Caulmert Limited

Engineering, Environmental & Planning Consultancy Services

Riverside Waste Transfer Station

Williams Environmental Limited

Environmental Permit Application

Amenity and Accidents Risk Assessment

Prepared by:

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Amenity and Accidents Risk Assessment

TABLE OF CONTENTS

DRAWINGS

TABLES

APPENDICES

1.0 INTRODUCTION

1.1 Overview

1.1.1 Williams Environmental Ltd (the Operator) have appointed Caulmert Limited to prepare a Bespoke Environmental Permit application for a new Hazardous Waste Transfer Station located on the Riverside Industrial Estate off Oliver Road, West Thurrock, Grays, postcode RM20 3EF.

1.1.2 This report is an Amenity and Accidents Risk Assessment which forms part of the environmental permit application for Riverside Waste Transfer Station.

1.1.3 The operator currently operates a facility identical to that proposed at Unit 3 Charles Street Industrial Estate in Silvertown, London, under Environmental Permit ref. EPR/WP3336SA, however the land on which it is situated is subject to a compulsory land purchase order and so the operator has to relocate the facility before November 2023.

1.1.4 The current facility has operated for over 20 years in Silvertown and the operator has reported that they have a very good permit compliance record with no history of complaints.

1.1.5 The permit application consists of a new hazardous and non-hazardous waste transfer station, with the transfer of up to 25,000 tonnes of waste per year. The activities undertaken on site will include the temporary storage of hazardous and non-hazardous waste.

1.1.6 This risk assessment considers any potential risks associated with the new waste transfer station and the proximity of the site to sensitive receptors. It is expected that the risks will be low (with controls in place) with respect to odour, pests, dust, litter, noise, and other fugitive emissions from site operations.

1.1.7 This risk assessment has been compiled in accordance with the current Environment Agency guidance 'Risk Assessments for your Environmental Permit' (last updated 31st August 2022).

1.2 Site Setting and Location

1.2.1 The site is located approximately 32km to the east of the centre of London, in the town of Grays. It is centred on National Grid Reference TQ 5818 7673. The site is in a heavily industrial area, with other industrial units and warehouses surrounding the site to the north, east and west. The River Thames is located south of the site. The site location is shown below in Figure 1:

Figure 1 – Site Location Plan

1.3 Proposed Site Operations

1.3.1 The operator currently operates a facility identical to that proposed at Unit 3 Charles Street Industrial Estate, in Silvertown, London under Environmental Permit ref. EPR/WP3336SA, however the land on which it is situated is subject to a compulsory land purchase order and so the operator has to relocate the facility before November 2023.

1.3.2 The current facility has operated for over 20 years in Silvertown and the operator has reported that they have a very good permit compliance record with no history of complaints.

1.3.3 The land on which the applicant proposes to relocate will eventually form part of a wider development comprising a large 'state of the art' tanker washing facility, not linked to the permitted activity but this affects its final location and footprint within the site.

1.3.4 The area of land subject to this application has recently received planning consent for this proposed development, however a further Planning Application is to be submitted in the new year for the wider development that (subject to approval) will result in the relocation of the transfer station within the site that will then require a further Permit Application.

1.3.5 It is envisaged that the waste transfer station will remain on the area of land proposed by this application for a period of 18-24 months before relocation to its final position.

1.3.6 This application involves a Waste Installation application for a Hazardous Waste Transfer Station for the following listed activities:

- Section 5.3 A (1)(a)(iv) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving repackaging.

- Section 5.3 A (1)(a)(ii) Disposal or recovery of hazardous waste involving physico-chemical treatment of hazardous waste (not exceeding 10 tonnes per day but associated with the above activity).

- Section 5.6 Part A (1)(a) Temporary storage of hazardous waste with a total capacity exceeding 50 tonnes pending any of the activities listed in Section 5.1, 5.2 and 5.3.

1.3.7 This application also involves the following Waste Activity:

- Non-hazardous Household, Commercial and Industrial Waste Transfer activity

1.3.8 The installation will involve the temporary storage of hazardous and non-hazardous waste, prior to bulking and repackaging for subsequent transfer off-site for further treatment or disposal. In addition, activities at the site will include the scraping and emptying out of residues from containers and a drum crushing operation. Emptied containers and crushed drums from hazardous waste will be sent off site for further treatment. Containers and drums that had non-hazardous waste in will be sent straight for recycling at the appropriate facility.

2.0 SENSITIVE RECEPTORS

2.1 Background

2.1.1 This report assesses the potential risks to nearby sensitive receptors from the permit application proposals at Riverside Waste Transfer Station. A sensitive receptor search was conducted of the surrounding area within a 1km radius of the site boundary using Defra's Magic Maps website[1] and the sensitive receptors identified are listed below in Table 1 and also shown on the Sensitive Receptor Plan drawing ref. 5195-CAU-XX-XX-DR-V-1801. The distance to each receptor is measured from the site boundary.

2.1.2 In addition, as part of the Pre-Application Advice stage, the Environment Agency (EA) conducted a Nature and Heritage Conservation Screening Report and identified one Site of Special Scientific Interest (SSSI), one Marine Conservation Zone (MCZ), and five Local Wildlife Sites (LWSs) within 2km of the site. One RAMSAR site was identified within 10km of the site. Three protected species and one protected habitat were identified within 500m of the site boundary. These are shown in the attached EA report in Appendix 1. The relevant sites within 1km are listed in Table 1 below.

2.1.3 The closest human receptors to the site are workers and customers of the surrounding industrial units located 80m west (Viridor Collections Unit) and 100m north. There are a large number of industrial buildings surrounding the site to the north, east and west. These are, however, industrial and commercial receptors and less sensitive to emissions such as noise, vibration and odour.

2.1.4 West Thurrock Primary School is located 805m northeast of the site. There are no other schools and no hospitals within 1km of the site.

2.1.5 The nearest residential receptors to the site are houses off Schofield Road 760m north of the site boundary. Other residential areas are houses located within residential areas north of the site. Houses located off London Street (900m north) and houses located off Flint Street (925m northeast). A number of public parks or gardens are located within the residential areas, located 765m north-northeast, 815m north and 935m north-northeast.

2.1.6 The site is not located within a Source Protection Zone, with the closest, a Zone III, located 1.5km northeast of the site. The site is located on a Principal Aquifer within the bedrock below the site (Lewer Nodular Chalk Formation). The superficial deposits at the site are Alluvium deposits of clay, silt, sand and peat, classified as a Secondary Undifferentiated Aquifer (variable characteristics).

2.1.7 The site is within a Flood Zone 3 according to the GOV.UK Flood Risk Maps website, which indicates that the site has a high risk of flooding. The site is within an area benefiting from flood defences.

[1] DEFRA Magic Maps 2022: https://magic.defra.gov.uk/MagicMap.aspx

2.2 Designated Sites of Ecological Importance & Other Habitats

2.2.1 A search of the surrounding area using the DEFRA Magic Maps website has identified one SSSI within 1km of the site: West Thurrock Lagoon and Marshes SSSI located 80m east of the site boundary at its closest point. According to the EA Conservation Screen Report (Appendix 1) there are three Local Wildlife Sites (LWSs) located within 1km of the site, the closest of which is shown to be located <10m to the south and west of the site (West Thurrock Brownfields LWS). The other two LWSs are located 150m northeast of the site boundary (West Thurrock Lagoon LWS) and 275m to the north of the site (West Thurrock Reedbed).

2.2.2 The West Thurrock Lagoon and Marshes is a designated SSSI due to the importance of the site for wintering waders and wildfowl on the Inner Thames Estuary. The combination of extensive intertidal mudflats together with a large and secure high tide roost, attracts waders in nationally important numbers, with significant populations of other bird species.[2]

2.2.3 There are no Ancient Woodlands within 1km of the site, with the closest, Watts Wood, located over 2.4kkm northwest of the site. There are no world heritage sites or scheduled monuments within 1km of the site boundary.

2.2.4 There are no Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Local Nature Reserves (LNR), National Nature Reserves (NNRs), Ramsar sites or Areas of Outstanding Natural Beauty (AONBs) within 2km of the site. The closest Ramsar site, Thames Estuary and Marshes, is located 9.4km east of the site (as shown in the EA screening report).

2.2.5 The sensitive receptors identified within 1000m of the site boundary are presented in Table 1 below:

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

Receptor	Type	Distance/Direction
Groundwater within bedrock – Principal Aquifer	Groundwater	Below site
West Thurrock Brownfields LWS	Local Wildlife Site	<10m S & W
Channel Tunnel rail link (underground)	Railway	10m N
Users of Oliver Road/Oliver Close	Public Road	60m N
Car Park (Viridor collections unit)	Industrial	80m W
West Thurrock Lagoon & Marshes	SSSI	80m E
Industrial Units	Industrial/Commercial	100m N
Industrial buildings (Polybitumens)	Industrial/Commercial	115m WSW
West Thurrock Lagoon LWS	Local Wildlife Site	150m NE
West Thurrock Reedbed LWS	Local Wildlife Site	275m N
Oil Storage Depot	Industrial	295m W
Amazon Warehouse	Industrial/Commercial	365m N

[2] https://designatedsites.naturalengland.org.uk/PDFsForWeb/Citation/1006132.pdf

Receptor	Type	Distance/Direction
Industrial Chemicals Group Warehouses	Industrial	400m E
Industrial Units	Industrial	450m NW
Daily Mail Printing Factory	Industrial/Commercial	430m NE
A1090 Oliver Road	Public Road	510m N
Thurrock Trade Park	Industrial/Commercial	515m N
Royal Mail/Parcel Force Warehouse	Industrial/Commercial	575m NNE
Industrial Units off Oliver Close	Industrial/Commercial	630m NW
River Thames	Surface Water	640m S
Railway Line	Commercial	700m N
Industrial Units off London Road	Industrial/Commercial	720m N
Houses off Schofield Road	Residential	760m N
Public Park/Garden	Recreational	765m NNE
Co-op Warehouse	Industrial	770m NE
West Thurrock Primary School	Educational	805m NE
Public Park/garden	Recreational	815m N
Seabrook Warehousing (SWL)	Industrial	850m NNW
Queen Elizabeth II Bridge	Public Road	875m W
Residential Houses off London Road	Residential	900m N
Residential houses off Flint Street	Residential	925m NE
Public Park or Garden	Recreational	935m NNE

2.3 Meteorological Setting

2.3.1 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 Erith Kent weather station, the closest weather station actively recording wind statistics, are considered to be representative of the typical conditions at the site (Figure 2 below). Erith Kent weather station is located over 8.8km to the west of the site.

2.3.2 A review of the data recorded daily between February 2012 and June 2022 on the Windfinder.com[3] website indicates that the most dominant wind direction is from the west-northwest to the east-southeast. With reference to the Sensitive Receptor Plan ref. 5195-CAU-XX-XX-DR-V-1801, predominant annual wind conditions are likely to blow towards the Industrial Chemicals Group Warehouses located 400m E and the West Thurrock Lagoon and Marshes SSSI, located 80m east of the site.

[3] https://www.windfinder.com/windstatistics/erith_kent

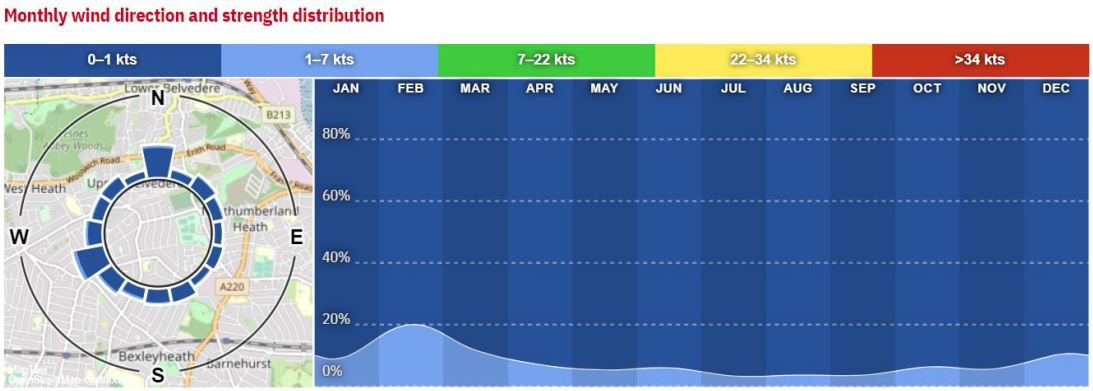


Figure 2 – Erith Kent wind statistics – average wind direction & strength 2012-2022

3.0 RISK ASSESSMENTS

3.1 Assessments for the Proposed Operations

3.1.1 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 in line with the GOV.UK guidance 'risk assessments for your environmental permit' (last updated 31st August 2022).

3.1.2 It is considered that the biggest risk associated with the permitted operations are emissions resulting from odour and VOCs, however all emissions have been considered in detail.

3.2 Risk Assessments - Tables

3.2.1 Possible hazards as a result of the proposed operations at the site that require risk assessment comprise:

- Sources of Odour (Table 2);
- Sources of Noise and Vibration (Table 3);
- Fugitive Emissions (dust, bioaerosols, 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).

3.2.2 The hazards identified above have the potential to escape beyond the 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.

3.2.3 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**
Odour from repackaging and storage of wastes on site likely to cause emissions (e.g. solvents, strong acids).	Workers and patrons of nearby commercial/industrial premises. Industrial chemicals group located downwind 400m east of site. Users of public and domestic roads and footpaths nearby. Human receptors in residential areas located >750m north of the site.	Through air.	• Repackaging and bulking of hazardous and non-hazardous wastes will be undertaken on-site and will consist of stacking, packing and palletising sealed containers or bulk items of wastes, ready for transfer off-site. This will be unlikely to release odours. • Where containerised wastes that are likely to give rise to odours or VOCs emissions are required to be opened and transferred to other larger containers, this will be undertaken inside the enclosed building, which will be fitted with air extraction and activated carbon filter to remove odour and VOCs from air leaving the building. • All wastes will arrive to site and be stored in sealed containers in designated concrete storage bays or enclosed RORO containers, fully bunded at least 110% containment of the largest container. • All wastes will have a short residence time on site and daily site inspections will check	**Unlikely** – Air extraction and activated carbon filters installed within building will ensure odours and VOCs are not released from the building. Odour plumes are transient in nature and unlikely to travel great distances and will dissipate with wind movement. Nearest receptors, particularly downwind are at quite a distance	May cause annoyance to residential receptors, workers of nearby commercial/industrial premises, road users and users of public path.	**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**
			all wastes and operations for odour emissions. • The carbon filter within the building will be maintained in accordance with manufacturer's instructions. • An 'Odour Management Plan' has been produced in support of this permit application which details control measures and procedures for dealing with odour emissions and complaints should they arise. See document ref. 5195-CAU-XX-XX-RP-V-0306.	from potential source of odours. No history of complaints for identical site the operator currently operates.		

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 from vehicle/forklift movements on site for maintenance, operations and deliveries. Noise from repackaging/bulking activities.	Workers and patrons of nearby commercial/industrial premises. Users of public and domestic roads and footpaths nearby. Human receptors in residential areas located >750m north of the site. Wildlife in nearby Local Wildlife Sites, closest <10m to the south and west.	Through air.	• It is unlikely that vehicle movements associated with the new waste transfer station will add significant additional noise to the background noise present at the site and surrounding industrial area. • Drop heights of waste loads and pallets of wastes shall be kept at a minimum. • Site vehicles and plant will be regularly serviced and maintained to ensure worn parts do not create unnecessary noise emissions. • Site speed limits will restrict speeds of vehicles moving around the station. • During periods of downtime, all plant will be switched off to minimise noise emissions. • Noise levels will be monitored by staff and any noise complaints received taken into consideration when reviewing levels.	**Very unlikely** – vehicle and plant movements associated with the waste transfer station unlikely to contribute noise levels greater than levels already experienced within the industrial area surrounding the site.	Noise may cause annoyance to people nearby or passing the site on roads and footpaths.	**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**
			• Some repackaging and bulking of wastes likely to give rise to odour and VOC emissions will be undertaken inside the enclosed building which will reduce noise emissions from site activities. • Reversing alarms on mobile plant/forklifts will be fitted with white noise alarms where possible. • Waste deliveries, collections and repackaging/bulking operations will be undertaken within normal operational hours. No activities will be undertaken overnight.			
No sources of vibration identified.	Local human population and users of roads. Local wildlife.	Through the ground.	N/A	**Very unlikely.**	Nuisance & disturbing wildlife.	**Very low.**

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 powdered waste or asbestos	Local human population and users of domestic roads Disturbance to wildlife, birds and habitats of nearby habitat designations Smothering of fauna wildlife.	Through air.	• All wastes that have to potential for dust emissions, such as powdered wastes shall be stored within appropriate sealed containers/bags and will not be poured out in repackaging/bulking operations. Instead, these wastes will only be placed into larger containers or bags without exposing the contents. • Some repackaging/bulking operations to be undertaken inside a building. • Asbestos will be double bagged/cement bound prior to arrival on site and stored in sealed skips. Only appropriately trained and supervised delivery drivers/contractors will deliver, handle and collect asbestos wastes and skips. No unauthorised access to asbestos skips, with lockable covers kept closed when not in use. • All other waste skips will be securely covered to minimise the risk of dust emissions.	**Very unlikely**	Risk to human health if asbestos dust breathed in. Nuisance of dust particles on cars and buildings nearby. Smothering of local plants and flora from dust.	**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**
			• Visual monitoring will be undertaken by site personnel to ensure no visible dust emissions with appropriate mitigation measures undertaken should visible dust be observed (dampening down, road sweeper etc).			
Emissions of Vapours (VOC's)	Local human population and users of domestic roads Disturbance to wildlife, birds and habitats of nearby habitat designations	Through air.	• Repackaging/bulking of wastes likely to produce emissions of vapours (e.g., solvent wastes), will be undertaken within a 3-sided bunded building with external PVC strip door curtain. • The building will be installed with air extraction maintaining negative pressure inside the building and an activated carbon filter for removal of VOC's from the air. • All hazardous wastes likely to give rise to VOC emissions will arrive to site in securely sealed containers. After repackaging within the building, sealed containers will be stored in concrete bays.	**Unlikely.**	Risk to human health.	**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**
			• Mitigating emissions of VOCs are considered in the Odour Management Plan (OMP) ref. 5195-CAU-XX-XX-RP-V-0306.			
To Water						
Contaminated run-off into surface water or groundwater.	Groundwater in Principal Aquifer - bedrock. River Thames.	Surface run-off/overland flow and infiltration down into ground.	• Site surfacing at the Waste Transfer Station will be impermeable concrete with existing surface water drainage system, fitted with water stop valve. The concrete surface will be subject to routine inspection and maintenance to ensure integrity is maintained. • Clean uncontaminated surface water run-off discharges vie existing site drainage system. • The site is fully bunded in the southern area where hazardous waste will be repackaged/ bulked and stored. The site benefits from a perimeter kerb in the northern area, with existing site drainage able to be isolated by closing the stop valve if necessary, in the event of	**Unlikely** - given that storage areas are bunded with impermeable concrete surfacing and regularly maintained and monitored. There are no direct linkages or uncontrolled emissions to surface water or groundwater	Detriment to the quality of surface water could affect fish and other wildlife within the watercourse. May adversely affect groundwater quality.	**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
			a fire or accidental spillage. (Leaks & spills are covered in Table 6). • Waste storage areas in the southern area are covered by a canopy roof and where appropriate skips are enclosed/covered in the northern area to protect from rainfall. • Any contaminated run off will be contained within fully bunded, sealed areas on site and disposed of at an appropriate facility. • Repackaged and bulked liquids will be filled to only 90% of the container level to prevent overfilling and potential spillage and stored within the fully bunded southern area of the site.			

What do you do that can harm and what could be harmed			Managing the risk	Assessing the risk		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? 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**
Pests						
Rodents and associated diseases	Local human population.	Over ground, via the air or via watercourses.	N/A - It is not considered that any of the waste present on site will result in any risk of rats, flies and other pests due to the wastes accepted will be unattractive to pests and stored in sealed containment.	**Very unlikely.**	General nuisance and health risk from rats being vectors for human pathogens (e.g., Weil's disease).	**Very low.**
Mud/Litter						
Mud & debris tracked by delivery and collection vehicles.	Nearby receptors using public roads.	Mud and debris being dragged onto public highway.	• Proposed location of Waste Transfer Station covered with hardstanding and waste types unlikely to be a source of mud or debris. Most wastes will be containerised or stored in skips/containers. • Good housekeeping will be maintained, with site surfaces inspected and cleaned regularly to	**Very unlikely.**	Potential skid risk to drivers on public roads & nuisance.	**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**
			ensure no mud or debris is tracked out of the site.			
Litter.	Local human population.	By wind and over land.	• Skips/containers will be covered to ensure no litter is released. • Good housekeeping will ensure an accumulation of debris does not occur. • Waste types accepted will be largely containerised. Packaging wastes will be stored in enclosed skips/containers to prevent windblown litter escaping. • As part of daily site inspections, litter will be checked for and any shown to escape the site boundary will be reported and litter picking undertaken.	**Very unlikely.**	Nuisance.	**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**
Potential visible plumes.	Nearby receptors.	Air.	N/A – no visible plumes will be generated by the proposed operations.	N/A	N/A	N/A

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**
Leak or spillage from container or vessels containing liquid hazardous substances	Groundwater in Principal Aquifer - Chalk bedrock. Nearby surface water receptors – River Thames Nearby Local wildlife sites, closest <10m to the south and west.	Overland surface water run-off, across ground, infiltration into ground.	• All wastes stored on site will be within appropriate sealed containers and therefore spillages are unlikely. • Any accidental spillages or leaks of substances on site will be contained by the impermeable concrete surfacing and bunding of the storage and handling areas. The concrete base will be subject to routine inspection and maintenance to ensure integrity is maintained. • Spills or leaks will be reported and cleaned up immediately. • Gas cylinders will be stored within a locked metal cage and aerosol cannisters will be stored in lidded drums and Wastesafes on concrete surfacing. • Emergency spillage pads, booms and granules will be available at strategic locations around site, particularly near	**Unlikely** – given that containers are situated within self-contained bunds on impermeable concrete surfacing and regularly maintained and monitored. There are no direct linkages or uncontrolled emissions to surface water or groundwater. Small spillages should they occur will be cleaned up immediately.	Detriment to the quality of surface water and groundwater with severity dependant on size of the spill.	**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**
			to areas where a spillage or leak could occur. • Repackaging/bulking of liquids will be undertaken within the fully bunded areas. Repacked/bulked liquids will be filled to only 90% of the container level to prevent overfilling and potential spillage. • Bunded areas will be designed to be able to contain at least 110% of the largest container's contents. • Contaminated liquids collected in bunded areas from accidental spills or leaks will be contained and sent off site for appropriate disposal. • The spillage action plan will be implemented (included within the EMS for the site) with training of all relevant staff on implementing the plan and in the use of spill pads and booms, and appropriate PPE required for spillages of hazardous substances will be available.	Large (catastrophic) failure of containers is very unlikely to occur.		

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**
			• The manager also responsible for review of what caused the incident and whether changes in procedures are needed as a result.			
Flooding	Groundwater in Principal Aquifer - Chalk bedrock. Nearby surface water receptors – River Thames. Nearby Local wildlife sites, closest <10m to the south and west.	Overland surface water run-off, across ground, infiltration of contaminated flood water into ground.	• Site is located within an area that benefits from flood defences. • The canopy overhead covers the bunded waste storage and handling areas to prevent excessive rainwater collecting • Surface water drains are regularly inspected and cleaned to prevent blockages.	**Unlikely**	Detriment to the quality of surface water and groundwater.	**Low – if control measures are implemented**
Fire.	Local human population. Surface water and groundwater.	Air transport of smoke and vapours. Firewater run-off.	• Fires could occur as a result of arson, self-combustion or from sources of ignition. • Concrete bay walls and flooring is fire resistant to prevent fires from spreading.	**Unlikely** – Only small amounts of combustible waste will be present on site. The fire-resistant concrete surface	Respiratory irritation, smoke nuisance to local population. Pollution of land or water by firewater.	**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**
			• Combustible wastes (e.g. waste packaging, cardboard etc) will be stored in moveable skip/wheelie bins or baled and palletised on concrete surfacing. Loose stockpiles of pallets will also be stored on concrete surfacing. • Flammable liquids will be stored in sealed containers separately from other wastes. Explosive and flammable gases will be stored in cylinders within locked metal cage or Wastesafes on concrete surfacing. • Emergency procedures which form part of the site's Management System will be followed. • The site manager is also responsible for review of what caused the incident and whether changes in procedures are needed as a result. • Trained site staff and/or emergency fire crews will use water to extinguish any fires on-site and the resulting firewater	means any fires would likely to be small and containable.		

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**
			has the potential to be contaminated and will be contained and disposed of appropriately. Measures to contain firewater similar to handling of spillages as outlined above. Firewater will be contained, collected, and removed from site in a controlled manner and not be allowed to run-off into nearby watercourses or land. • Daily site inspections of internal and external storage areas to identify any signs of smoking or smouldering. • Site security with fencing, lockable gates and CCTV will prevent or alert site management of fires caused by arson or vandalism. • Further control measures are detailed in the Fire Prevention Plan which has been prepared as part of this permit application (report ref. 5195-CAU-XX-XX-RP-V-0308).			

4.0 CONCLUSION

4.1.1 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.

4.1.2 The amenity and accident risk assessments indicate that provided the identified risk mitigation measures, which are identified in the tables above, are implemented, the risk of nuisance or pollution from odour, noise and vibration, fugitive emissions including dust, litter, mud and debris, contaminated surface run-off, pests or accidents such as fire is low, if control measures are implemented.

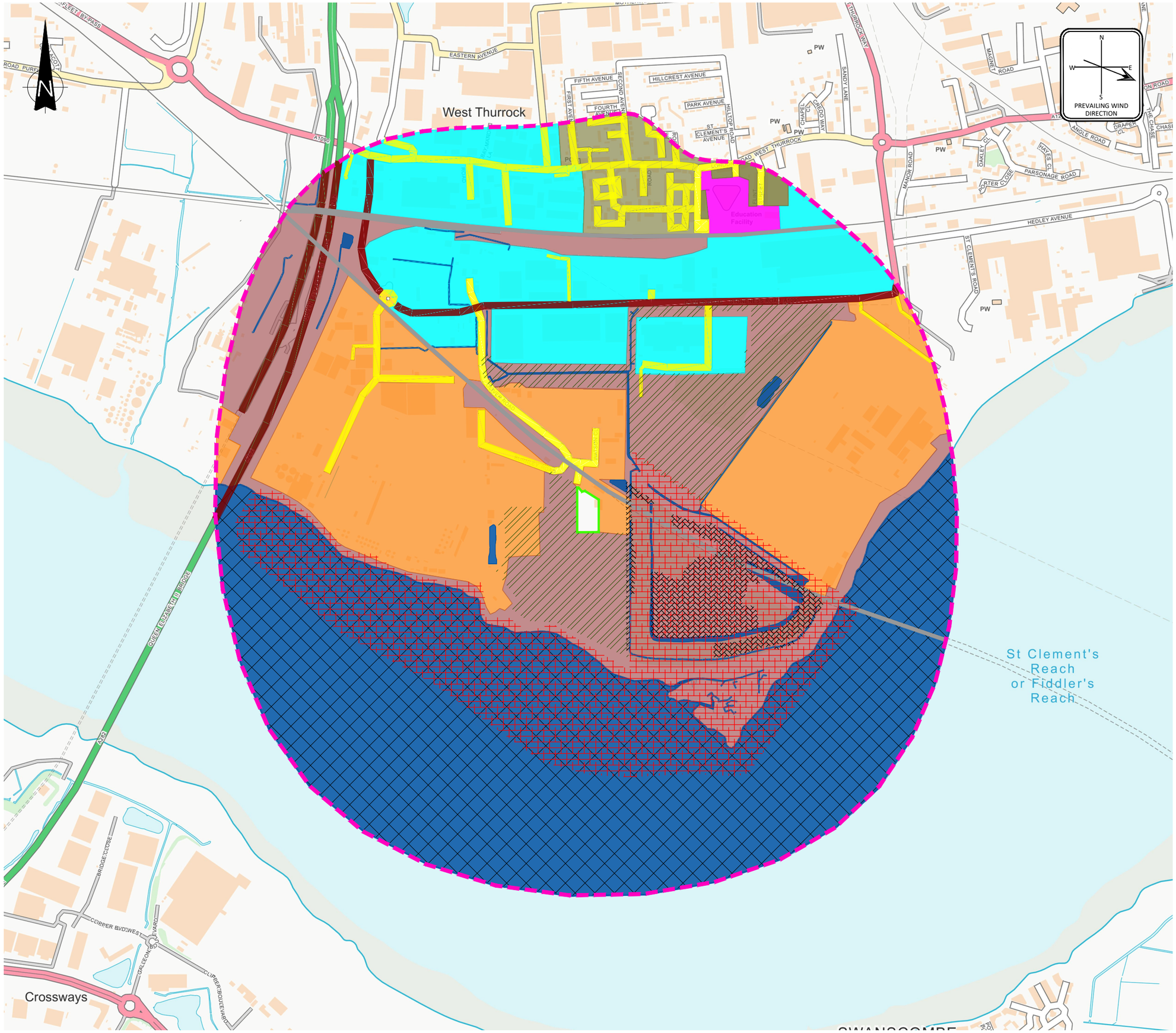
4.1.3 Overall, the proposed new Hazardous Waste Transfer Station at Riverside Industrial Park, West Thurrock will store all waste accepted within appropriate sealed and bunded containers on an impermeable concrete surface and will produce very little emissions likely to affect nearby sensitive receptors.

5.0 REFERENCES

1) Environment Agency guidance 'Risk Assessments for your environmental permit' (last updated 31 August 2022), found at: https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit.

DRAWINGS

5570-CAU-XX-XX-DR-V-1801 Sensitive Receptors Plan



LEGEND

- PROPOSED PERMIT BOUNDARY
- 1000m OFFSET
- SURFACE WATER
- WOODLAND / SCRUBLAND
- COMMERCIAL
- EDUCATIONAL FACILITY
- INDUSTRIAL
- RESIDENTIAL
- MAJOR ROAD
- MINOR ROAD
- RAIL
- PROTECTED FISH MIGRATORY ROUTE
- PROTECTED HABITATS
- SSSI
- LOCAL WILDLIFE SITES

REV	MODIFICATIONS	BY	RE	AP	DATE
P02	LWS AREAS UPDATED	EJD	SH	SH	10.07.23
P01	ISSUED FOR INFORMATION	EJD	SH	SH	01.12.22

PURPOSE OF ISSUE: FOR INFORMATION

STATUS: S2

CLIENT: Williams Environmental
Waste Management that doesn't cost the Earth

PROJECT:
RIVERSIDE WASTE TRANSFER STATION

TITLE:
SENSITIVE RECEPTORS PLAN

DESIGNED BY	DRAWN BY	REVIEWED BY	AUTHORISED BY
EJD	EJD	AD	SH

DATE	SCALE @ A3	JOB REF:	REVISION
29-11-2022	1:10,000	5195	P02

DRAWING NUMBER
5195-CAU-XX-XX-DR-V-1801

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engineering environmental planning

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APPENDIX 1

Environment Agency Habitats Screening Report

Nature and Heritage Conservation

Screening Report: Bespoke Installation

Reference	**EPR/LP3341QD/A001**
NGR	**TQ 58183 76744**
Buffer (m)	**25**
Date report produced	**16/11/2022**
Number of maps enclosed	**6**

The nature conservation sites identified in the table below must be considered in your application.

Nature and heritage conservation sites	Screening distance (km)	Further information
Marine Conservation Zone (MCZ)	2	Joint Nature Conservation Committee
Swanscombe		
Ramsar	10	Joint Nature Conservation Committee
Thames Estuary & Marshes		
Sites of Special Scientific Interest (SSSI)	2	Natural England
West Thurrock Lagoon & Marshes		
Local Wildlife Sites (LWS)	2	Appropriate Local Record Centre (LRC)
Anchor Field		
Grenville Road Grasslands		
West Thurrock Lagoon		
West Thurrock Reedbed		

Protected Species	Screening distance (m)	Further Information
Allis Shad migratory route	up to 500m	Natural England
Smelt migratory route		Appropriate Local Record Centre (LRC)
Twaite Shad migratory route		

Protected Habitats	Screening distance (m)	Further Information
Reedbeds	up to 500m	Natural England

Where protected species are present, a licence may be required from Natural England or the Welsh Government 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.

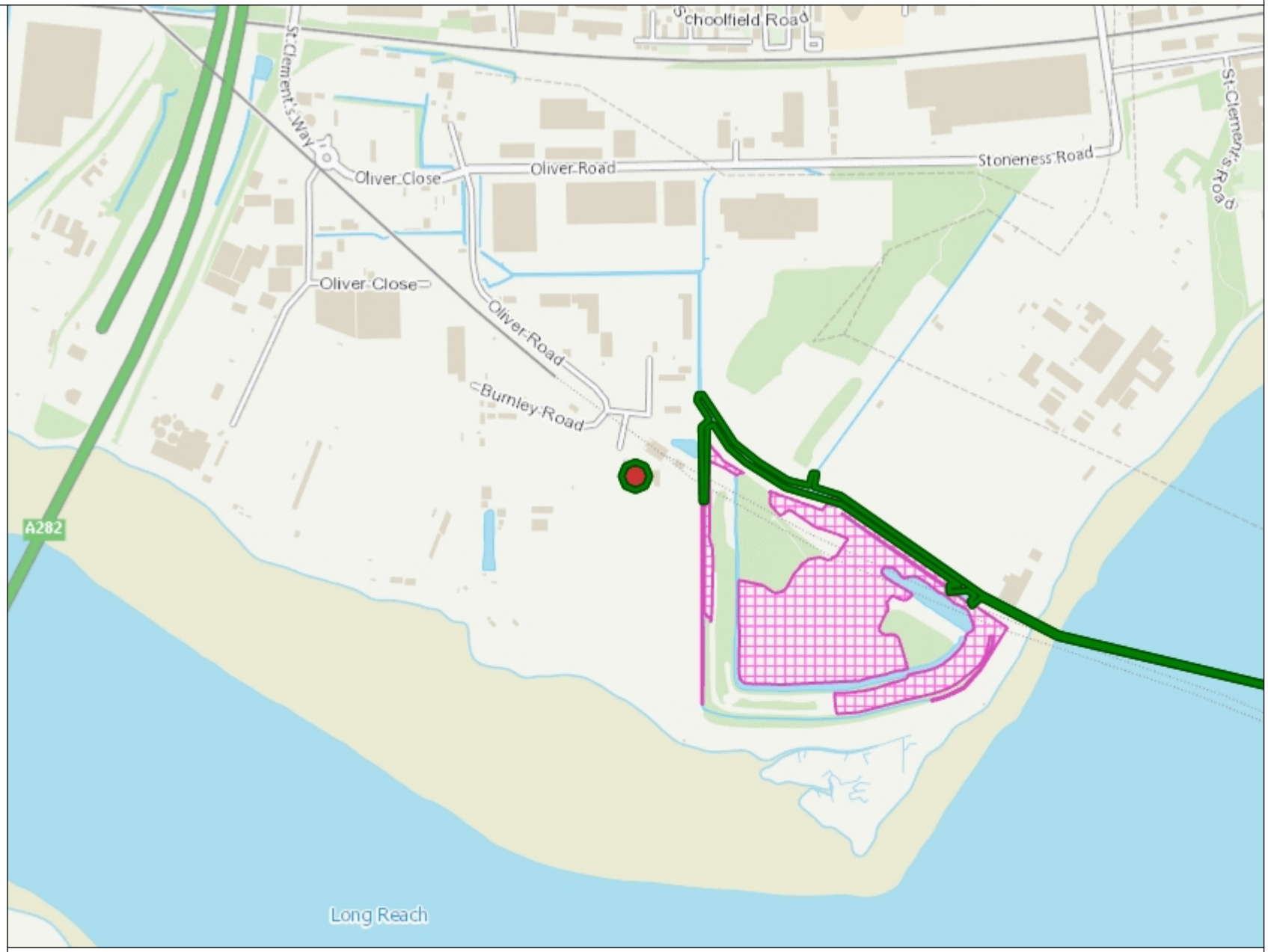
Please note the nature and heritage screening we have conducted as part of this report is subject to change as it is based on data we hold at the time it is generated. We cannot guarantee there will be no changes to our screening data between the date of this report and the submission of the permit application,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

Protected Habitats

Environment Agency

Legend

Protected Habitats screened for Env Permits



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Metres

N W E S

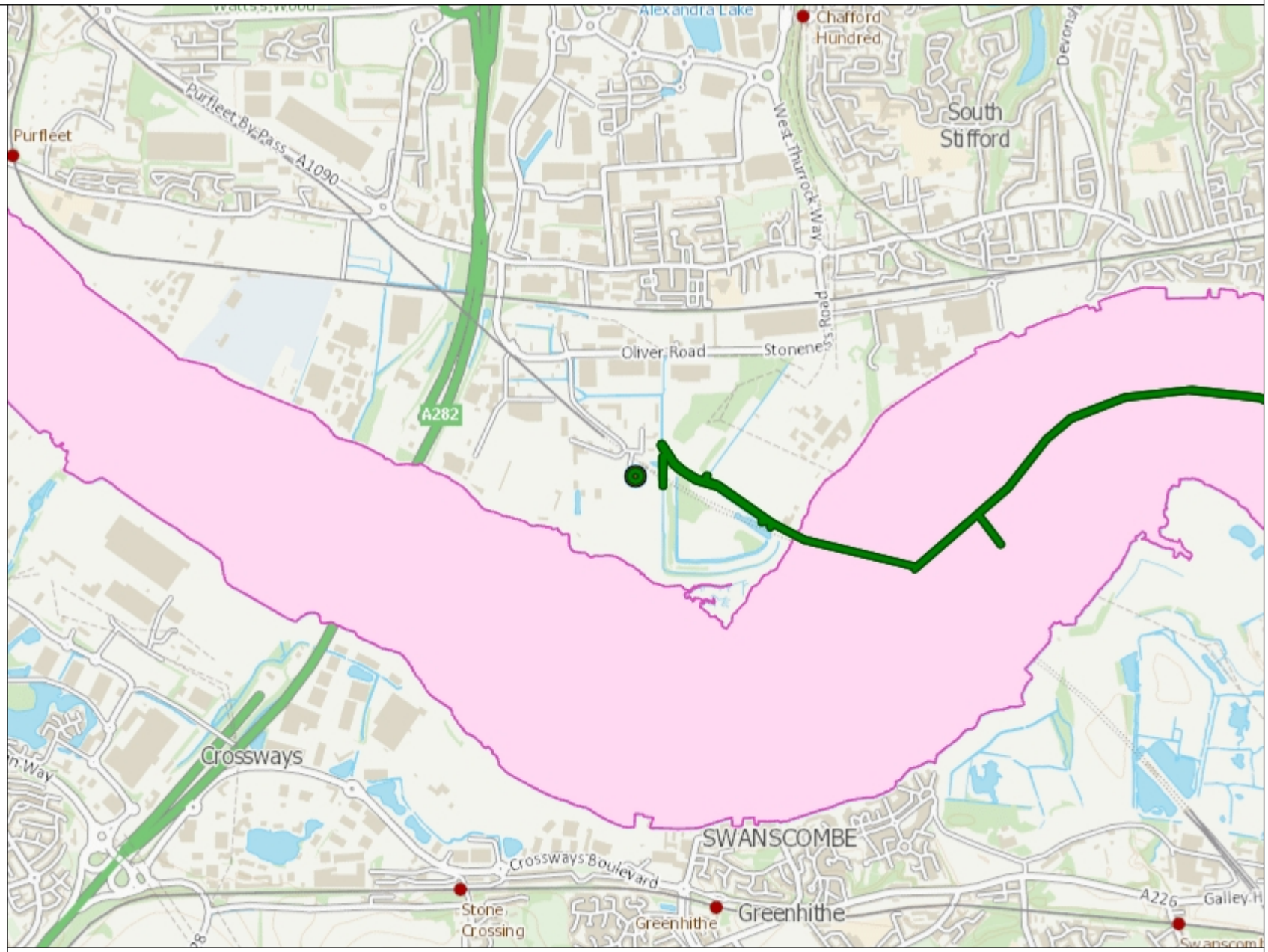
Protected Species

Environment Agency

Legend

Protected species screened for Env Permits - complete set

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



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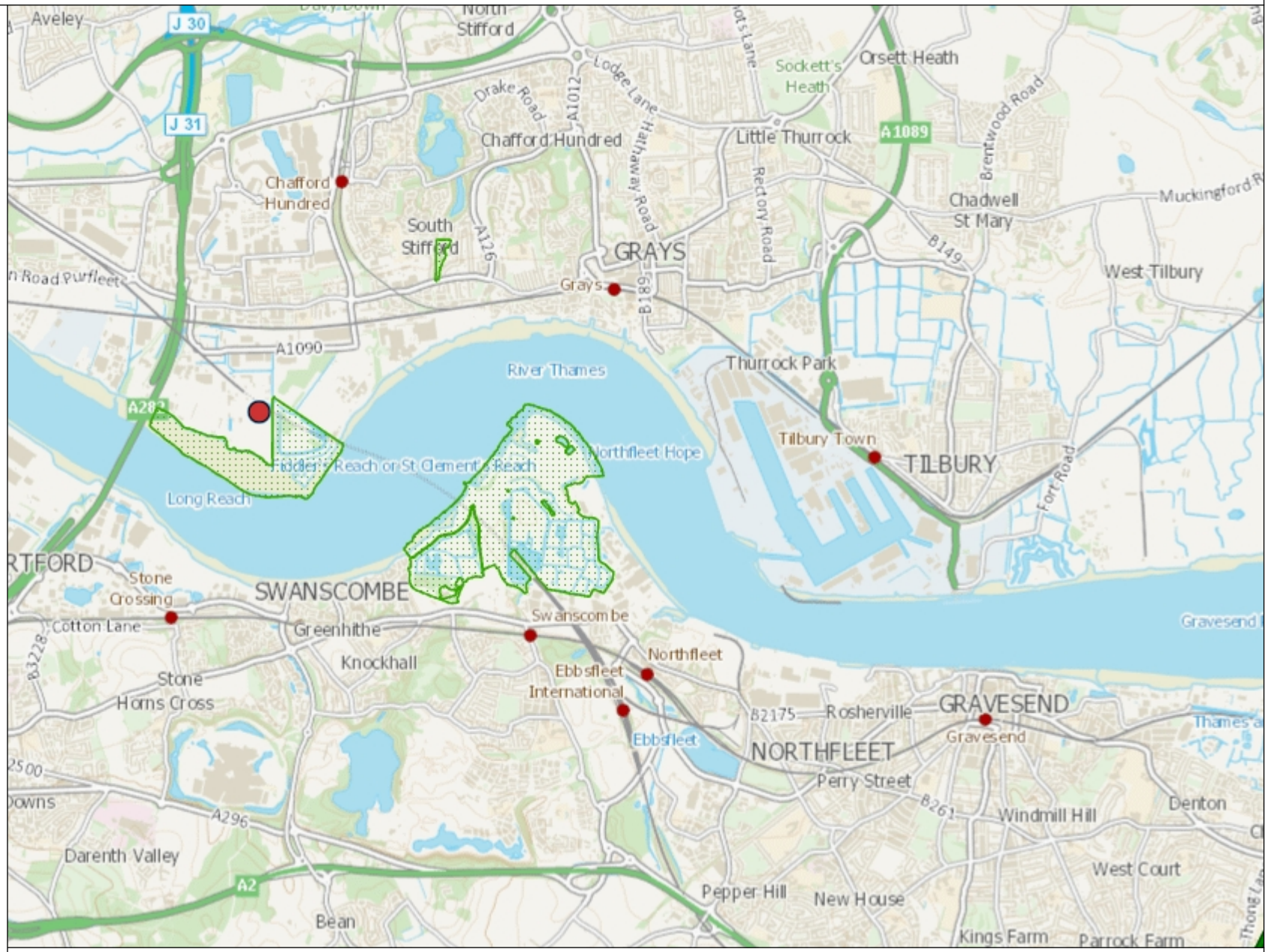
N W E S

Sites of Special Scientific Interest

Environment Agency

Legend

SSSI (England)



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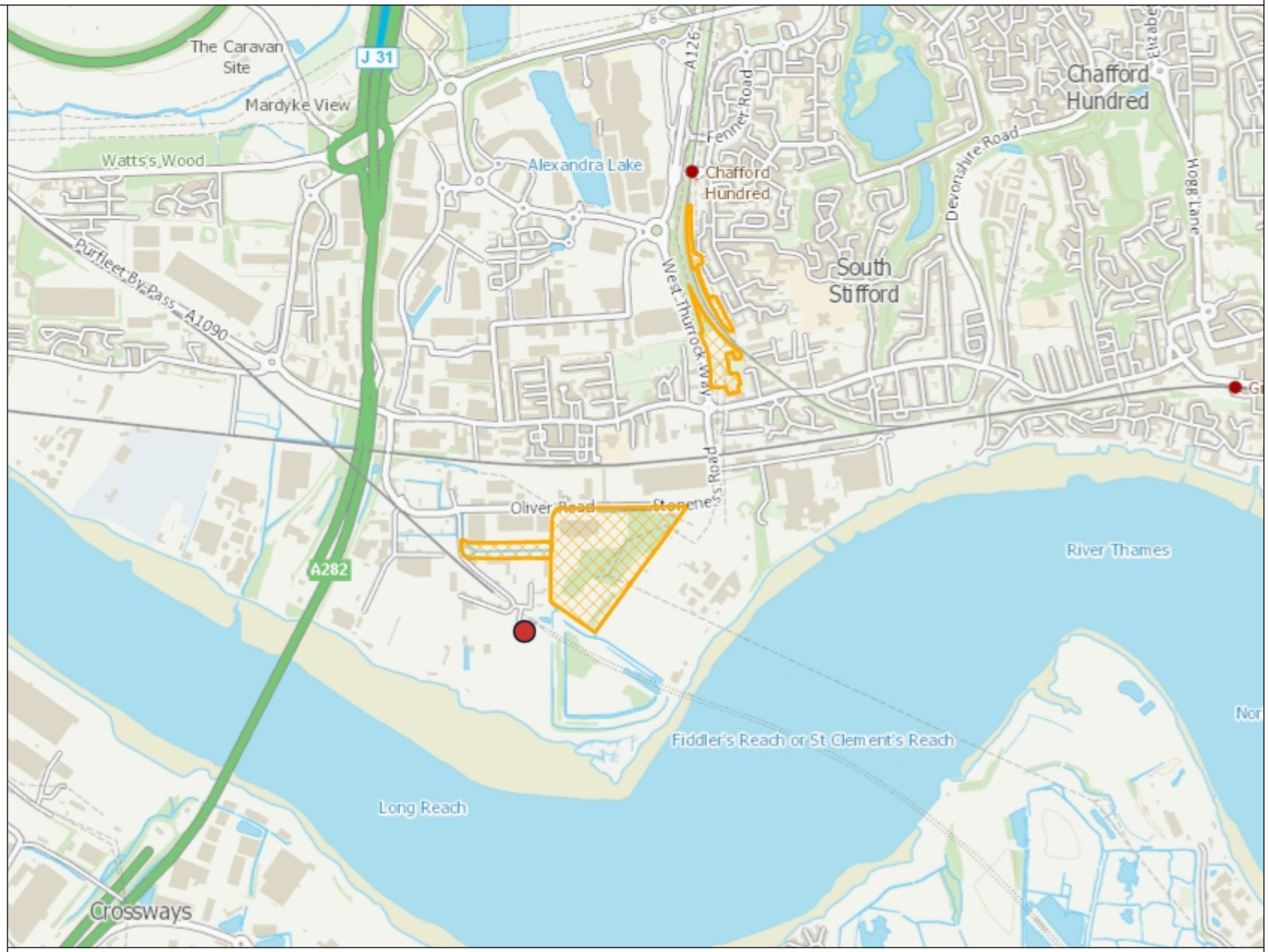
Local Wildlife Sites

Environment Agency

Legend

Local Wildlife Sites



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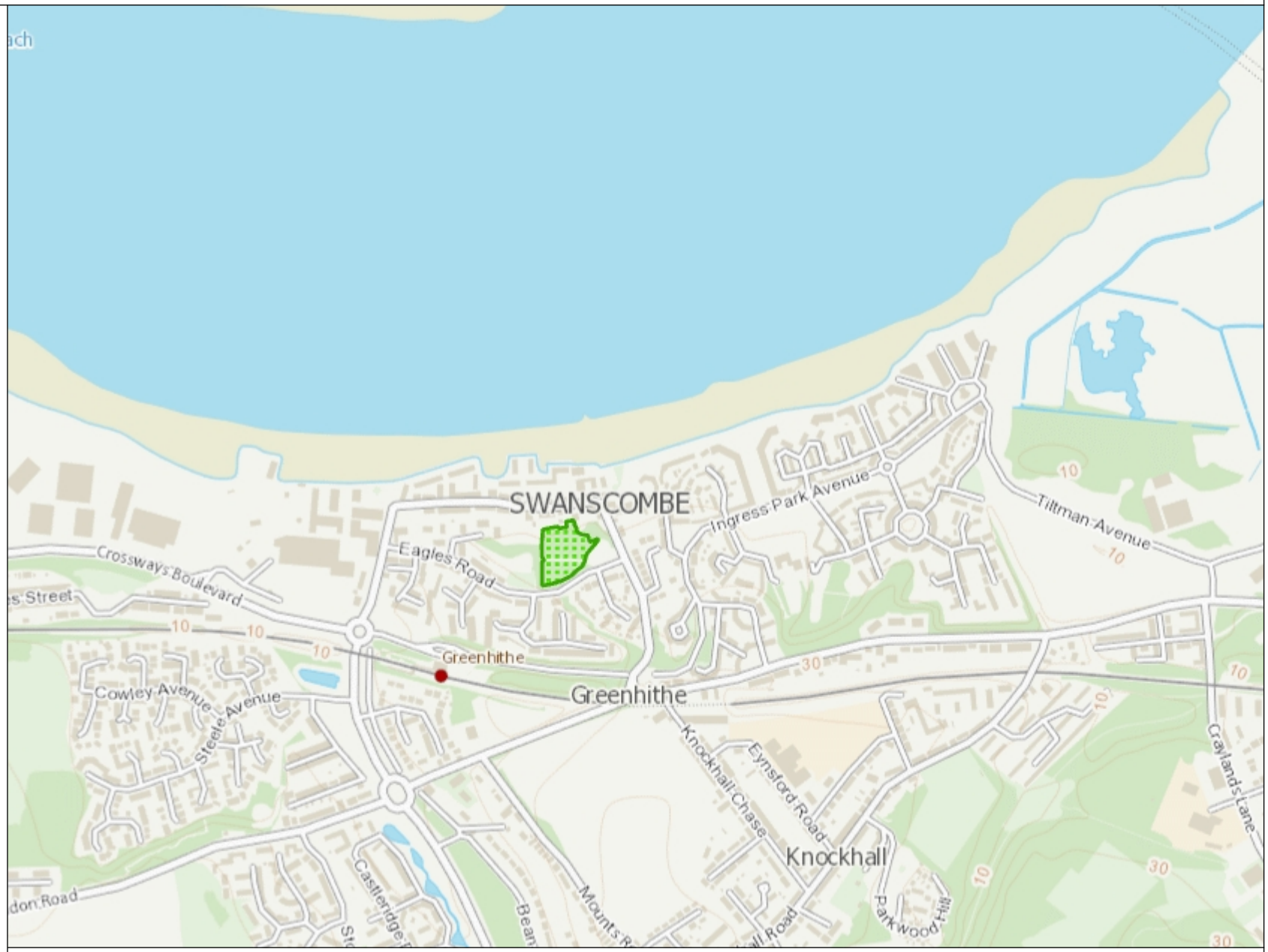
N W E S

Marine Conservation Zones

Environment Agency

Legend

Woodland Trust Sites



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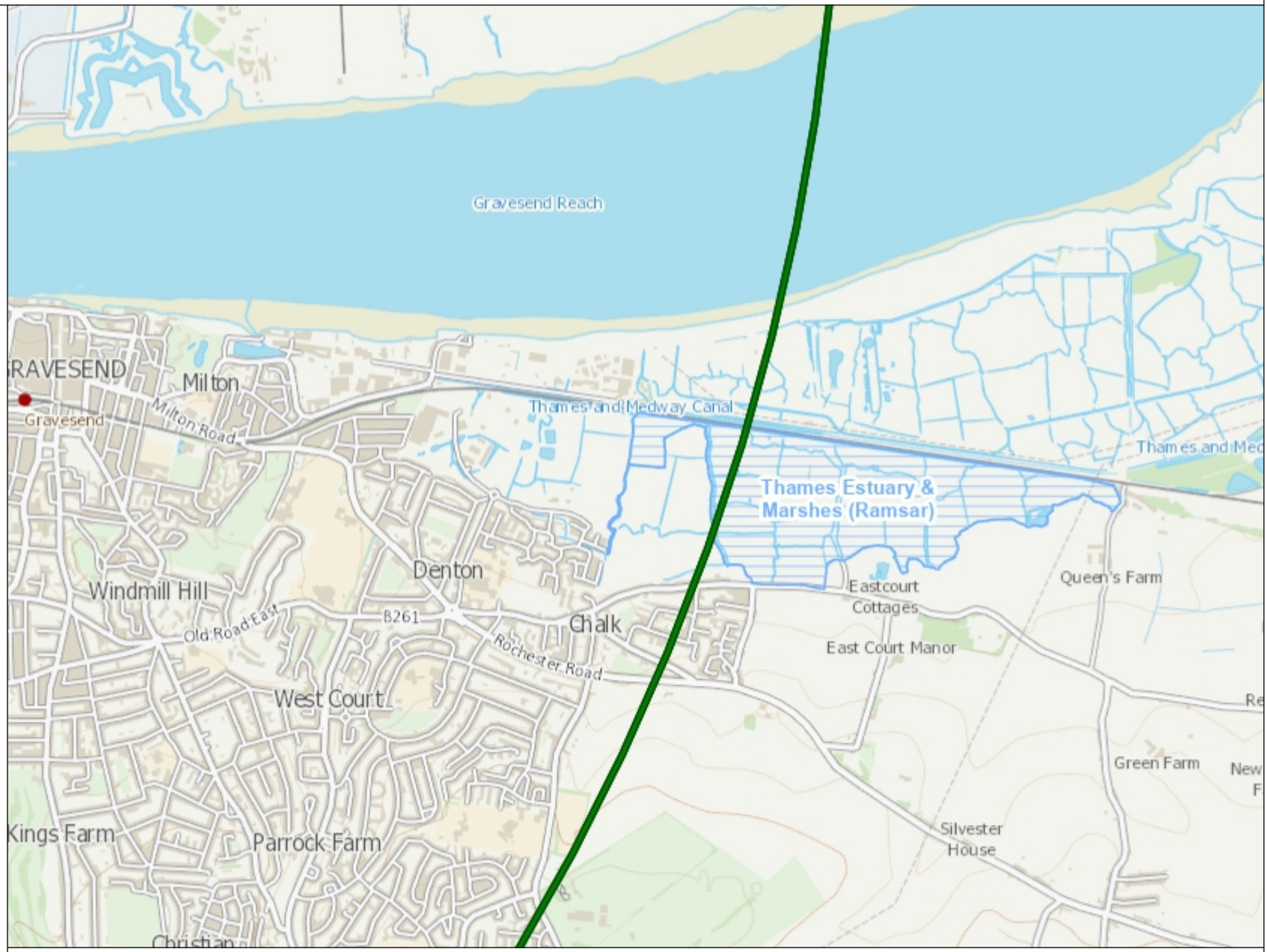
Ramsar Sites

Environment Agency

Legend

Ramsar (England)



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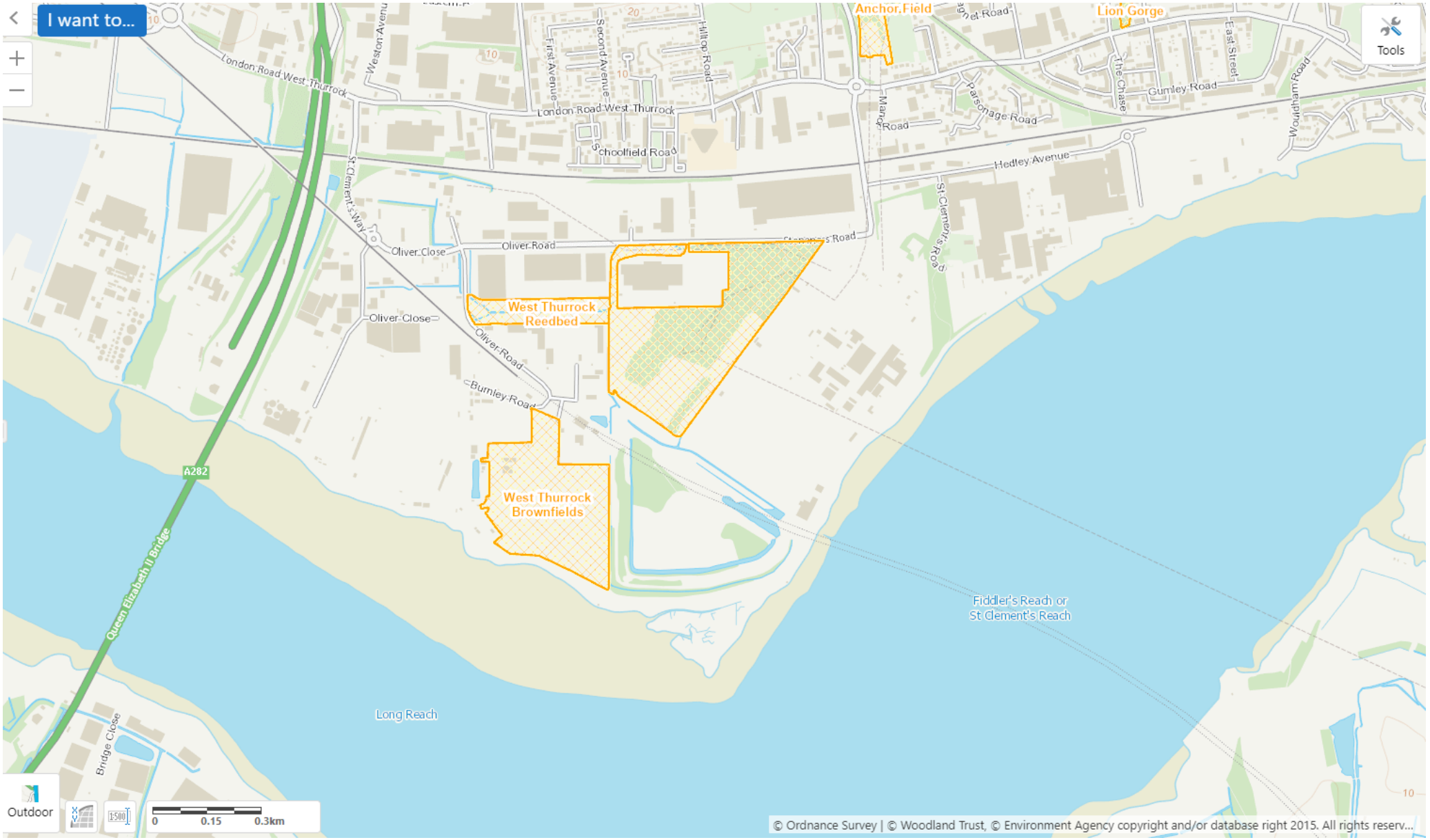
Metres

N W E S

Updated Local Wildlife Sites (LWS) map from Environment Agency (dated 07/07/2023)



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