

CAULMERT LIMITED

Engineering, Environmental & Planning
Consultancy Services

Cassington Quarry

Amenity and Accidents Risk Assessment Bespoke Environmental Permit Application

Hanson Quarry Products Europe Limited

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4656-CAU-XX-XX-DR-V-1801 Sensitive Receptors Plan

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1. INTRODUCTION

1.1 Report Overview

- 1.1.1 Caulmert Limited have been appointed by Hanson Quarry Products Europe (the Operator) to prepare a bespoke environmental permit application for the importation of inert wastes as a recovery operation, and the recycling of aggregates as a waste treatment operation, at the former processing plant area (hereafter referred to as the 'application site') in Cassington Quarry, Yarnton, Oxfordshire. The application site covers the final section of Cassington Quarry where extraction has been undertaken and is now to be restored, set within the wider area of the already mostly restored former sand and gravel workings.
- 1.1.2 This report is an Amenity and Accidents Risk Assessment which forms part of the bespoke environmental permit application for the proposed operations and considers the risks to sensitive receptors from possible emissions generated by the proposed activities within the proposed permit boundary (former 'plant area') of the quarry.
- 1.1.3 A Waste Recovery Plan (WRP) produced by WYG was prepared and submitted to the Environment Agency under document reference 'Waste Recovery Plan – Cassington Quarry, version 'FINAL, Nov 2020' to import approximately 279,000 tonnes (155,000m³) of inert waste for the revised restoration scheme for the plant site under a waste recovery activity. The site will be restored into a large area of grassland surrounded by new trees/shrubs and a few small waterbodies, as shown in the revised restoration scheme drawing ref.C4-HAN-05-4C (included in this application). Under the EA's regulatory guidance on Waste Recovery Plans and Permits, the EA have fully assessed the WRP and have agreed that the proposals meet the requirements that the proposed activity is a recovery operation.
- 1.1.4 The Operator is also proposing to utilise an Aggregates Recycling Facility (with no fixed location) for the treatment of waste to produce soil, soil substitutes and secondary aggregates to be exported off site.
- 1.1.5 This risk assessment considers any potential risks associated with the proposed waste recovery and treatment operations. It is expected, due to the inert nature of the waste types, that the risks to sensitive receptors will be very low to negligible with respect to odour, pests, surface water run-off and other fugitive emissions. A Dust Management Plan has been prepared as part of this bespoke permit application as document ref. 4656-CAU-XX-XX-RP-V-0304.
- 1.1.6 This risk assessment has been compiled in accordance with the current Environment Agency guidance 'Risk Assessments for your Environmental Permit' (updated 25th March 2021).

2. SITE LOCATION & SETTING

2.1 Site Location

2.1.1 The application site comprises the 'plant area' within the wider area of restored sand and gravel workings of Cassington Quarry and is approximately 7.12 hectares (ha) in size. The site is situated approximately 670m southwest of Yarnton village and 1.5km northeast of Cassington village. The site is 480m north of the A40 highway and the outskirts of Oxford are located approximately 2.2km southeast of the application site.

2.1.2 The site is located at postcode OX29 4FL and National Grid Reference SP 47437 11274. Access to the Site is from an unnamed road which comes off the eastbound A40 carriageway to the west of the site. This road serves the former quarry workings, the application plant site and three other waste management sites before heading back to re-join the westbound A40 carriageway.

2.1.3 The application site location is indicated below in Figure 1:

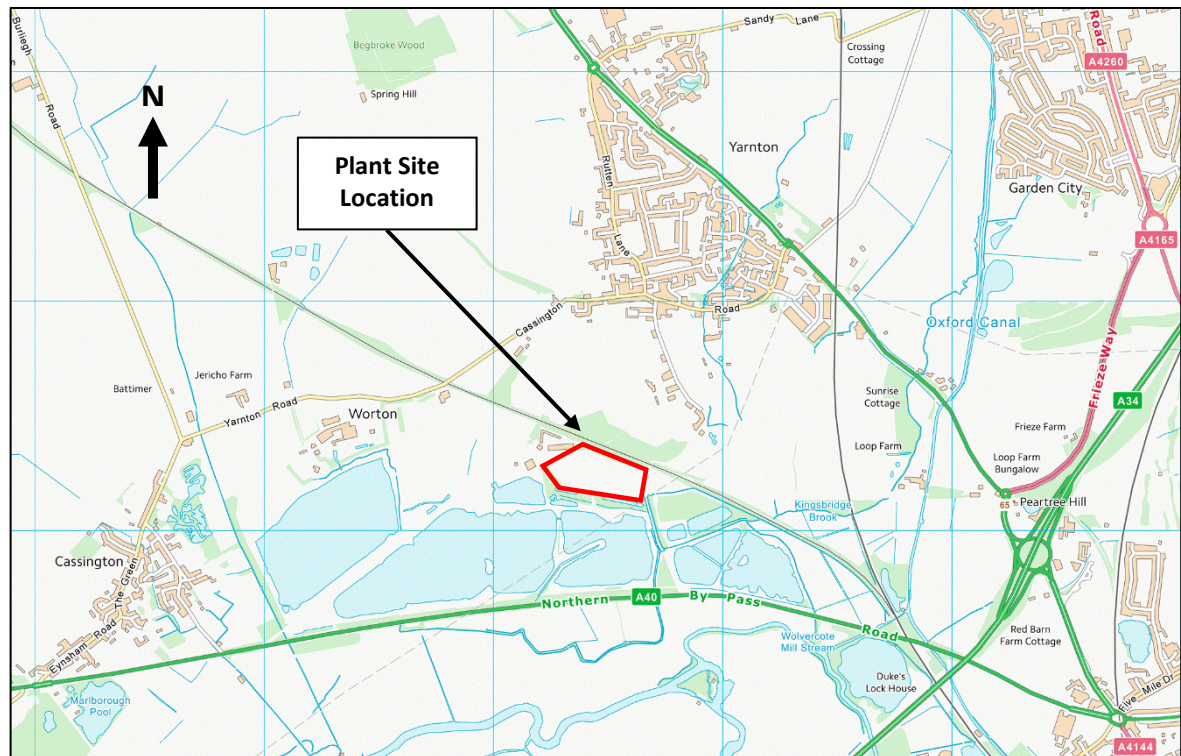


Figure 1 – Site Location (approximate boundary only)

2.1.4 The restoration of the wider area already comprises grassland and water bodies, many of which are immediately to the south of the site (visible in Figure 1), and the proposed end-use of the area once restoration is complete is a combination of agriculture and recreational use.

2.2 Site Setting

- 2.2.1 As mentioned above, the application site is surrounded by numerous large and small water bodies immediately to the south and the A40 main road is further south, 480m away.
- 2.2.2 There is the Oxford to Evesham railway line along the northern and eastern boundary of the site and arable agricultural land beyond to the north. Immediately east of the application site are some adjacent waste management sites. The site is set within the River Thames valley and the River Thames/Isis is 960m to the south-southwest.
- 2.2.3 The closest residential receptors are Mead Farm buildings and The Barn approximately 310m northeast. These residences are on the outskirts of Yarnton. The other nearest settlements are Worton 780m west and Cassington 1.5km southwest.

3. SENSITIVE RECEPTORS

3.1 Overview

3.1.1 The application plant site is situated within the wider former sand and gravel workings of Cassington Quarry and surrounded by agricultural land to the north and waterbodies to the south.

3.1.2 This report assesses the potential risks to nearby sensitive receptors from the proposed importation of inert wastes as a recovery operation, and the recycling of aggregates as a bespoke waste treatment operation.

3.1.3 The sensitive receptors are grouped into the following types:

- Commercial and Industrial;
- Residential and Recreational;
- Public Roads and Footpaths;
- Surface Water;
- Agricultural; and,
- Designated Sites of Ecological Importance & Other Habitats.

3.1.4 A sensitive receptor search was conducted of the surrounding area within 1km radius of the application site boundary using Defra's Magic Maps website¹ and the sensitive receptors identified are listed below in Table 1 and also shown on the Sensitive Receptor Plan drawing ref. 4656-CAU-XX-XX-DR-V-1801. The distance to each receptor is measured from the boundary of the application plant site.

3.1.5 The Environment Agency also conducted a Habitats Screening Report (attached as Appendix 1) and the nature and heritage conservation sites and/or protected species and habitats identified in the screen are included below.

3.2 Designated Sites of Ecological Importance & Other Habitats

3.2.1 A search of the surrounding area within 1km of the application site boundary using the DEFRA Magic Maps website¹ and the Habitats Screen by the Environment Agency has identified there is one Site of Special Scientific Interest (SSSI), one Special Area of Conservation (SAC) and one Local Wildlife Site (LWS) within 1km:

- Pixey and Yarnton Meads SSSI
- Oxford Meadows SAC
- Oxy Mead LWS
- Cassington to Yarnton Gravel Pits LWS

3.2.2 The Pixey and Yarnton Meads SSSI is located on the floodplain associated with the River Thames and forms part of the larger Oxford Meadows SAC.

Pixey and Yarnton Meads SSSI

¹ DEFRA Magic Maps 2021: <https://magic.defra.gov.uk/MagicMap.aspx>

3.2.3 This designation is noted for being amongst the best remaining examples of neutral grassland in lowland England with botanically rich grassland. A variety of species include the cuckoo flowers which occupies much of the largest area of the SSSI with other notable plants including the green winged orchid and autumn crocus are part of the 150 species which dominates the meadow grassland. The watercourse surrounding the Meads have tall emergent vegetation frequented by dragon and damselflies. The Meads have been the subject of detailed botanical research and regular agricultural plant breeding.

Oxford Meadows SAC

3.2.4 The general site character of the Oxford Meadows is predominantly humid and mesophile grassland and improved grassland. Oxford Meadows represents lowland hay meadows in the Thames Valley centre include vegetation communities that are unique in reference to long-term grazing, hay-cutting on lowland hay meadows. The site benefits from the survival of traditional management and therefore exhibits good conservation of structure and function. Oxford Meadows is selected as a SAC because is it one of the larger of only two known sites in the UK for creeping marshwort, a creeping perennial that grown in wet grassland and areas subject to winder flooding (typically by rivers).

Oxey Mead LWS

3.2.5 The Oxy Mead Local Wildlife Site is home to swathes of flowers and butterflies found in profusion in England's meadows and pasture. It is described as one of the surviving ancient 'lot' meadows near the city of Oxford which date back to medieval times. The site is a dominant feature of wild flowers and wild grasses included common birds-foot, fairy flax and yellow rattle. Butterflies are attracted including the orange-tip, meadow brown and ringlet. Bird life is not prevalent to this area, with the occasional Skylark hovering high overhead and waders include snipe and redshank which may be observed during the wetter winter months.

Cassington to Yarnton Gravel Pits LWS

3.2.6 The Cassington to Yarnton gravel pits are extensive areas of lowland meadow habitat provides areas of standing water attracting a number of wildfowl. Similar to surrounding designation classes, this LWS provides a range of flora communities for wildflowers and meadow grasslands supporting a range of butterfly and insect habitats.

3.2.7 Between 1km and 2km from the site boundary there are the following habitats:

- Wolvercote Meadows SSSI (1.6km SE)
- Wolvercote Common and Green SSSI (2km SE)
- Wytham Ditches and Flushes SSSI (1.1km SW)
- Cassington Meadows SSSI (1.3km SW)
- Wytham Woods SSSI (1.9km SW)
- Acrey Pits LWS (1.5km W)

3.2.8 There are no Special Protection Areas (SPAs), National Nature Reserves (NNRs), Ramsar sites, Areas of Outstanding Natural Beauty (AONB), Local Nature Reserves (LNRs) or Ancient Woodlands within 1km of the site boundary.

3.2.9 An ecological assessment of the application site and wider Cassington Quarry was undertaken in 2015 by Applied Ecology Limited (see attached report ref. AEL1044 v2 in Appendix 2) and evidence was found of the presence of Great Crested Newts (GCN) habitat on site and in the vicinity of the plant area. The long rectangular pond <10m to the southwest of the application site boundary and the smaller pond 50m to the southwest were both found to be home to Great Crested Newts. Prior to any restoration activities (waste recovery and aggregate recycling operations) commencing at the application site, the newts will be captured and relocated to another area. The report highlighted that the restoration of the former gravel extraction (plant) area “would result in an increase of 0.9 ha of newt friendly terrestrial habitat within newt commuting range of two confirmed GCN waterbodies and would result in no loss or damage of any GCN breeding pond”.

3.3 Summary of Identified Sensitive Receptors

3.3.1 The sensitive receptors within 1km of the site boundary are presented in Table 1:

3.3.2 The closest residential receptors are Mead Farm buildings and The Barn approximately 310m northeast. These residences are on the outskirts of Yarnton. The other nearest settlements are Worton 780m west and Cassington 1.5km southwest.

Table 1 – Summary of Sensitive Receptors within 1km of the site boundary

Receptor	Land Use	Distance/Direction
Long rectangular pond	GCN Habitat – Surveyed	<10m SW
M&M Skip Hire Ltd. Waste Transfer Station	Commercial/Industrial	<10m N
Woodland – Priority Deciduous	Habitat	<10m S, 270m NW, 670m E, 720m NW, 800m NW, 800m SE
Footpath	Public Footpath	15m E
Severn Trent Green Power Cassington Anaerobic Digestion Facility	Commercial/Industrial	20m W
Small pond	GCN Habitat – Surveyed	50m SW
Large Waterbodies (Cassington to Yarnton Gravel Pits)	Surface Water	60m W, 100m S, 100m SW, 320m SE, 700m W
Unnamed Access Road	Public Road	100m W
Arable Fields	Agricultural	110m ENE, 120m N
M&M Skip Hire Ltd Waste Management Site	Commercial/Industrial	120m NW
Mead Farm	Residential/Recreational	310m NE
The Barn	Residential/Recreational	310m NE
Yarnton Manor	Residential/Recreational	350m NE

Receptor	Land Use	Distance/Direction
St. Bartholomew's Church	Residential/Recreational	410m NE
Pixey and Yarnton Meads SSSI	Habitat – Designated Site	460m S
Oxford Meadows SAC	Habitat – Designated Site	460m S
Oxey Mead LWS	Habitat & Surface Water	470m SE
A40	Public Road	480m S
Cassington Road	Public Road	510m NW
Windmill Farm	Residential/Recreational	580m N
Residential area of Yarnton	Residential/Recreational	610m NE
Car Tyre Shop / Yard	Commercial/Industrial	620m NE
Worton Kitchen Gardens	Commercial	780m WNW
Recreation Ground	Residential/Recreational	870m NE
Worton Business Park	Commercial/Industrial	870m WNW
Worton Hall / Events Venue	Recreational	925m WNW
Business Park / Depots	Commercial/Industrial	940m NE
Yarnton Nursing Home	Residential/Recreational	960m N
River Thames/Isis	Surface Water	960m SSW
William Fletcher Primary School	Residential/Recreational	990m N

3.4 Meteorological Setting

- 3.4.1 Fugitive emissions of dust, litter, odour and noise from the site are likely to be affected by local weather conditions, in particular by wind direction. Wind statistics observed from Oxford Airport/Kidlington weather station located 5.5km to the north of the application site boundary are considered to be representative of the typical conditions at the site (Figure 2 below).
- 3.4.2 A review of the data recorded between 2015 and 2021 on the Windfinder.com website² indicates that the most dominant wind direction is from the west-southwest towards the east-northeast. The sensitive receptor plan shows that predominant wind conditions are likely to blow from the application site towards the woodland, arable fields and residential properties of Yarnton to the northeast.

² Windfinder Wind Statistics 2021: https://www.windfinder.com/windstatistics/oxford-airport_kidlington

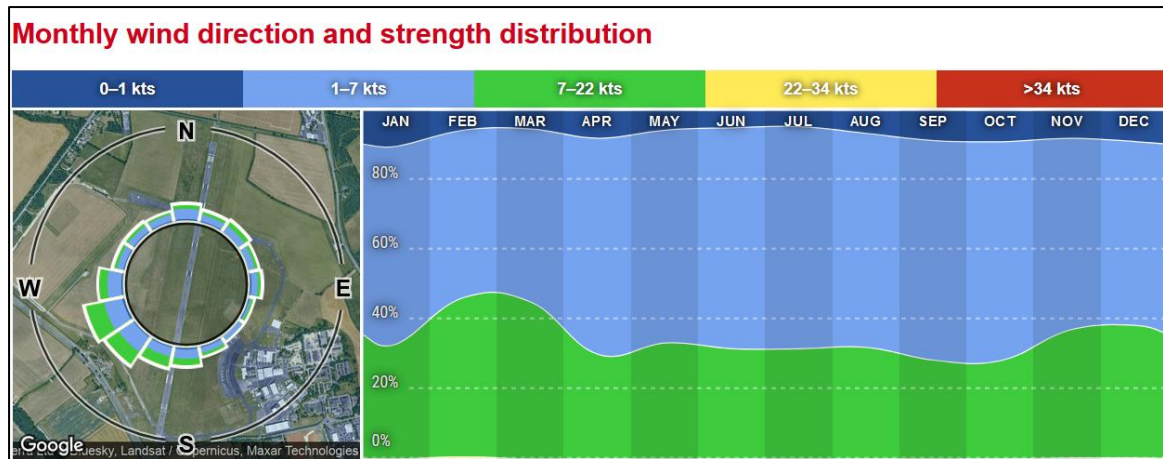


Figure 2 – Oxford Airfield wind statistics – average wind direction & strength 2015 to 2021

4. RISK ASSESSMENTS

4.1 Assessments for the Proposed Operations

4.1.1 Risk assessment tables have been completed for odour, noise and vibration, fugitive emissions (dust, litter, mud and debris, pests and surface water run-off), visible plumes and accidents (including spillages and fire) in line with the GOV.UK guidance 'risk assessments for your environmental permit' (updated 25th March 2021).

4.2 Risk Assessments - Tables

4.2.1 Possible hazards as a result of the proposed waste recovery and treatment operations at the application site that require risk assessment comprise:

- Sources of Odour (Table 2);
- Sources of Noise and Vibration (Table 3);
- Fugitive Emissions (dust, litter, mud and debris, pests, surface water run-off) (Table 4);
- Visible emissions (smoke or visible plumes) (Table 5); and,
- Accidents (leaks and spillages, fire etc.) (Table 6).

4.2.2 The hazards identified above have the potential to escape beyond the application site boundary and cause an amenity nuisance to sensitive receptors or harm the environment and human health. For each possible hazard, an assessment of the risk that it poses to potential sensitive receptors has been carried out, taking into account the control measures that will be in place.

4.2.3 The following Tables 2 to 6 give further detail on each hazard source, pathway and sensitive receptor, the risk management measures to be implemented, probability of exposure, consequences of exposure and an overall risk rating from Low (little or no risk) to High once all risk management measures have been taken into account.

Table 2 - Odour Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Odours from imported inert wastes (released upon delivery to site, whilst stockpiled on site or during movement around site and treatment).	Human population in local farms and residences downwind. Users of public and domestic roads and footpaths nearby.	Through air.	The nature of the inert wastes to be accepted, used, and processed at the site are very unlikely to generate odours. Waste acceptance procedures at the site will prevent odorous wastes being accepted – only inert wastes will be accepted which are inherently not odorous, nor unlikely to contain biodegradable or putrescible materials. In the unlikely event any non-conforming wastes are discovered in a waste load after checking and depositing at the site, the load will either be immediately reloaded onto the delivery vehicle and rejected from site, or temporarily stored in a quarantine holding area, which will be outside and well ventilated and will be removed from site as soon as possible.	Unlikely – due to nature of inert waste not inherently odorous. Odour plumes are transient in nature and unlikely to travel great distances and will dissipate with wind movement.	May cause annoyance to road users and people nearby.	Low – if control measures are implemented.

Table 3 - Noise & Vibration Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Noise and vibration from waste delivery vehicles.	Human population in local farms and residences. Users of public and domestic roads and footpaths nearby. May cause disturbance to bird habitat within Oxye Mead LWS (mainly in winter)	Through air and ground.	Site management will have the responsibility for ensuring that nuisances and hazards arising from site operations due to noise and vibration are minimised. Neighbours will be notified in advance of activities which may give rise to increased noise levels. All site persons will be trained in the need to minimise noise and vibration and will be responsible for monitoring and reporting excessive noise when carrying out their everyday roles. Site operations involving the use of mobile plant, equipment for the movement and treatment of waste will not be carried outside of permitted operational hours. The aggregates facility and mobile plant will move around site and not be in a fixed	Unlikely - proximity to nearest residential receptors greater than 300m will reduce impact from noise and unlikely to affect users of local public footpaths and domestic roads as likely to only receive short-term exposure. Site adjacent to other waste management sites, therefore activities at the site unlikely to generate noise and vibration	Noise may cause annoyance to people nearby. Vibrations may disturb wildlife nearby.	Low – if control measures are implemented

			<p>position, reducing long-term exposure to noise and vibration to nearby receptors.</p> <p>When positioning noisy equipment, consideration will be given to the proximity of receptors and the prevailing wind direction.</p> <p>Due to topography of site, noise emissions will be buffered by surrounding quarry face and unlikely to travel far outside the boundary of the site.</p> <p>Daily site inspections will include checks to assess that noise and vibration from site operations are not excessive beyond the site boundary.</p> <p>Plant and machinery will be selected to meet all legislation and statutory guidance on noise levels and to minimise noise levels from selected equipment and maintained to reduce noise emissions where possible.</p> <p>Noise and vibration from vehicles on site delivering and offloading materials will only be within normal operational hours. Heavy goods vehicles shall enter and leave the site at the designated access points off the A40.</p> <p>Drop heights when unloading and moving materials will be minimised to reduce the potential for generating noise and vibration emissions. Delivery drivers will be informed of these requirements upon entering site.</p>	<p>emissions above background levels already experienced in the area.</p>		
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			<p>Site vehicle engines will be turned off when idle and excessive revving and braking will be discouraged.</p> <p>If an item of plant is found to generate unacceptable noise levels, consideration will be given to modifying the equipment to incorporate noise suppression.</p> <p>All plant and equipment in use will be regularly maintained to minimise noise resulting from their operation.</p> <p>Site surfacing and roads will be maintained, and potholes will be filled and inspected to ensure the road surfaces are kept in good condition to reduce noise and vibration from impact with tyres.</p>			
<p>Noise and vibration from waste recovery operations – dewatering, construction, landscaping (pumping water, excavating and moving materials and reprofiling landform)</p>	<p>Human population in local farms and residences.</p> <p>Users of public and domestic roads and footpaths nearby.</p> <p>Disturbance to wildlife in surrounding habitats.</p>	<p>Through air and ground.</p>	<p>Recovery activities will only be undertaken during normal site operational hours.</p> <p>Site management will have the responsibility for ensuring that nuisances and hazards arising from site operations due to noise and vibration are minimised.</p> <p>Neighbours will be notified in advance of activities which may give rise to increased noise levels.</p> <p>All site persons will be trained in the need to minimise noise and vibration and will be responsible for monitoring and reporting excessive noise when carrying out their everyday roles.</p>	<p>Moderately likely - users of public footpaths and domestic roads likely to only receive short-term exposure</p> <p>Site adjacent to other waste management sites, therefore activities at the site unlikely to generate noise and vibration emissions above</p>	<p>Noise may cause annoyance to people nearby.</p> <p>Vibrations may disturb wildlife nearby</p>	<p>Low – if control measures are implemented</p>

			<p>Site operations involving the use of mobile plant, equipment for the movement and treatment of waste will not be carried outside of permitted operational hours</p> <p>When positioning noisy equipment, consideration will be given to the proximity of receptors and the prevailing wind direction.</p> <p>Due to topography of site, noise emissions will be buffered by surrounding quarry face and unlikely to travel far outside the boundary of the site</p> <p>Daily site inspections will include checks to assess that noise and vibration from site operations are not excessive beyond the site boundary.</p> <p>Plant and machinery will be selected to meet all legislation and statutory guidance on noise levels and to minimise noise levels from selected equipment and maintained to reduce noise emissions where possible.</p> <p>Plant and machinery will be serviced regularly and maintained in accordance with manufacturer's specifications in order to ensure noises potentially caused by damaged or poorly maintained equipment are kept to a minimum i.e. engines running smoothly, moving parts kept lubricated to reduce rattling or rubbing sounds etc.</p>	background levels already experienced in the area		
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			<p>Site vehicle engines will be turned off when idle and excessive revving and braking will be discouraged.</p> <p>If an item of plant is found to generate unacceptable noise levels, consideration will be given to modifying the equipment to incorporate noise suppression.</p> <p>All plant and equipment in use will be regularly maintained to minimise noise resulting from their operation.</p> <p>Drop heights when offloading and loading materials around sites will be minimised and site staff/plant operatives made aware of requirement.</p> <p>Site surfacing and haul roads will be maintained to reduce noise and vibrations generated by site traffic moving around site.</p> <p>Pumping of water as part of the dewatering activities will be carried out by means of electric pumps to reduce noise emissions.</p> <p>Dewatering activities already conducted at the site and no noise complaints have been received to date.</p>			
Noise and vibration from waste treatment facility	<p>Human population in local farms and residences.</p> <p>Users of public and domestic</p>	Through air and ground.	<p>Waste treatment (aggregate recycling) activities will only be undertaken during normal site operational hours.</p> <p>Site management will have the responsibility for ensuring that nuisances and hazards</p>	Moderately likely - users of public footpaths and domestic roads likely to only receive short-term exposure	<p>Noise may cause annoyance to people nearby.</p> <p>Vibrations may disturb wildlife nearby</p>	Low – if control measures are implemented

<p>(aggregates recycling)</p>	<p>roads and footpaths nearby.</p> <p>Disturbance to wildlife in surrounding habitats.</p>		<p>arising from site operations due to noise and vibration are minimised.</p> <p>Neighbours will be notified in advance of activities which may give rise to increased noise levels.</p> <p>All site persons will be trained in the need to minimise noise and vibration and will be responsible for monitoring and reporting excessive noise when carrying out their everyday roles.</p> <p>Site operations involving the use of mobile plant, equipment for the movement and treatment of waste will not be carried outside of permitted operational hours</p> <p>Daily site inspections will include checks to assess that noise and vibration from site operations are not excessive beyond the site boundary.</p> <p>The aggregates facility and mobile plant will move around site and not be in a fixed position, reducing long-term exposure to noise and vibration to nearby receptors.</p> <p>When positioning noisy equipment, consideration will be given to the proximity of receptors and the prevailing wind direction.</p> <p>Due to topography of site, noise emissions will be buffered by surrounding quarry face and unlikely to travel far outside the boundary of the site</p>	<p>Site adjacent to three other waste management sites, therefore activities at the site unlikely to generate noise and vibration emissions above background levels already experienced in the area</p>		
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			<p>Plant and machinery used during treatment activities will be serviced regularly and maintained in accordance with manufacturer's specifications in order to ensure noises potentially caused by damaged or poorly maintained equipment are kept to a minimum i.e. engines running smoothly, moving parts such as conveyors and crushers kept lubricated and serviced to reduce rattling, banging or rubbing sounds etc.</p> <p>Plant and machinery will be selected to meet all legislation and statutory guidance on noise levels and to minimise noise levels from selected equipment and maintained to reduce noise emissions where possible</p> <p>Site vehicle engines and plant machinery will be turned off when idle and excessive revving and braking will be discouraged.</p> <p>If an item of plant is found to generate unacceptable noise levels, consideration will be given to modifying the equipment to incorporate noise suppression.</p> <p>All plant and equipment in use will be regularly maintained to minimise noise resulting from their operation</p> <p>Drop heights when offloading and loading materials around sites will be minimised and site staff/plant operatives made aware of requirement.</p> <p>Site surfacing and haul roads will be maintained to reduce noise and vibrations generated by site traffic moving around site.</p>			
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Table 4 - Fugitive Emissions Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
To Air						
Dust from delivery of inert wastes	Human population in local farms and residences. Users of public and domestic roads and footpaths nearby. Smothering of nearby flora and fauna wildlife.	Through air	Waste delivery vehicles will arrive at site with covered waste loads, particularly in dry, warm, and windy conditions. The surface of slightly dusty waste loads may be wetted upon entrance to site prior to off-loading. Excessively dusty wastes will be rejected at the weighbridge, and any non-conforming extremely dusty discovered after unloading at the site will be wetted immediately to reduce dust emissions and reloaded onto the delivery vehicle. If this is not possible the waste will be stockpiled and wetted or covered in a quarantine area, ready for removal from site as soon as possible. Visual dust monitoring will be carried out as part of the daily site inspections and staff will notify site management immediately if dust emissions are detected. Drop heights are to be minimised when loading and unloading materials.	Unlikely Risk of dust deposition at the closest residential properties is considered low due to proximity to site boundary The prevailing wind blows away from residential receptors.	Nuisance - dust on cars, clothing, buildings.	Low – if control measures are implemented

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Dust from waste recovery operations – dewatering, construction, landscaping (pumping water, excavating and moving materials and reprofiling landform)	Human population in local farms and residences. Users of public and domestic roads and footpaths nearby. Smothering of nearby flora and fauna wildlife.	Through air	Visual dust monitoring will be carried out as part of the daily site inspections and staff will notify site management immediately if dust emissions are detected. Drop heights are to be minimised when loading and unloading materials. Weather conditions should be taken into consideration throughout the day by site management to ensure precautions are taken to prevent dust emissions, particularly in dry, warm and windy weather i.e. dust suppression sprays and wetting haul roads, particularly if unsurfaced roads. Speed limits shall be enforced around the site on haul roads to reduce kick-up of dust by vehicles, particularly on unsurfaced roads / areas. Good housekeeping and cleaning regimes should be undertaken, paying particular attention to site surfacing and haul roads to minimise build up mud, sediment and debris that could generate dust if disturbed.	Unlikely Risk of dust deposition at the closest residential properties is considered low due to proximity to site boundary The prevailing wind blows away from residential receptors.	Nuisance - dust on cars, clothing, buildings.	Low – if control measures are implemented

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			Stock piling and moving materials around site should be undertaken in such a manner as to minimise wind-borne dust emissions e.g. stored or moved in sheltered areas and with consideration for wind direction, and dry surfaces wetted prior to disturbing if dust likely to be generated.			
Dust from waste treatment facility (aggregates recycling)	Human population in local farms and residences. Users of public and domestic roads and footpaths nearby. Smothering of nearby flora and fauna wildlife.	Through air	Treatment of waste has potential to agitate material and create dust emissions. Visual dust monitoring will be carried out as part of the daily site inspections and staff will notify site management immediately if dust emissions are detected. Drop heights are to be minimised when loading and unloading materials. Weather conditions should be taken into consideration throughout the day by site management to ensure precautions are taken to prevent dust emissions, particularly in dry, warm and windy weather i.e. dust suppression sprays and wetting haul roads, particularly if unsurfaced roads.	Unlikely Risk of dust deposition at the closest residential properties is considered low due to proximity to site boundary The prevailing wind blows away from residential receptors.	Nuisance - dust on cars, clothing, buildings.	Low – if control measures are implemented

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			<p>Speed limits shall be enforced around the site on haul roads to reduce kick-up of dust by vehicles, particularly on unsurfaced roads / areas. Good housekeeping and cleaning regimes should be undertaken, paying particular attention to site surfacing and haul roads to minimise build up mud, sediment and debris that could generate dust if disturbed.</p> <p>Stock piling and moving materials around site should be undertaken in such a manner as to minimise wind-borne dust emissions e.g. stored or moved in sheltered areas and with consideration for wind direction, and dry surfaces wetted prior to disturbing if dust likely to be generated.</p>			
To Water						
Contaminated run-off from site surfacing directly into surface water from	Surface water bodies and ditches surrounding application site.	Surface water run-off overland	The nature of inert wastes mean they are very unlikely to be a source of contaminants, and this will prevent pollution and protect the watercourses. However, there is the potential for elevated suspended solids to enter watercourses if run-off is uncontrolled during restoration activities and water washes sediment into ditches.	Unlikely - given measures taken to restrict surface water run-off from	Detriment to the quality of surface water could affect fish, newts and other wildlife within	Very Low – if control measures are implemented

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
restoration activities	Flora and fauna nearby – specifically wildlife in hydraulically linked waterbodies i.e. newts. Habitats – SSSI and SAC to south		<p>Strict waste acceptance procedures at the site will ensure that non-conforming wastes will be rejected and waste with non-hazardous mirror waste codes will not be accepted at site.</p> <p>A margin of 8 metres (as stated in the planning permission) between watercourses and excavations will be maintained as part of the operations and no watercourses shall be incorporated in the excavations, therefore no direct connections with watercourses will be made.</p> <p>All possible steps will be taken to prevent any solid matter, sand or gravel, or excess amounts of suspended solids from passing into any watercourse from the excavations or other activities.</p> <p>There will be no discharges of potentially polluted water or water high in suspended solids, into the nearby waterbodies.</p> <p>The site is located in a ‘very low risk’ flood area, with reference to the Environment Agency flood risk maps. All stockpiles of overburden, topsoil, excavated materials and inert waste materials shall be sited so as not to impede the</p>	<p>entering watercourses.</p> <p>Due to the nature of inert waste, not likely to be a source of pollutants.</p>	the nearby watercourses and waterbodies.	

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
			flow of surface waters or interact with waterbodies, and retained for as short a period as possible.			
Contaminated run-off from site surfacing directly into surface water from treatment activities	Surface water bodies and ditches surrounding application site. Flora and fauna nearby – specifically wildlife in hydraulically linked waterbodies i.e. newts.	Surface water run-off overland	The nature of inert wastes mean they are very unlikely to be a source of contaminants and they will have a negligible leaching potential, and this will prevent pollution and protect the watercourses. However, there is the potential for elevated suspended solids to enter watercourses if run-off is uncontrolled during restoration activities and water washes sediment into ditches. All possible steps will be taken to prevent any solid matter, sand or gravel, or excess amounts of suspended solids from passing into any watercourse from the treatment activities. There will be no discharges of potentially polluted water or water high in suspended solids, into the nearby waterbodies. All stockpiles of overburden, topsoil, excavated materials and inert waste materials shall be sited so as not to impede	Unlikely – inert wastes to be accepted at site will not be contaminated and will have negligible leaching potential. Due to the nature of inert waste, unlikely to generate contaminated run-off and pose	Detriment to the quality of surface water could affect fish, newts and other wildlife within the nearby watercourses and waterbodies.	Very Low – if control measures are implemented

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
	Habitats – SSSI and SAC to south		the flow of surface waters or interact with waterbodies, and retained for as short a period as possible.	a risk to the environment.		
Contaminated run-off percolating down through ground.	Groundwater or surface waters close to the site	Through soil/ groundwater.	The treatment activities will be undertaken on a hardstanding surface. The nature of the inert wastes to be accepted at the site means they will not be contaminated and will have negligible leaching potential, therefore a negligible risk of impact to groundwater or surface water.	Unlikely – the nature of the inert wastes means they pose negligible risk to the environment.	Contamination of groundwater and surface water.	Very Low - if control measures are implemented
Pests						
Pests associated with waste - Rodents, Flies, Insects, Birds	Human population in local farms and residences. Users of public and domestic roads and	Over ground and via watercourses.	N/A – Due to the nature of inert wastes, they will not contain putrescible or biodegradable fractions. Any non-conforming wastes delivered to site will be rejected.	N/A	N/A	Very low

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
	footpaths nearby.					
Mud/Litter						
Mud/debris from delivery/ collection vehicles.	Nearby humans using public roads	Mud/debris being dragged onto public highway.	All vehicles shall be checked prior to leaving site for mud and debris stuck to vehicle. Vehicles shall go through the wheel-wash and if necessary be subject to extra cleaning prior to leaving site and entering the public highway (checking wheels and chassis). Where roads are surfaced on site, roads will be maintained and monitored for build-up of mud, employing a road sweeper where necessary. If mud is tracked off-site, a road sweeper will be employed to clean up road surfaces as often as necessary, to reduce impact on public roads, particularly the around the access areas on and off the A40.	Moderately likely – potential for mud and debris to be tracked from unsurfaced areas on site onto surfaced haul roads and public roads.	Nuisance and skid risk to public road users	Low – if control measures implemented

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Litter from inert wastes	Workers and visitors to site Nearby residential receptors.	Via air (windblown) and across ground	N/A – Due to nature of inert wastes they will not contain litter. Strict waste acceptance procedures at site will prevent non-conforming wastes entering site, and they will be rejected. If any litter derived from the operations is detected on site and outside boundaries, litter picking will be undertaken.	N/A	Nuisance to nearby human receptors in residential properties and site offices.	Very low

Table 5 - Visible Plumes Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
<p>Potential visible plumes from dust generated by restoration and treatment activities.</p> <p>Dust plumes from vehicle movements on site roads and from movement/processing of inert wastes.</p>	<p>Nearby receptors on public roads, footpaths and in residential properties.</p> <p>Woodland and habitat designations near to site, particularly down-wind.</p>	Via air / windblown.	<p>There is the potential for dust plumes to be generated by the movement of site traffic on haul roads and the processing and transfer across site of inert wastes, particularly on dry, warm, and windy days.</p> <p>All activities on site will be monitored by site staff to identify weather conditions likely to cause dust plumes and to take preventative measures, which include dust suppression (wetting site surfaces, stockpiles, haul roads, waste loads) and enforcing site speed limits and reducing drop heights of dry materials.</p>	Moderately likely – if site traffic busy, particularly in dry, warm and windy conditions.	<p>Dust on buildings and loss of visibility on roads.</p> <p>Smothering of flora and fauna wildlife.</p> <p>Suspended loads settling into watercourses from dust plumes.</p>	Low – if control measures are implemented.

Table 6 - Accidents Risk Assessment

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	Receptor	Pathway	Risk management	Probability of exposure	Consequence	What is the overall risk?
What has the potential to cause harm?	What is at risk? What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? If it occurs – who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Spillage or leak of fuel or other hazardous liquids from delivery vehicles and plant on site	Underlying soil, groundwater and surface water.	Via ground and overland run-off.	<p>Fuels and oils associated with vehicles delivering waste materials to site, vehicles moving around site and stationary plant could potentially leak or spill fuel or oils during use.</p> <p>Operation of vehicles away from banks of waterbodies and vehicles and plant regularly serviced and maintained to manufacturers specifications to ensure no leaks or spillages.</p> <p>Spill kits on site should there be any leaks or spillages – incident recorded in the site diary and any spill kits are replaced.</p> <p>Regular inspections to check for integrity of site surfacing and correct storage of any hazardous liquids e.g. fuel for mobile plant.</p> <p>All staff involved in waste handling will be inducted in the emergency procedures regarding the handling of spills.</p>	Unlikely - very unlikely that any accidental spills or leaks of fuels/oils (small in size) would reach water courses or groundwater.	Contamination of local water course or underlying ground or groundwater.	Low – if control measures are implemented

			<p>No direct source of hazardous liquids from inert wastes materials.</p> <p>All plant and machinery used on site will subject to a Planned Preventative Maintenance system as per company policy, to ensure leaks and spills of fuel/oils is minimised and prevented at the outset.</p>			
Spillages of hazardous substances stored on site – fuels and oils for mobile plant	Underlying soil, groundwater and surface water.	Via ground and overland run-off.	<p>Oil storage tanks shall be sited on impervious bases surrounded by oil tight bund walls, capable of containing 110% of the tank's volume.</p> <p>An emergency spill plan should be followed in the event of a spillage or leak and staff should be fully inducted in the correct procedures.</p> <p>Spill kits on site should there be any leaks or spillages – incident recorded in the site diary and any spill kits are replaced</p> <p>Regular inspections to check for integrity of site surfacing and correct storage of any hazardous liquids e.g. fuel for mobile plant.</p>	Unlikely - very unlikely that any accidental spills or leaks of fuels/oils (small in size) would reach water courses or groundwater.	Contamination of local water course or underlying ground or groundwater.	Low – if control measures implemented
Flooding	Surface water.	Overland run-off	<p>Site is located in a 'very low risk' flood risk area from rivers and the Sea. This means that each year this area has a chance of flooding of less than 0.1%.</p> <p>No dewatering shall be undertaken while nearby watercourses are running bank full under flood conditions.</p>	Unlikely – inert wastes do not contain contaminants	Contamination of local water courses	Very low - if control measures are implemented

			Inert wastes not likely to pollute water if caught in flood waters, as they will not be contaminated and have negligible leaching potential.			
Fire of vehicles, plant and buildings on site (inert waste not at risk)	Surface water in receipt of fire water. Surrounding sites. Nearby residential receptors.	Air transport of smoke and vapours.	<p>Fires could occur as a result of arson, self-combustion or from sources of ignition – likely vehicles, plant or temporary buildings. Inert wastes inherently not likely to burn.</p> <p>Daily site inspections of storage areas and plant to identify any signs of smoking or smouldering.</p> <p>Site security with fencing and locked gates out of hours will prevent fires caused by arson or vandalism.</p> <p>There will be a No Smoking policy on site.</p> <p>Waste Acceptance at the weighbridge will ensure that no hot loads, smouldering, or smoking are not accepted.</p> <p>Actions in the event of fire call fire service on 112 or 999.</p> <p>Where it is safe to do so, site staff will use on-site firefighting equipment to extinguish fires.</p> <p>Where possible and safe, combustible materials will be isolated from the fire.</p> <p>Where a fire may have been caused by electricity or is close to electrical equipment,</p>	Unlikely	Smoke, local nuisance to human receptors, risk of fire spreading to other areas or neighbouring properties i.e. adjacent sites	Low - if control measures are implemented

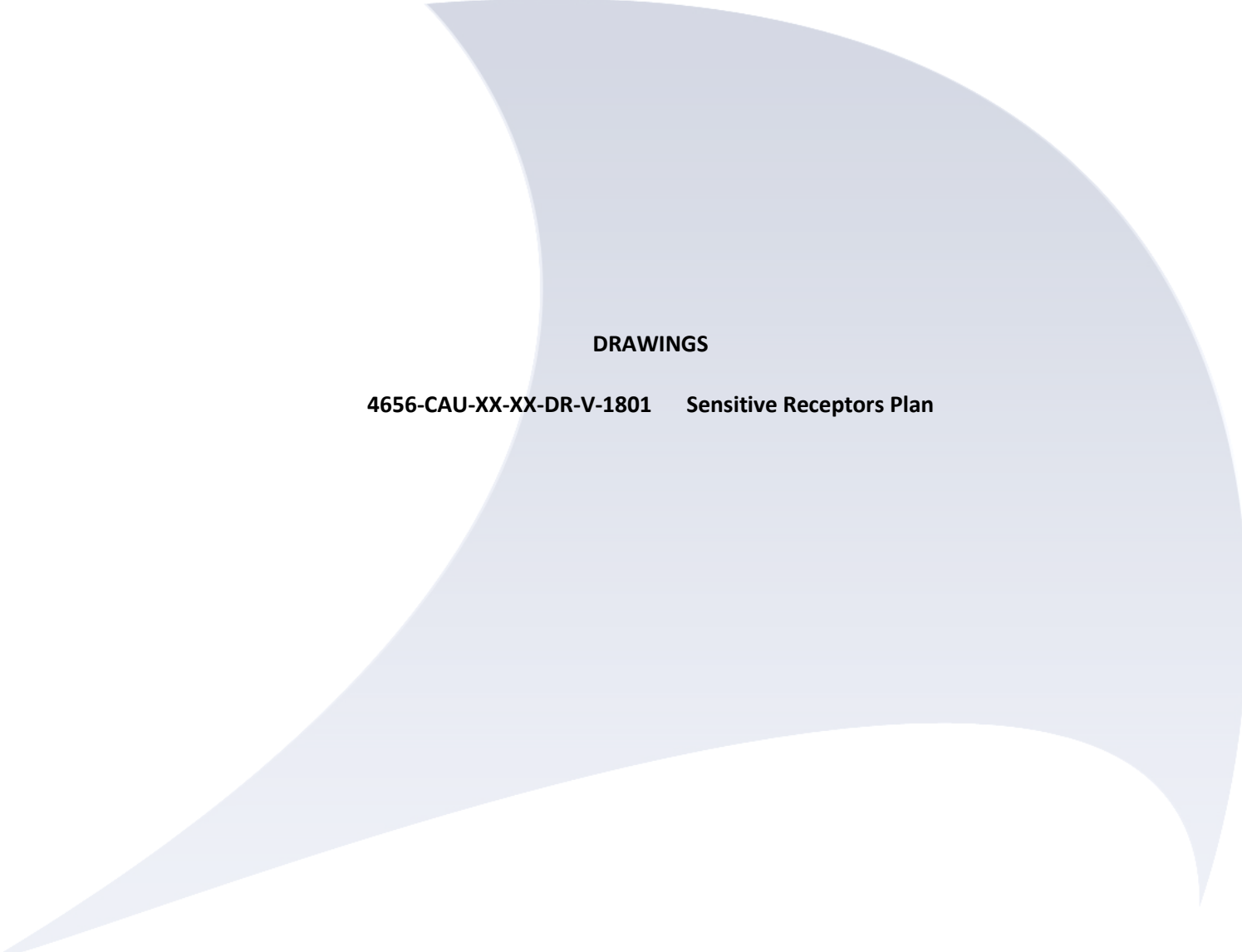
			<p>electricity to that area will be switched off and isolated.</p> <p>Clear directions will be given to the fire service and a member of staff will wait at the entrance to the site to direct the service to the site on arrival, to ensure that the speediest fire-fighting service is provided.</p> <p>Members of the public and site staff will be evacuated and prevented from entering the site until the incident is dealt with.</p> <p>The emergency procedure will include incident reporting. As part of the environmental management system, incidents will be reviewed by management on a regular basis to identify whether lessons can be learnt, and procedures improved to better prepare for and prevent fires in future.</p> <p>Resulting fire waters will be controlled and prevented from entering nearby surface water bodies and disposed of off-site as appropriate.</p>			
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5. CONCLUSION

- 5.1.1 The risk assessments above enable identification of appropriate mitigation measures to control the amenity and accident risks from the proposed activities. All identified risk mitigation measures will be incorporated within the management system for the site.
- 5.1.2 The amenity and accident risk assessments indicate that provided the risk mitigation measures which are identified in the tables above are implemented, the risk of nuisance or pollution from odour, fugitive emissions including dust, litter, contaminated surface run-off, pests or accidents such as fire is low. Furthermore, this risk assessment has concluded that the generation of noise and vibration as a result of operations at Cassington Quarry Plant Area will not be significant, particularly taking into consideration the relative distances (over 300m) to residential properties from the site boundary, and therefore a Noise and Vibration Management Plan is not considered necessary.
- 5.1.3 Overall, the proposed operations will produce very little emissions or risks to nearby sensitive receptors.

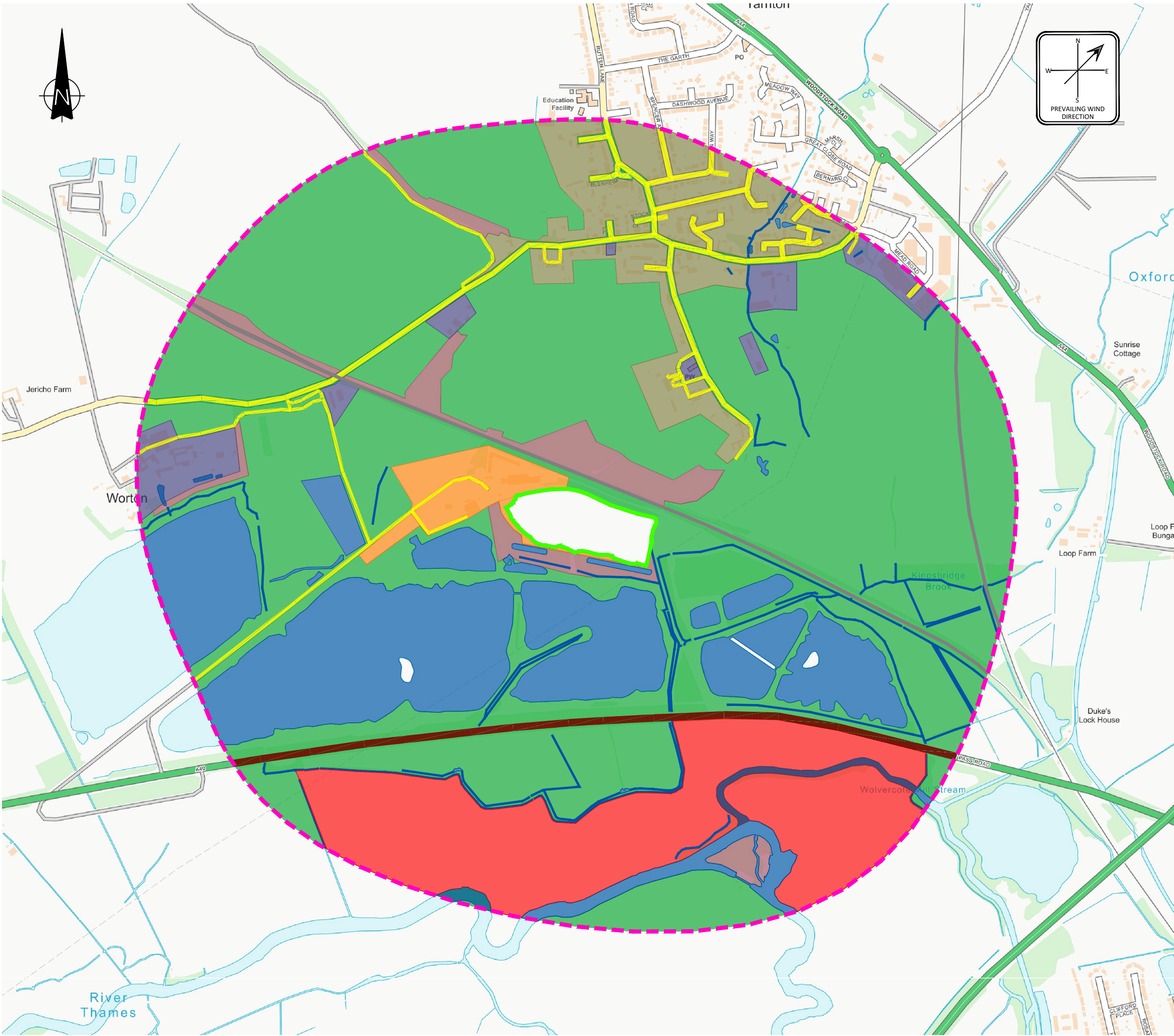
6. REFERENCES

Environment Agency (updated 25th March 2021): Risk Assessments for your environmental permit: <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>



DRAWINGS

4656-CAU-XX-XX-DR-V-1801 Sensitive Receptors Plan



LEGEND

- PERMIT BOUNDARY
- 1000m OFFSET
- SURFACE WATER
- WOODLAND
- COMMERCIAL
- INDUSTRIAL
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- RAIL
- AGRICULTURAL
- EDUCATIONAL
- SSSI AND SAC DESIGNATION

P03	PERMIT BOUNDARY UPDATED	EJD	KB	KB	04.06.21
P02	PERMIT BOUNDARY UPDATED	EJD	KB	KB	23.04.21
P01	ISSUED FOR INFORMATION	EJD	SB	SB	20.04.21
REV	MODIFICATIONS	BY	RE	AP	DATE
PURPOSE OF ISSUE					STATUS
FOR INFORMATION					S2

CLIENT:

PROJECT:

CASSINGTON QUARRY

TITLE:

SENSITIVE RECEPTORS PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	SB	SB
DATE	SCALE @ A3	JOB REF:	REVISION
12.04.2021	1:10000	4656	P03

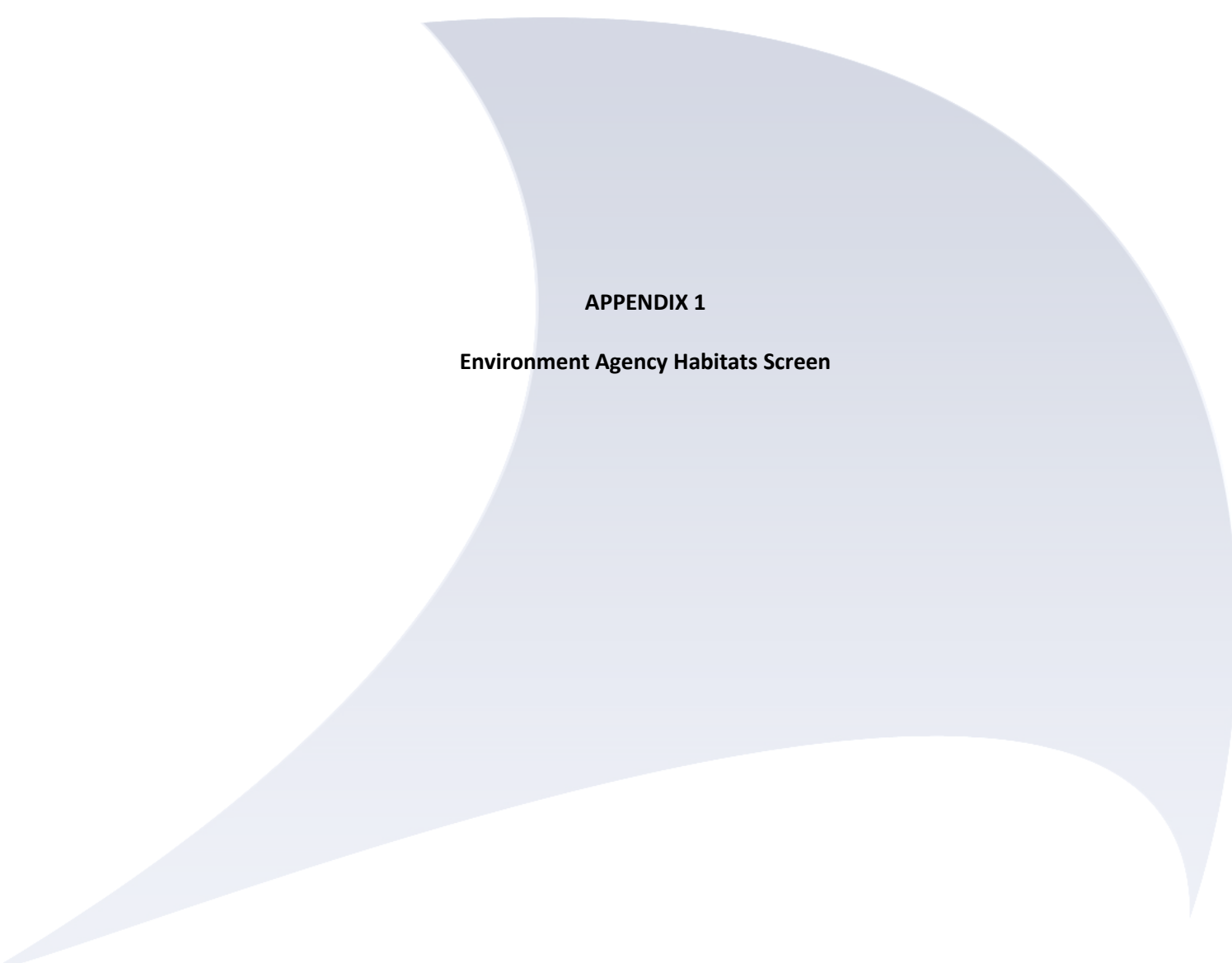
DRAWING NUMBER

4656-CAU-XX-XX-DR-V-1801



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APPENDIX 1

Environment Agency Habitats Screen

Nature and Heritage Conservation

Screening Report: Bespoke Waste

Reference	EPR/KB3309MQ/A001
NGR	SP 46840 11285
Buffer (m)	1000m
Date report produced	24/05/2021
Number of maps enclosed	5

The nature and heritage conservation sites and/or protected species and habitats identified in the table below must be considered in your application.

Nature and heritage conservation sites	Screening distance (m)	Further Information
Special Areas of Conservation (cSAC or SAC)	1000	Joint Nature Conservation Committee
Oxford Meadows		
Sites of Special Scientific Interest (SSSI)	1000	Natural England
Pixey and Yarnton Meads		
Wytham Woods		
Wytham Ditches and Flushes		
Cassington Meadows		
Local Wildlife Sites (LWS)	200	Appropriate Local Record Centre (LRC)
Acrey Pits		
Cassington to Yarnton Gravel Pits		

Protected Species

Screening distance (m)

Further Information

Brown trout

Up to 500m

[Natural England](#)

European eel

Environment Agency. Dial 03708 506 506 for your local Fisheries and Biodiversity team

European eel migratory route

Bullhead

Water Vole

Protected Species - Code 2

Protected Habitats

Screening distance (m)

Further Information

Deciduous woodland

up to 50m

[Natural England](#)

Lowland meadows

Coastal and Floodplain
Grazing Marsh

Unfortunately we cannot provide you with the details of all protected species. This is because we either have not been given permission by the owner of the species data, or they have asked us not to identify the species as they are vulnerable. In these instances you must contact the relevant organisation listed above. A small administration charge may be incurred for this service.

Where protected species are present, a licence may be required from [Natural England](#) to handle the species or undertake the proposed works.

The relevant Local Records Centre must be contacted for information on the features within local wildlife sites. A small administration charge may also be incurred for this service.

Please note we have screened this application for protected and priority sites, habitats and species for which we have information. It is however your responsibility to comply with all environmental and planning legislation, this information does not imply that no other checks or permissions will be required.

Please note the nature and heritage screening we have conducted as part of this report is subject to change as it is based on data we hold at the time it is generated. We cannot guarantee there will be no changes to our screening data between the date of this report and the submission of the permit application, which could result in the return of an application or requesting further information.

customer service line
03708 506 506

incident hotline
0800 80 70 60

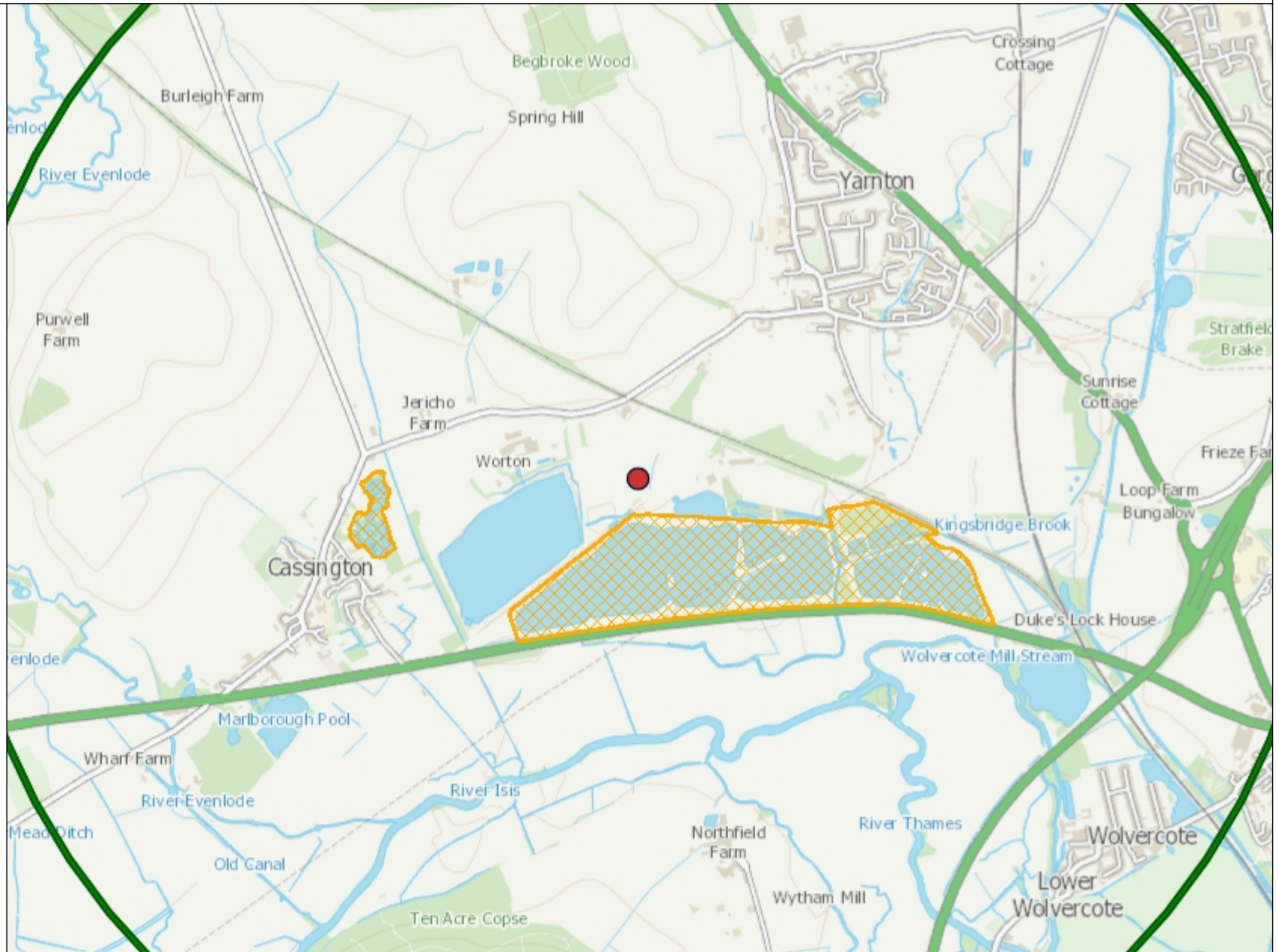
floodline
0845 988 1188

www.environment-agency.gov.uk

Local Wildlife Sites

Legend

 Local Wildlife Sites



1: 25,000


0 625

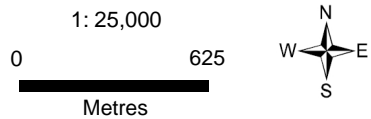
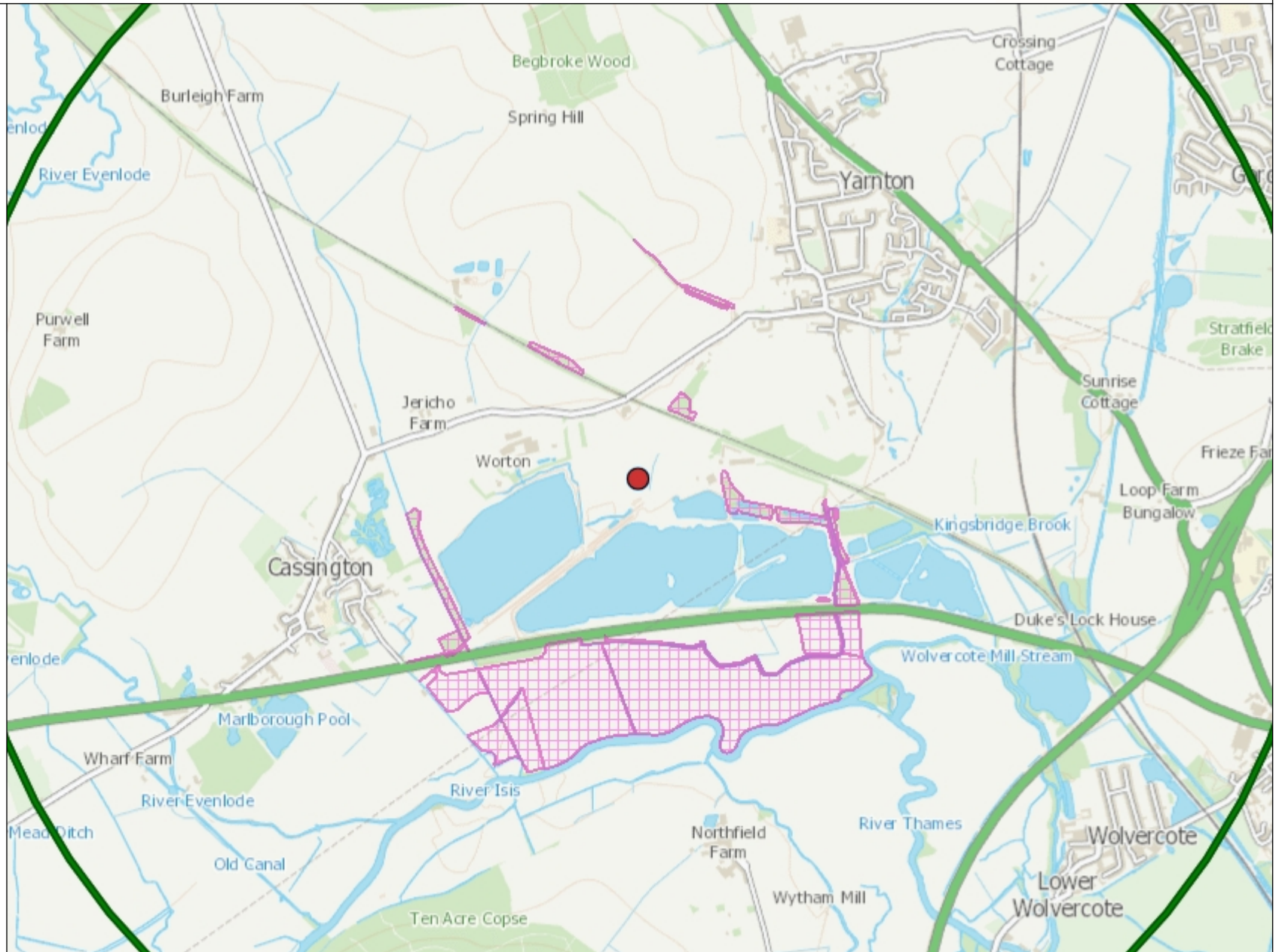
Metres



Protected Habitats

Legend




-  Protected Habitats screened for En Permits

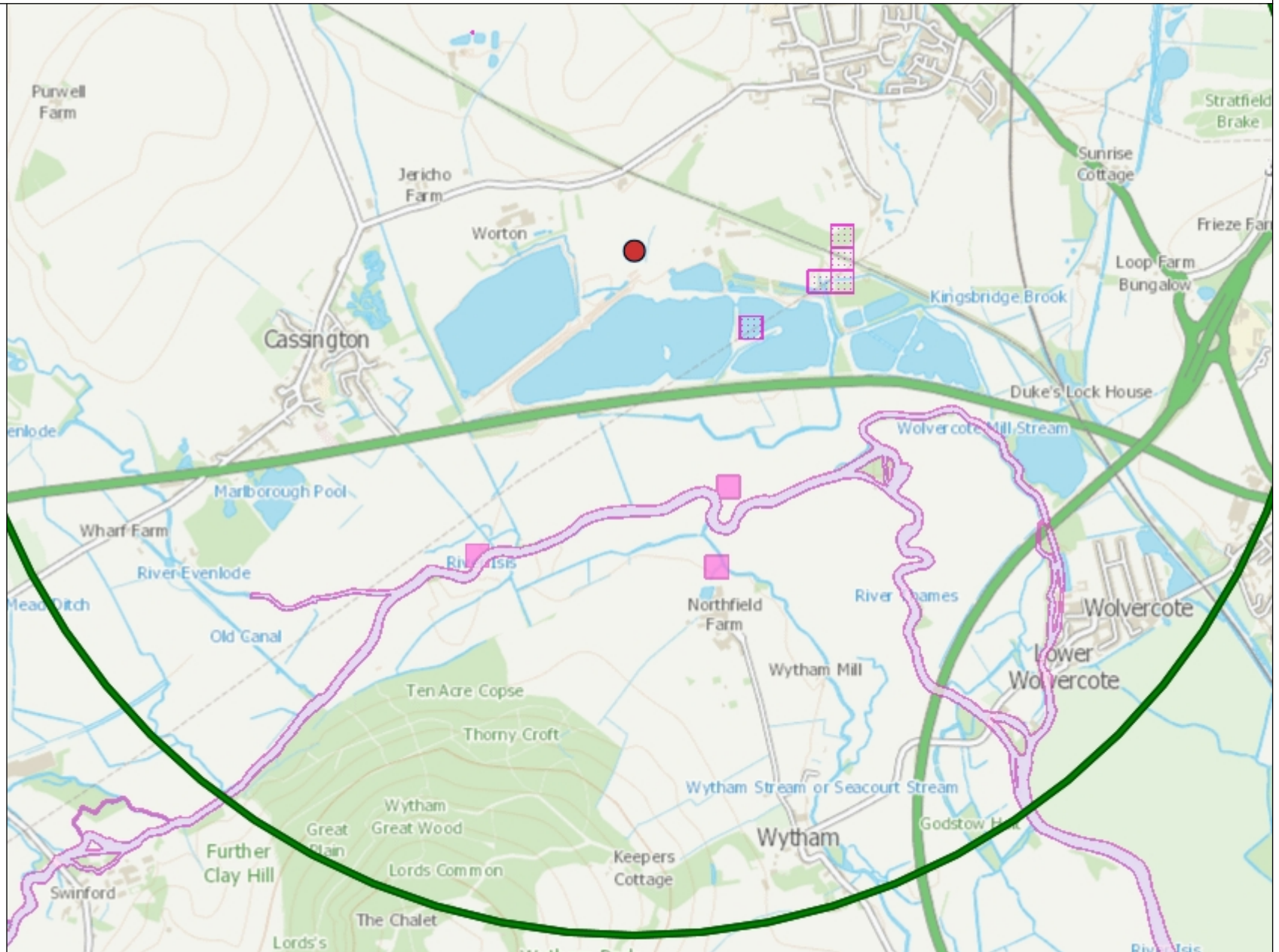


Protected Species

Legend

Protected species screened for Env Permits - complete set

-  Protected species, non fish
-  Protected fish
-  Protected fish migratory route



1: 25,000


0 625

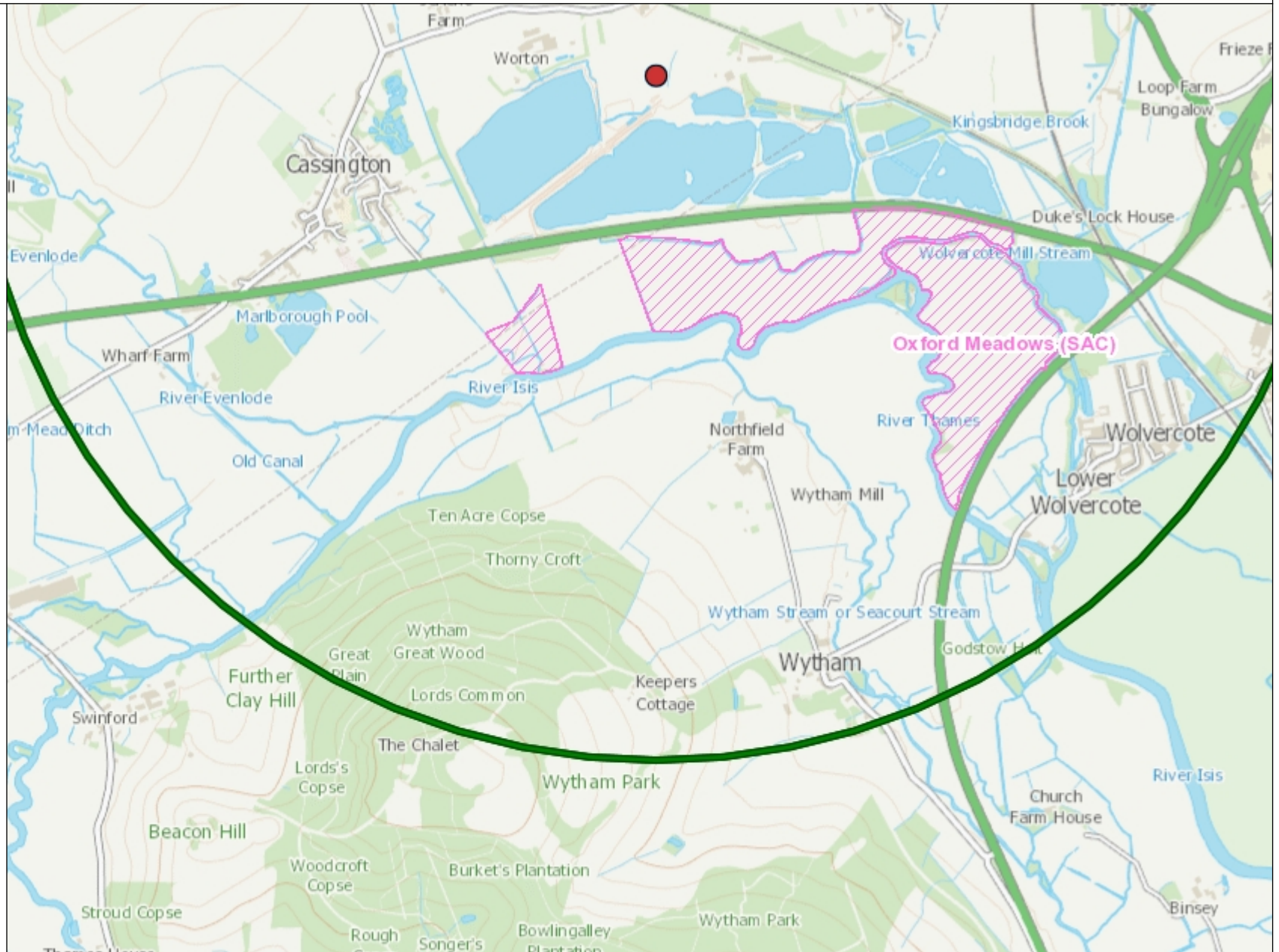
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Special Areas of Conservation

Legend

 SAC (England)




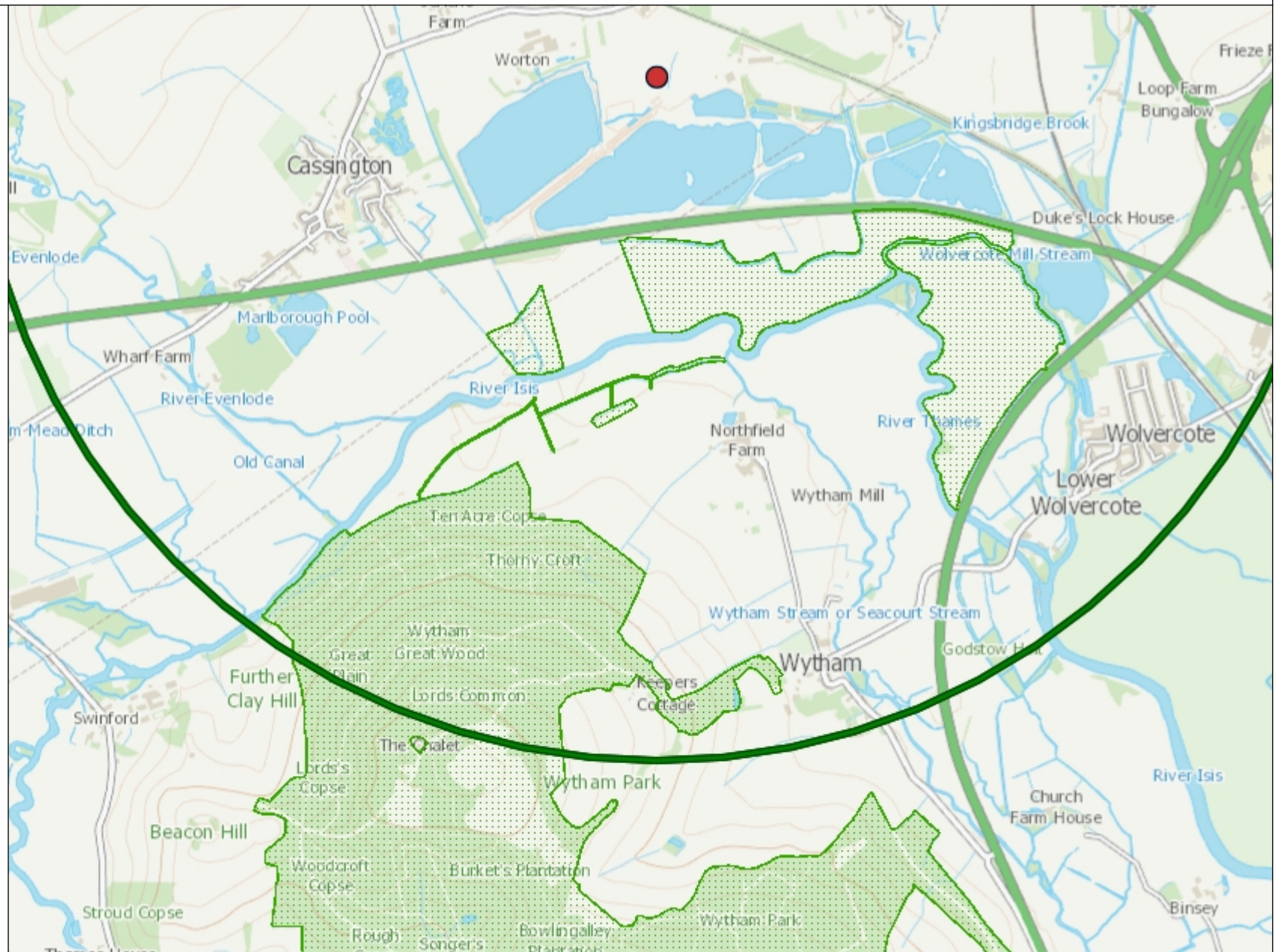
1: 25,000



Sites of Special Scientific Interest

Legend

 SSSI (England)



1: 25,000





APPENDIX 2

Cassington Quarry Ecology Report 2015 ref. AEL1044 v2



Cassington Quarry

Ecology Report

Produced for Hanson Aggregates UK

By Applied Ecology Ltd

November 2015

Document Control:

Version	Date	Version Details	Prepared by	Checked by	Approved by
1.0	11.11.15	1.0	PY/DP	DP	DP
2.0	11.11.15	2.0	DP	DP	DP

Prepared for: Hanson Aggregates UK
Title: Cassington Quarry – Ecology Report
Project number: AEL1044
Document version: 2.0
Document status: Final
Document date: 11.11.15

Signed on behalf of Applied Ecology Ltd:



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Director

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1 Introduction

Background

- 1.1 Applied Ecology Ltd was appointed by Hanson Aggregates UK to provide ecological information to support an application to Oxford County Council (OCC) to extend an existing planning permission for gravel extraction and processing at Cassington Quarry in Oxfordshire.
- 1.2 The ecological supporting information required by OCC was agreed at a site meeting on 15 May 2015 with OCC Ecologist Planner Tamsin Atley and Applied Ecology as follows:
 - Phase 1 habitat mapping of future extraction, processing and significant restoration areas;
 - Completion of great crested newt eDNA testing of five separate waterbodies within the site;
 - Reptile survey of a restored lakeside grassland located to the west of the quarry to understand its potential suitability as a receptor area in the future.
- 1.3 This report summarises the results of this survey work completed over the period May-September 2015.
- 1.4 The location of the site and the survey area components are shown by **Figure 1.1**.

Legislation & Planning

Legislation

- 1.5 The Wildlife and Countryside Act 1981 (as amended) provides the main legal framework for nature conservation and species protection in the UK. The Site of Special Scientific Interest (SSSI) is the main statutory nature conservation designation in the UK. Such sites are notable for their plants, or animals, or habitats, their geology or landforms, or a combination of these. Natural England is the key statutory agency in England for advising Government, and for acting as the Government's agent in the delivery of statutory nature conservation designations.
- 1.6 Designation of a SSSI is a legal process, by which sites are notified under the Wildlife and Countryside Act 1981. The 1981 Act makes provision for the protection of sites from the effects of changes in land management, and owners and occupiers receive formal notification specifying why the land is of special scientific interest, and listing any operations likely to damage the special interest.
- 1.7 The Countryside and Rights of Way Act 2000, and The Natural Environment and Rural Communities (NERC) Act 2006, provide supplementary protected species legislation. Specific protection for badgers *Meles meles* is provided by the Protection of Badgers Act 1992.



Habitats and Species of Principal Importance in England

- 1.8 The Natural Environment and Rural Communities (NERC) Act came into force on 1 October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act.
- 1.9 The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Habitats of Principal Importance

- 1.10 Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and sub-tidal sands and gravels.

Species of Principal Importance

- 1.11 There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. In addition, the Hen Harrier *Circus cyaneus* has also been included on the list because without continued conservation action it is unlikely that the Hen Harrier population will increase from its current very low levels in England.
- 1.12 In accordance with Section 41(4) the Secretary of State will, in consultation with Natural England, keep this list under review and will publish a revised list if necessary.

National Planning Policy Framework

- 1.13 The National Planning Policy Framework (NPPF) was published in March 2012 and replaces previous planning policy guidance (PPS 9) on biodiversity. NPPF states the following in relation to biodiversity and planning:
- 1.14 *“When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:*
- *if significant harm resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
 - *proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an*



adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have on the features of the site that make it of special scientific interest and any broader impacts on the national network of Sites of Special Scientific Interest;

- *development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
- *opportunities to incorporate biodiversity in and around developments should be encouraged;*
- *planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and*
- *the following wildlife sites should be given the same protection as European sites:*
 - *potential Special Protection Areas and possible Special Areas of Conservation;*
 - *listed or proposed Ramsar sites; and*
 - *sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.*

1.15 *The presumption in favour of sustainable development does not apply where development requiring appropriate assessment under the Birds or Habitats Directives is being considered, planned or determined."*





Cassington

Site location

- site boundary
- potential reptile receptor area

Figure 1.1

Map Scale @ A4: 1:12,000

Surveyed by: N/A
Survey date: N/A
Drawn by: PL
Checked by: DP
Status: Final



2 Habitats

Survey Approach

- 2.1 A standard Phase 1 habitat survey of the agreed areas of the site was completed by an ecologist from Applied Ecology Ltd on 15 May 2015.
- 2.2 All ground to be mapped was walked and carefully investigated. All habitats present were mapped according to standard Phase 1 habitat survey categories¹ and described in terms of their associated native plant species. Non-native (ornamental) plant species were not recorded in detail.
- 2.3 Notes were made of the key habitats and features and, where appropriate, a list of the plant species present and an estimate of their individual relative abundance was recorded according to the DAFOR scale.
- 2.4 The surveyors also searched for the presence of habitats of biodiversity importance, and/or habitats protected by UK legislation.

Survey Findings

- 2.5 The Phase 1 map is shown by **Figure 2.1**.
- 2.6 The largest habitat area was located in the centre of the site and comprised the former sand and gravel processing area which was dominated by large areas of bare ground and ephemeral/short perennial vegetation (target notes 1-3). The vegetation was characterised by typical bare ground pioneer species including (Target note 1): rosebay willowherb *Chamerion angustifolium*, creeping thistle *Cirsium arvense*, squirreltail fescue *Vulpia bromoides*, annual meadow-grass *Poa annua*, selfheal *Prunella vulgaris*, procumbent pearlwort *Sagina procumbens*, greater plantain *Plantago lanceolata*, hard rush *Juncus inflexus*, creeping bent *Agrostis stolonifera*, field forget-me-not *Myosotis arvensis*, perforate St. John's-wort *Hypericum perforatum* and prickly oxtongue *Picris echoides*.
- 2.7 Topsoil storage bunds were present around the perimeter of the site which to the north was dominated by tall ruderal vegetation and scattered scrub, and to the south by recently established semi-improved grassland. Grass species present included (Target note 2): red fescue *Festuca rubra* and Yorkshire-fog *Holcus lanatus*, and forbs were represented by creeping thistle *Cirsium arvense*, wild strawberry *Fragaria vesca*, field forget-me-not *Myosotis arvensis*, common ragwort *Senecio jacobaea*, wood avens *Geum urbanum*, creeping buttercup *Ranunculus repens*, common nettle *Urtica dioica*, foxglove *Digitalis purpurea*, dogwood *Cornus sanguinea*, dog rose *Rosa canina*, gorse *Ulex europaeus* and spear thistle *Cirsium arvense*.
- 2.8 To the south of the topsoil bunds were two densely vegetated linear ponds (referred to hereafter as the Long Ponds) surrounded by broadleaved woodland. The waterbodies supported mixed swamp vegetation characterised by (Target note 3): common reed *Phragmites australis*, greater pond-sedge *Carex riparia*, reed sweet-grass *Glyceria maxima*,



water mint *Mentha aquatica*, gipsywort *Lycopus europaeus*, purple-loosestrife *Lythrum salicaria*, and greater reed mace *Typha latifolia*.

- 2.9 To the east of the gravel extraction area was a triangular field (referred to hereafter as the pylon field) that was comprised of mainly unmanaged semi-improved neutral grassland, with some evidence of rabbit grazing. Rabbit grazing was more prevalent to the east of the field and here the sward was dominated by (Target note 4): Yorkshire-fog *Holcus lanatus*, creeping bent *Agrostis stolonifera* and red fescue *Festuca rubra*, with rare occurrences of squirreltail fescue *Vulpia bromoides*. Forbs were dominated by creeping cinquefoil *Potentilla reptans* and ground-ivy *Glechoma hederacea*, with occasional common ragwort *Senecio jacobaea*, field forget-me-not *Myosotis arvensis*, germander speedwell *Veronica chamaedrys*, perforate St John's-wort *Hypericum perforatum*, lesser burdock *Arctium minus*, hoary willowherb *Epilobium parviflorum*, wild teasel *Dipsacus fullonum*, great willowherb *Epilobium hirsutum* and areas of abundant common nettle *Urtica dioica*. Vegetated topsoil bunds supporting tall ruderal vegetation, with dense and scattered scrub were present around the periphery of the field.
- 2.10 To the west of the field (Target note 5) the grassland was rank and dominated by false oat-grass *Arrhenatherum elatius*, with abundant cock's-foot *Dactylis glomerata* and Yorkshire-fog, and occasional common bent *Agrostis capillaris*. Forbs were represented by creeping cinquefoil, glaucous sedge *Carex flacca*, creeping buttercup *Ranunculus repens*, dove's-foot crane's-bill *Geranium molle*, common nettle *Urtica dioica*, spear thistle *Cirsium arvense*, hoary ragwort *Senecio erucifolius*, bristly oxtongue *Picris echoides*, ivy-leaved speedwell *Veronica hederifolia* and rare occurrences of bramble *Rubus fruticosus* and silverweed *Potentilla anserina*.
- 2.11 To the west of the site was a shallow water area partially backfilled interim restoration area mapped as standing water and bounded to the west by a narrow strip of semi-improved neutral grassland and to the north by a large top-soil bund covered mainly in tall ruderal vegetation dominated by hemlock *Conium maculatum* with less frequent nettle and occasional elder *Sambucus nigra*. The area is known as the Cresswell Field.

Overview

- 2.12 The majority of the habitats present had been formed/heavily influenced by relatively recent historic sand and gravel processing activity and were common place habitats of relatively low nature conservation and biodiversity interest. The broadleaved woodland and swamp vegetation to the south of the gravel processing site was of elevated biodiversity interest by virtue of being a relatively old and undisturbed habitat area.





Cassington

Phase 1 Habitat Survey

- site boundary
- broad-leaved semi-natural woodland
- mixed plantation woodland
- dense scrub
- semi-improved neutral grassland
- SI s poor semi-improved neutral grassland
- standing water
- swamp
- marginal vegetation
- tall ruderal
- x x ephemeral/short perennial
- • bare ground
- hard standing
- wet ditch
- line of trees
- species-poor intact hedge
- individual tree (indicative location)
- x scattered scrub
- target notes

Figure 2.1

Map Scale @ A4: 1:6,000

Surveyed by: RH
Survey date: 15/5/15
Drawn by: PL
Checked by: DP
Status: Final



3 Protected Species

Great Crested Newt

- 3.1 Five eDNA test kits supplied by ADAS were used to collect samples of water from around the perimeter of five waterbodies within the site on 9 June 2015. The survey methodological approach described by ADAS was followed, with the samples being analysed for great crested newt (GCN) DNA by ADAS. Sampling was completed by a licenced GCN surveyor from Applied Ecology Ltd.
- 3.2 The locations of the waterbodies that were sampled are shown by **Figure 3.1**.
- 3.3 GCN DNA was confirmed as being present in two of five waterbodies – waterbody 2 and 3. No evidence of GCN presence was found in waterbodies 1, 4 and 5.
- 3.4 Waterbody 2 was a heavily shaded pond towards the end of its hydrosere succession that was once hydrologically connected to a larger gravel lake. It had a calculated Habitat Suitability Index (HSI) of 0.57 (below average suitability for GCN).
- 3.5 Waterbody 3 was a large linear pond that was choked with emergent aquatic vegetation and had an HSI of 0.65 (average suitability). Fish were seen in the waterbody during the eDNA sample collection, and have been reported as being present by previous GCN survey. The presence of GCN in this waterbody is unusual as fish and GCN do not normally coexist. However, it is conceivable that the dense aquatic vegetation provides sufficient cover for GCN efts to avoid predation by fish.
- 3.6 The implications of the presence of GCN for future extraction and restoration are discussed in Chapter 4.
- 3.7 The eDNA test results are provided in **Appendix 1**.

Reptiles

- 3.8 The grass dominated soil bunds around the gravel processing area, and the grassland of the pylon field to the east have the potential to support populations of common species of reptiles which could be adversely impacted by soil bund removal as part of future gravel extraction and restoration.
- 3.9 In order to identify a suitable receptor area in which reptiles from the processing area and pylon field could be relocated prior to construction, a reptile survey of a strip of lakeside grassland located to the west of the quarry was completed over the period 19th May to 18th September 2015.
- 3.10 The area in question is shown as a potential reptile receptor area on **Figure 1.1** and consists primarily of infrequently managed semi-improved grassland that is subject to a flower meadow management regime.
- 3.11 A total of 40 artificial reptile refugia (0.5 x 1m) sheets of roofing felt were set out across the potential receptor area on 19th May 2015, and were checked on two occasions in June (9th



and 24th) and five in September 2015 (4th, 8th, 11th, 14th and 18th) in weather conditions that were suitable for reptiles to be using the mats on all but one occasion¹.

- 3.12 A maximum of two sub-adult grass snakes *Natrix natrix* were found under two separate but closely located refugia during the survey with all sightings being in September. The snakes were seen under the same mats on each occasion suggesting that the same two individual animals were seen on each occasion. A sloughed grass snake skin was present under one of the same mats on June 24th but no live animals were seen on that occasion.
- 3.13 It can be concluded that the potential reptile receptor area currently supports a small population of grass snake, but does not appear to support other reptile species.

Other Taxa

- 3.14 The vegetated soil bunds around the extraction area, pylon field and at the northern end of the Creswell Field have the potential to support badger setts, albeit no obvious signs of badger digging (only rabbit) was evident during the walkover survey completed on 15 May. A precautionary follow-up survey to check for the presence of badger in advance of bund removal is suggested.
- 3.15 No trees or man-made structure of value to roosting bats are present within the extraction and restoration areas.
- 3.16 The scrub vegetation within the extraction and restoration areas and the bare ground / ephemeral short perennial vegetation of the extraction area have the potential to support nesting birds, but not in numbers or a species assemblage that is likely to confer those parts of the site with significant ornithological interest. The shallow water siltation lagoon (Creswell Field) to the west may also be used by small numbers of wading birds for feeding, but the lagoon is seasonally dry and its value to wetland birds is transient.

¹ During the June 24th air temperature was 21.0°C which is outside the optimum range of 10-20°C





Cassington

GCN tested ponds

- site boundary
- ① pond number

Figure 3.1

Map Scale @ A4: 1:4,500

Surveyed by: DP
Survey date: 9/6/2015
Drawn by: PL
Checked by: DP
Status: Final



4 Impact Assessment & Mitigation Planning

Background

- 4.1 The following development assumptions have been made (and are agreed with Hanson Aggregates) in order to assess potential impacts on ecological receptors. The development assumptions are based on direction from Hanson Aggregates and review of the approved site restoration plan provided in **Appendix 2** of this report:
- Gravel extraction from the gravel processing area will involve removal of all perimeter soil bunds, but will retain and protect the woodland and waterbodies to the immediate south of the site within the red line boundary shown on **Figure 2.1**.
 - Restoration of the gravel processing area will involve creation of an angling lake (circa 3.28 ha) with perimeter semi-improved grassland (circa 1.88 ha), woodland and scrub (circa 2.20 ha)
 - The pylon field will be impacted by soil bund removal and general site “restoration” back - the field is not currently permitted for extraction of aggregates.
 - The Creswell Field area will be restored back to agricultural land.

Great Crested Newt

- 4.2 The development proposals will result in the loss of terrestrial habitats that are of potential value to great crested newt (GCN). No adverse (direct or indirect) impacts on waterbodies known to support GCN would occur as a result of the development.
- 4.3 Natural England’s risk calculator tool (provided within NE’s method statement template for GCN European Protected Species (EPS) licence applications) has been run to assess the potential impacts of the above proposals on GCN given their confirmed presence in waterbodies 2 and 3.
- 4.4 The risk calculator tool has been run for the three development scenarios:
- Gravel extraction from the gravel processing area
 - Restoration of the pylon field
 - Restoration of Creswell Field (siltation lagoon)



Gravel Processing Area

- 4.5 The majority of the gravel extraction area (6.06 ha) is comprised of bare ground/short ephemeral vegetation of negligible shelter value to terrestrial GCN. The vegetated bunds (1.30 ha) have shelter value to GCN particularly when they are located within close proximity to the two GCN waterbodies.
- 4.6 As highlighted in the NE risk assessment table below, the proposed gravel extraction involving the removal of the soil bunds is likely to result in an offence with respect to GCN (amber risk) as it would result in the removal of habitat used by GCN for shelter.

Processing area	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.5
Land 100-250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.1
Land >250m from any breeding pond(s)	0.1 - 0.5 ha lost or damaged	0.005
Individual great crested newts	No effect	0
Maximum:		0.5
Rapid risk assessment result:	AMBER: OFFENCE LIKELY	

- 4.7 **Figures 3.1 and 3.2** show the extent of newt friendly terrestrial habitats that are currently present within the site, and the extent of newt friendly habitat that would be created as a result of the approved restoration. In summary, the restoration of the site would result in a net increase of 0.9 ha of newt friendly habitat within range of the GCN population centred on waterbodies 2 and 3.

Pylon Field

- 4.8 No adverse impacts on GCN are predicted to occur as a result of the pylon field development given the overall scale of the development and its distance from known GCN ponds.

Pylon field	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	No effect	0
Maximum:		0.04
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	



Cresswell Field

- 4.9 No adverse impacts on GCN are predicted to occur as a result of the Cresswell Field development given the overall scale of the development and its distance from known GCN ponds.

Cresswell Field (siltation lagoon)	Likely effect (select one for each component; select the most harmful option if more than one is likely; lists are in order of harm, top to bottom)	Notional offence probability score
Great crested newt breeding pond(s)	No effect	0
Land within 100m of any breeding pond(s)	No effect	0
Land 100-250m from any breeding pond(s)	No effect	0
Land >250m from any breeding pond(s)	1 - 5 ha lost or damaged	0.04
Individual great crested newts	No effect	0
	Maximum:	0.04
Rapid risk assessment result:	GREEN: OFFENCE HIGHLY UNLIKELY	

Summary

- 4.10 A Natural England EPS licence will be required to legally enable the extraction of gravel / removal of the soil bunds from the gravel processing area site.
- 4.11 The EPS licence application will need to be informed by a full GCN population assessment of waterbodies 2 and 3. The earliest this survey could be completed is in the spring 2016 (mid-March to mid-June), with three of the required six survey visits being undertaken between mid-April and mid-May.
- 4.12 The restoration of the gravel extraction area (see **Appendix 1**) would result in an increase of 0.9 ha of newt friendly terrestrial habitat within newt commuting range of two confirmed GCN waterbodies, and would result in no loss or damage of any GCN breeding pond. In light of this, Natural England are highly likely to grant an EPS licence for the extraction, as the integrity of the local GCN population would not be significantly adversely impacted in the long-term, and could be enhanced with some simple habitat management and creation that could be completed as minor tweaks to the approved restoration plan (see para 4.14 below).
- 4.13 The EPS licence mitigation strategy for GCN would need to be based on the following mitigation approach:
- Erection of a semi-permanent newt proof fence around the entire perimeter of the gravel extraction area – fence to be kept in situ and maintained for the duration of the extraction and restoration phases and prevent GCN from
 - Erection of Temporary Amphibian Fencing (TAF) around the vegetated soil bunds within the perimeter fence and all land within 50m of the newt ponds (including bare ground and ephemeral/short perennial) to contain GCN to enable their capture and effective depletion monitoring.



- Capture and relocation of newts and other herpetofauna from within the TAF compartments using a combination of pitfall traps and artificial felt refugia (trap numbers to be dictated by the size of the GCN population. Trapping to take place over the period March to October, with (ideally) the main focus of trapping effort taking place in the spring and/or autumn.
- Trapping to be completed over a period of 30, 60 or 90 nights in suitable weather (overnight temperatures of 5°C or higher and damp ground). Number of trapping nights to be dictated by the size of the GCN population (to be confirmed).
- Enhancement of the woodland area to the immediate south of the extraction area by the placement of habitat piles, tree thinning and scrub planting to enable the woodland to be used a GCN receptor area.

4.14 In addition to the approved landscape restoration strategy, it is recommended that measures are implemented to improve the GCN habitat value of waterbody 2 by selective tree removal and silt excavation, and consideration given to creating a new fish free pond somewhere within 100m of waterbody 2 and 3 if practical to do so.

Reptiles

- 4.15 A reptile survey of the extraction area and the pylon field should be completed in advance of works to these areas to verify reptile presence, approximate numbers and locations. The survey should (ideally) be completed over the period April-mid June or September.
- 4.16 The proposed reptile receptor area that has been subject to reptile survey in 2015 is suitable for a reptile receptor as it currently supports only a small population of grass snake and could be enhanced further for reptiles by relaxing the annual grass cutting regime such that peripheral areas of the grassland are only cut on a two year rotation, and providing more habitat piles in peripheral areas.
- 4.17 If found to be present within the gravel processing area and/or the pylon field in significant numbers, reptiles should be captured and relocated to the receptor area as part of the GCN mitigation. If present in the pylon field, the areas of grassland supporting reptiles (if likely to be impacted by bund removal and general restoration) should be contained within TAF and reptiles captured and relocated to the receptor area. Potential reptile habitat within the gravel processing site would already be contained as part of the GCN mitigation approach.
- 4.18 Artificial reptile refugia should be set out across both areas to assist in reptile capture. Reptile capture should continue until reptiles are no longer being encountered under refugia in suitable weather conditions (air temperatures of between 10-20°C, dry conditions (not heavy rain) or strong winds). Reptile capture to take place over the period March to October, with (ideally) the main focus of trapping effort taking place in the spring and/or autumn.



Other Taxa

- 4.19 A check for the presence of badger setts in vegetated soil bunds should be completed in advance of soil bund removal. Ideally the checks should be completed in the winter months when ground vegetation has died back.
- 4.20 In the event that a badger sett is found in a bund, it will need to be closed under the auspices of a NE licence during the period July to November.
- 4.21 Any vegetation clearance to enable development should be completed outside of the bird nesting period during September to February.



Cassington

Site 2 current GCN habitat areas






-  site boundary
-  immediate GCN terrestrial habitat <50m
-  intermediate GCN terrestrial habitat 50m - 250m
-  GCN habitat (1.30 hectares)
-  Non-GCN habitat (6.06 hectares)

Figure 3.2

Map Scale @ A4: 1:2,500

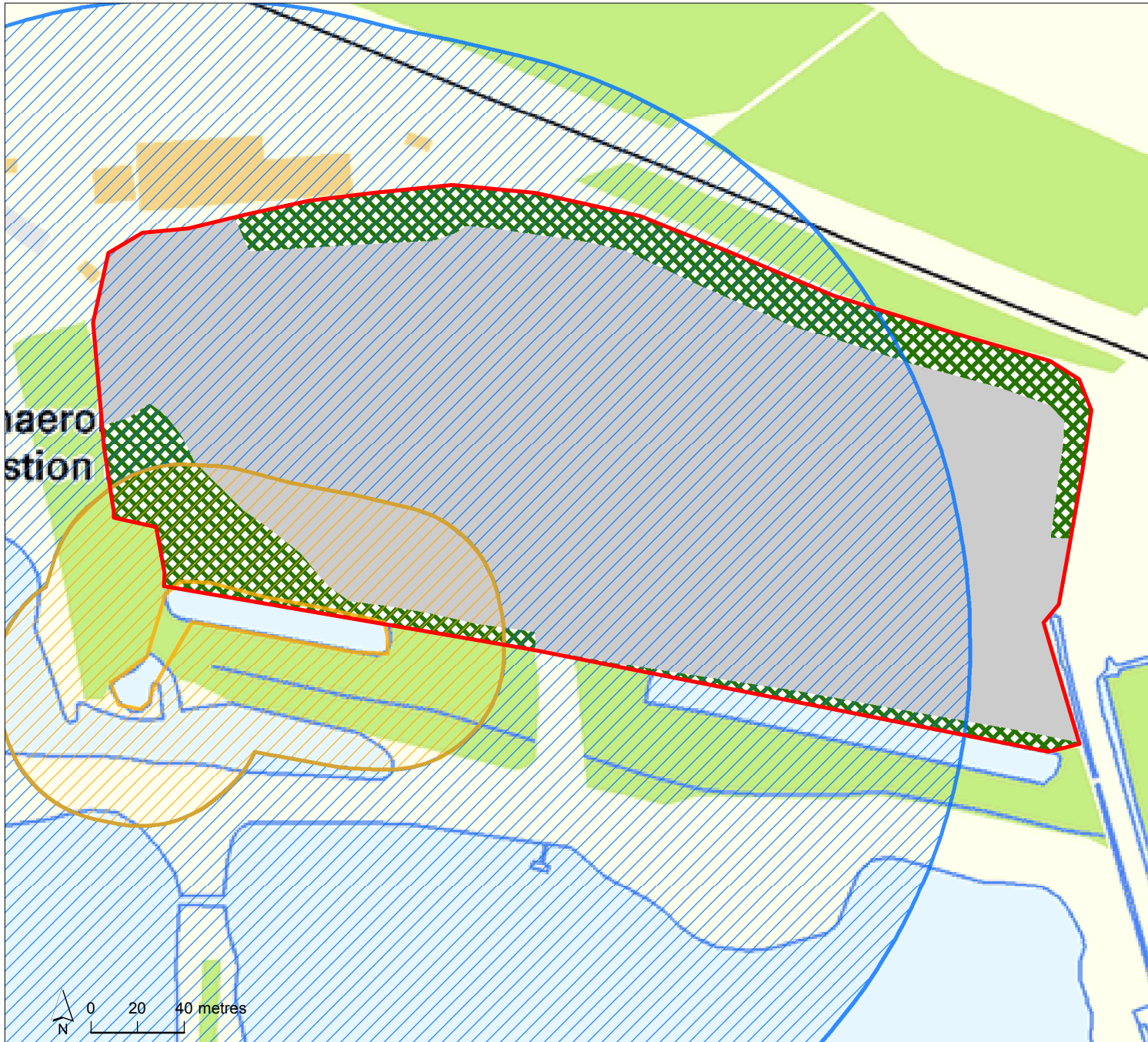
Surveyed by: N/A

Survey date: N/A

Drawn by: PL

Checked by: DP

Status: Final



Cassington

Site 2 restoration GCN habitat areas







-  site boundary
-  immediate GCN habitat <50m
-  intermediate GCN habitat 50m - 250m
-  GCN habitat (2.20 hectares)
-  standing water (3.28 hectares)
-  Non-GCN habitat (1.88 hectares)

Figure 3.3

Map Scale @ A4: 1:2,500

Surveyed by: N/A
Survey date: N/A
Drawn by: PL
Checked by: DP
Status: Final



Appendix 1

eDNA test results





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Sample/Report ID: 2015-858

Condition on Receipt: Good

Visual Inspection of Volume: Passed

Client Identifier: Cassington Long Pond West (3)

Description: 6x50mL - pond water samples in preservatives

Date of Receipt: 22/06/15

Material Tested: DNA extracted from pond water samples

Determinant	Result	Method	Date of Analysis
Great Crested Newt	Positive	Real time PCR	30/06/15

Report Prepared by:

Dr Helen Rees

Report Issued by:

Dr Ben Maddison

Signed:

Signed:

Position:

Senior Research Scientist

Position:

Team Leader: Biotechnology

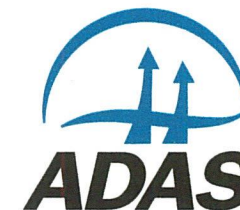
Date of preparation:

01/07/15

Date of issue:

01/07/15

Notes: eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.



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Sample/Report ID: 2015-859

Condition on Receipt: Low Sediment

Visual Inspection of Volume: Passed

Client Identifier: Cassington Long Pond East (2)

Description: 6x50mL - pond water samples in preservatives

Date of Receipt: 22/06/15

Material Tested: DNA extracted from pond water samples

Determinant	Result	Method	Date of Analysis
Great Crested Newt	Negative	Real time PCR	30/06/15

Report Prepared by:

Dr Helen Rees

Report Issued by:

Dr Ben Maddison

Signed:

Signed:

Position:

Senior Research Scientist

Position:

Team Leader: Biotechnology

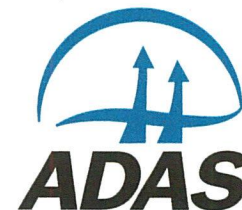
Date of preparation:

01/07/15

Date of issue:

01/07/15

Notes: eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.



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Sample/Report ID: 2015-860

Condition on Receipt: Medium Sediment

Visual Inspection of Volume: Passed

Client Identifier: Cassington Small Pond (1)

Description: 6x50mL - pond water samples in preservatives

Date of Receipt: 22/06/15

Material Tested: DNA extracted from pond water samples

Determinant	Result	Method	Date of Analysis
Great Crested Newt	Positive	Real time PCR	26/06/15

Report Prepared by:

Dr Helen Rees

Report Issued by:

Dr Ben Maddison

Signed:

Signed:

Position:

Senior Research Scientist

Position:

Team Leader: Biotechnology

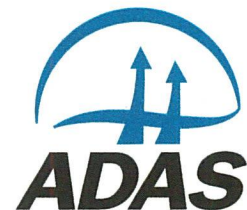
Date of preparation:

01/07/15

Date of issue:

01/07/15

Notes: eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.



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Tel: 01159 516747
Fax: 01159 516415
Email: Helen.Rees@adas.co.uk

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Sample/Report ID: 2015-862

Condition on Receipt: Good

Visual Inspection of Volume: Passed

Client Identifier: Cassington Ditch (4)

Description: 6x50mL - pond water samples in preservatives

Date of Receipt: 22/06/15

Material Tested: DNA extracted from pond water samples

Determinant	Result	Method	Date of Analysis
Great Crested Newt	Negative	Real time PCR	30/06/15

Report Prepared by:

Dr Helen Rees

Report Issued by:

Dr Ben Maddison

Signed:

Signed:

Position:

Senior Research Scientist

Position:

Team Leader: Biotechnology

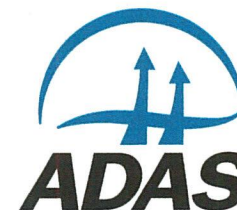
Date of preparation:

01/07/15

Date of issue:

01/07/15

Notes: eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.



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Sample/Report ID: 2015-863
Client Identifier: Cassington Silt Lake
Date of Receipt: 22/06/15

Condition on Receipt: Medium Sediment Visual Inspection of Volume: Passed
Description: 6x50mL - pond water samples in preservatives
Material Tested: DNA extracted from pond water samples

Determinant	Result	Method	Date of Analysis
Great Crested Newt	Negative	Real time PCR	29/06/15

Report Prepared by: Dr Helen Rees
Signed: 
Position: Senior Research Scientist
Date of preparation: 01/07/15

Report Issued by: Dr Ben Maddison
Signed: 
Position: Team Leader: Biotechnology
Date of issue: 01/07/15

Notes: eDNA analysis was carried out in accordance with the stipulated methodology found in the Technical Advice Note (WC1067 Appendix 5 Technical Advice Note) published by DEFRA and adopted by Natural England.

APPROVED

DATE: 7/2/2012
 APPLICATION No: Condition 6 of Planning
 Permission 10/01929/CM



KEY:

	S73 planning boundary
	Land not in Hanson control
	Lake margin/amenity grassland
	Agricultural land
	Woodland/plantations/scrub
	Reed beds
	Shallow water margins
	Deeper water
	Restoration contours

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Hanson
 LAND RESEARCH GROUP

The Cassington Quarry
 Composite Restoration Scheme

15000 @ Approved Stage 11
 15000 @ Approved Stage 11
 15000 @ Approved Stage 11
 15000 @ Approved Stage 11

W522M/133

Appendix 2

Landscape Restoration Plan







Registered Office: Intec, Parc Menai, Bangor, Gwynedd, LL57 4FG

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Web: www.caulmert.com