<0.1	-	-	-	<0.1	-		-	<0.1		-	-	<0.1	-	-	-	<0.1	-
Diethyl phthalate	mg/kg <0.1 mg/kg <0.1	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	-
n-Dibutyl phthalate Dibenzofuran	mg/kg <0.1 mg/kg <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	-
Carbazole	mg/kg <0.1					<0.1 <0.1	<0.1			<0.1	-	-	-	<0.1	-		-	<0.1	-	-		<0.1	-	-	-	<0.1	-
Butylbenzyl phthalate	mg/kg <0.1					<0.1 <0.1	<0.1			<0.1				<0.1	- 1			<0.1				<0.1	-		_	<0.1	
bis(2-Ethylhexyl) phthalate	mg/kg <0.1	1		13		0.163 0.16	0.163	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
bis(2-Chloroethoxy)methane	mg/kg <0.1					<0.1 <0.1	<0.1		-	<0.1	-			<0.1	-		-	<0.1	-		-	<0.1	-	-	-	<0.1	
bis(2-Chloroethyl)ether	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
Azobenzene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
4-Nitrophenol	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
4-Nitroaniline	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-
4-Methylphenol	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
4-Chlorophenylphenylether	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
4-Chloroaniline	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-
4-Chloro-3-methylphenol	mg/kg <0.1 mg/kg <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	
4-Bromophenylphenylether 3-Nitroaniline	mg/kg <0.1					<0.1 <0.1	<0.1			<0.1		-		<0.1				<0.1				<0.1	-		-	<0.1	
2-Nitrophenol	mg/kg <0.1					<0.1 <0.1	<0.1			<0.1				<0.1				<0.1				<0.1	_		_	<0.1	
2-Nitroaniline	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
2-Methylphenol	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
1,2,4-Trichlorobenzene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
2-Chlorophenol	mg/kg <0.1				4.5	<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
2,6-Dinitrotoluene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
2,4-Dinitrotoluene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-
2,4-Dimethylphenol	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
2,4-Dichlorophenol	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
2,4,6-Trichlorophenol	mg/kg <0.1	-				<0.1 <0.1	<0.1	-+	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1 <0.1	-	-	-	<0.1	-
2,4,5-Trichlorophenol 1,4-Dichlorobenzene	mg/kg <0.1 mg/kg <0.1	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	-
1,3-Dichlorobenzene	mg/kg <0.1	<b>1</b>				<0.1 <0.1	<0.1			<0.1	-	-	-	<0.1	-			<0.1		-		<0.1	-	-	-	<0.1	-
1,2-Dichlorobenzene	mg/kg <0.1	1				<0.1 <0.1	<0.1			<0.1				<0.1	1			<0.1				<0.1	-		_	<0.1	
2-Chloronaphthalene	mg/kg <0.1	1				<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
2-Methylnaphthalene	mg/kg <0.1					<0.1 <0.1	<0.1		-	<0.1				<0.1				<0.1	-		-	<0.1			-	<0.1	
Acenaphthylene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
Acenaphthene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-
Anthracene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1		-	-	<0.1	-	-	-	<0.1	
Benzo(a)anthracene	mg/kg <0.1	<b>.</b>				0.338 0.21	0.286	-	-	0.338	-	-	-	0.19	-	-	-	0.159		-	-	0.176	-	-	-	0.135	
	mg/kg <0.1	1	-			0.378 0.25	0.354	-	-	0.378	-	-	-	0.19	-	-	-	0.159		-	-	0.19	-	-	-	<0.1	
Benzo(k)fluoranthene	mg/kg <0.1	<b>-</b>				0.299 0.23	0.299	-+	-	0.257	-		-	0.19	-		-	<0.1	-		-	0.163	-	-	-	<0.1	
Benzo(a b i)pandone	mg/kg <0.1 mg/kg <0.1	1				0.381 0.26	0.381	-	-	0.351	-	-	-	0.204	-	-	-	0.159	-	-	-	0.217	-	-	-	<0.1	
Benzo(g,h,i)perylene Chrysene	mg/kg <0.1 mg/kg <0.1					0.354 0.23 0.432 0.29	0.354 0.367	+	-	0.27	-		-	0.163 0.286	-	-	-	<0.1 0.202			+	0.149 0.271	-	-	-	<0.1 0.162	
Fluoranthene	mg/kg <0.1	1				0.432 0.29	0.558	-		0.432	-	1	-	0.286		-	-	0.202				0.271	-	-	-	0.162	
Fluorene	mg/kg <0.1	1				<0.1 <0.1	<0.1		- 1	<0.1				<0.1	1			<0.1				<0.1	-		_	<0.1	
Indeno(1,2,3-cd)pyrene	mg/kg <0.1	1				0.299 0.20	0.299	-	-	0.243	-	-	-	0.136	-	-	-	<0.1		-	-	0.136	-	-	-	<0.1	
	mg/kg <0.1					0.284 0.19	0.15			0.284				0.177				0.145				0.176				<0.1	
Pyrene	mg/kg <0.1					0.567 0.37	0.503	-	-	0.567	-	-	-	0.34	-	-	-	0.275	-	-	-	0.325	-	-	-	0.189	
Naphthalene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	
Dibenzo(a,h)anthracene	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1		-	-	<0.1	-	-	-	<0.1	
Bis(2-chloroisopropyl) ether	mg/kg <0.1					<0.1 <0.1	<0.1	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	-	-	-	<0.1	



IALS	I	1 1	ı				Customer Sam	ple ID	OATH 1	OATH 2	OATH 3	OATH 4	OATH 5	OATH 6	OATH 7	OATH 8	OATH 9	OATH 10	OATH 11	OATH 12	OATH 13	OATH 14	OATH 15	OATH 16	OATH 17	OATH 18	OATH 19	OATH 20	OATH 21
Hydrogeo Ltd Abergavenny (8818)								Depth	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0	0 - 1.0		1
Oath Burrow Bridge							Sample		SOLID	SOLID	SOLID	SOLID	SOLID		SOLID														
All results expressed on a dry weight basis				Potentially			Sampled			07/06/2018	07/06/2018	07/06/2018	07/06/2018		07/06/2018	07/06/2018	07/06/2018	07/06/2018	07/06/2018		07/06/2018	07/06/2018	07/06/2018		07/06/2018		07/06/2018		
			Normal Backgroun	Toxic Elements	Ecological	S4UL	Report Completed	l Date	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018	18/06/2018
Analysis	Units	LOD	d Conc.	(PTEs)	SSV		M Max Avera	ge																					
Combined Pesticides / Herbicides																													
Tecnazene	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-		<0.05		-	-	<0.05	-	-		<0.05	,
	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Trifluralin	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Phorate	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-		-	<0.05	
alpha-Hexachlorocyclohexane (HCH)	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Quintozene (PCNB)	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Triallate	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
gamma-Hexachlorocyclohexane (HCH / Lindane)	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Disulfoton	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Heptachlor	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Aldrin	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Chlorothalonil	mg/kg	<0.5					<1	<1	<1	-	-	<0.5	-	-	-	<0.5	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Telodrin	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
beta-Hexachlorocyclohexane (HCH)	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Isodrin	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Heptachlor epoxide	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Triadimefon	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Pendimethalin	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
o,p-DDE	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	<u> </u>
Endosulphan I	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Trans-chlordane	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
cis-Chlordane	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
p,p-DDE	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Dieldrin	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
o,p'-DDD (TDE)	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Endrin	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
o,p-DDT	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	<u> </u>
p,p-TDE (DDD)	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	<u> </u>
Endosulphan II	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
p,p-DDT	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	1
o,p-Methoxychlor	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	1
p,p-Methoxychlor	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Endosulphan sulphate	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Permethrin I	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-	-	<0.05	
Permethrin II	mg/kg	<0.25					<0.5	<0.5	<0.5	-	-	<0.25	-	-	-	<0.25	-	-	-	<0.05	-	-	-	<0.05	-	-		<0.05	.1

# APPENDIX 2C: DRAFT TEMPLATE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN



## Oath to Burrowbridge Dredging

# Construction Environmental Management Plan Report Status (Draft Template)

Client: Parrett Internal Drainage Board

Date: June 2019



#### **DOCUMENT CONTROL**

Report prepared for:

Parrett Internal Drainage Board

## DRAFT TEMPLATE

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#### **DOCUMENT REVISIONS**

Version	Details	Date
1.0	Draft Template for Inclusion in ES	June 2019

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# DRAFT TEMPLATE

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## 1 INTRODUCTION

#### 1.1 BACKGROUND

This Construction Environmental Management Plan (CEMP) has been prepared by Johns Associates Ltd, working on behalf of Parrett Internal Drainage Board (PIDB) with the aim of providing environmental control and management procedures during dredging works between Stathe and the Confluence of the River Parrett with the River Tone.

This document is submitted as a draft template for consideration in the Environmental Statement to support the decision-making process and its final content will reflect the outcome of further consultation and other details to be finalised though the decision-making process and/or other permitting regimes and by the appointed main contractor.

The dredging will be taking place within the 2.2km of the River Parrett between Stathe Bridge and the confluence with the River Tone (Figure 1.1 below).

This CEMP forms part of the decision making for the proposed dredging works and will be a live document and updated during the life of the project to ensure that it remains suitable and relevant to effectively deliver the project environmental commitments.

The dredging works will be undertaken by an appointed contractor and its sub-contractors, for and on behalf of the PIDB.

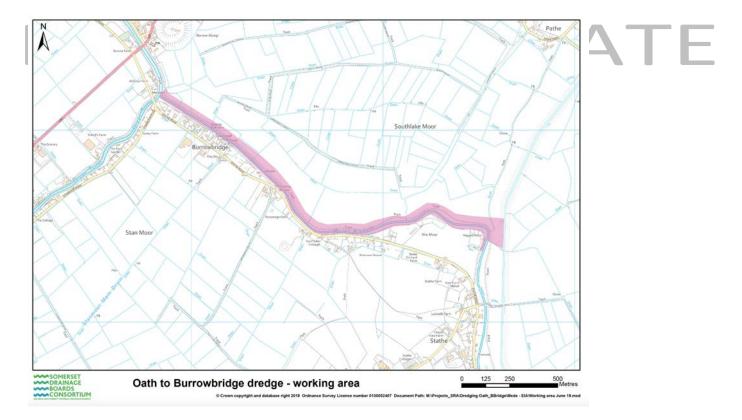


Figure 1.1 Area of Works

#### 1.2 OBJECTIVES OF THE CEMP

The CEMP provides details of the control measures and procedures which PIDB and its principal contractor XXXXXXX propose to implement to avoid, minimise and mitigate the construction impacts on the environment at the development site and surrounding areas.

The CEMP summarises out the finalised dredging and reinstatement methodology including the control of the dredging process, the dredging process, site operations including access and haulage routes, site compound and storage areas, traffic logistics and the environmental control measures which will be undertaken during dredging.

The primary objective is to guide the implementation of effective environmental management during the dredging and:

- To comply with relevant environmental legislation, duties and obligations and avoid prosecutions for the contravention of environmental law and regulations;
- To maintain and raise the awareness of all contractors of their environmental responsibilities throughout the construction phase. This will be by means of frequent awareness briefings and training sessions and construction 'tool box' talks;
- To achieve zero environmental pollution incidents during the construction phase (i.e. noise and public nuisance, emergency spills, uncontrolled discharges of contaminated runoff, , inadvertent habitat clearance and tree removal etc); and
- To effectively integrate environmental considerations into all aspects of decision-making during the dredging works.

This document had been formed to avoid, minimise and mitigate against any dredging effects on the environment and surrounding community. It should be treated as a living document with reviews being carried out at set intervals and new information added as appropriate.

#### 1.3 OTHER RELEVANT DOCUMENTS

This CEMP should be read in conjunction with the following supporting documents included in the Environmental Statement of the dredging proposals prepared by Johns Associates:

- Description of Development
- Chapters relating to Water Environment, Biodiversity and Population including embedded and additional mitigation, management and monitoring.
- Plans, elevations and site layout
- Precautionary Ecological Method Statements
- Water Vole Licence
- Badger Licence
- D1 and U1 Exemptions from an Environmental Permit
- SSSI Assent

#### 1.4 STRUCTURE OF THE CEMP

This CEMP is divided into the following sections:

- Section 1: Introduction: including the objectives of this CEMP and reference to other relevant documents etc.
- Chapter 2: River Parrett between Stathe Bridge and Confluence with the Tone: provides a background description of the Works Area, its local setting, a summary of the proposed scheme and a summary of the key environmental constraints and opportunities;

- Section 3: Dredging Methodology: describes the dredging methodology associated with the proposed works;
- Section 4: Construction (dredging) Related Environmental Management and Control Procedures: describes the environmental management controls to be implemented by the CEMP.
- Section 5: Construction (dredging) Related Environmental Risks and Control: provides an environmental matrix which summarises the key related environmental effects associated with the dredging works.

## 1.5 USEFUL CONTACTS

For issues related to the content of this document please contact:

• to be completed once contractor has been appointed.

# DRAFT TEMPLATE

- 2 THE DREDGING SITE
- 2.1 SITE LOCATION
- 2.2 EXISTING OPERATION
- 2.3 SCHEME DESCRIPTION
- 2.4 KEY ENVIRONMENTAL CONSTRAINTS AND OPPORTUNITIES

# DRAFT TEMPLATE

## 3 CONSTRUCTION METHODOLOGY

- 3.1 INTRODUCTION
- 3.2 SITE COMPOUND AND STORAGE AREAS
- 3.3 ON-SITE PLANT AND EQUIPMENT
- 3.4 DREDGING TRAFFIC
- 3.4.1 Construction traffic route
- 3.4.2 Deliveries
- 3.4.3 Signing
- 3.4.4 Condition Survey
- 3.4.5 Construction Access
- 3.4.6 Working Hours
- 3.4.7 Duration
- 3.5 DREDGING WORKFORCE
- 3.6 DREDGING PROGRAMME
- 3.7 ENVIRONMENTAL MITIGATION

# 4 CONSTRUCTION RELATED ENVIRONMENTAL MANAGEMENT AND CONTROL PROCEDURES

#### 4.1 INTRODUCTION

This section provides a description of the Construction Environmental Management and Control Procedures that will be implemented throughout the duration of the construction phase of the dredging works.

- 4.2 LEGAL COMPLIANCE
- 4.3 ENVIRONMENTAL ROLES AND RESPONSIBILITIES
- 4.4 ENVIRONMENTAL TRAINING, AWARENESS AND COMPETENCY
- 4.5 DOCUMENT CONTROL AND RECORD KEEPING
- 4.6 ENVIRONMENTAL MONITORING
- 4.7 AUDITING AND COMPLIANCE CHECKS
- 4.8 REVIEW OF ENVIRONMENTAL PERFORMANCE
- 4.9 HEALTH AND SAFETY MANAGEMENT
- 4.9.1 Emergency Preparedness and Response



- 4.10 PUBLIC AND COMMUNITY RELATIONS
- 4.10.2 Public Complaints Handling

# 5 CONSTRUCTION RELATED ENVIRONMENTAL RISKS AND CONTROL MEASURES

#### 5.1 INTRODUCTION

This section considers the construction related environmental risks and control measures associated with the dredging works.

# DRAFT TEMPLATE

10/05/2019

Pioneer Dredging of the River Parrett – Oath to Burrowbridge

Appendix B - Specification





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#### 1.0 SPECIFICATION

- 1.1 The Specification consists of:
  - The 'Civil Engineering Specification for the Water Industry', 7th edition (CESWI-7), published by WRc in March 2011 and which is supplemented by the Supplementary Clauses included in section 3.0 below.
  - The General Clauses listed below specific to this specification document.
- 1.2 In so far as the drawings, notes on drawings or General Clauses or Supplementary Clauses may conflict with or be inconsistent with any provision of CESWI-7, the drawings, notes and General Clauses and Supplementary Clauses shall always prevail.
- 1.3 Any clauses in the Specification which relate to work or materials not required by the *works* shall be deemed not to apply.
- 1.4 The following definitions apply to the roles defined in CESWI-7 and/or the following General Special and Clauses:
  - The "Client" is the Employer;
  - The "Contract Administrator" or the "Supervisor" is the Employer or his delegate;
  - The "Constructor" is the Contractor.

#### 2.0 GENERAL CLAUSES

#### 2.1 Public Relations

All activities are to be carried out so to minimise any disruption and nuisance to the local population, ensure that adequate notice of any temporary closures or traffic restrictions necessary to carry out works is given and good liaison with landowners and the public is maintained. The *Contractor* shall be responsible for public relations in consultation with the *Employer*. See also section 1.6 of the Supplementary clauses to CESWI relating to consultation with landowners and tenants.

#### 2.2 Access for the Employer

The *Contractor* shall allow access to Board members and staff of the Parrett Internal Drainage Board to inspect the *works*. Access shall be in accordance with the *Contractor's* health and safety policy. Instructions concerning the *works* shall only be accepted from designated officers of the *Employer* or delegates appointed in accordance with Clause 14.4 of the *conditions of contract*.

#### 2.3 Operations & Maintenance Manual / As-built records

The Contractor shall supply as-built records within 2 weeks of completion of the works.

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#### 3.0 SUPPLEMENTARY CLAUSES to CESWI 7th Edition

The Supplementary Clauses are arranged in sections to generally follow the format of the CESWI-7. Specification requirements related to existing clauses are numbered as additional sub clauses. New clauses unrelated to existing clauses are numbered to follow the last clause of the appropriate Section.

- Where the Works Information refers to the "Project Manager" or "Engineer", this is interpreted as meaning the "Project Manager" and/ or the "Supervisor" as the context demands. If the Contractor is in any doubt as to whether a matter should be raised with Project Manager or Supervisor, he shall ask the Project Manager to decide the issue.
- References in the specification to "submission for approval" or to "approval" shall be read as "submission for acceptance" or "acceptance" respectively.
- Where the specification refers to plant or equipment, the following definitions are to apply:
- "Plant" is items which (together with Materials) are intended to be included (incorporated) in the works.
- "Equipment" is items provided by the Contractor and used by him to provide the works.
- References in the Works Information to equipment should be read as references to Plant or Equipment, as the context requires.
- If the *Contractor* is in any doubt as to an interpretation, the matter should be raised with the *Project Manager* who shall decide the issue.
- References in the Works Information to the particular works information shall be read as references to the Works Information.
- References in the Works Information to the client or purchaser shall be read as references to the *Employer*.
- References in the Works Information to the Site shall be read as references to the Working Area.

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#### SECTION 1 GENERAL

#### 1.1 DEFINITIONS

7 "Dredging" means the removal and disposal of silt and other deposits from the river banks and channel irrespective of the method used.

#### 1.2 ACCOMMODATION FOR THE CONTRACT

- All temporary offices, sanitary arrangements, stores, compounds, parking areas and the like necessary for use of the staff and workforce engaged in the completion of the works and correction of defects shall be provided, erected, constructed, maintained and subsequently removed by the Contractor.
- 6. The *Contractor* shall be responsible for the installation, maintenance and removal of all temporary site services required, including liaison with the relevant suppliers and payment of necessary fees and costs. The *Contractor* shall also be responsible for paying any Council Taxes due. Temporary site services shall include a potable water supply, sewage disposal and waste disposal.
- 7. The instruments provided by the *Contractor* for the proper setting out of the *works* shall be maintained in good working order and properly calibrated at all times and shall be available for the use of the *Employer* as required for checking the setting out or taking measurements.
- 8. The *Contractor* shall, whenever required during working hours, provide the *Employer* with such facilities and assistance as deemed necessary by the *Employer* for the taking of levels, checking dimensions, examining works and testing, sampling or monitoring related to the *works*. The *Contractor* shall provide a capable experienced person suitable for the task in question.
- 9. The *Contractor* shall provide and maintain a site office for the exclusive use of the *Employer* comprising:
  - Office not less than 12m<sup>2</sup>
  - Access to toilet facilities
  - Table/desk with 4 chairs
  - Minimum 4<sup>no.</sup> 220-240V power points
  - Secure, lockable doors with 2 sets of keys issued to the employer
  - Adequate natural lighting and ventilation
  - Electricity, heating and hot & cold potable water supply
  - Appropriate fire fighting appliances

#### 1.6 ENTRY ONTO THE SITE

- 6. The Employer will contact all landowners and tenants within the site in advance of the contract to agree the principles of entry. A statutory Notice of Entry will be served by the Employer to facilitate entry into working areas.
- 7. The Contractor shall deliver the works to have a minimum practicable period of occupation of any of the site.

#### 1.7 SURVEY OF HIGHWAYS, PROPERTIES AND LAND

5. The surveys shall consist of digital photographs and a report clearly showing when and where the photographs were taken. Details of the general condition of the surveyed areas together with any specific areas of existing damage or degradation shall also be recorded.

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#### 1.8 LEVELS AND REFERENCE POINTS

- 5. All the levels shown on the drawings are shown in metres relative to Ordinance Survey GNSS
  Transformation OSTN15 and are based on the topographic survey undertaken as part of the Scheme's
  development. Unless demonstrated to the contrary, this survey shall be assumed to be an accurate record
  of the existing ground levels.
- 6. Before any dredging is commenced, the Contractor shall define, by appropriate means, the reference lines and levels for setting out the works. These reference points shall be regularly checked for accuracy throughout the Contract and where any displacement has occurred due to water action, vandalism, equipment movements, etc., shall be accurately reset in their former positions.

#### 1.9 SITE FENCING AND GATES

- 7. The Contractor shall include his fencing and security proposals in his method statement
- 8. On removal of all temporary fencing, all post holes shall be immediately and properly infilled with materials to suit existing surfaces.
- 9. Where access to the site is required over unpaved land, the Contractor shall ensure that the land remains in a condition no worse than that which existed before commencement of the construction works. All damage caused to any part of the access route(s) and working areas shall be made good as and when directed by the Client
- 10. Where additional strengthening of the temporary access and/or working area/compound is required beyond that afforded by the stripping of topsoil, a fabric sheet or Geogrid is to be laid on the sub-soil and then covered with a depth and grading of material to be designed by the Contractor and agreed by the Employer. Upon completion of the construction works the fabric and stone are to be removed and the ground reinstated to the requirements of Specification Clause 3.9.

#### 1.10 INTERFERENCE WITH LAND INTERESTS

4. The works shall be programmed and executed in a manner that causes the least possible interference or disruption to the local community.

#### 1.11 INTERFERENCE WITH ANY ACCESS TO PROPERTY, APPARATUS OR SERVICE

Vehicular access along all highways and droves shall be maintained at all times unless subject to a road closure notice. Works must be programmed and executed accordingly so as to cause the least possible disruption to traffic, farmers and the local community.

#### 1.15 WORKS AFFECTING WATERCOURSES

6. The Contractor is to take measures to protect all personnel (employed and visiting the *site*), Plant, Materials and Equipment from harm or damage irrespective of the magnitude of a flood event.

#### 1.17 APPARATUS OF STATUTORY UNDERTAKERS, HIGHWAY AND ROADS AUTHORITY AND OTHERS

- 5. Notwithstanding any information regarding apparatus supplied by or on behalf of the Client, the Contractor shall be responsible for ascertaining from inspection of the site, and from the respective supply utilities, other relevant companies and any public bodies, the position of all mains, pipes and cables. The Contractor shall carry out thorough searches, including the use on the site of electromagnetic or other suitable locating Equipment, followed by excavation by hand, to exactly locate all apparatus.
- 6. The Contractor shall exercise the greatest care during the construction of the works to avoid damage to or interference with any existing services and shall be responsible for any such damage caused by him or his agents either directly or arising indirectly from anything done or omitted to be done. The Contractor shall carry out all temporary works necessary to adequately support and protect any existing services.

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- 7. The Contractor shall take any and all measures reasonably required by any Public or Statutory Authority for the support and full protection of its mains, pipe, cables and other apparatus during the progress of the construction works, and shall construct and provide to the satisfaction of the Authority concerned all works necessary for the prevention of damage or interruption of services. If any interruption of or delay to the provision of any service is caused the Contractor shall bear and pay the cost reasonably incurred by the Authority concerned in making good such damage and shall make full compensation to the Authority for any loss sustained by reason of such interruption or delay.
- 8. The Contractor shall make his own arrangements for any diversion or removal of existing services which he may require for his own convenience or because of his proposed method of working and shall, in all cases, inform the Employer in advance of his proposals.

#### 1.18 TRAFFIC REQUIREMENTS

- 12. The Contractor shall include in his method statement proposals for:
  - the management of traffic arriving/leaving the site;
  - the management and movement of traffic around the site.
- 13. Due allowance should be made by the Contractor to keep any of the local Highways clear of any debris and mud from vehicles accessing and leaving the site and a methodology contained in his method statements. The Contractor will be directly responsible to the local Highways Authority in this respect.

#### 1.19 EMERGENCY ARRANGEMENTS

3. The Contractor shall provide an Emergency Contact List to include at least two names of responsible representatives of the Contractor and telephone numbers at which they can be contacted at all times outside normal working hours. One of these telephone numbers should be that of the Contractor's Construction Manager.

#### 1.22 CUSTOMER CARE

- The Contractor shall be responsible for notifying local residents and The Local Authority's Environmental Health
  Officer of any unavoidable disruptive operations, particularly when these are to take place outside the normal working hours, and for fostering good public relations generally in respect of the works, copies shall be notified and available to the Client.
- A contact name within the Contractor's organisation shall be provided to residents who would be available to deal with complaints or queries in relation to the works.
- The Contractor is expected to work to the principles of the Considerate Constructor Scheme (www.ccscheme.org.uk) for the site and dealings with the public.

#### 1.25 SUBMISSIONS TO THE CLIENT

- 1. The following information shall be submitted to the Client for approval, at 2 weeks before the start of work on site:
  - First Programme for acceptance (if different to that provided with his Tender)
  - Method Statement for the works (if different to that provided with his Tender)
  - CDM Construction Phase Plan (see item 1.34 below)
  - Any other information requested.
- 2. The following information shall be submitted to the Client for acceptance during the course of the construction works:
  - Method Statements for all types of work. Method statements shall be submitted at least 5

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working days before the relevant work begins

- Details of any discussions with the landowner and tenant farmers
- Early warnings and compensation event notifications
- Delays experienced
- Health and Safety incidents
- Environmental incidents
- · Any other information requested

#### 1.26 SETTING OUT OF THE WORKS

The locations of all new works are shown as precisely as possible on the drawings. It is the responsibility of the
Contractor to carry out all levelling and setting out required to complete the work in a satisfactory manner.
The setting out of all works in respect of locations shall be agreed with the Client before commencement of
the works. The responsibility for the setting out of the works in respect of the final levels shall remain with the
Contractor.

#### 1.27 TOLERANCES

Unless otherwise specified by the Works Information, the following tolerances on specified levels shall apply:
 Final dredged level (as shown by the immediate post dredge survey) within +/-150mm on a section. Average over all sections +/-100mm.

#### 1.28 ENVIRONMENT AND SUSTAINABILITY

- 1. Specific environmental requirements for these works are detailed in Appendix E: Environmental Report
- 2. Activities within the watercourse shall be carried out in such a manner as to minimise environmental disturbance and in accordance with Contractor's Method Statements accepted by the Client.
- 3. The Client is committed to the environmental principles of stewardship and sustainability. The Contractor shall plan and order all his activities to assist the Client to honour these principles. In addition to this general requirement, particular areas for action are:
  - Avoidance of pollution of any waters (surface or underground).

In the event of a watercourse being polluted as a result of his work, the Contractor shall be responsible for taking immediate action to prevent the pollution spreading downstream, and to advise the Client immediately. If it proves necessary for the Client to take action concerning any pollution of a watercourse due to the Contractor's works the cost of any such action will be charged to the Contractor. The Contractor shall also inform the Client immediately of any incident.

and:

- Avoidance of pollution of any land;
- Preservation of flora and fauna;
- Avoidance of nuisance of sounds, vibrations and dust;
- Minimise energy and water use.
- 3. The Contractor shall demonstrate in his written Method Statement his proposals to minimise environmental impact and satisfy the above requirements. The Contractor shall submit all Method Statements to the Client

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for acceptance. Reference shall be made to the Environment Agency Pollution Prevention Guidelines 1, 5, 6, 8 and 21. The following should be addressed in the Method Statement(s):

- Equipment which leaks any fuel, lubricant or hydraulic fluid shall not be used.
- Bio-degradable hydraulic fluid is mandatory
- Equipment shall be maintained to ensure efficiency and to minimise emissions.
- Equipment shall be steam cleaned prior to delivery to the site.
- Fuel and oil storage shall be away from watercourses, fully bunded to 110% of the volume stored and maintained in a secure and clean manner. Delivery and vent pipes shall terminate within the bund
- Refueling or servicing of Equipment shall be carried out in designated locations away from watercourses.
- Refueling shall be supervised and shall be carried out by pumping through a trigger type delivery nozzle.
- An adequate supply of oil absorbent materials shall be readily available onsite at all times (e.g. in cab of Equipment).
- Any spillage shall be immediately contained, removed from the *site* and disposed to a licensed tip, the Client being promptly informed.
- Equipment shall be effectively silenced and shall comply with any stated requirements of the Local Authority as well as BS 5228-1: 1997: Noise control on construction and open sites.
- 5. Where materials arising from or required for the "Works" constitute Controlled Waste under the Environmental Protection Act 1990 (Sections 33 and 34), the Contractor shall provide the Client with a copy of the Carriers' licence to transport the materials, and copies of all Waste transfer notes. The Contractor shall retain a copy of all waste transfer notes onsite for inspection.
- 6. Imported soil conditioners shall be free from Peat and Coir, be manufactured from composted matter, recycled and renewable materials fully pasteurised and free from weed seeds, disease and fungal organisms. The Contractor shall provide details of any proposed soil conditioner for acceptance prior to commencement of landscaping works.

#### 1.29 WATER VOLES

Water Voles are fully protected under Section 9 of the Wildlife and Countryside Act 1981, which makes it an offence to intentionally kill, injure or take (capture) a water vole, or intentionally or recklessly damage, destroy or obstruct access to any structure or place which water voles use for shelter or protection or disturb water voles while they are using such a place. Water Vole burrows and other activity has been detected on parts of the left bank where dredging is to take place. This work can be undertaken lawfully by application of the Natural England Class Licence CL24 (Copy included in Appendix E-Environmental Information). As soon as possible after 15<sup>th</sup> September the Contractor shall clear vegetation from the designated area to initiate water vole displacement and continue in accordance with the conditions of the class licence. Dredging work may not proceed on the left bank before the water vole displacement has been concluded.

#### 1.30 BADGERS

Badgers are protected species and the Contractor must not disturb badger setts. Known locations of active badger setts in the area are shown on drawing GD06-18-103 in Appendix A. The Contractor must fence badger setts, without obstructing badger access, to exclude vehicles and prevent damage to badger setts. If the Contractor finds a badger sett during works, the Contractor must avoid working in the immediate vicinity of the sett and inform the Client, so an assessment can be made of the risks of disturbance and any required mitigation measures can be identified and implemented. Works may be carried out lawfully by application of

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the Natural England Class Licence CL27 (Copy included in Appendix E-Environmental Information). The Contractor shall not spread dredged material within 10m of an active badger sett.

#### 1.31 OTTERS

Otters are protected species and the Contractor must not disturb otter Holts. The Client's Project Ecologist will provide the Contractor with the known locations of otter Holts in the area. The Contractor must fence otter Holts, without obstructing otter access, to exclude vehicles and prevent damage to Holts. If the Contractor finds an otter holt during works, the Contractor must avoid working in the immediate vicinity of the holt and inform Client, so an assessment can be made of the risks of disturbance and any required mitigation measures can be identified and implemented. The Contractor shall not spread dredged material within 10m of an otter Holt.

#### 1.32 INVASIVE SPECIES

Invasive Species: The Client's Project Ecologist will undertake pre-construction checks of all working areas and land adjacent to working areas and provide the Contractor with the known locations of invasive species. The Contractor must ensure all dredging equipment (including boats) are not contaminated prior to use and will provide biosecurity measures such, as machinery cleaning, on site. If during works the Contractor finds either Giant Hogweed or Japanese Knotweed on site, the Contractor must avoid working in the immediate area and inform the Client, so an assessment can be made and any required mitigation measures can be identified and implemented.

#### 1.33 REMOVAL OF UNSUITABLE PLANT

- 1. Where any Equipment brought by the Contractor onto the site is deemed by the Client to be unsuitable for any reason, inter alia:
  - (a) it is causing or is likely to cause damage due to weight;
  - (b) it is a source of pollution such as spillage of oil;
  - (c) it is the source of excessive noise;
  - (d) it does not comply with the relevant safety regulation

then the Client shall have the power to order the removal of such Equipment.

#### 1.34 CONSTRUCTION (DESIGN AND MANAGEMENT) REGULATIONS (CDM)

- 1. The CDM Pre Construction Information prepared for these works is provided in Appendix C.
- 2. At least 10 days before the commencement of the construction works the Contractor shall produce a CDM Construction Phase Plan, which will include but not limited to, a Traffic Management Plan, Emergency Plan and the initial site work method statements and risk assessments. The Construction Phase Plan will be reviewed by the Principal Designer. Site work cannot start until the Plan has been accepted by the Client.
- 3. Subsequent method statements will be reviewed by the Client. The Contractor shall ensure that all method statements are submitted at least 5 days before the work activity is due to commence.
- 4. The Contractor shall provide the Client with two copies of all information which is required to be placed on the H&S File. It is proposed that a draft of the Health & Safety File will be developed as the work progresses to expedite the production of the final document.

#### 1.35 STATEMENT OF ACCOUNT

- 1. The Contractor's statements shall detail the following:
  - Work done against the Price List
  - Total value of work done

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- Agreed Compensation Events and Day Work items
- 2. All evidence of expenditure by the Contractor to carry out the construction works shall be held onsite by the Contractor and shall be available for inspection by the Client at any time within working hours.

#### **SECTION 2 MATERIALS**

#### 2.40 FIELD GATES

3. Gates shall be securely fixed to prevent removal, e.g. by using opposing hinge bolts.

#### 2.89 PERMANENT FENCING

- 2. Timber post and rail fencing shall be type SPR 13/4 as specified in BS 1722 Part 7.
- 3. All posts are to be treated with waterborne preservative by impregnation under pressure or by hot and cold treatment unless cut from the heartwood of oak, larch or sweet chestnut.
- 4. Staples are to be galvanised 38 mm long x No 8 SWG.
- 5. Strainers are to be galvanised 250 mm x 9 mm eyebolts.

#### 2.126 TIMBER AND PRESERVATION OF TIMBER

- 4. Timber preservative treatment shall be carried out away from watercourses and in a manner to avoid any spillage or loss. Creosote shall not be used unless the Contractor can demonstrate that no viable alternative exists.
- 5. Details of all timber to be used in the works shall be submitted to the Client for acceptance.

#### SECTION 3 EXCAVATION, BACKFILLING AND RESTORATION

#### 3.9 REINSTATEMENT OF UNPAVED LAND

- 6. A minimum of 100mm compacted depth of topsoil shall be placed wherever grass seeding is required and lightly compacted with a tracked excavator where slopes allow or the back of a bucket on slopes.
- 7. The topsoil shall be kept free from weeds and grasses by light cultivation or treatment with a foliar acting herbicide accepted for use near watercourses by the Environment Agency until grass cover has been established or the area is handed back to the landowner for his/her own reinstatement.
- 8. Prior to grass seeding any stones having one linear dimension in excess of 50 mm shall be removed and disposed of to a location agreed with the Client. The surface should be lightly and uniformly firmed and reduced to a friable tilth by raking or harrowing. An appropriate pre-germination fertiliser shall be applied at the prescribed rates in accordance with Clause 2.39.
- 9. Grass seed mixture type in accordance with Clause 2.56 shall be sown at the prescribed rates after preseding fertiliser application (see Clause 2.39). Immediately after the application of grass seed, the reinstated area will be lightly harrowed and rolled.
- 10. Any areas where the seed has not taken will be re-seeded by the Contractor

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#### 3.10 TREES

- 5. Where small trees, hedgerows or large woody shrubs, having an individual girth less than 500mm measured 1m above ground, are to be removed they shall be clearly identified and confirmed for removal by the project manager.
- 6. Roots shall be thoroughly grubbed out and all arisings removed from site.
- 7. Holes shall be backfilled with well compacted impermeable material and grass cover established to provide a uniform well-grassed surface to resist erosion from overflow.

#### SECTION 7 TESTING AND DISINFECTION

#### 7.19 TESTING DISOLVED OXYGEN, TEMPERATURE AND AMMONIA

- 1. Testing is to be carried out at an agreed mid-channel position downstream of the working area.
- 2. Testing is to use properly calibrated equipment which is appropriate for the purpose.
- 3. Testing frequency to be not less than every 15 minutes.
- 4. Testing to commence at least 24 hours before any dredging commences and continue until at least 24 hours after all dredging has been completed.
- 5. Test thresholds are:
  - Water temperature exceeding 15°C
  - · Dissolved oxygen outside the range 30% to 120%
- 6. Test time, date, location and readings are to be recorded with data loggers linked to a telemetry system and alarms for threshold exceedance.
- 7. Satisfactory operation of the testing, recording and telemetry equipment to be checked at least daily during dredging operations.

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# APPENDIX 2D: DRAFT TEMPLATE LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN



# Oath to Burrowbridge Dredging

# Draft Landscape and Ecological Management Plan Template

Client: Parrett Internal Drainage Board

Date: June 2019



## DOCUMENT CONTROL

Report prepared for: Parrett Internal Drainage Board
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#### **DOCUMENT REVISIONS**

Version	Details	Date
DRAFT	Template for inclusion in the Environmental Statement	June 2019

#### Third party disclaimer

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## 1 INTRODUCTION

#### 1.1 APPOINTMENT

#### 1.2 AIM AND SCOPE OF THIS DOCUMENT

The aim of this document sets out protocols to ensure the long-term management and monitoring of all retained and restored landscape / habitat types and ecological features within the Oath to Burrowbridge Dredging site downstream of Stathe Bridge and the confluence with the River Tone. It seeks to and to restore/maintain and successfully manage these during the long term operational period of the project supported by monitoring. As such it serves as a handbook for landscape and ecological management and maintenance of the restored proposed dredging site.

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- 1.5 LONG-TERM MANAGEMENT AIMS
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# 2 VALUED ECOLOGICAL RESOURCES

2.1 FLORA/HABITATS

## 3 MANAGEMENT OBJECTIVES

- 3.1 GENERAL
- 3.2 SPECIFIC TO HABITAT/VEGETATION/LANDSCAPE TYPE AND SPECIES

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#### 5.3 RHYNES / DITCHES

Management Objectives:

Management Prescription:

#### 5.4 HEDGEROW

Management Objectives:

General Maintenance/Management Prescription of all Grassed Areas:

#### 5.5 TREES

Management Objectives:

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## 6 AUTUMN/WINTER MAINTENANCE

## 7 MANAGEMENT PRESCRIPTIONS – HABITAT STRUCTURES

- 7.1 GENERALLY
- 7.2 BIRD BOXES
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- 8.1 SCHEDULE OF LEMP MONITORING
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- Phase 1 Habitat Survey
- Non-native and Invasive Plants
- Otter and Water Vole
- Badger
- Hairy Click Beetle
- Fixed Point Cross Sections
- River Habitat Survey

LANDSCAPE MANAGEMENT AND ECOLOGICAL PRESCRIPTIONS MASTERPLAN

**ECOLOGICAL CONSTRAINTS** 

# APPENDIX 6A: PRELIMINARY ECOLOGICAL ASSESSMENT AND DESK STUDY



# Oath to Burrowbridge, River Parrett, Somerset

# Preliminary Ecological Appraisal April 2018



Prepared for Somerset Drainage Boards Consortium





#### **Somerset Ecology Services (SES)**

SES is Somerset County Council's team of expert ecologists with over 30 years' worth of ecological experience. We undertake a wide spectrum of work on a chargeable basis for a range of public bodies, individuals and businesses. Our values can be summarised in the 4 'C's:

- Customer focus.
- Collaboration.
- Can do attitude.
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#### **Quality Assurance**

This report has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management (2015) 'Guidelines for Ecological Report Writing' and with the British Standards Institution (2013) 'BS42020 Biodiversity – A code of practice for planning and development'. The author is a full member of the Chartered Institute of Ecology and Environmental Management and is covered by CIEEM's 'Code of Professional Conduct' (available from CIEEM website: https://www.cieem.net/). All species surveys conducted specifically to inform this report have been carried out by personnel working under the appropriate licences (where necessary) and by staff possessing the required competencies for the particular survey(s) as defined within the CIEEM's Technical Guidance Series ('Competencies for Species Surveys' – see CIEEM website).

#### **Document control**

Project details	Project details			
Site	Oath to Burrowbridge, R	Oath to Burrowbridge, River Parrett, Somerset		
Client	Somerset Drainage Board	ds Consortium		
Document	Preliminary Ecological Ap	praisal		
Reference	SES_43_17_Oath to Burr	SES_43_17_Oath to Burrowbridge		
Survey dates	3rd <sup>rd</sup> April 2018			
Surveyor/s	Simon Breeze, County Ecologist, BSc. MCIEEM.			
Document	Author	Checked by	Date	
Consultation Draft v. 1.0	Simon Breeze	Larry Burrow	April 2018	
Final v 1.0	Simon Breeze	Simon Breeze	April 2018	

# SES\_043\_17

### Oath to Burrowbridge River Survey: Preliminary Ecological Appraisal



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#### **Executive summary**

Somerset Drainage Boards Consortium are seeking ecological advice to inform vegetation and silt removal works from river slopes, and the placing of cleared material behind the banks. The site is located along a section of the River Parrett, between Burrowbridge (ST 35842 30207) and Oath (ST 38308 27900)

The Preliminary Ecological Appraisal was undertaken on the 4<sup>th</sup> April 2018 by Simon Breeze, County Ecologist, Bachelor of Science (BSc.), full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and Class 2 Bat License holder (CL18), and Molly Meikle, Assistant Ecologist, BSc. The survey was carried out between 8.30 and 12.00 under dry, bright and warm conditions.

A desk study revealed seven statutory designated sites located within 2km of the length of River Parrett surveyed. There are also eight non-statutory designated sites within 2km of the survey area.

The survey identified six standard Phase 1 habitat types within the site boundary and 10 Biodiversity Action Plan (BAP) priority habitats or habitats of principal importance within the site boundary or within 2km of the proposed works.

The habitats recorded on site have the potential to support breeding birds and contains commuting and foraging habitat for bats, otters, water vole, reptiles and invertebrates. Mature trees located along the river banks also held potential for roosting bats.

#### **Recommendations:**

To avoid direct impacts to habitats and species which are known to be, or may be present, recommendations are as follows:

- The proposed works fall within the River Parrett, Middle Moor to Scree Local Wildlife Site and as such the Somerset Environmental Records Center (SERC) should be consulted on the proposals.
- It is recommended that the trees surrounding the development site are retained and protected.
- Tree should also be retained to avoid potential impacts to roosting bats and nesting birds.
- The river maintenance works will put in place pollution prevention methods in line with the Environment Agency's (EA) Pollution Prevention Guidance (PPG) 6.
- Works will ensure that the river and its immediate surrounds are not fully blocked, allowing space for bats, otters, water voles, reptiles, invertebrates and kingfishers to commute.
- Potential bird nesting habitat will be removed outside of the main breeding season in the period from the 1<sup>st</sup> September to the 28<sup>th</sup> February, or if this is not possible, a nesting bird check should be completed by a suitably qualified ecologist/ornithologist in the 24 hour period prior to removal.
- In the event that evidence of otters and water voles are discovered during vegetation and silt removal works, operations must stop immediately and a qualified ecologist contacted.
- The presence of the two non-native plant species should be monitored to avoid further spread along the banks, beyond residential dwellings.

Further ecological consultation should be sought if the scope of the proposed work changes significantly or if the onset of the work is delayed by more than 12 months from the date of this survey.



#### 1.0 Introduction

#### 1.1 Site location

The site is located along a section of the River Parrett, between Burrowbridge (ST 35842 30207) and Oath (ST 38308 27900).

The surveyed stretch was approximately 4km in length.

The surrounding landscape is predominantly coastal and floodplain grazing marsh with areas of lowland meadows and semi-improved and improved neutral grassland (Figure 1).

Burrow Bu

Figure 1. Site location between the junction of the River Tone and River Parrett to Oath Lock.

#### 1.2 Background to activity

Somerset Drainage Boards Consortium are seeking ecological advice to inform vegetation and silt removal works from the river slopes and the placing of cleared material behind the banks on the rear

#### Oath to Burrowbridge River Survey: Preliminary Ecological Appraisal



face. The majority of works are planned on the right hand bank as you look downstream with some sections of the 4km stretch left unmanaged.

Somerset Ecology Services (SES) were commissioned by Somerset Drainage Boards Consortium to undertake an preliminary ecological appraisal of the site to establish the ecological constraints associated with the proposal and provided further recommendations, if applicable, and to enable compliance with planning policy and wildlife legislation.

#### 1.3 Survey objectives

The survey objectives are listed as follows:

- Identify all relevant statutory and non-statutory designated areas of conservation importance and features of ecological significance within the site and within a 2km radius of the site.
- Broadly categorise habitat types within the site in accordance with standard Phase 1 habitat survey techniques.
- Assess the potential for the presence of protected species and species of principal conservation importance within the site.
- Provide recommendations for further surveys, if required.
- Accurately assess the potential ecological impact of the proposed development.
- Inform the design of a mitigation strategy, if possible, to minimise potential impacts on protected species and habitats.
- Advise of any ecological compensation requirements.

#### 1.4 Scope and limitations

The report outlines the results of both a desk top study and an Extended Phase 1 Habitat Survey carried out by SES. The data gathered is used to evaluate the ecological value of the proposed work. Recommendations are made concerning possible impacts on wildlife and how these might be mitigated or off-set (compensated).

As regards the desk top study, Somerset Species Occurrence Mapping has been consulted. This makes use of species records from Somerset Environmental Records Centre (SERC) to identify parts of the county where particular legally protected and priority species may be found. The mapping layers are updated on a regular basis using SERC data.

Phase I Habitat Surveys may be conducted at any time of year, but results will vary depending on the time of year they are carried out. The timing of the survey in this case was such that many plant species would normally be readily identifiable still. Therefore, it has been possible to characterise habitats in terms of the vegetation supported and also to identify woody species and other plants within the hedgerows on the site's boundaries.

The Phase I Habitat Survey was of an 'Extended' type in the sense that the opportunity was taken whilst on site to look for evidence that certain protected species might be present associated with the particular habitats in the area around the site that could be affected by the bridge works. The investigations that were conducted are described in the Methodology section along with any constraints (seasonal or otherwise) that might have had a bearing on the efficacy of searches for signs of particular species.



#### 2.0 Methodology

#### 2.1 Site survey

The Preliminary Ecological Appraisal was undertaken on the 4<sup>th</sup> April 2018 by Simon Breeze, County Ecologist, Bachelor of Science (BSc.), full member of the Chartered Institute of Ecology and Environmental Management (MCIEEM) and Class 2 Bat License holder (CL18), and Molly Meikle, Assistant Ecologist, BSc.

The survey was carried out between 8.30 and 12.00 under dry, bright and warm conditions.

The survey was completed in accordance with best practice methodologies:

- Joint Nature Conservation Committee (2003). Handbook for Phase 1 Habitat Survey: A Technique for Environmental Audit. Joint Nature Conservation Committee, Peterborough.
- British Standards Institution (2013). BS42020: Biodiversity Code of Practice for Planning and Development. British Standards Institution, London.
- CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2<sup>nd</sup> edition. Chartered Institute of Ecology and Environmental Management, Winchester.

During the survey the following information was recorded:

- Habitat types classified in accordance with standard Phase 1 habitat categories.
- Dominant, notable and invasive, non-native plant species.
- Direct evidence of protected and notable animal species.
- Features of value for protected and notable animal species.

#### 2.2 Desk top study

The data search involved the compilation of ecological information relating to the site and surrounding area. The resources consulted included the following:

- Statutory designated sites and biodiversity action plan (BAP) priority habitats within proximity of the site were identified using the Natural England/DEFRA web-based MAGIC database (www.MAGIC.gov.uk).
- The Somerset Environmental Records Centre (SERC) was consulted to conduct a data search for statutory and non-statutory designated sites of conservation importance<sup>1</sup> and legally protected and biodiversity priority species, red data book species and county notable species.
- The Natural England<sup>2</sup> and Joint Nature Conservancy Council<sup>3</sup> website was visited to obtain citation details of the statutory designated sites.

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<sup>&</sup>lt;sup>1</sup> Evaluated statutory designated areas are Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar Sites, Sites of Special Scientific Interest (SSSI), Marine Protected Areas (MPA), National Nature Reserves (NNR), Local Nature Reserves (LNR) and National Parks. Evaluated non-statutory designations included Local Wildlife Sites (LWS) and Local Geological Sites (LGS).

<sup>&</sup>lt;sup>2</sup> https://designatedsites.naturalengland.org.uk/

<sup>3</sup> http://jncc.defra.gov.uk/page-2

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- Somerset Special Alert Mapping: A Somerset County Council GIS resource which maps where protected species are likely to be present based on past records and the scientific literature concerning home ranges.<sup>4</sup>
- Ordnance Survey maps and aerial images of the site were examined online (bing.com/maps and maps.google.co.uk).

#### 2.3 Survey method constraints and limitations

Preliminary ecological appraisals are not intended to produce comprehensive lists of species present but, nevertheless, it is considered that the survey undertaken is sufficient to evaluate the ecological resources within the site and thus to identify potential issues of relevance to the proposal.

The data search provided by SERC presented within the report should not be seen as exhaustive. Data obtained from within the search area is highly unlikely to constitute a complete record of habitats and species present within the search area. It is therefore possible that protected species may occur within the vicinity of the proposed development site that has not been identified within the desk study.

Bats are very small animals, capable of accessing small spaces and it is possible that bats, or their signs, might have been missed during the survey if they are normally present opportunistically or in small numbers for a short period of time each year. Not all features in trees or buildings suitable for use by bats are visible from the ground and there can be no external evidence of use of features by bats; consequently it is only possible to make a best effort when carrying out such a survey.

Preliminary ecological appraisals are not intended to produce comprehensive lists of species present but, nevertheless, it is considered that the survey undertaken is sufficient to evaluate the ecological resources within the site and thus to identify potential issues of relevance to the proposal.

These limitations have been taken into consideration in the recommendations of the assessment.

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<sup>&</sup>lt;sup>4</sup> Please note that there is no Occurrence Mapping available currently for Badgers or Slow-worms, two species that are often found in urban, semi-rural and rural situations.



#### 3.0 Results

#### 3.1 Statutory and non-statutory designated sites

Seven statutory designated sites were located within 2km of the length of River Parrett surveyed. There are also eight non-statutory designated sites within 2km of the survey area (Table 1 and 2 & Appendix A).

**Table 1.** Statutory designated sites of conservation importance within a 2km radius of the site

Name	Status	Distance from survey site	Description
Somerset Levels	National Nature reserve (NNR)	0km	Primary habitats include open water and lowland grassland.
Somerset Levels and Moors	Special Protection Area (SPA)	0km	Designated for its internationally important assemblage of birds.
Somerset Levels and Moors	Ramsar Site	0km	Largest area of lowland wet grassland and associated wetland habitat remaining in Britain. An important site for wildfowl in winter and aquatic invertebrates.
Southlake Moor	Site of Special Scientific Interest (SSSI)	0km	An extensive system of grazing marsh and ditches.
West Sedgemoor	SSSI	0km	Comprised of numerous small, low lying fields and meadows separated by water filled rhynes and ditches.
Kings Sedgemoor	SSSI	2km	An extensive system of grazing marsh and ditches, supporting a wide variety of neutral grasslands.
North Moor	SSSI	0.1km	Nationally important site for grazing marsh and ditch systems on the Somerset Levels and Moors.

**Table 2.** Non-statutory designated sites of conservation importance within a 2km radius of the site.

Name	Status	Distance from survey site	Description
River Parrett, Middle Moor to Scree	Local Wildlife Site (LWS)	Okm	River with legally protected species and rare invertebrate species.
River Tone and Tributaries	LWS	0km	Biologically rich river and tributaries with a variety of associated habitats and legally protected species

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Aller Moor	LWS	0km	Rhyne and wet meadow site, important wintering bird population.
Athelney Fields	LWS	1km	Fields with rhynes and a Somerset notable specie.
Hellards Copse	LWS	1.5km	Ancient semi-natural broadleaved woodland.
Wick Hill Wood	LWS	1.5km	Ancient semi-natural broadleaved woodland, scrub and unimproved calcareous grassland.
Aller Drove Rhynes	LWS	1.6km	Water course with indicators of high biological quality.
Cox's Wood	LWS	1.7km	Ancient semi-natural broadleaved woodland.

The site is also located within the SSSI Impact Risk Zones along the length of the site surveyed for the aforementioned SSSIs, with overlapping Ramsar and SPA site designations (Somerset Levels and Moors).

Impact risk zones are used in the assessment of planning applications for likely impacts on Sites of Special Scientific Interest (SSSIs), Special Areas of Conservation (SACs), Special Protection Areas (SPAs) and Ramsar sites. However, the scale of the proposal and working practices likely to be practiced by the Somerset Drainage Board Consortium indicate that the proposal will not fall into one of the identified risk categories.

#### 3.2 Biodiversity Action Plan priority habitats and habitats of principal importance

There were 10 Biodiversity Action Plan (BAP) priority habitats or habitats of principal importance within the site boundary or within 2km of the proposed development. These include river, hedgerows, coastal and floodplain grazing marsh, traditional orchard, lowland fen, lowland meadows, deciduous woodland, lowland calcareous grassland, purple moor grass and rush pasture.

In relation to planning policy every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity under the NERC Act 2006 (Part 3, Section 40)( Appendix ).

#### 3.3 Protected species records

The data search returned records of 14 protected species within a 2km radius of the site, including two bats, six birds, one fish, one invertebrate, three mammals and one reptile. The species in light green bold are considered to be potentially present within the site's habitats throughout the year (Table 3).

**Table 3.** Summary of protected species records within a 2km radius of the site (table continues).

	, production approximation and the content of th	
Common	Scientific	Status
Bats		
Brown Long- eared Bat	Plecotus auritus	BAP-2007, Bern-A2, CMS_A2, England_NERC_S.41, HabDir-A4, HabReg-Sch2, SERC LBAP: 2009, SERC Notable, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c
Common Pipistrelle	Pipistrellus pipistrellus	Bern-A2, CMS_A2, HabDir-A4, HabReg-Sch2, SERC Notable, WACA-Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c

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Birds			
Barn Owl	Tyto alba	Bern-A2, SERC LBAP: 2009, SERC Notable, WACA-Sch1_part1	
Black Redstart	Phoenicurus ochruros	Bern-A2, Bird-Red, SERC Notable, WACA-Sch1_part1	
House Sparrow	Passer domesticus	BAP-2007, Bird-Red, England_NERC_S.41, SERC LBAP: 2009	
Kingfisher	Alcedo atthis	Bern-A2, BirdsDir-A1, SERC LBAP: 2009, SERC Notable, WACA-Sch1_part1	
Reed Bunting	Emberiza schoeniclus	BAP-2007, Bern-A2, England_NERC_S.41, SERC LBAP: 2009, SERC Notable	
Spotted Flycatcher	Muscicapa striata	BAP-2007, Bern-A2, CMS_A2, England_NERC_S.41, SERC LBAP: 2009, SERC Notable	
Fish			
European Eel	Anguilla anguilla	BAP-2007, England_NERC_S.41, RedList_Global_post2001-CR, SERC LBAP: 2009	
Invertebrates			
Brown Hairstreak	Thecla betulae	BAP-2007, England_NERC_S.41, RedList_GB_post2001-VU, SERC LBAP: 2009, SERC Notable, WACA-Sch5_sect9.5a	
Mammals			
Eurasian Badger	Meles meles	Protection_of_Badgers_Act_1992, SERC Notable	
European Otter	Lutra lutra	BAP-2007, Bern-A2, England_NERC_S.41, HabDir-A4, HabReg-Sch2, SERC LBAP: 2009, SERC Notable, WACA- Sch5_sect9.4b, WACA-Sch5_sect9.5a, WACA-Sch5Sect9.4c	
European Water Vole	Arvicola amphibius	BAP-2007, England_NERC_S.41, SERC LBAP: 2009, SERC Notable, WACA-Sch5_sect9.4.a, WACA-Sch5_sect9.4b, WACA-Sch5Sect9.4c	
Reptiles			
Grass Snake	Natrix natrix	BAP-2007, England_NERC_S.41, SERC LBAP: 2009, SERC Notable	
Key			
BAP-2007	Biodiversity Action Plan	2007	
Bern-A2	The Convention on the Conservation of European Wildlife and Natural Habitats - Appendix II - Strictly protected fauna species.		
BirdsDir-A1	Birds Directive Annex 1		
Bird-Red	Birds of Conservation Concern Red listed		

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HabDir-A4	Habitats Directive Annex 4
HabReg-Sch2	Habitats Regulations (2017) – Schedule 2
NERC_S.41	Natural Environment and Rural Communities Act 2006_Schedule 41 species
SERC Notable	Somerset Environmental Records Centre Notable species
SERC LBAP:	Somerset Environmental Records Centre Local Biodiversity Action Plan
2009	
WACA-Sch5	Wildlife & Countryside Act – Schedule 5 species
WACA-	Wildlife & Countryside Act – Schedule 1 species, Part 1
Sch1_part1	

#### 3.4 Site habitat description

The survey identified six standard Phase 1 habitat types within the site boundary (Table 3).

Table 3. Phase 1 habitat types recorded within the site boundary.

Phase 1 habitat type	Site description
A3.1 – Broadleaved Parkland/scattered trees	A number of trees were scattered along the river banks comprised of hawthorn ( <i>Crataegus monogyna</i> ), yew ( <i>Taxus baccata</i> ), crack willow ( <i>Salix fragilis</i> ) and ash ( <i>Franinus excelsior</i> ), including one ancient ash (Photo 1, 5 and T1, Figure 3).
B2.2 - Neutral grassland - semi-improved	The grassy river banks and footpath backing onto the surrounding fields contained perennial rye grass ( <i>Lolium perenne</i> ), Yorkshire fog ( <i>Holcus lanatus</i> ) and cocks foot ( <i>Dactylus glomerata</i> ) (Photo 2).
C3.1 Other tall herb and fern – tall ruderal	Areas outside of the footpath on the river banks supported the following species: common hogweed (Heracleum spondylinium), broad leaved dock (Rumex obtusifolins), common nettle (Urtica diocia), lesser celandine (Rannunculus ficaria), white dead nettle (Lamium album), herb robert (Geranium robertianum) and fat hen (Chenonpodium album).  Two non-native plant species were found on the northern bank, pampas grass (Cortaderia selloana) and a cultivar of comfrey (Symphytum sp.) (Photo 9).
F2.1 Marginal and	Stands of willow, umbellifer and reed succession (<5m in width) were
Inundation - Marginal	located within the water course at marked points along the length of the site surveyed (Photo 7, 10 and Figure 2 and 3).
G2.2 - Running water - mesotrophic	The river Parratt ran along the surveyed site. Sections of the river had burst it's bank, flooding areas of surrounding grassland (Photo 4).
J3.6 - Buildings	Residential dwellings, a weir, barns and sheds and other man made structures were present along the banks of the river (Photo 2 and 3).



#### 3.5 Survey photographs



**Photo 1.** The mature veteran ash located by the bridge at Stathe (A3.1).



**Photo 2.** Grassland along the foot path (B2.2) and taller rudderal vegetation of the southern side of the river bank (C3.1).



**Photo 3.** Man made sructure spanning the rivers width (J3.6)



**Photo 4.** The River Parratt had burst its banks in numerous places along the surveyed site.







**Photo 5.** Scattered trees along the river banks provide potential nesting habitat for birds (A3.1)

**Photo 6.** Kestrel recorded on one of the scattered trees along the banks of the river parratt.



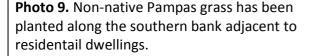


**Photo 7.** Willows succession and the presence of coots (*Fulica atra*) located in the attenuation pond by Sedgemoor House.

**Photo 8.** Mature trees containing cervices, including wood pecker holes, provide potential nesting opportunities for birds and roosting opportunities for bats.









**Photo 10.** uUmbellifer and reed succession along the southern banks of the River Rarrett. (F2.1)

#### **3.6** Bats

The river is considered to provide high quality foraging and commuting opportunities for bats. The presence of lines of trees, marginal vegetation and grassland will support invertebrate prey items; however, these areas of habitat are only expected to be minimally impacted by the proposed river works, particularly if the scattered trees are left intact and protected.

The trees in close proximity to the river did not contain evidence of live or dead bats, droppings, feeding remains, perch abrasions, characteristic staining from urine or marks from grease secretions, however had the potential to provide roosts.

All species of bat and their roosts are protected under the Conservation of Habitats and Species Regulations 2017 (listed in Schedule 2 as European Protected Species (EPS)), from intentional or reckless disturbance to individuals under the Wildlife and Countryside Act 1981 (as amended) (Section 9 (4)(b), (1) and (5)), the Countryside and Rights of Way (CRoW) Act 2000 and the Wild Mammals Protection Act 1996.

In addition, seven species of bat are cited as priority species, within the 'UK Post-2010 Biodiversity Framework', these comprise: barbastelle (*Barbastella barbastellus*), Bechstein's bat (*Myotis bechsteinii*), noctule (*Nyctalus noctula*), soprano pipistrelle (*Pipistrellus pygmaeus*), brown long-eared bat (*Plecotus auritus*), greater horseshoe bat (*Rhinolophus ferrumequinum*) and lesser horseshoe bat (*Rhinolophus hipposideros*) (Appendix B).

#### 3.7 Birds

No signs or evidence of nesting birds, including kingfisher (*Alcedo atthis*), were observed during the survey, however the scattered broadleaved trees have the potential to support bird nesting opportunities. In addition, the areas of willow, umbellifer and reed succession within the river channel have the potential to provide nesting habitats for birds, including waders, wildfowl and passerines.

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Species observed and/or heard singing/calling during the survey included skylark (*Alauda arvensis*), kestrel *Falco tinnunculus*), mute swans (*Cygnus olor*), coot (*Fulica atra*), mallard (*Anas platyrhynchos*), meadow pipit (*Anthus pratensis*), great spotted woodpecker (*Dendrocopos major*), chaffinch (*Fringilla coelebs*), greenfinch (*Chloris chloris*), blackbird (*Turdus merula*), wren (*Troglodytes troglodytes*), great tit (*Parus major*), goldfinch (*Carduelis carduelis*), robin (*Erithacus rubecula*), chiffchaff (*Phylloscopus collybita*), magpie (*Pica pica*), pheasant (*Phasianus colchicus*), carrion crow (*Corvus corone*), woodpigeon (*Columba palumbus*), jackdaw (*Corvus monedula*), house sparrow (*Passer domesticus*) and little egret (*Egretta garzetta*).

No evidence of Schedule 1 breeding birds that have the potential to be present within the river corridor, including kingfisher, cetti's warbler (*Cettia cetti*) and peregrine falcon (*Falco peregrinus*), were observed, however the river is highly likely to provide a commuting route for these species, as well as providing foraging opportunities under the right conditions.

All species of bird whilst actively nesting are afforded legal protection under the Wildlife and Countryside Act 1981 (as amended) and birds listed on Schedule 1 (Appendix B) are additionally protected from disturbance when nesting and with dependent young.

#### 3.8 Otters, water vole and invertebrates

The River Parrett, with its connection to other waterbodies, contains the potential as a commuting resource for otters (*Lutra lutra*), water vole (*Arvicola amphibious*) and invertebrates. No notable footprints, spraints, droppings, feeding remains, holts or burrows were observed at the site. However, the flooding and high water level may have concealed any signs of otter or water vole activity.

The otter is afforded legal protection from intentional and reckless disturbance under Schedule 5 of the Wildlife and Countryside Act 1981, (as amended). It is also listed under Schedule 2 of the Conservation of Habitats and Species Regulations 2017 providing it and its resting places full protection and is therefore a European Protected Species (EPS) They are also listed as species of principal importance under section 41 of the NERC Act 2006 (as amended) (Appendix B).

Water voles are afforded full legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). They are also listed as species of principal importance under section 41 of the NERC Act 2006 (as amended) (Appendix B).

A range of invertebrates are listed as species of principle importance under Section 41 of the NERC Act 2006 (as amended) (Appendix B).

#### 3.9 Reptiles

No reptiles were identified at the site; however the river and bankside vegetation could provide opportunities for commuting reptiles, primarily comprised of grass snake (*Natrix natris*). Again, due to the flooding and high water levels evidence of reptile activity may have been concealed.

Common reptiles are afforded limited legal protection under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). They are also listed as species of principal importance under section 41 of the NERC Act 2006 (as amended) (Appendix B).

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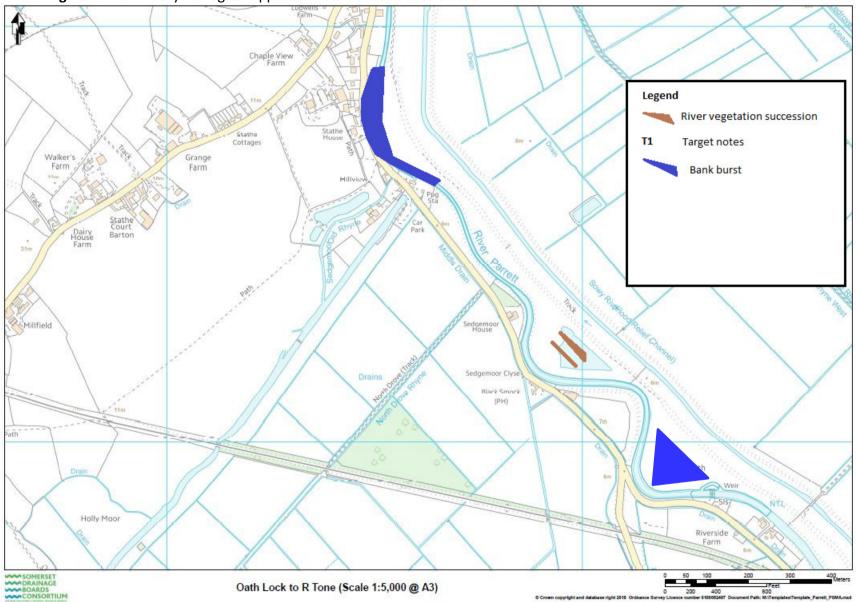
#### 3.10 Other protected species

No protected or invasive, non-native species of plant were identified and the habitats within the site which will be impacted by the proposed works were not deemed to provide critical resources for any other protected or notable species of animal. In particular, species which are considered likely to be absent from the site or may be present but will not be adversely impacted by the proposed development are as follows:

- Great crested newts (*Triturus cristatus*)
- Badgers (*Meles meles*)
- Dormice (Muscardinus avellanarius)
- White-clawed crayfish (Austropotamobius pallipes)

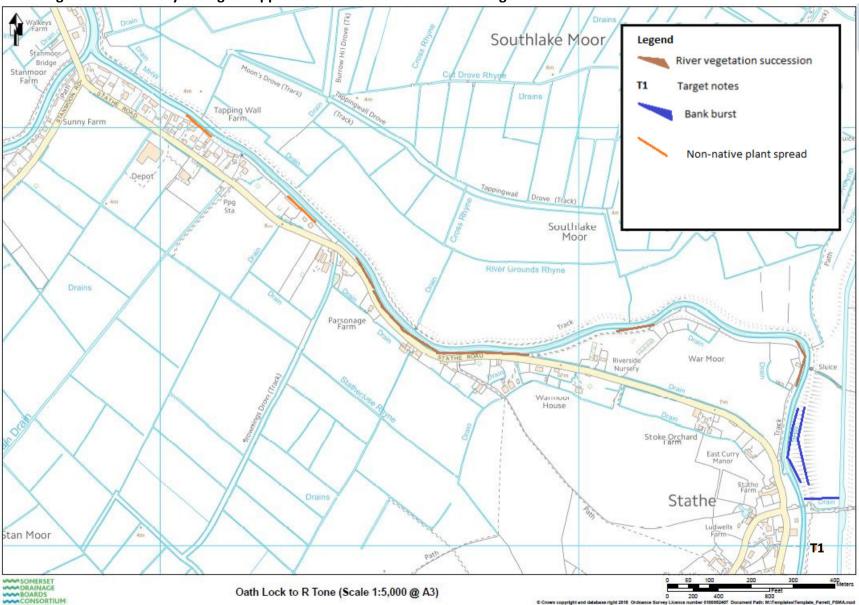


**3.11** Figure 2: Preliminary Ecological Appraisal Plan – Oath Lock to Stathe



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#### 3.12 Figure 3: Preliminary Ecological Appraisal Plan - Staithe to Burrowbridge





#### 4.0 Discussion and Recommendations

#### 4.1 Phase 1 and UKBAP priority habitat types

The proposed works fall within the River Parrett, Middle Moor to Scree LWS and as such the Somerset Environmental Records Center (SERC) and Somerset Wildlife Trust (SWT) should be consulted on the proposals.

It is advised that the mature trees located on site are retained and protected during river maintenance works. In addition, where possible any standing deadwood should be retained to provide potential foraging opportunities for birds, bats and invertebrates. In the event that any trees are to be removed, or that the works involves processes which may damage the trees, it is recommended that they are effectively protected through an arboricultural survey compliant with BS5837 (2012). The results of this work should inform an arboricultural impact assessment and tree constraints plan and allow the preparation of an arboricultural method statement and tree protection plan, as required.

The river vegetation and silt removal works should put in place pollution prevention methods in line with the Environment Agency's (EA) Pollution Prevention Guidance (PPG) 6, Working at Construction and Demolition Sites, to avoid any pollution impacts on the River Tone

The presence of two non-native plant species found on the southern banks of the River Parrett, Including pampas grass and comfrey cultivar, should be monitored to avoid their potential spread along the banks beyond residential dwellings.

#### **4.2** Bats

The mature trees located on site have the potential to support roosting bats and should therefore be retained and protected during the river maintenance works.

The river works will ensure that the river and its immediate surrounds are not fully blocked, at any given time allowing space for bats to commute along the river and its banks.

#### 4.3 Birds

The mature trees located on site have the potential to support nesting birds and should therefore be retained and protected during the river maintenance works.

Removal of any trees, ruderal and marginal vegetation should be undertaken in the period from the 1<sup>st</sup> September to the 28<sup>th</sup> February to avoid impacting breeding birds. It should be noted however that certain species are known to breed throughout the year and remain protected.

If it is necessary to clear vegetation during the main breeding bird period a nesting bird check should be performed in the 24 hour period prior to the works. The check for nesting birds should be undertaken by a suitably qualified ecologist or ornithologist and adhere to the following protocol:

 All vegetation suitable for nesting birds should be observed for 30 minutes for evidence of breeding bird behaviour.

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- If no evidence of breeding bird behaviour is observed the vegetation should be closely inspected to ensure there are no active nests present.
- If there are no signs of breeding activity, clearance works may proceed.
- If an active nest is discovered, the nest must remain undisturbed until the young have fledged.

The works will ensure that the river and its immediate surrounds are not fully blocked at any given time, allowing space for kingfishers to commute along the river and its banks.

#### 4.4 Otters, water voles, reptiles and invertebrate

The river bank works will ensure that the river and its banks are not fully blocked, allowing space for otters, water voles, reptiles and invertebrates to commute between potential habitats.

In the event that evidence of otters and water voles in the form of spraint, droppings, tracks, burrows and holts are discovered during vegetation and silt removal works operations must stop immediately and a qualified ecologist contacted to ensure that no injury, disturbance or killing is carried out, and that appropriate avoidance, mitigation and compensation strategies are designed.

If otter and/or water vole evidence is located during works, further surveys should be undertake to establish presence or absence, allowing an accurate assessment of the potential impacts of the proposed development and to inform the design of a proportionate mitigation strategy as part of a protected species mitigation licence to be submitted to Natural England.

#### 4.5 Survey updates

Further ecological consultation should be sought if the scope of the proposed work changes significantly or if the onset of the work is delayed by more than 12 months from the date of this survey.



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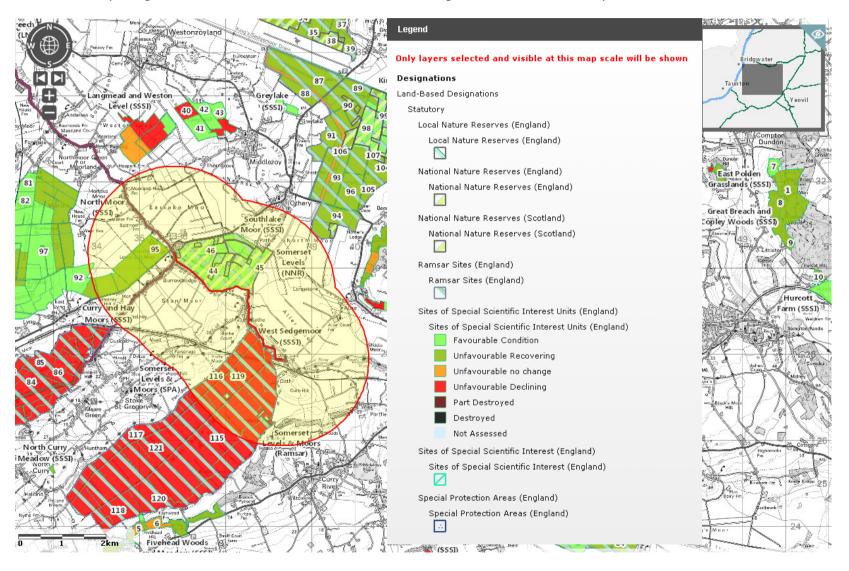
#### Note to client regarding biological records

Somerset County Council reserves the right to share all biological records it collects with the relevant ALERC-recognised Local Records Centre and/or appropriate national recording schemes. If this is a cause of concern, you are advised to discuss the matter with Somerset County Council's Somerset Ecology Services team.

## **Appendices**

#### Appendix A Designated sites

Seven statutory designated sites were located within 2km of the length of river Parrett surveyed.

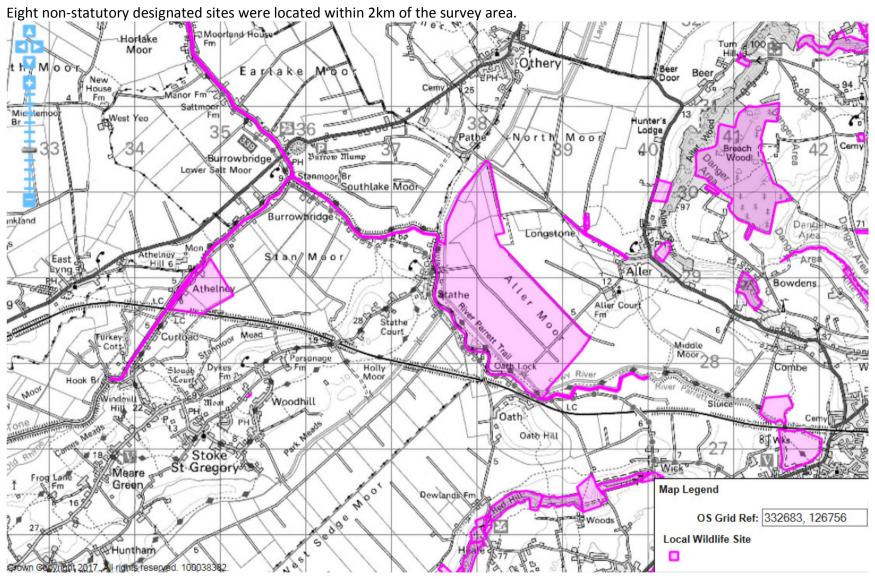


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Somerset Ecology Services

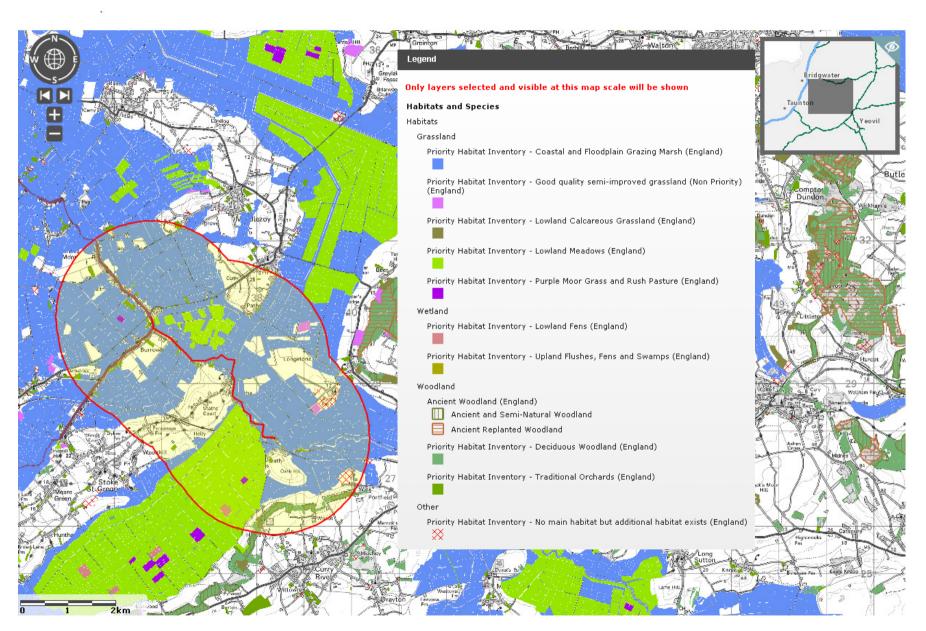
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Oath to Burrowbridge River Survey: Preliminary Ecological Appraisal







Priority habitats within 2km of the proposed works





#### Appendix B Wildlife legislation and planning policy

The following is a summary of wildlife legislation and planning policy which affords protection to plants and animals and seeks to conserve, enhance and restore biodiversity:

#### **Conservation of Habitats and Species Regulations 2017**

The Conservation of Habitats and Species Regulations 2017 (SI No. 2017/1012) are the principal means by which the European Habitats Directive is transposed in England and Wales.

The Regulations provide for the designation and protection of a network of 'European Sites' termed Natura 2000, the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites.

The Conservation of Habitats and Species Regulations 2017 apply in the terrestrial environment and in territorial waters out to 12 nautical miles.

These Regulations consolidate the Conservation of Habitats and Species Regulations 2010 (S.I. 2010/490) with subsequent amending instruments, and make minor modifications reflecting changes to related legislation.

These Regulations also implement aspects of the Marine and Coastal Access Act 2009 (c. 23) ("the Marine Act.

These Regulations transpose Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (OJ No. L 206, 22.7.1992, p.7) ("the Habitats Directive").

These Regulations consolidate the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (S.I. 2007/1842) with subsequent amending instruments, and make minor modifications reflecting changes to related legislation. The instruments being consolidated by these Regulations made, amongst things, provision for implementing Council Directive 2009/147/EC on the conservation of wild birds (OJ No. L20, 26.01.2010, p.7.) and Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora (OJ No. L206, 22.7.92, p.7) in relation to marine areas where the United Kingdom has jurisdiction beyond its territorial sea. The Regulations make provision in relation to the offshore marine area, offshore marine installations and certain ships and aircraft. The "offshore marine area" is defined in regulation 2(1).

Regulation 41 relates to the protection of European protected species listed under Schedule 2 of the Regulations. Taken together it is an offence to undertake the following acts with regard to European Protected Species:

- deliberately capture, injure or kill any wild animal of a European Protected Species;
- deliberately disturb animals of any such species in such a way as to be likely to:
  - impair their ability to survive, breed, rear or nurture their young, hibernate or migrate, or
  - affect significantly the local distribution or abundance of the species to which they belong;
- deliberately take or destroy the eggs of such an animal; or
- damage or destroy a breeding site or resting place of such an animal.

#### SES 043 17

#### Oath to Burrowbridge River Survey: Preliminary Ecological Appraisal



The disturbance offence is generally taken to refer to a discernable effect at population level and biogeographic level, rather than simply to an individual animal. However, in certain circumstances the disturbance of one individual animal may have population level effects.

The Regulations also make it an offence (subject to exceptions) to deliberately pick, collect, cut, uproot, destroy, or trade in the plants listed in Schedule 5.

However, the actions listed above can be made lawful through the granting of licences (European Protected Species Licence) by the appropriate authorities (Natural England in England). Licences may be granted for a number of purposes (such as science and education, conservation, preserving public health and safety), but only after the appropriate authority has determined that the following regulations are satisfied:

- the works under the licence are being carried out for the purposes of 'preserving public health and public safety, or for other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequences of primary importance for the environment';
- there is 'no satisfactory alternative'; and
- the action 'will not be detrimental to the maintenance of the population of the species concerned at favourable conservation status in their natural range'.

To apply for a licence, the following information is required:

- the species concerned;
- the size of the population at the site (note this may require a survey to be carried out at a particular time of the year);
- the impact(s) (if any) that the development is likely to have upon the populations; and
- what measures can be conducted to mitigate for the impact(s).

#### The Wildlife and Countryside Act 1981

The Wildlife and Countryside Act 1981 (as amended) is the principal piece of UK legislation relating to the protection of wildlife. It consolidates and amends existing national legislation to implement the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) and Council Directive 79/409/EEC on the Conservation of Wild Birds (Birds Directive) in Great Britain.

The Act makes it an offence (with exception to species listed in Schedule 2) to intentionally kill, injure, or take any wild bird or their eggs or nests. Special penalties are available for offences related to birds listed on Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young. The Secretary of State may also designate Special Protection Areas (subject to exceptions) to provide further protection to birds. The Act also prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

The Act makes it an offence (subject to exceptions) to intentionally kill, injure, or take, possess, or trade in any wild animal listed in Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places. The Act also prohibits certain methods of killing, injuring, or taking wild animals listed in Schedule 6.

#### Oath to Burrowbridge River Survey: Preliminary Ecological Appraisal



The Act makes it an offence (subject to exceptions) to pick, uproot, trade in, or possess (for the purposes of trade) any wild plant listed in Schedule 8, and prohibits the unauthorised intentional uprooting of such plants.

The Act contains measures for preventing the establishment of non-native species which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9. It also provides a mechanism making any of the above offences legal through the granting of licences by the appropriate authorities.

#### The Countryside and Rights of Way Act 2000

The Countryside and Rights of Way Act 2000 (CRoW) was passed to provide additional levels of protection for wildlife whilst also strengthening the protection afforded to Sites of Special Scientific Interest.

Schedule 12 of the Act amends the Wildlife and Countryside Act 1981, strengthening the legal protection for threatened species. The provisions make certain offences 'arrestable', create a new offence of 'reckless' disturbance, confer greater powers to police and wildlife inspectors for entering premises and obtaining wildlife tissue samples for DNA analysis, and enable heavier penalties on conviction of wildlife offences.

#### **Natural Environment and Rural Communities Act 2006**

The Natural Environment and Rural Communities Act 2006 (NERC) is designed to help achieve a rich and diverse natural environment and thriving rural communities through modernised and simplified arrangements for delivering Government policy.

It was created to make provision in connection with wildlife, Sites of Special Scientific Interest, National Parks and the Broads; to amend the law relating to rights of way; to make provision as to the Inland Waterways Amenity Advisory Council; to provide for flexible administrative arrangements in connection with functions relating to the environment and rural affairs and certain other functions; and for connected purposes.

Section 40 of NERC carries an extension of the earlier CRoW Act biodiversity duty to public bodies and statutory undertakers to ensure due regard to the conservation of biodiversity. Section 41 requires the Secretary of State, as respects England, to publish a list of the living organisms and types of habitat which in the Secretary of State's opinion are of principal importance for the purpose of conserving biodiversity. The updated S41 list, published in August 2010, identified 56 habitats and 943 species of principal importance.

#### The Protection of Badgers Act 1992

In the UK badgers are primarily afforded protection under the Protection of Badgers Act 1992. This makes it illegal to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so and to intentionally or recklessly interfere with a sett. Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it.

#### Oath to Burrowbridge River Survey: Preliminary Ecological Appraisal



Badgers also receive limited protection under Schedule 6 of the Wildlife and Countryside Act 1981 (as amended). This outlaws certain methods of taking or killing animals.

Under Section 10 (1)(d) of the Protection of Badgers Act 1992, a licence may be granted by Natural England to interfere with a badger sett for the purpose of development, as defined by Section 55(1) of the Town and Country Planning Act 1990.

Section 3 of the Protection of Badgers Act 1992 defines interference as:

- damaging a badger sett;
- destroying a badger sett;
- obstructing access to, or any entrance of, a badger sett;
- causing a dog to enter a sett; or
- disturbing a badger when it is occupying a badger sett.

Natural England guidance has suggested that the following operations may disturb badgers in their setts, and therefore unless these can be avoided a licence may be required for:

- excavation within 20m of any entrance to an active sett;
- excavation or other ground disturbance using heavy machinery within 30m of a sett;
- fire or chemicals within 20m of a sett;
- tree felling in the area of a sett trees should be felled away from setts and cleared away from badger paths; and
- other disturbances such as loud noises or vibrations; some activities such as pile driving and the use of explosives that may result in a disturbance over a much greater distance will require individual consideration.

#### The Wild Mammals (Protection) Act 1996

The Wild Mammals (Protection) Act 1996 makes it an offence for any person to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering.

#### The Animal Welfare Act 2006

Prior to the Animal Welfare Act 2006, people only had a duty to ensure that an animal didn't suffer unnecessarily. The new Act keeps this duty but also imposes a broader duty of care on anyone responsible for an animal to take reasonable steps to ensure that the animal's needs are met. This means that a person has to look after the animal's welfare as well as ensure that it does not suffer. The Act says that an animal's welfare needs include:

- a suitable environment (how it is housed);
- a suitable diet (what it eats and drinks);
- the ability to exhibit normal behaviour patterns;
- any need it has to be housed with, or apart from, other animals; and
- protection from pain, suffering, injury and disease.

#### Oath to Burrowbridge River Survey: Preliminary Ecological Appraisal



With regards to development, this may have implications when translocations of animals are proposed. As such, care must be taken to ensure that any receptor sites are suitable for the species in terms of habitat and carrying capacity.

#### The Hedgerows Regulations 1997

The Hedgerows Regulations 1997 were introduced to protect hedgerows of importance from destruction. However the legislation does not apply to any hedgerow which is within or marking the boundary of the curtilage of a dwelling house.

For the Regulations to be applicable, the hedgerow must be at least 20m in length or, if less than 20m, it must meet another hedgerow at each end. A hedgerow is deemed to be important if it is more than thirty years old and meets at least one of the criteria listed in Part II of Schedule 1 of the Regulations.

If a hedgerow which qualifies under the Regulations is to be removed, the landowner must contact the local planning authority in writing by submitting a hedgerow removal notice. The local planning authority then has a period of 42 days to decide whether or not the hedgerow meets the importance criteria of the regulations.

#### **Biodiversity Action Plans**

Biodiversity Action Plans (BAPs) set out actions for the conservation and enhancement of biological diversity at various spatial scales. They consist of both Habitat Action Plans (HAPs) and Species Action Plans (SAPs).

The UK BAP was the UK's response to the 1992 Convention on Biological Diversity in Rio de Janeiro. Following a review in 2007 a list of 1150 priority species and 65 priority habitats has been adopted, which are given a statutory basis for planning consideration under Section 40 of the NERC Act 2006.

#### **Red Data Books**

British Red Data Books (RDB) are an additional method for classifying the rarity of species, and are often seen as a natural progression from Biodiversity Action Plans.

RDB species have no automatic legal protection (unless they are protected under any of the legislation previously mentioned). Instead they provide a means of assessing rarity and highlight areas where resources may be targeted. Various categories of RDB species are recorded based on the IUCN criteria and the UK national criteria based on presence within certain numbers of 10x10km grid-squares (http://www.jncc.gov.uk/page-3425). As with Biodiversity Action Plans, where possible, steps should be taken to conserve RDB species which are to be affected by development.





#### **Somerset Ecology Services**

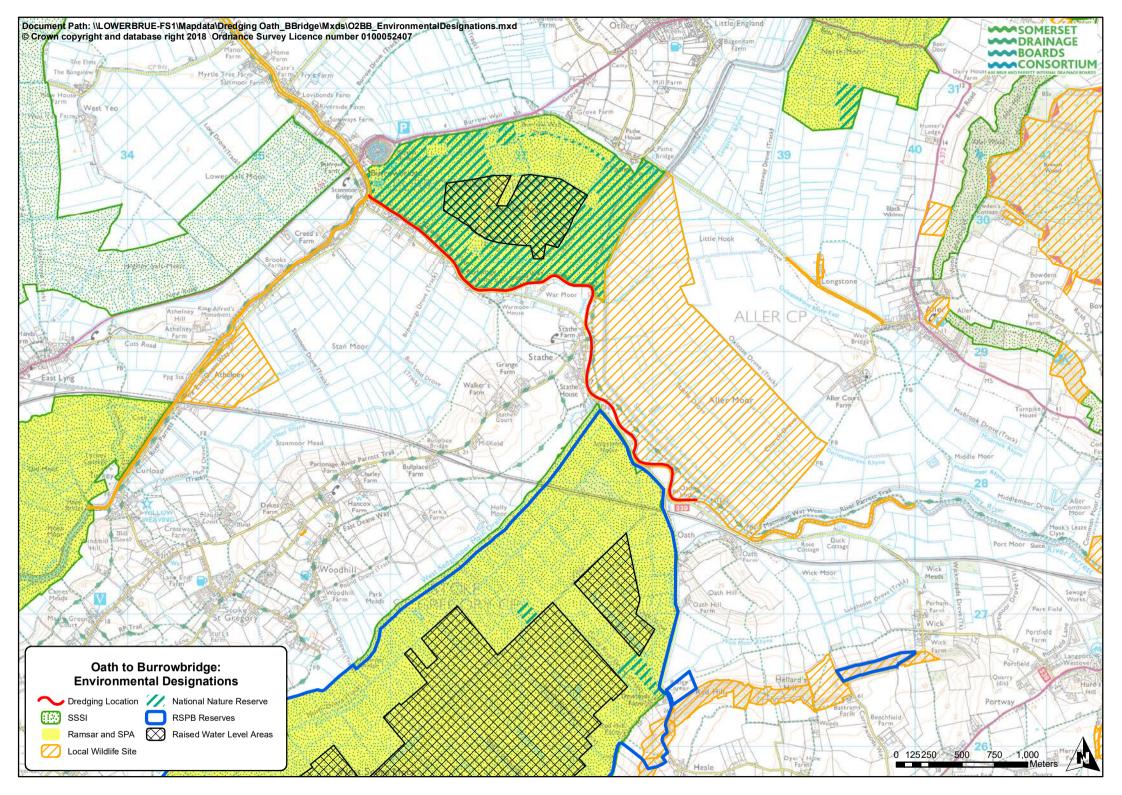
Somerset County Council County Hall Taunton Somerset TA1 4DY

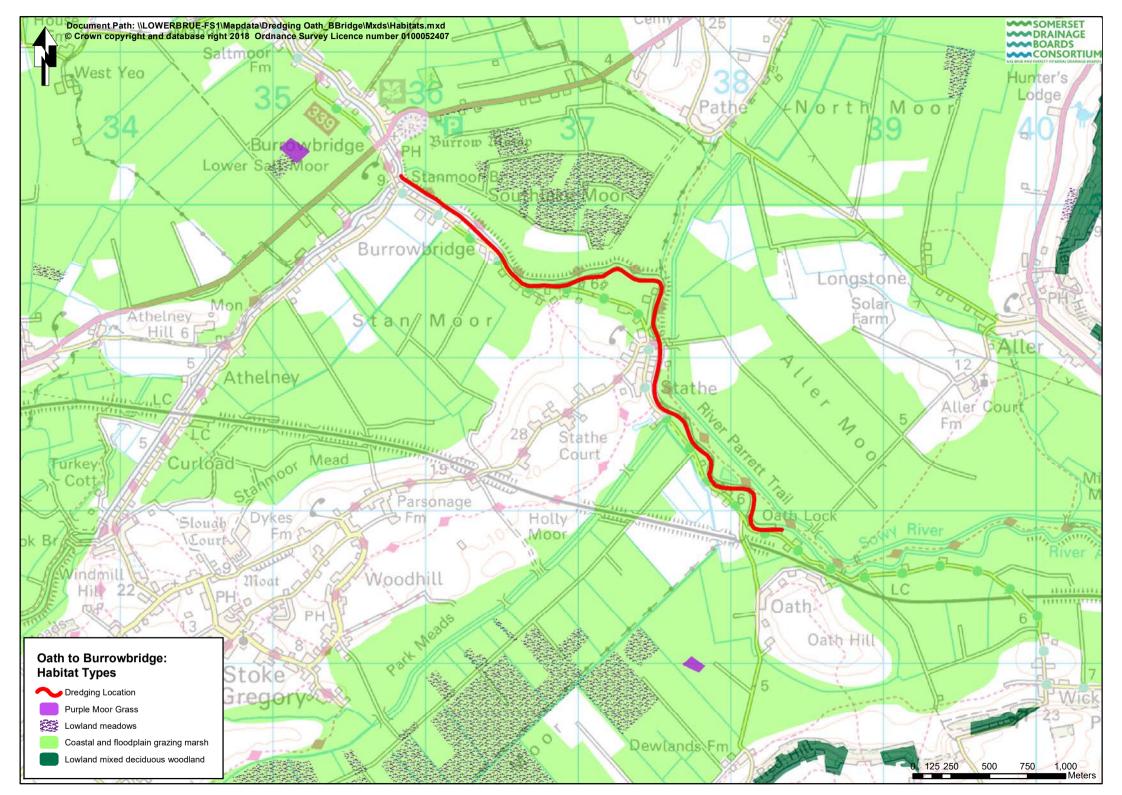
W: www.somerset.gov.uk

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# Wessex Fisheries, Biodiversity & Geomorphology Screening and Walkover Survey Report: River Parrett at Southlake Moor

16th May 2017

# **Summary**

Three areas of the River Parrett between Beazleys Spillway NGR: ST 37546 29423 and a point east of Burrowbridge NGR: ST 36106 30039 have been identified for works to repair low points in the flood bank. This stretch of the river runs along the boundary of Southlake Moor SSSI, which is also part of the Somerset Levels and Moors Special Protection Area and Ramsar Site.

Following consultation with Wessex Partnerships and Strategic Overview team, a routine biodiversity screening exercise of the proposal was carried out, this included a walkover of the area on Friday 12/05/2017.

Widespread field signs of protected species activity were found, including Water Vole, Otter and Badger. A number of potential bird nesting sites were noted. In addition the EA holds records of Hairy Click Beetle along this stretch of the River Parrett and habitat along much of this length was identified as potentially suitable for this species.

Any work within this area will require further protected species assessment and consultation with Natural England. The provision of appropriate mitigation and/or compensation will also be required if an impact on protected species is identified. Protected Species licensing may be required.

A Habitats Regulations Assessment to determine Likely Significant Effect on the European Designation will also be required as will a Countryside and Rights of Way Assessment of Operations Likely to Damage a SSSI.

A Water Framework Directive Assessment may also be required.

Further consultation with FB&G officers is recommended before proceeding with these works.

# Survey Extent and Method

The right hand bank of the River Parrett was surveyed between Beazleys Spillway NGR: ST 37546 29423 to a point east of Burrowbridge NGR: ST 36106 30039. The survey consisted of walking the river bank, assessing the quality of the habitat of the riparian zone and searching for field signs of animals using this area. A broad assessment of the grassland bordering the river was also made. Notes were made during the survey and points of interest marked on a map.

The survey was carried out on Friday 12th May 2017 between 10.30 and 14:00 hours. The weather conditions were fine and dry and did not impose any constraints on the information gathered.

The scope of the survey was to identify any features of potential biodiversity value, not to carry out a detailed survey of individual habitats or species.

customer service line 03708 506 506 incident hotline 0800 80 70 60 floodline 03459 88 11 88



#### **Results**

This section of the River Parrett flows through steep sided earth flood embankments. The river is unfenced and open to livestock. Plants along the water's edge had been heavily grazed by cattle and disturbance to the earth bank by trampling was widespread. Cattle trampling has resulted in bank slippage and the subsequent establishment of vegetated berms for much of the length surveyed. This has inadvertently created some structural diversity to the bank profile which is lacking along other areas of the river. Habitat quality is therefore higher than typically associated with much of the Parrett. The face of the flood bank was vegetated with rough grasses, nettles, dock and thistles. The river edge was dominated by the aquatic Reed Canary Grass *Phalaris arundinace*.

Evidence of activity by elver fisherman and domestic dogs was also noted, with further localised trampling of marginal vegetation near fishing pegs.

A public right of way exists along the top of the flood bank. Two people walking the route were met during the survey.

The adjoining grassland consisted of fairly species poor grazing marsh habitat. No botanical species of note were identified on the flood bank. However, a full vegetation survey was beyond the scope of this survey and more detailed study of this area may be required.

#### **Protected Species**

#### Water Vole

Field signs of water vole were noted for much of a 1km length to the west of Beazley's Spillway. Latrines and feeding signs were recorded. Tracks were also seen in the soft mud at the edge of the river. The stepped bank with vegetated berms provide good habitat for water voles. No burrows or runs were found, however, disturbance and heavy trampling by cattle and fisherman made such features difficult to identify. In addition due to the width and density of the emergent vegetation it was often difficult to see water's edge on the river side. Further detailed investigation will be required in this respect. The extent of water vole activity is shown in figure 1.

Water Vole is fully protected under the Wildlife and Countryside Act 1981 and is a Section 41 Species of Principal Importance under The Natural Environment and Rural Communities (NERC) Act 2006.

#### Otter

Otter field signs of were noted in several areas. Otter prints (adults and young) were found at the water's edge along the survey length and a likely haul out point marked with spraint and a track leading up the flood bank was also found near a sluice at the confluence with a field drain. The track lead up and over the flood bank and into dense scrub vegetation lining the drain. This provides good habitat for otter and potential for a holt or lay-up area. Areas of otter activity are shown in figure 1.

Otter is protected under the Bern Convention (Appendix II), Annex II of the Habitats Directive, Schedule 5 of the Wildlife and Countryside Act 1981, and as a Section 41 Species of Principal Importance under The Natural Environment and Rural Communities (NERC) Act 2006.



#### Hairy Click Beetle

The Environment Agency has records of the notable Hairy Click Beetle *Synaptus filiformis* from the River Parrett near Burrowbridge. This species requires specialist survey methodology to confirm its absence or presence, which was beyond the scope of this survey. This species is associated with Reed Canary grass *Phalaris arundinace*, the site therefore potentially provides optimum habitat for this species. The extent of potential Hairy Click Beetle habitat is shown in figure 1.

Hairy Click Beetle is protected under the Natural Environment and Rural Communities (NERC) Act 2006, as a Section 41 Species of Principal Importance and is classified as endangered in Great Britain. The River Parrett is one of only four confirmed sites for this species in Great Britain. Further survey will be required to determine status and extent of this species in the survey reach.

#### Badger

Feeding signs of badger were noted with a single Badger snuffle hole, found on top of the flood embankment. The location of this is shown on Figure 1. No further badger activity was recorded in the walk over survey, however increased survey effort will be required to establish the status of this species along the stretch.

Badgers are protected under the Bern Convention (Appendix III), the Protection of Badgers Act, 1992 and the Wildlife and Countryside Act 1981, Schedule 6 (Animals which may not be killed or taken by certain methods).

#### · Breeding Birds

Birds displaying breeding behaviour were seen at many locations along the survey length. A sedge warbler displaying alarm and carrying food was observed to the western end of the survey area. A breeding bird survey would be required to establish the exact location of bird nests and this was beyond the scope of this survey. All breeding birds are protected under the Schedule 1 of the Wildlife and Countryside Act 1981. Further survey will be required if works are to be conducted during the bird breeding season; March to September.

#### **Protected Sites**

This stretch of the river marks the boundary of Southlake Moor Site of Special Scientific Interest (SSSI), which is also part of the Somerset Levels and Moors Special Protection Area (SPA). This area is designated to protect internationally important numbers of birds under the Conservation of Habitats and Species Regulations 2010. It is also designated as a wetland of international importance under the Ramsar Convention, which gives legal protection to its species rich ditch habitat and botanically important wet grassland. The top of the flood bank is included within the designated site.

As a 'competent authority' under the Habitats Regulations the Environment Agency has a legal duty to consider the requirements of the Habitats Directive in everything we do. We must make sure that any activities, either our own or those we regulate, will not adversely affect the integrity of any European site. We are obliged to assess whether there may be a significant effect on a European site, either alone or in combination with any other activities.

In this instance a Stage 1 Habitats Regulations Assessment will be required to assess Likely Significant Effect from the proposed work on the designated site. If the assessment shows that there will be an adverse effect, a Stage 2 Appropriate Assessment will be required. A suitable package of mitigation will need to be agreed with Natural England before works can begin.

customer service line 03708 506 506 incident hotline 0800 80 70 60

floodline 03459 88 11 88



An assessment of Operations Likely to Damage the features of a SSSI will also be required under the Countryside and Rights of Way Act 2000. Assent for the works will be required from Natural England.

#### **The Water Framework Directive**

The Water Framework Directive (WFD) is a European directive that imposes legal requirements to protect and improve the water environment. The Environment Agency must secure compliance with the requirements of the WFD and meet other environmental duties when undertaking physical works in rivers. WFD Screening may be required for the proposed works or any in combination impacts. Consultation with the FB&G Geomorphology lead officer is recommended in this instance.

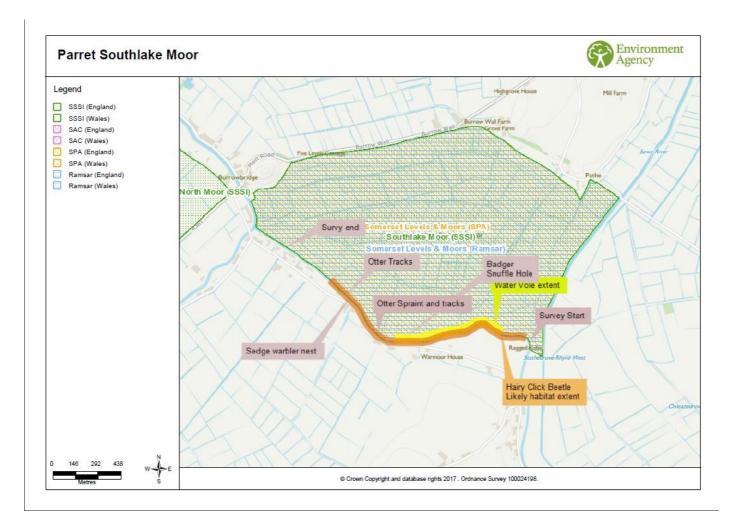


Figure 1. Extent of survey, Southlake Moor SSSI boundary and location of features of interest.



### **Conclusions and Recommendations**

This short screening exercise has identified significant statutory nature conservation interest in the area of the proposed works.

Work should not proceed without conducting appropriate habitat and protected species assessments as detailed above. The following will be required to complete the assessment process and for consultation with Natural England

- 1. Full details about the scope, extent, timing and duration of works
- 2. Protected species surveys to determine the status and extent of Water Vole, Otter, Badger, breeding birds and Hairy Click Beetle
- 3. A Habitat Regulation Assessment to determine if there will be a Likely Significant Effect on the Somerset Levels and Moors SPA and Ramsar Site.
- 4. A CRoW Assessment to determine if the operation is likely to damage the features of Southlake Moor SSSI
- 5. Consultation with the Wessex Geomorphology lead to determine the level of WFD Screening required

# Images taken during survey



Typical habitat type



Cattle trampling/grazing



Water Vole latrine/feeding



Water Vole prints



Otter haul-out



Otter and dog prints







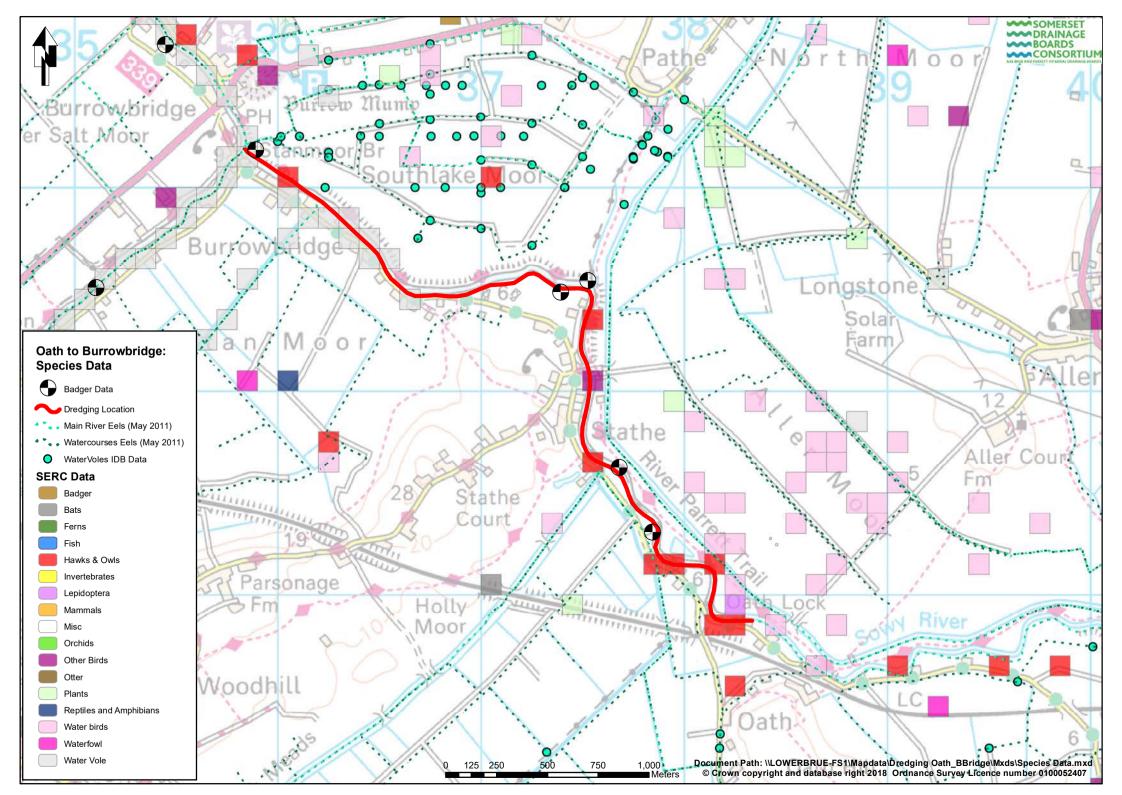


Otter Spraint

Animal track from river

Badger 'snuffle' hole

Andrew Goodman MICEEM
Biodiversity Technical Officer
Wessex FB&G



SCIENTIFIC  0 Vanellus vanellus	COMMON Lapwing	SITE	LOCATION Wick Moor	GRID ST392274	START_DAT 01/06/1998	E END_DATE 31/08/1998	ABUNDANCE 2 pairs Count of proved breeding
Motacilla flava subsp. flavissima	Yellow Wagtail	Aller Moor	- 0.000000	ST387287	08/06/2002	08/06/2002	1 Count of juvenile; 3 Count of male; 4 Coun
2 Alcedo atthis	Kingfisher	Aller Moor		ST387287	01/06/1999	31/08/1999	
3 Motacilla flava subsp. flavissima	Yellow Wagtail	Aller Moor		ST387287	01/03/1999	31/05/1999	5 pairs Count of proved breeding
4 Saxicola torquata	Stonechat	Aller Moor		ST387287	01/03/2002	31/05/2002	1 Count of singing/mating calls
5 Alcedo atthis	Kingfisher	Aller Moor		ST387287	01/03/2003	31/05/2003	1 Count of possible breeding
6 Falco tinnunculus	Kestrel	Aller Moor		ST387287	01/06/2003	31/08/2003	
7 Emberiza schoeniclus 8 Numenius argusta	Reed Bunting Curlew	Aller Moor Aller Moor		ST387287 ST387287	01/06/2003	31/08/2003	6 pairs Count of proved breeding 1 pair Count of proved breeding
9 Bucephala clangula	Goldeneye	Aller Moor Aller Moor		S1387287 ST387287	06/12/1998	06/12/1998	1 pair Count of proved breeding 1 Count of female
9 Bucephala ciangula 10 Saxicola rubetra	Whinchat	Aller Moor		ST387287	01/03/1998	31/05/1999	family party Count of present
11 Lymnocryptes minimus	Jack Snipe	Aller Moor		ST387287	01/09/2000	30/11/2000	1 Count of wintering
12 Alauda arvensis	Skylark	Aller Moor		ST387287	01/03/2003	31/05/2003	pairs Count of present
13 Saxicola torquata	Stonechat	Aller Moor		ST387287	01/06/2003	31/08/2003	1 Count of singing/mating calls; 1 pair Coun
14 Motacilla flava subsp. flavissima	Yellow Wagtail	Aller Moor		ST387287	01/06/2003	31/08/2003	1 Count of male
15 Gallinago gallinago	Snipe	Aller Moor		ST386289	01/01/1977	31/12/1977	3 Count of probable breeding
16 Anas clypeata	Shoveler	Aller Moor		ST386289	01/07/1995	31/12/1995	1 Count of present
17 Vanellus vanellus	Lapwing	Aller Moor		ST386289	01/01/1977	31/12/1977	18 Count of probable breeding
18 Gallinago gallinago	Snipe	Aller Moor		ST386289	01/01/1983	31/12/1983	3 Count of probable breeding
19 Vanellus vanellus	Lapwing Snipe	Aller Moor Aller Moor		ST386289 ST386289	01/01/1983 01/01/1985	31/12/1983 31/12/1985	19 Count of probable breeding 2 Count of probable breeding
20 Gallinago gallinago 21 Vanellus vanellus	Snipe Lapwing	Aller Moor Aller Moor		ST386289	01/01/1985	31/12/1985	3 Count of probable breeding
22 Lutra lutra	Otter	Allel WOO!	West Sedgemoor	ST382270	20/07/1978	21/07/1978	2 Count of droppings
23 Lutra lutra	Otter		West Sedgemoor	ST382270	22/06/1978	23/06/1978	2 Count of droppings
24 Lutra lutra	Otter		West Sedgemoor	ST382270	06/07/1978	07/07/1978	2 Count of droppings
25 Lutra lutra	Otter		West Sedgemoor	ST382270	03/08/1978	04/08/1978	1 Count of droppings
26 Lutra lutra	Otter		West Sedgemoor	ST382270	14/09/1978	15/09/1978	1 Count of droppings
27 Lutra lutra	Otter		Pathe Bridge	ST381304	01/08/1995	01/08/1995	2 Count of droppings
28 Lutra lutra	Otter		Pathe Bridge	ST381304	25/08/1996	25/08/1996	3 Count of droppings
29 Lutra lutra	Otter		Pathe Bridge	ST381304	31/03/1997	31/03/1997	4 Count of droppings
30 Lutra lutra	Otter		Pathe Bridge/Sowy River	ST381304	14/10/1997	14/10/1997	1 Count of droppings
31 Lutra lutra	Otter		Pathe Bridge/Sowy River	ST381304	13/02/1998	13/02/1998	9 Count of droppings 0 Count of anal jelly; 6 Count of droppings
32 Lutra lutra 33 Lutra lutra	Otter Otter		Pathe, Sowy River Pathe, Sowy River	ST381304 ST381304	09/05/1998 25/06/1998	09/05/1998 25/06/1998	
33 Lutra lutra 34 Lutra lutra	Otter		Pathe, Sowy River Pathe, Sowy River	ST381304 ST381304	25/06/1998 19/08/1998	25/06/1998 19/08/1998	Count of anal jelly; 5 Count of droppings     Count of anal jelly; 14 Count of droppings
35 Lutra lutra	Otter		Pathe Bridge	ST381304	20/01/1996	20/01/1996	6 Count of droppings
36 Lutra lutra	Otter		Pathe Bridge	ST381304	02/01/1997	02/01/1997	5 Count of droppings
37 Lutra lutra	Otter		Pathe Bridge/Sowy River	ST381304	10/05/1997	10/05/1997	1 Count of droppings
38 Lutra lutra	Otter		Pathe Bridge/Sowy River	ST381304	27/12/1997	27/12/1997	2 Count of droppings
39 Lutra lutra	Otter		Pathe Bridge/Sowy River	ST381304	30/03/1998	30/03/1998	11 Count of droppings
40 Lutra lutra	Otter		Pathe, Sowy River	ST381304	10/05/1998	10/05/1998	0 Count of droppings; 0 Count of anal jelly
41 Lutra lutra	Otter		Pathe Bridge/Sowy River	ST381304	13/10/1997	13/10/1997	19 Count of droppings
42 Lutra lutra	Otter		Pathe Bridge/Sowy River	ST381304	15/09/1997	15/09/1997	3 Count of droppings
43 Lutra lutra	Otter		Pathe Bridge	ST381304	26/09/1995	26/09/1995	4 Count of droppings
44 Lutra lutra	Otter		Pathe Bridge	ST381304	14/11/1995	14/11/1995	2 Count of droppings
45 Lutra lutra 46 Lutra lutra	Otter Otter		Pathe Bridge Pathe Bridge	ST381304 ST381304	12/10/1996 23/02/1997	12/10/1996 23/02/1997	10 Count of droppings 7 Count of droppings
47 Lutra lutra	Otter		Pathe Bridge	ST381304	24/04/1997	24/04/1997	1 Count of droppings
48 Lutra lutra	Otter		Pathe Bridge/Sowy River	ST381304	18/07/1997	18/07/1997	4 Count of droppings
49 Hydaticus transversalis	Hydaticus transversalis	Southlake Moor SSSI	SI 3	ST380304	01/09/1994	30/09/1994	2-5 Count of present
50 Synaptus filiformis	Click beetle	River Parrett, Middle Moor to Screech Owl section	Oath Lock to Sedgemoor House (south bank R Parrett)	ST382278	04/06/2000	04/06/2000	1 Count of present
51 Hirundo rustica	Swallow	River Parrett, Middle Moor to Screech Owl section	Oath Lock to Sedgemoor House	ST378281	04/06/2000	04/06/2000	
52 Buteo buteo	Buzzard	River Parrett, Middle Moor to Screech Owl section	Oath Lock to Sedgemoor House	ST378281	04/06/2000	04/06/2000	
53 Motacilla cinerea	Grey Wagtail	River Parrett, Middle Moor to Screech Owl section	Oath Lock to Sedgemoor House	ST381281	04/06/2000	04/06/2000	
54 Hirundo rustica	Swallow	River Parrett, Middle Moor to Screech Owl section	Oath Lock to Sedgemoor House	ST381281	04/06/2000	04/06/2000	
55 Buteo buteo	Buzzard	River Parrett, Middle Moor to Screech Owl section	Oath Lock to Sedgemoor House	ST381281	04/06/2000	04/06/2000	
56 Hirundo rustica	Swallow	River Parrett, Middle Moor to Screech Owl section	Oath Lock to Sedgemoor House	ST382278	04/06/2000	04/06/2000	
57 Buteo buteo	Buzzard	River Parrett, Middle Moor to Screech Owl section	Oath Lock to Sedgemoor House	ST382278 ST382278	04/06/2000	04/06/2000	
58 Motacilla cinerea 59 Motacilla cinerea	Grey Wagtail Grey Wagtail	River Parrett, Middle Moor to Screech Owl section River Parrett, Middle Moor to Screech Owl section	Oath Lock to Sedgemoor House Oath Lock to Sedgemoor House	ST378281	04/06/2000 04/06/2000	04/06/2000 04/06/2000	
60 Geranium pusillum	Small-Flowered Crane's-Bill	River Pariett, Middle Moor to Screech Own section	Oath, Redhill [RCDR:IPG GAC PRG @ (381278 ST32Y) On 19	ST381278	01/01/1985	31/12/1995	
61 Vanellus vanellus	Lapwing	Aller Moor	Oddi, Redilli (RCDR:IFG GAC FRG (g (301210 31321) Oli 18	ST394284	15/04/1982	15/04/1982	1 pair Count of probable breeding
62 Lutra lutra	Otter	7 III III III II II II II II II II II II	near Oath. R. Parrett	ST39722786	24/10/2002	24/10/2002	1 Count of Tracks
63 Vanellus vanellus	Lapwing	Aller Moor		ST394281	21/04/1983	21/04/1983	1 pair Count of probable breeding
64 Falco tinnunculus	Kestrel	Aller Moor		ST390285	07/03/1983	07/03/1983	1 Count of present
65 Gallinago gallinago	Snipe	Aller Moor		ST390285	07/03/1983	07/03/1983	5 Count of present
66 Accipiter nisus	Sparrowhawk	Aller Moor		ST390285	24/02/1983	24/02/1983	1 Count of present
67 Buteo buteo	Buzzard	Aller Moor		ST390285	24/02/1983	24/02/1983	3 Count of present
68 Vanellus vanellus	Lapwing	Aller Moor		ST390285	24/02/1983	24/02/1983	601 Count of present
69 Buteo buteo	Buzzard	Aller Moor		ST390285	07/03/1983	07/03/1983	4 Count of present
70 Athene noctua 71 Tringa totanus	Little Owl Redshank	Aller Moor Aller Moor		ST390285 ST390285	07/03/1983	07/03/1983 07/03/1983	1 Count of present 8 Count of present
72 Numenius phaeopus	Whimhrel	Aller Moor		ST390285	21/04/1983	21/04/1983	24 Count of present
72 Numenius pnaeopus 73 Saxicola torquata	Vnimbrei Stonechat	Aller Moor Aller Moor		ST390285 ST390285	24/02/1983	24/02/1983	3 Count of present
74 Gallinago gallinago	Snipe	Aller Moor		ST390285	24/02/1983	24/02/1983	88 Count of present
75 Pluvialis apricaria	Golden Plover	Aller Moor		ST390285	24/02/1983	24/02/1983	227 Count of present
76 Accipiter nisus	Sparrowhawk	Aller Moor		ST390285	07/03/1983	07/03/1983	3 Count of present
77 Falco columbarius	Merlin	Aller Moor		ST390285	07/03/1983	07/03/1983	1 Count of male
78 Vanellus vanellus	Lapwing	Aller Moor		ST390285	07/03/1983	07/03/1983	287 Count of present
79 Saxicola rubetra	Whinchat	Aller Moor		ST390285	07/03/1983	07/03/1983	1 Count of present
80 Tringa totanus	Redshank	Aller Moor		ST390285	21/04/1983	21/04/1983	2 pairs Count of probable breeding
81 Tringa totanus	Redshank	Aller Moor		ST390285	21/04/1983	21/04/1983	4 Count of present
82 Vanellus vanellus	Lapwing	Aller Moor		ST390285	21/04/1983	21/04/1983	8 pairs Count of probable breeding
83 Vanellus vanellus 84 Vanellus vanellus	Lapwing	Aller Moor Aller Moor		ST390285 ST390285	21/04/1983 21/04/1983	21/04/1983 21/04/1983	21 Count of present 1 pair Count of probable breeding
84 Vanellus vanellus 85 Circus cyaneus	Lapwing Hen Harrier	Aller Moor Aller Moor		ST390285 ST386289	21/04/1983 08/02/1995	21/04/1983 08/02/1995	1 pair Count of probable breeding 1 Count of wintering
86 Vanellus vanellus	Lapwing	Aller Moor		ST386286	21/04/1983	21/04/1983	1 pair Count of probable breeding
87 Vanellus vanellus	Lapwing	Aller Moor		ST387286	21/04/1983	21/04/1983	1 pair Count of probable breeding
88 Lymnocryptes minimus	Jack Snipe	Aller Moor		ST386289	01/12/1992	28/02/1993	3 Count of wintering
89 Hydrocharis morsus-ranae	Frogbit	Aller Moor		ST386289	01/08/1994	31/08/1994	occasional Count of present
90 Tringa ochropus	Green Sandpiper	Aller Moor		ST386289	01/12/1993	28/02/1994	2 Count of wintering
91 Hottonia palustris	Water-Violet	Aller Moor		ST386289	06/04/1972	06/04/1972	
92 Hydrocharis morsus-ranae	Frogbit	Aller Moor		ST386289	06/04/1972 06/04/1972	06/04/1972 06/04/1972	
93 Groenlandia densa 94 Oenanthe fistulosa	Opposite-Leaved Pondweed Tubular Water-Dropwort	Aller Moor Aller Moor		ST386289 ST386289	06/04/1972 06/04/1972	06/04/1972 06/04/1972	
94 Cenanthe fistulosa 95 Cyanus columbianus	Tubular Water-Dropwort Bewick's Swan	Aller Moor Aller Moor		ST386289 ST387287	06/04/1972 14/02/1996	14/02/1996	14 Count of in flight
		Aller Moor		ST379298	01/12/1981	28/02/1982	123 Count of present
		Aliei Middi	Aller Moor	S13/9298 ST385299	03/01/2005	03/01/2005	3 Count of present
96 Vanellus vanellus 97 Asio flammeus	Lapwing Short-Fared Owl			ST382280	21/08/1996	21/08/1996	1 Count of present; 5 Count of present; fami
96 Vanellus vanellus 97 Asio flammeus	Short-Eared Owl	River Parrett Middle Moor to Screech Owl section					
96 Vanellus vanellus		River Parrett, Middle Moor to Screech Owl section Aller Moor	Oath	ST383289	01/12/1981	28/02/1982	28 Count of present
96 Vanellus vanellus 97 Asio flammeus 98 Alcedo atthis	Short-Eared Owl Kingfisher		Oath	ST383289 ST383289			
96 Vanellus vanellus 97 Asio flammeus 98 Alcedo atthis 99 Pluvialis apricaria	Short-Eared Owl Kingfisher Golden Plover	Aller Moor	Oath		01/12/1981	28/02/1982	28 Count of present
96 Vanellus vanellus 97 Asio fiarmeus 98 Alcado atthis 99 Pluvialis apricaria 100 Vanellus vanellus 101 Tringa totanus 102 Tringa totanus 102 Tringa totanus	Short-Eared Owl Kingfisher Golden Plover Lapwing	Aller Moor Aller Moor Aller Moor Aller Moor	Oath	ST383289 ST382282 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993	28/02/1982 28/02/1982 21/04/1983 31/12/1993	28 Count of present 114 Count of present 1 pair Count of probable breeding 1 Count of probable breeding
96 Vanellus vanellus 97 Asio flammeus 98 Alacdo atthis 99 Pluviais apricaria 100 Vanellus vanellus 101 Tringa totanus 102 Tringa totanus 103 Vanellus vanellus	Short-Eared Owl Kingflaher Golden Plover Lapwing Redshank Redshank Lapwing	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Oath	ST383289 ST382282 ST386289 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993 16/12/1996	28/02/1982 28/02/1982 21/04/1983 31/12/1993 16/12/1996	28 Count of present 114 Count of present 1 pair Count of probable breeding 1 Count of probable breeding 600 Count of wintering
96 Vanellus vanellus 97 Acio Chammeus 98 Alcedo attion 99 Purvisità pricinia 100 Vanellus vanellus 101 Tringa totanus 103 Vanellus vanellus 103 Vanellus vanellus 104 Vanellus vanellus	Short-Eared Ow Kingfisher Golden Plover Lapwing Redshank Redshank Lapwing Mute Swan Mute Swan Mute Swan Mute Swan Mute Swan	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Oath	ST383289 ST382282 ST386289 ST386289 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993 16/12/1996 12/01/1997	28/02/1982 28/02/1982 21/04/1983 31/12/1993 16/12/1996 12/01/1997	28 Count of present 114 Count of present 1 pair Count of probable breeding 1 Count of probable breeding 600 Count of wintering 44 Count of wintering
96 Vanellus vanellus 97 Asio flammeus 98 Alondo atthis 99 Alondo atthis 99 Puvialia porioria 100 Vanellus vanellus 101 Tringa totanus 102 Tringa totanus 103 Tringa totanus 104 Cypus olor 105 Vanellus vanellus 105 Tringa totanus 106 Cypus olor 107 Tringa totanus	Short-Eared Owl Kingfelher Golden Plower Lapwing Redshamk Lapwing Multi-Marker Multi-Marker Multi-Marker Multi-Marker Redshamk	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Oath	ST383289 ST382282 ST386289 ST386289 ST386289 ST386289 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993 16/12/1996 12/01/1997 01/01/1985	28/02/1982 28/02/1982 21/04/1983 31/12/1993 16/12/1996 12/01/1997 31/12/1985	28 Count of present 114 Count of present 1 pair Count of probable breeding 1 Count of probable breeding 600 Count of wintering 44 Count of wintering 4 Count of probable breeding
96 Vanellus vanellus 97 Aloi flammeus 98 Aloedo atthis 99 Aloido Atthis 99 Pituvalis apricinis 100 Vanellus vanellus 101 Tringa totanus 102 Tringa totanus 102 Tringa totanus 102 Tringa totanus 104 Cygnus olor 105 Tringa totanus 106 Cygnus olor 106 Tringa totanus	Short-Eared Owl Kingfisher Golden Plower Lapwing Redshanek Redshanek Lapwing Mute Swan Redshanek Redshanek	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Clash	ST383289 ST382282 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993 16/12/1996 12/01/1997 01/01/1985 01/01/1987	28/02/1982 28/02/1982 21/04/1983 31/12/1993 16/12/1996 12/01/1997 31/12/1985 31/12/1987	28 Count of present 114 Count of present 1 pair Count of probable breeding 1 Count of probable breeding 600 Count of wintering 44 Count of wintering 4 Count of probable breeding 1 Count of probable breeding 1 Count of probable breeding
96 Vanellus vanellus 97 Asin flammeus 98 Alcoda atthis 99 Alcoda atthis 99 Putvalia paricaria 100 Vanellus vanellus 101 Vinga totanus 102 Tringa totanus 102 Tringa totanus 104 Crypus clor 105 Vanellus vanellus 106 Tringa totanus 106 Tringa totanus 106 Tringa totanus 106 Tringa totanus	Short-Eared Owl Kingfelher Golden Plower Lapwing Radshank Radshank Lapwing Lapwing Lapwing Radshank Radshank Radshank Radshank Radshank Radshank Radshank Radshank Radshank Radshank Radshank	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Outh	ST383289 ST382282 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993 16/12/1996 12/01/1997 01/01/1985 01/01/1987 01/01/1992	28/02/1982 28/02/1982 21/04/1983 31/12/1993 16/12/1996 12/01/1997 31/12/1985 31/12/1987 31/12/1992	28 Count of present 114 Count of present 1 pair Count of probable breeding 1 pair Count of probable breeding 600 Count of wintering 44 Count of probable breeding 1 Count of probable breeding 1 Count of probable breeding 1 Count of probable breeding 1 Count of probable breeding
96 Vanollas vanellus 97 Also flammeus 98 Alcodo atthis 99 Alcodo atthis 99 Puvalia paricaria 100 Vanellus vanellus 101 Tringa totanus 102 Tringa totanus 102 Tringa totanus 104 Oppinus olor 105 Vanellus vanellus 106 Oppinus olor 106 Tringa totanus 107 Namenus arquata 107 Namenus arquata 107 Namenus arquata 108 Tringa totanus	Short-Eared Owl Kingfisher Golden Plower Lapwing Redshanek Redshanek Lapwing Mute Swan Redshanek Curfew Redshanek Redshanek Redshanek Redshanek Redshanek Redshanek	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Coath	ST383289 ST382282 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993 16/12/1996 12/01/1997 01/01/1985 01/01/1987 01/01/1992 01/01/1992	28/02/1982 28/02/1982 21/04/1983 31/12/1993 16/12/1996 12/01/1997 31/12/1985 31/12/1985 31/12/1992 31/12/1992	28 Count of present 114 Count of present 1 pair Count of present 1 pair Count of probable breeding 1 Count of probable breeding 1 Count of wintering 1 Count of wintering 1 Count of probable breeding 1 Count of probable breeding 1 Count of probable breeding 2 Count of probable breeding 2 Count of probable breeding 2 Count of probable breeding
96 Varellas vanellus 97 Asio fammess 98 Alacko atthis 99 Pluvialis apricaria 100 Varellas vanellus 101 Tringa totarius 102 Tringa totarius 103 Varellas vanellus 104 Cygrus olor 105 Tringa totarius 106 Tringa totarius 106 Tringa totarius 107 Numenius argusta 108 Tringa totarius 108 Tringa totarius	Short-Eared Owl Kingfelher Golden Plower Lapwing Raddhank Raddhank Lapwing Mute Swan Raddhank Curlew Raddhank Curlew Curlew Curlew	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Outh	ST383289 ST382282 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993 16/12/1996 12/01/1997 01/01/1985 01/01/1992 01/01/1992 01/01/1993	28/02/1982 28/02/1982 21/04/1983 31/12/1999 16/12/1996 12/01/1997 31/12/1985 31/12/1987 31/12/1992 31/12/1992 31/12/1993	28 Count of present 114 Count of present 1 pair Count of probable breeding 1 Count of probable breeding 600 Count of writering 44 Count of writering 44 Count of writering 45 Count of probable breeding 55 Count of probable breeding 56 Count of probable breeding 57 Count of probable breeding 58 Count of probable breeding 59 Count of probable breeding 50 Count of probable breeding 50 Count of probable breeding
96 Vanellus vanellus 97 Asio flammeus 98 Alexdo atthis 99 Alexdo atthis 90 Puvialia paricaria 100 Vanellus vanellus 101 Tringa totanus 102 Tringa totanus 102 Tringa totanus 104 Cypus clor 105 Vanellus vanellus 106 Cypus clor 106 Tringa totanus 107 Nomenus arquata 107 Nomenus arquata 108 Namenus arquata 108 Namenus arquata 109 Namenus arquata 109 Namenus arquata 109 Namenus arquata 100 Alexdo atthis	Short-Eared Owl Kingfisher Golden Plower Lapwing Redshanek Redshanek Lapwing Mute Swan Redshanek Curlew Redshanek Curlew Redshanek Curlew Kingfisher	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Custh	ST383289 ST382282 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993 16/12/1996 12/01/1997 01/01/1987 01/01/1992 01/01/1992 01/01/1993	28/02/1982 28/02/1982 21/04/1983 31/12/1993 16/12/1996 12/01/1997 31/12/1987 31/12/1992 31/12/1992 31/12/1993 31/12/1993	28 Count of present 114 Count of present 1 pair Count of present 1 pair Count of probable breeding 1 Count of probable breeding 1 Count of wintering 1 Count of wintering 1 Count of probable breeding 1 Count of probable breeding 1 Count of probable breeding 2 Count of probable breeding 2 Count of probable breeding 3 Count of probable breeding 4 Count of probable breeding 5 Count of probable breeding 6 Count of probable breeding 7 Count of probable breeding 8 Count of probable breeding 9 Count of probable breeding 1 Count of present
96 Vanellus vanellus 97 Asio flammeus 98 Alcado atthis 98 Alcado atthis 99 Puvialia paricaria 100 Vanellus vanellus 101 Tringa totanus 102 Tringa totanus 102 Tringa totanus 104 Cyprus clor 104 Cyprus clor 105 Tringa totanus 106 Tringa totanus 106 Tringa totanus 106 Tringa totanus 107 Twanellus arrusta 108 Tringa totanus 108 Tringa totanus 109 Tringa totanus 110 Alcado atthis 111 Alcado atthis 111 Vanellus vanellus	Short-Eared Owl Kingfeiher Golden Plower Lapwing Radshank Redshank Lapwing Mute Swale Redshank Curlew Redshank Curlew Kingfeiher Lapwing Radshank Curlew Lapwing Radshank Curlew Lapwing Radshank Curlew Lapwing	Aller Moor Aller Moor	Outh	ST383289 ST382282 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993 16/12/1996 12/01/1997 01/01/1985 01/01/1992 01/01/1992 01/01/1993 01/07/1993	28/02/1982 28/02/1982 21/04/1983 31/12/1993 16/12/1996 12/01/1997 31/12/1987 31/12/1992 31/12/1992 31/12/1993 31/12/1993	28 Count of present 114 Count of present 1 pair Count of probable breeding 1 pair Count of probable breeding 600 Count of writering 44 Count of writering 44 Count of writering 45 Count of probable breeding 55 Count of probable breeding 56 Count of probable breeding 57 Count of probable breeding 58 Count of probable breeding 59 Count of probable breeding 50 Count of probable breeding 50 Count of probable breeding 50 Count of probable breeding 51 Count of probable breeding 52 Count of probable breeding
96 Vanellus vanellus 97 Asio flammeus 98 Alcedo atthis 99 Alcedo atthis 99 Alcedo atthis 100 Vanellus vanellus 101 Viraga totarus 102 Tringa totarus 102 Tringa totarus 103 Vanellus vanellus 104 Cyprus clor 104 Cyprus clor 105 Tringa totarus 107 Munenus arquats 107 Munenus arquats 107 Munenus arquats 108 Munenius arquats 109 Numenius arquats 109 Numenius arquats 100 Alcedo atthis	Short-Eared Owl Kingfisher Golden Plower Lapwing Redshanek Redshanek Lapwing Mute Swan Redshanek Curlew Redshanek Curlew Redshanek Curlew Kingfisher	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Custh	ST383289 ST382282 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	01/12/1981 01/12/1981 21/04/1983 01/01/1993 16/12/1996 12/01/1997 01/01/1987 01/01/1992 01/01/1992 01/01/1993	28/02/1982 28/02/1982 21/04/1983 31/12/1993 16/12/1996 12/01/1997 31/12/1987 31/12/1992 31/12/1992 31/12/1993 31/12/1993	28 Count of present 114 Count of present 1 pair Count of present 1 pair Count of probable breeding 1 Count of probable breeding 1 Count of wintering 1 Count of wintering 1 Count of probable breeding 1 Count of probable breeding 1 Count of probable breeding 2 Count of probable breeding 2 Count of probable breeding 3 Count of probable breeding 4 Count of probable breeding 5 Count of probable breeding 6 Count of probable breeding 7 Count of probable breeding 8 Count of probable breeding 9 Count of probable breeding 1 Count of present

114 Vanellus vanellus	Lapwing	Aller Moor		ST386289	01/01/1985	31/12/1985	8 Count of probable breeding
115 Numenius arquata	Curlew	Aller Moor		ST386289	01/01/1987	31/12/1987	1 Count of probable breeding
116 Tringa ochropus 117 Vanellus vanellus	Green Sandpiper Lapwing	Aller Moor Aller Moor		ST386289 ST386289	01/12/1990 01/01/1992	28/02/1991 31/12/1992	2 Count of wintering 2 Count of probable breeding
118 Vanellus vanellus	Lapwing	Aller Moor		ST383289	21/04/1983	21/04/1983	1 pair Count of probable breeding
119 Sium latifolium	Greater Water-parsnip	North Somerset	Southlake Moor	ST36983062	19/07/2008	19/07/2008	3 Count
120 Sium latifolium	Greater Water-parsnip	North Somerset	Southlake Moor	ST370305	19/07/2008	19/07/2008	+ Count
121 Sium latifolium	Greater Water-parsnip	North Somerset	Near Burrowbridge	ST374302	29/07/2000	29/07/2000	1 Count of Flowering
122 Sium latifolium	Greater Water-parsnip	North Somerset	Southlake Moor	ST370305	06/07/2005	06/07/2005	+ Count
123 Sium latifolium 124 Sium latifolium	Greater Water-parsnip	North Somerset	Southlake Moor	ST36983063	19/07/2008	19/07/2008	+ Count
124 Sium latifolium 125 Lutra lutra	Greater Water-parsnip Otter	North Somerset	Southlake Moor Aller Moor, Sowy River	ST36983061 ST380302	25/07/2009 18/10/2005	25/07/2009 18/10/2005	+ Count Present Count of adult
126 Mergus merganser	Goosander		Wick Moor	ST392274	30/12/1996	30/12/1996	2 Count of wintering
127 Lutra lutra	Otter		near West Sedgemoor	ST389275	19/12/2001	19/12/2001	1 Count of female
128 Lutra lutra	Otter		near Oath, R. Parrett	ST38982766	24/10/2002	24/10/2002	1 Count of Tracks
129 Lutra lutra	Otter		near Oath, R. Parrett	ST39462776	24/10/2002	24/10/2002	1 Count of Tracks
130 Phoenicurus phoenicurus	Redstart	Aller Moor		ST386289	01/01/1982	31/12/1988	
131 Phoenicurus phoenicurus	Redstart	Aller Moor Aller Moor		ST386289 ST386289	01/01/1983	31/12/1983	1 Count of probable breeding
132 Gallinago gallinago 133 Saxicola rubetra	Snipe Whinchat	Aller Moor Aller Moor		S1386289 ST386289	01/01/1983	31/12/1983	1 Count of proved breeding 1 Count of proved breeding
134 Cygnus columbianus	Bewick's Swan	Aller Moor		ST386289	01/01/1982	31/12/1988	1 Count of proved breeding
135 Gallinago gallinago	Snipe	Aller Moor		ST386289	01/01/1982	31/12/1988	
136 Numenius phaeopus	Whimbrel	Aller Moor		ST386289	01/01/1982	31/12/1988	
137 Alcedo atthis	Kingfisher	Aller Moor		ST386289	01/01/1982	31/12/1988	1 Count of proved breeding
138 Vanellus vanellus 139 Lutra lutra	Lapwing	Aller Moor		ST386289	01/06/1991	31/08/1991	32 Count of proved breeding
139 Lutra lutra 140 Arvicola amphibius	Otter Water Vole		R.Sowy R. Parrett, near Oath Bridge	ST385279 ST38642769	19/05/1992 01/04/2007	19/05/1992 31/05/2007	1 Count of present
140 Arvicola ampriibilus 141 Lutra lutra	Offer		Road by Oalt Lock - within 25-30 ft of river	ST382279	19/12/2001	19/12/2001	1 Count of mature
142 Motacilla flava subsp. flavissima	Yellow Wagtail	River Parrett Middle Moor to Screech Owl section	Oath	ST386276	01/06/1996	31/08/1996	1 Count of invenile
143 Alcedo atthis	Kingfisher	River Parrett. Middle Moor to Screech Owl section	Oath	ST386276	01/06/1996	31/08/1996	family party Count of proved breeding
144 Synaptus filiformis	Click beetle		Oath Lock	ST382278	08/06/1992	08/06/1992	1 Count of present
145 Lasiommata megera	Wall		Oath.	ST382279	01/01/1992	31/12/1992	
146 Lutra lutra	Otter		near Oath, R. Parrett	ST38922768	24/10/2002	24/10/2002	1 Count of Tracks
147 Arvicola amphibius	Water Vole		R. Parrett, near Poplar House	ST38572765	01/04/2007	31/05/2007	1 Count of Tracks; 1 Count of droppings; 1 C
148 Lutra lutra	Otter		R. Parrett, near Poplar House	ST38572765	01/04/2007	31/05/2007	1 Count of feeding signs
149 Alcedo atthis 150 Tyto alba	Kingfisher Barn Owl	Aller Moor	River Parrett.	ST384278 ST386289	13/09/1991 01/01/1982	13/09/1991 31/12/1988	1 Count of in flight
151 Tringa totanus	Redshank	Aller Moor		ST386289	01/01/1983	31/12/1983	1 Count of proved breeding
152 Vanellus vanellus	Lapwing	Aller Moor		ST386289	01/01/1983	31/12/1983	1 Count of proved breeding
153 Motacilla flava	Yellow Wagtail	Aller Moor		ST386289	01/01/1983	31/12/1983	1 Count of proved breeding
154 Asio flammeus	Short-Eared Owl	Aller Moor		ST386289	01/01/1982	31/12/1988	
155 Falco columbarius	Merlin	Aller Moor		ST386289	01/01/1982	31/12/1988	
156 Pluvialis apricaria	Golden Plover	Aller Moor		ST386289	01/01/1982	31/12/1988	
157 Arvicola amphibius	Water Vole		Sowy R.	ST38452824	01/04/2007	31/05/2007	1 Count of droppings; 1 Count of feeding sig
158 Lutra lutra	Otter Water Vole		Sowy R.	ST38462826 ST38422827	01/04/2007	31/05/2007	1 Count of Tracks
159 Arvicola amphibius	Water Vole Bewick's Swan	Aller Moor	Sowy R.	S138422827 ST387287		22/02/1997	1 Count of droppings; 1 Count of feeding sig
160 Cygnus columbianus 161 Tyto alba	Bern Owl	Aller Moor Aller Moor		S1387287 ST387287	22/02/1997 01/06/1996	31/08/1996	22 Count of in flight 1 Count of proved breeding
162 Podiceps auritus	Slavonian Grebe	Aller Moor		ST387287	10/11/1996	10/11/1996	1 Count of proved breeding 1 Count of present
163 Cygnus cygnus	Whooper Swan	Aller Moor		ST387287	14/12/1997	14/12/1997	1 Count of juvenile
164 Cygnus columbianus	Bewick's Swan	Aller Moor		ST387287	21/12/1997	21/12/1997	30 Count of in flight
165 Motacilla flava subsp. flavissima	Yellow Wagtail	Aller Moor		ST387287	01/06/1998	31/08/1998	several Count of juvenile
166 Branta leucopsis	Barnacle Goose	Aller Moor		ST387287	06/12/1998	06/12/1998	1 Count of wintering
167 Lutra lutra	Otter		WSM, North Drove	ST377284	21/09/1975	21/09/1975	1 Count of droppings
168 Lutra lutra 169 Lutra lutra	Otter Otter		West Sedgemoor, North Drove	ST377284 ST377284	28/11/1977 23/01/1978	28/11/1977 23/01/1978	1 Count of droppings 1 Count of Tracks; 2 Count of droppings
170 Lutra lutra	Otter		Wset Sedgemoor, North Drove North Drove, West Sedgemoor	ST377284	04/07/1981	06/07/1981	1 Count of Tracks, 2 Count of droppings  1 Count of droppings
171 Motacilla flava subsp. flava	Blue-Headed Wagtail	Aller Moor	Notal Diove, West Occagonios	ST387287	08/06/2002	08/06/2002	1 oddit of droppings
172 Lutra lutra	Otter		Sowy River, KSD	ST381304	08/01/1995	08/01/1995	1 Count of droppings
173 Lutra lutra	Otter		Pathe Bridge	ST381304	15/05/1999	15/05/1999	1 Count of droppings
174 Lutra lutra	Otter		Pathe, Sowy River	ST381304	24/09/1998	24/09/1998	0 Count of anal jelly; 9 Count of droppings
175 Hydrocharis morsus-ranae	Frogbit	Aller Moor		ST381301	17/09/1998	17/09/1998	
176 Odontomyia ornata	Odontomyia ornata	Aller Moor		ST381302	17/09/1998	17/09/1998	
177 Hydrocharis morsus-ranae 178 Hottonia palustris	Frogbit Water-Violet	Aller Moor Aller Moor		ST381302 ST381302	17/09/1998 17/09/1998	17/09/1998 17/09/1998	
179 Hydrocharis morsus-ranae	Frogbit	Aller Moor		ST381302	17/09/1998	17/09/1998	
180 Sium latifolium	Great Water-Parsnip	Aller Moor		ST382301	17/09/1998	17/09/1998	
181 Hydrocharis morsus-ranae	Frogbit	Aller Moor		ST382301	17/09/1998	17/09/1998	
182 Lutra lutra	Otter		Pathe, Sowy River	ST381304	21/11/1998	21/11/1998	0 Count of anal jelly; 3 Count of droppings
183 Lutra lutra	Otter		Pathe, Sowy River	ST381304	09/02/1999	09/02/1999	0 Count of anal jelly; 1 Count of droppings
184 Lutra lutra	Otter		Sowy River, KSD	ST381304	07/10/1994	07/10/1994	5 Count of droppings
185 Synaptus filiformis 186 Numenius phaeopus	Click beetle Whimbrel	Aller Moor	River Parrett	ST381279 ST382284	01/05/1991 13/05/1997	31/05/1991 13/05/1997	1 Count of present 2 Count of in flight
187 Lutra lutra	Otter	Allel Mool	near Oath, R. Parrett	ST38132815	25/10/2002	25/10/2002	1 Count of Tracks
188 Lutra lutra	Otter		Sowy R., near bend in R. Parrett	ST38222815	01/04/2007	31/05/2007	1 Count of Tracks
189 Lutra lutra	Otter		West Sedgemoor, near Oath Hill	ST382270	24/01/1978	24/01/1978	5 Count of droppings
190 Lutra lutra	Otter		West Sedgemoor, near Oath Hill	ST382270	14/02/1978	14/02/1978	1 Count of droppings
191 Lutra lutra	Otter		West Sedgemoor, near Oath Hill	ST382270	20/03/1978	20/03/1978	1 Count of droppings
192 Lutra lutra	Otter		West Sedgemoor, near Oath Hill	ST382270	20/03/1978	20/03/1978	1 Count of droppings
193 Lutra lutra 194 Tyto alba	Otter Barn Owl		West Sedgemoor, near Oath Hill	ST382270 ST381278	25/05/1978 01/12/1989	26/05/1978 31/12/1989	7 Count of droppings
195 Tyto alba	Barn Owl			ST381278	01/01/1990	31/01/1990	
196 Athene noctua	Little Owl			ST382275	16/02/1990	16/02/1990	
197 Hydrocharis morsus-ranae		Aller Moor		ST381299	17/09/1998	17/09/1998	
	Frogbit					31/12/1989	
198 Populus nigra subsp. betulifolia	Black Poplar	Pathe Black Poplars		ST378305	01/01/1989		
199 Lutra lutra	Black Poplar Otter		Sowy River, KSD	ST378305 ST381304	19/11/1994	19/11/1994	4 Count of droppings
199 Lutra lutra 200 Lutra lutra	Black Poplar Otter Otter		Sowy River, KSD	ST378305 ST381304 ST381304	19/11/1994 30/03/1995	19/11/1994 30/03/1995	2 Count of droppings
199 Lutra lutra	Black Poplar Otter Otter Otter	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Sowy River, KSD	ST378305 ST381304	19/11/1994 30/03/1995 23/04/1995	19/11/1994 30/03/1995 23/04/1995	2 Count of droppings 4 Count of droppings
199 Lutra lutra 200 Lutra lutra 201 Lutra lutra	Black Poplar Otter Otter		Sowy River, KSD	ST378305 ST381304 ST381304 ST381304	19/11/1994 30/03/1995	19/11/1994 30/03/1995	2 Count of droppings
199 Lutra lutra 200 Lutra lutra 201 Lutra lutra 202 Motacilla flava 203 Lutra lutra 204 Lutra lutra	Black Poplar Otter Otter Yellow Wagtail Otter Otter	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe	ST378305 ST381304 ST381304 ST381304 ST382295 ST377291 ST377291	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977	2 Count of droppings 4 Count of droppings 1 Count of present 1 Count of droppings 4 Count of droppings
199 Lufra lutra 200 Lufra lutra 201 Lufra lutra 202 Motacilla flava 203 Lufra lutra	Black Poplar Otter Otter Yellow Wagtail Otter Otter Otter	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe	ST378305 ST381304 ST381304 ST381304 ST382295 ST377291 ST377291 ST377291	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975	Count of droppings     Count of droppings     Count of present     Count of present
199 Lufra lutra 200 Lutra lutra 201 Lutra lutra 201 Lutra lutra 202 Moscolalia flava 203 Lutra lutra 203 Lutra lutra 205 Lutra lutra 205 Lutra lutra 205 Lutra lutra	Black Poplar Otter Otter Otter Cherr Otter Otter Otter Otter Otter Otter Otter	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe	ST378305 ST381304 ST381304 ST381304 ST381304 ST382295 ST377291 ST377291 ST377291 ST377291	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978	2 Count of droppings 1 Count of droppings 1 Count of present 1 Count of droppings 4 Count of droppings 5 Count of droppings 2 Count of droppings
199 Lufra lufra 200 Lufra lufra 201 Lufra lufra 201 Lufra lufra 202 Moscielli flava 203 Lufra lufra 203 Lufra lufra 204 Lufra lufra 205 Lufra lufra 205 Lufra lufra 206 Lufra lufra 207 Lufra lufra	Black Poplar Ofter Ofter Ofter Yellow Wagtall Ofter Ofter Ofter Ofter Ofter Ofter Ofter	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe	ST378305 ST381304 ST381304 ST381304 ST382295 ST377291 ST377291 ST377291 ST377291 ST377291	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978 03/04/1978	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978 03/04/1978	2 Count of droppings 4 Count of droppings 1 Count of present 1 Count of droppings 4 Count of droppings 5 Count of droppings 2 Count of droppings 1 Count of droppings 1 Count of droppings
199 Lutra lutra 200 Lutra lutra 201 Lutra lutra 201 Lutra lutra 202 Molacilia flava 203 Lutra lutra 203 Lutra lutra 205 Lutra lutra 205 Lutra lutra 207 Lutra lutra 207 Lutra lutra 208 Lutra lutra	Black Poplar Otter Otter Otter Valow Wagtail Otter Otter Otter Otter Otter Otter Otter Otter Otter Otter	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe	ST378305 ST381304 ST381304 ST381304 ST382295 ST377291 ST377291 ST377291 ST377291 ST377291 ST377291 ST377291	19/11/1994 30/03/1995 23/04/1997 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978 03/04/1978 20/03/1978	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978 03/04/1978 20/03/1978	2 Count of droppings 4 Count of droppings 1 Count of present 1 Count of droppings 4 Count of droppings 5 Count of droppings 5 Count of droppings 1 Count of droppings 1 Count of droppings 3 Count of droppings 3 Count of droppings 3 Count of droppings
199 Lutra lutra 200 Lutra lutra 201 Lutra lutra 201 Lutra lutra 203 Moissilla flava 203 Lutra lutra 203 Lutra lutra 205 Lutra lutra 205 Lutra lutra 205 Lutra lutra 205 Lutra lutra 205 Lutra lutra 205 Lutra lutra 205 Lutra lutra 206 Lutra lutra 206 Lutra lutra	Black Poplar Ofter Ofter Ofter Yellow Wagtall Ofter Ofter Ofter Ofter Ofter Ofter Ofter	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe	\$1378905 \$1381304 \$1381304 \$1381304 \$1382295 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1978 16/02/1978 03/04/1978 20/03/1978 25/05/1978	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978 03/04/1978	2 Count of droppings 4 Count of droppings 1 Count of present 1 Count of droppings 4 Count of droppings 5 Count of droppings 2 Count of droppings 1 Count of droppings 1 Count of droppings
199 Lutra lutra 200 Lutra lutra 201 Lutra lutra 201 Lutra lutra 202 Molacilia flava 203 Lutra lutra 203 Lutra lutra 205 Lutra lutra 205 Lutra lutra 207 Lutra lutra 207 Lutra lutra 208 Lutra lutra	Black Poplar Ofter Ofter Ofter Yellow Wagtall Ofter Ofter Ofter Ofter Ofter Ofter Ofter Ofter Ofter Ofter Ofter Ofter	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe	ST378305 ST381304 ST381304 ST381304 ST382295 ST377291 ST377291 ST377291 ST377291 ST377291 ST377291 ST377291	19/11/1994 30/03/1995 23/04/1997 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978 03/04/1978 20/03/1978	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978 03/04/1978 20/03/1978 26/05/1978	2 Count of droppings 4 Count of droppings 1 Count of present 1 Count of droppings 4 Count of droppings 5 Count of droppings 5 Count of droppings 1 Count of droppings 1 Count of droppings 3 Count of droppings 3 Count of droppings 3 Count of droppings
199 Lutra lutra 200 Lutra lutra 201 Lutra lutra 201 Lutra lutra 202 Molacialia flava 203 Lutra lutra 203 Lutra lutra 204 Lutra lutra 205 Lutra lutra 205 Lutra lutra 207 Lutra lutra 207 Lutra lutra 208 Lutra lutra 208 Lutra lutra 208 Lutra lutra 209 Lutra lutra 209 Lutra lutra 210 Tyo alla laba 211 Synaplus filliomia 212 Lutra lutra	Black Poplar Otter Otter Otter Otter Otter Other	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe	\$17978305 \$1781304 \$1781304 \$1781304 \$1781304 \$1782295 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291 \$1377291	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978 03/04/1978 20/03/1978 26/02/1990 01/05/1992 28/11/1977	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 03/04/1978 03/04/1978 26/05/1978 26/02/1990 31/05/1992 28/11/1977	2 Count of droppings 4 Count of droppings 1 Count of present 1 Count of present 1 Count of present 4 Count of droppings 4 Count of droppings 5 Count of droppings 1 Count of droppings 1 Count of droppings 1 Count of droppings 3 Count of droppings 3 Count of droppings
199 Lutra lutra 201 Lutra lutra 201 Lutra lutra 201 Lutra lutra 203 Lutra lutra 203 Lutra lutra 203 Lutra lutra 204 Lutra lutra 205 Lutra lutra 205 Lutra lutra 206 Lutra lutra 207 Lutra lutra 207 Lutra lutra 207 Lutra lutra 210 Tyto alba 21 Lutra lutra 210 Lutra lutra 210 Lutra lutra 210 Lutra lutra 210 Lutra lutra 210 Lutra lutra 210 Lutra lutra	Black Poplar Otter	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Near Stathe North Drove, Railway bridge	\$17978305 \$1781304 \$1781304 \$1781304 \$1781304 \$1782295 \$1777291 \$1777291 \$1777291 \$1777291 \$1777291 \$1777291 \$1777293 \$1774293 \$1774293 \$1774279	19/11/1994 30/03/1995 23/04/1995 23/04/1995 21/09/1975 28/11/1977 27/01/1978 16/02/1978 20/03/1978 20/03/1978 26/02/1990 01/05/1992 28/11/1977 08/03/1990	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 16/02/1978 20/04/1978 20/03/1978 26/02/1990 31/05/1978 26/02/1990 31/05/1992 29/03/1990	2 Count of droppings 4 Count of droppings 1 Count of present 1 Count of present 1 Count of droppings 4 Count of droppings 5 Count of droppings 5 Count of droppings 2 Count of droppings 2 Count of droppings 3 Count of droppings 3 Count of droppings 3 Count of droppings 4 Count of droppings 5 Count of droppings 1 Count of droppings 1 Count of present 1 Count of present
199 Lufra lutra 200 Lufra lutra 201 Lufra lutra 201 Lufra lutra 202 Modacilla flava 203 Modacilla flava 203 Lufra lutra 204 Lufra lutra 205 Lufra lutra 206 Lufra lutra 208 Lufra lutra 208 Lufra lutra 208 Lufra lutra 210 Typo alba 211 Typo alba 213 Typo alba 215 Typo alba 215 Typo alba 215 Typo alba 215 Typo alba 215 Typo alba 215 Typo alba 215 Typo alba 215 Typo alba 215 Typo alba 216 Typo alba 217 Typo alba 218 Typo alba 218 Typo alba 218 Typo alba	Black Poplar Otter Otter Otter Otter Otter Otter Other Barn Owl Click beetle Other Barn Owl Click beetle	Pathe Black Poplars	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Near Stathe North Drove, Railway bridge River Parnett	\$1378305 \$1381304 \$1381304 \$1381304 \$1382295 \$1377291 \$13	19/11/1994 30/03/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 33/04/1978 25/05/1978 25/05/1978 25/05/1978 26/02/1990 01/05/1992 28/11/1977 09/03/1990 01/05/1992	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 21/09/1977 27/01/1978 16/02/1978 20/03/1978 26/02/1990 31/05/1978 26/02/1990 31/05/1978 28/11/1977 03/1992	2 Count of droppings 4 Count of droppings 1 Count of prosent 1 Count of present 1 Count of droppings 4 Count of droppings 5 Count of droppings 5 Count of droppings 2 Count of droppings 2 Count of droppings 3 Count of droppings 3 Count of droppings 3 Count of droppings 4 Count of droppings 5 Count of droppings 1 Count of present 1 Count of present
199 Lutra lutra 200 Lutra lutra 201 Lutra lutra 201 Lutra lutra 202 Molacillia filava 203 Lutra lutra 203 Lutra lutra 204 Lutra lutra 205 Lutra lutra 205 Lutra lutra 206 Lutra lutra 207 Lutra lutra 207 Lutra lutra 207 Lutra lutra 208 Lutra lutra 208 Lutra lutra 208 Lutra lutra 208 Lutra lutra 208 Lutra lutra 208 Lutra lutra 209 Lutra lutra 210 Synaplus filifornis 212 Lutra lutra 213 Tyro alba 214 Synaplus filifornis 215 Lutra lutra 215 Tyro alba 216 Synaplus filifornis 216 Lutra lutra 217 Tyro alba 218 Synaplus filifornis 218 Lutra lutra 219 Tyro alba 219 Synaplus filifornis 218 Lutra lutra	Black Poplar Otter	Pathe Black Poplars Alter Moor	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Near Stathe North Drove, Railway bridge	\$17978305 \$1781304 \$1781304 \$1781304 \$1782295 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1978 16/02/1978 03/04/1978 25/05/1978 25/05/1978 26/02/1990 01/05/1992 25/05/1978 01/05/1992 01/05/1992 01/05/1992	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 20/03/1978 20/03/1978 26/02/1990 31/05/1992 28/11/1977 09/03/1990 31/05/1992 31/05/1993	2 Count of droppings 4 Count of droppings 1 Count of present 1 Count of present 1 Count of present 5 Count of present 6 Count of present 6 Count of droppings 6 Count of droppings 7 Count of droppings 1 Count of droppings 1 Count of droppings 3 Count of droppings 3 Count of droppings 1 Count of droppings 1 Count of droppings 1 Count of droppings 1 Count of present 1 Count of Present 1 Count of Present
199 Lutra lutra 200 Lutra lutra 201 Lutra lutra 201 Lutra lutra 202 Moscilla flava 203 Lutra lutra 203 Lutra lutra 204 Lutra lutra 205 Lutra lutra 206 Lutra lutra 206 Lutra lutra 207 Lutra lutra 208 Lutra lutra 208 Lutra lutra 210 Tyto alba 211 Synaputa filliformia 212 Lutra lutra 213 Tyto alba 215 Lutra lutra 215 Lutra lutra 216 Lutra lutra 217 Lutra lutra 218 Synaputa filliformia 218 Lutra lutra 219 Lutra lutra 219 Lutra lutra 219 Lutra lutra 219 Lutra lutra 219 Lutra lutra 219 Lutra lutra	Black Poplar Otter Otter Otter Otter Vellow Wagtall Otter Otter Otter Otter Otter Otter Otter Otter Otter Otter Otter Earn Owl Click beetle Otter Barn Owl Click beetle Otter Barn Owl Click beetle Otter Barn Owl Click beetle Otter	Pathe Black Poplars  Aller Moor  Aller Moor	Sowy River, KSD Sowy River, KSD Aller Moor, Near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Aller Moor near Stathe Near Stathe North Drove, Railway bridge River Parnett	\$17378305 \$1781304 \$1781304 \$1781304 \$1782295 \$17377291 \$1737722002 \$1737722002 \$173722002 \$173722002 \$173722002 \$173722002 \$173722002	19/11/1994 30/03/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/07/1978 30/04/1978 25/05/1978 25/05/1978 25/05/1978 26/02/1990 01/05/1992 28/11/1977 09/03/1990 01/05/1992 01/04/2007	19/11/1994 23/04/1995 23/04/1995 13/05/1997 21/09/1975 28/11/1977 27/01/1978 03/04/1978 26/05/1978 26/05/1978 26/05/1992 28/11/1977 09/03/1990 31/05/1992 31/05/2007 12/01/1993	2 Count of droppings 4 Count of droppings 1 Count of prosent 1 Count of present 2 Count of droppings 4 Count of droppings 5 Count of droppings 5 Count of droppings 5 Count of droppings 1 Count of droppings 2 Count of droppings 3 Count of droppings 3 Count of droppings 4 Count of droppings 5 Count of droppings 1 Count of present 1 Count of present 1 Count of Tracks 1 Count of grosent 1 Count of Count of Tracks 2 Count of present
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199 Lutra lutra 200 Lutra lutra 201 Lutra lutra 201 Lutra lutra 202 Moscielli flava 203 Lutra lutra 203 Lutra lutra 204 Lutra lutra 205 Lutra lutra 206 Lutra lutra 206 Lutra lutra 206 Lutra lutra 208 Lutra lutra 208 Lutra lutra 210 Tyto alba 211 Synapsia filliformis 212 Lutra lutra 213 Synapsia filliformis 214 Lutra lutra 215 Sacciola torquata 215 Sacciola torquata 217 Buteo buteo 216 Sacciola torquata 217 Buteo buteo 218 Galillaggo galillago 219 Pluvalis apricaria 229 Sacciola torquata 220 Sacciola torquata 221 Sacciola torquata 222 Sacciola torquata 223 Sacciola torquata 224 Sarriorquata 225 Faccio Intrunculus 225 Tacio Intrunculus 226 Tacio Intrunculus 227 Tacio Intrunculus 228 Tacio Intrunculus 228 Tacio Intrunculus 228 Tacio Intrunculus 228 Tacio Intrunculus	Black Poplar Otter Barn Owl Click beetle Otter Barn Owl Click beetle Otter Barn Owl Click beetle Otter Barn Owl Click beetle Otter Barn Owl Click beetle Otter Barn Owl Click beetle Otter Barn Owl Click beetle Otter Barn Owl Click beetle Otter Barn Owl Click beetle Otter Stonechat Buzzard Stopen Own Company Own Compan	Pathe Black Poplars  Alter Moor  Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor Alter Moor	Sowy River, KSD Sowy River, KSD Aller Moor, Neer Stathe Aller Moor near Stathe Near Stathe North Drove, Railwey bridge River Parrett Sowy R., Southlake Moor West Sedgemoor Main Drain.	\$17378305 \$1781304 \$1781304 \$1781304 \$1781304 \$1781304 \$1782295 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$17377291 \$1737293 \$17374293 \$17374293 \$17374293 \$17374293 \$17374293 \$17374293 \$1737223032 \$17302285 \$17300285 \$17300285 \$17300285 \$17300285 \$17300285 \$17300285 \$17300285 \$17300285 \$17300285 \$17300285 \$17300285 \$17300285 \$17300285	1911/1994 3003/1995 2204/1995 2104/1995 21094/1997 21094/1997 21094/1997 2505/1997 2505/1992 2505/1992 2505/1993 2505/1993 2505/1992 2505/1993 250	1911/1994 3002/1995 2304/1995 2304/1995 2100/1995 2100/1975 210/1972 22011/1972 22011/1972 23014/19	2 Count of droppings 1 Count of droppings 1 Count of present 1 Count of present 1 Count of droppings 2 Count of droppings 2 Count of droppings 2 Count of droppings 3 Count of droppings 3 Count of droppings 3 Count of droppings 4 Count of droppings 5 Count of droppings 5 Count of droppings 6 Count of droppings 7 Count of present 8 Count of present 1 Count of present 1 Count of present 8 Count of present 8 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present 1 Count of present

229 Vanellus vanellus	Lapwing	Aller Moor		ST389283	01/12/1981	28/02/1982	90 Count of present
230 Vanellus vanellus	Lapwing	Aller Moor		ST390285	20/12/1982	20/12/1982	9 Count of present
231 Gallinago gallinago	Snipe	Aller Moor		ST390285	20/12/1982	20/12/1982	23 Count of present
232 Asio flammeus	Short-Eared Owl	Aller Moor		ST390285	20/12/1982	20/12/1982	1 Count of present
233 Buteo buteo	Buzzard	Aller Moor		ST390285	12/01/1983	12/01/1983	4 Count of present
234 Falco tinnunculus	Kestrel	Aller Moor		ST390285	12/01/1983	12/01/1983	2 Count of present
235 Vanellus vanellus	Lapwing	Aller Moor		ST386287	15/04/1982	15/04/1982	1 pair Count of probable breeding
236 Vanellus vanellus	Lapwing	Aller Moor		ST387287	15/04/1982	15/04/1982	1 pair Count of probable breeding
237 Tringa totanus	Redshank	Aller Moor		ST387281	15/04/1982	15/04/1982	1 pair Count of probable breeding
238 Vanellus vanellus	Lapwing	Aller Moor		ST386280	15/04/1982	15/04/1982	1 pair Count of probable breeding
239 Vanellus vanellus	Lapwing	Aller Moor		ST387278	01/12/1981	28/02/1982	90 Count of present
240 Tringa totanus	Redshank	Aller Moor		ST386289	01/01/1983	31/12/1983	4 Count of probable breeding; 4 Count of pro
241 Falco tinnunculus	Kestrel	Aller Moor		ST386289	17/11/1996	17/11/1996	1 Count of wintering
242 Cygnus olor	Mute Swan	Aller Moor		ST386289	13/10/1996	13/10/1996	25 Count of wintering
243 Falco columbarius	Merlin	Aller Moor Aller Moor		ST386289	01/09/1995	30/11/1995	1 Count of present
244 Tringa ochropus 245 Falco tinnunculus	Green Sandpiper Kestrel	Aller Moor Aller Moor		ST386289 ST386289	30/04/1996 13/10/1996	30/04/1996 13/10/1996	4 Count of present 1 Count of wintering
245 Paico umunculus 246 Alcedo atthis	Kingfisher	Aller Moor		ST386289	13/10/1996	13/10/1996	1 Count of wintering 1 Count of wintering
246 Alcedo attnis 247 Vanellus vanellus		Aller Moor Aller Moor		ST386289 ST386289	13/10/1996	13/10/1996	5 Count of wintering
247 Varietius varietius 248 Pluvialis apricaria	Lapwing Golden Plover	Aller Moor		ST386289	17/11/1996	17/11/1996	500 Count of wintering
249 Cyanus olor	Mute Swan	Aller Moor		ST386289	17/11/1996	17/11/1996	8 Count of wintering
250 Vanellus vanellus	Lapwing	Aller Moor		ST386289	17/11/1996	17/11/1996	700 Count of wintering
251 Tringa totanus	Redshank	Aller Moor		ST386289	01/01/1977	31/12/1977	4 Count of probable breeding: 4 Count of pro
252 Oenanthe oenanthe	Wheatear	Aller Moor		ST385285	15/04/1982	15/04/1982	1 Count of male
253 Vanellus vanellus	Lapwing	Aller Moor		ST385285	15/04/1982	15/04/1982	23 Count of adult
254 Tringa totanus	Redshank	Aller Moor		ST385285	15/04/1982	15/04/1982	5 Count of adult
255 Tringa totanus	Redshank	Aller Moor		ST381282	15/04/1982	15/04/1982	1 pair Count of probable breeding
256 Vanellus vanellus	Lapwing	Aller Moor		ST380288	15/04/1982	15/04/1982	1 pair Count of probable breeding
257 Pluvialis apricaria	Golden Plover	Aller Moor		ST381295	01/12/1981	28/02/1982	31 Count of present
258 Synaptus filiformis	Click beetle	West Sedgemoor SSSI		ST381278	01/11/1991	30/11/1991	
259 Tyto alba	Barn Owl		Duck Cottage, Stathe	ST395276	23/02/2003	23/02/2003	1 Count of hunting
260 Tyto alba	Barn Owl		Woodhill	ST390276	13/02/2003	13/02/2003	1 Count of perching
261 Lutra lutra	Otter		Wick, between Wick bridge and Duck cottage.	ST397275	23/12/2005	23/12/2005	Present Count of adult
262 Lutra lutra	Otter		River Parrett, Oath	ST388277	19/12/2001	19/12/2001	1 Count of female; 1 Count of dead
263 Aythya ferina	Pochard	Aller Moor		ST390285	24/02/1983	24/02/1983	1 Count of present
264 Gallinago gallinago	Snipe	Aller Moor		ST390285	12/01/1983	12/01/1983	50 Count of present
265 Falco tinnunculus	Kestrel	Aller Moor		ST390285	26/01/1983	26/01/1983	1 Count of present
266 Vanellus vanellus	Lapwing	Aller Moor		ST390285	26/01/1983	26/01/1983	62 Count of present
267 Vanellus vanellus	Lapwing	Aller Moor		ST390285	10/02/1983	10/02/1983	1522 Count of present
268 Falco tinnunculus	Kestrel	Aller Moor		ST390285	10/02/1983	10/02/1983	1 Count of present
269 Athene noctua	Little Owl	Aller Moor		ST390285	24/02/1983	24/02/1983	1 Count of present
270 Tringa totanus	Redshank	Aller Moor		ST390285	24/02/1983	24/02/1983	4 Count of present
271 Buteo buteo	Buzzard	Aller Moor		ST390285	10/02/1983	10/02/1983	2 Count of present
272 Saxicola torquata	Stonechat	Aller Moor		ST390285	10/02/1983	10/02/1983	1 Count of present
273 Vanellus vanellus	Lapwing	Aller Moor		ST390285	12/01/1983	12/01/1983	20 Count of present
274 Gallinago gallinago	Snipe	Aller Moor		ST390285	26/01/1983	26/01/1983	21 Count of present
275 Saxicola torquata	Stonechat	Aller Moor		ST390285	26/01/1983	26/01/1983	2 Count of present
276 Accipiter nisus	Sparrowhawk	Aller Moor		ST390285	26/01/1983	26/01/1983	2 Count of present
277 Alcedo atthis	Kingfisher	Aller Moor		ST390285	26/01/1983	26/01/1983	1 Count of present
278 Accipiter nisus	Sparrowhawk	Aller Moor		ST390285	10/02/1983	10/02/1983	2 Count of present
279 Motacilla flava	Yellow Wagtail	Aller Moor		ST390287	13/05/1997	13/05/1997	4 Count of present
280 Arvicola amphibius	Water Vole	Athelney Fields*		ST388288	01/01/1998	31/12/1998	
281 Branta canadensis	Canada Goose						12 Count of wintering
		Aller Moor		ST386289	11/03/1997	11/03/1997	
282 Tringa ochropus	Green Sandpiper	Aller Moor		ST386289	11/03/1997	11/03/1997	2 Count of wintering
283 Anas penelope	Green Sandpiper Wigeon	Aller Moor Aller Moor		ST386289 ST386289	11/03/1997 10/02/1997	11/03/1997 10/02/1997	64 Count of wintering
283 Anas penelope 284 Philomachus pugnax	Green Sandpiper Wigeon Ruff	Aller Moor Aller Moor Aller Moor		ST386289 ST386289 ST386289	11/03/1997 10/02/1997 10/02/1997	11/03/1997 10/02/1997 10/02/1997	64 Count of wintering 1 Count of wintering
283 Anas penelope 284 Philomachus pugnax 285 Pluvialis apricaria	Green Sandpiper Wigeon Ruff Golden Plover	Aller Moor Aller Moor Aller Moor Aller Moor		ST386289 ST386289 ST386289 ST386289	11/03/1997 10/02/1997 10/02/1997 10/02/1997	11/03/1997 10/02/1997 10/02/1997 10/02/1997	64 Count of wintering 1 Count of wintering 30 Count of wintering
283 Anas penelope 284 Phillomachus pugnax 285 Phuvialis apricaria 286 Anas crecca	Green Sandpiper Wigeon Ruff Golden Plover Teal	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor		ST386289 ST386289 ST386289 ST386289 ST386289	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997	64 Count of wintering 1 Count of wintering 30 Count of wintering 1 Count of wintering
283 Anas penelope 284 Philomachus pugnax 285 Pluvialis apricaria 286 Anas crecca 287 Falco tinnunculus	Green Sandpiper Wigeon Ruff Golden Plover Teal Kestrel	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Walliage	ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997	64 Count of wintering 1 Count of wintering 30 Count of wintering 1 Count of wintering 1 Count of wintering
283 Anas penelope 284 Philomachus pugnax 285 Pluvialis apricaria 286 Anas crecca 287 Falco timunculus 288 Lepus europaeus	Green Sandpiper Wigeon Ruff Golden Plover Teal Kestrel Brown Hare	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Aller Moor SE	ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997	64 Count of wintering 1 Count of wintering 30 Count of wintering 1 Count of wintering
283 Anas panelope 284 Philomachus pugnax 285 Phuvialis apricaria 286 Anas crecca 287 Falco fununculus 288 Lepus europaeus 289 Hydrochari smoraus-ranae	Green Sandpiper Wigeon Ruff Golden Plower Teal Kestrel Brown Hare Frogbit	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Aller Moor SE	ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997 17/09/1998	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997 17/09/1998	64 Count of wintering 1 Count of wintering 30 Count of wintering 1 Count of wintering 1 Count of wintering
283 Anas penelope 284 Philomachus pugnax 285 Phuvialis apricaria 286 Anas crecca 287 Falco tinnunculus 288 Lepus europaeus 289 Hydrocharis moraus-anae 290 Avvioda amphiblus	Green Sandpiper Wigeon Ruff Golden Plover Teal H BOWN Here Frogbit Water Vole	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Aller Moor SE	ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289 ST386289	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997 17/09/1998 17/09/1998	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997 17/09/1998 17/09/1998	64 Count of wintering 1 Count of wintering 30 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of present
283 Anas penelope 284 Philomachus pugnax 285 Putvallis apricaria 286 Anas crecco 287 Fraico timunculus 288 Lepus europaeus 289 Hydrocharis monsus-ranae 290 Avricola amphibius 291 Cygons olor	Green Sandpiper Wigeon Ruff Golden Plower Teal Kestrel Brown Hare Frogbit Water Vole Mute Swan	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Aller Moor SE	\$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997 17/09/1998 17/09/1998 11/03/1997	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997 17/09/1998 17/09/1998 11/03/1997	64 Count of wintering 1 Count of wintering 30 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of wintering
283 Anas penelope 284 Philomenhus pupnax 285 Phuvialis apricaria 286 Anas crecca 287 Falco linnunculus 288 Lepus europeus 289 Hydrocharis monsus-anae 290 Avicola amphibius 291 Cygnus olor 292 Anas playhynchos	Green Sandpiper Wilgeon Ruff Golden Plower Teat Kestrot Hers Froght Water Vole Mute Swan Malland	Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor Aller Moor	Aller Moor SE	\$7386289 \$7386289 \$7386289 \$7386289 \$7386289 \$7386289 \$7386289 \$7386289 \$7386289 \$7386289 \$7386289	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997 17/09/1998 11/03/1997 10/02/1997	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997 17/09/1998 17/09/1998 11/03/1997 10/02/1997	64 Count of wintering 1 Count of wintering 30 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of present 10 Count of wintering 20 Count of wintering 30 Count of wintering 30 Count of wintering 30 Count of wintering
283 Anais penelope 284 Philomachus pupanx 285 Phuvialia spricaria 286 Anais crecca 287 Falco tinnunculus 281 Lepus auropaeus 289 Hydrochara monsus-anae 289 Hydrochara monsus-anae 290 Yayang anaiblus 210 Opport 292 Anais platyrhynchos 293 Vanellus vanellus	Green Sandpiper Wigeon Ruff Golden Plower Teal Kestrel Brown Hare Frogbit Water Vole Mute Swan Mallard Lapwing	Aller Moor Aller Moor	Aller Moor SE	\$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289 \$T386289	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997 17/09/1998 17/09/1998 11/03/1997 10/02/1997	11/03/1997 10/02/1997 10/02/1997 10/02/1997 10/02/1997 11/03/1997 13/05/1997 17/09/1998 17/09/1998 11/03/1997 10/02/1997	64 Count of wintering 1 Count of wintering 30 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of wintering 1 Count of wintering 3 Count of wintering 2 Count of wintering 2 Count of wintering 2125 Count of wintering
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283 Anais penelope 284 Philomanchus purpanx 285 Phuvialia spricaria 286 Anais creccia 287 Falco timunculus 288 Lapus surripeaus 280 Lapus surripeaus 280 Lapus surripeaus 280 Lapus surripeaus 280 Lapus surripeaus 280 Lapus surripeaus 281 Cyprus olor 282 Anais playfrynchos 283 Vanellus vanellus 284 Calatria alpina 284 Colatria alpina 285 Cyprus olor 286 Alcedo atthis 280 Anais penelope 380 Anais crecca 289 Anais penelope 380 Anais crecca 289 Anais penelope 380 Anais crecca 289 Anais penelope 380 Anais crecca 380 Anais crecca 380 Anais crecca 380 Anais crecca 380 Anais crecca 380 Anais crecca 380 Anais crecca 380 Anais crecca 380 Anais crecca 380 Prochola surfus 380 Prochola surfus 380 Prochola surfus 380 Prochola surfus 380 Vanellus vanellus 381 Varnellus vanellus 381 Varnellus vanellus 381 Varnellus vanellus 381 Surni altafolium 381 Surni altafolium 381 Surni altafolium 381 Surni altafolium 382 Surni altafolium 383 Surni altafolium 384 Surni altafolium 385 Surni altafolium 385 Surni altafolium 385 Surni altafolium 385 Surni altafolium 385 Surni altafolium 386 Surni altafolium 387 Selop cengrinus 388 Lutra lutra 381 Arvicola einnel 383 Lutra lutra 381 Autra lutra 383 Lutra lutra 384 Sutri altafolium 385 Surni altafolium 385 Surni altafolium 386 Surni altafolium 387 Falco pengrinus 388 Actitis hypolesucos 389 Lutra lutra	Green Sandpiper Wilgeon Ruff Golden Plower Teal Kestrer Hare Brown Hare Brown Hare Brown Hare Brown Hare Brown Hare Hare Hare Hare Hare Hare Hare Hare	Aller Moor Aller Moor	Aller Moor  West Sedge Moor  Stan moor  Southlake Moor Southlake M	\$T386289 \$T386285 \$T386305	1102/1997 1002/1	1103/1997 1002/1999 1002/1	64 Count of wintering 10 Count of wintering 30 Count of wintering 30 Count of wintering 11 Count of wintering 12 Count of wintering 13 Count of wintering 14 Count of wintering 15 Count of wintering 17 Count of wintering 17 Count of wintering 17 Count of wintering 17 Count of wintering 18 Count of wintering 19 Count of wintering 19 Count of wintering 20 Count of wintering 21 Count of wintering 22 Count of wintering 23 Count of wintering 24 Count of wintering 25 Count of wintering 26 Count of wintering 27 Count of wintering 28 Count of wintering 29 Count of probable breeding 20 Count of probable breeding 20 Count of probable breeding 20 Count of probable breeding 20 Count of probable breeding 21 Count of probable breeding 20 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breeding 21 Count of probable breed
283 Anais penelope 284 Philomachus pupanx 285 Puvialia spricaria 286 Anais crecca 287 Falco tinnunculus 286 Lanjas curopaeus 281 Epis seuropaeus 280 Hydrocharis monsus-anae 282 Hydrocharis monsus-anae 282 Hydrocharis monsus-anae 283 Avviolas amphibius 294 Calidria alpina 295 Cypurus olor 296 Alcedo atthis 297 Tringa totarius 298 Anais praelopa 397 Tringa totarius 298 Anais praelopa 390 Percolus authus 391 Anais Crecca 399 Anais praelopa 391 Coreniandia densa 392 Cercyro (Cercyron) granarius 393 Hydrocharis monsus-anae 394 Percolus authus 395 Almain and anais	Green Sandpiper Wilgeon Ruff Golden Plower Teal Golden Plower Teal Kent Golden Plower Teal Kent Golden Plower Teal Kent Golden Plower Teal Kent Golden Here Frongbit Water Vole Mute Swan Mallard Lapwing Durnin Mute Swan Mallard Lapwing Durnin Mute Swan Here Redsharak Teal Wilgeon Yelkow Wagtall Opposite-dawed Pondweed Cercyon granarus Frogbit Brown Long-eared Bat Swan Golden Here Lapwing Lapwing Lapwing Lapwing Lapwing Lapwing Lapwing Lapwing Lapwing Careater Water-paranip Greater	Aller Moor Aller Moor	Aller Moor West Sedge Moor San moor  Southlake Moor Southlake Moor Southlake Moor Southlake Moor Pathe Southlake Moor Southlak	ST386289 ST376286 ST36285 ST386285 ST376286 ST36286 ST36286 ST36286 ST36386 S	1102/1997 1002/1997 1002/1997 1002/1997 1002/1997 1002/1997 1002/1997 1002/1997 1002/1997 1002/1997 1002/1997 17001/1998 1102/1997 1002/	1103/1997 1002/1	64 Count of wintering 10 Count of wintering 30 Count of wintering 30 Count of wintering 11 Count of wintering 12 Count of wintering 13 Count of wintering 14 Count of wintering 15 Count of wintering 15 Count of wintering 16 Count of wintering 17 Count of wintering 17 Count of wintering 17 Count of wintering 17 Count of wintering 18 Count of wintering 19 Count of wintering 19 Count of wintering 10 Count of wintering 10 Count of wintering 10 Count of wintering 10 Count of wintering 10 Count of wintering 11 Count of wintering 11 Count of wintering 12 Count of wintering 12 Count of wintering 13 Count of probable breeding 14 Count of probable breeding 15 Count of probable breeding 16 Count of probable breeding 17 Count of probable breeding 18 pairs Count of probable breeding 18 pairs Count of probable breeding 19 Count of probable breeding 19 Count of probable breeding 19 Count of probable breeding 19 Count of probable breeding 19 Count of probable breeding 19 Count of probable breeding 19 Count of probable breeding 19 Count of probable breeding 10 Count of present 10 Count of Flowering 10 Count of Flowering 10 Count of Flowering 10 Count of Flowering 10 Count of Flowering 11 Count of Flowering 11 Count of Flowering 12 Count of Flowering 13 Count of Flowering 14 Count of Flowering 15 Count of Flowering 16 Count of Flowering 17 Count of Flowering 17 Count of Flowering 18 Count of Flowering 18 Count of Flowering 19 Count of Flowering 19 Count of Flowering 10 Count of Flowering 10 Count of Flowering 10 Count of Flowering 10 Count of Flowering 10 Count of Flowering 11 Count of Flowering 11 Count of Flowering 12 Count of Flowering 13 Count of Flowering 14 Count of Flowering 15 Count of Flowering 16 Count of Flowering 17 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18 Count of Flowering 18
283 Anais penelope 284 Philomanchus purpanx 285 Puvialia spricaria 286 Anais creccia 287 Falco timunculus 288 Leapus europeaus 280 Leapus europeaus 280 Leapus europeaus 280 Leapus europeaus 280 Leapus europeaus 280 Leapus europeaus 281 Cyprus olor 282 Anais playhrynchos 283 Vanellus vanellus 284 Caladria alpina 285 Cyprus olor 286 Alcedo atthis 286 Alcedo atthis 287 Ariag Jacoba 288 Anais penelope 380 Alcedo atthis 380 Cercyror (Cercyron) granarius 381 Cercyror (Cercyron) granarius 381 Pricotalus aurhus 380 Cercyror (Cercyron) granarius 381 Pricotalus aurhus 380 Vanellus aurhus 380 Vanellus vanellus 380 Vanellus vanellus 380 Vanellus vanellus 381 Tringa totarius 381 Tringa totarius 381 Tringa totarius 381 Sium laitfolium 381 Sium laitfolium 381 Sium laitfolium 381 Sium laitfolium 382 Sium laitfolium 383 Sium laitfolium 384 Sium laitfolium 385 Sium laitfolium 385 Sium laitfolium 385 Sium laitfolium 385 Sium laitfolium 385 Sium laitfolium 385 Sium laitfolium 387 Petrosealium segelum 385 Tringa todanus 381 Tringa todanus 381 Tringa todanus 382 Tringa todanus 383 Tringa todanus 383 Tringa todanus 384 Tringa todanus 385 Tringa todanus 385 Tringa todanus 386 Tringa todanus 387 Frica peregrinus 388 Liva laitfolium 388 Tringa todanus 387 Frica peregrinus 388 Livia laitra 385 Livia laitra 386 Livia laitra 386 Livia laitra 386 Livia laitra 386 Livia laitra 387 Frica peregrinus 380 Livia laitra 380 Livia laitra 384 Liutra laitra 385 Livia laitra 386 Livia laitra 387 Livia laitra 387 Livia laitra 389 Livia laitra 380 Livia laitra 380 Livia laitra 380 Livia laitra 380 Livia laitra 380 Livia laitra 381 Livia laitra	Green Sandpiper Wigeon Ruff Golden Plower Teal Kestret Brown Hare Brown Hare Brown Hare Brown Hare Brown Hare Brown Hare Brown Hare Brown Hare Brown Hare Redshand Lapwing Durlin Mute Swan Kingfaher Redshank Toal Will Vallow Wagtall Opposite-le-weed Pondweed Cercyon granarius Froght Brown Long-eared Bat Snipe Little Owl Lapwing Lapwing Lapwing Lapwing Lapwing Lapwing Cerater Water-paranip Greater Water-paranip Great	Aller Moor Aller Moor	Aller Moor  West Sedge Moor  Stan moor  Southlake Moor Southlake M	\$T386289 \$T376280 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T386285 \$T3863065 \$T3863065 \$T3863065 \$T3863065 \$T3863065 \$T3863065 \$T3863065 \$T3863065 \$T386306 \$T3863065 \$T386306 \$T386300	1102/1997 1002/1	1103/1997 1002/1	64 Count of wintering 10 Count of wintering 30 Count of wintering 30 Count of wintering 11 Count of wintering 12 Count of wintering 13 Count of wintering 14 Count of wintering 15 Count of wintering 15 Count of wintering 16 Count of wintering 17 Count of wintering 17 Count of wintering 17 Count of wintering 18 Count of wintering 19 Count of wintering 19 Count of wintering 10 Count of wintering 10 Count of wintering 10 Count of wintering 10 Count of wintering 10 Count of wintering 10 Count of wintering 10 Count of wintering 10 Count of probable breeding 11 Count of Probable breeding 12 Count of Probable breeding 12 Count of Probable breeding 13 Count of Probable breeding 14 Count of Probable breeding 15 Count of Probable breeding 16 Count of Probable breeding 17 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probable breeding 18 Count of Probab

344 Lutra lutra	Otter		Tone / Parrett confluence	ST358302	14/04/2006	14/04/2006	1 Count of droppings
345 Lutra lutra	Otter		Parrett / Tone confluence	ST358302	26/03/2007	26/03/2007	1 Count of droppings
346 Lutra lutra	Otter		King Alfred, R. Parrett	ST358302	05/08/2007	05/08/2007	1 Count of Tracks
347 Lutra lutra 348 Lutra lutra	Otter Otter		King Alfred, R. Parrett Tone / Parrett confluence	ST358302 ST358302	27/08/2007 26/04/2008	27/08/2007 26/04/2008	1 Count of Tracks 1 Count of Tracks
349 Lutra lutra	Otter		Stanmoor Bridge	ST358302	27/01/1978	27/01/1978	1 Count of Tracks
350 Lutra lutra	Otter		R.Tone	ST358302	17/06/1992	17/06/1992	1 Count of present
351 Lutra lutra	Otter		Tone / Parrett confluence	ST358302	10/06/2006	10/06/2006	1 Count of Tracks
352 Lutra lutra	Otter		Parrett / Tone confluence	ST358302	23/06/2002	23/06/2002	1 Count of Tracks
353 Lutra lutra 354 Lutra lutra	Otter Otter		Stathe Bridge, R. Tone Tone / Parrett confluence	ST358302 ST358302	22/04/2003 13/08/2003	22/04/2003 13/08/2003	1 Count of Tracks 1 Count of Tracks
355 Alcedo atthis	Kingfisher		Tone / Parrett confluence	ST358302	25/07/2004	25/07/2004	1 Count of Tracks 1 Count of present
356 Lutra lutra	Otter		Tone / Parrett	ST358302	27/01/2005	27/01/2005	1 Count of Tracks
357 Lutra lutra	Otter		Tone / Parrett confluence	ST358302	12/03/2006	12/03/2006	1 Count of Tracks
358 Lutra lutra	Otter		Tone / Parrett confluence	ST358302 ST358301	07/05/2006	07/05/2006 23/09/1997	1 Count of Tracks
359 Lutra lutra 360 Lutra lutra	Otter Otter		Stanmoor Bridge/River Tone Stanmoor Bridge/River Tone	ST358301 ST358301	23/09/1997 16/03/1998	16/03/1998	1 Count of Tracks Present Count of Tracks
361 Lutra lutra	Otter		Motorway to Burrowbridge, River Tone	ST358301	15/09/1998	15/09/1998	Count of anal jelly; 1 Count of droppings
362 Lutra lutra	Otter		Motorway to Burrowbridge, River Tone	ST358301	14/02/1999	14/02/1999	0 Count of droppings; 0 Count of anal jelly
363 Lutra lutra	Otter		RIVER TONE/PARRETT AT STANMOOR BRIDGE	ST358301	18/06/2000	18/06/2000	1 Count of Tracks
364 Lutra lutra	Otter		RIVER TONE/PARRETT AT STANMOOR BRIDGE	ST358301	08/10/2000	08/10/2000	1 Count of Tracks
365 Lutra lutra 366 Lutra lutra	Otter Otter		Tone / Parrett confluence Motorway to Burrowbridge River Tone	ST358301 ST358301	08/07/2005 11/08/1998	08/07/2005 11/08/1998	1 Count of Tracks 0 Count of droppings; 0 Count of anal jelly
367 Lutra lutra	Otter		Stanmoor Bridge/River Tone	ST358301	15/12/1997	15/12/1997	Present Count of Tracks
368 Lutra lutra	Otter		Motorway to Burrowbridge, River Tone	ST358301	10/05/1998	10/05/1998	0 Count of anal jelly; 5 Count of droppings
369 Lutra lutra	Otter		Motorway to Burrowbridge, River Tone	ST358301	17/11/1998	17/11/1998	0 Count of anal jelly; 1 Count of droppings
370 Lutra lutra	Otter		RIVER TONE/PARRETT AT STANMOOR BRIDGE	ST358301	20/05/2000	20/05/2000	1 Count of droppings
371 Lutra lutra 372 Lutra lutra	Otter Otter		RIVER TONE/PARRETT AT STANMOOR BRIDGE Tone / Parrett confluence	ST358301 ST358301	07/10/2000 07/05/2005	07/10/2000 07/05/2005	1 Count of Tracks 1 Count of Tracks
373 Lutra lutra	Otter		Tone / Parrett confluence	ST358302	25/07/2004	25/07/2004	1 Count of Tracks
374 Lutra lutra	Otter		Parrett / Tone confluence	ST358302	23/06/2002	23/06/2002	1 Count of Tracks
375 Lutra lutra	Otter		Parrett / Tone confluence	ST358302	01/02/2003	28/02/2003	1 Count of Tracks
376 Lutra lutra	Otter		Parrett / Tone confluence	ST358302	09/05/2003	09/05/2003	1 Count of Tracks
377 Lutra lutra	Otter		Tone / Parrett confluence	ST358302	11/07/2003	11/07/2003	1 Count of Tracks
378 Lutra lutra 379 Lutra lutra	Otter Otter		Tone / Parrett confluence Tone / Parrett confluence	ST358302 ST358302	12/09/2003 21/05/2004	12/09/2003 21/05/2004	1 Count of Tracks 1 Count of Tracks
380 Lutra lutra	Otter		Stathe Bridge, R. Tone	ST358302	09/06/2003	09/06/2003	1 Count of droppings
381 Lutra lutra	Otter		Parrett / Tone confluence	ST358302	22/08/2002	22/08/2002	1 Count of Tracks
382 Lutra lutra	Otter		Parrett / Tone confluence	ST358302	27/09/2002	27/09/2002	5 Count of droppings
383 Lutra lutra 384 Lutra lutra	Otter Otter		Parrett / Tone confluence Parrett / Tone confluence	ST358302 ST358302	20/12/2002 20/03/2003	20/12/2002 20/03/2003	1 Count of droppings 1 Count of Tracks
384 Lutra lutra 385 Lutra lutra	Otter		Parrett / Tone confluence Stathe Bridge, R. Tone	S1358302 ST358302	20/03/2003 08/05/2003	20/03/2003 08/05/2003	1 Count of Tracks 3 Count of droppings
386 Lutra lutra	Otter		Stathe Bridge, R. Tone	ST358302	09/05/2003	09/05/2003	1 Count of droppings
387 Lutra lutra	Otter		Motorway to Burrowbridge, River Tone	ST358301	16/12/1998	16/12/1998	0 Count of anal jelly; 1 Count of droppings
388 Lutra lutra	Otter		Stanmoor Bridge/River Tone	ST358301	18/04/1998	18/04/1998	3 Count of droppings; Present Count of Track
389 Lutra lutra 390 Lutra lutra	Otter		Stanmoor Bridge/River Tone	ST358301	07/07/1997	07/07/1997	Present Count of Tracks
390 Lutra lutra 391 Lutra lutra	Otter Otter		Stanmoor Bridge/River Tone Motorway to Burrowbridge, River Tone	ST358301 ST358301	13/02/1998 21/06/1998	13/02/1998 21/06/1998	Present Count of Tracks 0 Count of anal jelly; 2 Count of droppings
392 Lutra lutra	Otter		Motorway to Burrowbridge, River Tone	ST358301	15/07/1998	15/07/1998	Count of anal jelly, 2 Count of anal jelly     Count of anal jelly
393 Lutra lutra	Otter		Motorway to Burrowbridge, River Tone	ST358301	13/10/1998	13/10/1998	0 Count of droppings; 0 Count of anal jelly
394 Lutra lutra	Otter		River Parrett, W Sedgemoor	ST377283	03/08/2002	03/08/2002	1 Count of juvenile male
395 Arvicola amphibius	Water Vole	Southlake Moor SSSI	Burrow Mump Car park	ST362304	06/07/2000	06/07/2000	2 Count of present
396 Alauda arvensis 397 Alcedo atthis	Skylark Kingfisher	Southlake Moor SSSI Southlake Moor SSSI	Burrow Wall Rhyne opposite Little Orchard	ST367305 ST367306	01/06/2005	01/06/2005	1 Count of in flight 1 Count of in flight
398 Arvicola amphibius	Water Vole	Southlake Moor SSSI	Burrow Wall Rhyne opposite Little Orchard	ST36733069	01/06/2005	01/06/2005	Count of minings     Count of nest building/gathering materials
399 Tyto alba	Barn Owl	Constitute most coor	Stathe	ST375286	20/01/2006	20/01/2006	Present Count
400 Natrix natrix	Grass Snake	River Parrett, Middle Moor to Screech Owl section	River Parrett reach 1	ST360290	01/09/2001	30/09/2001	1 Count of present
401 Calidris alpina	Dunlin	Southlake Moor SSSI		ST371304	12/01/1992	12/01/1992	70 Count of wintering
402 Tringa totanus 403 Cygnus columbianus	Redshank Bewick's Swan	Southlake Moor SSSI Southlake Moor SSSI		ST371304 ST370302	11/11/1992 30/01/1993	11/11/1992 30/01/1993	1 Count of wintering 4 Count of wintering
404 Tringa totanus	Redshank	Southlake Moor SSSI		ST370302	01/01/1990	31/12/1990	2 Count of probable breeding
405 Tringa totanus	Redshank	Southlake Moor SSSI		ST370302	01/01/1991	31/12/1991	1 Count of probable breeding
406 Vanellus vanellus	Lapwing	Southlake Moor SSSI		ST370302	01/01/1992	31/12/1992	2 Count of probable breeding
407 Tringa totanus	Redshank	Southlake Moor SSSI		ST370302	01/01/1994	31/12/1994	4 Count of probable breeding
408 Hydrocharis morsus-ranae 409 Motacilla flava	Frogbit Yellow Wagtail	Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302	01/08/1994 01/01/1983	31/08/1994 31/12/1983	occasional Count of present 1 Count of proved breeding
410 Tringa totanus	Redshank	Southlake Moor SSSI		ST370302	01/01/1983	31/12/1983	1 Count of proved breeding 1 Count of proved breeding
411 Gallinago gallinago	Snipe	Southlake Moor SSSI		ST370302	01/01/1983	31/12/1983	1 Count of proved breeding
412 Vanellus vanellus	Lapwing	Southlake Moor SSSI		ST370302	01/01/1983	31/12/1983	1 Count of proved breeding
413 Numenius phaeopus	Whimbrel	Southlake Moor SSSI		ST370302	01/01/1987	31/12/1989	
414 Vanellus vanellus	Lapwing	Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302	01/01/1995	31/12/1995 16/02/1994	4 Count of probable breeding
415 Cygnus columbianus 416 Vanellus vanellus	Bewick's Swan Lapwing	Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302	16/02/1994 01/01/1993	16/02/1994 31/12/1993	6 Count of wintering 1 Count of probable breeding
417 Falco subbuteo	Hobby	Southlake Moor SSSI		ST370302	01/01/1990	31/12/1990	1 Count of probable breeding
418 Tringa totanus	Redshank	Southlake Moor SSSI		ST370302	01/01/1992	31/12/1992	3 Count of probable breeding
419 Tringa totanus	Redshank	Southlake Moor SSSI		ST370302	01/01/1993	31/12/1993	2 Count of probable breeding
420 Vanellus vanellus	Lapwing	Southlake Moor SSSI		ST370302	01/01/1994	31/12/1994	3 Count of probable breeding
421 Tringa totanus 422 Arvicola amphibius	Redshank Water Vole	Southlake Moor SSSI River Parrett, Middle Moor to Screech Owl section	River Parrett reach 1	ST370302 ST364297	01/01/1995	31/12/1995 30/09/2001	4 Count of probable breeding 1 Count of Tracks
423 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section	Niver Fallett leach 1	ST364296	05/10/1999	05/10/1999	1 Count of Tracks
424 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section		ST364297	05/10/1999	05/10/1999	1 Count of Tracks
425 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section	Parsonage Farm	ST365296	05/10/1999	05/10/1999	1 Count of Tracks
426 Arvicola amphibius	Water Vole Water Vole	River Parrett, Middle Moor to Screech Owl section River Parrett, Middle Moor to Screech Owl section	River Parrett reach 1	ST364297 ST366294	01/05/2000	31/05/2000	1 Count of Tracks
427 Arvicola amphibius 428 Arvicola amphibius	Water Vole Water Vole	River Parrett, Middle Moor to Screech Owl section River Parrett, Middle Moor to Screech Owl section	River Parrett reach 1 River Parrett reach 1	ST366294 ST363297	01/05/2000 01/09/2001	31/05/2000	1 Count of Tracks 1 Count of Tracks
429 Arvicola amphibius	Water Vole Water Vole	River Parrett, Middle Moor to Screech Owl section	River Parrett reach 2	ST363298	01/09/2001	30/09/2001	1 Count of Tracks
430 Hydrophilus piceus	Great Silver Water Beetle	Southlake Moor NNR	Ditch 1	ST370300	21/02/1992	21/02/1992	
431 Hydrocharis morsus-ranae	Frogbit	Southlake Moor NNR	Ditch 1	ST370300	21/02/1992	21/02/1992	
432 Hottonia palustris 433 Arvicola amphibius	Water-Violet Water Vole	Southlake Moor NNR River Tone and Tributaries	Ditch 1	ST370300 ST357300	21/02/1992 01/03/1999	21/02/1992 31/03/1999	
433 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section		ST360300	05/10/1999	05/10/1999	1 Count of Tracks; 1 Count of droppings
435 Arvicola amphibius	Water Vole Water Vole	River Parrett, Middle Moor to Screech Owl section	River Parrett reach 2	ST360300	01/09/2001	30/09/2001	1 Count of Tracks, 1 Count of droppings 1 Count of Tracks
436 Tringa totanus	Redshank	Southlake Moor SSSI		ST366301	01/01/1990	31/12/1990	1 pair Count of proved breeding
437 Arvicola amphibius	Water Vole	River Tone and Tributaries	Stanmoor Bridge	ST357301	05/10/1999	05/10/1999	1 Count of Tracks
438 Arvicola amphibius 439 Arvicola amphibius	Water Vole Water Vole	River Parrett, Middle Moor to Screech Owl section River Parrett, Middle Moor to Screech Owl section	River Parrett reach 3	ST358302 ST358302	05/10/1999 01/09/2001	05/10/1999 30/09/2001	1 Count of Tracks 1 Count of Tracks
439 Arvicola amphibius 440 Arvicola amphibius	Water Vole Water Vole	River Parrett, Middle Moor to Screech Owl section River Parrett, Middle Moor to Screech Owl section	River Parrett reach 3 River Parrett reach 3	S1358302 ST358301	01/05/2001	31/05/2001	1 Count of Tracks 1 Count of Tracks
441 Pisidium pseudosphaerium	Pisidium pseudosphaerium	Southlake Moor SSSI	Burrowbridge	ST361305	30/06/1992	30/06/1992	1 Count of present
442 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section	A361 bridge	ST357304	05/10/1999	05/10/1999	1 Count of Tracks
443 Alcedo atthis	Kingfisher	River Parrett, Middle Moor to Screech Owl section	River Parrett reach 3	ST357304	01/09/2001	30/09/2001	1 Count of present
444 Lutra lutra 445 Arvicola amphibius	Otter Water Vole	River Parrett, Middle Moor to Screech Owl section River Parrett. Middle Moor to Screech Owl section	River Parrett reach 3 Burrowbridge	ST357304 ST357304	01/09/2001	30/09/2001 10/04/2002	1 Count of Tracks; 1 Count of droppings 1 Count of Tracks
445 Arvicola amphibius 446 Lutra lutra	Water Vole Otter	raver marriest, windlie Moor to Screech Owl section	Burrowbridge Burrow Farm	ST357304 ST357304	09/04/2002 26/07/2003	10/04/2002 26/07/2003	1 Count of Tracks 1 Count of present
447 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section	River Parrett reach 3	ST356305	01/05/2002	31/05/2002	1 Count of Fracks
448 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section	Riverside Farm	ST355306	09/04/2002	10/04/2002	1 Count of Tracks
449 Falco columbarius	Merlin		Burrowbridge	ST358306	01/12/1996	31/12/1996	1 Count of present
450 Arvicola amphibius	Water Vole	River Tone and Tributaries	River Tone reach 10	ST353296 ST350294	01/09/2001	30/09/2001	1 Count of Tracks
451 Arvicola amphibius 452 Arvicola amphibius	Water Vole Water Vole	River Tone and Tributaries River Tone and Tributaries	Fern Cottage The Cottage	ST350294 ST351295	01/03/1999	31/03/1999 31/03/1999	
452 Arvicola amphibius 453 Arvicola amphibius	Water Vole Water Vole	River Tone and Tributaries	l ne Cottage Black Gate	S1351295 ST352296	01/03/1999	31/03/1999	
454 Arvicola amphibius	Water Vole	River Tone and Tributaries	Homelea	ST353296	01/03/1999	31/03/1999	
455 Arvicola amphibius	Water Vole	River Tone and Tributaries	The Firs	ST355298	01/03/1999	31/03/1999	
456 Arvicola amphibius	Water Vole	River Tone and Tributaries	B 0.0	ST355299	01/03/1999	31/03/1999	
457 Arvicola amphibius 458 Arvicola amphibius	Water Vole Water Vole	River Tone and Tributaries	Rose Cottage River Tone reach 10	ST356299 ST351295	01/03/1999 01/09/2001	31/03/1999 30/09/2001	1 Count of Tracks
100 revious ampinous	***************************************	Nivel Tolle and Tilbutaries	10101 1010 10001 10	31331283	01/08/2001	J0/08/2001	r count or 118000

459 Arvicola amphibius	Water Vole	River Tone and Tributaries	River Tobe reach 11	ST354297	01/09/2001	30/09/2001	1 Count of Tracks
460 Arvicola amphibius	Water Vole	River Tone and Tributaries	River Tone reach 11	ST355298	01/09/2001	30/09/2001	1 Count of Tracks; 1 Count of feeding signs
461 Arvicola amphibius	Water Vole		Stanmoor Main Drain	ST357293	01/09/2001	30/09/2001	1 Count of feeding signs; 1 Count of Tracks
462 Arvicola amphibius 463 Arvicola amphibius	Water Vole Water Vole	River Parrett, Middle Moor to Screech Owl section River Parrett. Middle Moor to Screech Owl section	River Parrett reach 4	ST354307 ST354307	01/05/2002 05/10/1999	31/05/2002 05/10/1999	1 Count of Tracks 1 Count of Tracks
463 Arvicola amphibius	Water Vole Water Vole	River Parrett, Middle Moor to Screech Owl section	Riverside Farm	ST354307	05/10/1999	05/10/1999	1 Count of Tracks
465 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section	River Parrett reach 3	ST354307	01/09/2001	30/09/2001	1 Count of Tracks
466 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section	Saltmoor Farm	ST351309	09/04/2002	10/04/2002	1 Count of Tracks
467 Arvicola amphibius 468 Luscinia megarhynchos	Water Vole Nightingale	River Parrett, Middle Moor to Screech Owl section	Riverside Farm Stan Moor	ST354307 ST358290	09/04/2002 01/03/1999	10/04/2002 31/05/1999	1 Count of Tracks 3 Count of singing/mating calls
469 Lutra lutra	Offer		stammon hr	ST358301	10/05/1999	10/05/1998	2 Count of droppings
470 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section	River Parrett reach 2	ST358301	01/08/2000	31/08/2000	1 Count of feeding signs
471 Arvicola amphibius	Water Vole	River Parrett, Middle Moor to Screech Owl section	River Parrett reach 3	ST358302	01/08/2000	31/08/2000	1 Count of feeding signs
472 Arvicola amphibius	Water Vole		Stanmoor Main Drain	ST358295	01/08/2000	31/08/2000	1 Count of Tracks
473 Bucephala clangula 474 Aythya ferina	Goldeneye Pochard		Stan Moor Stan Moor	ST358290 ST358290	06/01/2001 30/11/2002	06/01/2001 30/11/2002	5 Count of wintering 212 Count of wintering
475 Odontomyia omata	Odontomyia ornata	Southlake Moor SSSI	Stall WOO	ST375302	01/01/1983	31/12/1983	1 Count of present
476 Odontomyia omata	Odontomyia ornata	Southlake Moor SSSI		ST376304	01/01/1983	31/12/1983	1 Count of present
477 Synaptus filiformis	Click beetle		West Sedgemoor pumping station	ST375287	08/06/1992	08/06/1992	1 Count of present
478 Synaptus filiformis 479 Synaptus filiformis	Click beetle Click beetle	River Parrett, Middle Moor to Screech Owl section	Stathe Near Stathe	ST375289 ST374293	25/05/2005 26/05/1992	25/05/2005 26/05/1992	1 Count of adult 1 Count of present
480 Lutra lutra	Otter		Neal Statile	ST377291	13/09/1983	11/10/1983	3 Count of droppings
481 Hydaticus transversalis	Hydaticus transversalis	Quadrat S24 Taunton Deane BAP (50m.)		ST375296	20/08/1996	20/08/1996	1 Count of present
482 Lutra lutra	Otter		Aller Moor near Stathe	ST377291	08/06/1978	09/06/1978	3 Count of droppings
483 Lutra lutra 484 Lutra lutra	Otter Otter		Aller Moor near Stathe STATHE (PARRETT/TONE)	ST377291 ST376291	22/06/1978 04/05/1998	23/06/1978 04/05/1998	2 Count of droppings 2 Count of droppings
485 Phoenicurus ochruros	Black Redstart		Stathe (FARRETT/TONE)	ST375290	30/11/2002	30/11/2002	1 Count of droppings
486 Synaptus filiformis	Click beetle	River Parrett, Middle Moor to Screech Owl section	West (left) bank of river near Stathe	ST374293	04/06/2000	04/06/2000	1 Count of present
487 Synaptus filiformis	Click beetle	River Parrett, Middle Moor to Screech Owl section	West Sedgemoor Pumping Station	ST375287	04/06/2000	04/06/2000	3 Count of present
488 Synaptus filiformis 489 Synaptus filiformis	Click beetle Click beetle	River Parrett, Middle Moor to Screech Owl section	Upstream of Stathe Bridge on north side of River Parre Ranelagh Cottage, Stathe	ST375290 ST372295	04/06/2000 26/05/1992	04/06/2000 26/05/1992	1 Count of present 2 Count of present
490 Lutra lutra	Otter		WEST SEDGEMOOR MAIN DRAIN (TONE)	ST372280	09/05/1998	09/05/1998	10 Count of droppings
491 Synaptus filiformis	Click beetle	River Parrett, Middle Moor to Screech Owl section	On south bank along the War Moor stretch of the river.	ST372295	04/06/2000	04/06/2000	2 Count of present
492 Lepus europaeus	Brown Hare	West Sedgemoor SSSI		ST372273	16/04/1997	16/04/1997	2 Count of present
493 Lepus europaeus 494 Lepus europaeus	Brown Hare Brown Hare	West Sedgemoor SSSI West Sedgemoor SSSI		ST373275 ST374271	16/04/1997 16/04/1997	16/04/1997 16/04/1997	1 Count of present 2 Count of present
495 Arvicola amphibius	Water Vole	Southlake Moor SSSI		ST367306	01/01/1996	31/12/1996	2 Count or present
496 Odontomyia omata	Odontomyia ornata	Southlake Moor SSSI		ST368305	01/01/1983	31/12/1983	1 Count of present
497 Sium latifolium	Great Water-Parsnip	Southlake Moor SSSI		ST369305	01/01/1983	31/12/1983	frequent Count of present
498 Odontomyia omata	Odontomyia ornata	Southlake Moor SSSI		ST374305	01/01/1983	31/12/1983	1 Count of present
499 Cygnus columbianus 500 Gallinago gallinago	Bewick's Swan Snipe	Southlake Moor SSSI Southlake Moor NNR		ST370300 ST370300	13/01/2001 09/02/1997	13/01/2001	Count of wintering; 13 Count of juvenile;     Count of wintering
501 Gallinula chloropus	Moorhen	Southlake Moor NNR		ST370300	09/02/1997	10/03/1997	1 Count of wintering
502 Anas platyrhynchos	Mallard	Southlake Moor NNR		ST370300	09/02/1997	10/03/1997	10 Count of wintering
503 Buteo buteo	Buzzard	Southlake Moor NNR		ST370300	13/10/1996	14/12/1996	
504 Falco tinnunculus 505 Vanellus vanellus	Kestrel Lapwing	Southlake Moor NNR Southlake Moor NNR		ST370300 ST370300	13/10/1996 13/10/1996	14/12/1996 14/12/1996	210 Count of wintering
506 Cygnus olor	Mute Swan	Southlake Moor NNR		ST370300	13/10/1996	14/12/1996	16 Count of wintering
507 Buteo buteo	Buzzard	Southlake Moor NNR		ST370300	09/02/1997	10/03/1997	
508 Saxicola torquata	Stonechat	Southlake Moor SSSI		ST370300	01/03/2000	31/05/2000	1 Count of singing/mating calls; family part
509 Lymnocryptes minimus 510 Tadorna tadorna	Jack Snipe Shelduck	Southlake Moor SSSI Southlake Moor SSSI		ST370300 ST370300	01/12/1999 13/01/2001	28/02/2000 13/01/2001	3 Count of wintering 3 Count of wintering
511 Saxicola torquata	Stonechat	Southlake Moor SSSI		ST370300	01/03/2002	31/05/2002	Count of wintering     Count of singing/mating calls
512 Falco columbarius	Merlin	Southlake Moor SSSI		ST370300	01/09/1999	30/11/1999	1 Count of present
513 Cygnus olor	Mute Swan	Southlake Moor NNR		ST370300	09/02/1997	10/03/1997	6 Count of wintering
514 Accipiter nisus 515 Gallinago gallinago	Sparrowhawk	Southlake Moor NNR Southlake Moor NNR		ST370300 ST370300	13/10/1996 13/10/1996	14/12/1996 14/12/1996	17 Count of wintering
516 Gallinula chloropus	Snipe Moorhen	Southlake Moor NNR		ST370300	13/10/1996	14/12/1996	1 Count of wintering
517 Anas platyrhynchos	Mallard	Southlake Moor NNR		ST370300	13/10/1996	14/12/1996	3 Count of wintering
518 Cygnus columbianus	Bewick's Swan	Southlake Moor NNR		ST370300	13/10/1996	14/12/1996	3 Count of wintering
519 Hydaticus transversalis	Hydaticus transversalis	Southlake Moor NNR		ST370300	01/01/1983	31/12/1983	1 Count of present
520 Paederus caligatus 521 Hydrophilus piceus	Paederus caligatus Great Silver Water Beetle	Southlake Moor NNR Southlake Moor NNR		ST370300 ST370300	01/01/1983	31/12/1983	1 Count of present 1 Count of present
521 Hydrophilus piceus	Great Silver Water Beetle	Southlake Moor NNR		ST370300	01/08/1986	31/08/1986	1 Count of present
523 Hydaticus transversalis	Hydaticus transversalis	Southlake Moor NNR		ST370300	01/08/1992	31/08/1992	1 Count of present
524 Gallinago gallinago	Snipe	Southlake Moor SSSI		ST370300	01/12/1999	31/12/1999	218 Count of wintering
525 Tolypella prolifera 526 Sium latifolium	Great Tassel Stonewort Great Water-Parsnip	Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302	01/01/2000 01/01/1985	31/12/2000 31/12/1985	occasional Count of present
527 Cygnus columbianus	Bewick's Swan	Southlake Moor SSSI		ST370302	01/01/1985	31/12/1985	
528 Gallinago gallinago	Snipe	Southlake Moor SSSI		ST370302	01/01/1985	31/12/1985	2 Count of probable breeding
529 Gallinago gallinago	Snipe	Southlake Moor SSSI		ST370302	01/01/1987	31/12/1987	3 Count of probable breeding
530 Tringa totanus 531 Odontomyia ornata	Redshank Odontomyia ornata	Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302	01/06/1991 01/05/1994	31/08/1991 30/06/1994	Present Count of possible breeding frequent Count of present
532 Dytiscus dimidiatus	Dytiscus dimidiatus	Southlake Moor SSSI		ST370302	01/05/1994	30/06/1994	rare Count of present
533 Coenagrion pulchellum	Variable Damselfly	Southlake Moor SSSI		ST370302	01/05/1994	30/06/1994	occasional Count of present
534 Hydrophilus piceus	Great Silver Water Beetle	Southlake Moor SSSI		ST370302	01/05/1994	30/06/1994	rare Count of present
535 Hydaticus transversalis 536 Vanellus vanellus	Hydaticus transversalis Lapwing	Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302	01/05/1994 01/01/1977	30/06/1994 31/12/1977	occasional Count of present 7 Count of probable breeding
537 Vanellus vanellus	Lapwing	Southlake Moor SSSI		ST370302	01/01/1983	31/12/1983	7 Count of probable breeding 7 Count of probable breeding
538 Tringa totanus	Redshank	Southlake Moor SSSI		ST370302	01/06/1995	31/08/1995	3 pairs Count of possible breeding
539 Numenius arquata	Curlew	Southlake Moor SSSI		ST370302	01/06/1991	31/08/1991	1 Count of possible breeding; Present Count
540 Sium latifolium 541 Odontomyia ornata	Great Water-Parsnip	Southlake Moor SSSI		ST370302	01/01/1984	31/12/1984	
	Odontomvia ornata	Southlake Moor SSSI		ST370302	01/01/1085		
542 Gallinano gallinano	Odontomyia ornata Spine	Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302	01/01/1985	31/12/1985	2 Count of probable breeding
542 Gallinago gallinago 543 Tringa totanus	Snipe Redshank	Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302	01/01/1985 01/01/1987	31/12/1985 31/12/1987	2 Count of probable breeding 3 Count of probable breeding
543 Tringa totanus 544 Tringa totanus	Snipe Redshank Redshank	Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302 ST370302	01/01/1985 01/01/1987 01/01/1989	31/12/1985 31/12/1987 31/12/1989	3 Count of probable breeding 4 Count of probable breeding
543 Tringa totanus 544 Tringa totanus 545 Vanellus vanellus	Snipe Redshank Redshank Lapwing	Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302 ST370302 ST370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995	31/12/1985 31/12/1987 31/12/1989 31/08/1995	Count of probable breeding     Count of probable breeding     pairs Count of proved breeding
543 Tringa totanus 544 Tringa totanus 545 Vanellus vanellus 546 Saxicola rubetra	Snipe Radshank Radshank Lapwing Whinchat	Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302 ST370302 ST370302 ST370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995 01/01/1985	31/12/1985 31/12/1987 31/12/1989 31/08/1995 31/12/1985	Count of probable breeding     Count of probable breeding     pairs Count of proved breeding     pairs Count of proved breeding
543 Tringa totanus 544 Tringa totanus 545 Vanellus vanellus	Snipe Redshank Redshank Lapwing	Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI		ST370302 ST370302 ST370302 ST370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995	31/12/1985 31/12/1987 31/12/1989 31/08/1995	Count of probable breeding     Count of probable breeding     pairs Count of proved breeding
543 Tringa totanus 544 Tringa totanus 545 Vaneillus vaneillus 546 Saxicolar tuoterra 547 Motacillar flava 548 Lutra lutra 549 Hottonia pallustris	Sripe Redshank Redshank Lapwing Whinchat Yellow Wagtall Otter Water-Violet	Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI		\$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995 01/01/1985 01/01/1976 01/01/1985 01/01/1985	31/12/1985 31/12/1987 31/12/1989 31/08/1995 31/12/1985 31/12/1977 31/12/1985 31/12/1985	3 Count of probable breading 4 Count of probable breading 5 pairs Count of proved breeding 7 pairs Count of proved breeding 1 Count of proved breeding
543 Tringa totanus 544 Tringa totanus 545 Vanellus vanellus 546 Saxioda rubetra 547 Motacilla flava 548 Lutra lutra 549 Hottonia palustris 550 Tringa totanus	Snipe Redshank Redshank Lapwing Whinchat Yellow Wagtall Otter Water-Violet Redshank	Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI Southake Moor SSSI		\$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995 01/01/1985 01/01/1976 01/01/1985 01/01/1985 01/01/1985	31/12/1985 31/12/1987 31/12/1989 31/08/1995 31/12/1985 31/12/1977 31/12/1985 31/12/1985 31/12/1985	Count of probable breeding     Count of probable breeding     pairs Count of proved breeding     pairs Count of proved breeding
543 Tringa totanus 544 Tringa totanus 545 Vanellus vanellus 546 Saviotis ruberra 546 Motoschia filova 547 Motoschia filova 548 Hotoschia filova 549 Hotoschia palustris 550 Tringa totanus 551 Hydrocharis mosus-ranae	Snipe Radshank Redshank Lapwing Whinchat Yellow Wagtall Otter Water-Violet Redshank Frogbt	Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI Southlake Moor SSSI		\$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985	31/12/1985 31/12/1987 31/12/1989 31/08/1995 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985	3 Count of probable breading 4 Count of probable breading 5 pairs Count of proved breeding 7 pairs Count of proved breeding 1 Count of proved breeding
543 Tringa totanus 545 Vanellus vanellus 545 Vanellus vanellus 546 Saxioda rubetra 547 Motacilia flava 548 Lutra lutra properties 549 Lutra lutra properties 550 Tringa parusti 551 Hydrocharis morsus-ranae 552 Coenagrion pubchellum 553 Tringa totanus	Snipe Redshank Redshank Lapwing Whinchat Yellow Wagtall Otter Water-Violet Redshank	Southtake Moor SSSI Southtake Moor SSSI		\$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985	31/12/1985 31/12/1987 31/12/1989 31/08/1995 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985	3 Count of probable breading 4 Count of probable breading 5 pairs Count of proved breeding 7 pairs Count of proved breeding 1 Count of proved breeding
543 Tringa totanus 545 Vanellus vanellus 545 Vanellus vanellus 546 Saxioda rubetra 547 Motacilla flava 548 Lutra lutra 549 Hottonia palustris 550 Tringa totanus 551 Hydrocharis morsus-ranae 552 Consangrion putchellum 553 Tringa totanus 554 Tringa totanus	Sripe Redshank Redshank Lapwing Whinchat Yellow Wogtal Overland Water-Violet Redshank Frogbit Variable Damselfly	Southake Moor SSSI Southake Moor SSSI		\$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985	31/12/1985 31/12/1987 31/12/1989 31/08/1995 31/12/1985 31/12/1975 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985	3 Count of probable breeding 4 Count of probable breeding 5 pairs Count of prowed breeding 1 Count of prowed breeding 1 Count of prowed breeding 1 Count of proved breeding 2 Count of probable breeding Count of probable breeding Count of probable breeding
543 Tringa totanus 545 Vanellus vanellus 545 Vanellus vanellus 546 Saxioda rubetra 547 Motacilia flava 549 Hottones palustris 549 Hottones palustris 551 Hydrocharis morsus-ranae 552 Coenegrico pubchellum 553 Tringa totanus 554 Tringa totanus 555 Tringa totanus	Snipe Radshank Radshank Lapwing Whinchat Yellow Wagtall Otter Water-Violet Radshank Frogbit Variable Damselfly Radshank Radshank Radshank	Southtake Moor SSSI Southtake Moor SSSI		\$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985	31/12/1985 31/12/1987 31/12/1989 31/08/1995 31/12/1995 31/12/1995 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985	3 Count of probable breeding 4 Count of probable breeding 5 pairs Count of prowed breeding 5 pairs Count of prowed breeding 1 Count of prowed breeding 1 Count of prowed breeding 2 Count of prowed breeding
543 Tringa totanus 545 Vanellus vanellus 546 Saviola rubetra 547 Motacilla flava 548 Lutra 549 Hottonia palustris 550 Tringa totanus 551 Hydrocharis morsus-ranae 552 Consangrion putchellum 553 Tringa totanus 555 Tringa totanus 555 Tringa totanus 555 Tringa totanus 555 Tringa totanus	Snipe Redshank Redshank Lapxing Whinchat Yellow Wagtall Otter Water-Violet Redshank Veriable Damselfly Radshank Redshank Redshank Redshank Redshank	Southake Moor SSSI Southake Moor SSSI		\$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302 \$T370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985	31/12/1985 31/12/1987 31/12/1989 31/08/1995 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985	3 Count of probable breeding 4 Count of probable breeding 5 pairs Count of prowed breeding 1 Count of prowed breeding 1 Count of prowed breeding 1 Count of proved breeding 2 Count of probable breeding 2 Count of probable breeding 6 Count of probable breeding
543 Tringa totanus 545 Vanellus una 1545 Vanellus 546 Vanellus vanellus 546 Vanellus vanellus 547 Notacilia flava 547 Notacilia flava 548 Hotoria palustris 550 Tringa totanus 551 Hydrocharis morsus-ranae 552 Coenagrion pubchellum 553 Tringa totanus 554 Tringa totanus 554 Tringa totanus 554 Tringa totanus 555 Vanellus 557 Vanellus 557 Vanellus vanellus 558 Galinga ogalinago	Snipe Radshank Radshank Lapwing Whinchat Yellow Wagtall Otter Water-Violet Radshank Frogbit Variable Damselfly Radshank Radshank Radshank	Southtake Moor SSSI Southtake Moor SSSI		\$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302 \$1370302	01/01/1985 01/01/1987 01/01/1989 01/06/1995 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985	31/12/1985 31/12/1987 31/12/1989 31/08/1995 31/12/1995 31/12/1995 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985	3 Count of probable breeding 4 Count of probable breeding 5 pairs Count of prowed breeding 1 Count of prowed breeding 1 Count of prowed breeding 1 Count of proved breeding 2 Count of probable breeding Count of probable breeding Count of probable breeding
543 Tringa totanus 545 Vanellus vanellus 546 Saxioda rubetra 547 Motacilla flava 548 Lura lautaria 549 Hottonia palustria 549 Hottonia palustria 550 Tringa totanus 551 Hydrocharis morsus-ranae 552 Corangorio pulchellum 552 Corangorio pulchellum 554 Tringa totanus 555 Corango totanus 556 Corango totanus 556 Genanthe fistulosa 557 Vanellus vanellus 558 Gallinago qallinago 559 Vanellus vanellus	Sripe Redshank Rodshank Rudshank Lapwing Whinchat Yellow Wogtal Owater-Volet Redshank Frogbit Variable Damselfly Redshank Redshank Redshank Redshank Redshank Redshank Redshank	Southlake Moor SSSI Southlake Moor SSSI		\$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302 \$137/0302	01/01/1985 01/01/1987 01/01/1989 01/06/1995 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985 01/01/1985	31/12/1985 31/12/1987 31/12/1989 31/08/1995 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985 31/12/1985	3 Count of probable breeding 4 Count of probable breeding 3 pairs Count of prowed breeding 3 pairs Count of prowed breeding 1 Count of prowed breeding 1 Count of prowed breeding 2 Count of prowed breeding 2 Count of probable breeding 5 Count of probable breeding 6 Count of probable breeding 7 Count of probable breeding 8 Count of probable breeding 9 Count of probable breeding 1 Count of probable breeding
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Management   Man	574 Cygnus columbianus	Bewick's Swan	Southlake Moor SSSI		ST370302	01/01/1976	31/12/1977	
March   Marc			Southlake Moor SSSI					
December   December								
Description   Control of the Contr				North hank of River Perrett opposite Ranglagh Cottage				
Content								
Second Column   Second Colum								1 Count of Tracks
20								
March   Marc			Hook Bridge to River Parrett	Burrowbridge				
State								
March   Marc	584 Arvicola amphibius		River Parrett, Middle Moor to Screech Owl section					Count of droppings; 1 Count of feeding sig     Count of feeding signs.
December   Company   Com			River Parrett, Middle Moor to Screech Owl section		ST365296	01/08/2000		
Mathematical part   Math					ST360297	01/08/2000	31/08/2000	
Management   Man				Stanmoor Main Drain				1 Count of Tracks
Control   Cont								
December   Company   Com								
Description   Control			Cthi-i M CCCI					2 Count of probable breeding
Mate								1 Count of Tracks
March   Marc			River Parrett, Middle Moor to Screech Owl section	King Alfred Bridge		19/08/1999	19/08/1999	1 Count of Tracks
March   Marc				King Alfred Bridge				1 Count of Tracks; 2 Count of droppings
Section of the content   Section				King Alfred Bridge				1 Count of droppings; 1 Count of Tracks
Second company   Seco	597 Lutra lutra			King Alfred Bridge	ST357304	17/03/2000		1 Count of Tracks
Control   Cont								
Col   September   Col   Sept								
60 Value figuration (Figuration of Control o				Burrowbridge				
Month Character   Month Char			West Sedgemoor SSSI	North Drove				
Month   Mont	603 Valvata (Tropidina) macrostoma		West Sedgemoor SSSI					
Montrol of March Service membrane   Montrol of March Service mem			West Sedgemoor SSSI		ST373279			1 Count of present
Money   Mone								
March   Marc	606 Arvicola amphibius		River Tone and Tributaries		ST355298	01/08/2000		1 Count of feeding signs
Control   Cont					S1356292 ST267204			1 Count of Tracks
File   Company								
State   Stat								
State   Observed   State   S	611 Lutra lutra	Otter		King Alfred, R. Parrett		07/05/2006	07/05/2006	1 Count of droppings
64 Limb Name								
61 Line Lamb   Clark		Otter		King Alfred, R. Parrett	ST357304	26/03/2007	26/03/2007	1 Count of droppings
61 Line   Control   Cont				King Alfred, R. Parrett				
GT   Lank Man				King Alfred				
File   Line   Dec   Court of Present   Firefiel   Fir				King Alfred R Parrett				
612 Line   Line   Cace				R.Parrett				
Company   Comp	619 Lutra lutra	Otter		King Alfred, R. Parrett	ST357304			1 Count of Tracks
Care   Care			River Parrett, Middle Moor to Screech Owl section					
Column   C								
Get				King Alfred, R. Parrett				
Cold Linds   Martin   Clear				King Alfred, R. Parrett King Alfred, R. Tone				
Column Num				Parrett / Tone confluence				
CST Lumb lates								
Control Name				King Alfred, R. Parrett		14/04/2006		1 Count of Tracks
50   Line latin				King Alfred, R. Parrett	ST357304	09/11/2003	09/11/2003	
St. Lura blam								
S2   Limb lutim								
State   Large   Large   Large   State   Large   State   Stat								
100   100								
SS   Lara hatm								
ST Link lutin	635 Lutra lutra	Otter		King Alfred, R. Parrett	ST357304	20/12/2002	20/12/2002	1 Count of Tracks
1.00   1.00								
580   Lufra lufra   Other   Other   Other   Other   Sing Flanded, R. Parmet   Sing Flanded, R.								
641 Lura luris   642 Cura luris   643 Cura luris   644 Cura luris   644 Cura luris   645								
641 Lutra lutra   Cher		Otter		King Alfred, R. Parrett King Alfred, R. Parrett				2 Count of Grooks
543 Lufra lufra				King Alfred R Tone		25/02/2005		1 Count of Tracks
44 Lura luria   Clier   Clie								
454 Lurla lufra   Chter   Chter   King Alfred, R. Parrett   King Alfred, R. Tone   ST35704   2018(2002   2018(2002   1 Count of Tracks   Charles	643 Lutra lutra	Otter			ST357304	24/07/2002	24/07/2002	1 Count of Tracks
464 Lutra lutra   147								
457 Lutra lutra   1476   147								
549   Lurla lurla   147   14				King Alfred, R. Tone				
494 Lurla lurla   1956   Lurla lurla				King Alfred, R. Tone				
565   Luria luria   Otter   Count of Tracks   King Affed, R. Parrett   STS 5704   2708/2002   2708/2								
652 Lutra lutra 653 Lutra lutra 654 Lutra lutra 654 Lutra lutra 655 Lutra lutr								
SS Lutra lutra   Otter   SI Lutra lutra   Otter   SI Lutra lutra   SF Lutra lutra   Otter   SI Lutra lutra   SF Lutra lutra   Otter   SI Lutra lutra   SF Lutra lutra								
S41 Lurla lurla   CFS   Lurla lurla   CFS   CF								
585 Synaptus filliformis   Click beefle   River Parrett, Middle Moor to Screech Out section   100m south east of Burrow Bridge   \$1357303   10162000   10062000   2 Count of present   587 Annotation amphibitis   487 Annotation amphibitis   487 Annotation amphibitis   488 Annotation   488 Annot								
657 Arvicola amphibius Water Vole River Parrett, Middle Moor to Screech Owl section River Parrett mach 3 ST355306 01082000 1 Count of feeding signs 658 Arvicola amphibius Water Vole River Parrett, Middle Moor to Screech Owl section River Parrett reach 3 ST355305 01082000 1 Count of Feeding signs 659 Afbhene noctua			River Parrett Middle Moor to Sarooch Out costion					
658 Arvicola amphibius         Water Vole         River Parrett, Middle Moor to Screech Owl section         River Parrett mach 3         ST355005         0106/2000         \$1000000         \$1000000         \$1000000         \$10000000         \$10000000         \$10000000         \$10000000         \$10000000         \$10000000         \$10000000         \$10000000         \$10000000         \$10000000         \$10000000         \$10000000         \$10000000         \$10000000         \$100000000         \$10000000         \$100000000         \$10000000         \$10000000         \$10000000         \$10000000         \$100000000         \$10000000         \$1000000000         \$10000000000000         \$1000000000000000000000000000000000000								
659 Althere noctua					ST356305			1 Count of Tracks: 1 Count of feeding signs
661 Arvicola amphibius Water Vole 662 Hydrations transversalis 663 Valvata (Tropidna) macrostoma 663 Valvata (Tropidna) macrostoma 663 Valvata (Tropidna) macrostoma 664 Odontomyia ornata 665 Cenambri Fatulosa 665 Cenambri Fatulosa 666 Cenambri Fatulosa 666 Cenambri Fatulosa 667 Hydrotomara 668 Odontomyia ornata 668 Odontomyia ornata 668 Cenambri Fatulosa 669 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 669 Cenambri Fatulosa 660 Cenambri Fatu	659 Athene noctua	Little Owl			ST355307	01/01/1990	31/12/1990	
661 Arvicola amphibius Water Vole 662 Hydrations transversalis 663 Valvata (Tropidna) macrostoma 663 Valvata (Tropidna) macrostoma 663 Valvata (Tropidna) macrostoma 664 Odontomyia ornata 665 Cenambri Fatulosa 665 Cenambri Fatulosa 666 Cenambri Fatulosa 666 Cenambri Fatulosa 667 Hydrotomara 668 Odontomyia ornata 668 Odontomyia ornata 668 Cenambri Fatulosa 669 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 668 Cenambri Fatulosa 669 Cenambri Fatulosa 660 Cenambri Fatu	660 Tyto alba							
683 Valvata (Tropidna) macrostoma Valvata macrostoma Quadrat S20 Taunton Deane BAP (50m.) ST34953040 07/08/1196 1 Count of present 664 Cdontomyia crnata Quadrat S20 Taunton Deane BAP (50m.) ST34953040 07/08/1196 07/08/1196 1 Count of present 665 Cenambri fistulosa Tubular Valuer-Dropwort Quadrat S20 Taunton Deane BAP (50m.) ST34953040 07/08/1196 07/08/1196 1 Count of present 665 Lenna trisulosa (565 Lenna trisulosa (566 Lenna			River Tone and Tributaries	River Tone 11		01/08/2000	31/08/2000	
664 Odontomyis omata Odontomyis omata Quadrat S207 zamuton Deane BAP (4m.) ST3495304 07/081996 7/081996 1 Count of present 665 Centambre fautubos Tubular Water-Dropovort Quadrat S207 zamuton Deane BAP (50m.) ST3495304 07/081996 1 Count of present 666 Leman trisulca (400 to 100 to 1			Quadrat S20 Taunton Deane BAP (50m.)		S 134953040			
665 Cenanthe fistulosa Tubular Water-Dropwort Quadrat S20 Taunton Deane BAP (50m.) \$734953040 07/08/1996 07/08/1996 1 Count of present 666 Leman trisulca (Ny-Leaved Duckweed Quadrat S20 Taunton Deane BAP (50m.) \$734953040 07/08/1996 07/08/1996 07/08/1996 1 Count of present 667 Hydrocharis morsus-ranae Frogit Quadrat S20 Taunton Deane BAP (50m.) \$734953040 07/08/1996 1 Count of present 07/08/1996 1 Count O7/08/1996 1 Count O7/08/								
686 Larma trisulca (vy-Leaved Duckweed Quadrat S20 Taunton Deane BAP (50m.) ST34953040 07/08/1996 07/08/1996 07/08/1996 (50m.) ST34953040 07/08/1996 1 Count of present (50m.) ST34953040 07/08/1996 1 Count of present (50m.)								
667 Hydrocharis morsus-ranae Frogbit Quadrat S20 Taunton Deane BAP (50m.) ST34953040 07/08/1996 07/08/1996 1 Count of present								. Count of present
			Quadrat S20 Taunton Deane BAP (50m.)					1 Count of present
	668 Arvicola amphibius		River Parrett, Middle Moor to Screech Owl section	River Parrett reach 4	ST353308	01/08/2000	31/08/2000	1 Count of feeding signs