ELTON 2 RESTORATION ENVIRONMENTAL PERMIT APPLICATION

Environmental Risk Assessment

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1.0 INTRODUCTION

Ingrebourne Valley Limited (IV) has instructed SLR Consulting Limited (SLR) to prepare a bespoke Environmental Permit (EP) application to authorise the deposit of waste as a recovery operation for the restoration of Elton 2 Sand and Gravel Quarry (the Site), located near Warmington, Northants.

This Environmental Risk Assessment (ERA) provides an assessment of the risks to the environment and human health from emissions that may be associated with waste operations at the Site. It has been completed in accordance with the Environment Agency (EA) Guidance: Risk assessments for your environmental permit[1]. The aim of the assessment is to identify any significant risks and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage the risks.

EA guidance requires that all receptors that are near the Site and could reasonably be affected by the activities are identified and considered as part of the assessment.

For the purposes of this risk assessment, a 2km radius from the Site's EP boundary has been adopted to identify potentially sensitive receptors of ecological importance along with features such as Sites of cultural and natural heritage. A radius of 500m from the Site's EP boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

1.1 Proposed Development

The Site is approximately 20 hectares in size and prior to development, consisted mainly of agricultural pasture used for livestock grazing. IV propose to extract ca. 850 – 900,000 tonnes of sand and gravel and restore the site using in-situ materials and up to 550,000m^3 imported inert waste. Mineral will be extracted down to the clay which underlies the sand and gravel seam. During extraction of each phase, the clayey overburden will be used to construct an artificial side wall attenuation barrier. The clay underlying the site forms a natural low permeability basal barrier.

The Site will be worked in three phases and the sequence of operations is summarised below:

- A haul road and bailey bridge have been constructed to connect the Site to the adjacent, separately permitted processing and waste storage area;
- Hydraulic excavators have commenced stripping of topsoil and subsoil, which is transported by ADT for storage in the processing area;
- The working of the Site will proceed in 3 phases as illustrated in Drawing 04;
- Dewatering of the Site is not practical given the proximity to the River Nene and high groundwater level. Gravel will be extracted 'wet' from each area and be transported to the process area for washing;
- Mineral will be extracted down to the clay which underlies the sand and gravel seam. The underlying clay forms a natural geological barrier;
- During extraction of each phase, the clayey overburden will be used to construct a low permeability side-wall attenuation barrier against the basal clay to restrict groundwater inflow;
- Imported inert waste, subjected to rigorous waste acceptance checks, will be transported from the processing and waste storage area, and placed directly into water within the void;

[1] Environment Agency Guidance Risk Assessments for your environmental permit, last updated December 2020

- Once the imported restoration materials have been placed to the required level, site-derived subsoil and topsoil will be replaced. Subsoil and topsoil will be transported by ADT from stockpiles in the processing area and a low ground pressure dozer will be used to spread the material loosely and avoid any compaction. The finished topsoil thickness will depend on the original amount removed but is expected to be 0.2m on average.

2.0 ENVIRONMENTAL RISK ASSESSMENT

2.1 Overview of approach

This ERA has been carried out in accordance with the EA's guidance which uses the following approach for identifying and assessing the risks in six steps:

Step 1 Identify and consider risks for your Site, and the sources of the risks;

Step 2 Identify the receptors (people, animals, property and anything else that could be affected by the hazard) at risk from your Site;

Step 3 Identify the possible pathways from the sources of the risks to the receptors;

Step 4 Assess risks relevant to your specific activity and check they're acceptable and can be screened out;

Step 5 State what you'll do to control risks if they're too high;

Step 6 Submit your assessment as part of your permit application.

2.2 Consideration of risks

Step 1 considers the potential risks to the environment from the proposed development. The risk assessment must identify whether any of the following risks could occur and what the environmental impact could be:

- any discharge, for example sewage or trade effluent to surface or groundwater;
- accidents;
- odour (not for standalone water discharge and groundwater activities);
- noise and vibration (not for standalone water discharge and groundwater activities);
- uncontrolled or unintended ('fugitive') emissions, for which risks include dust, litter, pests and pollutants that shouldn't be in the discharge;
- visible emissions, e.g. smoke or visible plumes; and
- release of bioaerosols, for example from shredding, screening and turning, or from stack or open point source release such as a biofilter.

In addition, the EA guidance identifies risks from specific activities for which additional risk assessments must be complete depending on the activity the bespoke Environmental Permit relates to and where substances are released or discharged into the environment. The EA guidance 'Risk assessment for installations, waste and mining waste operations and landfill sites' indicates that the Environmental Site Setting & Design (ESSD) template should be used to consider the additional risks for deposit for recovery activities. Accordingly, an assessment of those risks is provided in the ESSD report in section 5 of this application and they are not considered in this ERA.

Potential risks can be screened out if they are not relevant for the site or by carrying out tests to check whether they're within acceptable limits or environmental standards. If they are, any further assessment of the pollutant is not necessary because the risk to the environment is insignificant.

There are no discharges to surface water or groundwater, visible emissions or releases of bioaerosols resulting from the proposed development.

Therefore, only the following risks are required to be assessed for the recovery operation:

- Odour;
- Noise and Vibration;
- Fugitive Emissions (including dust, mud, litter and pests); and
- Accidents.

2.3 Receptors

Step 2 of the risk assessment considers the receptors (people, animals, property and anything else that could be affected by the hazard) that could be at risk from the Site. The surrounding land use and receptors are described in detail below and a summary is provided in Table 2.

2.3.1 Site Setting

The Site lies to the north of the A605 and the village of Warmington, approximately 17 miles to the south-west of Peterborough.

A previous development, Elton 1, which has been restored to open water lies adjacent to the east of the site. Elton 2 will continue to use the existing plant and processing area to the east of Elton 1 for mineral washing, silt settlement lagoons and acceptance of inert waste for restoration and those activities will be operated under a separate permit by IV. A haul road and bailey bridge will connect the processing and waste storage area to the Site to transport extracted mineral and restoration materials.

The area of the Site which will be infilled is surrounded on all sides by the River Nene and adjoining water courses and groundwater level is approximately 0.5 – 1m below the surface.

The nearest residential receptors are located 165m to the south and beyond is the A605 road corridor and the village of Warmington. Water Mill House, located approximately 200m to the south of the Site is the nearest workplace receptor. The Site is crossed by the 'Nene Way' footpath and several other rights of way are located adjacent to the Site and processing area.

The Site location in shown in Drawing 01 and the Environmental Setting of the Site is illustrated on Drawing 03.

A summary of the immediate surrounding land use is provided in Table 1 below.

Table 1 Immediate Surrounding Land Uses

Boundary	Description
North	Adjacent to the north of the Site is the River Nene with agricultural land and a public footpath beyond.
East	Adjacent to the east of the Site is the River Nene and Elton 1 reservoir, a previous development. Beyond this lies the Elton 2 processing area.
South	Adjacent to the south of the Site is the A605 and the village of Warmington lies beyond. There are several public footpaths to the south of the Site.

Boundary	Description
West	Adjacent to the west of the Site is the River Nene and associated surface water features. Beyond is predominantly agricultural land.

The immediate surrounding land use and receptors are described in further detail below.

2.3.2 Agricultural

The Site is located in an area of predominantly agricultural land which lies adjacent to the north, west and south of the Site beyond the River Nene.

2.3.3 Commercial and Industrial

The nearest commercial property is Water Mill House located approximately 200m to the south of the Site. The Red Lion and PDG architects are located by Peterborough Road, approximately 370m south of the Site.

The closest industrial premises is the processing area associated with Elton 2 for which a separate application for an Environmental Permit has been submitted and which lies approximately 380m to the east of the Site beyond Elton 1 reservoir.

2.3.4 Local Transport Network

The A605 is located approximately 110m to the south of the site. There are several pedestrian footpaths and bridleways along the northern and southern boundary, and vehicle access tracks to the south of the Site.

2.3.5 Recreational

The closest recreational receptor is a playing field located approximately 275m to the southeast of the Site boundary. There is an allotment located to the south of the site approximately 490m from the EP boundary.

2.3.6 Residential

The nearest residential properties are 165m to the south of the Site. Beyond is the village of Warmington with numerous residential properties located within 500m of the Site boundary.

2.3.7 Surface water features

There are numerous surface water features located within 500m of the Site boundary in all directions. The restoration area of the Site is bounded by the River Nene in all directions and 80m to the east of the Site is Elton 1 reservoir. To the north, south and west of the Site there are numerous surface water drains.

2.4 Geology

The bedrock beneath the Site comprises of the Grantham Formation and Whitby Mudstone Formation[2]. The superficial deposits at the Site are alluvium which consists of clay, silt, sand and gravel.

[2] Geology of Britain viewer | British Geological Survey (BGS) accessed March 2021

2.5 Hydrogeology

A detailed description of the hydrogeology of the area is presented in the Hydrogeological Risk Assessment in Section 6 of the application. The following summary is based on the information presented in that report.

2.5.1 Aquifer Characteristics

The Environment Agency (EA) online mapping service[3] classifies the River Terrace Deposits as a Secondary A Aquifer, described as:

> *"permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers"*

The Alluvium and Whitby Mudstone Formation are classified as Un-Productive Strata, described as:

> *"rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow"*

The Grantham Formation is classified as a Secondary (Undifferentiated) Aquifer, described as:

> *"rock layers where it has not been possible to attribute either category A or B. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type".*

However, as detailed in the July 2021 SLR memo[4] , site boreholes indicate Grantham Formation lithology immediately underlying the superficials to be clay, hence the Grantham Formation is not considered to be a receptor of concern at the site.

2.5.2 Groundwater Levels and Flow

Groundwater levels are between 0.5 and 1m below the Site surface and the River Terrace Deposits at the Site are fully saturated. Groundwater flow across the Site is broadly towards the east. There will be interaction between the River Nene and groundwater in the Terrace Gravels and potentially through any permeable bands in the alluvial deposits.

2.5.3 Groundwater Quality

Groundwater quality is generally within the relevant UK Drinking Water Standards (DWS), apart from:

- ammoniacal nitrogen concentrations have generally been slightly elevated above DWS at all boreholes, and particularly elevated (typically above 2 mg/l) at upgradient borehole BH01;
- pH values have occasionally fallen below the minimum DWS value of 6.5;
- concentrations of iron and manganese have often exceeded DWS; and
- the above trends may reflect varying redox conditions in the confined River Terrace Deposits.

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[3] Environment Agency website: What's In My Backyard? (Accessed 12/01/18) http://maps.environment-agency.gov.uk/wiyby/

[4] '*Elton 2 – Requirement for Artificial Attenuation Barrier*', July 2021, SLR Memo Ref: 210721_01526_00029

2.6 Hydrology

2.6.1 Surface Water in the Vicinity of the Site

Surface water potential receptors at or immediately adjacent to the Site are:

- the River Nene immediately north with a standoff at the northern site boundary;
- the River Nene Mill Stream immediately west with a standoff at the western Site boundary and tailrace;
- the River Nene Mill Stream overflow channel immediately south with a standoff at the southern Site boundary;
- the River Nene Mill Stream tailrace immediately east with a standoff at the eastern Site boundary;
- the small field ditch (formerly connected to the River Nene) crossing the Site from north-west to south-east discharging to the Mill Stream overflow channel; and
- a lake and wetland at the former Elton 1 site, c. 100m to the east across the Mill Stream tailrace.

It is noted that these surface water receptors are likely to be perched on low permeability overburden restricting hydraulic continuity with groundwater in the River Terrace Deposits underlying the Site.

2.6.2 Catchment Area

A review of the Data Catchment Explorer[5] confirms that the Site lies within the Nene Middle operational catchment area.

2.6.3 Flood Zone

The Flood Map for Planning[6] confirms that the Site lies within a Flood Zone 3, which is defined as “land having a 1 in 100 or greater annual probability of river or sea flooding”.

2.6.4 Abstractions & Source Protection Zone

The MAGIC map confirms that the Site does not lie within a Source Protection Zone or within close proximity to one.

The closest licensed or private abstraction is an abstraction from the River Nene for spray irrigation located approximately 150m from the Site.

2.7 Ecology

2.7.1 European/International Designated Sites

A review of MAGIC map confirms that there are none of the following within a 2km radius of the Site boundary:

- Site of Scientific Interest (SSSI);
- Special Area of Conservation (SAC);
- RAMSAR; or

[5] Environment Agency, Catchment Data Explorer, available at https://environment.data.gov.uk/catchment-planning/, Accessed in March 2021
[6] Gov.uk, Flood Map for Planning, available at https://flood-map-for-planning.service.gov.uk/, accessed in March 2021

- Special Protection Areas.

2.7.2 National/Locally Designated Sites

A review of MAGIC map confirms that there are none of the following within a 2km radius of the Site boundary:

- Ancient woodland;
- Local Nature Reserve (LNR);
- Area of Outstanding Natural Beauty (AONB); or
- National Nature Reserve (NNR).

A review of the Nature Heritage Conservation Screening Report, provided by the EA confirmed that Local Wildlife sites (LWS), protected species and protected habitats were identified within 500m from the Site boundary. These are illustrated in Appendix ERA1 Nature and Heritage Conservation Screening Report.

Local Wildlife Sites

Four LWS have been identified within 200m of the Site boundary.

- Tansor Gravel Pits West – approximately 1500m to the west of the Site;
- Tansor Gravel Pits East – approximately 1500m to the west of the Site;
- Lady Margaret's Wood – 360m to the east of the Site; and
- Eaglethorpe New Lake (the shallows of Elton 1) – adjacent to the east of the Site.

Protected species

The EA's screening report confirms that the River Nene has been identified as being protected for:

- Brown trout *Salmo trutta*;
- European eel *Anguilla anguilla*;
- European eel *Anguilla anguilla* migratory route;
- Bullhead *Cottus Gobio*; and
- Water Vole *Arvicola amphibius*.

Protected habitats

The majority of the Site, to the southeast and to the west has been identified as a protected habitat for deciduous woodland and coastal and floodplain grazing marsh. An Ecological Management, Restoration and Aftercare Plan for the Site will be implemented under the requirements of the planning consent.

2.8 Cultural Heritage

2.8.1 Listed Buildings

There are multiple listed buildings within 2km of the Site. These are located to the northeast, south, southwest and northwest. The closest listed building, which is a Schedule II building, Warmington Mill, is located approximately 140m from the southern EP boundary. The closest schedule II* building, Manor House, is located approximately 600m from the southern EP boundary. The closest schedule I building is located approximately 850m from the southern EP boundary. All listed buildings within 2km of the sites EP boundary are shown on Drawing 03 Environmental Site Setting.

2.8.2 Scheduled monuments

There are four scheduled monuments located within 2km of the Site boundary.

- Little Green moated site, located approximately 600m to the southeast;
- Earthworks of Abbot Ramsey's Manor, located approximately 1700m to the northeast;
- Fotheringhay motte and bailey castle, located approximately 1000m to the north; and
- Site of Fotheringhay Priory, located approximately 1300m to the north.

2.8.3 Other Receptors

A review of MAGIC map confirmed that none of the following are situated within 2km of the Site:

- Registered Parks and Gardens;
- Registered Battlefields; and
- World Heritage Sites.

2.9 Summary of Receptors

Local Receptors within 500m of the Site are identified in Table 3, along with cultural and ecological receptors within 2km.

Table 1 Environmental Receptors

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (at nearest point) (m)
Local receptors within 500m of the Environmental Permit Boundary as shown on Drawing 03 Environmental Site Setting and within Appendix ERA1.			
Protected habitat	Coastal and floodplain grazing marsh	The site	-
River Nene	Surface water feature	All directions	Adjacent
River Nene Protected species (brown trout, eel, eel migratory route, Bullhead and Water Vole)	Protected species	All directions	Adjacent
Public footpaths & bridleways	Local network	North and south	Adjacent
Surface water drains	Surface water feature	North, south and west	20
Agricultural land	Agricultural land	North, south and west	25
Elton 1 reservoir	Surface water feature	East	80
Eaglethorpe New Lake (shallows of Elton 1 reservoir)	Local wildlife site	East	80

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary (at nearest point) (m)
A605	Local transport network	South	110
Warmington	Residential	South	165
Water Mill House	Commercial	South	200
Playing field	Recreational	Southeast	275
Commercial properties	Commercial	South	370
Elton 2 processing and waste storage area	Industrial	East	380
Allotment	Allotments	South	490
Cultural and ecological receptors within 2km of the EP boundary as shown in Drawing 03 Environmental Site Settings.			
Schedule II Listed Building	Listed Building	Northeast, south, southwest and northwest	140
Schedule II* Listed building	Listed Building	Northeast, south, southwest and northwest	600
Little Green Moated Site	Scheduled Monument	Southeast	600
Schedule I Listed Building	Listed Building	Northeast, south, southwest and northwest	850
Fotheringhay Motte and Bailey Castle	Scheduled Monument	North	1000
Site of Fotheringhay Priory	Scheduled Monument	North	1300
Earthworks of Abbot Ramsey's Manor	Scheduled Monument	Northeast	1700

2.10 Pathways, control measures and risk assessment

The following tables, 4-7, present a summary of the potential risks to receptors based on an assessment of the hazard and the pathway (Step 4) for each of the following:

- Odour;
- Noise and Vibrations;
- Fugitive Emissions (including dust, mud, litter and pests); and
- Accidents.

The assessment includes consideration of the control measures which will be in place to mitigate potential harm and manage these risks (Step 5).

Table 2 Odour Risk Assessment and Mitigation Plan

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**	**Consequences**	**What is the overall risk**
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Odour from deposit of non-conforming waste	Sensitive receptors listed in Table 3 including residential, commercial and recreational receptors.	Air	Only uncontaminated inert materials and in-situ materials will be used for recovery. The permitted waste types are not odorous. Strict waste acceptance procedures will ensure that no unauthorised materials are accepted at the Site, including but not limited to basic characterisation and visual inspection. Site operatives will conduct daily inspection of the perimeter to identify any unacceptable odours. Site personnel will also conduct informal olfactory monitoring throughout the working day and are encouraged to report any odours they notice. If any odours are identified the cause will be investigated and odorous materials will be isolated in a sealed container before removal offsite to a suitably licenced treatment facility. The results of all inspections or investigations in response to complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing Risk Management measures in accordance with operational and management procedures.	Low	Odour Nuisance and loss of amenity	Low

Table 3 Noise Risk Assessment and Management Plan

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	Consequences	What is the overall risk
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Engine noise from vehicles entering and exiting the Site	Sensitive receptors listed in Table 3 including residential, commercial, agricultural, recreational and land-based ecological receptors.	Air	The following measures will be employed to minimise emissions of noise as far as possible for the sensitive receptors identified in Table 3: • Site operations will be restricted to hours specified in the planning consent to minimise impact on receptors; • Speed limits will be implemented for vehicles using the Site; • All plant and vehicles used are serviced regularly and maintained in good working order; • All plant and vehicles will be turned off when not in use; • Traffic calming measures will be implemented to enforce speed limits; • Site surfacing will be maintained and repaired to minimise emissions of noise due to uneven and poor surfacing; and If any unacceptable noise levels are identified, the cause will be investigated. If a solution cannot be found within an appropriate timeframe, operations will cease if required, until a solution can be implemented.	Low	Noise nuisance	Low

			Auditory inspections will be carried out daily and in response to complaints. A record of the inspection findings will be made in the Site diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.			

Table 4 Fugitive Emissions Risk Assessment and Management Plan

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	Consequences	What is the overall risk
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the 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 emplacement of materials.	Sensitive receptors listed in Table 3 including residential, commercial, agricultural, recreational and ecological receptors (LWS, protected species and protected habitats).	Air	The site will be operated in accordance with an approved Dust Management Plan. The following measures will be used to prevent mobilisation of dust from the emplacement of materials: • Monitoring of weather forecasts (including the strength and direction of prevailing winds); • Speed limits will be implemented on site; • Site access and haul roads will be regularly maintained, swept and cleaned; • Cessation of deposition of dusty waste during dry or windy weather conditions; • Use of bowsers or sprays in dry conditions; and • Restoration materials are placed carefully into water. Visual inspections will be carried out daily and in response to complaints. The result of any inspections or investigations will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk	Low – due to operational measures and materials are extracted wet.	Nuisance and harm to human health	Low

			management measures in accordance with operational and management procedures.			
Dust from vehicle movements.	Sensitive receptors listed in Table 3 including residential, commercial, agricultural, recreational and ecological receptors (LWS, protected species and protected habitats).	Air	The site will be operated in accordance with an approved Dust Management Plan. The following measures will be used to prevent mobilisation of dust from vehicle movements: • Good housekeeping of roads and surfaces; • Enforcement of a speed limit to prevent mobilisation of dust; • Monitoring of weather forecasts; • Cessation of deposition of dusty waste during dry or windy weather conditions; and • Use of bowsers or sprays in dry conditions. Visual inspections will be carried out daily and in response to complaints. The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.	Low – due to operational measures	Nuisance and harm to human health	Low
To Water:						
Contaminated Site run off	Sensitive receptors listed in Table 3 including residential, commercial, agricultural, recreational and ecological receptors	Land	The following measures will be used to prevent contaminated Site run off: • No stockpiles of waste material lie within the permitted area; • Strict waste acceptance procedures will ensure that no unauthorised materials are accepted at the Site. Only uncontaminated inert materials will be deposited. Accordingly, contaminated leachate and run-off will not be generated as a result of waste accepted;	Low	Contamination	Low

	(LWS, protected species and protected habitats). Groundwater.		• Vehicles and plant will benefit from a schedule of preventative maintenance to prevent leaks; • Spill kits will be provided on Site containing appropriate absorbent materials for use in the event of a spillage; • No fuels or chemicals will be stored on Site. The Site's operational areas will be inspected twice-daily for signs of spillages. The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.			
Percolation of contaminated liquid into groundwater	Groundwater	Groundwater	Strict waste acceptance procedures will ensure that no unauthorised materials are accepted at the Site. Only uncontaminated inert materials will be deposited. Accordingly, contaminated leachate and run-off will not be generated as a result of waste accepted. A basal and sidewall geological barrier will be provided to attenuate contaminants within the restoration area. Groundwater quality monitoring will be conducted regularly using monitoring boreholes. The result of any monitoring or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.	Low	Contamination	Low
Pests						
Birds, pests and insects attracted to Site	Sensitive receptors listed in Table 3 including	Land, Water and Air	The inert waste types accepted at the Site are unlikely to attract birds, pests and insects. Strict waste acceptance procedures will ensure that no unauthorised	Low	Nuisance, potential risk to health	Low

	residential, commercial, agricultural, recreational and ecological receptors.		wastes are accepted. In the event that birds, pests and insects are identified at the Site appropriate remedial action will be taken. If necessary, a specialist pest control contractor will be employed to relocate the pests. Investigations will be conducted daily by Site personnel of the operational areas to identify birds, pests and insects. The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.			
Mud/Litter						
Litter from waste	Sensitive receptors listed in Table 3 including residential, commercial, agricultural, recreational and ecological receptors (LWS, protected species and protected habitats).	Air	Waste acceptance procedures will ensure that only authorised wastes are accepted. The waste type accepted at the Site are unlikely to generate litter. The Site will benefit from good housekeeping and daily sweeping or cleaning of operational areas/the Site perimeter. The Site and its immediate surrounding will be inspected on a daily basis and action will be taken to maintain the area free of significant accumulations of litter and debris. The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.	Low	Nuisance from litter. Dangerous conditions on roads.	Low
Mud on roads	Local Road Network	Transferral of mud on vehicles wheels	Vehicles used within the permitted area are for transfer of material between the restoration area and the adjacent processing area only. The risk of mud being transferred to the road network is therefore very low.	Very low	Nuisance from mud. Dangerous conditions on	Very low

			The Site and its immediate surrounding will be inspected on a daily basis and action will be taken to maintain the area free of significant accumulations of mud. The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.		roads.	

Table 5 Accidents Risk Assessment and Management Plan

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	Consequences	What is the overall risk
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Leakage of fuel and oils from Site mobile plant	Groundwater, land.	Land	The following measures will be implemented to manage leaks from Site mobile plant: • No fuels or chemicals will be stored on Site; • Mobile plant will be monitored by Site personnel for quick identification of leaks; • Spill kits will be provided on Site containing appropriate absorbent materials for use in the event of a leakage;	Low	Contamination of surrounding land and road network.	Low

			• Mobile plant will benefit from preventative maintenance; and • The Site staff will undertake daily visual monitoring for evidence of spillage and leakage. The result of any inspections or investigations as a result of complaints will be recorded in the Site Diary. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.			
Fire	Sensitive receptors listed in Table 3 including residential, commercial, agricultural, recreational and ecological receptors (LWS, protected species and protected habitats). Surface and groundwater. Site personnel.	Air and Land	Only inert waste which will not burn will be accepted at the Site. There are no buildings on the permitted area of the site. In order to minimise the occurrence of fire from other sources, and ensure Site personnel are equipped to deal with any unlikely occurrences, the following measures will be implemented: • No burning of other waste will take place on Site; • Smoking will not be permitted in the operational areas of the Site; • No flammable liquids will be stored on Site; • Employees will receive annual training in fire prevention including the identification of fire hazards, the use of fire extinguishers, emergency procedures and evacuation; • Firefighting equipment will be kept in mobile plant; • In the unlikely event of a fire, water bowsers will be used to dampen material and prevent fire spreading; • Any fire on Site will be treated as an emergency. Actions to be taken in the event of a fire: • Notify the fire brigade immediately and the EA as soon as practicable;	Low	Harm to human health, harm to operations, pollution of surroundings.	Low

			• Isolate the burning area and attempt to extinguish the fire utilising the onsite fire extinguishers, if safe to do so; and • Prevent, if possible, contaminated Site drainage from entering any unsurfaced ground. The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.			
Flooding	Site personnel. Groundwater. Surface Water Agricultural land	Land	The Flood Map for Planning confirms that the Site lies within a Flood Zone 3, which is defined as "land having a greater than 1 in 100 annual probability of river or sea flooding". The site benefits from flood defences consisting of embankments and high ground on the banks of the river Nene. River levels are controlled by sluice gates and lock structures. An early warning system will be put in place in the river Nene upstream of the site allowing early notification of risk and enabling the site evacuation procedure to be enacted. No permanent structures will be constructed within the site boundary and no stockpiles of material are present on the site; all material is stored on the adjacent processing and waste storage area (which lies outside the flood risk zone). In the event of a flood warning all mobile vehicles will be removed from the site and into the adjacent processing and waste storage area. Personnel will be evacuated to the same area. The restoration area of the site is to be worked wet with no dewatering and any flooding caused by groundwater or rainfall is likely to be contained within the void and extraction area.	Low	Harm to human health, contamination of groundwater and surface water.	Low
Contamination caused by unauthorised waste receipt	Groundwater	Groundwater in restoration void	Strict waste acceptance procedures will ensure only authorised inert materials will be accepted at the Site. These procedures include pre-acceptance checks, an approved suppliers list, basic characterisation and visual checks.	Low	Groundwater pollution	Low

			Any non-conforming or unauthorised waste will be rejected before tipping. In the event that unauthorised waste is identified after the delivery vehicle has left the Site, it will be isolated, before being removed off Site to a suitably licenced facility for treatment and disposal.			
Security and Vandalism	Sensitive receptors listed in Table 3 including agricultural and ecological receptors. Site personnel.	Air, Land and Water	The Site will benefit from the following infrastructure to keep the Site secure, and prevent unauthorised access: • Visitor Sign in/Sign out book; • Perimeter fencing/hedging and lockable gates. Operational procedures, including regular inspections, ensure continual monitoring of security provision at the Site. Site personnel will carry out daily inspections of the security infrastructure to ensure their continued integrity. In the event that repairs need to be made, temporary repairs will be made same day, and permanent repairs will be fitted within 5 working days.	Low	Nuisance, Contamination of land, harm to human health.	Low

3.0 CONCLUSION

This ERA has been undertaken in accordance with EA guidance. The assessment is provided as part of the application for the EP for Elton 2 Sand and Gravel Quarry restoration.

Qualitative risk assessment has considered odour, noise and vibration, fugitive emissions, dust, litter, mud, birds, vermin and insects, and potential for accidents and incidents. The assessment concludes that with the implementation of the risk management measures described above, potential hazards from the proposed development are not likely to be significant and no further assessment is required.

APPENDIX 1

Nature Heritage & Conservation Screening

Nature and Heritage Conservation

Screening Report: Bespoke Waste

Reference	**EPR/KB3208XX/A001**
NGR	**TL0719991895**
Buffer (m)	**2000**
Date report produced	**12/03/2021**
Number of maps enclosed	**3**

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
Local Wildlife Sites (LWS)	200	Appropriate Local Record Centre (LRC)
Tansor Gravel Pits West		
Eaglethorpe New Lake		
Lady Margaret's Wood		
Tansor Gravel Pits East		

Protected Species	Screening distance (m)	Further Information
Brown trout Salmo trutta	up to 500m	Natural England
European eel Anguilla anguilla		Environment Agency. Dial 03708 506 506 for your local Fisheries and Biodiversity team
European eel Anguilla anguilla migratory route		

Bullhead Cottus gobio

Water Vole Arvicola amphibius

Protected Habitats	Screening distance (m)	Further Information
Deciduous woodland	up to 50m	Natural England
Coastal and Floodplain Grazing Marsh		

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.

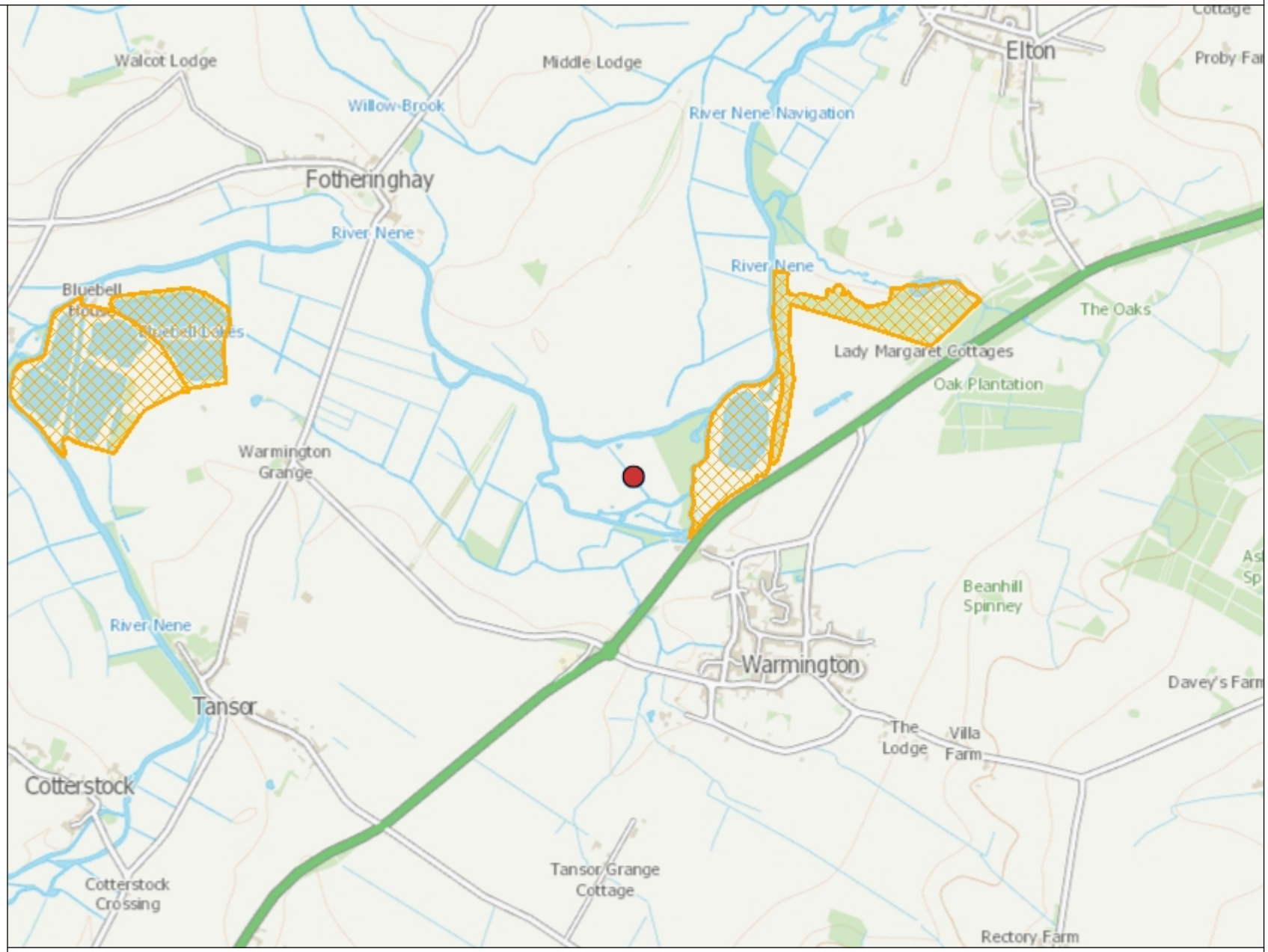
Please note the nature and heritage screening we have conducted as part of this report is subject to change as it is based on data we hold at the time it is generated. We cannot guarantee there will be no changes to our screening data between the date of this report and the submission of the permit application,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

Local Wildlife Sites

Environment Agency

Legend

Local Wildlife Sites



1: 25,000

0 625

Metres

N W E S

Protected Species

Environment Agency

Legend

Protected species screened for Env Permits - complete set

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

1: 5,000

0 125

Metres

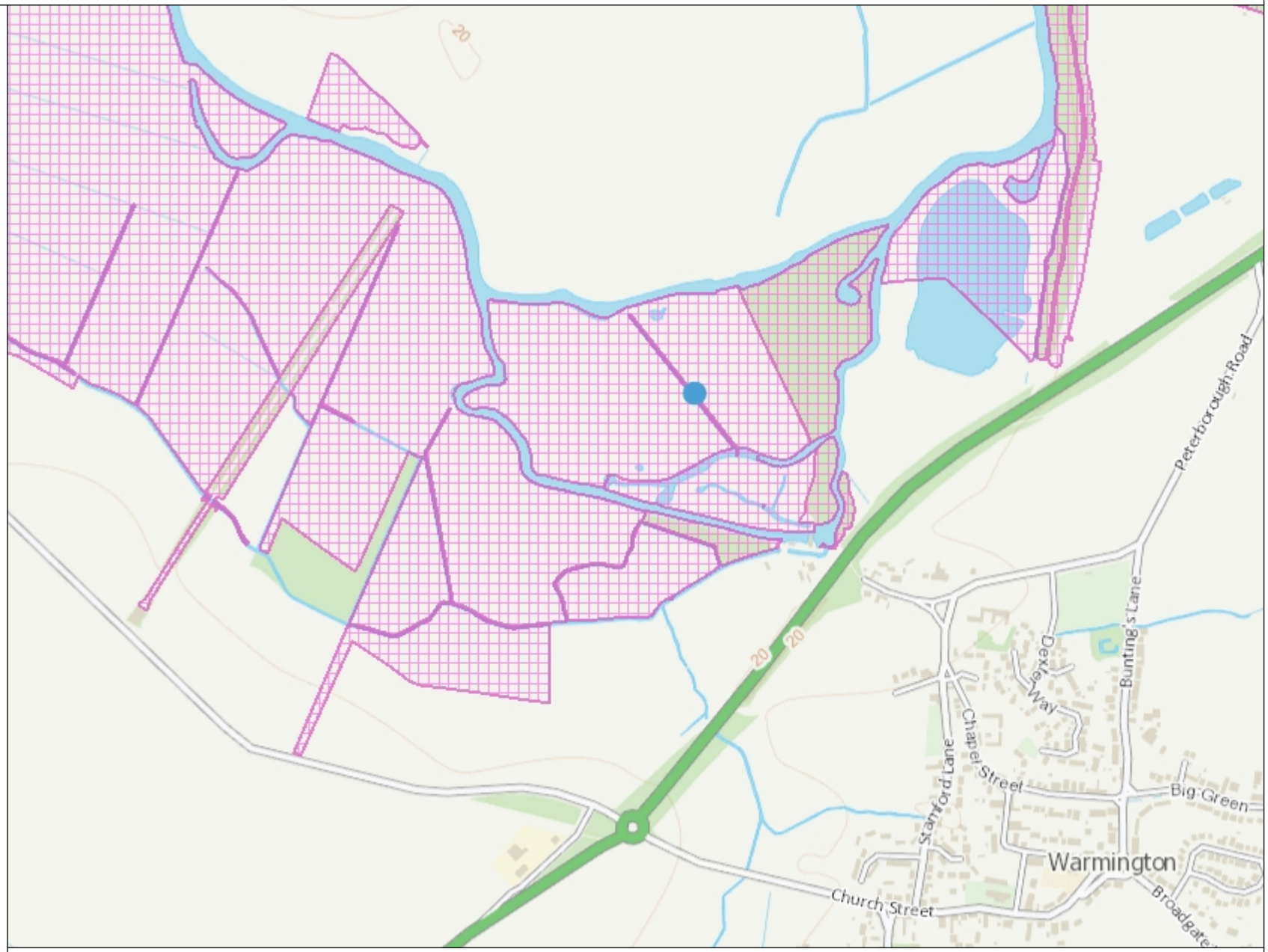
N
W E
S

Protected Habitats

Environment Agency

Legend

Protected Habitats screened for Env Permits



1: 10,000

0 250

Metres

N
W E
S

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