European Metal Recycling Ltd

Variation of Environmental Permit EPR/GP3292FT
Non-Technical Summary & Supporting Information

July 2023

European Metal Recycling Ltd
EMR Darlaston – Fridge Destruction
Bentley Road South
Darlaston
West Midlands
WS10 8LW

CONTENTS

1 INTRODUCTION

1.1 Overview

European Metal Recycling Ltd (EMR) operates a fridge destruction facility at Bentley Road South, Darlaston, West Midlands which is regulated under Environmental Permit (EP) EPR/GP3292FT/V007. This is the current version of the EP and was issued on 24/02/2017. The EP authorises the operation of two separate fridge destruction plants, storage of hazardous waste, as well as the completion of relevant Directly Associated Activities. As such, the site falls within the scope of the Industrial Emissions Directive (IED). The site also completes other waste processing, metal recycling, as referenced A8 in Table S1.1 in the EP.

This document provides a Non-Technical Summary (NTS) of the variation application including:

- An explanation of what is being applied for;
- A summary of the changes proposed to the facility; and
- A summary of the key technical standards and control measures relating to the proposed changes.

To support this application for an EP, the following documentation is submitted in addition to this NTS:

- Application Forms (Parts A, C2, C3 and F1); and
- Further documentation in support of the application, including Fire Prevention Plan, Environmental Risk Assessment, Site Plan , Site Drainage Plan, Air Emissions Points and Monitoring, Appropriate Measurements Monitoring (BAT Conclusions where applicable), Odour Management, Noise Impact Assessment and Management Plan, Emissions (Dust) Management Plan, Habitats and Species Assessment.

1.2 Proposed Changes Outline

As detailed on the Pre-Application Advice (Document ref: 129-001790-02 Pre-Application Advice), the proposed changes subject of this EP variation are listed below. This Non-Technical Summary details the proposed changes in the relevant sections of this document.

Note: EMR require a provision of transition between removal of the current permit to issuing of a new permit variation. The request is for a 6-month period from the date of issue of the new permit, during which time both existing installations (Table S1.1 Green and Blue Plant) will remain operational. The new installation will require commissioning and validation (Waste Thermal Exchange Equipment (WTEE): appropriate measures for permitted facilities, Section 2.1).

1.2.1 Addition and relocation of a new installation

Addition of one new specified activity and WFD Annex I and II operations referenced under Section 5.3 A(1)(a) –

(ii) disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving physico-chemical treatment.

This additional operation is the installation of a new waste temperature exchange equipment (WTEE) destruction plant, as outlined in Section 2.2. It will eventually replace the two existing installations already included in EPR/GP3292FT and will be located approximately 50m to the North-East of the existing installations (129-001790-02 Site Plan).

The relocation of an analogous WTEE destruction installation to an alternative location within the permitted boundary would only involve slight alteration to the monitoring location for point source emissions to the air, as stipulated in Table S3.1. The statutory monitoring limits would be maintained and reported as currently required in the existing permit. The NGR for the point source emissions to air is SO 98346 97724 from the RTO chimney; an emergency chimney is located at NGR SO 98342 97724 (10m from the RTO chimney).

1.2.2 Alteration to Permit Boundary

The application indicates an increase in the permitted area for this installation by adjusting the permit boundary for EPR/LP3492FA/V004. The two permitted facilities are adjacent to each other on one continuous section of land and therefore no new land is required to action these proposed changes. The proposed changes are shown in the Site Plan (ref: 129-001790-02 Site Plan). The boundary of this permit variation intends to incorporate an existing building (reuseable steels) that is currently permitted under LP3492FA/V004 and also includes approximately 130m by 50m of land from the adjacent permitted location. The new boundaries for each permitted facility are approximately represented in 129-001790-02 Site Plan.

- There are no changes proposed to the list of wastes permitted to be accepted at the site, which will remain as shown in Table S2.2.
- It is proposed that the Site will continue to process both hazardous and non-hazardous wastes in accordance with the already agreed measures to ensure that waste types are segregated and mixing is prevented.
- The treatment process, Stages 1 and 2, will continue to operate in the same manner in the new installation as they have done for the past 20 years with the existing installations, but with improved efficiency and recovery rates, in accordance with BAT.
- Performance against the management system is audited at regular intervals, and
- The Environmental Permit is complied with.

1.2.3 Other changes to the permit

References to 'Blue Plant' and 'Green Plant' in Tables S3.1 and S4.1 will currently remain the same, referring to Emissions, Monitoring and Reporting, for a period of 6 months from the permit variation being issued. The new installation air monitoring location is NGR SO 98346 97724 for the RTO chimney and SO 98342 97724 for the emergency chimney, and site drainage discharge position (A7) not altered from schedule 7 of existing site plan.

1.3 Best Available Techniques (BAT) Assessment

Pre- and post-variation, EMR Darlaston completes Schedule 1 Activities meaning that it falls within scope of IED and Best Available Technique (BAT). BAT means "the available techniques which are the best for preventing or minimising emissions and impacts on the environment". In the instance of EMR Darlaston, techniques include the design, build, maintenance, operational management and decommissioning of the existing destruction plants (hazardous and non-hazardous processing) and hazardous waste storage.
EMR are required to comply with the BAT Conclusions/Recommendations in the following documents since 17th August 2022:

- Conclusions: Commission Implementing Decision (EU) 2018/1147 – Establishing Best Available Techniques (BAT) Conclusions for Waste Treatment, under Directive 2010/75/EU of the European Parliament and of the Council

To confirm, it should be noted that EMR Darlaston will continue to review its operations to ensure further compliance with the aforementioned BAT document which took effect from the 17th August 2022.

2 ENVIRONMENTAL PERMIT CHANGES

2.1 Schedule 1 Specified Activity to be relocated and updated

EMR wish to upgrade the treatment operations at the Darlaston facility via the installation of a new waste temperature exchange equipment (WTEE) destruction operation, whilst also relocating the operation within the permitted area.

EMR currently operate two such destruction installations (Green Plant and Blue Plant) as indicated on IED Permit EPR/GP3292FT. The intention is to install an updated, standalone, WTEE destruction plant approximately 50m North-East of the existing operations. The existing operations will continue for a period of 6-months from the date of the new permit being issued, to allow for the commissioning of the new installation and maintain continuous destruction of WTEE units without exceeding the existing storage limit as noted in S1.1 A3.

As detailed in Section 1.2 of this Non-Technical Summary (NTS), in order to facilitate the new, relocated WTEE destruction plant, the related EP variation is applying for the following Schedule 1 Specified Activity to be added to IED Permit EPR/GP3292FT: –

Section 5.3 A(1)(a) Disposal or recovery of hazardous waste with a capacity exceeding 10 tonnes per day involving one or more of the following activities-

(ii) physico-chemical treatment

The addition of the installation would eventually replace the two existing installations already cited in the existing EP (Activity references A1 and A2).

It does not require any additional waste quantities or types than those already permitted under Table S2.2 which is the source of the waste for treatment.

References to 'Blue Plant' and 'Green Plant' in Tables S3.1 and S4.1 will currently remain the same, referring to Emissions, Monitoring and Reporting, for a period of 6 months from the permit variation being issued. The new installation air monitoring location is NGR SO 98346 97724 for the RTO chimney and SO 98342 97724 for the emergency chimney, and site drainage discharge position (A7) not altered from schedule 7 of existing site plan.

2.2 Alteration to Permit Boundary

This application also requires an alteration to the existing site permit boundary. Currently EPR/GP3292FT covers approximately 3 hectares of ground (30,000 m^2) and the neighbouring EMR facility (EPR/LP3492FA) covers approximately 6 hectares of land (60,000 m^2).

Within this application EMR wish to extend the boundary of EPR/GP3292FT to incorporate an area north of what is currently described as the 'reusable steels' shed, found in Schedule 7, by yielding this land from the aforementioned permit EPR/LP3492FA/V004 (Application Reference 129-001790-01 Site Permit).

The proposed outline of this boundary change is found in document reference 129-001790-02 Site Plan. This additional land boundary incorporates an area of approximately 130m by 50m to the North of the existing boundary. As the land is already covered under Environmental Permitting Regulations there is no reason to undertake a site survey as the land has been under the control of EMR since Environmental Permitting was introduced i.e. no known contamination has occurred in this section of land. We have included a Site Condition Report (Appendix I) in reference to a land survey completed in April 2023.

2.3 Extent of Installation

With respect to the treatment of WTEE, the installation consists of the receipt of metal waste (as per the Waste Acceptance Procedure outlined in the Environmental Management Plan in accordance with BAT Conclusion 2) referenced under List of Waste Codes listed in Schedule 2 of EPR/GP3292FT/V009, storage of infeed material prior to Stage 1 de-gassing and Stage 2 destruction and removal of gases.

2.3.1 Type and Source of waste cooling equipment for destruction

The waste cooling equipment categories accepted as waste are already accepted and treated using existing equipment at the installation. No increased volume is required and no additional waste codes are required to be included in this application.

Both VFC and VHC refrigerant gases will be collected at Stage 1 – degassing. There are separate degassing stations within Stage 1, capable of degassing R134a (VFC) and R600a (VHC). The degassing stations are equipped with colour-coded equipment for each gas (VFC or VHC) and operators are trained to work to a Safe Operational Procedure (SOP). R134a is

collected, condensed and transported to a permitted facility for destruction. R600a (butane) is stored in a suitable vessel prior to being oxidise in the Regenerative Thermal Oxidiser (RTO) – see Section 2.3.4.

There is also a degassing station designed specifically for commercial WTEE units. All refrigerants from these units, regardless of gas type (R22, R290), will be collected in the same, suitable, gas bottle before being transferred to a permitted facility for destruction.

Note: Only VHC WTEE units will be processed at Stage 2 of this installation. As described in Section 2.3.3 any VFC WTEE units, or loose items, will be identified and quarantined for transfer to EMR Willesden for processing.

BAT Conclusion 24 is not applicable to this installation as no packaging materials are received with the WTEE units. Similarly, no baled WTEE units are accepted at this installation, Bat Conclusion 26.

2.3.2 Treatment of waste temperature exchange equipment (WTEE)

No different treatment of the WTEE waste streams will be required under this new installation. The purpose of this application is to ultimately replace two older installations with a new and improved operation capable of completing the same treatment to a more efficient standard, in accordance with BAT Conclusion 2.

The proposed installation will treat both VHC and VFC compressors at Stage 1. As such, in reference to BAT Conclusion 3, the characteristics of the waste gases will predominantly consist of the following constituents:

Refrigerant gas (Stage 1): VHCs – n-butane and isobutane ***only this refrigerant goes to the RTO***

- collected separately from VFCs – R134a (1,1,1,2-tetrafluoroethane) - incinerated
- collected separately from VFC/VHC mix – R22 (freon) and R290 (propane) from commercial units - incinerated

Stage 2 will only process VHC containing WTEE carcasses. As such, in reference to BAT Conclusion 3, the characteristics of the waste gases will predominantly contain the following constituents:

Blowing agent (Stage 2): gases consisting of pentane, isopentane, neopentane and cyclopentane. There may be trace concentrations of butane present.

2.3.3 Updated treatment of WTEE with proposed equipment

A brief description of the operation of the new process plant is provided within this NTS.

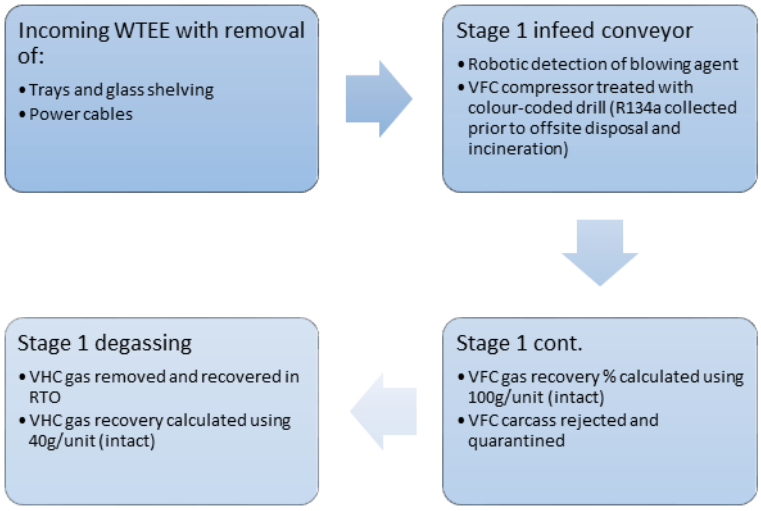
All end-of-life refrigeration equipment (WTEE) will be accepted at this facility. The bespoke fridge destruction plant installation will operate in the same manner as other fridge destruction operations: Stage 1 – Degassing and Stage 2 – Destruction. The main difference being a 'robotic' system upfront to identify VFC gas containing units as the blowing agent.

The sensor uses three measurements per unit to detect the blowing agent within the main body and doors of the WTEE unit. There are two Stage 1 processing lines, with one robotic

analyser per line. A safeguard system is also provided utilising handheld scanners to detect VFC containing articles (loose items) from entering Stage 2 processing.

Identified VFC containing units have the compressor degassed and removed (Stage 1) prior to the carcass being removed from the process line and stored in a quarantine area until transferred to EMR Willesden for processing. The remaining VHC units are processed through the main plant operations as described below.

Stage 1 – Degassing



The VHC and VFC refrigerant will be removed at Stage 1 using a suction head and drill. The oil/gas removed from the compressor is further treated by heating of the oil and removal of the respective gas by condensation. The VHC (R600a; Butane) gas is recovered in suitable storage bottles and sent to the Regenerative Thermal Oxidiser (RTO) when full. There is capacity within the RTO to process Stage 1 gases separately from the continuous oxidation of Stage 2 gases at times when Stage 2 is not operational, such as pre-heating and maintaining minimum operating temperatures.

The R134a gas is collected, condensed and stored in a suitable storage vessel. Once full the bottle is transferred to a permitted facility for destruction (incineraton).

Currently, Environment Agency monthly return forms indicate a 40g/unit charge of VHC gas in each compressor. The efficiency and recovery rate of VHC gas at Stage 1 is calculated using the gas recovered per unit divided by the total gas calculated for a fully intact unit (40g/unit) multiplied by 100%. This is usually calculated on a monthly basis. The number of intact units processed per shift is recorded electronically and the gas weight is the difference between a full gas bottle and an empty gas bottle. This addresses Appropriate Measures 6.1 and BAT Conclusion 29 a.

$$\text{Recovery \%} = \left(\frac{\text{Mass refrigerant recovered}}{\text{Mass of refrigerant calculated}}\right) \text{X } 100$$

The oils/gas mixture is removed from the compressors at Stage 1 by attachment of a drill head to the compressor casing using suction. Once attached the compressor is drilled and the oil gas mixture removed. The gas is slowly evaporated from the oil by passing through a heated chamber over a 24 hour period, condensed and collected in a suitable pressurised container. The oil will be sampled quarterly, as per Table S1.5 of the existing Environmental Permit and shown to contain less than 0.9% by weight of residual refrigerant, addressing Appropriate Measures 6.3 (residual materials). No separation of any residual water is completed at this treatment stage.

VFC units are processed at Stage 1 separately to recover R134a; currently less than 10% of all WTEE units received at the facility are VFC containing units. The oil/gas mixture is treated in a separate line, analogous to the VHC line, to condense and store the VFC gases in a secure gas canister until full, where the VFC is transferred to a permitted facility for destruction (incineration). The recovery calculation is the same as for VHC gas, with the calculated gas content for an intact unit being 100g/unit.

Stage 2 – Destruction

The WTEE (VHC only) carcass is transferred by a lifting mechanism to the opening of the shredding unit. At this stage loose doors and panels may be added to the shredder feed, once the items have been scanned for the presence of halogen gas. If halogen gas is identified the loose items are collected with the unprocessed VFC units for shipment to EMR Willesden.

The carcass and loose articles are presented to an air lock system. A foam agent is also added at this stage, the foam is used as part of the fire protection system as supplied by the manufacturer. At this point the weight of the units, and loose components, is taken to be cross referenced to the units passing through Stage 1.

The carcass and loose components are dropped by gravity into a shredder, which breaks the WTEE units into liberated particles (approx. 34mm). The shredder unit, and subsequent downstream separations, are protected from deflagration as follows (BAT Conclusion 27):

- Airlocks – To accept fridges into the shredder hopper area.
- Multiple extraction points
- The addition of a foam agent to the shredder chamber to generally damp down dust
- IR detectors if a fire is detected
- Water sprays triggered by the IR detectors.
- (Manual intervention, using the Forex Agent)

The shredded material leaves the shredding chamber via a sealed discharge screw, directly on to a vibratory feeder. The shredder is monitored for hydrocarbon (pentane) gas levels using a gas monitor, at a Lower Explosion Limit (LEL) of >10% the infeed is paused, at an LEL of >15% the shredder is stopped whilst maintaining gas removal until the LEL is <10%, BAT Conclusion 30.

If, at any one time, the LEL exceeds 40% the infeed is stopped, N_2 gas will be injected into the shredder feed hopper whilst continuous extraction of the air within the shredder is maintained. The nitrogen gas is generated from a bespoke N_2 generator, maintains an inert

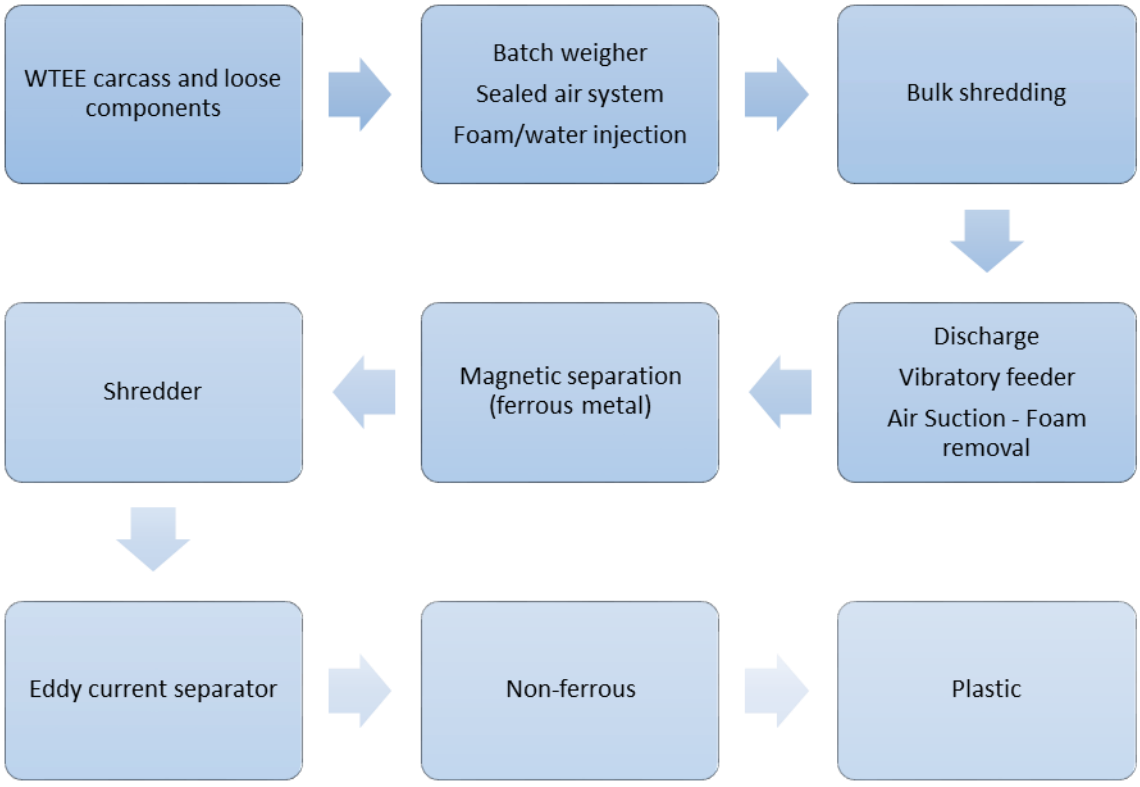
atmosphere along the PU foam process line. Further gas monitoring occurs after material is discharged from the shredder; when the LEL exceeds 20% fresh air is introduced to lower the hydrocarbon gas concentration.

At this stage the ferrous metal is removed by a magnet and transported into an external bay. As the liberated PU foam is very light it is extracted by suction and transported to a sealed silo. The gases are recovered using heated screw conveyors, protected by an N_2 purging system, to expel the gas from the PU matrix. Once collected the residual foam is passed through a double pelletising system and transported into an external bagging station. As the process generates heat, residual VHC gases are driven from the foam and separately collected. Nitrogen gas, generated by a bespoke N_2 generator, is introduced at this stage to act as a cooling gas due to the heat generated. The liberated gas is transferred to the RTO, a full description of the RTO treatment is provided in Section 2.3.4.

The non-ferrous metal and plastic enter a secondary size reduction shredder (approx. 22mm) before being passed over an eddy current separator to affect the separation of non-ferrous metals from the residual plastic. The non-ferrous metals are sent into a small hammer mill for balling. Once balled they are further refined with use of an air table to separate light and heavy non-ferrous metal fractions. The remaining plastic is transferred to the outside of the building into bulk bags.

From entering the main shredding process the material is transported to the next phase of separation using either covered conveyors (belt or screw systems) until discharged to minimise dust within the operational plant. This flow diagram is reproduced in Appendix A.

Gas monitoring systems are installed throughout the Stage 2 processing line, Appendix A.



The purpose of this monitoring is to ensure that, *if* a VFC carcass accidentally made it through to the Stage 2 processing line the gas would be identified by a Fresenius GA320 unit.

Should any halogen containing gas be detected within the system, the gas 'envelope' containing the halogen-gas and small volumes either side of the main gas concentration, would be ejected from the emergency chimney as shown in the diagram. The air is flowing through this system at 10,000 m^3/hr and the gas present within the blowing agent only represents ~0.6% w/w of the entire unit – so any ejected gas would be a very diluted composition or air and halogen-gas. Such incidences would be recorded within the site diary, in accordance with BAT Conclusion 21.

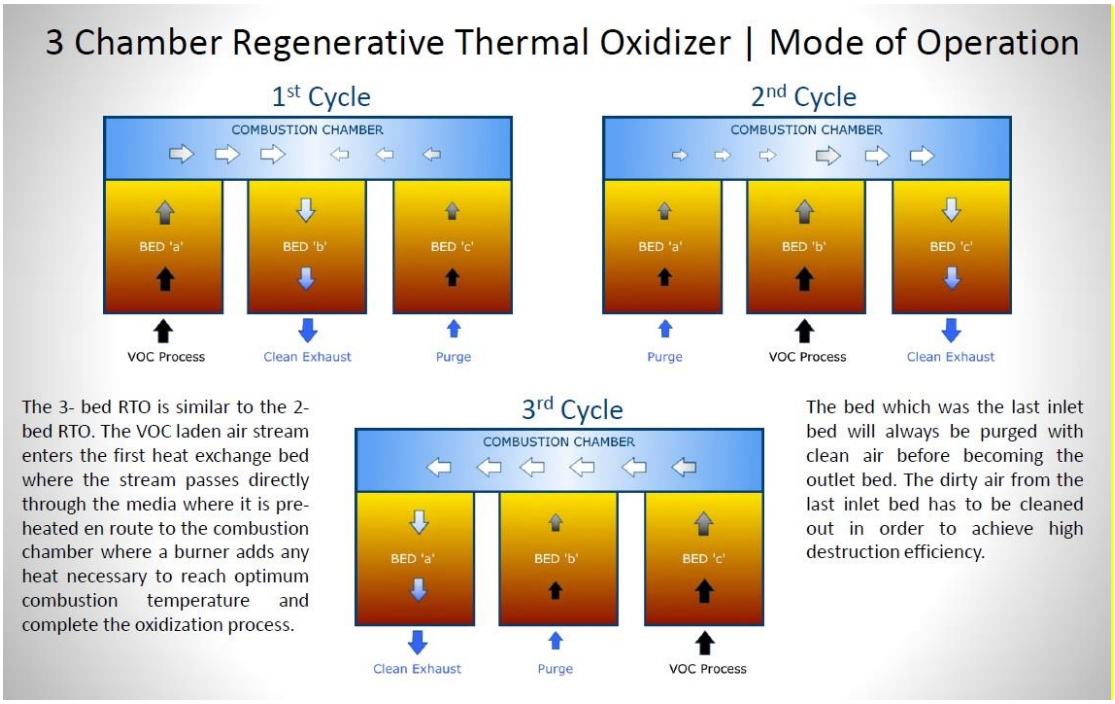
The purpose of the precautionary gas monitoring is to ensure **no** halogenated gases are burnt in the RTO. The RTO is not designed for halogenated gases as they are corrosive to the system. This does mean any VFC units that do accidentally make it into Stage 2 would have the recovered gas ejected to the atmosphere (as a very dilute emission), see Environmental Risk Assessment (separate Access file).

It is the intention of EMR, through the commissioning programme, to test the effectiveness of the gas identification system with use of VFC carcasses from cold commissioning, i.e. prevent these from entering the shredder. On completion of commissioning there should be **no** VFC units accidentally entering Stage 2 of the process; the plant will not be considered to have passed the commissioning process without this performance guarantee.

2.3.4 Regenerative Thermal Oxidiser (RTO)

The permit application proposes use of a regenerative thermal oxidiser (RTO). The RTO process is not a new concept in the thermal destruction of volatile organic compounds (VOCs) into carbon dioxide and water. Such 'add-on' operations have been installed by the fridge destruction equipment supplier in other European countries.

The RTO works by use of a ceramic bed which is either heated from a previous oxidation cycle or from burning liquid petroleum gas (LPG), which preheats the input gases (VHCs) to partially oxidise them. These partially oxidised gases are fed into a combustion chamber to reach a target oxidation temperature and break the VHCs down into CO_2 and H_2O. The regenerative part of the cycle is provided in the following diagram, the RTO proposed for this Environmental Permit is a 3-bed model.



From: http://alliancecorp.com/wp-content/uploads/2017/08/Alliance-RTO-Mode-of-Operation.pdf

The RTO would not be turned off, with the exception of planned maintenance or unplanned breakdown of the unit. The RTO will be supplied with a minimum amount LPG gas (or R600a) for constant operation. The oxidised products, carbon dioxide and water, together with any un-oxidised VHCs are monitored by a final gas measuring unit, as shown in Appendix A. At this measuring point any residual, un-oxidised pentane, gas is measured (down to 2 mg/m^3) and is used to calculate the recovery efficiency of the blowing agent gases, using the blowing agent as content per unit type, as described in Appropriate Measures 6.2, and BAT Conclusions 14d and 14h.

$$\text{Recovery \%} = \left(\frac{\text{Total mass of blowing agent calc. - Mass residual VHC}}{\text{Total mass blowing agent calculated}}\right) \text{X } 100$$

The calculation of residual mass of pentane gases is completed using the density of pentane gas at 626 kg/m^3, isopentane 616 kg/m^3, neopentane 627 kg/m^3 and cyclopentane 715 kg/m^3 respectively providing an average of 655 kg/m^3:

Weight un-oxidised gas = 655 (kg/m^3) X volume of measured gas (mg/m^3)

Therefore, 10 mg/m^3 of un-oxidised pentane gases = 6.55 g of pentane gases. Measurement of the total un-oxidised gas over the operating period can be subtracted from the total blowing agent calculated by WTEE unit type over the same operating period to provide the recovery rate.

For example, one WTEE unit Type 2 is calculated to contain 239 g of blowing agent. If 6 g were not oxidised in the treatment process (Stage 2), the recovery of the blowing agent would be (239 – 6)/239 X 100% = 97.5%, exceeding the minimum recovery of 90%, Appropriate Measures 6.2. This calculation is expanded to cover the entire operating period to generate an average recovery rate.

The entire Stage 2 gas system is maintained under a negative pressure at all times, as such there will be no diffuse emissions. The entirety of the destruction plant is located within a building with only the emissions stack on the exterior, compliant with BAT Conclusions 14a, b, d and f. In relation to BAT Conclusion 14 h, there is no leak detection system installed on the RTO, rather the flow rate of air/gas is continuously monitored whilst Stage 2 is operational. This permits identification of blockages or 'leaks' within the enclosed, negative pressure system, as drops in air flow would trigger an alert. This would begin with a pre-alarm followed by an alarm within the control room.

Further information of compliance with Appropriate Measures for residual materials is provided in Section 4.7.

A small proportion (to be determined through commissioning) of the water produced as part of the RTO operation will condense inside the chimney stack. This water will be directed to a suitable receptacle for storage for testing. Once tested and confirmed there are no exceedances against the BAT-AEL limits (Appendix B data) the condensate will flow to the surface water drainage and interceptor, as shown in Appendix B (Site Plan). If the condensate exceeds BAT-AEL limits the water can be directed to the cess-pit (FMWH6) and tankered offsite for disposal.

For completeness of this proposed permit application, the majority of the Appropriate Measures requirements, and compliance with BAT Conclusions, will be assessed and reported through the commissioning of the new installation. A commissioning plan, with a timetable for completion, will be agreed with the Environment Agency in accordance with Appropriate Measures 2.1.

2.4 Directly Associated Activities (DAAs)

DAAs are not Schedule 1 Activities but have a technical and operational connection to a STU. The tabularised Directly Associated Activities below, with their relevant WFD recycling/disposal code(s), will be carried out as part of the EMR's recycling and recovery operations:

Directly Associated Activity	*WFD Recycling and Disposal Codes*	*Limits of Activity*
Physical treatment for the purposes of recycling	R3: Recycling /reclamation of organic substances which are not used as solvents R4: Recycling/reclamation of metals and metal compounds R5: Recycling/reclamation of inorganic materials	Treatment operations shall only consist of: dismantling, screening, granulation, sorting, separation, grading, shearing, baling, compaction, crushing or cutting of hazardous waste into different components for recovery
Temporary storage of processed non-hazardous material and residue	R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced) D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced)	All processed non-hazardous material and residues are stored on impermeable concrete paving within the sealed drainage system
Temporary storage of processed hazardous material and residue	R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced) D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where the waste is produced)	All processed hazardous material and residues are stored on impermeable concrete paving within the sealed drainage system
Raw materials storage	Storage of raw materials including, liquid petroleum gas, lignin binder, foam suppressant, lubrication greases, hydraulic oils and diesel. Nitrogen is generated on site, through a purpose built nitrogen generator removing the gas from the atmosphere – it is not considered a raw material	From the receipt of raw materials to dispatch for use within the facility.

Site drainage discharge	Discharge of site drainage from storage and treatment areas to controlled waters Surface water from internal loading/treatment are to a cess-pit and off-site disposal	Collected surface water to pass through interceptor before discharge at Emission Point to Walsall Canal as shown on the site plan in Schedule 7

2.5 Testing and Dispatch of Outputs

All outputs from the treatment will be subject to waste classification analysis as detailed in the Technical Guidance WM3 document. Aside from requirements in the site's ISO certification system (Document Reference 129-001790-02 ISO Certificate of Approval), sampling and analysing outputs in accordance with Technical Guidance WM3 provides an output quality management system that will allow EMR to monitor and optimise treatment operations. This allows EMR to comply with BAT Conclusion 2.

Furthermore, the waste classification in accordance with Technical Guidance WM3 allows EMR to dispatch outputs to a suitably licenced facility to meet Duty of Care requirements.

3 WASTE OPERATIONS BEYOND SCOPE OF IED

While EMR Darlaston is authorised to complete Schedule 1 Activities, the site still completes treatment operations which are considered waste operations. Such waste operations are summarised in the table below and are currently authorised under EPR/GP3292FT/V007 so are not new waste operations. To confirm, these waste operations will continue to be completed at EMR Darlaston following the variation.

No increased volume is required and no additional waste codes are required to be included in this application.

All waste treatment and storage operations are completed on impermeable concrete paving within the sealed drainage system as detailed in Appendix B.

Waste Operation	*Activities (including WFD Annex I and II Operation Codes)*	*Treatment Operation Limitations*
Metal Recycling	R4, R13	Sorting, separation, grading, shearing, baling, compaction, crushing or cutting of non-hazardous waste into different components for recovery

4 ADDITIONAL APPLICATION DOCUMENTS AND INFORMATION REQUIREMENTS

4.1 ISO Certification and Management System Summary

EMR Darlaston has an Integrated Management System (IMS) consisting of ISO 9001:2015, ISO 14001:2015 and OHSAS 18001:2007 – the certificate for the IMS has been included as part of the application (Document ref: 129-001790-02 ISO Certificate of Approval). The application of an IMS demonstrates EMR Darlaston is managed in accordance with BREF Style Report Recommendations and BAT Conclusion 1.

The Environmental Management Plan has been updated to reflect the proposed operations outlined in this Non-Technical Summary and has been provided as part of the application (Document ref: 129-001790-02 Environmental Management Plan). Management of the site in accordance with a Management System demonstrates application of BREF Style Report Recommendations and BAT Conclusion 1.

To confirm, the provided Environmental Management Plan is currently in draft and will not become 'live' until the issue of the varied EP. Until such time, the current Management System will be used for site operations. The Environmental Management Plan (Document ref: 129-001790-02 Environmental Management Plan) has been included as part of the application.

4.2 Risk Assessment and Fire Prevention Plan

An Environmental Risk Assessment (Document Ref: 129-001790-02 Environmental Risk Assessment) has been included to reflect the operations of the proposed variation. Similarly, the Fire Prevention Plan has been provided to reflect the relevant measures to minimise risk of fire from the proposed operations and submitted as part of the variation application (Document ref: 129-001790-02 Fire Prevention Plan).

In addition, the proposed new Stage 2 treatment line uses a foam fire suppressant material (0.12 l/hr), together with water (60 l/hr), injected into the shredding chamber in order to minimise sparks and potential fire risk.

4.3 Site Plan

A Site Plan (Document ref: 129-001790-02 Site Plan) has been provided in the application, as well as in Appendix B, to demonstrate the location of the waste treatment area. As seen on the Site Plan, EMR Darlaston has designated areas for segregated waste storage, sorting of wastes, segregated storage of unauthorised wastes and waste inspection. The site layout of EMR Darlaston adheres to BAT Conclusions and Recommendations pre- and post-variation.

4.4 Proof of Operator Competence

EMR are aware that a Technically Competent Manager (TCM) with a suitable hazardous waste treatment WAMITAB certificate is required to oversee this operational facility. One current EMR employee currently has this certification (Reference 129-001790-02 WAMITAB Certificate) and another EMR employee has begun the requisite training for the same qualification. This nominated TCM will have completed the suitable WAMITAB course by the time the Permit Variation is issued.

4.5 Site Drainage System and Monitoring

The Environment Agency defines a sealed drainage system as “a drainage system with impermeable components which does not leak and which will ensure that no liquids will run off a surfaced area other than via the system”. As such, the design of the sealed drainage system prevents the escape of site-derived surface water from the permitted boundary.

The sealed drainage system covers the majority of the site and also has impermeable concrete paving. This can be seen on the Site Drainage System Plan accompanying this application (Document ref: 129-001790-02 Site Drainage Plan) and in Appendix C of this Non-Technical Summary.

The underground site drainage has been extended to incorporate the new building at the south side and reaches around the corner of the existing building to join the existing cesspit drainage pipework. There is no discharge to the foul sewer, the surface water drainage from loading area/treatment of the proposed fridge destruction plant is collected in a septic tank (FMWH6) to the south of the existing building and is tankered off site for disposal (BAT Conclusions 19 and 20 (Table 6.1)).

Site surface water, external to the building, is directed towards the south western side of the yard prior to entering an interceptor and finally discharged into Walsall Canal at the surface water discharge point. There is currently no monitoring requirement for this discharge other than a weekly visual inspection for oil and grease (Table S3.2 of existing permit).

4.6 Air Emissions Points and Monitoring

Tables S3.1 and S3.3 in EPR/GP3292FT detail the monitoring requirements for the fridge destruction plant and ambient air respectively. The former is referenced as a point emission to air with location displayed in Schedule 7 in the EP. The point source emission to air is

located from the RTO chimney where the NGR is SO 98346 97724. An emergency chimney, preventing VFC gases from entering the RTO, is located at NGR SO 98342 97724, 10m from the location of the RTO chimney. Further monitoring and reporting of direct emissions data is provided within Appendix D for previous surveys completed on existing European operations.

A risk assessment of emissions to air have been completed and can be found in file H1 Tool_2.78 EMR Darlaston Fridge Air Screening V2. Only the proxy compound of benzene, used for pentane, and butane were carried into the emissions to air contributions calculation stage. All potential pollutants entered into the database were screened out at the Test 1 stage.

In addition to adherence to BAT Conclusion 8, and associated BAT references, the input to the operation will have a foam dampening agent (0.12 l/hr), together with water (60 l/hr) injected into the shredder (BAT Conclusion 25). Emissions (stack emissions) will be monitored according to BAT Conclusion 8, and associated BAT Conclusions.

The emissions from the RTO will be continuously monitored prior to release. This is through use of a Fresenius GA 220 monitor, specifically monitoring VHCs, but also a range of other determinands as outlined in Appropriate Measures 7.1. Where the potential air emissions cannot be monitored using this equipment an appropriate air monitor analyser will be employed for the testing, at frequencies directed by the proposed permit variation. *Note: no VFC units will be processed at Stage 2 of this installation, as outlined in Section 2.*

Once the commissioning plan has been agreed by the Environment Agency, and the permit issued, the emissions data will be continuously monitored at frequencies required by the permit.

There are existing control measures outlined in place which will continue to be applied following the proposed variation.

- EMR Environmental Management Plan: EMP 5.1.3 (BAT Conclusion 1 and BREF Style Report Recommendation).
- A robust Waste Pre-Acceptance and Acceptance Procedures to ensure no odorous waste is received on site (BAT Conclusion 2 and BREF Style Report Recommendation)
- Housekeeping and control measures outlined in the Environmental Management Plan (BAT Conclusion 14 and BREF Style Report Recommendation)
- Minimising storage times in accordance with the FPP (BAT Conclusion 4)
- Effective preventative maintenance regime for plant and equipment (BAT Conclusion 14)

The monitoring requirement of VOCs (VFCs and VHCs) mass emission is monthly for the first 6 months of operation, and at a minimum of 6-monthly following the proposed variation or

other frequency as agreed in writing by the Environment Agency.

4.7 Appropriate Measures Monitoring

Sections 5, 6 and 7 of the *Waste Temperature Exchange Equipment (WTEE): appropriate measures for permitted facilities* now includes specific recovery targets for both refrigerant (6.1), blowing agent recovery (6.2) and residual material analysis (6.3).

The proposed new installation will undertake a commissioning plan, with the agreement of the Environment Agency. The comprehensive plan will include a monitoring exercise to demonstrate that both Stage 1 and Stage 2 processing of WTEE do not allow fugitive emissions to air.

The commissioning plan will also demonstrate the operational ability to recover at least 90% of the refrigerant gases (Stage 1) whilst leaving less than 0.9% of refrigerant within the compressor oil. The plan will also demonstrate the operational ability to recover at least 90% of the blowing agent (Stage 2) on a selected sample of WTEE, and at least 80% recovery of blowing agent on a monthly assessment. The methods for assessment of the recovery of refrigerant and blowing agents are described in Sections 2.3.3 and 2.3.4.

The treatment process (Stage 1) will demonstrate the ability of the installation to adequately remove more than 99.1% of refrigerant from the oil. The treatment process (Stage 2) will demonstrate the ability of the installation to adequately recover 99.8% of the blowing agent from the residual foam and that any residual foam remaining on the metal streams (ferrous and non-ferrous) and plastic stream is less than 0.5% and 1.0% respectively, in summary:

- refrigerant in degassed oil (% w/w) – limit 0.9%
- blowing agent in treated foam (% w/w) – limit 0.2%
- untreated foam in plastic fraction (% w/w) – limit 1.0%
- untreated foam in non-ferrous metal fraction (% w/w) – limit 0.5%
- untreated foam in ferrous metal fraction (% w/w) – limit 0.5%

The existing installations operating under EPR/GP3292FT/V007 have been subject to the above conditions and will continue to monitor the residual waste fractions under the proposed permit variation. The analysis of residual refrigerant and blowing agent in the residual oil and treated foam respectively will be completed by a UKAS accredited facility under the same systems already being completed at the current installations.

4.8 Odour

As detailed in the Environmental Risk Assessment (Document ref: 129-001790-02 Environmental Risk Assessment), the type of material already received, processed and stored on site is not likely to result in the production of odours and will not impact on identified sensitive receptors. The EP variation proposal outlined in Section 1.2 of this Non-Technical Summary will not increase the risk of odour and impact on sensitive receptors. There are existing control measures outlined in place, which will continue to be applied following the proposed variation.

- EMR Environmental Protection Procedure EPP 4.12 (BAT Conclusion 1 and BREF Style Report Recommendation).

- A robust Waste Pre-Acceptance and Acceptance Procedures to ensure no odorous waste is received on site (BAT Conclusion 2 and BREF Style Report Recommendation)

- Housekeeping and control measures outlined in the Environmental Management Plan (BAT Conclusion 14 and BREF Style Report Recommendation)

- Minimising storage times in accordance with the FPP (BAT Conclusion 4)

- Effective preventative maintenance regime for plant and equipment (BAT Conclusion 14)

There has been no change in operational activity since the last Permit variation (September 2017) and in consideration of the Environmental Risk Assessment, and in this Non-Technical Summary, means an Odour Management Plan is not required to be submitted as part of this variation application.

4.9 Noise Impact Assessment and Noise Management Plan

As detailed in the Environmental Risk Assessment (Document ref: 129-001790-02 Environmental Risk Assessment), the EP variation proposal outlined in Section 1.2 of this Non-Technical Summary will not increase the generation of noise and vibration and impact on sensitive receptors.

An environmental noise survey was completed in March 2023, Appendix E, to assess the potential impact of noise generated with the operation of the proposed new fridge destruction facility. The survey calculations concluded that the specific sound level of the proposed plant is 11dB below the night time background sound level, and 19dB below the daytime background sound level. It is therefore predicted that any adverse impact is highly unlikely for the local residences at Oberon Grove.

There are the following existing control measures in place, which will continue to be applied following the proposed variation:

- EMR Environmental Protection Procedures 4.12 (BAT Conclusion 1 and BREF Style Report Recommendation)

- A robust Waste Pre-Acceptance and Acceptance Procedures to ensure no unauthorised waste is received on site so requires relocation to the Quarantine Area (BAT Conclusion 2 and BREF Style Report Recommendation)

- Housekeeping and control measures outlined in the Environmental Management Plan (BAT Conclusions 17, 18 and BREF Style Report Recommendation)

- Strict adherence to site operational hours as well as operational hours for Stage 2 destruction (BAT Conclusion 1).

- Ongoing inspection of noise and vibration emissions throughout operational hours by competent EMR staff (BAT Conclusion 1).

- Noise is an important indicator that mobile plant and equipment require maintenance. Mobile plant and equipment are subject to daily pre-use checks and noise assessment is part of this. All mobile plant and equipment are subject to maintenance and servicing as per manufacturer guidelines. Effective preventative maintenance regime for plant and equipment (BAT Conclusions 17 and 18)

- Speed limits for vehicles for when entering, leaving and travelling on site (BAT Conclusions 1, 17 and 18).

The above referenced Noise Impact Survey, and the provision of the existing control measures included in the Environmental Risk Assessment and Environmental Management Plan, as well as no changes to the operational activities suggest that a Noise Management Plan is not required as part of this application.

4.10 Emissions (Dust) Management Plan

As detailed in the Environmental Risk Assessment (Document ref: 129-001790-02 Environmental Risk Assessment), the EP variation proposal outlined in Section 1.2 of this Non-Technical Summary will not increase the generation of dust, thus no increased impact on identified receptors. This is ensured by the control measures outlined below which will continue to be applied following the proposed variation:

- The operations are undertaken within a dedicated building. External roller shutter doors are only opened when vehicle access is required, minimising any dust transference to the exterior of the building.

- Dust, and fire, suppression is mitigated by the inclusion of a foam and water injection into the shredder at volumes of 0.12 l/hr and 60 l/hr respectively.

- The main source of dust if from the liberated PU foam, insulation from the fridge carcass, which is removed by air suction at the discharge from the shredder.

- All transport conveyors are covered, with addition of extra dust vacuum systems to transfer the dust to a sealed PU foam bagging station.

- EMR Environmental Protection Procedure 4.12 (BAT Conclusion 1 and BREF Style Report Recommendation).

- A robust Waste Pre-Acceptance and Acceptance Procedures to ensure no dusty waste is received on site (BAT Conclusion 2 and BREF Style Report Recommendation).

- Minimising storage times in accordance with the FPP (BAT Conclusion 4).
- Speed limits for vehicles for when entering, leaving and travelling on site (BAT Conclusions 1 and 14).
- Ongoing inspection of dust emissions throughout operational hours by competent EMR staff (BAT Conclusion 1).
- The site has impermeable concrete paving throughout – all treatment, storage and vehicle movement is completed on concrete. This minimises the risk of dust generation (BAT Conclusion 14).
- Housekeeping and control measures outlined in the Environmental Management Plan (BAT Conclusion 14 and BREF Style Report Recommendation).
- Application of hand-sweeping when required and employment of a third-party road sweeper on a weekly basis. The frequency of the latter is increased when operations and/or weather conditions facilitate (BAT Conclusion 14 and BREF Style Report Recommendation).

A Dust Management Plan is included in Appendix F as well as the existing controls currently in place.

4.11 Habitats and Species Assessment

A preliminary ecological appraisal has been undertaken (March 2023) and provided in Appendix G. The report provided a baseline survey of the habitats and protected species on the site through both a desktop study and Phase 1 survey, completed in December 2022 and January 2023 respectively.

Statutory designated wildlife sites were searched for as follows (EZOI applied for each is indicated in brackets):

- Ramsar sites (10km);
- National Sites Network (10km), includes Special Areas of Conservation (SAC) and Special Protection Areas (SPA);
- Site of Special Scientific Interest (SSSI) (5km);
- National Nature Reserve (NNR) (5km); and
- Marine Nature Reserve (MNR) (5km); and
- Local Nature Reserves (LNR) (2km).

The findings of this report concluded that there were no notable habitats within or adjacent to the site. No native or invasive plant species were recorded on or adjacent to the site. The overall conclusion was that the habitats on site are common and widespread, with the scattered scrub being the habitat of highest value. No habitat or notable species would be

impacted with implementation of the proposed permit variation and that implementation of standard pollution prevention control measures would mitigate any further impact.

4.12 Variation of Operating Techniques

Question 3a1 of Application Form C3 requires EMR to detail any variation or superseding of documents referenced under the Operating Techniques section of the IED Permit (Table S1.2). To confirm, as EMR Darlaston are only intending to replace two existing Stage 2 destruction units with one new installation, with a 6 month operational period covering all three plants, the previously referenced Operating Techniques in Table S1.2 remain applicable.

The documents provided as part of this application (e.g. Non-Technical Summary, Environmental Risk Assessment, Environmental Management System Summary) are specific to the variation and will accompany the previous documents to expand the repertoire of operating techniques applied on site.

5 RAW MATERIALS

5.1 Foam Fire Suppressant

A combination of a foam liquid (0.12 l/hr) and water (60 l/hr) will be sprayed into the shredder chamber continuously. The foam is purchased in a liquid form with a maximum usage of 80 tonnes per annum. The Safety Data Sheet for the foam material is included in Appendix H. There are no significant hazards associated with the foam other than standard precautions for safe handling and storage. The foam does not contain any substances considered to meet the criteria for classification as PBT and/or vPvB and/or POPs.

5.2 Lignin PU Foam Binder

Provision for a lignin polyurethane (PU) binder has been added to the pelletising line to increase the density of the PU pellets. The binder will be added at a ratio of 1:60. The binder is purchased in a powder form with a maximum usage of 60 tonnes per annum. The Safety Data Sheet for the binder material is included in Appendix H. There are no significant hazards associated with the binder other than standard precautions for safe handling and storage. The lignin binder does not contain any substances considered to meet the criteria for classification as PBT and/or vPvB and/or POPs.

6 RESOURCE EFFICIENCY AND CLIMATE CHANGE

6.1 Basic Changes

A fundamental energy efficient change is introduction of robotic detection and ejection systems at the infeed to the operation. This enables identification of carcass blowing agent prior to destruction and elimination prior to shredding. Robotics are more efficient, accurate

and faster than human interpretation, and also allows for effective removal without either manual or double handling of articles.

Robotics also allow for gas identification on site, improving collection and disposal handling operations and reducing unnecessary movements within the system, more information of costs savings is available outside of the scope of this NTS.

6.2 Waste Avoidance

The efficiency of up-front gas identification and segregation allows for a more streamlined downstream process and consequently materials handling. Prior separation and deliberate segregation reduces the overall manual/mechanical handling aspect of the process and, where possible, waste is avoided – i.e. VHC gases recovered through thermal processing on site.

7 APPENDIX A – PROCESS FLOW

Project 129-001790-02 (EPR/GP3292FT/V009)
EMR Darlaston – Fridge Plant Process Flow

The following schematic represents the process flow for incoming waste temperature exchange equipment (WTEE), commonly known as fridges and freezers, into the new operational plant based at EMR Darlaston – Fridge Destruction, Bentley Road South, Darlaston, West Midlands, WS10 8LW.

The bespoke fridge destruction plant installation will operate in the same manner as other fridge destruction operations: Stage 1 – Degassing and Stage 2 – Destruction. The main difference being a 'robotic' system upfront to identify VFC gas containing units as the blowing agent.

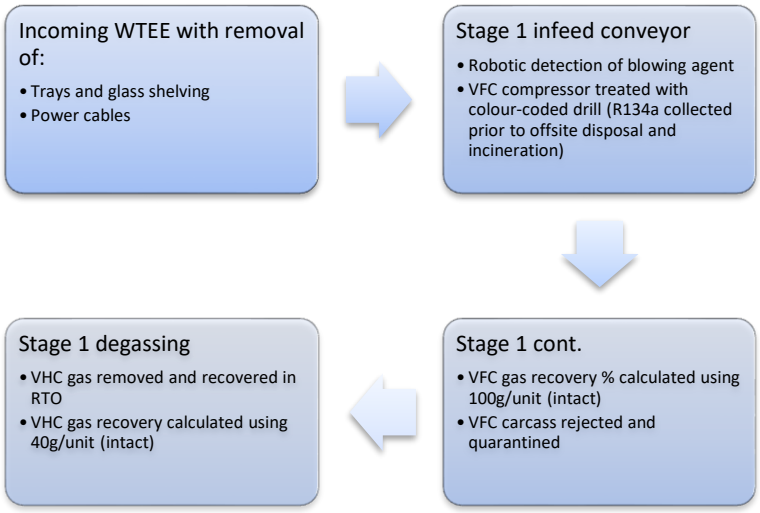
The sensor uses three measurements per unit to detect the blowing agent within the main body and doors of the WTEE unit. There are two Stage 1 processing lines, with one robotic analyser per line. A safeguard system is also provided utilising handheld scanners to detect VFC containing articles (loose items) from entering Stage 2 processing.

Identified VFC containing units are removed from the process line and stored in a quarantine area until transferred to EMR Willesden for processing. The remaining units are processed through the main plant operations as described below.

Stage 1 – Degassing

The VHC and VFC refrigerant will be removed at Stage 1 using a suction head and drill. The oil/gas removed from the compressor is further treated by heating of the oil and removal of the respective gas by condensation. The VHC (R600a; Butane) gas is recovered in storage bottles and sent to the Regenerative Thermal Oxidiser (RTO) when full. There is capacity within the RTO to process Stage 1 gases separately from the continuous oxidation of Stage 2 gases at times when Stage 2 is not operational, such as pre-heating and maintaining minimum operating temperatures.

The R134a gas is collected, condensed and stored in a designated vessel. Once full the bottle is transferred to a permitted facility for destruction (incineraton).



Stage 1

Currently, Environment Agency monthly return forms indicate a 40g/unit charge of VHC gas in each compressor. The efficiency and recovery rate of VHC gas at Stage 1 is calculated using the gas recovered per unit divided by the total gas calculated for a fully intact unit (40g/unit) multiplied by 100%. This is usually calculated on a monthly basis. The number of intact units processed per shift is recorded electronically and the gas weight is the difference between a full gas bottle and an empty gas bottle. This addresses Appropriate Measures 6.1 and BAT Conclusion 29 a.

$$\text{Recovery } \% = \left(\frac{\text{Mass refrigerant recovered}}{\text{Mass of refrigerant calculated}}\right) \text{X } 100$$

The oils/gas mixture is removed from the compressors at Stage 1 by attachment of a drill head to the compressor casing using suction. Once attached the compressor is drilled and the oil gas mixture removed. The gas is slowly evaporated from the oil by passing through a heated chamber over a 24 hour period, condensed and collected in a suitable pressurised container. The oil will be sampled quarterly, as per Table S1.5 of the existing Environmental Permit and shown to contain less than 0.9% by weight of residual refrigerant, addressing Appropriate Measures 6.3 (residual materials). No separation of any residual water is completed at this treatment stage.

VFC units are processed at Stage 1 separately to recover R134a; currently less than 10% of all WTEE units received at the facility are VFC containing units. The oil/gas mixture is treated in a separate line, analogous to the VHC line, to condense and store the VFC gases in a secure gas canister until full, where the VFC is transferred to a permitted facility for destruction (incineration). The recovery calculation is the same as for VHC gas, with the calculated gas content for an intact unit being 100g/unit.

The WTEE (VHC only) carcass is transferred by a lifting mechanism to the opening of the shredding unit. At this stage loose doors and panels may be added to the shredder feed, once the items have been scanned for the presence of halogen gas. If halogen gas is identified the loose items are collected with the unprocessed VFC units for shipment to EMR Willesden.

The carcass and loose articles are presented to an air lock system. A foam agent is also added at this stage, the foam is used as part of the fire protection system as supplied by the manufacturer. At this point the weight of the units, and loose components, is taken to be cross referenced to the units passing through Stage 1.

The carcass and loose components are dropped by gravity into a shredder, which breaks the WTEE units into liberated particles (approx. 34mm). The shredder unit, and subsequent downstream separations, are protected from deflagration as follows (BAT Conclusion 27):

- Airlocks – To accept fridges into the shredder hopper area.
- Multiple extraction points
- The addition of a foam agent to the shredder chamber to generally damp down dust
- IR detectors if a fire is detected
- Water sprays triggered by the IR detectors.
- (Manual intervention, using the Forex Agent)

The shredded material leaves the shredding chamber via a sealed discharge screw, directly on to a vibratory feeder. The shredder is monitored for hydrocarbon (pentane) gas levels using a gas monitor, at a Lower Explosion Limit (LEL) of >10% the infeed is paused, at an LEL of >15% the shredder is stopped whilst maintaining gas removal until the LEL is <10%, BAT Conclusion 30.

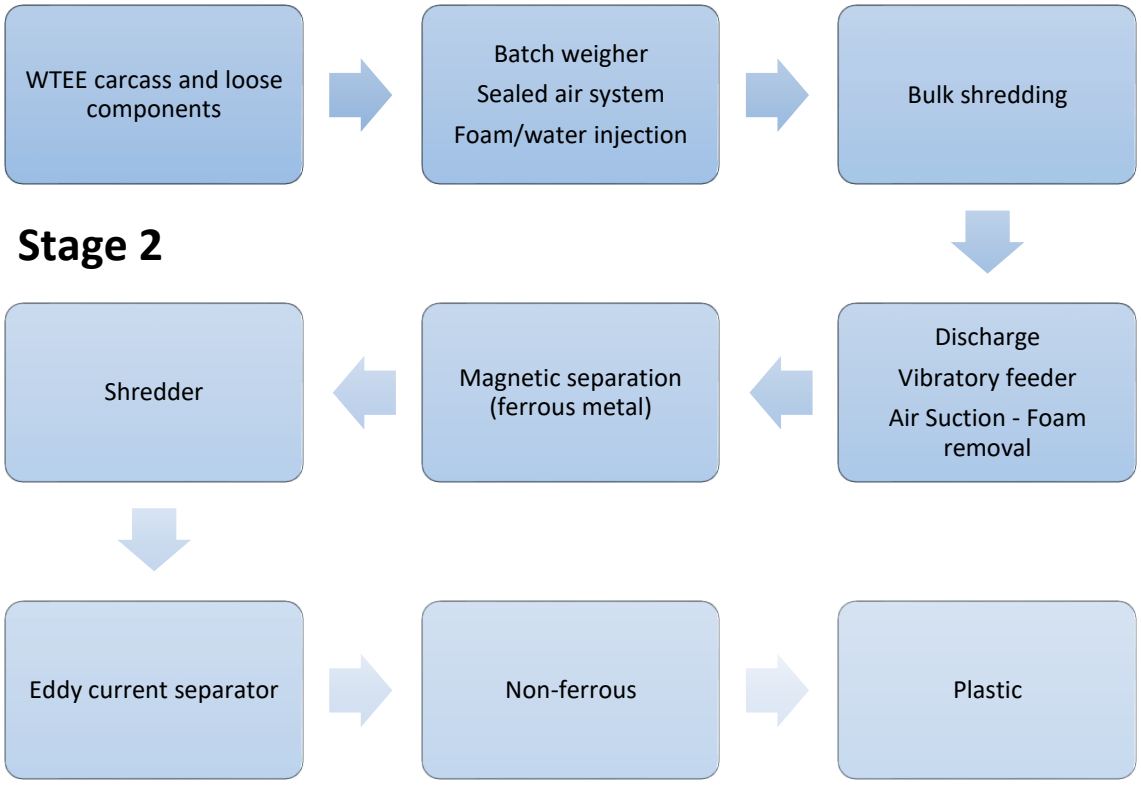
If, at any one time, the LEL exceeds 40% the infeed is stopped, N_2 gas will be injected into the shredder feed hopper whilst continuous extraction of the air within the shredder is maintained. The nitrogen gas is generated from a bespoke N_2 generator, maintains an inert atmosphere along the PU foam process line. Further gas monitoring occurs after material is discharged from the shredder; when the LEL exceeds 20% fresh air is introduced to lower the hydrocarbon gas concentration.

At this stage the ferrous metal is removed by a magnet and transported into an external bay. As the liberated PU foam is very light it is extracted by suction and transported to a sealed silo. The gases are recovered using heated screw conveyors, protected by an N_2 purging system, to expel the gas from the PU matrix. Once collected the residual foam is passed through a double pelletising system and transported into an external bagging station. As the process generates heat, residual VHC gases are driven from the foam and separately collected. Nitrogen gas, generated by a bespoke N_2 generator, is introduced at this stage to act as a cooling gas due to the heat generated. The liberated gas is transferred to the RTO, a full description of the RTO treatment is provided in Section 2.3.4.

The non-ferrous metal and plastic enter a secondary size reduction shredder (approx. 22mm) before being passed over an eddy current separator to affect the separation of non-ferrous metals from the residual plastic. The non-ferrous metals are sent into a small hammer mill for balling. Once balled they are further refined with use of an air table to separate light and heavy non-ferrous metal fractions. The remaining plastic is transferred to the outside of the building into bulk bags.

From entering the main shredding process the material is transported to the next phase of separation using either covered conveyors (belt or screw systems) until discharged to minimise dust within the operational plant. This flow diagram is reproduced in Appendix A.

Gas monitoring systems are installed throughout the Stage 2 processing line, Appendix A.



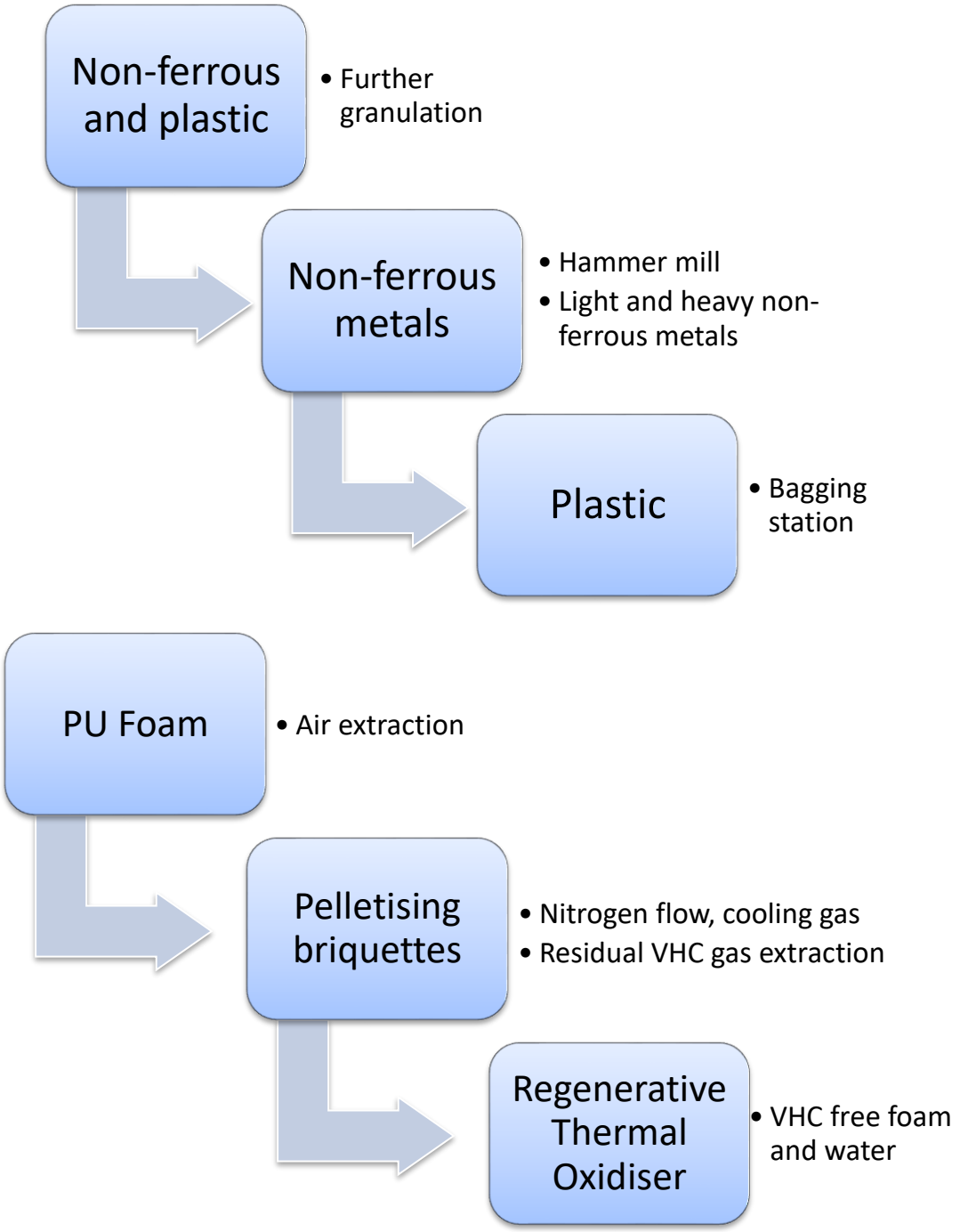
The purpose of this monitoring is to ensure that, *if* a VFC carcass accidentally made it through to the Stage 2 processing line the gas would be identified by a Fresenius GA320 unit.

Should any halogen containing gas be detected within the system, the gas 'envelope' containing the halogen-gas and small volumes either side of the main gas concentration, would be ejected from the emergency chimney as shown in the diagram. The air is flowing through this system at 10,000 m^3/hr and the gas present within the blowing agent only represents ~0.6% w/w of the entire unit – so any ejected gas would be a very diluted composition or air and halogen-gas. Such incidences would be recorded within the site diary, in accordance with BAT Conclusion 21.

The purpose of the precautionary gas monitoring is to ensure **no** halogenated gases are burnt in the RTO. The RTO is not designed for halogenated gases as they are corrosive to the system. This does mean any VFC units that do accidentally make it into Stage 2 would have the recovered gas ejected to the atmosphere (as a very dilute emission), see Environmental Risk Assessment (separate Access file).

It is the intention of EMR, through the commissioning programme, to test the effectiveness of the gas identification system with use of VFC carcasses from cold commissioning, i.e. prevent these from entering the shredder. On completion of commissioning there should be **no** VFC units accidentally entering Stage 2 of the process; the plant will not be considered to have passed the commissioning process without this performance guarantee.

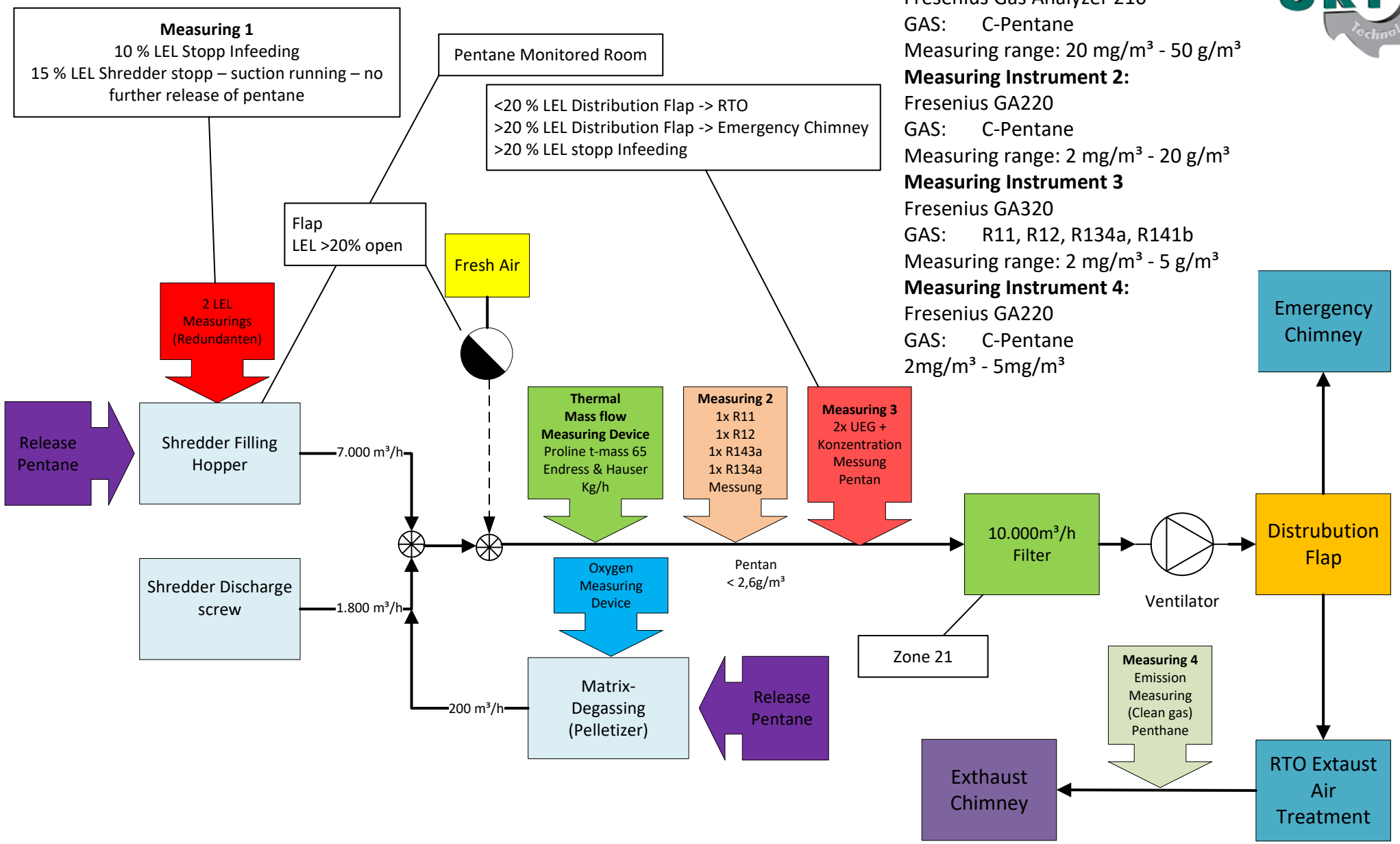
Stage 2 – additional processes



PLANT FOR REFRIGERATOR RECYCLING

Exthaust Gas Treatment

[redacted]



Measuring Instrument 1:
Fresenius Gas Analyzer 210
GAS: C-Pentane
Measuring range: 20 mg/m³ - 50 g/m³

Measuring Instrument 2:
Fresenius GA220
GAS: C-Pentane
Measuring range: 2 mg/m³ - 20 g/m³

Measuring Instrument 3
Fresenius GA320
GAS: R11, R12, R134a, R141b
Measuring range: 2 mg/m³ - 5 g/m³

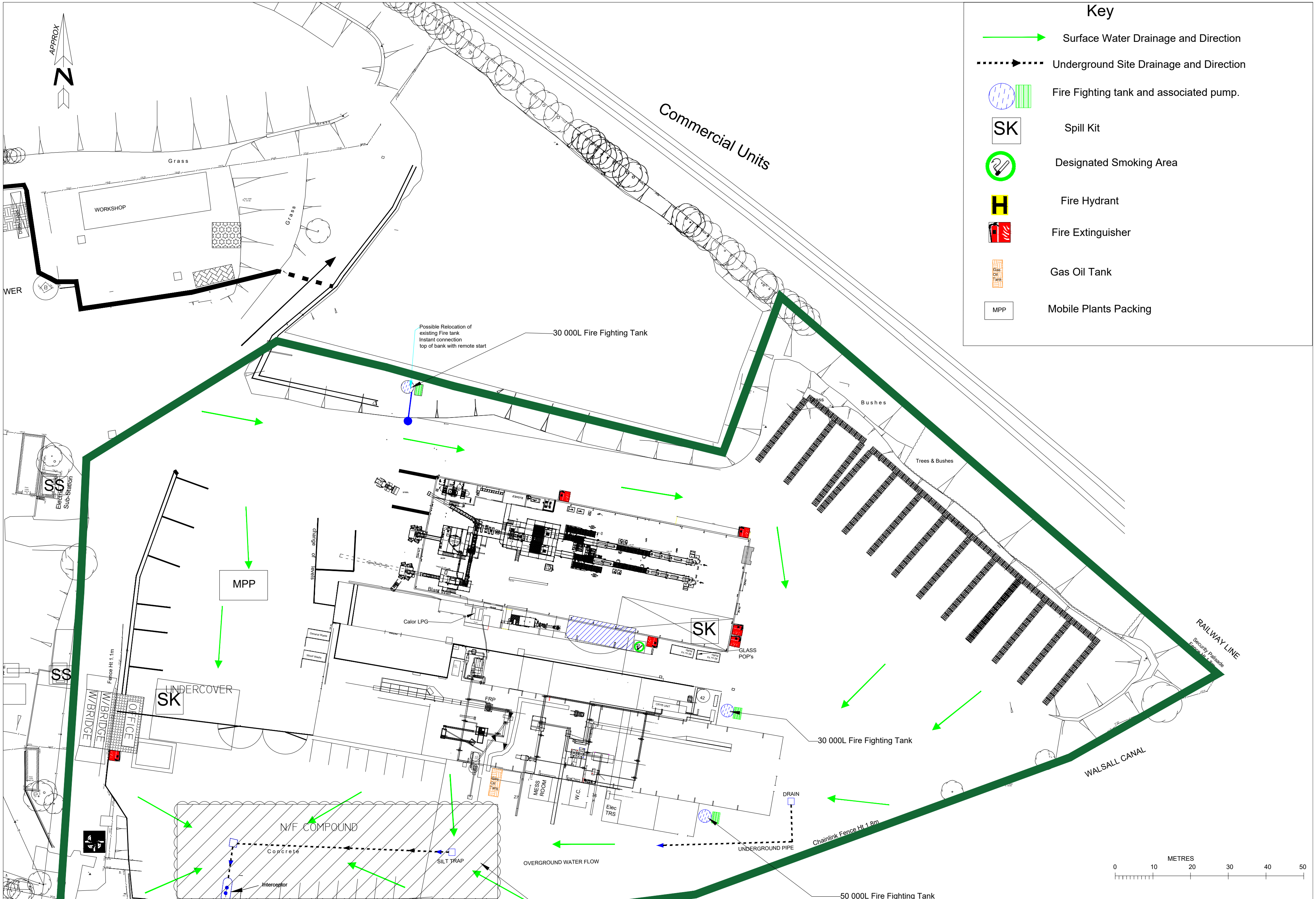
Measuring Instrument 4:
Fresenius GA220
GAS: C-Pentane
2mg/m³ - 5mg/m³

URT Umwelt- und Recyclingtechnik GmbH
Karlstadt, 27.05.2022 Jürgen Füller / Bernhard Biener

8 APPENDIX B – SITE PLAN

EUROPEAN METAL RECYCLING LIMITED SIRIUS HOUSE, DELTA CRESCENT WESTBROOK, WARRINGTON WA5 7NS TEL: 01925-715 400 FAX: 01925-713 470				
LOCATION EMR LTD, Bentley Rd South Darlaston				
SCALE 1:500 @ A0	PAPER	File EngShar/EMRSites/ Darlaston/ Current/ Environmental/ Darlaston full site outline 190523	DRAWN MW	DATE 19/05/23
TITLE Darlaston Environmental Plan Site Layout				
Drawing No. DEP190523				Revision. C

9 APPENDIX C – SITE DRAINAGE PLAN



EUROPEAN METAL RECYCLING LIMITED
SIRIUS HOUSE, DELTA CRESCENT
WESTBROOK, WARRINGTON WA5 7NS

LOCATION	EMR LTD, Bentley Rd South Darlaston
SCALE	See Scale
PAPER	NA
DRAWN	MB/MW
DATE	29/06/22
TITLE	FPP Drainage Spill Kits Fire suppression
Drawing No.	DACM0190 FPP DrSkFS Vs K
Revision	K

0 5 10 15 20 25

25m ON ORIGINAL DRAWING

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH ALL RELATED DOCUMENTATION AND STANDARD DETAILS.
2. CONFLICTING INFORMATION SHOWN ON THE ENGINEER'S DRAWINGS OR DISCREPANCIES BETWEEN THE INFORMATION GIVEN BY THE ENGINEER AND THAT PROVIDED BY OTHERS MUST BE REFERRED TO THE ENGINEER BEFORE THE WORKS COMMENCE.
3. INFORMATION ON THE LOCATION AND SIZE FOR EACH SERVICE HAS BEEN BASED ON THE SERVICES INFORMATION PROVIDED BY SUBSIGHT SURVEYS. INFORMATION APPEARS TO BE INCOMPLETE. THE PRESENCE OF SERVICES ON SITE SHOULD BE VERIFIED PRIOR TO ANY CONSTRUCTION WORKS.
4. INFORMATION RELATING TO THE LINE AND LEVEL OF EXISTING SERVICES IS OFFERED WITHOUT WARRANTY OR GUARANTEE.
5. ALL WORKS AND PROGRAMMING SHALL BE AGREED IN ADVANCE WITH THE CLIENT.
6. THE CONTRACTOR MAY NEED TO MAINTAIN FREE AND OPEN ACCESS TO THE WIDER DEVELOPMENT AT ALL TIMES UNLESS AGREED IN WRITING WITH THE CLIENT.
7. IN ACCORDANCE WITH THE CDM REGULATIONS RESIDUAL RISKS OF SIGNIFICANCE ARE INDICATED BY MEANS OF A HAZARD TRIANGLE WITH APPROPRIATE NOTE.
8. DO NOT SCALE FROM THIS DRAWING
9. THIS DRAWING HAS BEEN PRODUCED ON THE FOLLOWING INFORMATION:
   - TOPOGRAPHICAL SURVEY, PRODUCED BY STERLING SURVEYS LIMITED (DWG NO. 56355r) DATED JULY 2022.
   - UTILITY SURVEY, PRODUCED BY SUBSIGHT SURVEYS LIMITED (DWG NO. 56355r) DATED JULY 2022
10. **FOR EXISTING DRAINAGE REFER TO DRAWING 22316G-DAR-DR-C-500-100**
11. **FOR EXISTING CATCHMENTS REFER TO DRAWING 22316G-DAR-DR-C-500-101**
12. **FOR PROPOSED CATCHMENTS REFER TO DRAWING 22316G-DAR-DR-C-500-102**

KEY:

- EXISTING PRIVATE SURFACE WATER MANHOLE
- EXISTING PRIVATE SURFACE WATER SEWER
- EXISTING PRIVATE FOUL WATER MANHOLE
- EXISTING PRIVATE FOUL WATER SEWER
- EXISTING SURFACE WATER PUMP STATION
- EXISTING FOUL WATER CESSPIT
- EXISTING INTERCEPTOR
- SWMH — PROPOSED PRIVATE SURFACE WATER MANHOLE
- SWPS1 — PROPOSED PRIVATE SURFACE WATER PUMP STATION
- PROPOSED PRIVATE SURFACE WATER SEWER
- PROPOSED PRIVATE SURFACE WATER RISING MAIN
- FWMH — PROPOSED PRIVATE FOUL WATER MANHOLE
- PROPOSED PRIVATE FOUL WATER SEWER

INFORMATION

REV	AMENDMENT	DRN	CHK	APP	DATE
P01	FIRST ISSUE	DT	JW	RB	NYI

Suite 3.01
Network House
Basing View
Basingstoke
RG21 4HG

Tel 01256 479203
Basingstoke@crouchwaterfall.co.uk

CROUCH WATERFALL

CLIENT

emr pds

PROJECT TITLE

EMR DARLASTON
BENTLEY ROAD

DRAWING TITLE

DRAINAGE STRATEGY
PROPOSED DRAINAGE LAYOUT

DRAWN	CHK	APP	DATE	SCALE
DT	JW	RB	FEBRUARY 2023	1:250 @ A1

BIM NUMBER
22316G-DAR-DR-C-500-103

REVISION
P01

10 APPENDIX D – AIR EMISSIONS POINTS AND MONITORING

APPENDIX
Emissions/ Immissions (V00)

Project:	**EMR Ldt. European Metal Recycling Ldt.**
offer number	1220109-3
Power supply	400V; 50Hz (TN-S)
Layout	100 554.07 (2022-05-26)

VHC - MODE

1) Output emissions:

- EP-01
  clean gas *after* combustion system (RTO), (Step 3)

Pipe diameter	~Ø 550 mm (chimney)
Flow rate	10.000 m³/h 11,7 m/s
temperature	150°C
Exit point	to atmosphere

- EP-02
  air output from the Step 1 process after activated carbon filter

Pipe diameter	~Ø 6 mm hose
Flow rate	- not Continuously
temperature	20-30 °C
Exit point	inside the building

- EP-03
  air from dust suction *after* filter (In front of RTO)
  <10 mg/m³

Pipe diameter	~Ø 400 mm
Flow rate	6.000 – 10.000 m³/h 13,3 m/s
temperature	20-30 °C
Exit point	inside the building

- EP-04
  partly air from foam suction *after* filter (PUR foam suction circle)
  <10 mg/m³

Pipe diameter	~Ø 400 mm
Flow rate	10.000 m³/h 11,7 m/s
temperature	20-30 °C
Exit point	to atmosphere

APPENDIX
Emissions/ Immissions (V00)

Project:	**EMR Ldt. European Metal Recycling Ldt.**
offer number	1220109-3
Power supply	400V; 50Hz (TN-S)
Layout	100 554.07 (2022-05-26)

- EP-05
  partly air from foam suction *after* filter (Heavy / Light Separation)
  <10 mg/m³

Pipe diameter	~Ø 300 mm
Flow rate	6.000 m³/h 11,7 m/s
temperature	20-30 °C
Exit point	Inside the building

- EP-06
  high-% oxygen from N2 generator

Pipe diameter	~Ø 300 mm
Flow rate	25 m³/h 10 m/s
temperature	20 °C
Exit point	to atmosphere outside of building

- EP-07
  high-% R12 only in case of a failure at the filling room / Step 1 - room

Pipe diameter	~Ø 250 mm
Flow rate	1000 m³/h 5,6 m/s
temperature	20-30 °C
Exit point	to atmosphere outside of building

Please Note:
The existing Dust Filter from the SDA Plant (QZ and Granulator) are not included, because of missing Data's

APPENDIX
Emissions/ Immissions (V00)

Project:	**EMR Ldt. European Metal Recycling Ldt.**
offer number	1220109-3
Power supply	400V; 50Hz (TN-S)
Layout	100 554.07 (2022-05-26)

2) Noise Immission:

The Noise Immissions are average emissions, measured on a comparable plant.

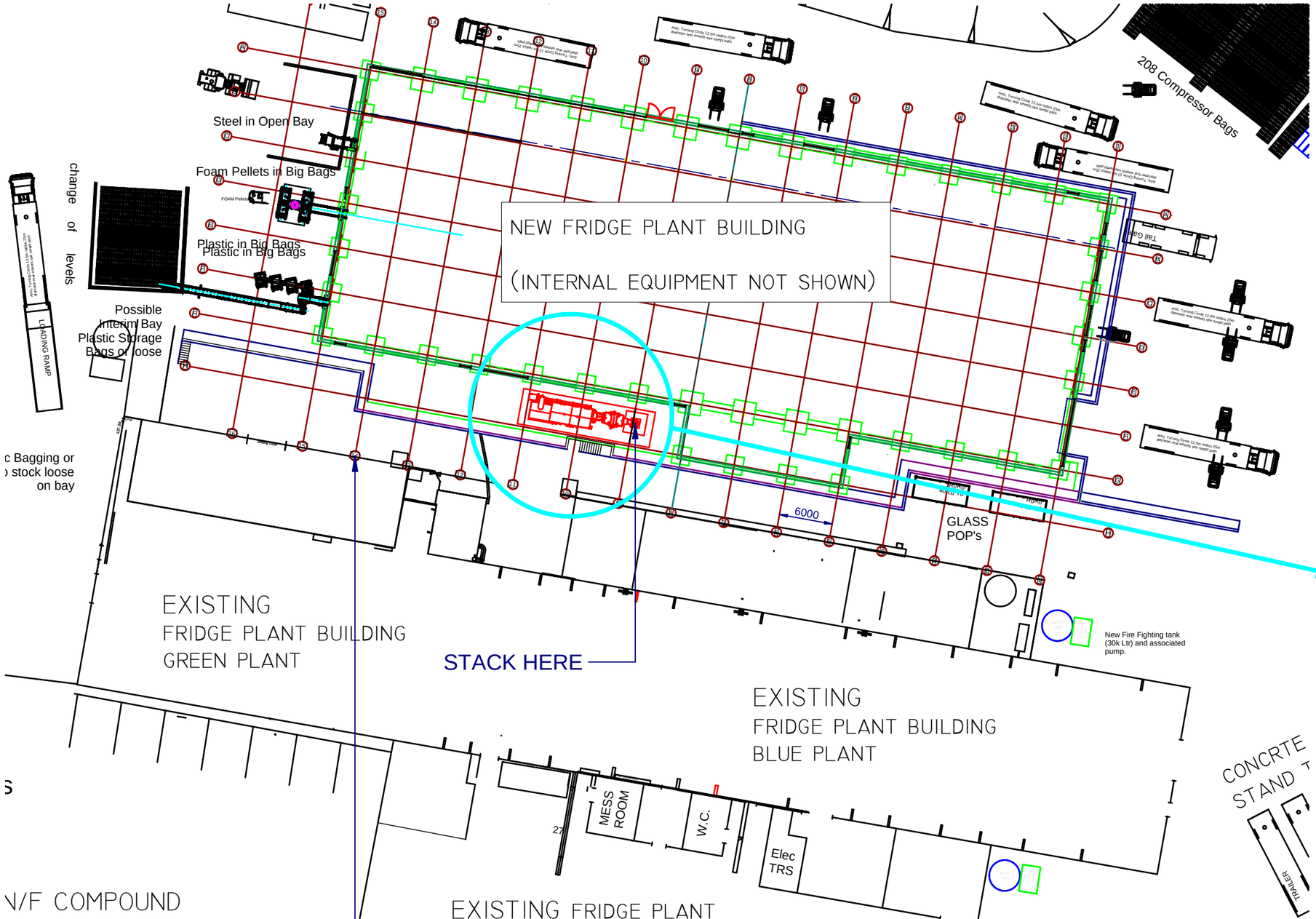
AREA	dBA
Step 1	75
Infeed	75
Shredder RS150	86
separation	87 (inside the housing)
NF separation	74
Al/ Cu and plastic output	72
Iron output	76
Pelletizer	75
Combustion system (RTO)	80

URT Umwelt- und Recyclingtechnik GmbH
Karlstadt, 2202-05-25, Bernhard Biener

ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED

DO NOT SCALE

THIRD ANGLE PROJECTION UNLESS OTHERWISE STATED



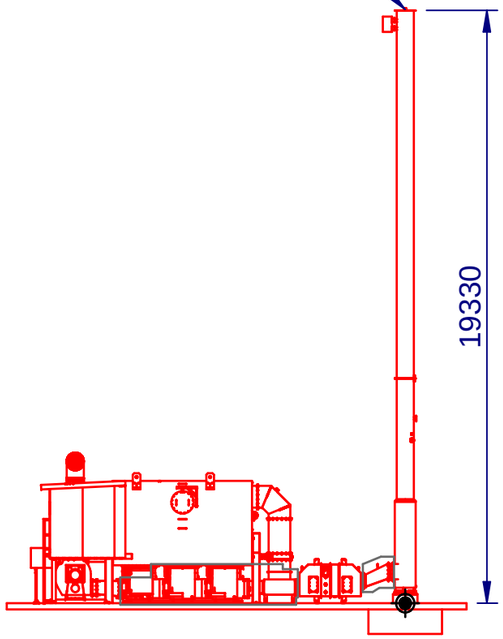
1:500 @ A3

FOR FUL SITE DETAIL
SEE DRAWING No. DACMO190PL

Darlaston CMO190 Fridge Layout Vs N

EMISSION POINT

RTO. STACK



R.T.O.
1:200 @ A3

REV	DATE	DRAWN	CHECKED	DESCRIPTION
A0	24/05/23	M.W	-/-	RELEASED FOR REFERENCE

EUROPEAN METAL RECYCLING LTD.
SIRIUS HOUSE
DELTA CRESCENT
WESTBROOK
WARRINGTON
WA5 7NS

www.emrgroup.com

PROJECT:	DARLASTON FRIDGE PLANT
TITLE:	EMR DARLASTON FRIDGE PLANT NEW EMISSION POINT (RTO)

DRAWN:	DATE:	CHECKED:	DATE:	CAD SIZE:
M.WRIGHT	24/05/2023	-/-	--/--/2020	A3

SCALE: AS SHOWN @ A3	DRAWING No.	REV:
	CM0-190-MWSK31	A0

11 APPENDIX E – NOISE IMPACT ASSESSMENT

Report for the BS4142:2014+A1:2019 Assessment for European Metal Recycling Ltd., Darlaston, Walsall.

Monitoring Date(s):	11th - 12th July 2022
Contract Reference:	17919
Client Name:	European Metal Recycling Ltd.
Client Address:	Bentley Road South, Walsall, Wednesbury WS10 8LW
Monitoring Organisation:	Synergy Environmental Solutions Limited Silverdale Enterprise Centre Kents Lane Newcastle-under-Lyme Staffordshire ST5 6SR
Date of Report:	17 March 2023
Report Written By:	Aidan Willis, AMIOA, PGDip, HND, ED Occupational Hygiene Consultant
Report Checked By:	Helen Woollaston MSc, CertOH, LFOH, MIOA Director, Occupational Hygiene

Contents

Executive Summary

Synergy Environmental Solutions Limited was appointed by Mr. Matthew Wright of European Metal Recycling Ltd. to undertake an environmental noise survey to BS4142:2014 *Methods for Rating and Assessing Industrial and Commercial Sound* at the company's Darlaston site.

The purpose of the survey was to predict and rate the noise produced by the new Refrigeration Recycling Warehouse and to ascertain whether this will have an adverse effect on nearby residents. The Refrigeration Recycling Warehouse will be a newly constructed unit and will replace one which is to the East of the site.

The site work was undertaken by Mr. Aidan Willis on 11th July - 12th July 2022.

The results of calculations show that the specific sound level of the plant is 11dB below the night-time background sound level, and 19dB below the daytime background sound level. As a result of these calculations, it is predicted that adverse impact is highly unlikely.

A list of results and details of calculations can be found in Section 8 of this report. The full results from the environmental noise surveys are shown as a time history of L_{Aeq}, L_{Amax}, L_{A10} and L_{A90} in Appendix 1.

The following general recommendations should be considered as best practise to minimise the potential for noise impact:

- To minimise the time in which accessways remain open, during which sound may propagate freely from inside the warehouse, install door closers on pedestrian doorways and timers on roller shutter doors.

- Continue to ensure that materials are transported and handled with care and keep the drop height at the steel outlet to a minimum so that impact noise is minimised.

1. Introduction

Synergy Environmental Solutions Limited was appointed by Mr. Matthew Wright of European Metal Recycling Ltd. to undertake an environmental noise survey to BS4142:2014 Methods for Rating and Assessing Industrial and Commercial Sound at the company's Darlaston site.

The purpose of the survey was to predict and rate the noise produced by the new Refrigeration Recycling Warehouse and to ascertain whether this will have an adverse effect on nearby residents. The Refrigeration Recycling Warehouse will be a newly constructed unit and will replace one which is to the East of the site.

This report presents the overall methodology, results and calculations from the survey and demonstrates whether the plants are likely to cause adverse impact at the closest noise-sensitive receiver. Where applicable the report outlines the mitigation measures required to meet the criteria.

The site work was undertaken by Mr. Aidan Willis on 11th July - 12th July 2022.

2. Relevant Legislation and Guidance

2.1 BS 4142:2014+A1:2019

BS 4142:2014+A1:2019 *Methods for Rating and Assessing Industrial and Commercial Sound* (hereafter referred to as BS 4142) is intended to be used to assess the impact of sound emanating from existing, proposed, new, modified or additional source(s) of sound of an industrial and/or commercial nature, and can be used to indicate the likelihood of adverse impact on those at nearby noise sensitive receivers.

BS 4142 defines terms such as Acoustic Environment, Ambient Sound Level, Background Sound Level, Measurement Time Interval, Rating Level, Reference Time Interval, Residual Sound Level and Specific Sound Level. These definitions are given in the Glossary of Terms within this report.

BS 4142 notes that where it is not possible to determine the Specific Sound Level directly by measurement, it may be appropriate to determine the Specific Sound Level by measurement and/or calculation. The recommended method of doing so is to obtain a measurement of the specific sound from an identical or similar plant at another location, and then use a method of calculation to estimate the Specific Sound Level at the assessment location(s).

By calculating the Specific Sound Level and adding an appropriate Acoustic Feature Correction, a Rating Level is given; this is then compared to the Background Sound Level. BS 4142 states that a Rating Level that is in excess of the Background Sound Level by 10dB or more is likely to be an indicator significant adverse impact, and an excess of 5dB is likely to be an indicator of adverse impact.

2.2 BS 8233:2014

BS 8233:2014 *Guidance on Sound Insulation and Noise Reduction for Buildings* (hereafter referred to as BS 8233) suggests appropriate criteria and limits for different situations, which are primarily intended to guide the design of new or refurbished buildings undergoing a change of use rather than to assess the effect of changes in the external noise climate.

BS 8233 suggests suitable internal noise levels within different types of buildings, including residential dwellings. It suggests that within bedrooms, an internal noise level of 30dB $L_{Aeq,T}$ is a good standard and 35dB $L_{Aeq,T}$ is a reasonable standard. For living areas in the daytime, BS 8233 suggests that 30dB $L_{Aeq,T}$ is a good standard and 40dB $L_{Aeq,T}$ is a reasonable standard. BS 8233 also states that individual noise events should not exceed 45dB L_{Amax} in bedrooms at night.

2.3 WHO Guidelines for Community Noise

The World Health Organisation document *Guidelines for Community Noise* outlines some of the health effects which may be caused by noise related stress and provides guidance values at which annoyance and sleep disturbance may be observed. The document suggests that an internal bedroom level of 30dB $L_{Aeq,8hour}$ will cause sleep disturbance, with a corresponding external level of 45dB $L_{Aeq,8hour}$ with the windows open. Levels for moderate and serious annoyance in outdoor living areas during the daytime and evening periods are given as 50dB $L_{Aeq,8hour}$ and 55dB $L_{Aeq,8hour}$, respectively.

2.4 Professional Practice Guidance on Planning & Noise

This Professional Practice Guidance on Planning and Noise (ProPG) was produced to provide practitioners with guidance on a recommended approach to the management of noise within the planning system in England. The recommended approach detailed in this guidance includes a framework to enable situations where noise is not an issue to be clearly determined, and to help identify the extent of risk at noisier sites. The document rates existing acoustic environments, using daytime noise levels of between 50dB and 70dB $L_{Aeq,16hour}$ and night-time noise levels of between 40dB and 60dB $L_{Aeq,8hour}$, to predict the degree of adverse impact the environment may have on residents of new properties.

3. Sound Measurement Equipment

The measurement equipment listed in Table 1 below was used during the survey. The sound level meter and acoustic calibrator conform to BS EN 61672-1:2013 and BS EN 60942:2018 respectively. The equipment calibration was verified before and after the survey, as shown in Table 2.

Table 1: Equipment used during the survey

Equipment	Serial Number	Last Calibration
Cirrus Research CR:171B	G300995	5th July 2021
Cirrus Research Acoustic Calibrator CR:515	57692	5th July 2021

Table 2: Calibration offset during the survey

Time Period	Offset before measurement period	Offset after measurement period
Survey 1 (Day Survey)	0.51dB	1.08dB
Survey 2 (Night Survey)	0.94B	0.65dB

4. Details of Source

Main sound sources of the specific sound	The warehouse is not yet in operation. It is said that sound generated within the newly constructed warehouse will not be impulsive but will be steady and unfluctuating when in operation. Details of plants to be installed within the warehouse can be found in section eight of this report. Some impulsive noise will be generated at the steel output, as extracted material will drop into a metal container. This sound, generated by the current installation, was not audible at any measurement location. Some impulsive noise may also be generated by FLT movement as refrigeration units are unloaded from HGVs.
Hours of operation	Warehouse may be operational up to 24 hours a day, 5 days a week.
Statement of operational rates	The plants installed will be on / off and will have no half-power mode.
Description of premises	The warehouse will be a newly constructed unit on the site of the existing Refrigeration Recycling Warehouse. The external walls and roof will be clad with Kingspan QuadCore KS1000RW.

5. Subjective Impressions

Dominance or audibility of the specific sound	Sounds generated by the current Refrigeration Recycling Warehouse are not perceptible at either measurement positions.
Main sources contributing to the residual sound	Traffic noise from the A454, M6 and other local routes. It should be noted that sounds generated at Ecobat were also perceptible at the Bentley Road South property.

6. Noise Sensitive Receivers

6.1 Oberon Grove

Sensitivity of receptor	Residential Property.
Measurement Location	Sampling was undertaken at the nearest residential properties, 11 and 12 Oberon Grove, with the microphone positioned at a height of 1.4m, positioned at least 3.5m away from reflecting façades. The exact sampling position was based on accessibility, safety, and collecting representative noise data at the nearest noise sensitive receiver to the plant.
Topography of Intervening Ground	The ground to the north of the Transport Yard, backing on to the train line, is elevated. This will interfere with the direct sound propagation path and will provide some attenuation to the properties on Oberon Grove and other noise sensitive receivers beyond the raised ground. The Refrigeration Recycling Warehouse may be visible from the top floor of the properties on Oberon Grove as it is topographically higher than the Transport Yard.
Reason for choice of measurement location	This measurement position was chosen as it will reflect the acoustic environment at the closest noise sensitive receiver to the plant.

6.2 Property off Bentley Road South (No. 49)

Sensitivity of receptor	Residential Property.
Measurement Location	Sampling was undertaken at an additional nearby residential property off Bentley Road South, no. 49, with the microphone positioned at a height of 1.4m, positioned at least 3.5m away from reflecting façades. The exact sampling position was based on accessibility and safety and collecting representative noise data at the nearest noise sensitive receiver to the plant.
Topography of Intervening Ground	The properties off Bentley Road South are topographically lower than the EMR Darlaston site, and the line of sight to the site is completely blocked by the Oberon Grove properties and a bridge crossing the railway.
Reason for choice of measurement location	This measurement position was chosen as it will reflect the acoustic environment at an additional noise sensitive receiver.

7. Weather Conditions

The following weather conditions were recorded during the survey:

	Day Survey (10:10 – 13:34)		**Night Survey (01:13 – 02:16)**	
	Start	**End**	**Start**	**End**
Wind speed	< 1ms^{-1}			
Temperature	23ºC	32ºC	26ºC	27ºC
Estimated cloud cover	1 Oktas	0 Oktas	8 Oktas	8 Oktas
Precipitation and ground condition	Dry with no precipitation			

8. Results and Calculations

The full results from the assessment are shown as a time history of L_{Aeq}, L_{Amax}, L_{A10} and L_{A90} in Appendix 1.

Day Survey

The time interval for the day survey was chosen to be 1 hour, as required by BS4142.

Location	L_{Aeq}	L_{Amax}	L_{A90}
EMR Darlaston Site Boundary	59dB	83dB	46dB
Oberon Grove	47dB	74dB	43dB
Property off Bentley Road South	55dB	71dB	51dB

Night Survey

The time interval for the night survey was chosen to be 15 minutes, as required by BS4142.

Location	L_{Aeq}	L_{Amax}	L_{A90}
EMR Darlaston Site Boundary	37dB	57dB	35dB
Oberon Grove	40dB	61dB	35dB
Property off Bentley Road South	45dB	57dB	37dB

Sound Emissions of Plants to be Installed in the Refrigeration Recycling Warehouse

Figures for noise emission of plants similar to those to be installed have been supplied by the manufacturer of the plants, URT. A summary of their sound pressure levels, taken at a distance of 1m from the source and 1.6m from the ground, is in the table below.

Plant	L_{Aeq}
Step 1 Feeding	76dB
Step 1 Treatment Device	75dB
Robot Detection	73dB
Filling Hopper / Feeding	81dB
Shredder	86dB
Separation Iron / Foam	85dB
Separation NF / NF-metals	74dB
Matrix Degassing	78dB
Chiller	67dB
Ventilator Dust Collection Filter	75dB
Discharge Iron	76dB
Discharge NF / Plastic	72dB
Heavy / Light Separation	85dB
RTO (Ventilator) Step 3	80dB

Logarithmically adding the sound pressure levels gives a total sound pressure level of 92dB.

BS 4142 Assessment

For the following calculations the results of monitoring at Oberon Grove have been used, as these will demonstrate the potential impact at the closest noise-sensitive receiver.

Residual Sound Level - L_r	Daytime: 47dB Night-time: 40dB
Background Sound Level - $L_{A90,T}$	Daytime: 43dB Night-time: 35dB
Total sound pressure level of plants in new Refrigeration Recycling Warehouse - L_a	92dB
Sound reduction index of Kingspan QuadCore KS1000RW (R_W)	25dB*1
Distance correction of 200m	43dB
Acoustic Feature Correction	0dB *2
Calculated Specific Sound Level of the new Refrigeration Recycling Warehouse - Ls	24dB
Excess of Rating Level over Background Sound Level	Daytime: -19dB Night-time: -11dB
Assessment result	The specific sound level is significantly below both the daytime and night-time background sound levels, indicating adverse impact is highly unlikely
Uncertainty of the assessment	See discussion

*1 Information supplied by manufacturer.

*2 It was reported by the site contact that sound generated by plants in the newly constructed Refrigeration Recycling Warehouse will not be impulsive but will be steady and unfluctuating when in operation. Subjective impressions of sounds generated by the current installation are that they are not distinct, tonally, impulsively or otherwise, from the acoustic environment.

9. Discussion

Description and Locations of Noise Sensitive Receivers

Map Point	Location
[1]	Site Boundary Measurement Location
[2]	EMR Darlaston Shear Area
[3]	EMR Darlaston Refrigeration Recycling Warehouse
[4]	Oberon Grove Measurement Location
[5]	Property off Bentley Road South Measurement Location
[6]	Ecobat Solutions

The residential properties at Oberon Grove and the private road off Bentley Road South are the nearest noise sensitive receivers to the EMR Darlaston Site. With the exception of an earth bund along the northern edge of EMR Darlaston's site, much of the intervening ground between the Refrigeration Recycling Warehouse and Oberon Grove is topographically lower. It is possible that the Refrigeration Recycling Warehouse is visible from the rear façades of the properties on Oberon Grove, meaning there may be a direct sound propagation path.

From the properties off Bentley Road South, the line of sight to EMR Darlaston is completely blocked both by the Oberon Grove properties and a bridge crossing the railway. Some noise from the direction of Ecobat Solutions, another nearby recycling centre, was noted during the day survey; these sounds are encompassed in the residual sound level.

Of the activities on site, sound generated in the Shear Area towards the north of the site will likely remain the predominant sound for those living at the properties on Oberon Grove. To a degree, these sounds will mask those generated in the new refrigeration recycling plant.

Conversely, the total sound reduction index of the façades of the building may in practise be lower than that of the figure used in the calculation, as there will be several doorways and roller shutter doors installed for access. Open elements of a façade will temporarily allow sound to be freely transmitted from inside the building. In order to mitigate against this, it will be beneficial to minimise the total time these sections may be open. This can be done by installing door closers on pedestrian doorways and timers on roller shutter doors.

Some impulsive noise will be generated at the steel output, as extracted material will drop into a metal container. This sound, as generated by the current installation, was not audible at any measurement location. To mitigate against this, the drop height of the steel into the container should be considered; keeping this distance as short as practically possible will minimise impact sound.

Uncertainty of the Assessment

As the specific sound level is significantly below both the daytime and night-time background sound levels, it is predicted that adverse impact is highly unlikely. There is minimal uncertainty regarding measurements reflecting the typical acoustic environment, as measurements were taken at the closest noise sensitive receivers under normal operating conditions.

10. Conclusion

The result of the assessment for the new Refrigeration Recycling Warehouse shows that the specific sound level falls significantly below both the daytime and night-time background sound levels. Sounds generated by the operations within this warehouse are predicted to cause no adverse impact on those at Oberon Grove.

11. Recommendations

The following general recommendations should be considered as best practise to minimise the potential for noise impact:

- To minimise the time in which accessways remain open, during which sound may propagate freely from inside the warehouse, install door closers on pedestrian doorways and timers on roller shutter doors.

- Continue to ensure that materials are transported and handled with care and keep the drop height at the steel outlet to a minimum so that impact noise is minimised.

Appendix 1 – Monitoring Results

01/08/2022

Cirrus Research plc

Measurement Summary Report

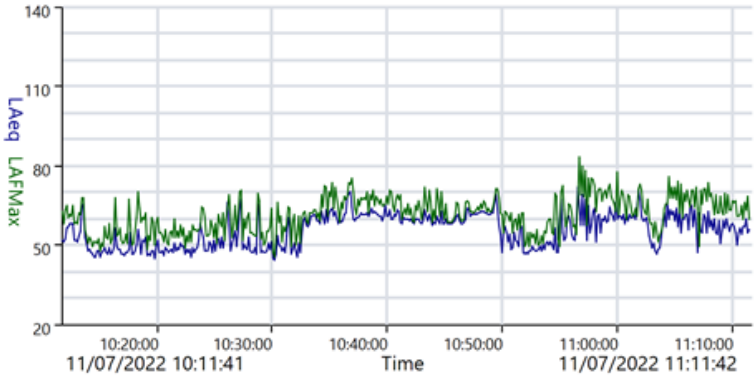
Name	1 - Day survey, site boundary			
Time	11/07/2022 10:11:41	**Person**	**Place**	**Project**
Duration	01:00:00		European Metal	17148
Instrument	G300995, CR:171B			

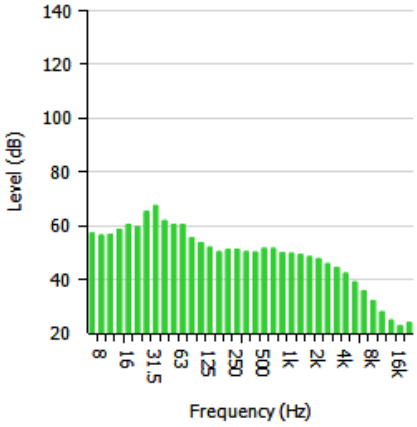
Calibration

Before	11/07/2022 10:06	Offset	0.51 dB	**After**	11/07/2022 13:48	Offset	1.08 dB

Basic Values	
LAeq	59.4 dB
LAE	95.0 dB
LAFMax	83.3 dB

Statistical Levels (Ln)	
LAF1	69.8 dB
LAF5	64.6 dB
LAF10	62.1 dB
LAF50	54.4 dB
LAF90	45.7 dB
LAF95	45.0 dB
LAF99	44.0 dB





ReportId

M140C01000001F2 Cirrus Research NoiseTools Page 1 of 1

01/08/2022

Cirrus Research plc

Measurement Summary Report

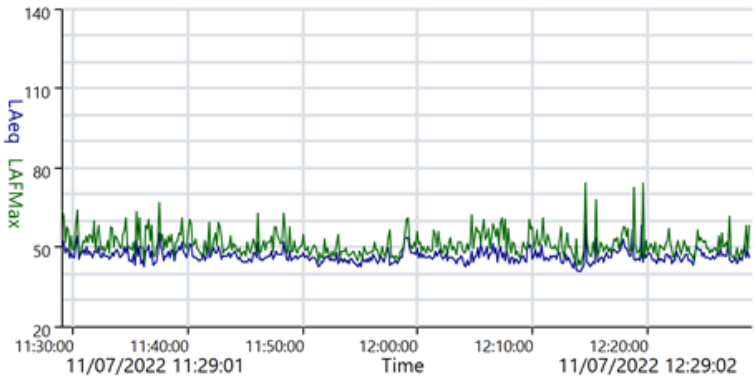
Name	2 - Day survey, Oberon Grove			
Time	11/07/2022 11:29:01	**Person**	**Place**	**Project**
Duration	01:00:00		European Metal	17148
Instrument	G300995, CR:171B			

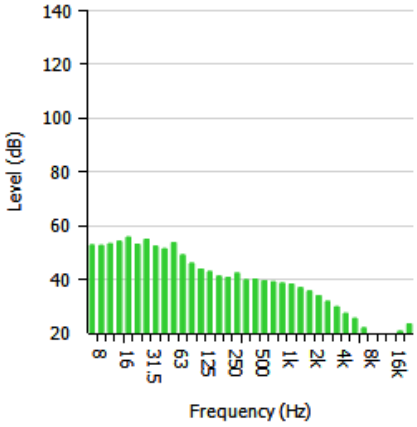
Calibration

Before	11/07/2022 10:06	Offset	0.51 dB	**After**	11/07/2022 13:48	Offset	1.08 dB

Basic Values	
LAeq	47.4 dB
LAE	83.0 dB
LAFMax	74.0 dB

Statistical Levels (Ln)	
LAF1	55.3 dB
LAF5	50.6 dB
LAF10	48.8 dB
LAF50	45.5 dB
LAF90	43.2 dB
LAF95	42.5 dB
LAF99	41.2 dB





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M140C01000001F3 Cirrus Research NoiseTools Page 1 of 1

01/08/2022

Cirrus Research plc

Measurement Summary Report

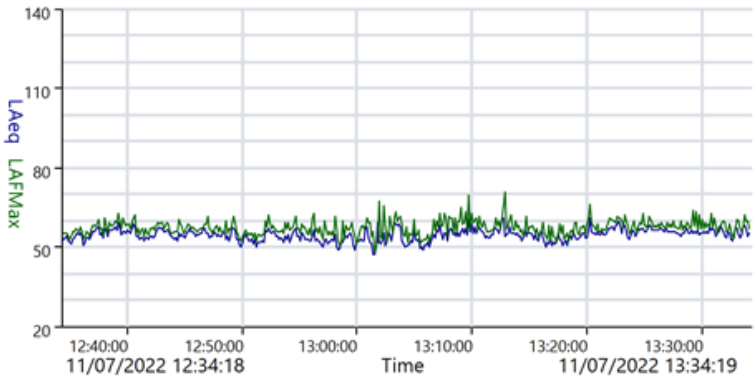
Name	3 - Day survey, Bentley Road South			
Time	11/07/2022 12:34:18	**Person**	**Place**	**Project**
Duration	01:00:00		European Metal	17148
Instrument	G300995, CR:171B			

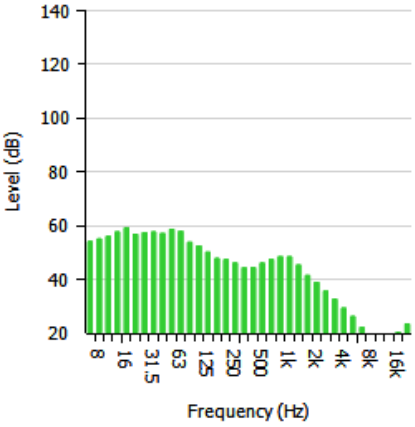
Calibration

Before	11/07/2022 10:06	Offset	0.51 dB	**After**	11/07/2022 13:48	Offset	1.08 dB

Basic Values	
LAeq	55.0 dB
LAE	90.6 dB
LAFMax	70.7 dB

Statistical Levels (Ln)	
LAF1	60.4 dB
LAF5	58.2 dB
LAF10	57.2 dB
LAF50	54.3 dB
LAF90	51.0 dB
LAF95	50.1 dB
LAF99	48.4 dB





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Cirrus Research NoiseTools

Page 1 of 1

01/08/2022

Cirrus Research plc

Measurement Summary Report

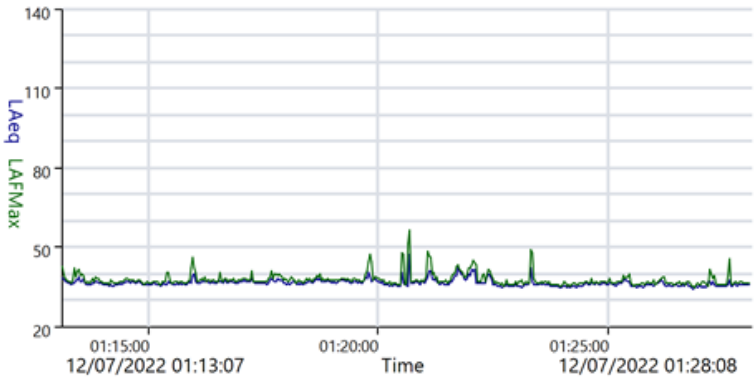
Name	4 - Night survey, site boundary			
Time	12/07/2022 01:13:07	**Person**	**Place**	**Project**
Duration	00:15:00		European Metal	17148
Instrument	G300995, CR:171B			

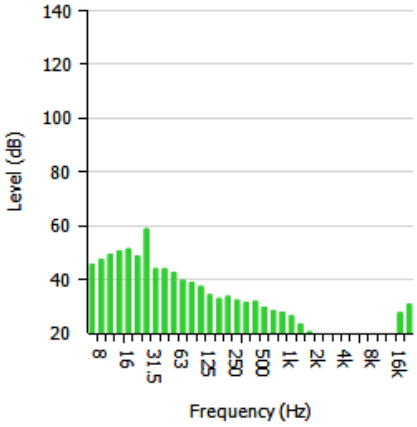
Calibration

Before	12/07/2022 01:03	Offset	0.94 dB	**After**	12/07/2022 02:18	Offset	0.65 dB

Basic Values	
LAeq	36.6 dB
LAE	66.1 dB
LAFMax	56.5 dB

Statistical Levels (Ln)	
LAF1	41.5 dB
LAF5	38.5 dB
LAF10	37.5 dB
LAF50	36.0 dB
LAF90	35.0 dB
LAF95	34.8 dB
LAF99	34.3 dB





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M140C01000001F5 Cirrus Research NoiseTools Page 1 of 1

01/08/2022

Cirrus Research plc

Measurement Summary Report

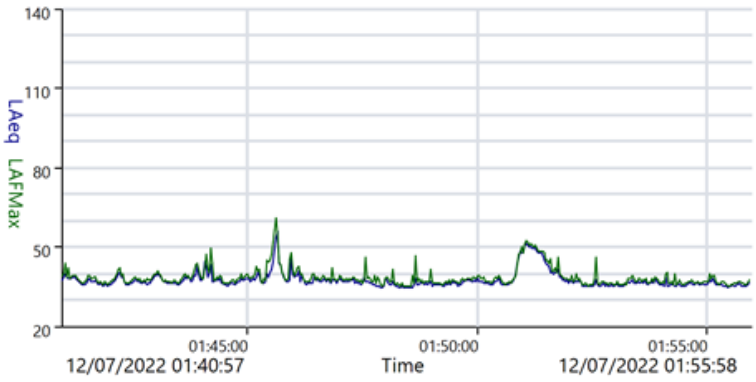
Name	5 - Night survey, Oberon Grove			
Time	12/07/2022 01:40:57	**Person**	**Place**	**Project**
Duration	00:15:00		European Metal	17148
Instrument	G300995, CR:171B			

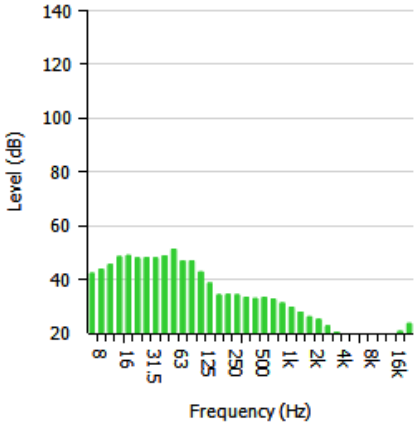
Calibration

Before	12/07/2022 01:03	Offset	0.94 dB	**After**	12/07/2022 02:18	Offset	0.65 dB

Basic Values	
LAeq	39.9 dB
LAE	69.4 dB
LAFMax	61.0 dB

Statistical Levels (Ln)	
LAF1	50.2 dB
LAF5	44.4 dB
LAF10	39.7 dB
LAF50	36.5 dB
LAF90	35.2 dB
LAF95	34.9 dB
LAF99	34.4 dB





ReportId

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01/08/2022

Cirrus Research plc

Measurement Summary Report

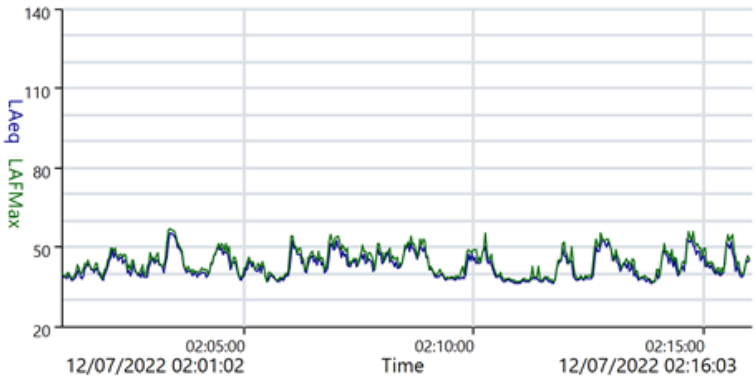
Name	6 - Night survey, Bentley Road South			
Time	12/07/2022 02:01:02	**Person**	**Place**	**Project**
Duration	00:15:00		European Metal	17148
Instrument	G300995, CR:171B			

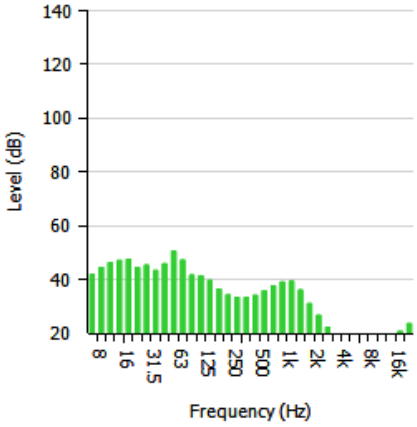
Calibration

Before	12/07/2022 01:03	Offset	0.94 dB	**After**	12/07/2022 02:18	Offset	0.65 dB

Basic Values	
LAeq	45.2 dB
LAE	74.7 dB
LAFMax	56.6 dB

Statistical Levels (Ln)	
LAF1	54.0 dB
LAF5	50.6 dB
LAF10	49.0 dB
LAF50	42.0 dB
LAF90	37.4 dB
LAF95	36.8 dB
LAF99	36.2 dB





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M140C01000001F7 Cirrus Research NoiseTools Page 1 of 1

Appendix 2 – Calibration Certificates

CERTIFICATE OF CALIBRATION

ISSUED BY **Cirrus Research plc**

DATE OF ISSUE **05 July 2021** CERTIFICATE NUMBER **159477**

Cirrus Research plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Approved signatory
T.Goodrich
Electronically signed:

T. A. Goodrich.

Sound Level Meter : IEC 61672-3:2013

Instrument information

Manufacturer:	Cirrus Research plc	Notes:
Model:	CR:171B	
Serial number:	G300995	
Class:	1	
Firmware version:	5.6.3177	

Test summary

Date of calibration: 05 July 2021

The calibration was performed respecting the requirements of ISO/IEC 17025:2017.
Periodic tests were performed in accordance with procedures from IEC 61672-3:2013.

The sound level meter submitted for testing successfully completed the class 1 periodic tests of IEC 61672-3:2013, for the environmental conditions under which the tests were performed.

However, no general statement or conclusion can be made about conformance of the sound level meter to the full specifications of IEC 61672-1:2013 because (a) evidence was not publicly available, from an independent testing organisation responsible for pattern approvals, to determine that the model of sound level meter fully conformed to the class 1 specifications in IEC 61672-1:2013 or correction data for acoustical test of frequency weighting were not provided in the Instruction Manual and (b) because the periodic tests of IEC 61672-3:2013 cover only a limited subset of the specifications in IEC 61672-1:2013.

Notes

CERTIFICATE OF CALIBRATION

Certificate Number: **159477**

Environmental conditions

The following conditions were recorded at the time of the test:

Before	Pressure:	99.56 kPa	Temperature:	22.6 °C	Humidity:	51.7 %
After	Pressure:	99.56 kPa	Temperature:	22.3 °C	Humidity:	48.9 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Signal Generator	TTi	TG4001	395851
Attenuator	Cirrus Research	ZE:952	52200
Environmental Monitor	Comet	T7510	16966334

Additional instrument information

Instruction manual:

Reference level range: Single range

Pattern approval: No

Source of pattern approval: -

Preamplifier

Model: MV:200F

Serial number: 9384F

Microphone

Model: MK:224

Serial number: 214591E

Test results summary

Test	Result
Internal settings adjustment	Complies
Toneburst response	Complies
Electrical noise-floor	Complies
Linearity	Complies
Electrical Frequency weightings	Complies
Frequency and time weightings at 1 kHz	Complies
C-weighted peak	Complies
Overload indication	Complies
High level stability	Complies
Long-term stability	Complies
Acoustic Frequency weightings	Complies

CERTIFICATE OF CALIBRATION

ISSUED BY **Cirrus Research plc**

DATE OF ISSUE **05/07/21** CERTIFICATE NUMBER **159478**

Cirrus Research plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Test engineer:
D.Swalwell
Electronically signed:

Microphone

Microphone capsule

Manufacturer: Cirrus Research plc

Model: MK:224

Serial Number: 214591E

Calibration procedure

Date of calibration: 05 July 2021

Open circuit: 42.3 mV/Pa

Sensitivity at 1 kHz: -27.5 dB rel 1 V/Pa

The microphone capsule detailed above has been calibrated to the published data as described in the operating manual of the associated sound level meter (where applicable).

The frequency response was measured using an electrostatic actuator in accordance with BS EN 61094-6:2005 with the free-field response derived via standard correction data traceable to a National Measurement Institute.

The absolute sensitivity at 1 kHz was measured using an acoustic calibrator conforming to IEC 60942:2003 Class 1.

Environmental conditions

Pressure: 99.43 kPa

Temperature: 22.6 °C

Humidity: 57.8 %

CERTIFICATE OF CALIBRATION

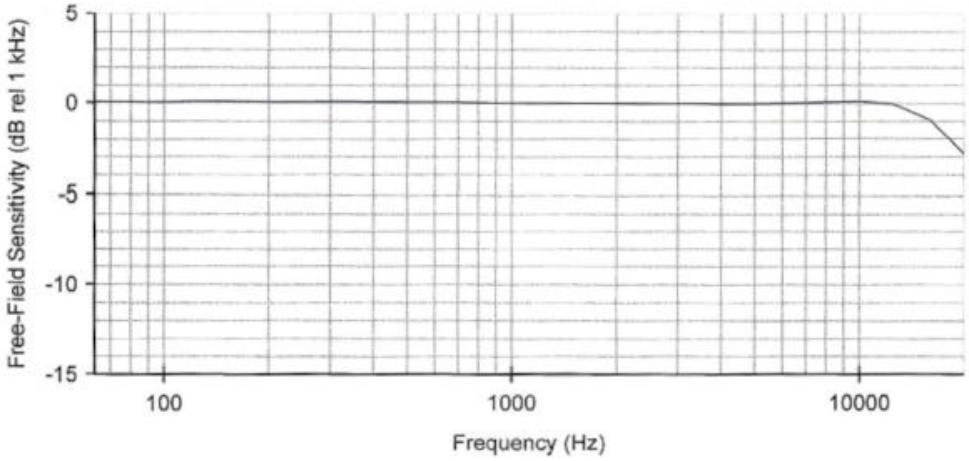
Certificate Number: **159478**

Page 2 of 2

Free-Field Frequency Response : Tabular

Frequency (Hz)	Free-Field Sensitivity (dB rel 1 kHz)	Actuator Response (dB)
63	0.03	-0.16
80	0.04	-0.04
100	0.01	-0.03
125	0.07	0.06
160	0.07	0.09
200	0.04	0.07
250	0.03	0.07
315	0.06	0.08
400	0.05	0.08
500	0.04	0.06
630	0.04	0.06
800	0.02	0.02
1 000	0.00	0.00
1 250	-0.01	-0.04
1 600	-0.01	-0.12
2 000	0.00	-0.21
2 500	-0.03	-0.35
3 150	-0.03	-0.59
4 000	-0.04	-0.91
5 000	-0.04	-1.37
6 300	0.01	-2.05
8 000	0.06	-3.08
10 000	0.11	-4.50
12 500	-0.04	-6.54
16 000	-0.95	-8.89
20 000	-2.86	-11.97

Free-Field Frequency Response : Graphical



CERTIFICATE OF CALIBRATION

ISSUED BY **Cirrus Research plc**

DATE OF ISSUE **05 July 2021** CERTIFICATE NUMBER **159474**

Cirrus Research plc
Acoustic House
Bridlington Road
Hunmanby
North Yorkshire
YO14 0PH
United Kingdom

Approved signatory
T.Goodrich
Electronically signed:

T. A. Goodrich.

Sound Calibrator : IEC 60942:2003

Instrument information

Manufacturer: Cirrus Research plc **Notes:**
Model: CR:515
Serial number: 57692
Class: 1

Test summary

Date of calibration: 05 July 2021

The sound calibrator detailed above has been calibrated to the published data as described in the operating manual and in the half-inch configuration. The procedures and techniques used are as described in IEC60942_2003 Annex B – Periodic Tests and three determinations of the sound pressure level, frequency and total distortion were made.

The sound pressure level was measured using a WS2F condenser microphone type MK:224 manufactured by Cirrus Research plc.

The results have been corrected to the reference pressure of 101.33 kPa using the manufacturer's data.

The manufacturer's product information indicates that this model of sound calibrator has been formally pattern approved to IEC60942_2003 Annex A to Class 1. This has been confirmed with the PhysikalischTechnische Bundesanstalt (PTB), Laboratoire National d'Essais (LNE) and APPLUS.

Notes:

CERTIFICATE OF CALIBRATION

Certificate Number:
159474

Environmental conditions

The following conditions were recorded at the time of the test:

Pressure: 99.43 kPa
Temperature: 22.0 °C
Humidity: 56.7 %

Test equipment

Equipment	Manufacturer	Model	Serial number
Acoustic Calibrator	Bruel and Kjaer	4231	2229486
Distortion Meter	Keithley	2015	0761605
Multimeter	Fluke	8845A	1293007

Results

	Expected	Sample 1	Sample 2	Sample 3	Average	Deviation	Tolerance	Uncertainty
Level (dB)	94.00	94.04	94.03	94.04	**94.04**	0.04	±0.40	0.11 dB
Distortion (%)	< 3.00	0.43	0.39	0.38	**0.40**	0.40	+3.00	0.13 %
Frequency (Hz)	1000.0	1000.3	1000.3	1000.3	**1000.3**	0.3	±10.0	0.1 Hz

The measured quantities or deviations (as applicable), extended by the expanded combined uncertainty of measurement, must not exceed the corresponding tolerance.

End of results

Appendix 3 – Certificates of Competency

Institute of Acoustics

Diploma in Acoustics and Noise Control

This is to certify that

Mr Aidan Willis

has satisfied the Examining Board in the following modules

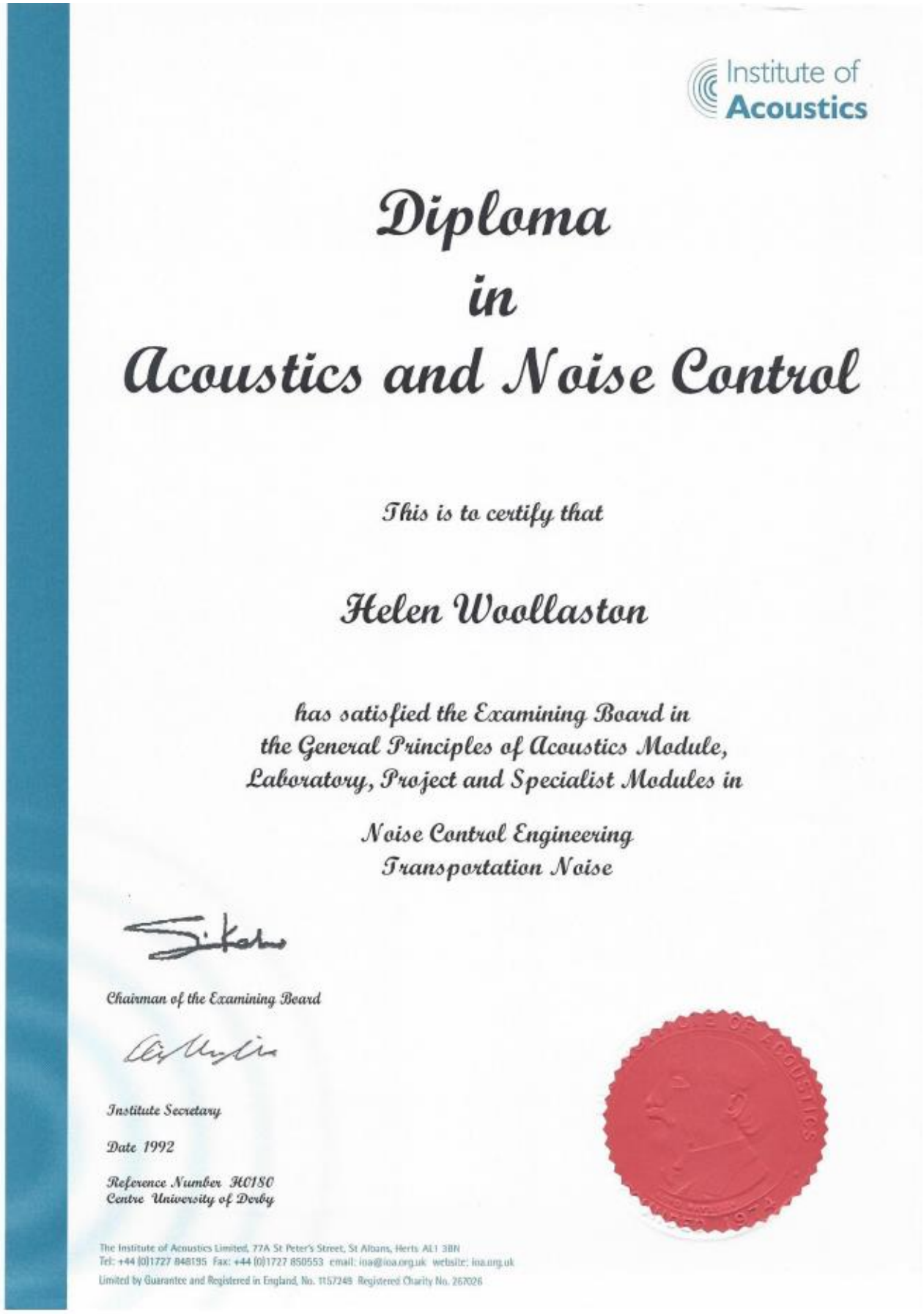
General Principles of Acoustics
Project
Laboratory and Experimental Methods
Building Acoustics
Environmental Noise: Prediction, Measurement and Control

Stuart JC Dyne
Chief Examiner

Dr John Pritchard
Education Committee Chairman

Examination Date: 9-10 June 2022
Candidate Number: DYC26
Centre: University of Derby

The Institute of Acoustics Limited, Silbury Court, 406 Silbury Boulevard, Milton Keynes MK9 2AF
T: +44 (0)330 999 9365 E: ioa@ioa.org.uk W: ioa.org.uk



Institute of Acoustics

Diploma in Acoustics and Noise Control

This is to certify that

Helen Woollaston

has satisfied the Examining Board in the General Principles of Acoustics Module, Laboratory, Project and Specialist Modules in

Noise Control Engineering
Transportation Noise

Chairman of the Examining Board

Institute Secretary

Date 1992

Reference Number HC180
Centre University of Derby

The Institute of Acoustics Limited, 77A St Peter's Street, St Albans, Herts AL1 3BN
Tel: +44 (0)1727 848195 Fax: +44 (0)1727 850553 email: ioa@ioa.org.uk website: ioa.org.uk
Limited by Guarantee and Registered in England, No. 1157249 Registered Charity No. 267026

Glossary of Terms

A-weighting
The sound pressure level determined when using the frequency-weighting network A. The A-weighting network modifies the electrical response of a sound level meter so that the sensitivity of meter varies with frequency in approximately the same way that the sensitivity of the human hearing system.

Acoustic Environment
Sound from all sound sources as modified by the environment.

Ambient Sound Level $L_a = L_{aeq,T}$
Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, *T*.

Note: The ambient sound level is a measure of the residual sound and the specific sound when present.

Background Sound Level $L_{A90,T}$
A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting, F, and quoted to the nearest whole number of decibels

Decibel *dB*
1. Unit level which denotes the ratio between two quantities that are proportional to power. The number of decibels corresponding to the ratio of two amounts of power is 10 times the logarithm to the base 10 of this ratio.
2. A linear numbering scale used to define a logarithmic amplitude scale, thereby compressing a wide range of amplitude values to a small set of numbers.
3. A unit that indicates that a quantity has a certain level above some pre-defined reference value.
4. The unit of measurement used for sound pressure levels. The scale is logarithmic rather than linear. The threshold of hearing is 0dB and the threshold of pain is 120dB. In practical terms these limits are seldom experienced and typical levels lie within the range 30dB (a quiet night-time level in a bedroom) to 90dB (at the kerbside of a busy city street).

Equivalent Continuous A-Weighted Sound Pressure Level L_{Aeq}
Value of the A-weighted sound pressure level of a continuous steady sound that within a specified time interval, T (starting at t_1 and ending at t_2) and measured in decibels has the same mean square sound pressure as the sound under consideration whose level varies with time.

Measurement Time Interval T_m
Total time over which measurements are taken.

Note: This may consist of the sum of a number of non-contiguous, short-term measurement time intervals.

Pascals, *Pa*
A unit of pressure equal to one Newton per square metre.
In the measurement of sound we are concerned with the amplitude of the acoustic pressure measured in Pa.

Rating Level $L_{Ar,Tr}$
Specific sound level plus any adjustment for the characteristic features of the sound.

Reference Time Interval T_r
Specified interval over which the specific sound level is determined.

Note: This is 1 h during the day from 07:00 h to 23:00 h and a shorter period of 15 min at night from 23:00 h to 07:00 h.

Residual Sound Level $L_r = L_{Aeq,T}$
Equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, *T*.

Specific Sound Level $L_s = L_{Aeq,Tr}$
Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, *Tr*.

Standardised Weighted Level Difference (*DnTw)*
The standardised weighted level difference rating describes the acoustic performance of a completed part of a building. The method for calculating weighted values is defined in BS EN ISO 717-1:1997.

End of Report

12 APPENDIX F – DUST MANAGEMENT PLAN

EUROPEAN METAL RECYCLING LIMITED

EMR Darlaston FP/NFE
Heath Road
Darlaston, West Midlands
WS10 8XL

Dust Emissions Management Plan
V1

May 2023

Contents

1. INTRODUCTION

1.1 Purpose and Scope

EMR Ltd recognise that their operations can generate dust, and that when combined with naturally occurring background emissions and the emissions from other neighbouring industrial activities they have the potential to impact on the environment, and local amenity.

This Dust Emissions Management Plan (DEMP) is intended to produce a reproducible and consistent approach for dust management, with the aim of continually reducing the levels of fugitive dusts generated by EMR Darlaston FP/NFE activities.

1.2 Air Quality and Emissions

Emissions of pollutants to the atmosphere occur from a range of sources. The sources from which emissions arise determine their chemical composition and this together with subsequent chemical

reactions in the atmosphere, determines the potential to cause harm to human health and the environment.

The main legislation which governs air quality in the UK is the Clean Air Act 1993 and the Air Quality Standards Regulations 2010.

In the Darlaston area, emissions sources primarily consist of transport and industrial sources.

The combination of road and site transport and industrial sources together generate nitrogen oxides (NO_x), volatile organic compounds (VOCs), hydrocarbons (HCs), carbon monoxide (CO), ozone (O_3), sulphur dioxide (SO_2) and dust (including PM_{10} and $PM_{2.5}$) with trace amounts of other pollutants (e.g. metals), which can also combine synergistically to produce additional, more harmful substances (e.g. Peroxyacetylnitrate or PAN present in photochemical smog).

Potential pollutants generated from scrap metal processing sites will primarily consist of course dust and grit (which normally settles instantly) with much smaller concentrations of PM_{10} / $PM_{2.5}$ and transport pollutants (NO_x, CO and HCs) from LGVs and mobile plant.

1.3 Particles

These are typically classified on the basis of their size. Particulate matter (PM) less than 50 micrometers (µm) across are referred to as Total Suspended Particles (TSP). Finer dust particles less than 10µm and 2.5 µm in diameter are referred to as PM_{10} and $PM_{2.5}$ respectively. TSP is associated with the potential for nuisance or loss/degradation of local amenity.

1.4 Air Quality Standards

Table 1 – Current Air Quality Standards and Objectives for PM_{10} and $PM_{2..5}$.

National air quality objectives and European Directive limit and target values for the protection of human health						
Pollutant	**Applies**	**Objective**	**Concentration measured as [10]**	**Date to be achieved by (and maintained thereafter)**	**European Obligations**	**Date to be achieved (by and maintained thereafter)**
Particles (PM_{10})	UK	50 µg/m³ not to be exceeded more than 35 times a year	24 hour mean	31 December 2004	50 µg/m³ not to be exceeded more than 35 times a year	1 January 2005
	UK	40 µg/m³	annual mean	31 December 2004	40 µg/m³	1 January 2005
	Indicative 2010 objectives for PM_{10} (from the 2000 strategy and Addendum) have been replaced by an exposure reduction approach for $PM_{2.5}$ (except in Scotland – see below)					
	Scotland	50 µg/m³ not to be exceeded more than 7 times a year	24 hour mean	31 December 2010	50 µg/m³ not to be exceeded more than 35 times a year	1 January 2005
	Scotland	18 µg/m³	annual mean	31 December 2010	40 µg/m³	1 January 2005
Particles ($PM_{2.5}$) Exposure Reduction	UK (except Scotland)	25 µg/m³	annual mean	2020	Target value - 25 µg/m³	2010
	Scotland	10 µg/m³		31 December 2020	Limit value - 25 µg/m³	1 January 2015
	UK urban areas	Target of 15% reduction in concentrations at urban background		Between 2010 and 2020	Target of 20% reduction in concentrations at urban background.	Between 2010 and 2020

2. EXPOSURE LEVELS AND HEALTH EFFECTS

2.1 Particulates

PM_{10} and $PM_{2.5}$ - Airborne particulate matter (PM) consists of many different substances suspended in air in the form of particles. They can be solid or liquid and vary in size.
The general movement of ferrous and non-ferrous scrap materials, loading and tipping of loads, tracking of vehicles around site etc. are all potential sources of PM_{10} and $PM_{2.5}$.

2.2 Sensitive Populations

Certain sensitive populations, listed below, are susceptible to more serious symptoms when exposed to dust. These sensitive populations are:

- Individuals with asthma and other respiratory diseases.
- Individuals with cardiovascular disease
- The elderly
- Children
- Smokers

2.3 Depositional Dust

This dust fraction is typically associated with annoyance and therefore a possible degradation of local amenity. Depositional dust may be observable by the deposited residues or by the cloud of dust itself, which often settles again quite quickly.

Examples of activities that may generate depositional dust (heavier fraction > PM10) include:

- Vehicles moving around site (both HGV vehicles and mobile plant)
- Moving, handling and storing scrap metal materials (by mobile plant, materials handlers e.g. shovels, grab cranes).
- ‘Sweeping’ ground using wire brush moved by grab crane

3. CLIMATE

A summary of the local climatic conditions for the Midlands has been provided below based on information supplied by the Met Office. An understanding of the weather conditions will facilitate the site management in targeting dust control measures.

The Midlands has a climate that is essentially transitional between northern and southern England in terms of temperature and between Wales and eastern England as regards rainfall. Rainfall tends to be associated with Atlantic depressions or with convection. Precipitation is often low by English standards with the Birmingham area experiencing an average of 40-45 days of rainfall >1mm. The prevailing wind direction within the area is south west.

4. RISK ASSESSMENT

EMR have completed a risk assessment which covers all environmental risks associated with site activities, including dust and emissions. This risk assessment will be updated on a 3-yearly basis or more frequently depending on any operational changes, complaints, changes to receptors etc.

The following elements have been considered in order to ensure that appropriate and effective actions are taken to minimise emissions from the site. Should any of these three elements be absent then there is no risk:

- **Source** – probable or actual particulates, their nature, location and origin.
- **Receptor** – existing and within reason foreseeable targets upon which the source may impact. These may be on site or off site.
- **Pathway** – this is the means by which the source and the receptor may come in to contact.

In conducting the risk assessment the following sources, pathways and receptors have been considered.

4.1 Potential Sources of Particulates

Potential sources of particulates from the site:

- Vehicles: Movements, exhausts, accumulated dirt, tipping, loading
- Shovel loaders: Movements, collecting and tipping loads
- Stockpiles of scrap metal & residual wastes

Review of material and associated dust levels:

Waste stream	Dust Risk	Reason for Risk Level	Storage	Handling / Processing
Fridge Foam	Low	Light fraction	Stored outside on a concrete surface in bags or covered bay	FLT will be used for all handling requirements of the foam within bags. Bags have 4 x lifting eyes incorporated within the bags

Despite knowledge of material type and source, all material is still visually inspected at the weighbridge. If material appears to be dusty then it will be rejected at this point.

EMR's site is located within a mixed industrial/residential area; a number of other commercial and industrial operators who will contribute to localised dust and emissions – these include:

- Veolia – adjacent to our Bentley Road entrance
- Cast Alloy Ltd – adjacent to Heath Road entrance

In addition to other businesses acting as dust sources within the local area there are also busy roads (M6 & Black Country Route) which are used by cars and a number of HGV's.

Upon review of the other sources of dust in the area, EMR would consider scrap handling as low risk for emissions in comparison to major road construction works being carried out at Junction 10 – M6 which is in very close proximity to EMR Darlaston. This has been ongoing for many months and is continuing for many months ahead.

4.2 Potential Receptors

Potential receptors within the vicinity of site:

- Commercial properties – Other nearby industries
- Residential properties – Local residents and community facilities.
- Site workers – May also be potentially affected by dusts

With respect to the site's immediate receptors it is surrounded by industrial commercial properties. The closest residential area is approximately 70 metres away from the site northern boundary on the other side of the railway tracks.

Pathways

The pathway for any particulates to impact upon the receptor will be the movement of air. The effectiveness of this pathway will be dominated by the prevailing weather conditions.

The speed and direction of the wind is critical to the pollution linkage. If the wind is of low speed it is unlikely there will be sufficient energy to pick up and transport particulates. Strong winds will be able to pick up and suspend particulates to transport them to a target.

Furthermore, some winds will not be strong enough to initiate particle suspension unless there is some initiating force. This might include, for example, vehicle movements, handling and movement of materials, or handling at height. Particles released at height may require very little wind to carry them.

The direction of wind is also important. Unless the wind is blowing in the direction of a target, the pollution linkage will not be made.

Rainfall impacts upon the particles available for pick up and distribution by the wind. The addition of water adheres particles together making them heavier and 'sticky' and therefore largely unavailable for pick up by wind movement. It is for this reason that many dust suppression measures employ damping down with water sprays.

5. MANAGEMENT, CONTROL, MONITORING & REPORTING OF DUSTS, FIBRES AND PARTICULATES

5.1 Waste Acceptance

The primary method for reducing dust and particulate being generated on site is prevention; this comprises of a number of methods, including strict waste acceptance criteria as outlined in the site's EMS (specifically the Environmental Protection Procedures or EPPs) including the prohibiting of non-permitted (mainly non-metallic) wastes from being delivered into the site and also the non-acceptance of contaminated permitted wastes e.g. ferrous metal contaminated with excessive, soil, rubble etc.

Incoming scrap metal that contains waste with the potential to generate high levels of dust shall not be accepted on to the site.

The site's Environmental Protection Procedures (EPPs) as part of the site's EMS (Environmental Managements System) establish the controls for mitigating dust and particulate emissions.

Every load is inspected by EMR's trained operatives - Upon arrival to site, monitoring for potential dust emissions is conducted at the weighbridge (visual inspection). If this initial inspection does not identify any issues, material is directed to the appropriate stockpile for tipping / unloading. When tipped, a crane operative will oversee this activity in order to monitor dust levels / risk (this will be done for every load when it is tipped).

If any concerns are raised regarding potential for emissions or quality of material then action will be taken immediately to prevent unnecessary emissions from site. This may include rejection of the entire load, quarantine of material or additional controls being applied prior to movement of material.

5.2 General Dust Control

- All operatives trained to take care when loading and unloading wastes likely to cause dust issues (e.g. minimising drop heights). This will be relevant across the entirety of the site when moving material. Staff receive training on how to handle material in a manner that minimises dust and any incidents of poor material handling will be logged and reported to Site Management.
- Once accepted over the weighbridge material will be tipped directly next to the relevant stockpile. This will ensure that material is deposited in the correct area of the yard and can be moved directly via crane into the main stockpile.
- Existing stockpiles will only be disturbed when material is being loaded for export or processing. This methodology ensures that double handling is not carried out.
- The 'first in first out' procedure will be followed for any material that is going to be processed on-site; ensuring stockpiles of historic material do not build up – When material arrives, the Weighbridge Operative directs vehicles to the appropriate tipping area at the back of the relevant stockpile to be offloaded, checked and then swept into the stockpile. Material is then processed from the front of the stockpile which ensures material is processed in line with the 'first in first out' principle.
- Regular housekeeping completed to prevent potential accumulation of dust, mud and litter – At a minimum this will be done on a daily basis and will consist of litter picking, manual sweeping, jet washing and damping down (not required if it is raining).
- Fridge foam will be discharged straight into bulk bags. Once full, these will the secured and stored in a 3 sided bay. Any spills from the bags will be cleaned up promptly.

5.3 Vehicle movement

- EMR fleet of vehicles are fitted with netting systems that are applied to prevent any windblown emissions when in transit - This netting is applied by the driver over the top of vehicle loads which ensures that material cannot blow off or escape the body of the vehicle. The netting is a

breathable textile material with a tightly knotted stich which acts as a physical barrier for any dust lift-off when in transit.

- Speed limit of 5mph enforced.
- Vehicles asked by the weighbridge operative to turn off engines if they are going to be in a queue / stationary for a period of time.
- Cranes used on-site are fitted with telematics – This allows the site to monitor fuel use and efficient operation of machines. If any machines appear to be using excessive fuel or operating inefficiency they will undergo additional maintenance checks. If there are no issues with the equipment then the operator will receive additional training to improve effective operation of the equipment.
- Cranes used on site use AdBlue – The AdBlue solution is injected into the exhaust system before NOx leaves the exhaust which in turn significantly reduces the amount of NOx particles in the exhaust emissions.
- All roadways and surfaces are concrete / tarmac reducing build-up of mud / dust and also making them easy to clean.
- Vehicle routes are regularly cleaned and damped down as required.

5. 4 Dust Control Measures – Site Specific

- A road sweeper is used to clean the site and is contracted in on a regular basis.
- Mobile water tank – Used to control of dust on the site haul roads and areas outside of the sprinkler systems range (utilised regularly in periods of dry weather).

5.5 Processing Operations

- Processing will be conducted inside a building in enclosed equipment.

5.6 Weather conditions

During periods of dry weather / high winds measures will be taken to reduce the impact on the local community / sensitive receptors. These will include but is not limited to:

- Increased use of mobile water bowser
- Increased use of water hoses/sprinklers
- Ongoing daily dust monitoring (recorded and reported in daily diary)
- Increase frequency of sweeper contractor visiting site

5.8 Dust Monitoring

- All site operatives are responsible and trained to monitor dust levels across the yard in line with EPP 4.12
- CCTV is provided across the site and is monitored out of hours by an external security contractor – If they identify any significant issues (such as major dust lift off or fire) they will immediately advise the key holder for the site.
- In the event of complaints / notification that dust levels are excessive then internal monitoring will be reviewed and improved (if the complaint / notification is substantiated).
- Internal ‘EPP monitoring’ will be completed if investigations / monitoring show that the dust issues are a result of operator error / failure to follow procedure – This is a formal inspection that checks operator’s compliance, knowledge and training records in relation to relevant Environmental Protection Procedures.

The following trigger points will be used alongside the above monitoring controls to identify if dust emission levels / particulate concentrations are elevated:

Trigger 1 - Report within 'daily dust log' or other report / visual assessment from internal EMR staff that dust levels or particulate concentrations from operations are elevated and have the potential to escape site under the correct conditions.

- Manager to review site operations and source of dust.
- The Manager will implement additional dust controls (will vary depending on the source of the issue).
- The Manager will review effectiveness of these controls before normal operation resumes.

Trigger 2 - Report within 'daily dust log' or other report / visual assessment from internal EMR staff that there is dust escaping the site boundary that could affect local receptors or raised particulate concentrations outside the boundary.

- Cease work
- Record on event log and investigate
- Review operations and dust suppression measures before recommencing.

Trigger 3 - Complaint from Environment Agency, member of public or other receptor.

- Cease work
- Record on event log and investigate
- Review operations and dust suppression measures before recommencing.

6. COMPLAINTS AND INVESTIGATION

If any complaints are received or there is believed to be a serious dust problem then the Site Manager and SHE Specialist will be contacted immediately and the incident / complaint logged on the electronic event log. This process will also be followed in the event that control measures in place fail.

When inputting complaints onto the event log as much detail as possible will be requested from the complainer – This will specifically include:

- Time and date.
- Location of issue.
- Complaint timescale (i.e. ongoing / isolated event).
- Suspected source of dust (if known).

Once added to the event log formal investigation procedures will be followed which will include root cause analysis and associated actions (with timescales) to prevent re-occurrence.

Feedback from complaints will be provided to relevant parties when requested – Method of feedback will be via email or telephone call.

The Environment Agency will be notified (in line with permit conditions) if any formal complaints are made in relation to excessive/significant dust levels from EMR operations.

Escalation of complaints

If there are a 5 or more dust complaints from different receptors /sources within a time period of 1 month additional actions will be implemented. This will include cessation of any high risk activities (screening) and the 'Dust Management Review Meeting' will be brought forward - Allowing for a full review of the suitability, adequacy and effectiveness of the DMP.

7. RESPONSIBILITIES

All EMR employees have responsibilities in relation to dust management.

Site Manager / Operations Manager:

- Ensures the site operates in accordance with the DEMP
- Ensures site staff are aware of their obligations under the DEMP
- Implements the Dust Emissions Management Plan (DEMP)
- Ensures appropriate resources are available
- Reports back to the SHE Specialist on dust performance
- Facilitates monitoring of dust on-site

Site Supervisor / Foreman:

- Ensures the DEMP is followed and maintained on site
- Reports back to the Site Manager on issues/operations which lead to or may lead to dusty conditions
- Ensures the site staff adhere to standard operating procedures

All Site Staff:

- Report dusty conditions and faulty equipment that may result in dusty conditions
- Adhere to standard operating conditions
- Suggest dust control improvements

SHE Specialist:

- Support the Site Manager by assisting with compliance with the DEMP
- Conducts site audits in support of the DEMP
- Coordinates the DEMP meetings and review process
- Communicates and liaises with the regulators over the DEMP
- Supports the site by including dust management training along with other training

8. DUST MANAGEMENT REVIEW

The feedback from monitoring, suitability, adequacy and effectiveness of the DMP will be reviewed each year or brought forward in the event that 5 or more dust complaints within a time period of 1 month.

This review will be incorporated into existing SHEQ meetings that are already held on an annual basis in line with requirements under the sites ISO accreditation. This meeting involves Senior Management ensuring relevant issues are communicated and reviewed on a regular basis.

13 APPENDIX G – HABITATS AND SPECIES ASSESSMENT

EMR Darlaston, Bentley Road South

Walsall

Preliminary Ecological Appraisal

Prepared For: European Metal Recycling Ltd

Document Reference: 9756.002

March 2023

Version 4.0

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The content of this document has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Code of Professional Conduct and is compliant with British Standard BS42020:2013 Biodiversity Code of Practice for Planning and Development.

The conclusions and recommendations contained in this document are based upon information gathered by TEP and provided by third parties. Information provided by third parties and referred to herein has not been independently verified by TEP, unless otherwise expressly stated in the document.

Nothing in this report constitutes legal opinion. If legal opinion is required, the advice of a qualified legal professional should be secured.

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Appendix B: Phase 1 Habitat Survey Target Notes

Executive Summary

Site Details	The site is located in the south-west of Walsall at SO 98404 97725. The nearest postcode is WS10 8LP. The site application boundary measures approximately 2.4ha.
Proposals	The proposals entail the construction of a new fridge plant building. Associated storage bays and a new power supply will also be required although some of the final details regarding these elements are not currently confirmed.
Designated wildlife sites	The Cannock Extension Canal SAC is located 8.1km from the site. Given the distance and separation from the site, no direct or indirect impacts are anticipated upon the internationally designated site.
Important Ecological Features present within the site	The habitat on site with the relative greatest value is the scattered scrub. Although not considered "important", small areas of modified neutral grassland are still of ecological value.
Recommendations	Precautionary working methods have been recommended and are set out in Section 5.0 for amphibians and reptiles, hedgehogs, badgers, and nesting birds to ensure that delivery of the project remains compliant with relevant legislation and policy. Nocturnal bat surveys will be required if the off-site wall (B6) will be impacted by proposals. A Construction Environmental Management Plan (CEMP) should be implemented during vegetation clearance and construction works to prevent pollution of retained habitats within and adjacent to the site.
Conclusions	The habitats on site are common and widespread, with the scattered scrub being the habitat of highest value. Further ecological surveys have been recommended. Potential impacts on ecological features have been identified and appropriate mitigation proposed. Enhancement measures have been recommended.

This Executive Summary is not a substitute for the full report. Refer to the full text of this report for further detail.

1.0 Introduction

1.1 The Environment Partnership (TEP) was commissioned by European Metal Recycling Ltd in November 2022 to undertake a Preliminary Ecological Appraisal (PEA) to provide information on the potential ecological impacts of development proposals for EMR Darlaston, Bentley Road South, Walsall (hereafter referred to as 'the site').

1.2 An Ecological Desk Study has been produced to support this PEA. This is provided in Appendix A.

1.3 This PEA report includes details of the methods employed and any limitations of the surveys undertaken. Results are provided with supporting maps, together with an evaluation of the ecological features within the site, an assessment of the potential impacts associated with the development proposals and requirements for mitigation. The assessment has been undertaken with due consideration for current best practice guidelines (CIEEM 2017a[1], 2018[2]).

Site Location

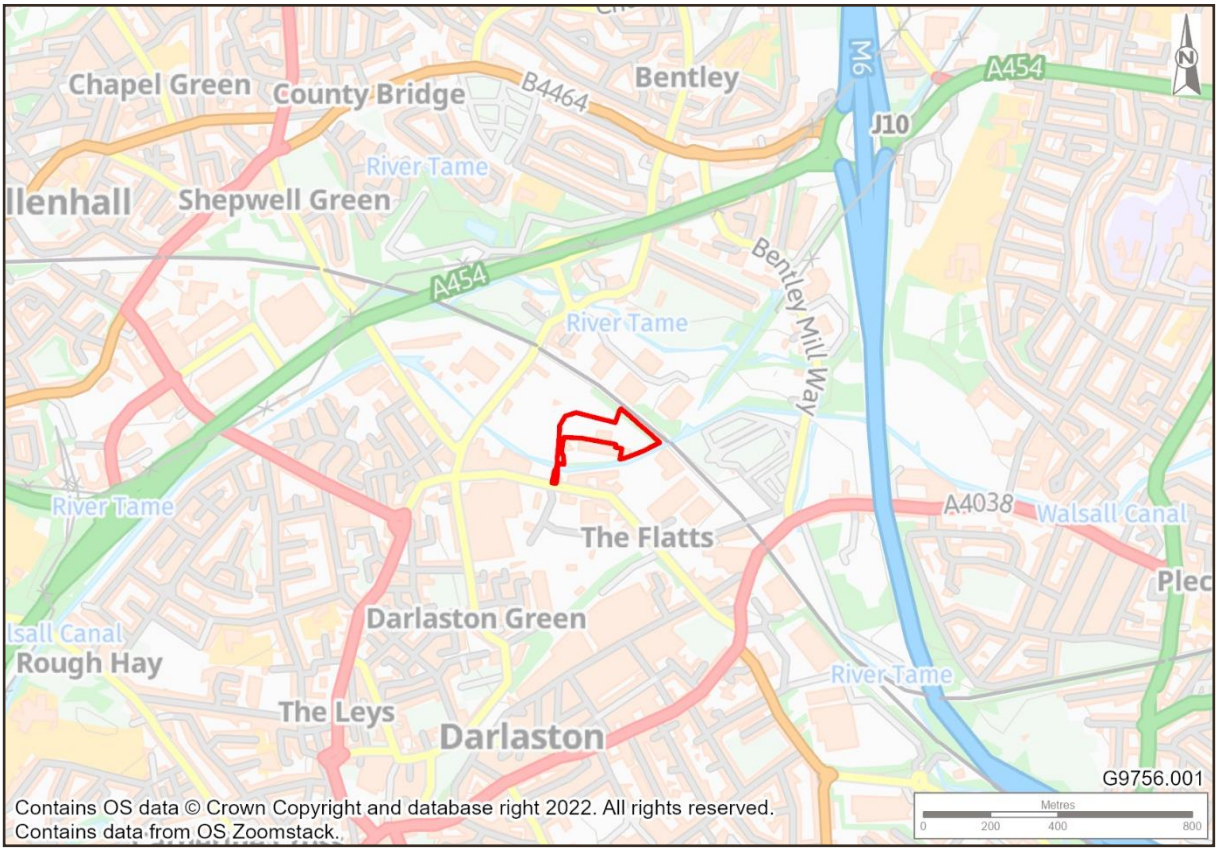
1.4 The site is located in the south-west of Walsall. The location of the site is depicted by the red line shown in Figure 1. The approximate central grid reference of the site is SO 98404 97725.

1.5 The site comprises predominantly hardstanding with several buildings, including offices and the fridge plant building. The site is immediately bordered by Walsall Canal to the south, the railway line to the north-east and the continuation of the EMR plant to the north-west. The wider area comprises the residential and commercial areas of south-west Walsall, with the River Tame located approximately 190m north-east of the site.

[1] CIEEM (2017a) Guidelines for Ecological Report Writing, 2nd Edition. Chartered Institute of Ecology & Environmental Management

[2] CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester

Figure 1: Site location



Proposals

1.6 Proposals are for the construction of a new fridge plant building. Associated storage bats and a power supply will also be required although some of the final details regarding these elements are not currently confirmed.

Planning Context

Scope

1.7 This PEA considers potential ecological effects upon any protected and notable habitats or species which may be present or adjacent to the site.

1.8 This report provides baseline information on the habitats and protected species present on site, gathered during a desktop study and Phase 1 habitat survey undertaken in December 2022 and January 2023, respectively.

1.9 A review of relevant local planning policies has been undertaken as part of the desktop study, the results of which are provided within Section 3.0 of this report.

1.10 This report presents the findings of the PEA, the objectives of which are to:

- Detail the methods and results of the aforementioned surveys;

- Identify features of ecological value within the application site, such as legally protected species or habitats of importance to biodiversity, and potential constraints for the development proposals, thus informing the design process at an early stage;
- Provide recommendations for the scope of further survey work required to inform future works; and
- Provide recommendations for mitigation measures to ensure no protected species are harmed during the works.

2.0 Methods

Desk Study

2.1 In line with current best practice (CIEEM, 2016[3], 2017b[4]), information regarding designated sites, notable habitats and existing protected and notable species records of the past decade, within a 1km minimum radius of the site was collated and reviewed to inform this ecological assessment. Further detail regarding ecological zones of influence (EZOI) applied for different ecological features and the sources of information included are presented in the Ecological Desk Study (TEP Ref: 9756.001) in Appendix A.

2.2 In brief, key data sources included Natural England (open source data), Environment Agency (open source data); Walsall Metropolitan Borough Council, and other relevant planning documentation, EcoRecord and the Local Biodiversity Action Plan (LBAP) for Birmingham and the Black Country and a review of relevant (within the past ten years) species records.

2.3 Statutory designated wildlife sites were searched for as follows (EZOI applied for each is indicated in brackets):

- Ramsar sites (10km);
- National Sites Network (10km), includes Special Areas of Conservation (SAC) and Special Protection Areas (SPA);
- Site of Special Scientific Interest (SSSI) (5km);
- National Nature Reserve (NNR) (5km); and
- Marine Nature Reserve (MNR) (5km);
- Local Nature Reserves (LNR) (2km).

2.4 Non-statutory designated wildlife sites were searched for within 1km of the site and, within Devon, these may include:

- Sites of Importance for Conservation (SINC);
- Sites of Local Importance for Conservation (SLINC);
- Green Link Network; and
- Green Wedges.

2.5 Regionally Important Geological Sites (RIGS) are also identified in the search results provided by NBRC, but assessment of RIGS and other geological features do not fall within the scope of this PEA and are not discussed further.

2.6 Notable habitats were searched for within 500m of the site. Notable habitats may include those listed under any of the following:

[3] CIEEM (2016) Guidelines for Accessing and Using Biodiversity Data. Chartered Institute of Ecology & Environmental Management

[4] CIEEM (2017b) Guidelines for Preliminary Ecological Appraisal, 2nd Edition. Chartered Institute of Ecology & Environmental Management

- Ancient woodland;
- Main rivers;
- Habitats of principal importance (HPI) as listed by the requirements of Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006[5]; and
- Local Biodiversity Action Plan Habitats (LBAP).

2.7 Pre-existing records for notable species were reviewed from the combined data sources, where found from within approximately 1km of the site. This search was extended to 2km for bats. Notable species include those listed under any of the following:

- Protected animal species under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (EPS);
- Protected bird species under Schedule 1 of the Wildlife and Countryside Act 1981, as amended (WCA1);
- Protected animal species under Schedule 5 of the Wildlife and Countryside Act 1981, as amended (WCA5);
- Protected plant species under Schedule 8 of the Wildlife and Countryside Act 1981, as amended (WCA8);
- Invasive non-native plant species under Schedule 9 of the Wildlife and Countryside Act 1981, as amended (WCA9);
- Invasive non-native species under the Invasive Alien Species (Enforcement and Permitting) Order 2019 (IAS);
- Species of principal importance (SPI) as listed by the requirements of S41 of NERC;
- Protection of Badgers Act 1992 (PBA);
- Red and Amber listed Birds of Conservation Concern (BRd/BAm); and
- Northamptonshire Biodiversity Action Plan Species (LBAP).

Limitations

2.8 Species records can provide a useful indication of the species present within the search area, although the absence of a given species from the dataset cannot be taken to represent actual absence.

Habitats and Flora

Habitat Survey

2.9 An extended Phase 1 habitat survey was completed by TEP Senior Ecologist Ruth Woolston, certified to Level 3 under the Field Identification Skills Certification[6], and TEP Assistant Ecologist Megan Brocklebank. The survey was completed on 4th

[5] Section 41 of the Natural Environment and Rural Communities 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.

[6] A national skills certification scheme operated by Botanical Society of Britain and Ireland. FISC 4 is the competency level recommended for Biodiversity Net Gain (BNG) field assessments

January 2023. The survey was carried out in accordance with the Phase 1 habitat assessment methods (JNCC, 2010[7]) and the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2017b[4]). The method records the habitat types present, within the survey area, based on the JNCC descriptions. Plant species were identified in accordance with the New Flora of the British Isles (Stace, 2019[8]) and recorded as target notes using the DAFOR[9] scale, where relevant.

2.10 Habitats are displayed with the site boundary on Drawing G9736.007. A larger habitat area was surveyed (blue) prior to the application boundary (red) being updated.

Limitations

2.11 Any ecological survey represents a snapshot of ecological conditions at the time of survey; ecological conditions may change over time. Efforts to identify dominant plant species for the purposes of characterising broad habitat types do not constitute a detailed botanical survey.

2.12 The survey was undertaken in early January, which is outside the optimum survey period of April to mid-October. Therefore, it is probable that some plant species present on site were not recorded. Given the urban location and limited semi-natural habitat on site this is unlikely to have been a significant limitation to identifying the condition and ecological value of the habitats present.

2.13 A section of the site along the north-eastern boundary was not accessible during the survey due to the presence of security fencing. Only highly limited views of this section were possible due to large containers and stored materials blocking the fence. However, this area will not be affected by the proposed works; therefore, it is not considered a limitation that the area was inaccessible, and further survey is not required.

2.14 The area over the bridge to the south-west of the site was also not surveyed as this was not included within the site boundary at the time of survey. A precautionary approach will be undertaken regarding any anticipated impacts in this area.

Fauna

2.15 Ordnance Survey maps and aerials were reviewed to identify potentially suitable habitats offsite within influence (e.g., dispersal distances for mobile species) of the site. The Ecological Desk Study identified any pre-existing records for protected and notable species within at least 2km of the site.

2.16 The habitat survey included an extended assessment of the habitats present for their potential to support notable or protected wildlife species, as described at paragraph 2.7. Any signs indicating the presence of these species were recorded.

[7] JNCC (2010) Handbook for Phase 1 Habitat Survey – a technique for environmental audit

[8] Clive Stace (2019) New Flora of the British Isles

[9] DAFOR = Dominant, Abundant, Frequent, Occasional & Rare

Preliminary Roost Assessment of Buildings

2.17 A daytime external and internal assessment of the built structures within the site boundary was undertaken to assess their suitability to support roosting bats. The assessment was completed in conjunction with the Phase 1 habitat survey by TEP Ecologists Ruth Woolston (Level 2 Bat Licence Registration: 2022-10495-CL18-BAT) and Megan Brocklebank on 4th January 2023 in accordance with the Bat Conservation Trust (BCT) Survey Guidelines[10].

2.18 The exterior walls and roof of the buildings, and internal spaces, were viewed from ground level and features providing potential bat access or roosting places were noted. Areas where bat droppings may accumulate, such as on the ground, ledges, and walls, were also inspected. Any features suitable for use by roosting bats were identified and/or evidence of bat activity were noted.

2.19 Building features commonly associated with providing bats with roosting opportunities include the following:

- Broken/slipped roof tiles including ridge tiles;
- Fascia's and soffit boxes;
- Gaps in masonry;
- Loose fitting cladding/weatherboarding (wooden/tile);
- Loose lead flashing; and
- Gaps around window and door frames.

2.20 Physical evidence of use by bats may include the following:

- Live or dead bats;
- Bat droppings;
- Feeding remains (e.g., stripped moth or butterfly wings);
- Urine staining; and
- Fur oil staining.

2.21 Following this assessment, the buildings were categorised in accordance with the criteria for roost assessments identified in the Bat Conservation Trust: Bat Surveys. Good Practice Guidelines (2016), and as shown in Table 1.

[10] Collins, J (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London

Table 1: Bat Roosting Habitat Categories (BCT, 2016)

Roost Category	Description
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e., unlikely to be suitable for maternity or hibernation).
Moderate	A structure with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Limitations

2.22 The absence of signs of bats within a structure does not confirm absence of bats. Signs may deteriorate over time and/or be located within areas that are not accessible to surveyors (for example, under a roof tile).

Otter and Water Vole Survey

2.23 The Walsall Canal running adjacent to the southern site boundary was surveyed by experienced ecologist Ruth Woolston, with health and safety assistant Megan Brocklebank, in conjunction with the Phase 1 habitat survey on 4th January 2023.

2.24 The standard methodology as outlined within the latest guidance by Dean et al. (2016)[11], Strachan et al (2011)[12] and Chanin P. (2009) was followed, to complete a thorough search for evidence which would indicate the presence of European otters *Lutra lutra*, water voles *Arvicola amphibius* and other riparian mammals both on the site and locally, which included:

- Burrows;
- Feeding remains;
- Droppings (including otter spraints);
- Footprints, runs and paths;

[11] Dean, M, Strachan, R., Gow, D. and Andrews, R. (2016) The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series) (2016).Eds Fiona Mathews and Paul Chanin. The Mammal Society.

[12] Strachan, R., Moorhouse, T. & Gelling, M. (2011) Water vole conservation handbook (3rd Ed.). Wildlife Conservation Research Unit, Oxford

- Incidental evidence of other riparian mammals (including American mink *Neovison vison* and rat *Rattus norvegicus*); and
- Laying up sites, dens and holts.

2.25 The banks and channel of the Walsall Canal were subject to survey. The survey extended approximately 200m either side of the site boundary. Drawing G9756.007 shows the location of the canal subject to survey.

2.26 The habitat assessment included the surveyors' making observations of the canal, including bank profile, substrate, water depth and fluctuations, shading, management, and the presence of in-channel and bankside vegetation.

Limitations

2.27 The survey of the canal could only be undertaken from the southern bank as access along the northern bank was not possible. Given current known proposals this is not considered to be a significant limitation considering the lack of connective habitat between the site of the proposed works and the canal.

2.28 The survey was undertaken in early January, which is outside the optimum water vole survey period of mid-April to June and July to September. Therefore, it is possible that evidence of water vole (if present) may have been under recorded. However, given that the proposed works will not encroach within 30m of the northern bank of the canal, this is not considered a limitation, and further surveys will not be required.

Assumptions

2.29 Information provided by third parties, including publicly available information, is assumed to be correct at the time of publication.

3.0 Results

Planning Context

3.1 The NPPF at *Chapter 11: Conserving and Enhancing the Natural Environment* requires that development delivers net gains in biodiversity in addition to minimising the impacts on biodiversity. The chapter highlights the need to protect and enhance valued landscapes, geological conservation interests and soils, as well as recognising the wider benefits of ecosystems.

3.2 The Black Country Core Strategy was adopted by Walsall Metropolitan Borough Council in February 2011. Relevant extracts of local planning policy are provided in the Ecological Desk Study (Appendix A). The following policies relate to biodiversity and nature conservation:

- Policy CSP3 – Environmental Infrastructure;
- Policy ENV1 – Nature conservation;
- Policy ENV4 – Canals; and
- Policy ENV6 – Open Space, Sport and Recreation.

3.3 The Black Country Core Strategy is now under review and was due to be replaced by the Black Country Plan 2039. However, in October 2022, it was decided that separate Local Plans for the four Black Country Councils (Dudley, Sandwell, Walsall and Wolverhampton) will provide the framework for the long-term planning of the Black Country, rather than one overarching plan.

Walsall Unitary Development Plan (adopted March 2005)

3.4 The Walsall UDP was adopted in 2005 however some policies have now been replaced by the Black Country Core Strategy since its adoption in 2011. The following policies relate to biodiversity and nature conservation and are still applicable:

- Policy ENV16 – Black Country Urban Forest;
- Policy ENV18 – Existing Woodlands, Trees and Hedgerows;
- Policy ENV23 – Nature Conservation and New Development; and
- Policy ENV24 – Wildlife Corridors.

Conserving Walsall's Natural Environment Supplementary Planning Document (SPD)

3.5 The Conserving Walsall's Natural Environment SPD provides guidance on complying with the Black Country Core Strategy and Unitary Development Plan policies for the protection of the natural environment to ensure it is properly considered in the development management process. It was adopted by Walsall Council on 24th July 2013.

Designated Sites

Statutory Wildlife Sites

3.6 Full details regarding designated sites are provided within the Ecological Desk Study (Appendix A).

3.7 There is one statutory designated site of international importance within 10km of the site. This is the Cannock Extension Canal (SAC), located 8.1km north-east of the site. Designated for the presence of the very rare floating water plantain *Luronium natans*.

3.8 There are no statutory sites of national importance within 5km of the site, and no statutory sites of regional/local importance within 2km of the site.

3.9 SSSI Impact Risk Zones (IRZ) highlight the potential for effects on a SSSI if certain types of development are planned within a specified radius of it. The site falls within a single Impact Risk Zone (IRZ), however it is not possible to determine from MAGIC which designated site the IRZ is associated with.

Non-Statutory Wildlife Sites

3.10 There are 12 non-statutory wildlife sites identified within 2km of the site. Full details of the sites are presented in the Ecological Desk Study (Appendix A). Of most relevance are the following:

- Walsall Canal (SLINC) – adjacent to southern site boundary – comprised of a canal and reedswamp;
- Anson Branch Canal (SLINC) – 0.1km north-east of the site – comprised of a canal, reedswamp, tall herb, scrub, and neutral grassland;
- Anson Road (SLINC) – 0.2km north of the site – comprised of marshy grassland, neutral grassland, tall herb, and scrub; and
- Bentley Mill Lane (SLINC) – 0.3km east of the site – comprised of neutral grassland, scrub, tall ruderal, and ponds.

3.11 Other non-statutory wildlife sites identified by the Ecological Desk Study are located at least 0.9km from the proposed works and have no impact pathways relevant to the site or the proposed nature of the works. Given this and the small scale and nature of the proposals and distances concerned, no significant effect would be anticipated to arise upon these other non-statutory wildlife sites and are therefore scoped out from further assessment.

Habitats and Flora

3.12 The Desk Study did not identify any notable habitats within or adjacent to the site. The nearest notable habitat to site is an area of open mosaic habitat on previously developed land located approximately 110m east of the site but MAGIC states the reliability of this habitat designation is low.

3.13 Flora records returned within 2km of the site as follows:

- Protected and notable species:
    - Bee orchid (LBAP)
    - Bluebell (WCA8, LBAP)
    - Common spotted orchid (LBAP)
- Non-native invasive species[13,14]:
    - Canadian waterweed (WCA9)
    - Cotoneaster species (WCA9)
    - Giant hogweed (WCA9, IAS)
    - Himalayan balsam (WCA9, IAS)
    - Japanese knotweed (WCA9)
    - Japanese rose (WCA9)
    - Montbretia (WCA9)
    - Nuttall's waterweed (WCA9, IAS)
    - Virginia creeper (WCA9)
    - Water fern (WCA9)

3.14 Habitats present within the wider site boundary are described below and illustrated in Drawing G9756.007A. Target notes (TN) and photographs illustrative of the habitat/feature described are provided in Appendix B.

Scrub

3.15 The scattered scrub at TN3 comprised predominantly of bramble *Rubus fruticosus agg.* and butterfly-bush *Buddleja davidii.* The scrub is positioned atop an earth and rubble bank, approximately 2m high. There is lots of man-made litter and stones with a large brash pile in the western corner of the scrub.

3.16 There is another area of scattered butterfly-bush and bramble scrub along the north-eastern site boundary (TN4). It is separated from the hardstanding by a metal fence, and there is barbed wire and man-made litter within the scrub. The entire length of the north-eastern boundary was not accessible and surveyed from a distance, therefore a detailed survey was not undertaken, and other plant species may have been present.

Modified Neutral Grassland

3.17 There are small patches of modified neutral grassland (MNG) within the scrub at TN3. Ground flora species and mosses present include cow parsley *Anthriscus sylvestris,* cut-leaved crane's-bill *Geranium dissectum* and creeping cinquefoil *Potentilla reptans.*

[13] As listed on Schedule 9 of the Wildlife and Countryside Act 1981 as amended

[14] Statutory Instruments 2019 No. 527 The Alien Species (Enforcement and Permitting) Order 2019

3.18 Similarly, there are areas of modified neutral grassland along the north-eastern site boundary within TN4. However, access was not possible to this area, therefore a detailed survey was not undertaken, and plant species may be present that have not been recorded.

Bare Ground

3.19 There is an area of bare ground in the centre of the site where the new fridge plant building is currently under construction. This area is unvegetated.

3.20 Earth and rubble banks, approximately 2m high, are located either side of a track in the northern section of the site, upon which butterfly-bush scrub has colonised (TN3).

Hardstanding

3.21 The majority of the site is comprised of hardstanding. These areas are unvegetated. A section of hardstanding in the eastern corner of the site is used to store a very large number of fridges (TN1). The area is bounded by a metal fence.

Rubble Pile

3.22 There is a very large rubble pile consisting of stone and aggregate in the eastern section of the site (TN2). The rubble pile has only recently been created and is temporary. After communication with the client, it is understood the rubble pile is to be moved and graded.

Built Structures

3.23 Four buildings (B1-B5) were recorded within the survey boundary, but outside the application boundary and one building (B3) was recorded within the application boundary, to the north of the site. A brick wall (B6) was recorded along the southern application boundary, along the northern bank of the canal. The buildings and wall are described in further detail in the context of bats later in the report.

Off-site Habitats

3.24 The Walsall Canal runs parallel to the southern site boundary (TN5). It is approximately 5m wide and 1.5m deep with an earthy substrate. There is some aquatic vegetation present. The northern bank comprised of scattered trees, bramble and bracken *Pteridium aquilinum.* scrub with reeds and other marginal vegetation recorded such as greater bulrush *Typha latifolia*. The canal is separated from the site by a tall metallic wall, a footpath and a chain and link fence. Along the southern bank of the canal is a footpath with a strip of grassland, approximately 1m wide, and marginal vegetation. There is lots of man-made litter present.

Notable or Invasive Flora

3.25 No protected or invasive plant species were recorded on, or adjacent to, the site.

Area Not Surveyed

3.26 Habitats along the railway embankment, including TN4, extending the full length of the north-eastern application boundary could not be accessed due to the presence of a metal fence and large containers and stored materials blocking the fence. Therefore, this area was not surveyed. However, given this area will not be affected by the proposed works, it is not considered a limitation that the area was inaccessible.

3.27 The bridge to the south-west of the site and the area south of this was not surveyed; however, based upon recent aerial imagery, it is likely the area is predominantly hardstanding and of little ecological value.

Habitat Connectivity

3.28 Habitats on site are connected to the neighbouring railway embankment and canal corridor along the north-eastern and southern site boundaries, respectively. Both the railway embankment and canal are connected to further habitats in the wider landscape.

Fauna

3.29 The potential for the site to support legally protected and notable species has been assessed using the results of the desk study and observations made during the site survey of habitats within and immediately surrounding the site.

Amphibians

3.30 13 records of great crested newt (GCN) *Triturus cristatus* (EPS, WCA5, SPI, LBAP) were returned with 2km of the site, the nearest of which is located approximately 0.7km from the site. Three records of common toad *Bufo bufo* (SPI, LBAP) were returned within 2km of the site, the nearest of which is located 0.6km from the site. Nine records of common frog *Rana temporaria* (LBAP), two records of a newt species *Lissotriton sp.* (LBAP), and 18 records of smooth newt *Lissotriton vulgaris* (LBAP) were returned within 2km of the site.

3.31 A review of Natural England's open datasets for GCN class licence returns and pond survey data between 2017 and 2019 returned no records of GCN within 2km of the site.

3.32 One Natural England mitigation licence has been identified. Application EPSM2009-1169 granted the destruction of a GCN resting place between 14th April 2010 and 31st October 2011. The record is located approximately 480m south-west of the site.

3.33 A review of Natural England's MAGIC map application and aerial mapping revealed three ponds within 500m of the site, located approximately 220m north, 250m north and 390m north-east of the site. TEP were not commissioned to assess ponds outside of the site. Therefore, their suitability to support GCN have not been determined at this stage. However, the ponds are separated from the site by the River Tame, which is a main, fast-flowing river as well as industrial and residential development;

combined, these act as significant barriers to amphibian dispersal, therefore it is likely GCN are absent on site.

3.34 There are no ponds present on site and therefore no potential amphibian breeding habitat is present on site. The on-site scrub and areas of modified neutral grassland provide suitable terrestrial foraging and refuge habitat for amphibians. It also provides suitable hibernation features including brash piles.

3.35 The on-site rubble pile provides suitable hibernation and sheltering habitat for amphibians; however, given that the rubble pile is temporary it is unlikely to be colonised by amphibians. The remainder of the site does not provide suitable habitat for amphibians.

Badger

3.36 18 records of badger *Meles meles* (PBA, LBAP) were returned within 2km of the site.

3.37 No evidence of badger was recorded on site. A mammal hole, similar in size and shape to that associated with badger, was identified along the northern bank of the canal at approximate central grid reference SO 98374 97638 (Figure 2) however this could not be confirmed as access along the northern bank of the canal was restricted. However, this was recorded more than 30m from the application boundary, and therefore is not a material consideration to planning.

Figure 2: Hole in northern bank of canal

3.38 The scattered scrub and modified neutral grassland in the centre of the site as well as the off-site canal corridor provide suitable habitat for badger foraging and sett creation.

3.39 The area of scrub along the north-eastern site boundary also provides suitable habitat for foraging and sett creation. Although this area was not accessible, the proposed

works are located more than 30m from this area, therefore it is not considered a significant constraint that this area was not surveyed.

Bats

3.40 148 records of the following bat species were returned within 2km of the site:

- Bat species (EPS, WCA5, SPI, LBAP)
- Brown long-eared bat (EPS, WCA5, SPI, LBAP)
- Common pipistrelle (EPS, WCA5, LBAP)
- Nathusius' pipistrelle (EPS, WCA5, LBAP)
- Noctule (EPS, WCA5, SPI, LBAP)
- Pipistrelle bat species (EPS, WCA5, SPI, LBAP)
- Soprano pipistrelle (EPS, WCA5, SPI, LBAP)

3.41 The nearest record was of a noctule bat *Nyctalus noctula* located approximately 0.34km from the site.

3.42 One Natural England mitigation licence has been identified within 2km of the site. Application EPSM2011-3893 granted the destruction of a breeding site and resting place of common pipistrelle *Pipistrellus pipistrellus* between 4th September 2013 and 31st July 2016.

Preliminary Roost Assessment

3.43 Four buildings (B1, B2, B4 and B5) were assessed as having negligible suitability to support roosting bats. Given they are located outside of the application boundary, they are not a material consideration to planning.

3.44 Building B3, located within the application boundary, is a single storey small metal container unit with a metal corrugated roof. There is artificial lighting on the outside of the building. No features were observed from ground level. Overall, B3 is assessed as having negligible suitability to support roosting bats.

3.45 A brick wall (B6) approximately 3m high was recorded along the southern application boundary located at approximate central grid reference SO 98231 97643 (Figure 3). There were numerous cracks within the brick work which may provide suitable habitat for crevice dwelling bat species, and some of which appeared suitable to support maternity roosts. Features were considered potentially suitable to support hibernating bats during winter. B6 was therefore assessed as having high suitability to support roosting bats on a precautionary basis.

Figure 3: B6

Foraging and Commuting

3.46 The majority of the site does not provide suitable habitat to support foraging and commuting bats, but it is subject to frequent disturbance from noise and lighting.

3.47 The neighbouring railway and canal corridors, outside of the application boundary, provide suitable foraging and commuting corridors for bats.

Birds

3.48 297 species records were returned within 2km of the site. A range of notable bird species were recorded including black redstart *Phoenicurus ochruros* (WCA1, BAm, LBAP), bullfinch *Pyrrhula pyrrhula* (SPI, BAm), dunnock *Prunella modularis* (SPI, BAm) and house sparrow *Passer domesticus* (SPI, BRd).

3.49 The limited scrub habitat within the site provides suitable habitat for nesting birds.

3.50 There are no large areas of open grassland or water on site suitable for use by wintering wildfowl or waders on. Therefore, the site is considered unsuitable for use by wintering wildfowl and waders.

Hazel Dormouse

3.51 No records of hazel dormouse *Muscardinus avellanarius* (EPS, WCA5, SPI) were returned within 2km of the site.

3.52 There is no suitable habitat on site to support hazel dormouse. Furthermore, the site is isolated and not connected to further suitable habitat in the wider landscape.

Invertebrates

3.53 Numerous records for invertebrates were returned within 2km of the site. A range of notable invertebrate species were recorded including cinnabar *Tyria jacobaeae* (SPI), mottled rustic *Caradrina Morpheus* (SPI) and small heath *Coenonympha pamphilus* (SPI).

3.54 The on-site scrub and modified neutral grassland have limited potential to support some of the more widespread invertebrate species. The off-site canal corridor may support more notable species of invertebrates. However, given that the site is dominated by hardstanding habitats, it is considered unlikely that the site could support a significant assemblage of invertebrates.

Reptiles

3.55 One record of slow-worm (WCA5, SPI) *Anguis fragilis* was returned within 2km of the site, located approximately 1.77km from the site.

3.56 The site is dominated by hardstanding which is unsuitable for reptiles. The on-site scrub and modified neutral grassland habitats provide opportunities for foraging and commuting common reptiles, although they are limited in extent. Brash and rubble piles within the site provide suitable hibernating and sheltering habitat for common reptiles. However, given that the rubble pile is temporary, it is unlikely to be colonised by reptiles.

Otter and Water Vole

3.57 One record of Eurasian otter (EPS, WCA5, SPI) was returned within 2km of the site, located 0.85km from the site. 20 records of water vole (WCA5, SPI, LBAP) were returned within 2km of the site, the nearest of which is located approximately 0.33km from the site.

Otter and Water Vole Survey

3.58 There are no watercourses or riparian habitat on site.

3.59 The off-site canal running parallel to the southern site boundary was subject to survey. A full description of habitats surveyed are found in Table 2 below.

Table 2: Habitat Descriptions

Habitat Variable	Description
Bank profile	Manmade
Bank and base substrate	Earth
Water depth	Approximately 1m deep
Water fluctuations	No
Shading	0%
Bankside vegetation	Species present include: ■ Bramble ■ Bracken ■ Silver birch ■ Willow ■ Common bullrush
In-channel vegetation	Species present not identified due to time of year.
Constraints	Outside of the Phase 1 habitat survey period. No access was granted along the northern bank which was surveyed from a distance.
Habitat suitable for WV and otter?	Yes

3.60 No evidence of otter or water vole was identified along the canal.

Other Relevant Species

3.61 Five records of western European hedgehog *Erinaceus europaeus* (SPI) were returned within 2km of the site, the nearest of which is located approximately 0.94km from the site. The on-site scrub and brash pile offer limited sheltering and foraging habitat for hedgehog.

4.0 Assessment of Potential Impacts

4.1 This section assesses the potential impacts on ecological features associated with the proposed development.

4.2 Consideration is given to the 'mitigation hierarchy', i.e. that impacts are first avoided or where this is not practicable, mitigated and as a final resort, compensated (off-set).

Wildlife Sites

Statutory Designated Sites

4.3 There is one statutory designated site of international importance within 10km of the site. This is the Cannock Extension Canal (SAC), located 8.1km north-east of the site. Given the distance to the designated site and the small scale nature of the proposals, no direct or indirect impacts are anticipated on the designated site.

4.4 There are no statutory designated sites of national importance within 5km of the site and no statutory designated sites of regional/local importance within 2km of the site.

4.5 The site falls within a single Impact Risk Zone (IRZ).

4.6 The proposals entail the development of a new fridge plant building and new power supply over the bridge in the south-west corner of the site. The nature of the proposals does not match any of the potential risk criteria for the IRZ. Furthermore, given the distance and separation of the site, the proposals are not anticipated to impact upon statutory designated sites.

Non-statutory Designated Sites

4.7 There are 12 non-statutory locally designated wildlife sites within 2km of the site. The nearest site, Walsall Canal (SLINC), runs parallel to the southern site boundary. Although the Walsall Canal is located adjacent to the site, communication with the client has confirmed there are no changes occurring on site which would lead to an increased pollution risk to the canal. The on-site drainage system ensures all surface water run-off is directed through a full retention interceptor before being discharged off site.

4.8 Therefore, the risk of pollution to the canal as a result of the proposed works is noted, however this will not be above what is currently in operation and sanctioned.

4.9 The remaining non-statutory sites are separated from the site by highly built-up areas; therefore, no direct impacts are anticipated. However, there is the potential for harm to nearby non-statutory designated sites through pollution such as dust creation during construction.

Habitats and Flora

Notable Habitats

4.10 There are no notable habitats within or adjacent to the site. There is an area of open mosaic habitat on previously developed land located approximately 110m east of the site. However, given the distance to the site, no direct or indirect impacts are anticipated as a result of the proposals.

Other Habitats

4.11 The habitat on site with the relative greatest value is the scattered scrub and modified neutral grassland.

Notable or Invasive Flora

4.12 No protected or invasive plant species were recorded on or adjacent to the site, and therefore no potential impacts on protected plant species are anticipated.

Fauna

Amphibians

4.13 TEP were not commissioned to assess ponds outside of the site. Therefore, their suitability to support GCN have not been determined at this stage. However, the ponds are separated from the site by a main river and built-up areas which are significant barriers to amphibian dispersal. Therefore, GCN are assessed as likely absent on site. No impacts are anticipated, and this species is given no further consideration in this report.

4.14 The site is located within a built-up area and there is a limited extent of suitable habitat on site. However, records of common amphibians from the local area were returned. Overall, amphibians are considered likely absent on site but there is still a low risk of direct impacts to common amphibian species (injury and killing), in the unlikely event that they are present on site.

Badger

4.15 There was no evidence of badger on site however a detailed badger survey was not undertaken. A possible badger sett hole was recorded off site, along the northern bank of the canal, however this could not be confirmed at the time of survey due to limited access along the northern bank of the canal. This area is more than 30m from the application boundary and therefore is not a material consideration to planning,

4.16 There are records of badger within 2km of the site as well as limited extent of suitable on-site habitat for foraging and sett creation. Therefore, it is possible that badgers and their setts are present on site.

Bats

4.17 All buildings (B1-B5) were assessed as having negligible suitability to support roosting bats. The wall (B6) was assessed as having high suitability to support roosting bats.

4.18 Current proposals are unlikely to cause impacts to the wall along the southern boundary. However, if proposals change and the wall is proposed to be affected, there is the potential for killing and injury of roosting bats in the absence of mitigation.

4.19 The off-site railway embankment and the off-site canal corridor offer suitable foraging and commuting bats.

Birds

4.20 Removal of woody vegetation, such as scattered scrub, during the nesting period (March to August inclusive) has the potential to harm nesting birds and their young.

4.21 Additionally, removal of the scattered scrub has the potential to result in the loss of suitable nesting and foraging habitat for a variety of common bird species.

Hazel Dormouse

4.22 Due to the lack of records of hazel dormouse returned, the lack of suitable on-site habitat and lack of habitat connectivity to the wider landscape, hazel dormouse are assessed as likely absent on site. Therefore, no impacts are anticipated, and this species is given no further consideration in this report.

Invertebrates

4.23 The habitats on site are common and widespread and are unlikely to support a notable assemblage of invertebrates. Therefore, this species group is given no further consideration in this report.

Reptiles

4.24 The site is located within a built-up area and there is a limited extent of suitable habitat on site. However, records of reptiles from the local area were returned. Overall, reptiles are considered likely absent on site but there is still a low risk of direct impacts to common reptile species (injury and killing), in the unlikely event that they are present on site.

Otter and Water Vole

4.25 There is no suitable riparian habitat on site to support otter or water vole. However, the adjacent canal corridor and bankside habitats are suitable for both species. Although no evidence of otter or water vole were identified, the survey was undertaken outside of the optimum water vole survey period. It is not possible to likely confirm absence of otter or water vole based on absence of field signs. However, having spoken with the client, we now understand that the works are not to encroach within 30m of the canal corridor. Therefore, impacts on otter and water vole are not anticipated and therefore, neither species is considered further in this report.

Other Relevant Species

4.26 The on-site scrub provides suitable foraging and sheltering habitat for hedgehog. Furthermore, five records of hedgehog were returned within 2km of the site.

4.27 Given the presence of suitable habitat and records of hedgehog, there is the potential for this species to be on site and to be harmed during site clearance works.

5.0 Recommendations

5.1 This section describes potential appropriate and proportionate measures for impact avoidance, mitigation and enhancement required or recommended to address the potential ecological effects described in Section 4.0.

Standard Recommendations to Preserve Wildlife

5.2 Standard pollution prevention and dust control measures should be set out in a Construction Environmental Management Plan (CEMP) and implemented during site clearance and construction works. The CEMP will identify measures to ensure the potential for indirect impacts on retained habitats within and adjacent to the site.

5.3 It is recommended that an ecological Precautionary Working Method Statement (PWMS) for the protection of habitats and species be drafted to inform ecological input into the contractors CEMP.

5.4 If applicable, the PWMS will identify any further measures to ensure that impacts on nearby designated sites or priority habitats are reduced to a reasonable minimum such that the qualifying features of such designations are not negatively affected by the proposed development.

Wildlife Sites

5.5 The standard pollution prevention and dust control measures to be included within a CEMP would ensure potential impacts on the adjacent Walsall Canal (SLINC) and Anson Branch Canal (SLINC) are avoided as well as the nearby area of open mosaic habitat on previously developed land.

5.6 SLINC are non-statutory designations made by local authorities under the Town and Country Planning system and are a material consideration when planning applications are being determined.

Fauna

Amphibians

5.7 Common toad is a Section 41 Species of Principal Importance under the Natural Environmental and Rural Communities (NERC) Act 2006. Common toad, common frog and smooth newt are also afforded protection as Local Biodiversity Action Plan (LBAP) species.

5.8 To ensure no common amphibians are harmed during site clearance works, clearance of any scrub would need to be undertaken following precautionary working methods. Measures should be set out within a Precautionary Working Method Statement (PWMS).

Badger

5.9 Badgers are protected under the Protection of Badgers Act 1992 from killing, injury and certain acts of cruelty. Their setts are also protected from damage, obstruction, or destruction.

5.10 To ensure no badgers are harmed during site clearance and construction works, measures set out within a Precautionary Working Method Statement (PWMS) must be adhered to.

Bats

5.11 All British bats are European protected species, afforded full protection under the Habitats Regulations and the Wildlife & Countryside Act 1981 (as amended). Bats are protected from killing or injury, and from disturbance at the place of rest. Bat roosts are also protected from obstruction, damage, or destruction (whether or not a bat is in occupation at the time). Brown long-eared *Plecotus auritus*, noctule and soprano pipistrelle *Pipistrellus pygmaeus* bats are also Section 41 species of Principal Importance.

5.12 Further surveys of the wall (B6) will be required if it will be impacted directly or indirectly by proposals. Built structures with high suitability for roosting during the bat active period require three surveys to be undertaken between the months of May to September inclusive, with at least two of the surveys undertaken between May and August. Hibernation surveys comprising daytime close inspections should additionally be undertaken between December and February inclusive. If bats are recorded roosting, then a Natural England bat mitigation licence would likely be required to be obtained.

5.13 To avoid indirect impacts to foraging and commuting bats, new lighting is not being installed along the north-eastern or southern site boundaries. New lighting will be limited to the new building walkways and roadway areas.

5.14 Night-time working will be avoided if possible, including within the hour before dusk and an hour after dawn.

Birds

5.15 Native nesting birds, their nests and eggs are protected under the Wildlife & Countryside Act 1981 (as amended) from damage and destruction, from the time of nest construction to fledging of the young. Many are also SPI.

5.16 Removal of woody vegetation, including scrub, if required, should be undertaken outside of nesting bird season (typically taken to be March to August inclusive). If this is not possible, any woody vegetation removed during nesting bird season will require a nesting bird check to be undertaken by a suitably qualified ecologist immediately prior (no more than 24 hours) to removal, to ensure no impacts on nesting birds. Any active nests recorded will be left undisturbed with a suitable buffer until the nest is no longer active or chicks have fledged.

Reptiles

5.17 Common lizard *Zootoca vivipara*, slow-worm, grass snake *Natrix helvetica* and adder *Vipera berus* are protected under the Wildlife and Countryside Act 1981 (as amended) from killing and injury and are all SPI.

5.18 The precautionary working methods outlined for amphibians will also be suitable to avoid impacts on common reptiles.

Other Relevant Species

5.19 Hedgehog is a Section 41 Species of Principal Importance under the Natural Environmental and Rural Communities (NERC) Act 2006.

5.20 The precautionary working methods outlined for amphibians will also be required to avoid impacts on hedgehog.

6.0 Conclusions

6.1 The habitats on site are common and widespread and are typical of those found in an urban setting. The habitat of relative greatest ecological value is the on-site scattered scrub and modified neutral grassland The remainder of the site predominantly comprises hardstanding, buildings and modified neutral grassland, which are habitats of lower ecological value.

6.2 Potential impacts upon protected or notable species have been identified, and appropriate mitigation has been proposed, including production of a CEMP, sensitive timings of works, precautionary working measures, and a sensitive lighting strategy.

6.3 The potential requirement for nocturnal bat roost surveys on B6 have been recommended, which is dependent on any impacts from the proposed works.

6.4 With implementation of the recommended precautionary working methods, habitat restoration and compensatory features, no residual significant ecological effects are expected to impact upon statutory or non-statutory designated wildlife sites, notable habitats or protected or notable species.

Appendix A

Ecological Desk Study

Appendix B

Phase 1 Habitat Survey Target Notes

EMR Darlaston, Bentley Road S, Walsall – Phase 1 Habitat Survey Target Notes

A Phase 1 habitat survey was completed by TEP Senior Ecologist Ruth Woolston (FISC Level 3) and TEP Assistant Ecologist Megan Brocklebank on 4th January 2023. Habitats within the wider site boundary were subject to survey. The includes all habitats within the smaller application boundary. The site consists predominantly of hardstanding with various buildings and areas of scattered scrub. The Walsall Canal runs parallel to the southern site boundary. Habitats are displayed on the associated drawing G9756.007 Phase 1 Habitat Survey.

Target notes are provided below.

Target Notes

KEY - D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note TN1

An area of hardstanding to the east of the site which is currently used to store a very large number of fridges. The area is bounded by a metal fence, along which are scattered trees outside the site boundary.

Target Note TN2

A very large rubble pile consisting of stone and aggregate in the eastern section of the site. Following communication with the client, it is understood the rubble pile was created recently and is temporary. It is to be moved and graded in due course.

Target Note TN3

A large strip of scattered scrub, modified neutral grassland and bare ground bordering an area of hardstanding on two sides. The scattered scrub is comprised predominantly of bramble *Rubus fruticosus agg.* and butterfly-bush *Buddleja davidii.* The scrub is positioned atop an approximately 2m high earth and rubble bank. Some ground flora species and mosses present. Lots of rubbish and stones with a large brash pile in the western corner of the scrub.

Buddleja davidii	Butterfly-bush	A
Rubus fructosus agg	Bramble	A
Urtica dioica	Common nettle	F
Achillea millefolium	Yarrow	O
Anthriscus sylvestris	Cow parsley	O
Dipsacus fullonum	Teasel	O
Geranium dissectum	Cut-leaved crane's-bill	O
Heracleum sphondylium	Hogweed	O
Jacobaea vulgaris	Common ragwort	O
Plantago lanceolata	Ribwort plantain	O
Potentilla reptans	Creeping cinquefoil	O
Ranunculus repens	Creeping buttercup	O
Salix sp.	Willow species	O

Target Note TN4

A strip of modified neutral grassland with scattered butterfly-bush scrub along the northern site boundary.It is separated from the hardstanding by a metal fence and there is barbed wire and rubbish within the scrub. This area could not be accessed and therefore a detailed survey was not undertaken

Buddleja davidii	Butterfly-bush	A

Target Note TN5

The Walsall Canal runs parallel to the southern site boundary. It is approximately 5m wide and 1.5m deep with an earthy substrate. There is some aquatic vegetation present. The northern bank is comprised of scattered trees, bramble and bracken *Pteridium aquilinum*. scrub with reeds and other marginal vegetation recorded such as greater bulrush *Typha latifolia*. The canal is separated from the site boundary by a tall metallic wall, a footpath and a chain and link fence. Along the southern bank of the canal is a footpath with a strip of grassland, approximately 1m wide, and marginal vegetation.

There is lots of rubbish present.

Rubus fruticosus agg	Bramble	A
Typha latifolia	Greater bulrush	A
Betula pendula	Silver birch	O
Pteridium aquilinum.	Bracken	O
Salix sp.	Willow species	O

Hardstanding and Bare Ground

The majority of the site is hardstanding. There is an area of unvegetated bare ground in the centre of the site, where construction of the new fridge plant building is currently underway. There are also strips of vegetated bare ground, forming banks either side of a track, associated with the scattered buddleia and bramble scrub within TN3.

Drawings

Drawing G9756.007A Phase 1 Habitat Survey

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Appendix A

Ecological Desk Study

EMR Darlaston, Bentley Road South

Walsall

Ecological Desk Study

Prepared For: European Metal Recycling Ltd

Document Reference: 9756.001

March 2023

Version 2.0

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The content of this document has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Code of Professional Conduct and is compliant with British Standard BS42020:2013 Biodiversity Code of Practice for Planning and Development.

The conclusions and recommendations contained in this document are based upon information gathered by TEP and provided by third parties. Information provided by third parties and referred to herein has not been independently verified by TEP, unless otherwise expressly stated in the document.

Nothing in this report constitutes legal opinion. If legal opinion is required, the advice of a qualified legal professional should be secured.

Contents

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Figures

Tables

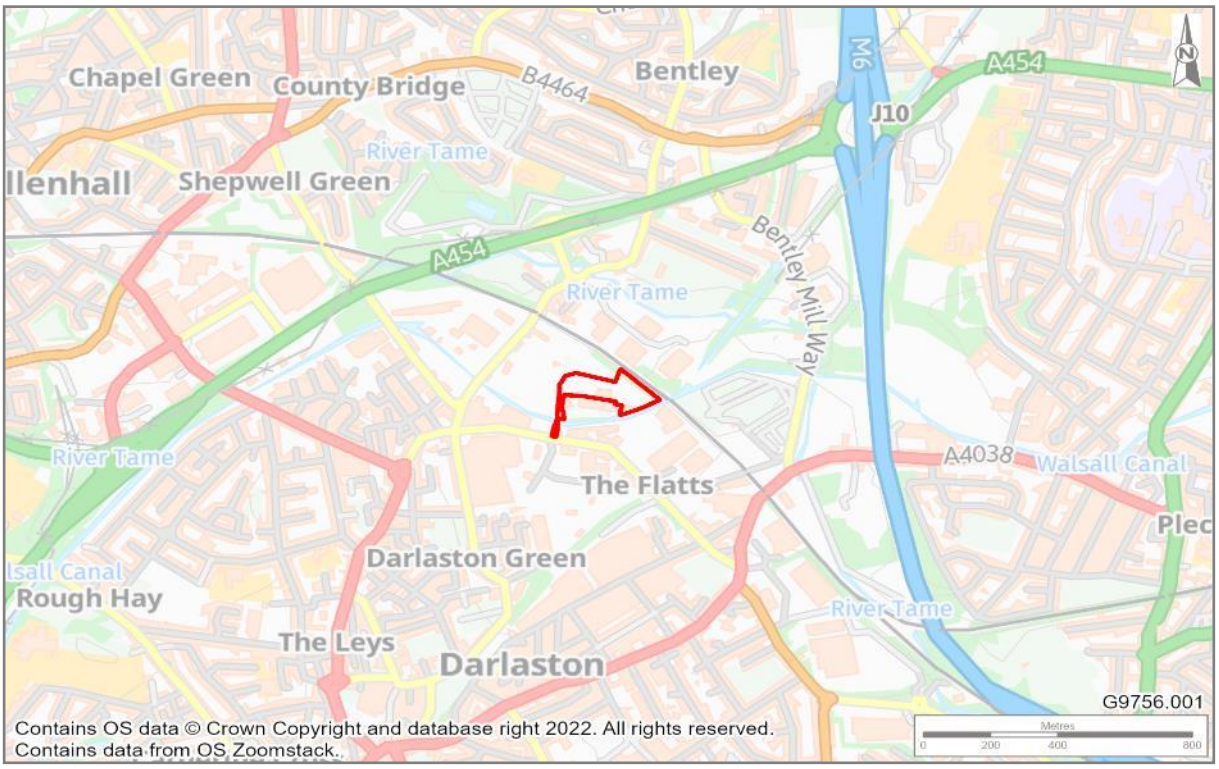
1.0 Introduction

1.1 The Environment Partnership (TEP) was commissioned by European Metal Recycling Ltd in November 2022, to complete an Ecological Desk Study to inform and support an Ecological Assessment of land known as EMR Darlaston, Bentley Road South, Walsall (hereafter referred to as 'the site').

Site Location

1.2 The location of the site is illustrated in Figure 1. The approximate central grid reference of the site is SO 98404 97725). The site is situated within the administrative area of the Walsall Metropolitan Borough Council.

Figure 1: Site Location



2.0 Methods

Scope and Data Sources

2.1 The ecological Zone of Influence (ZOI) is an area defined by the ecological assessment within which valued ecological features may be subject to significant biophysical changes as a consequence of the proposed development under assessment.

2.2 For the purposes of this assessment, the preliminary ZOIs within which ecological features were searched for as part of this desk study were varied according to the geo-spatial and/or legal significance of the feature.

2.3 Table 1 summarises the scope and the preliminary ZOIs applied for this desk study. The preliminary ZOIs were applied by extending search radii of the respective distances from the site boundary.

Table 1: Scope and preliminary ecological Zones of Influence (ZOI)

Feature	Scope	Key Source(s)	ZOI
Statutory wildlife sites:	Ramsar sites Proposed Ramsar sites Special Areas of Conservation (SAC) Possible SAC SAC with marine components Special Protection Areas (SPA) Potential SPA Marine Conservation Zones	Natural England (public sector information)	10km
	Sites of Special Scientific Interest (SSSI) National Parks National Nature Reserves (NNR) Marine Nature Reserves (MNR)	Natural England (public sector information)	5km
	Local Nature Reserves (LNR) Country Parks	Natural England (public sector information)	2km
Non-statutory wildlife sites:	Sites of Importance for Nature Conservation (SINC) Sites of Local Importance for Nature Conservation (SLINC) Green Link Network Green Wedges	EcoRecord (Birmingham and Black Country Local Records Centre) Walsall Metropolitan Borough Local Planning Policy[1] Walsall Local Plan Map [2]	2km
Notable habitats:	Ancient Woodland Habitats of principal importance Main rivers Habitat Network / Nature Recovery Network	Natural England (public sector information) Environment Agency (public sector information)	0.5km

[1] *https://go.walsall.gov.uk/planning-and-building-control/planning-policy/current-planning-policy*, accessed Dec 22

[2] *https://go.walsall.gov.uk/sites/default/files/2022-09/Walsall%20Proposals%20Map%20and%20Key.pdf*, accessed Dec 22

Feature	Scope	Key Source(s)	ZOI
Protected or notable species:	Pre-existing records for protected or notable species[3], non-native invasive species	EcoRecord (Birmingham and Black Country Local Records Centre)	2km
Species licences:	Protected species licences granted by Natural England	Natural England (public sector information)	2km
	Great crested newt survey pond records (2017 – 2019) held by Natural England	Natural England (public sector information)	2km
Policy and Related Guidance	Land allocations and relevant environment / biodiversity policy Local biodiversity priority habitats and species	Walsall Metropolitan Borough Planning Policy and Interactive Local Plan Map Birmingham and the Black Country LBAP[4]	As applicable to site

2.4 An absence of records does not indicate the absence of protected species from the search area.

[3] Notable and protected species records may include those listed under any of the following:
- Protected species listed under Schedule 2 (animals) or Schedule 5 (plants) under the Conservation of Habitats and Species Regulations 2017 (EPS);
- Protected bird species under Schedule 1 of the Wildlife and Countryside Act 1981, as amended (WCA1);
- Protected animal species under Schedule 5 of the Wildlife and Countryside Act 1981, as amended (WCA5);
- Protected plant species under Schedule 8 of the Wildlife and Countryside Act 1981, as amended (WCA8);
- Invasive non-native plant species under Schedule 9 of the Wildlife and Countryside Act 1981, as amended (WCA9);
- Invasive Alien Species (Enforcement and Permitting) Order 2019 (IAS);
- Protection of Badgers Act 1992 (PBA);
- Species of principal importance (SPI) listed by requirements under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006;
- Red and Amber listed Birds of Conservation Concern (BRd/BAm); and
- Local Biodiversity Action Plan Species (LBAP).

[4] *https://www.bbcwildlife.org.uk/sites/default/files/2018-10/bbcbapfinal2010.pdf* accessed Nov 22

3.0 Legislation and Policy

3.1 This section details legislation and planning policy which may have relevance to the site. Only legislation and policy of key relevance to biodiversity are included.

Relevant Legislation

International Conventions

3.2 The UK is a Contracting Party to numerous environmental conventions, the commonest form of international agreements to encourage a coordinated response to managing the environment. Key environmental conventions ratified in the UK include:

- The Convention on Wetlands of International Importance especially as Waterfowl Habitat ('Ramsar Convention'[5] or 'Wetlands Convention') - provides the only international mechanism for protecting sites of global importance;
- The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention[6]) - imposes legal obligations on contracting parties, protecting over 500 wild plant species and more than 1,000 wild animal species;
- The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention[7] or CMS) - provides strict protection for endangered migratory species. The UK has currently ratified four legally binding Agreements under the convention relating to bats (EUROBATS), African-Eurasian migratory birds (AEWA), small cetaceans in the Baltic, Irish and North Seas (ASCOBANS) and albatrosses and petrels (ACAP) in addition to five Memorandum of Understanding (MoU) and is non-party range state to a further Agreement and a further MoU;
- The Convention Concerning the Protection of the World Cultural and Natural Heritage (UNESCO World Heritage Convention) - seeks to protect both cultural and natural heritage;
- The Convention on Biological Diversity (Biodiversity Convention[8] or CBD) - provides a legal framework for biodiversity conservation. Within the UK, delivery of the CBD and the Strategic Plan for Biodiversity 2011-2020[9] is guided by the UK Post-2010 Biodiversity Framework[10].

[5] Convention on Wetlands of International Importance especially as Waterfowl Habitat, Ramsar, 2.2.1971 *https://www.ramsar.org/*

[6] Convention on the Conservation of European Wildlife and Natural Habitats. Bern, 1979 *https://www.coe.int/*

[7] Convention on the Conservation of Migratory Species of Wild Animals, Bonn, June 1979 *https://www.cms.int/*

[8] Convention on Biological Diversity, Rio de Janeiro, June 1992*https://www.cbd.int/*

[9] In October 2010, at the 10th Conference of the Parties to the CBD in Nagoya, Japan, the Parties adopted a new 'Strategic Plan for Biodiversity 2011–2020' along with its 20 'Aichi targets'. *https://www.cbd.int/sp/*

[10] The framework is overseen by the Environment Departments of the four UK governments working through the Four Countries' Biodiversity Group. It demonstrates how the UK, through each of the four countries, contributes to achieving the 'Aichi targets', and identifies the activities required to complement the individual country biodiversity strategies *https://jncc.gov.uk/our-work/uk-post-2010-biodiversity-framework/*

3.3 The legal obligations of the multiple Conventions to which the UK is a Contracting Party are enacted through a suite of national environmental legislation. The most relevant are described in the following paragraphs.

Conservation of Habitats and Species Regulations

3.4 The Conservation of Habitats and Species Regulations 2017[11] (2017 Regulations) transposed the land and marine aspects of the Habitats Directive (Council Directive 92/43/EEC) and certain elements of the Wild Birds Directive (Directive 2009/147/EC) (known as the Nature Directives) into domestic law.

3.5 The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019[12] (2019 Regulations) amends the 2017 Regulations to make them operable following the withdrawal of the United Kingdom from the European Union (EU). Most of the changes involve transferral of functions from European Commission to the appropriate authorities in England and Wales, also extending to Scotland and Northern Ireland and applies to Scotland and Northern Ireland (including the adjacent territorial sea to a limited degree), as regards reserved and excepted matters respectively. It also amends Section 27 of the Wildlife and Countryside Act 1981 to maintain existing protections and enforcement for species of wild birds.

3.6 All other processes or terms in the 2017 Regulations remain unchanged and existing guidance and obligations (of a competent authority) remain relevant.

National Site Network

3.7 Under the 2019 Regulations, Special Areas of Conservation (SAC) and Special Protection Areas (SPA) in the UK no longer form part of the EU's 'Natura 2000' ecological network, but instead (along with new SACs and SPAs designated under the 2019 Regulations) form the new National Site Network (NSN). Ramsar sites[5] do not form part of the NSN but remain protected in the same way as SACs and SPAs.

3.8 Proposals which may significantly affect a site belonging to the NSN and which are not connected with or necessary to the management of that site require (by Regulations 63 and 64 of the 2017 Regulations, as amended by Regulations 24 and 25 of the 2019 Regulations, respectively) competent authorities to undertake an Appropriate Assessment of the implications of the plan or project in view of that site's conservation objectives. This process is commonly referred to as a 'Habitats Regulations Assessment' (HRA). The assessment must consider the potential effects both of the plan/project itself and in combination with other plans or projects. Where an adverse effect on the site's integrity cannot be ruled out, and where there are no alternative solutions, the plan or project can only proceed if there are imperative reasons of over-riding public interest (IROPI) and if the necessary compensatory measures can be secured.

[11] Conservation of Habitats and Species Regulations 2017 (SI 2017/1012) *https://www.legislation.gov.uk/uksi/2017/1012/*
[12] Conservation of Habitats and Species Regulations 2019 (SI 2019/579) *https://www.legislation.gov.uk/uksi/2019/579/*

Protected Species

3.9 Certain animals and their breeding sites or resting places are protected under Regulation 43 of the 2017 Regulations, which makes it illegal to:

- Deliberately capture, injure or kill any such animal or to deliberately take or destroy the eggs of such an animal;
- Deliberately disturb such an animal; and
- Damage or destroy a breeding site or resting place of such an animal.

3.10 Disturbance is defined in the 2017 Regulations as an activity which is likely to impair a species' ability to survive, to breed or reproduce, to rear or nurture young or, in the case of animals hibernating or migratory species, to hibernate, migrate or which may significantly affect the local distribution or abundance; of the species.

3.11 A bat's resting place is known as a roost site. Because bats tend to be faithful to roost sites, but their biology is such that different roost site characteristics are preferred at different times of the year by different species for different functions, a bat roost is considered to be afforded protection even when it is not occupied.

3.12 Certain plant species are protected under Regulation 47 of the 2017 Regulations against deliberate picking, collecting, cutting, uprooting or destruction. It is also an offence to be in possession or control and to transport any live or dead plant or part of a plant of such a species which has been taken in the wild.

3.13 The 2017 Regulations (Regulation 55) enables a relevant licensing body to grant a licence for certain activities that may affect animal or plant species protected by the above provisions. The purpose must conform to one of those listed under Regulation 55(2). For most development related activities, the purpose normally relates to Regulation 55(2)(e) 'preserving public health or public safety or other imperative reasons of overriding public interest, including those of a social or economic nature and beneficial consequence of primary importance for the environment' – commonly known as the IROPI test. Regulation 55(9) introduces two further tests that the licensing body must consider:

- There is no satisfactory alternative; and
- The favourable conservation status of the species concerned will be maintained and/or enhanced.

3.14 Under Regulation 9(1) of the 2017 Regulations (as amended), competent authorities "must exercise their functions which are relevant to nature conservation… so as to secure compliance with the requirements of the Directives". Regulation 9(3) requires a competent authority, in exercising any of its function, to "have regard to the requirements of the Directives so far as they be affected by the exercise of those functions." Local planning authorities must therefore consider the above three 'tests' when determining if planning permission should be granted for developments likely to cause an offence under the Regulations.

Wildlife and Countryside Act 1981

3.15 The Wildlife and Countryside Act 1981 (as amended)[13] (WCA) is a major legal instrument for wildlife protection in the UK. In respect of habitats and flora, the WCA protects important habitats and/or species as Sites of Special Scientific Interest (SSSI). The designation of UK Ramsar sites[5] has usually been underpinned through prior notification of these areas as SSSI and accordingly they receive statutory protection under the WCA.

3.16 The obligations of the Bern Convention[6] (the protection of wild plant and animal species and their natural habitats) are transposed into law for England and Wales[14] by the WCA. The legal requirement for the protection of migratory species listed by the Bonn Convention[7] is also provided by the WCA.

3.17 All wild birds (as defined by the WCA and with exception to species listed in Schedule 2) are protected under the WCA, which makes it illegal to:

- Intentionally kill, injure or take any wild bird;
- Take, damage or destroy the nest (whilst being built or in use) of any wild bird; or
- Take or destroy the eggs of any wild bird.

3.18 Special penalties are available for offences related to birds listed in Schedule 1, for which there are additional offences of disturbing these birds at their nests, or their dependent young. The Secretary of State may also designate Areas of Special Protection (subject to exceptions) to provide further protection to birds. The WCA also prohibits certain methods of killing, injuring, or taking birds, restricts the sale and possession of captive bred birds, and sets standards for keeping birds in captivity.

3.19 Certain animal species (listed under Schedule 5) of the WCA receive protection which makes it illegal (with certain exceptions) to:

- Intentionally kill, injure or take any such animal;
- Intentionally or recklessly damage, destroy or obstruct any place used for shelter or protection by any such animal;
- Intentionally or recklessly disturb such animals while they occupy a place used for shelter or protection.

3.20 Plant species listed under Schedule 8 of the WCA are protected from unauthorised intentional picking, uprooting and destruction. It is an offence to plant or otherwise cause to grow in the wild any plant that is included in Schedule 9.

[13] Wildlife and Countryside Act 1981 c. 69 *https://www.legislation.gov.uk/ukpga/1981/69/*

[14] In Scotland by the Nature Conservation (Scotland) Act 2004 (as amended) and in Northern Ireland by Wildlife (Northern Ireland) Order 1985 and the Nature Conservation and Amenity Lands (Northern Ireland) Order 1985.

Countryside and Rights of Way Act 2000

3.21 Part III of the Countryside and Rights of Way Act 2000[15] (CROW) deals specifically with wildlife protection and nature conservation. It requires that Government Departments have regard for the conservation of biodiversity, in accordance with the CBD. In addition, it requires that The Secretary of State publishes a list of living organisms and habitat types that are considered to be of principal importance in conserving biodiversity.

3.22 CROW also amends the WCA, expanding the terms of offences to include reckless activity. It increases the legal protection of threatened species, by also making it an offence to "recklessly" obstruct access to a sheltering place used by an animal listed in Schedule 5 of the WCA or "recklessly" disturb an animal occupying such a structure or place.

Natural Environment and Rural Communities (NERC) Act 2006

3.23 Section 40 of the Natural Environment and Rural Communities Act 2006 (NERC)[16] places a duty to conserve biodiversity on public authorities in England. It requires local authorities and government departments to have regard to the purposes of conserving biodiversity in a manner that is consistent with the exercise of their normal functions such as policy and decision-making. 'Conserving biodiversity' may include enhancing, restoring or protecting a population or a habitat.

3.24 Section 41 requires the Secretary of State to publish and maintain lists of species and types of habitats which are regarded by Natural England to be of "principal importance" for the purposes of conserving biodiversity in England.

3.25 These habitats and species of principal importance (HPI and SPI) are drawn from earlier lists of United Kingdom Biodiversity Action Plan Priority Species and Habitats. The Section 41 (S41) lists of HPI and SPI are needed by decision-makers in local and regional authorities when carrying out their duties under Section 40 of the Act.

Environment Act 2021

3.26 The Environment Act 2021[17] was passed into law in November 2021. The Act applies only to England, although many of its measures are designed to be operable across the UK with the consent of devolved administrations. The Act requires statutory long-term (15+ years) targets to be set (and monitored, reported and reviewed) in the four priority areas of waste reduction, air quality, water resources and biodiversity as well as additional targets relating to species abundance and fine particulates by 2030.

[15] Countryside and Rights of Way Act 2000 c. 37 *https://www.legislation.gov.uk/ukpga/2000/37/*

[16] Natural Environment and Rural Communities Act 2006 c. 16 *https://www.legislation.gov.uk/ukpga/2006/16/*

[17] Environment Act 2001 c.30 *https://www.legislation.gov.uk/ukpga/2021/30/*

3.27 The Environment Act amends the Town and Country Planning Act 1990[18] in that planning permissions granted after the provisions come into force[19] are deemed to be subject to a condition prohibiting the start of development before a biodiversity gain plan has been submitted to and approved by the Local Planning Authority (LPA).

3.28 The biodiversity gain plan must demonstrate a net gain of at least 10% in the biodiversity value of the development site "as at the time the development is completed". Biodiversity net gain must be demonstrated by calculations using the biodiversity metric (currently version 3.1 published by Natural England)

3.29 The Environment Act introduces Local Nature Recovery Strategies (LNRS), a new system of spatial strategies for nature, covering the whole of England. LNRS are to be prepared and published by the 'responsible authority', namely the local authority, mayoral authority or National Park authority whose area is, or is within, the strategy area, the Broads Authority or Natural England. Section 40 of the NERC Act (duty to conserve biodiversity) makes provision about the duties of public authorities in relation to LNRS.

3.30 A 'responsible authority' is to be appointed to lead each LNRS area, which could include LPAs and which in mayoral combined authorities is highly likely to be the mayor. The responsible Authority must map the most valuable existing natural habitat in its area and develop a biodiversity strategy, including specific proposals for creating or improving habitats and priorities for nature recovery.

3.31 In addition to the above, the Environment Act Part 6 (Nature and biodiversity) will also:

- Strengthen the biodiversity duty through amendments to Section 40 of the NERC Act.
- Impose a duty upon Local Authorities to consult on street tree felling;
- Strengthen woodland protection enforcement measures;
- Introduce Conservation Covenants (agreements between a landowner and a responsible body);
- Protected Site Strategies (prepared and published by Natural England) to improve the conservation and management of a protected site (including SACs, SPAs listed before exit day, Sites of Community Importance (SCI)[20] listed before exit day and those sites proposed before exit day as SACs).
- Species Conservation Strategies (prepared and published by Natural England) to improve the conservation status of any species of flora or fauna, with which a LPA in England and any prescribed authority must have regard so far as relevant to its functions, including when discharging its duties under the 2017 Regulations (as amended);
- Prohibit larger UK businesses from using commodities associated with wide-scale deforestation (where 'forest' is defined as "*an area of land of more than 0.5 hectares*

[18] Town and Country Planning Act 1990 c. 8 *https://www.legislation.gov.uk/ukpga/1990/8/*

[19] The Biodiversity Gain provision of the Environment Act requires the Secretary of State to first publish detailed regulations (see s147(3) of the Act). These are anticipated in November 2023.

[20] SCIs are established under the European Union Habitats Directive (92/43/EEC) and are (under the Habitats Directive) the pre-requisite step for establishing SACs and SPAs.

with a tree canopy cover of at least 10% (excluding trees planted for the purpose of producing timber or other commodities)", which includes "*land that is wholly or partly submerged in water whether temporarily or permanently*");

- Require regulated businesses to establish a system of due diligence for each regulated commodity used in their supply chain, requires regulated businesses to report on their due diligence, introduces a due diligence enforcement system.

Hedgerow Regulations 1997

3.32 Important hedgerows are protected from removal by the Hedgerows Regulations[21] (as amended). Regulation 3 defines the hedgerows to which the Regulations apply. Regulation 4 sets out the criteria for identifying "important hedgerows" including ecological, landscape or historical/cultural reasons. Under the Hedgerow Regulations it is against the law to remove or destroy certain hedgerows without permission from the local planning authority. Works to "important hedgerows" are exempt under the Hedgerow Regulations if planning consent is granted which allows their removal.

3.33 The identification of important hedgerows also provides an additional means to value hedgerows aside from their botanical value (e.g., species richness) as the assessment of importance also includes characteristics relating to maturity and structure (e.g. associated features, connectivity, integrity) which will affect the functional value of the hedgerow.

Protection of Badgers Act 1992

3.34 Badgers and their setts receive statutory protection under the Protection of Badgers Act 1992 (PBA)[22]. This makes it an offence to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so; or to intentionally or recklessly interfere with a sett.

3.35 Sett interference includes disturbing badgers whilst they are occupying a sett, as well as damaging or destroying a sett or obstructing access to it. A badger sett is defined in the legislation as "any structure or place, which displays signs indicating current use by a badger."

Relevant Policy

National Planning Policy Framework

3.36 The National Planning Policy Framework (NPPF21)[23] sets out the Government's planning policies for England and how these are expected to be applied at a local level in development plans and how developers should address them. The Framework places great emphasis on plans and developments contributing to sustainable development.

[21] The Hedgerow Regulations 1997 (SI 1997/1167) *https://www.legislation.gov.uk/uksi/1997/1160/*

[22] Protection of Badgers Act 1992 c. 51 *https://www.legislation.gov.uk/ukpga/1992/51/*

[23] National Planning Policy Framework (2021) Ministry of Housing, Communities and Local Government *www.gov.uk/government/publications*

3.37 Paragraph 174 states: Planning policies and decisions should contribute to and enhance the natural and local environment by:

- protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan);
- recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;
- maintaining the character of the undeveloped coast, while improving public access to it where appropriate;
- minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures;
- preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and
- remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate.

3.38 Paragraph 180 states: When determining planning applications, local planning authorities should apply 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;
- development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact 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 resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless are wholly exceptional reasons and a suitable compensation strategy exists; and;
- development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate."

3.39 Paragraph 181 stipulates that the following should be given the same protection as habitats sites[24]:

- 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 habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.

3.40 Paragraph 182 confirms: The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.

Government Circular 06/2005

3.41 Government Circular 06/2005[25] remains pertinent in national policy even though PPS9, which it originally supported, was revoked by the NPPF.

3.42 The Circular outlines the legislative provisions relating to biodiversity and geological conservation which affect planning and development. The Circular provides guidance on the protection of designated international and national nature conservation sites, non-designated sites, the conservation of species, and advice on the related issues and statutory powers.

3.43 Paragraphs 123 and 124 of Part IV of Circular 06/2005 state that "the likelihood of disturbing a badger sett, or adversely affecting badgers' foraging territory, or links between them, or significantly increasing the likelihood of road or rail casualties amongst badger populations, are capable of being material considerations in planning decisions. Although consideration of the case for granting a licence is separate from the process of applying for planning permission, a planning authority should advise anyone submitting an application for development in an area where there are known to be badger setts that they must comply with the provisions of the Act".

Local Planning Policy

The Black Country Core Strategy (adopted February 2011)

3.44 The Black Country Core Strategy[26] was adopted in February 2011 by Walsall Metropolitan Borough Council and sets out local policies and site allocations for

[24] Defined by NPPF21 as "Any site which would be included within the definition at regulation 8 of the Conservation of Habitats and Species Regulations 2017 for the purpose of those regulations, including candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation, Special Protection Areas and any relevant Marine Sites".

[25] Office of the Deputy Prime Minister (2005) 'Government Circular: Geological and Biological Conservation – Statutory obligations and their implications within the planning system' ODPM circular 06/2005, DEFRA circular 01/2005 *https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7692/147570.pdf*

[26] *https://go.walsall.gov.uk/sites/default/files/2022-09/Black%20Country%20Core%20Strategy.pdf*, accessed Dec 2022

individual authority areas for the period 2006-2026. The following policies relate to biodiversity and nature conservation:

- Policy CSP3 – Environmental Infrastructure;
- Policy ENV1 – Nature conservation;
- Policy ENV4 – Canals; and
- Policy ENV6 – Open Space, Sport and Recreation.

3.45 The Black Country Core Strategy is now under review and was due to be replaced by the Black Country Plan 2039. However, in October 2022, it was decided that separate Local Plans for the four Black Country Councils (Dudley, Sandwell, Walsall and Wolverhampton) will provide the framework for the long-term planning of the Black Country, rather than one overarching plan.

Walsall Unitary Development Plan (adopted March 2005)

3.46 The Walsall UDP[27] was adopted in 2005 however some policies have now been replaced by the Black Country Core Strategy since its adoption in 2011. The following policies relate to biodiversity and nature conservation and are still applicable:

- Policy ENV16 – Black Country Urban Forest;
- Policy ENV18 – Existing Woodlands, Trees and Hedgerows;
- Policy ENV23 – Nature Conservation and New Development; and
- Policy ENV24 – Wildlife Corridors.

Conserving Walsall's Natural Environment Supplementary Planning Document (SPD)

3.47 The Conserving Walsall's Natural Environment SPD[28] provides guidance on complying with the Black Country Core Strategy and Unitary Development Plan policies for the protection of the natural environment to ensure it is properly considered in the development management process. It was adopted by Walsall Council on 24th July 2013.

Walsall Proposals Map

3.48 The map changes to the UDP resulting from the adoption of the Black Country Core Strategy have been incorporated into an online version of the Proposals Map which can be found here: *https://go.walsall.gov.uk/sites/default/files/2022-09/Walsall%20Proposals%20Map%20and%20Key.pdf*

3.49 The site is not allocated for biodiversity or nature conservation purposes. The site falls within the Core Employment Area of the Walsall Unitary Development Plan 2005 (Policy JP5) and the Walsall Canal that runs directly adjacent to the site is listed under Policy ENV4 of the Black Country Core Strategy.

[27] *https://go.walsall.gov.uk/sites/default/files/2022-09/Annotated%202019%20UDP.pdf*, accessed Dec 2022

[28] *Microsoft Word - Natural Environment SPD Revision - FINAL WEB VERSION - Aug2013 (walsall.gov.uk)*, accessed Dec 2022

Biodiversity Initiatives and Strategies

Local Biodiversity Action Plans (LBAP)

3.50 The LBAP for Birmingham and the Black Country[29] covers Birmingham, Dudley, Sandwell, Walsall and Wolverhampton. Consequently, as a joint BAP, not all local priority habitats or species may be of direct relevance to each local authority.

3.51 The LBAP priority habitat action plans include:

- Arable fields;
- Buildings and the built environment;
- Deadwood;
- Gardens, allotments, parks and open space;
- Hedgerows;
- Lowland neutral and base-rich grassland;
- Lowland heathland;
- Urban 'wasteland'; and
- Arable field margins and beetle banks;
- Canals;
- Eutrophic urban pools;
- Garden ponds;
- Lowland dry acid grassland;
- Lowland wet grassland;
- Rivers and streams;
- Woodland.

3.52 The LBAP priority species action plans include:

- Amphibians (frog, toad, smooth newt);
- Black redstart;
- Dingy Skipper;
- Green hairstreak;
- Little Ringed Plover;
- Snipe;
- Vaccinium species;
- White-clawed crayfish.
- Badgers;
- Bluebell;
- Floating Water Plantain;
- Grey partridge;
- Orchids;
- Song thrush;
- Wall brown;
- Bats;
- Brown Hare;
- Great Crested Newt;
- Kestrel;
- Skylark;
- Tree Sparrow;
- Water Vole; and

Nature Recovery Network

3.53 Habitat Network maps are produced by Natural England in response to the Lawton report (Making Space for Nature, A review of England's Wildlife Sites and Ecological Network[30]).

3.54 These maps provide a useful baseline for the development of a Nature Recovery Network (NRN) as required within the 25 Year Environment Plan and for LRNS proposed within the Environment Act.

3.55 The Habitat Network maps in conjunction with other datasets and local knowledge can identify opportunities for biodiversity action. The Habitat Network comprises (a) Existing Habitats (HPI and associated habitats) and (b) Network Enhancement and Expansion Zones. These latter zones include:

[29] *BAP Summary: Birmingham and the Black Country - Contents (everysite.co.uk)* accessed Nov 2022

[30] Lawton, J.H., Brotherton, P.N.M., Brown, V.K., Elphick, C., Fitter, A.H., Forshaw, J., Haddow, R.W., Hilborne, S., Leafe, R.N., Mace, G.M., Southgate, M.P., Sutherland, W.A., Tew, T.E., Varley, J., & Wynne, G.R. (2010) *Making Space for Nature*: a review of England's wildlife sites and ecological network. Report to Defra

- Network Enhancement Zone 1: Land connecting existing habitats which is likely to be suitable for habitat creation. Action in this zone to expand and join up existing habitat patches and improve the connections between them can be targeted here.
- Network Enhancement Zone 2: Land connecting existing habitats which is less likely to be suitable for habitat creation. Action in this zone that improves the biodiversity value through land management changes and/or green infrastructure provision can be targeted here.
- Fragmentation Action Zone: Land within Enhancement Zone 1 that connects existing habitats patches which are currently highly fragmented and where fragmentation could be reduced by habitat creation.
- Network Expansion Zone: Land beyond the Network Enhancement Zones with potential for expanding, linking/joining networks across the landscape.

4.0 Wildlife Sites

Statutory Sites

4.1 There is one internationally significant statutory wildlife designation within 10km of the site (Figure 2) which are detailed in Table 2 below. Links to citations are also provided.

4.2 There are no nationally significant statutory sites within 5km of the site (Figure 3).

Table 2: Statutory wildlife sites

Site Name	Designation & Citation Link	Location Relevant to Site	Reason for Site Designation
Statutory wildlife sites of international significance within 10km of the site (Figure 2)			
Cannock Extension Canal	SAC – *JNCC Data*	8.1km north-east	■ Floating water-plantain *Luronium natans*

4.3 The site lies within one SSSI Impact Risk Zone (IRZ) (Figure 4). IRZ's are determined by Natural England to identify likely impacts upon SSSIs, SACs, SPAs or Ramsar sites that may result from planned development. However, it is not possible to determine from MAGIC which designated site the IRZ is associated with.

4.4 The impact risk criteria for the IRZ are summarised in Table 3. The nature of the proposals for a new fridge and storage development does not match any of the potential risk criteria.

Table 3: SSSI Impact Risk Zones crossed by the site

Proposal	Plan / project which may impact SSSI
All Planning Applications	Assessed as unlikely to affect the SSSI.
Infrastructure	Airports, helipads and other aviation proposals.
Wind & Solar Energy	Assessed as unlikely to affect the SSSI.
Minerals, Oil & Gas	Assessed as unlikely to affect the SSSI.
Rural Non Residential	Assessed as unlikely to affect the SSSI.
Residential	Assessed as unlikely to affect the SSSI.
Rural Residential	Assessed as unlikely to affect the SSSI.
Air Pollution	Livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 4000m².
Combustion	General combustion processes >50MW energy input. Incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion.
Waste	Assessed as unlikely to affect the SSSI.
Composting	Assessed as unlikely to affect the SSSI.
Discharges	Assessed as unlikely to affect the SSSI.
Water Supply	Assessed as unlikely to affect the SSSI.
Notes	Assessed as unlikely to affect the SSSI.

4.5 There are no statutory wildlife sites of regional / local significance within 2km of the site (Figure 5).

Figure 2: Statutory wildlife sites of international significance within 10km of the site

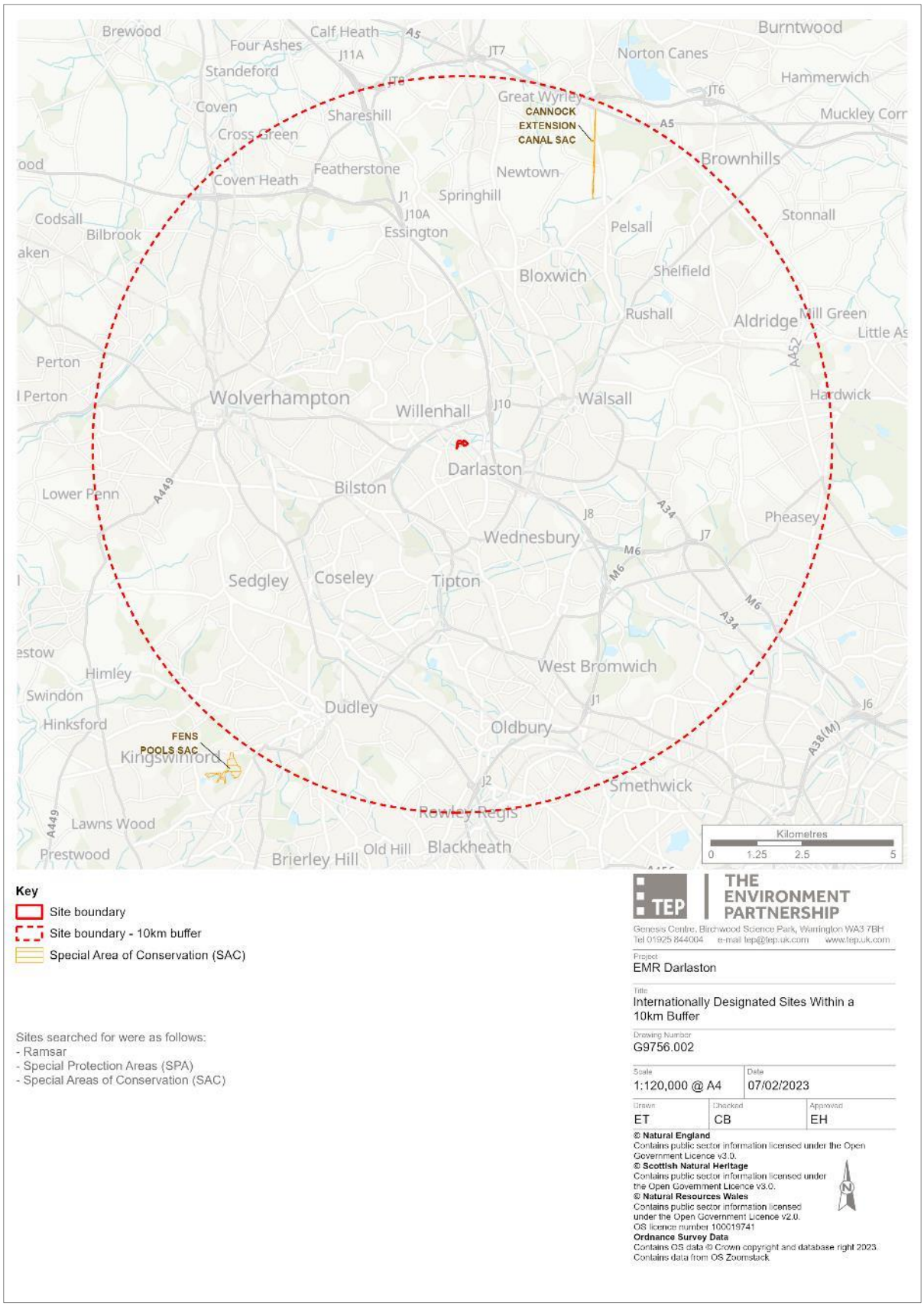


Figure 3: Statutory wildlife sites of national significance within 5km of the site

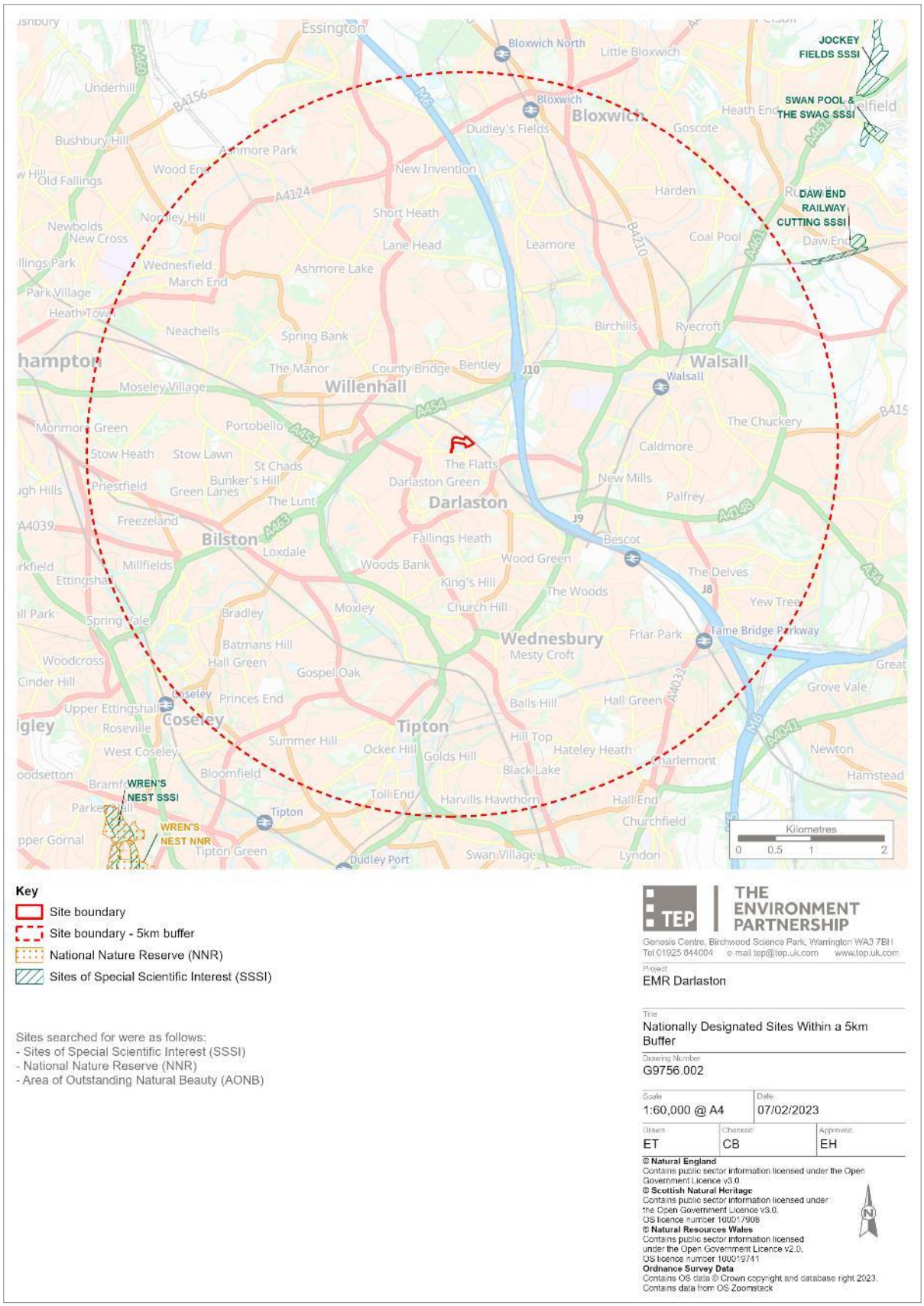


Figure 4: SSSI Impact Risk Zones crossed by the site

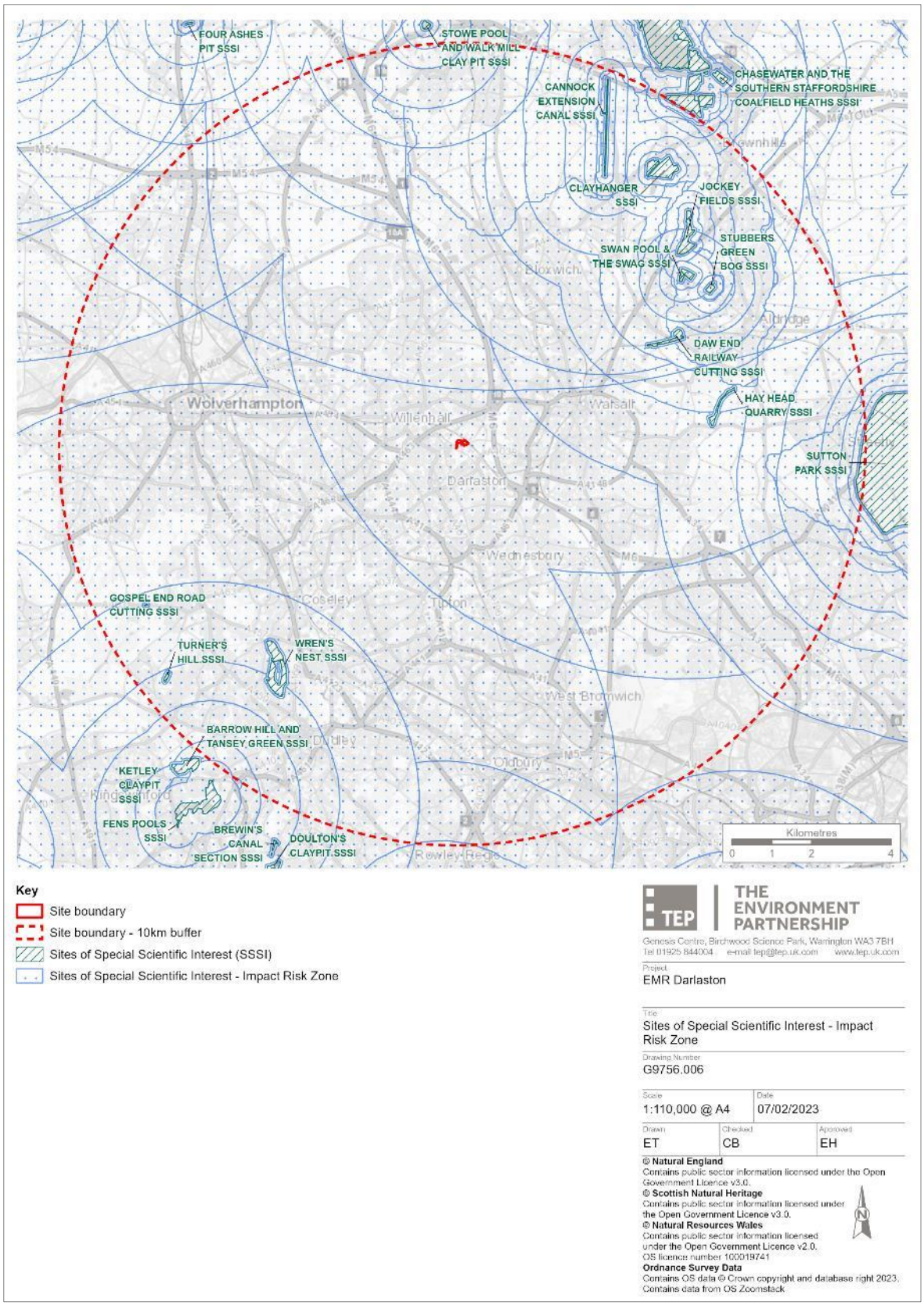
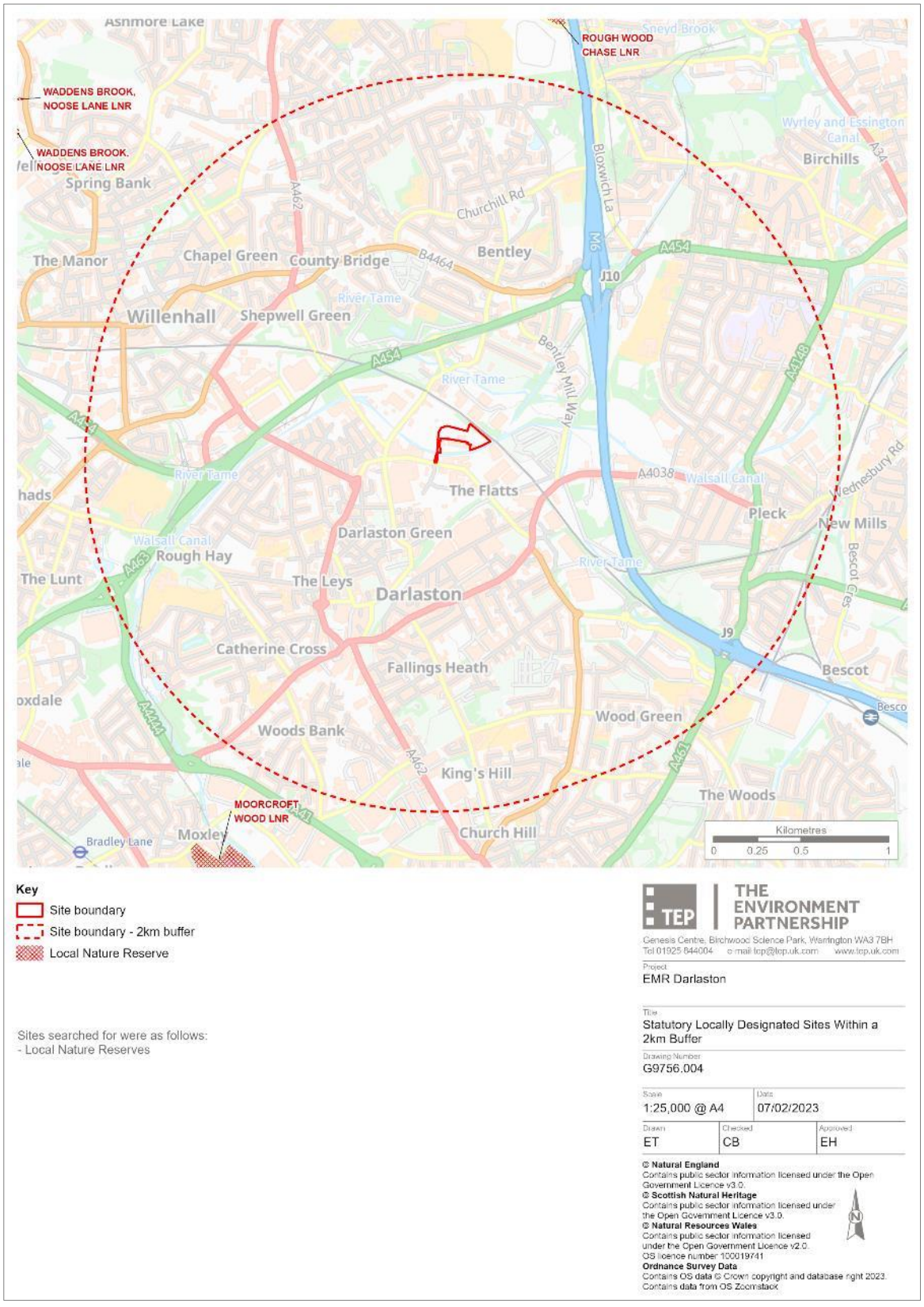


Figure 5: Statutory wildlife sites of regional/local significance within 2km of the site



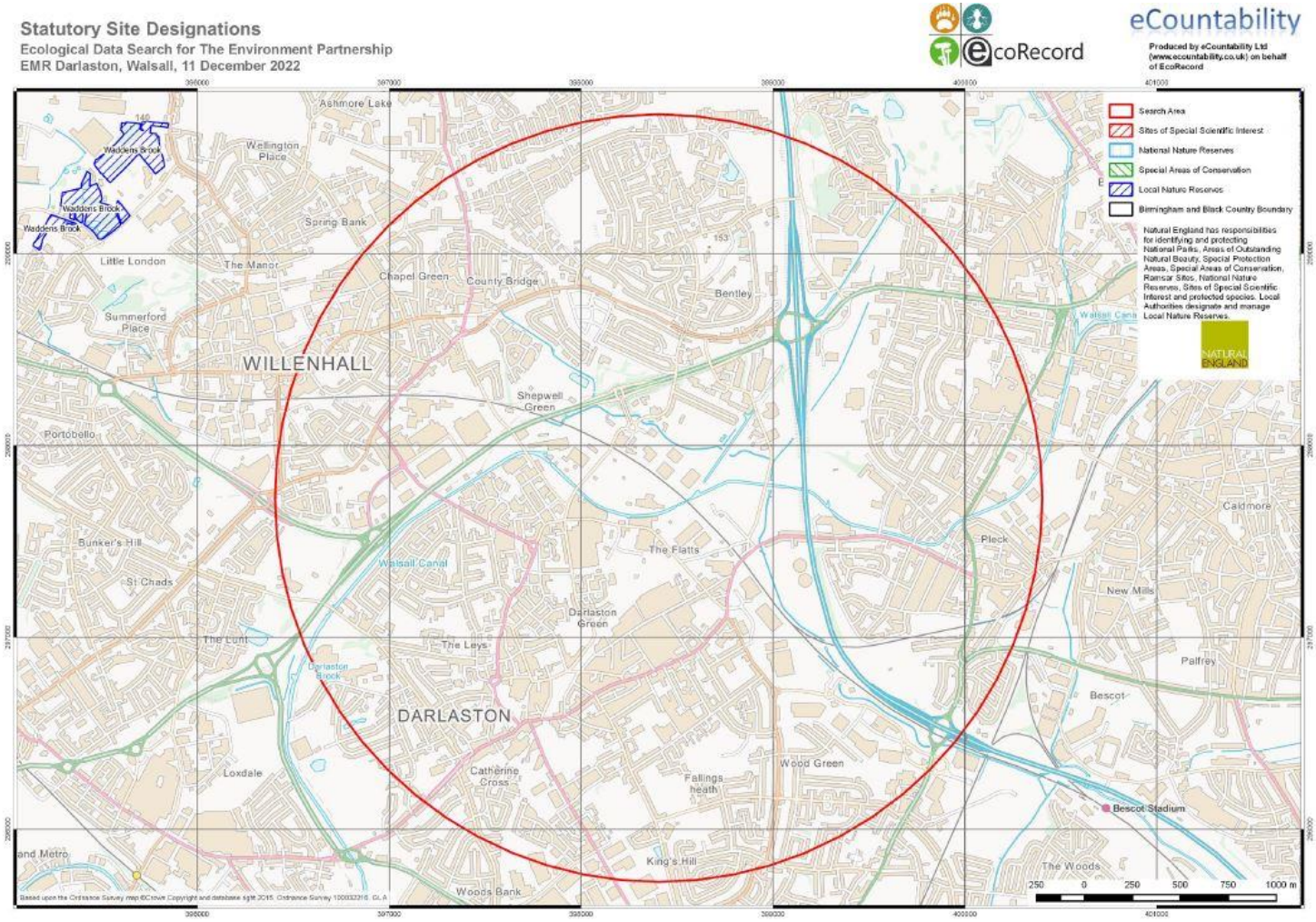
Non-Statutory Wildlife Sites

4.6 There are 12 non-statutory locally designated wildlife sites, identified by the Local Sites Partnership, within 2km of the site (Figure 6). These are summarised in Table 4 below.

Table 4: Non-statutory local wildlife sites within 2km of the site

Site Name	Designation	Location Relevant to Site	Key Interest Feature(s)
Walsall Canal	SLINC	Adjacent to the site on the southern boundary	Canal, reedswamp.
Anson Branch Canal	SLINC	0.1km north-east	Canal, reedswamp, tall herb, scrub, neutral grassland.
Anson Road	SLINC	0.2km north	Marshy grassland, neutral grassland, tall herb, scrub.
Bentley Mill Lane	SLINC	0.3km east	Neutral grassland, scrub, tall ruderal, ponds.
Wolverhampton Road	SLINC	0.9km north-east	Watercourse, neutral grassland.
James Bridge Gasworks	SLINC	1.1km south-east	Ephemeral grassland, neutral grassland, tall herb.
Moorside Gardens	SLINC	1.2km north-east	Reedswamp, scrub, tall herb, hedgerow.
Axletree Way, Tame Valley	SLINC	1.6km south-east	River, neutral grassland, plantation woodland, scrub, tall ruderal.
Pouk Hill Quarry	SINC	1.7km north-east	Scrub, grassland, pond and plantation woodland.
Poplar Avenue Pond	SINC	1.8km north	Standing open water.
Land east of Poplar Avenue	SLINC	1.8km north	Woodland, marshy grassland, lowland meadow, lowland dry acid grassland.
Heathfield Lane West Pond	SLINC	2km south-west	Pond, reedswamp.

Figure 6: Non-statutory wildlife sites within 2km of the site (map provided by EcoRecord)



5.0 Notable Habitats

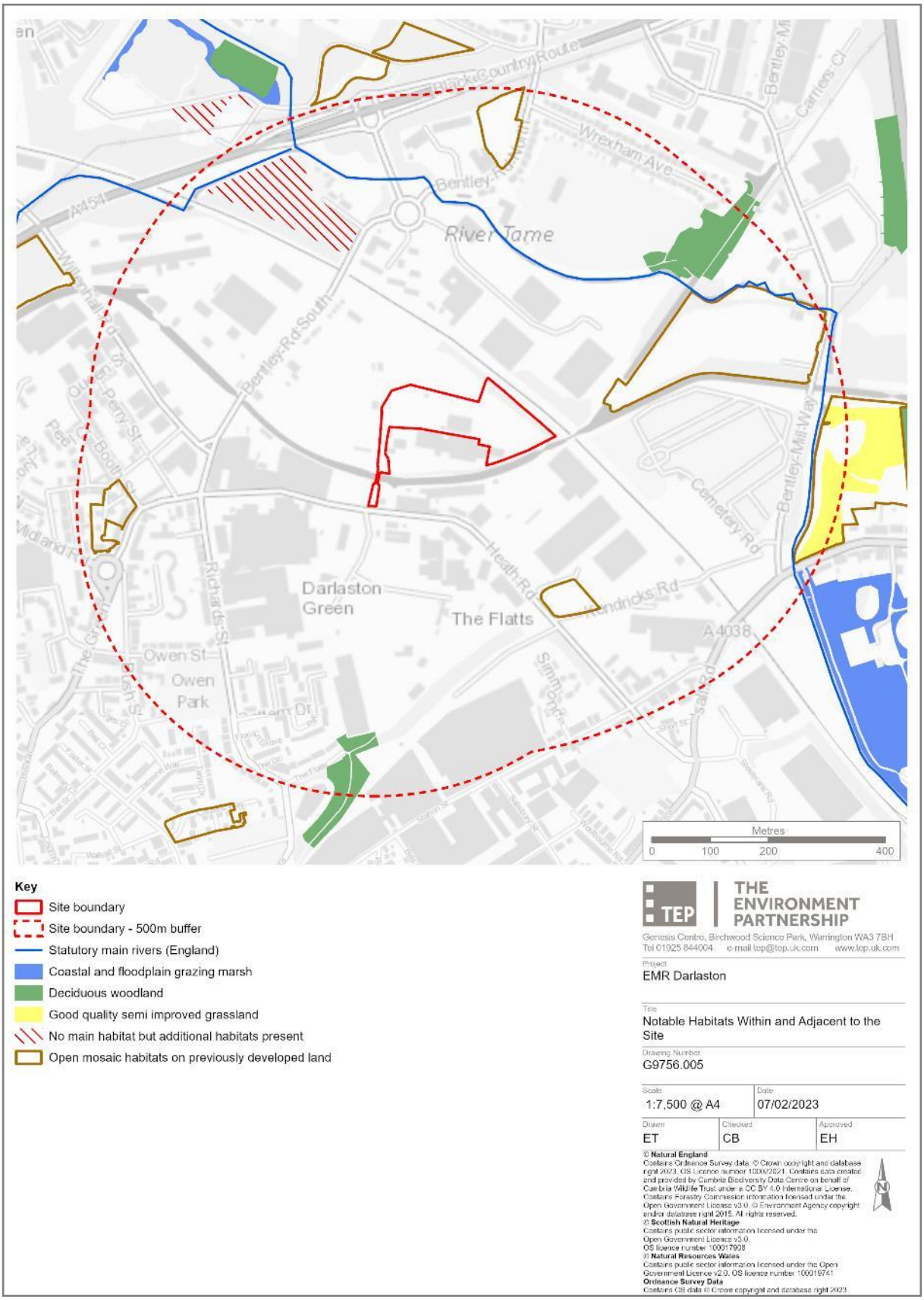
Habitats of Principal Importance (HPI)

5.1 There are no notable habitat types identified on Natural England's priority habitat inventories within the site. Areas of Open mosaic habitats on previously developed land are present in areas around the site, the closest lies approximately 100m to the east, however MAGIC states the reliability of this habitat designation is low. Areas of deciduous woodland (HPI) are present within 500m of the site, with the closest area being 300m north-west. Areas of Coastal and Floodplain Grazing Marsh (HPI) are also present within 500m of the site boundary, one area 300m north-west and one 450m south-east (Figure 7). The statutory main river, the River Tame, runs approximately 200m north of the site boundary.

Nature Recovery Network

5.2 The site is not overlapped by any elements of the National Habitat Network, or the Network Expansion Zone. An area of the Network Enhancement Zone 2 is present 550m south of the site.

Figure 7: Notable habitats within and adjacent to the site



6.0 Protected and Notable Species

Protected Species Licences

6.1 A review of Natural England's open datasets for great crested newt (GCN) *Triturus cristatus* class licence returns and pond survey data between 2017 and 2019 returned no records of GCN within 2km of the site.

6.2 A review of Natural England's open dataset for granted protected species licences retuned two licences within 2km of the site. They are:

- Application EPSM2011-3893 granted the destruction of a breeding site and resting place of common pipistrelle *Pipistrellus pipistrellus* between 4th September 2013 and 31st July 2016. The record is located approximately 1.6km south-west of the site.
- Application EPSM2009-1169 granted the destruction of a GCN resting place between 14th April 2010 and 31st October 2011. The record is located approximately 480m south-west of the site.

Pre-existing Species Records

6.3 654 protected species records were returned from EcoRecord for within 2km of the site. 106 invasive species records were returned from Eco Record for within 2km of the site. Records from the past 20 years are summarised in Table 5 below.

Table 5: Summary of pre-existing species records returned by EcoRecord.

Name of Species	Relevant Legislation / Status	Number of records (if provided)	Nearest record
Amphibians			
Common frog	LBAP	9	0.70km
Common toad	SPI, LBAP	6	0.60km
Great Crested Newt	EPS, WCA5, SPI, LBAP	13	0.70km
Newt species	LBAP	2	0.58km
Smooth newt	LBAP	18	0.70km
Birds			
Black-headed Gull	BAm	16	0.55km
Black Redstart	WCA1, BRd, LBAP	1	0.24km
Bullfinch	SPI, BAm	10	0.47km
Common Redpoll	BAm	2	1.61km
Dunnock	SPI, BAm	28	0.51km
Fieldfare	WCA1, BRd	1	0.51km
Grey Partridge	SPI, BRd, LBAP	3	0.58km
Grey Wagtail	WCA1 (pt2), BRd	3	0.51km
Herring Gull	BRd	3	0.18km
House Martin	BRd	17	0.55km
House Sparrow	SPI, BRd	60	0.47km
Kestrel	BAm, LBAP	12	0.13km
Kingfisher	WCA1, BAm	3	0.65km
Lapwing	SPI, BRd	1	1.08km

Name of Species	Relevant Legislation / Status	Number of records (if provided)	Nearest record
Lesser Black-backed Gull	BAm	3	0.94km
Linnet	BRd	1	0.13km
Little Ringed Plover	WCA1, LBAP	1	1.08km
Mallard	BAm	7	0.48km
Meadow Pipit	BAm	5	0.53km
Mistle Thrush	BRd	8	0.13km
Mute Swan	BAm	1	1.80km
Peregrine	WCA1	2	0.76km
Redwing	WCA1, BAm	1	1.84km
Reed Bunting	SPI, BAm	5	0.44km
Skylark	SPI, BRd, LBAP	8	0.65km
Snipe	BAm, LBAP	1	1.61km
Song thrush	SPI, BAm, LBAP	13	0.55km
Starling	SPI, BRd	39	0.45km
Stock Dove	BAm	1	1.32km
Swift	BRd	24	0.78km
Willow Tit	BRd	1	1.76km
Willow Warbler	BAm	12	0.34km
Yellow Wagtail	SPI, BRd	4	0.39km
Terrestrial Mammals			
Bat sp.	EPS, WCA5, LBAP	5	0.91km
Pipistrellus sp.	EPS, WCA5, LBAP	10	1.00km
Common Pipistrelle	EPS, WCA5, LBAP	84	0.72km
Soprano Pipistrelle	EPS, WCA5, SPI	6	0.70km
Nathusius' Pipistrelle	EPS, WCA5, LBAP	2	0.76km
Noctule Bat	EPS, WCA5, SPI, LBAP	38	0.34km
Brown Long Eared Bat	EPS, WCA5, SPI, LBAP	3	0.72km
Eurasian badger	PBA, LBAP	18	Within 2km of the site
Otter	EPS, WCA5, SPI	1	0.85km
Water Vole	WCA5, SPI, LBAP	20	0.33km
Hedgehog	SPI	5	0.94km
Reptiles			
Slow-worm	WCA5, SPI	1	1.77km
Flora			
Bee Orchid	LBAP	1	1.79km
Bluebell	WCA8, LBAP	2	1.77km
Common Spotted Orchid	LBAP	2	1.74km
Canadian Waterweed	WCA9	3	0.13km
Cotoneaster sp.	WCA9	5	0.72km
Giant Hogweed	WCA9, IAS	3	0.58km
Himalayan Balsam	WCA9, IAS	21	0.58km
Japanese Knotweed	WCA9	57	0.34km
Japanese Rose	WCA9	4	0.16km
Montbretia	WCA9	7	0.49km
Nuttall's Waterweed	WCA9, IAS	6	1.02km
Virginia Creeper	WCA9	1	1.07km

Name of Species	Relevant Legislation / Status	Number of records (if provided)	Nearest record
Water Fern	WCA9	2	1.34km
Invertebrates			
Mountain Ringlet	SPI	1	1.61km
Small Heath	SPI	11	0.40km
Wall	SPI, LBAP	3	0.69km
Autumnal Rustic	SPI	1	1.90km
Blood-vein	SPI	1	1.90km
Cinnabar	SPI	8	0.51km
Dot Moth	SPI	6	1.90km
Dusky Brocade	SPI	1	1.90km
Latticed Heath	SPI	6	0.34km
Mottled Rustic	SPI	8	1.90km
Mouse Moth	SPI	3	1.90km
Powdered Quaker	SPI	1	1.90km
Rosy Rustic	SPI	1	1.90km
Rustic	SPI	4	1.90km
Sallow	SPI	1	1.90km
Shaded Broad-bar	SPI	3	1.29km
Small Phoenix	SPI	10	0.39km
Spinach	SPI	1	1.90km

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Appendix B

Phase 1 Habitat Survey Target Notes

EMR Darlaston, Bentley Road S, Walsall – Phase 1 Habitat Survey Target Notes

A Phase 1 habitat survey was completed by TEP Senior Ecologist Ruth Woolston (FISC Level 3) and TEP Assistant Ecologist Megan Brocklebank on 4th January 2023. Habitats within the wider site boundary were subject to survey. The includes all habitats within the smaller application boundary. The site consists predominantly of hardstanding with various buildings and areas of scattered scrub. The Walsall Canal runs parallel to the southern site boundary. Habitats are displayed on the associated drawing G9756.007 Phase 1 Habitat Survey.

Target notes are provided below.

Target Notes

KEY - D = Dominant, A = Abundant, F = Frequent, O = Occasional, R = Rare

Target Note TN1

An area of hardstanding to the east of the site which is currently used to store a very large number of fridges. The area is bounded by a metal fence, along which are scattered trees outside the site boundary.

Target Note TN2

A very large rubble pile consisting of stone and aggregate in the eastern section of the site. Following communication with the client, it is understood the rubble pile was created recently and is temporary. It is to be moved and graded in due course.

Target Note TN3

A large strip of scattered scrub, modified neutral grassland and bare ground bordering an area of hardstanding on two sides. The scattered scrub is comprised predominantly of bramble *Rubus fruticosus agg.* and butterfly-bush *Buddleja davidii.* The scrub is positioned atop an approximately 2m high earth and rubble bank. Some ground flora species and mosses present. Lots of rubbish and stones with a large brash pile in the western corner of the scrub.

Buddleja davidii	Butterfly-bush	A
Rubus fructosus agg	Bramble	A
Urtica dioica	Common nettle	F
Achillea millefolium	Yarrow	O
Anthriscus sylvestris	Cow parsley	O
Dipsacus fullonum	Teasel	O
Geranium dissectum	Cut-leaved crane's-bill	O
Heracleum sphondylium	Hogweed	O
Jacobaea vulgaris	Common ragwort	O
Plantago lanceolata	Ribwort plantain	O
Potentilla reptans	Creeping cinquefoil	O
Ranunculus repens	Creeping buttercup	O
Salix sp.	Willow species	O

Target Note TN4

A strip of modified neutral grassland with scattered butterfly-bush scrub along the northern site boundary.It is separated from the hardstanding by a metal fence and there is barbed wire and rubbish within the scrub. This area could not be accessed and therefore a detailed survey was not undertaken

Buddleja davidii	Butterfly-bush	A

Target Note TN5

The Walsall Canal runs parallel to the southern site boundary. It is approximately 5m wide and 1.5m deep with an earthy substrate. There is some aquatic vegetation present. The northern bank is comprised of scattered trees, bramble and bracken *Pteridium aquilinum*. scrub with reeds and other marginal vegetation recorded such as greater bulrush *Typha latifolia*. The canal is separated from the site boundary by a tall metallic wall, a footpath and a chain and link fence. Along the southern bank of the canal is a footpath with a strip of grassland, approximately 1m wide, and marginal vegetation.

There is lots of rubbish present.

Rubus fruticosus agg	Bramble	A
Typha latifolia	Greater bulrush	A
Betula pendula	Silver birch	O
Pteridium aquilinum.	Bracken	O
Salix sp.	Willow species	O

Hardstanding and Bare Ground

The majority of the site is hardstanding. There is an area of unvegetated bare ground in the centre of the site, where construction of the new fridge plant building is currently underway. There are also strips of vegetated bare ground, forming banks either side of a track, associated with the scattered buddleia and bramble scrub within TN3.

Drawings

Drawing G9756.007A Phase 1 Habitat Survey

398200

398400

297800

297600

TN4

TN3

TN2
Rubble pile

TN1

TN5

B1

B2

B3

B4

B5

B6

Walsall Canal

Metres
0 25 50 100

KEY

- Site boundary
- Survey boundary
- Target note
- Scattered scrub
- Fence
- MG MG Modified neutral grassland
- Standing water
- Bare ground
- Hardstanding
- Not surveyed

Bat suitability

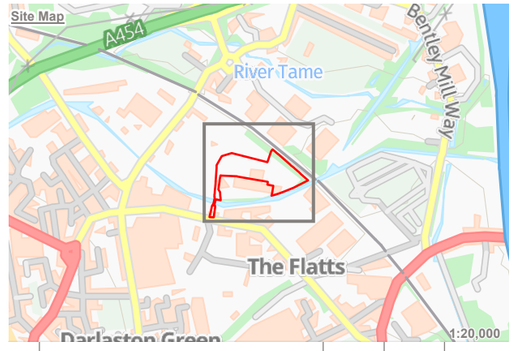
- Wall with high bat roost suitability
- Building with negligable bat roost suitability

Mammal signs

- Mammal hole

Note:
The locations of habitats and habitat features are indicative.

Site Map



Rev	Description	Drawn	Approved	Date
A	Habitat updates	ET	RW	03/03/2023

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Project
EMR Darlaston, Bently Road S, Walsall

Title
Phase 1 Habitat Survey

Drawing Number
G9756.007A

Drawn	Checked	Approved	Scale	Date
ET	CB	RW	1:1,200 @ A3	09/03/2023

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14 APPENDIX H – SAFETY DATA SHEETS

Safety Data Sheet

LignoBond DD

Replaces date: 26/02/2020 Revision date: 18/10/2022
Version: 1.5.0

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name: LignoBond DD

1.2. Relevant identified uses of the substance or mixture and uses advised against

Inadvisable uses: None.

1.3. Details of the supplier of the safety data sheet

Supplier

Company: Borregaard AS
Address: P.O. Box 162
City: 1701 Sarpsborg
Country: NORWAY
E-mail: sds@borregaard.com
Phone: + 47 69 11 80 00
Fax: + 47 69 11 87 70

1.4. Emergency Telephone Number

Members of the public: 111 (NHS 111 (Scotland: NHS 24)).

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

CLP-classification: The product shall not be classified as hazardous according to the classification and labeling rules for substance and mixtures.

2.2. Label elements

Contains

Substance: Calcium lignosulfonate;

2.3. Other hazards

May form explosible dust-air mixture if dispersed.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Substance	CAS No./ EC No./ REACH Reg. No.	Concentration	Notes	CLP-classification
Calcium lignosulfonate	8061-52-7	≥ 93 %		
Water	7732-18-5 231-791-2	≤ 7 %		

Please see section 16 for the full text of H- / EUH-phrases.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation:	Seek fresh air, wash out mouth with water and blow nose thoroughly.
Ingestion:	Wash out mouth thoroughly and drink 1-2 glasses of water in small sips. Seek medical advice in case of discomfort.
Skin contact:	Wash the skin with water.
Eye contact:	Flush with water (preferably using eye wash equipment) until irritation subsides. Seek medical advice if symptoms persist.

4.2. Most important symptoms and effects, both acute and delayed

None.

4.3. Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media:	Extinguish with powder, foam, carbon dioxide or water mist.
Unsuitable extinguishing media:	Do not use water stream, as it may spread the fire.

5.2. Special hazards arising from the substance or mixture

Can generate harmful flue gases containing carbon monoxide in the event of fire.

5.3. Advice for firefighters

If there is a risk of exposure to vapour and flue gases, a self-contained breathing apparatus must be worn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel:	Avoid formation of dust. Take precautionary measures against static discharges. Use spark-free tools and explosion proof equipment.

6.2. Environmental precautions

Do not discharge large quantities of concentrated spills and residue into drains.

6.3. Methods and material for containment and cleaning up

Contain and absorb spill with sand or other absorbent material and transfer to suitable waste containers.

6.4. Reference to other sections

See section 13 for instructions on disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid formation of dust. Take precautionary measures against static discharges. Use spark-free tools and explosion proof equipment. Do not sweep - use vacuum cleaner to collect spillage.

7.2. Conditions for safe storage, including any incompatibilities

Store in a dry, cool, well-ventilated area.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limit

Substance name	Time period	ppm	mg/m³	fiber/cm3	Remarks	Comments
Nuisance dust, total	8h	0	10			

8.2. Exposure controls

Appropriate engineering controls: Wear the personal protective equipment specified below.

Personal protective equipment, eye/face protection: Wear safety goggles if there is a risk of dust contact with eyes.

Personal protective equipment, skin protection: Wear suitable protective clothing.

Personal protective equipment, hand protection: No specific hand protection noted, but gloves may still be advisable.

Personal protective equipment, respiratory protection: In case of insufficient ventilation, wear respiratory protective equipment with P2 filter.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Parameter	Value/unit
State	Powder
Colour	Brown
Odour	Weak
Solubility	Solubility in water: Highly soluble

Parameter	Value/unit	Remarks
Odour threshold	ppm	Data not available
Melting point	> 130 °C	
Freezing point	°C	Data not available
Initial boiling point and boiling range	°C	Not applicable. The product is a solid.
Flammability (solid, gas)		Not flammable, but combustible.
Flammability limits		Not flammable, but combustible.
Explosion limits	vol%	Not applicable. The product is a solid.
Flash Point	°C	Not applicable. The product is a solid.
Auto-ignition temperature	> 150 °C	Not applicable. The product is a solid.
Decomposition temperature	°C	Data not available
pH (solution for use)	3.5 - 5.5	10% solution
pH (concentrate)	No data	
Kinematic viscosity	cSt	Not applicable. The product is a solid.
Viscosity	cSt	Not applicable. The product is a solid.
Partition coefficient n-octonol/water	-2.2 - -1.6	
Vapour pressure	No data	
Density	~ 550 kg/m³	Bulk density
Relative density	No data	
Vapour density	No data	

Relative density (sat. air)	kPa	Not applicable. The product is a solid.
Particle characteristics	0.050 - 0.080	mm

9.2. Other information

Parameter	Value/unit	Remarks
Explosive properties		Non-explosive
Oxidising properties		Non-oxidising.

Other Information: May form explosible dust-air mixture if dispersed.

MIE: 0.2 J
MITdc: 440 °C
Kst: 159 m*bar/s
Pmax: 8.4 bar
ST class: 1

SECTION 10: Stability and reactivity

10.1. Reactivity

Not reactive.

10.2. Chemical stability

The product is stable when used in accordance with the supplier's directions.

10.3. Possibility of hazardous reactions

None known.

10.4. Conditions to avoid

None known.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

None known.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity - oral

LignoBond DD

Organism	Test Type	Exposure time	Value	Conclusion	Test method	Source
OECD 401 (LD 50) rotte	LD50		> 15000 mg/kg			

Based on existing data, the classification criteria are deemed not to have been met.

Acute toxicity - dermal: Based on existing data, the classification criteria are deemed not to have been met.

Acute toxicity - inhalation: Based on existing data, the classification criteria are deemed not to have been met.

Skin corrosion/irritation: Based on existing data, the classification criteria are deemed not to have been met.

Serious eye damage/eye irritation: Based on existing data, the classification criteria are deemed not to have been met.

Respiratory sensitisation or skin sensitisation: Based on existing data, the classification criteria are deemed not to have been met.

11.2. Information on other hazards

Endocrine disrupting properties: None known.

SECTION 12: Ecological information

12.1. Toxicity

No effect on the environment.

12.2. Persistence and degradability

According to OECD 302 B, the product is classified as inherently biodegradable.

12.3. Bioaccumulative potential

No bioaccumulation expected.

12.4. Mobility in soil

Solubility in water: Complete

12.5. Results of PBT and vPvB assessment

The product does not contain any PBT or vPvB substances.

12.6. Endocrine disrupting properties

None known.

12.7. Other adverse effects

None known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Do not discharge large quantities of concentrated spills and residue into drains.

SECTION 14: Transport information

14.1. UN number or ID number: Not applicable.

14.2. UN proper shipping name: Not applicable.

14.3. Transport hazard class(es): Not applicable.

14.4. Packing group: Not applicable.

14.5. Environmental hazards: Not applicable.

14.6. Special precautions for user

None.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Special Provisions: ADR/RID. REACH (EC 1907/2006) GHS/CLP (EC NO1272/2008) GHS USA June, 2015.

15.2. Chemical Safety Assessment

Other Information: The product does not have to be classified.

SECTION 16: Other information

Version history and indication of changes

Version	Revision date	Responsible	Changes
1.5.0	18/10/2022	Borregaard AS	Section 6, 7, 8, 9, 11, 12
1.4.0	26/02/2020	Borregaard AS	General review
1.3.0	07/05/2018	Borregaard AS	Section 1
1.2.0	14/08/2017	Borregaard AS	General review
1.1.0	26/06/2015	Borregaard AS	NIHA

Vendor notes: Information given in this safety data sheet is in accordance with our information, and to the best of our knowledge, was correct on the last revision date. Information given is intended to present guidelines for safe handling, use, processing, storage, transport, disposal and discharge; it is not intended to be a guarantee or quality specification. It is the responsibility of the recipient of this safety data sheet to ensure that information given here is read and understood by all who use, handle, dispose of or in any way come in contact with the product.

Classification method: ADR/RID (2017), GHS / CLP (EC NO1272/2008)

Country: GB

SAFETY DATA SHEET
Forrex FF

SECTION 1: Identification of the substance / mixture and of the company / undertaking

SDS date	2020-01-17
SDS Version	1.0

1.1. Product identifier

Product name	Forrex FF

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture	Appliance protection.
Use of the substance/mixture (REACH)	Uses advised against.

1.3. Details of the supplier of the safety data sheet

Producer

Company name	Dafo Fire Vehicle Protection AB
Office address	Vindkraftsvägen 8
Postal address	Box 683
Postcode	S-13526
City	Tyresö
Country	Sweden
Tel	+ 46 10 1768 100
E-mail	support@dafo-vehicle.com
Website	http://www.dafo-vehicle.com

1.4. Emergency telephone number

NCEC CareChem24:	+44 1273 289451
Identification, comments	Additional Emergency Phone Number in Section 16

SECTION 2: Hazards identification

2.1. Classification of substance or mixture

Not classified according to Regulation (EC) No. 1272/2008 (CLP)

2.2. Label elements

Hazard Pictogram(s)	Not Applicable	
Signal Word	Not Applicable	
Hazard Statements(s)	Not Applicable	
Safety Statements(s)	General:	-
	Prevention:	-
	Response:	-
	Storage:	-
	Disposal:	-

2.3. Other hazards

Additional Labelling	Safety data sheet available on request.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Substance:	Identification:	Classification:	% w/w:	Note:
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	CAS no.: 112-34-5 EC no.: 203-961-6 REACH No.: Index No.: 603-096-00-8	Eye Irrit. 2; H319;	1 – 3 %	Annex XVII, EU
1-Propanaminum, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	CAS no.: EC no.: 939-455-3 RECH No.: 01-2119970722-34-0000 Index No.:	Eye Dam. 1;H318 Aquatic Chronic 3; H412	< 1%	

See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

Other Information

EU: European occupation exposure limit

Annex XVII: The chemical substance is subject to REACH restrictions, REACH annex XVII.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information	In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet. Contact a doctor if in doubt about the injured persons condition or if the symptoms persist. Never give an unconscious person water or other drink.
Inhalation	Bring the person into fresh air and stay with them.
Skin contact	Upon irritation: rinse with water. In the event of continued irritation, seek medical assistance.
Eye contact	Remove contact lenses and open widely. Flush eyes with water or saline water (20-30°C) for at least 5 minutes. Seek medical assistance and continue flushing during transportation.
Ingestion	Provide plenty of water for the person to drink and stay with him/her. In case of malaise, seek medical advice immediately and bring the safety data sheet or label from the product. Do not induce vomiting, unless recommended by the doctor. Have the victim lean forward with head down to avoid inhalation of- or choking on vomited material.
Burns	Not Applicable.

4.2. Most important symptoms and effects, both acute and delayed

No Special.

4.3. Indication of any immediate medical attention and special treatment needed

No Special.

Information to medics	Bring this safety data sheet.

SECTION 5: Firefighting measures

5.1. Extinguishing media

This product is not flammable.

5.2. Special hazards arising from the substance or mixture

None.

5.3. Advice for firefighters

Fire fighters should wear appropriate personal protective equipment.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No specific requirements.

6.2. Environmental precautions

Avoid discharge to lakes, streams, sewers, etc.

6.3. Methods and material for containment and cleaning up

Use sand, sawdust, earth vermiculite, diatomaceous earth to contain and collect non-combustible absorbent materials and place in container for disposal, according to local regulations. To the extent possible cleaning is performed with normal cleaning agents. Avoid use of solvents.

6.4. Reference to other sections

See section on “Disposal considerations” in regard of handling of waste.
See section on ‘Exposure controls/personal protection’ for protective measures.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Smoking, drinking and consumption of food is not allowed in the work area.

See section on 'Exposure controls/personal protection' for information on personal protection.

7.2. Conditions for safe storage, including any incompatibilities

Always store in containers of the same material as the original container.

Storage temperature Dry, cool and well ventilated (< 55°C)

7.3. Specific end use(s)

This product should only be used for applications quoted in section 1.2.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether

Long term exposure limit (8 hours): 10 ppm

Long term exposure limit (8 hours): 67,5 mg/m³

Short term exposure limit (15 minutes): 15 ppm

Short term exposure limit (15 minutes): 101,2 mg/m³

The Control of Substances Hazardous to Health Regulations 2002- SI 2002/2677 The Stationery Office 2002.

DNEL

Substance	DNEL	Route of Exposure	Duration	Source	Remarks
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	5 mg/kg	Oral	Long term – Systemic effects – General Population		
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	68 mg/m³	Inhalation	Long term – Systemic effects - Workers		
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	10 ppm	Inhalation	Long term – Systemic effects – Workers		
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	101,2 mg/m³	Inhalation	Short term – Local effects - Workers		
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	60,7 mg/m³	Inhalation	Short term – Local effects – General Population		
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	83 mg/kg	Dermal	Long term – Systemic effects – Workers		
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	50 mg/kg	Dermal	Long term – Systemic effects – General population		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	0,17 mg/kg	Oral	Long term – Systemic effects – General population		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	1,18 mg/m³	Inhalation	Long term – Systemic effects - Workers		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	0,29 mg/ m³	Inhalation	Long term – Systemic effects – General population		

1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	0,33 mg/kg	Dermal	Long term – Systemic effects - Workers		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	0,17 mg/kg	Dermal	Long term – Systemic effects – General population		

PNEC

Substance	PNEC	Route of Exposure	Duration of Exposure	Source	Remarks
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	0,32 mg/kg	Soil	No data available		
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	1.1 mg/L	Freshwater	No data available		
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	4,4 mg/kg	Freshwater sediment	No data available		
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	0,11 mg/L	Marine water	No data available		
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	0,44 mg/L	Marine water sediment	No data available		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	0,0414 mg/kg	Soil	No data available		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	0,021 mg/L	Freshwater	Continuous		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	6.97 mg/kg	Freshwater sediment	No data available		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	0,00152 mg/L	Marine water	No data available		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	0.697 mg/kg	Marine water sediment	No data available		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered) acyl) derivs., hydroxides, inner salts	100 mg/L	Swage Treatment Plant	No data available		

8.2. Exposure controls

Compliance with the given occupational exposure limits values should be controlled on a regular basis.

General recommendations

Smoking, eating and drinking are not allowed in the work premises.

Exposure scenarios

In the event exposure scenarios are appended to the safety data sheet, the operational conditions and risk management measures in these shall be complied with.

Exposure limits

Professional users are subjected to the legally set maximum concentrations for occupational exposure. See occupational hygiene limit values above.

Appropriate technical measures

Airborne gas and dust concentrations must be kept at a minimum and below current limit values (see above). Installation of an exhaust system if normal air flow in the work room is not sufficient is recommended. Ensure emergency eyewash and -showers are clearly marked.

Hygiene measures

In between use of the product and at the end of the working day all exposed areas of the body must be washed thoroughly. Always wash hands, forearms and face.

Measures to avoid environmental exposure

No specific requirements.

Individual protection measures, such as personal protective equipment

Generally	Use only CE marked protective equipment
Respiratory equipment	No specific requirements

Skin protection

Recommended	Standards	Type/Category
Dedicated work clothing should be worn	-	-

Hand protection

Material	Glove thickness (mm)	Breakthrough time (min.)	Standards
Vinyl/PVC	0,6	-	-

Eye protection

Recommended	Standards
Wear safety glasses with side shields.	EN166

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Liquid.
Colour	Pale yellow.
Odour	Characteristic.
Odour Threshold (ppm)	No data available
pH	6,5 - 9
Density (g/cm³)	~ 1,05
Viscosity	< 100 mPa.s (20.00 °C)
Phases changes	Melting point: 0°C Boiling point: No data available Vapour pressure: No data available Vapour density: No data available Decomposition temperature: No data available Evaporation rate (n-butylacetate = 100): No data available
Data on fire and explosion hazards	Flash point: No data available Ignition: No data available Auto flammability: No data available Explosive limits: No data available Explosive properties: No data available Oxidizing properties: No data available
Solubility	Solubility in water: Soluble n-octanal/water coefficient: No data available Solubility if fat (g/L): No data available

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available.

10.2. Chemical stability

The product is stable under the conditions, noted in the section “Handling and storage”.

10.3. Possibility of hazardous reactions

No special.

10.4. Conditions to avoid

No special.

10.5. Incompatible materials

Strong acids, strong bases, strong oxidizing agents, and strong reducing agents.

10.6. Hazardous decomposition products

The product is not degraded when used as specified in section 1.

SECTION 11: Toxicological information

11.1. Information on toxicological effect

Acute toxicity

Substance	Species	Test	Route of exposure	Result
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	Rat	LD50	Oral	5660,00 mg/kg
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	Mouse	LD50	Oral	2410,00 mg/kg
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	Rat	LC50	Inhalation	29,00 ppm
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	Rabbit	LD50	Dermal	2764,00 mg/kg
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered)acyl) derivs., hydroxides, inner salts	Rat .	LD50	Oral	2950,00 mg/kg
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered)acyl) derivs., hydroxides, inner salts	Rat	LD50	Dermal	2000,00 mg/kg

Skin corrosion / irritation

No data available

Serious eye damage / irritation

No data available

Respiratory or skin sensitisation

No data available

Germ cell mutagenicity

No data available

Carcinogenicity

No data available

Reproductive toxicity

No data available

STOT-single exposure

No data available

STOT-repeated exposure

No data available

Aspiration hazard

No data available

Long term effects

No special

SECTION 12: Ecological information

12.1. Toxicity

Substance	Species	Test	Duration	Result
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	Fish	LC50	96 hours	1300,00 mg/L
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	Algae	EC50	96 hours	100,00mg/L
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	Daphnia	EC50	48 hours	100,00mg/L
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered)acyl) derivs., hydroxides, inner salts	Fish	LC50	96 hours	0.23 mg/L
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered)acyl) derivs., hydroxides, inner salts	Algae	NOEC	72 hours	0.76 mg/L
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered)acyl) derivs., hydroxides, inner salts	Daphnia	EC50	48 hours	4.00 mg/L

12.2. Persistence and degradability

Substance	Biodegradability	Test	Result
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	Yes	OECD 301 C (Modified MITI Test)	80 %
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered)acyl) derivs., hydroxides, inner salts	Yes		57 %

12.3. Bio accumulative potential

Substance	Potential bioaccumulation	LogPow	BCF
2-(2-butoxyethoxy)ethanol; diethylene glycol monobutyl ether	No		
1-Propanaminium, N-(3-aminopropyl)-2-hydroxy-N, Ndimethyl-3-sulfo-, N-(C8-18(even numbered)acyl) derivs., hydroxides, inner salts	No		

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This mixture/product does not contain any substances considered to meet the criteria classifying them as PBT and/or vPvB.

12.6. Other adverse effects

No special

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product is not covered by regulations on dangerous waste.

EWC code

16 03 06 Organic wastes other than those mentioned in 16 03 05

Specific labelling

Not applicable

Contaminated packing

Packaging containing residues of the product must be disposed of similarly to the product.

SECTION 14: Transport information

14.1. – 14.4

Not dangerous goods according to ADR, IATA and IMDG

ADR / RID

Not applicable

IMDG

Not applicable

Marine pollutant

No

14.5. Environmental hazards

Not applicable

14.6. Special precautions for user

Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Restricitons for application:	No specific requirements No special
Demands for specific education:	No special
SEVESO – Categories / dangerous substances:	Not applicable
Additional information:	Not applicable
Sources:	Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 (CLP). Regulation (EC) 1907/2006 (REACH).

15.2. Chemical safety assessment

No

SECTION 16: Other information

Full text of H-phrases as mentioned in section 3	H319, Causes serious eye irritation. H318, Causes serious eye damage. H412, Harmful to aquatic life with long lasting effects.
Abbreviations and acronyms	ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor CAS = Chemical Abstracts Service CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008] CSA = Chemical Safety Assessment CSR = Chemical Safety Report

DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EINECS = European Inventory of Existing Commercial chemical Substances
ES = Exposure Scenario
EUH statement = CLP-specific Hazard statement
EWC = European Waste Catalogue
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IARC = International Agency for Research on Cancer (IARC)
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
OECD = Organisation for Economic Co-operation and Development
PBT = Persistent, Bioaccumulative and Toxic
PNEC = Predicted No Effect Concentration
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SVHC = Substances of Very High Concern
STOT-RE = Specific Target Organ Toxicity - Repeated Exposure
STOT-SE = Specific Target Organ Toxicity - Single Exposure
TWA = Time weighted average
UN = United Nations
UVCB = Complex hydrocarbon substance
VOC = Volatile Organic Compound
vPvB = Very Persistent and Very Bioaccumulative

Additional information

Not applicable
Emergency Phone No.:
France (English, French) +33 1 72 11 00 03
Germany (English , German) + 49 89 220 61 012 / 0800 000 7801/ +49 (0)30 686 700 Spain (English, Spanish) + 34 91114 2520
Italy (English, Italian) + 39 02 3604 2884
Netherlands (English, Dutch) + 31 10713 8195
Middle East (English , Arabic) + 44 1273 289454
United States (English, French, Spanish) + 1 866 928 0789
Canada (English, French) + 1 800 579 7421
United States and Canada (English) + 1 202 464 2554
Mexico (English, Spanish) + 52 55 5004 8763
Brazil (Portuguese, Spanish, English) + 55 11 3197 5891
Chile (English, Spanish) + 56 2 2582 9336
Colombia (English, Spanish) + 57 1 508 7337
Argentina (English, Spanish) + 54 11 5984 3690
East/South East Asia (English, Bahasa Malaysia, Hindi, Japanese, Korean, Mandarin, Tagalog) +65 3158 1412 China (English, Mandarin) + 86 512 8090 3042
China (Mainland) (English, Mandarin) + 86 532 8388 9090
Japan (English, Japanese) + 81 3 4578 9341
Malaysia (English, Malaysian) 60 3 6207 4347
India (English, Hindi) 000 800 100 7479 7479
Philippines (English, Tagalog) + 63 28231 2149
South Korea (English, Korean) + 82 2 3479 8401
Australia (English) 18000 74234
New Zealand (English) + 64 9 929 1483
New Zealand (English) 0800 446 881

The safety data sheet is validated by	CHR
Other	A change (in proportion to the last essential change (first cipher in SDS version, see section 1)) is marked with a blue triangle. The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products. It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.