REPORT TO INFORM HABITAT REGULATIONS ASSESSMENT

LAND SOUTH OF ROVER WAY, CARDIFF CF24 5PH
PROPOSED ASPHALT PLANT

Harsco Metals Group Limited

SLR Ref: 416.09604.00001
Version No: FINAL V3
November 2019

BASIS OF REPORT

This document has been prepared by SLR Consulting Limited with reasonable skill, care and diligence, and taking account of the manpower, timescales and resources devoted to it by agreement with Harsco Metals Group Limited (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.

CONTENTS

1.0 INTRODUCTION

SLR Consulting Limited (SLR) was commissioned by Harsco Metals Limited to prepare an Ecological Impact Assessment (EcIA) in respect of the proposed development of an asphalt batching plant at a site lying to the south of Rover Way, Cardiff, CH24 5PH. The Preliminary Ecological Appraisal[1] conducted to inform the EcIA identified the risk of the proposed development having potential significant indirect negative impacts on the nearby Severn Estuary Special Protection Area, Special Area of Conservation and Ramsar site. Consequently, this report to inform a Habitat Regulations Assessment (HRA), has been prepared following scoping consultations with the Local Authority.

This report has been revised and re-issued in October 2019 following feedback from Natural Resources Wales and Cardiff Council, and in November 2019 following amendments to the Air Quality Assessment to account for stack emissions.

1.1 General Description of the Site

The application site and survey area are located in the south-east of Cardiff, within an area historically dominated by heavy industry. The application site lies entirely within an actively used metal recycling facility. To the north and west of the metal recycling facility lies Rover Way, beyond which lies the Celsa Manufacturing industrial works. To the east of the application site lies a moto-cross motorbiking track built on a former waste tip, beyond which lies the Severn Estuary, approximately 230m away. To the south of the metals recycling facility lies Tide Fields Road and beyond this, a water treatment works. The surrounding landscape character is predominantly industrial.

The application site extends to approximately 1.13 hectares (ha). The boundaries of the application site and survey area can be seen in Drawing 1, together with the results of the Phase 1 Habitat survey. The application site is dominated by hard-standing with two large pools of ephemeral standing water resulting from heavy rainfall events shortly prior to the date of survey.

The landscape immediately outside the application site boundary, extending into the surrounding metal recycling facility, is also dominated by hard-standing with small industrial facility buildings and small areas of species-poor semi-improved grassland, small patches of dense scrub with scattered trees, and tall weedy vegetation.

All the hard-standing within the application site boundary will require re-engineering to enable the development.

1.2 Brief Project Description

The application relates to the installation of an Asphalt Batching Plant with associated infrastructure and works, as seen in Drawing 2. The proposed Asphalt Batching Plant and associated materials storage area will be in keeping with the existing use of the Celsa Steel site and its designation within the Cardiff Local Development Plan (allocation EC1.3).

The plant will be located within the central confines of the red line site area, with an area to the west utilised for vehicular access, fill and departure via entry and exit weighbridges. Within the eastern confines of the site, there will be a total of five bunded materials storage bays located along the northern and southern boundaries, thereby leaving a central area for the manoeuvring of vehicles.

There is an existing concrete pad on site and this will be utilised as part of the proposals. This will be upgraded where necessary to support the weight of the Asphalt Batching Plant, weighbridges and associated HGVs. The plant will also be anchored to this pad by way of minor piles and anchor points (*i.e*. tensile cables to a fixed point). A more detailed description of the proposed works can be found in Section 4.

[1] SLR Consulting Limited (March 2019) Preliminary Ecological Appraisal, Land South of Rover Way, Cardiff. Report Reference: 190701_416.09604.00001_HarscoMetals_RoverWayEcologyPEA_JH_MPM_AW_vf

1.3 Purpose of the Report

The purpose of this report is to provide supporting information to assist the competent authority, in this case Cardiff Council, to carry out an appropriate assessment of the proposed asphalt batching plant development.

1.4 Objectives of Habitat Regulations Assessment

The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures to be addressed in the HRA process as follows:

- Firstly, a plan / project should aim to avoid any negative impacts on Natura 2000 sites by identifying possible impacts early and designing the project / plan to avoid such impacts.

- Secondly, mitigation measures should be applied during the HRA process (after screening) to the point where no adverse impacts on the designated site(s) remain.

- Thirdly a plan / project may have to undergo an assessment of alternative solutions. Under this stage of the assessment, compensatory measures are required for any remaining adverse effects, but they are permitted only if (a) there are no alternative solutions and (b) the plan / project is required for imperative reasons of overriding public interest (the 'IROPI test'). European case law highlights that consideration must be given to alternatives outside the plan / project boundary area in carrying out the IROPI test.

1.5 Evidence of Technical Competence and Experience

This Habitat Regulations Assessment report has been prepared by Martyn Macefield MCIEEM, Associate Consultant at SLR Consulting Limited. The report has been reviewed by Elaine Dromey MCIEEM, Associate Consultant at SLR Consulting Ltd.

Martyn Macefield holds a MSc in Habitat Creation and Management and a BSc (Hons) in Biological Sciences. He has over seventeen years' experience in ecological consultancy and the production of ecological appraisal and ecological impact assessment reports. Martyn has prepared reports to inform appropriate assessment for a range of projects, including a range of developments close to coastal Natura 2000 sites with similar potential issues relating to noise and air quality.

Elaine Dromey holds a BSc in Earth Science from University College Cork and an MSc in Vegetation Survey and Assessment from the University of Reading, UK. She is a full member of the Chartered Institute of Ecology and Environmental Management. Elaine has prepared reports to inform appropriate assessment for a range of different projects and plans.

2.0 LEGISLATIVE CONTEXT

2.1 The Conservation of Habitats and Species Regulations 2017

The Conservation of Habitats and Species Regulations 2017 (The Habitats Regulations) transposes Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (EC Habitats Directive) into national law and provides for the designation and protection of 'European sites' including Special Areas of Conservation (SAC) and Special Protection Area (SPA) as classified under Council Directive 2009/147/EC on the Conservation of Wild Birds (The Birds Directive), the protection of 'European protected species', and the adaptation of planning and other controls for the protection of European Sites. The regulations introduce a review procedure for plans and projects likely to significantly affect a European site, and licensing requirements for developments that may affect a European protected species, for example bats, otter and dormice. The Habitats Regulations also contain new provisions designed to implement aspects of the Marine and Coastal Access Act 2009 (The Marine Act).

Regulation 61 of the Conservation of Habitats and Species Regulations 2017, requires a Competent Authority to make an Appropriate Assessment of the implications for European site or sites in view of a site's conservation objectives, before deciding to undertake, or give consent, permission or other authorisation for, a plan or project which:

a. is likely to have a significant effect on a European site, either alone or in combination with other plans and projects; and
b. is not directly connected with or necessary to the management of that site.

A person applying for any such consent, permission or other authorisation must provide such information as the competent authority may reasonably require for the purposes of the assessment or to enable them to determine whether an appropriate assessment is required.

In considering whether a plan or project will adversely affect the integrity of a European site, the competent authority should consider whether the effects of the proposal on the site, either individually or in combination with other plans or projects, is likely to be significant in terms of the conservation objectives and in respect of each interest feature for which the site was classified/designated Special Area of Conservation (SAC) under the Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora (Habitats Directive), SPA under the EEC Council Directive on the Conservation of Wild Birds (Directive 79/409/EEC – The Birds Directive) or Ramsar site under the Ramsar Convention.

In the light of the conclusions of the assessment, and subject to Regulation 62, in consideration of overriding public interest, the Competent Authority may agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the European site.

3.0 METHODS

This section of the report sets out the methods of gathering the information to support the preparation of this report.

3.1 Desk Based Review

The preparation of the HRA reporting was supported by a desk based review of available information on the European sites and data gathered during dedicated surveys for the project. The existing data was collated from the following:

- www.magic.gov.uk and www.jncc.defra.gov.uk for information on European sites, European Protected Species (EPS) licences issued and presence of Priority Habitats;
- https://www.cardiff.gov.uk/ENG/resident/Planning/Planning-Policy/Pages/default.aspx for local planning policies and site designations;
- South East Wales Biodiversity Records Centre (SEWBReC, the local biological records centre) data request for protected and notable species records and non-statutory designated wildlife sites within 1km, and statutory designated wildlife sites within 10km, in accordance with Environment Agency guidance; and
- The Cardiff planning portal was also searched for recent planning applications close to the application site and any relevant ecological information was reviewed. In particular this included reports produced for a consented development on the moto-cross track lying between the application site and the Severn Estuary, known as the Land at Rover Way/ Parc Calon Gwrydd proposal, Application No. 17/02130/MJR.

3.2 Consultation

A Scoping Report was submitted to the Development Management Team of Cardiff Council setting out the nature and purpose of the proposed works, a brief description of the likely significant effects and indicating environmental aspects that could be scoped out. Cardiff Council consulted with key stakeholders.

3.3 Development Site Surveys

The Study Area was subject to survey on 20th March 2019 using methodology based on the Phase 1 Habitat Survey methodology, extended to include preliminary checks and surveys for notable, protected or rare species of both flora and fauna, and modified to suit smaller scale urban sites, in accordance with published guidance. Particular features of interest were recorded on the field map using target notes, the locations of which are shown in Drawing 1 together with the survey extents. The full description of the site survey and habitats can be found within the Ecology Chapter of the Environmental Statement for the development.

4.0 DETAILED DESCRIPTION OF THE DEVELOPMENT

The proposed Asphalt Batching Plant and associated materials storage area will be in keeping with the existing use of the Celsa Steel site and its designation within the Cardiff Local Development Plan (allocation EC1.3). The proposed Asphalt Batching Plant will fall within a Class B2 (General Industrial) use as defined within the Town and Country Planning (Use Classes) Order 1987 (as amended).

The layout of the proposed Asphalt Batching Plant is shown within Figure 1: Proposed Site Layout below. The plant will be located within the central confines of the red line site area, with an area to the west utilised for vehicular access, fill and departure via entry and exit weighbridges. Within the eastern confines of the site, a range of materials storage bays will be located along the boundary, thereby leaving a central manoeuvring area for vehicles.

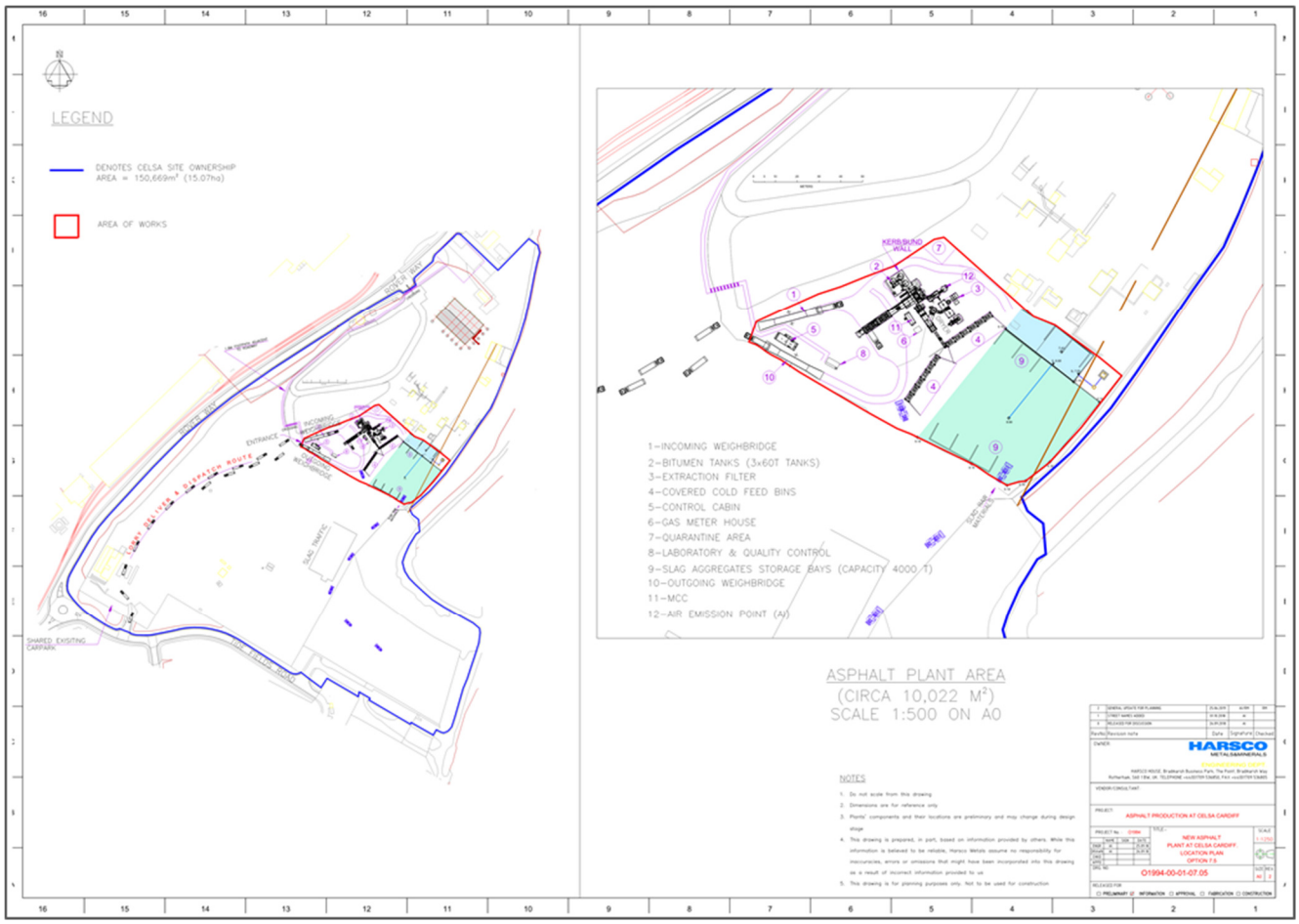


Figure 1: Proposed Site Layout

The bunded materials storage bays will be constructed from large prefabricated concrete blocks which lock together when stacked and covered by way of a pre-fabricated roof to keep materials dry. These are industry accepted materials for the formation of such large materials storage bays and entirely fit for purpose. To accommodate the new concrete pad and erection of the Asphalt Batching Plant, a settlement lagoon and soakaway is to be constructed along the north-eastern boundary of the application site (adjacent to the SIMS Metal site). This settlement lagoon has been designed to accommodate the necessary surface water runoff capacity for the operation of the application site and will have a maximum discharge rate of between 5 – 10 ls^{-1}. The water within the lagoon will be 0.5m deep when fully drained down.

There is an existing concrete pad on site and this will be utilised as part of the proposals. This will be upgraded where necessary to support the weight of the Asphalt Batching Plant, weighbridges and associated HGVs. The plant will also be anchored to this pad by way of minor piles and anchor points (*i.e.* tensile cables to a fixed point).

In addition to the above, it has been agreed that the internal haul roads between the Asphalt Batching Plant operational area and Tide Fields Road would be upgraded by way of asphalt surfacing. Notwithstanding, drainage of these internal roads will remain as existing with runoff occurring onto the edge of the roadway.

4.1 Equipment

The batching plant itself will comprise of a range of storage silos, feed and weigh hoppers, belt feeders, conveyors, a rotary dryer, bucket elevator, deck screens, paddle mixer, dust collection skimmer and fill bag, bitumen tanks, fibre pellet additive system and a control cabin. Whilst operating in a set process, the plant is modular to allow for replacement parts and/or 'bolt-on' additions to improve functionality where appropriate. The technical drawings of the Asphalt Batching Plant are shown within Figure 2: Technical Drawings of Asphalt Plant below, and a photograph of a similar plant is shown in Figure 3: Photograph of a similar plant (Rotheram, South Yorkshire).

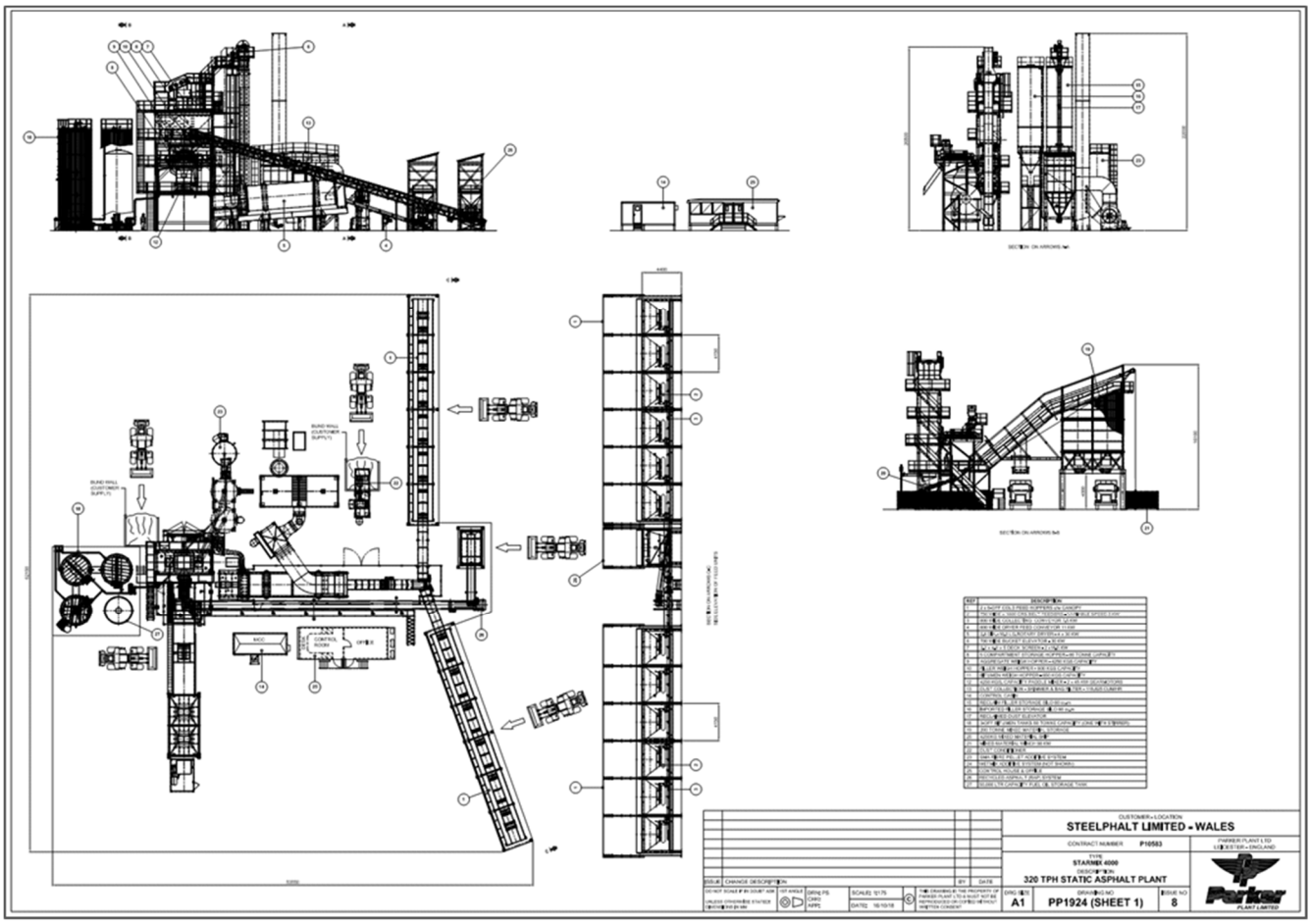


Figure 2: Technical Drawings of Asphalt Plant

Figure 3: Photograph of a similar plant (Rotheram, South Yorkshire)

4.2 Batching Plant Process

The asphalt plant has the capacity to produce up to 320 tonnes per hour of asphalt materials. The process uses slag (a waste generated on site by Celsa's production process) which has been crushed and screened to remove the metallic fraction leaving a quality aggregate. The arising slag aggregate will be fed into the asphalt plant with the addition of bitumen, Road Asphalt Planning's, cellulose, fibres and filler in varying proportions to produce different specifications of asphalt. The Asphalt Batching Plant process can be broken down into clear operational stages as detailed below:

- The first step is to feed unheated-raw aggregates into different bins of the cold aggregate feeder bins at the south-eastern most extent of the plant (note that the aggregates are separated into separate bins subject to size and quality);
- Cold feeder gates on individual bins control the flow of aggregates into the plant itself, with the amount of each aggregate inputted into the plant dependent on the mix specified by the purchaser;
- The aggregates are then transferred to a rotary drier by way of a charging conveyor and the aggregates are heat-dried;
- At this stage primary and secondary dust collectors operate to collect settling heavy dust particles to prevent dispersion into the surrounding environment, with discharge via the chimney stack. The dust extraction system includes a pre-skimmer and interconnecting pipework to the rotary drier screen, mixer, elevator and filler silo. The bag filter unit incorporates a collecting hopper to store the collected dust which is used in the asphalt mix. A Continuous Emissions Monitor will be installed, and the plant specification is designed to achieve particulate emissions of less than 25mg/m^3;
- Following heating, the aggregates are transferred to the tower unit by way of a bucket elevator;
- At the top of the tower unit is multiple layered screening unit which the hot aggregates pass through to get re-separated and stored into different bins based on their sizes;
- From the hot storage bins, the aggregates are then weighed and discharged in to the mixing unit. In the mixer, aggregates will be mixed with bitumen and filler material;
- The bitumen is stored and heated within separate tanks adjacent to the tower unit. Bitumen is pumped to the weighing hopper prior to discharge. This bucket weighs it before addition into the mixer;
- Filler material is added in a separate container and it is pumped to its weighing hopper for subsequent discharge into the mixing unit;

- After mixing, the hot mix asphalt is either discharged into waiting trucks or into the mixed material storage silos;
- All processes identified above are controlled by way of computerized program and monitoring equipment located within the control cabin. This cabin is manned by a suitably trained member of staff at all times, who can manually override the plant in cases of emergency.

The asphalt is produced in accordance with the Slag Quality Protocol to a required specification enabling it to achieve 'end of waste status'. The process enables the recovery of slag from the steel making process thus reducing reliance on disposal to landfill. By recovering waste materials, the need to source virgin materials is also reduced. It is intended that Harsco will operate this plant under Celsa's environmental permit.

4.3 Site Preparation

As described above, there is an existing concrete pad on site and this will be utilised as part of the proposals. The pad will be re-engineered where necessary to support the weight of the Asphalt Batching Plant, weighbridges and associated HGVs. The plant will also be anchored to this pad by way of minor piles and anchor points (*i.e.* tensile cables to a fixed point).

The pad will be laid as to drain to a settlement lagoon and soakaway which will be constructed on the northern bounds of the application site, adjacent to the SIMS Metal site. The levels changes required to facilitate drainage and the settlement lagoon will require approximately 1,800m^3 of cut and 1,870m^3 of fill to achieve.

As detailed above the settlement lagoon and soakaway will have a maximum discharge rate of between 5-10 ls^{-1} and anticipated 0.5m depth of water when fully drained. During periods of excessive rainfall, the materials storage area will be capable of acting as a surface water storage area. This will ensure that runoff from the Asphalt Batching Plant and materials storage area do not disperse onto the surrounding land.

The site preparation works will be undertaken utilising a range of excavation and grading equipment including and not limited to tracked excavators and wheeled loaders.

4.4 Construction

The Asphalt Batching Plant will be delivered to site as modular components and subsequently constructed/fitted together on site. This will ensure that the components are easily delivered to site and allows for minor variations to the installation process subject to weather and site conditions. A number of mobile cranes (no larger than 100 tonne) will be utilised to move equipment from the delivery vehicles to position on site. Given the nature of the wider site, this delivery and erection method will not result in disturbance to the existing operations of either Celsa Steel or SIMS Metal.

All works will be undertaken by Harsco Metals Group Ltd, utilising their own specialist team familiar with erecting and operating such Asphalt Batching Plant equipment. All equipment will be thoroughly tested prior to full operation of the Asphalt Batching Plant.

4.5 Development Programme

- The entire development programme is anticipated to take approximately 18 weeks, with the following key elements of work being contained therein:
- Site Preparation – Site Clearance and ad hoc works required to commence construction operations – 2 weeks;
- Site Preparation – Earthworks to form site levels and settlement lagoon – 3 weeks;
- Site Preparation – Concrete slab layout & soakaway – 2 weeks;
- Construction – Delivery and erection of Asphalt Batching Plant, weighbridges and concrete storage bins – 10 weeks; and
- Post Construction – Safety and operational checks of Asphalt Batching Plant – 1 week.

The exact dates for the undertaking of the above are liable to change given that the necessary consents need to be obtained through both the planning and permitting regimes. Upon completion of the development programme, commencement of operations would commence immediately and asphalt would begin to be delivered to market. Any subsequent repairs, maintenance or upgrading of the equipment would be undertaken on site and in an ad-hoc manner according to requirements.

4.6 Operational Hours

The proposed Asphalt Batching Plant is anticipated to operate for approximately 300 days per annum, during which the plant is proposed to operate between the following hours:

Table 1: Anticipated hours of operation

Day	Period of Operation
Monday to Friday	06:00 to 18:00 Hours (N.B. Hours may be extended as required to fulfil an order)
Saturdays	As required to fulfil an order
Sundays & Public Holidays	As required to fulfil an order

Given the industrial nature of site and the surrounding area, these hours of operation are considered entirely appropriate. Furthermore, these hours of operation are in accordance with the current working hours operated by Celsa Steel and SIMS Metal.

5.0 STAGE 1: HRA SCREENING

This section identifies the potential impacts of the construction and operation of the proposed asphalt plant on European sites within the zone of influence and whether the identified impacts are likely to have a significant effect thereon.

A significant effect is defined in paragraph 49 of the Waddenzee Case C-127/02 as follows "….. *pursuant to the first sentence of Article 6(3) of the Habitats Directive,* ***where a plan or project not directly connected with or necessary to the management of a site is likely to undermine the site's conservation objectives, it must be considered likely to have a significant effect on that site****. The assessment of that risk must be made in the light inter alia of the characteristics and specific environmental conditions of the site concerned by such a plan or project."* [Emphasis added]

5.1 Desk Based Review

The desk review carried out to support the preparation of this report identified the European sites likely to be affected by the proposed works *i.e.* within the zone of influence of the works. The Severn Estuary is located approximately 230m to the south and east of the application site boundary. At this location the Severn Estuary supports multiple overlapping Natura 2000 wildlife site designations including:

- Special Area of Protection (SPA) (Site reference UK9015022);
- Special Area of Conservation (SAC) (Site reference UK0013030); and
- Ramsar (Site reference UK11081).

The boundaries of these sites in relation to the application site can be seen in Drawing 2. Descriptions of each of the Natura 2000 designated sites and their qualifying features are provided below in Section 6.

Following receipt of consultation feedback from NRW, an assessment has been undertaken of the air quality impacts of operational traffic from the proposed development on Atlantic Salt Marsh within the Severn Estuary SAC that considers both the proposed plant, and the cumulative effect of the plant with traffic from committed developments and also traffic that could occur from nearby land allocations (ES Chapter 9, Air Quality). The assessment has considered the likely changes in air quality as a result of the proposals according to the scenarios detailed above, on ambient NOx Air Quality Objectives (refer to as Critical Levels) and on nitrogen and acid deposition (refer to as Critical Loads). The assessment makes a number of 'worst case' assumptions in accordance with the instructed method, including:

- 100% of traffic generated by the scheme would travel north on Rover Way;
- 100% of traffic from committed developments would travel north Rover Way;
- That all committed development would be constructed;
- That the nearby allocated land will be entirely developed with traffic generating uses; and
- a single air quality model verification factor was applied across the modelled grid and transects, irrespective of their distance from the road.

This air quality assessment methodology identified that there was an additional area of the Severn Estuary SAC that could potentially be affected by the vehicle movements when the above 'worst case' method was adopted. An area of Atlantic salt-meadow lies approximately 520m north of the application site, immediately adjacent to Rover Way. Assessment of this area was therefore incorporated.

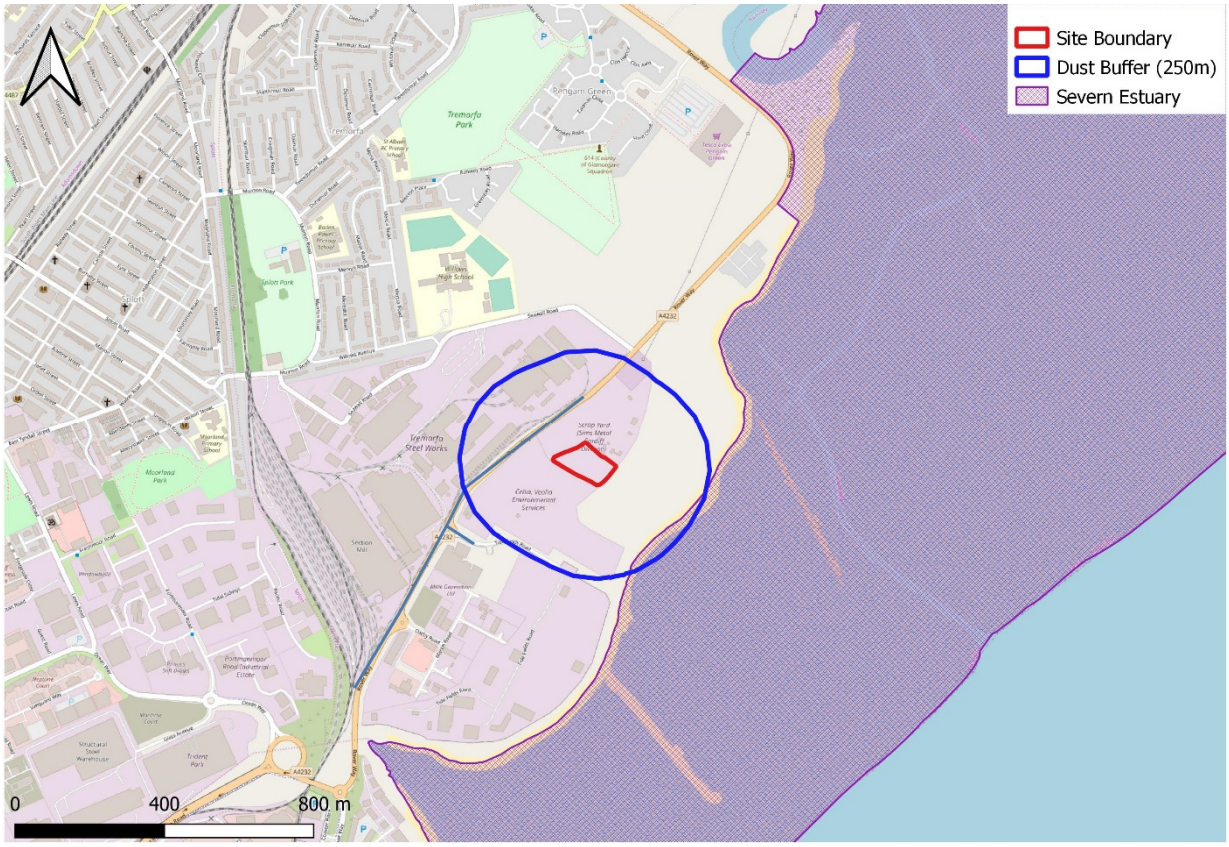


Figure 4: showing the location of the Severn Estuary SAC Atlantic salt-meadow, lying adjacent to Rover Way, approximately 520m north of the application site.

5.2 Consultation

A Scoping Opinion was sought from Cardiff Council by way of a Scoping Request Report submitted on 4th April 2019. A formal Scoping Opinion, reference SC/19/00005/MJR, was adopted by Cardiff Council on 17th May 2019. In respect of Ecology, the Council relied upon the consultation responses from the Council's own Ecologist and Natural Resources Wales.

The detailed scoping responses can be found in Appendix 5-4 of the Environmental Statement (ES) for the proposed development. The elements of the scoping responses relevant to the HRA process are summarised in Table 2.

Table 2: Summary of Scoping Opinion

Page & Paragraph No.	Scoping Opinion	Comments	Outcome	Reference within ES
Section 3, Page 3, Ecology and Landscape	HRA	The assessment should address whether the overburden to the frag tip has been, or will be removed, as this material	The potential removal of the frag tip has been duly considered within the Cumulative Assessment.	Section 11.4.0 – Cumulative Effects Appendix 11-2 – Shadow HRA

Page & Paragraph No.	Scoping Opinion	Comments	Outcome	Reference within ES
		currently obscures the asphalt batching plant site from the Severn Estuary. This information will help inform the Council's ability to undertake an HRA	A Shadow HRA has also been prepared to assist the Council in the undertaking of an HRA.	
Section 3, Page 4, Natural Resources Wales	Severn Estuary SAC, SPA, Ramsar and SSSI	The applicant needs to fully consider all the potential impacts on the features of the Severn Estuary SAC, SPA, Ramsar and SSSI	The Ecology chapter has duly considered all potential impacts on the Severn Estuary SAC, SPA, Ramsar and SSSI, including noise, air quality and hydrological links	Section 11.4.0 – Assessment of Effects Appendix 11-2 – Shadow HRA
Section 3, Page 4, Natural Resources Wales	Cumulative Effects on the Severn Estuary SAC, SPA, Ramsar and SSSI	The applicant needs to fully consider all cumulative effects on the Severn Estuary SAC, SPA, Ramsar and SSSI, including a comprehensive Air Quality Assessment.	The Ecology chapter has duly considered all potential impacts on the Severn Estuary SAC, SPA, Ramsar and SSSI, including noise, air quality and hydrological links	Chapter 9 – Air Quality Section 11.4.0 – Assessment of Effects Appendix 11-2 – Shadow HRA
Section 4, Page 5, Scoping Conclusion	Full consideration of impacts on the Severn Estuary SAC, SPA, Ramsar and SSSI	Consideration of all potential impacts on the features of the Severn Estuary designated sites (including cumulative effects)	The Ecology chapter has duly considered all potential impacts on the Severn Estuary SAC, SPA, Ramsar and SSSI, including noise, air quality and hydrological links	Section 11.4.0 – Assessment of Effects Appendix 11-2 – Shadow HRA
Section 4, Page 5, Scoping Conclusion	Ecological Matters	A consideration of ecological matters (including a detailed description and illustrations of the proposed works)	The ecology chapter has considered all relevant ecological matters, whilst supporting detailed reports are	Section 11.4.0 – Assessment of Effects Appendix 11-1 Phase 1 Habitat Survey

Page & Paragraph No.	Scoping Opinion	Comments	Outcome	Reference within ES
			provided within the technical appendices	Appendix 11-2 – Shadow HRA
Section 4, Page 5, Scoping Conclusion	Protected Species Surveys	The provision of further ecological specific surveys (following the extended Phase 1 habitat survey already undertaken, which has been extended to consider the potential of the site to support legally protected species.	Following the undertaking of the Phase 1 Habitat Survey, it was not deemed necessary to undertake further ecological specific surveys.	Not required but explained within Appendix 11-1

Following the initial submission of the Planning Application and Environmental Statement in July 2019, comments were received from Natural Resource Wales planning department. The comments contained the following requirement: *"Requirement 1: Designated Sites – further information is required to determine if changes in air quality will avoid significant and adverse effects on the integrity of the Severn Estuary SAC/SSSI"*. In addition, Cardiff Council Air Quality Officer also identified the need for a detailed assessment of potential air quality impacts on the Estuary. As such, a detailed assessment of the air quality impacts on the Severn Estuary SAC/SPA/SSSI habitats, including the Atlantic Salt meadow feature, has been undertaken, and is presented in this report and Chapters 9 (Air Quality) and 11 (Ecology) of the Environmental Statement.

5.3 Development Site Surveys

The application site is located in the south-east of Cardiff, within an area historically dominated by heavy industry. The application site lies entirely within an actively used metal recycling facility. To the north and west of the metal recycling facility lies Rover Way, beyond which lies the Celsa Manufacturing industrial works; to the east of the wider site lies a moto-cross motorbiking track built on a former waste tip, beyond which lies the Severn Estuary, and to the south of the metals recycling facility lies a Tide Fields Road and a large water treatment works. The surrounding landscape character is predominantly industrial

The application site extends to approximately 1.13 hectares (ha). The boundaries of the application site and survey area can be seen in Drawing 1, together with the results of the Phase 1 Habitat survey. At the time of survey the application site was dominated by hard-standing with two large pools of ephemeral standing water.

The wider survey area outside the application site, which extended into the surrounding metal recycling facility, was also dominated by hard-standing, with small industrial facility buildings and small areas of semi-improved grassland, dense scrub with scattered trees, and tall weedy vegetation.

All the habitats within the application site boundary will require re-engineering to permit development.

5.4 Description of the European Sites

The European sites identified as being within the potential zone of influence of the proposed development broadly overlap the same geographical area. This comprises the Severn Estuary, which has a funnel shape unique in Britain, that causes the Severn to have the second largest tidal range in the world. The tidal regime gives

extreme physical conditions that has resulted in plant and animal communities that are typically associated with liquid mud and tide swept rock, with high densities of ragworms, lugworms and other invertebrates that provide an important food source for passage and wintering waders. The large tidal range also provides an extensive intertidal zone, comprising mudflats, sandbanks, shingle and rocky platforms.

Severn Estuary Ramsar UK11081

The Severn Estuary Ramsar is 24,662.98 hectares. The qualifying criteria for Ramsar designation are met as follows:

- Ramsar criterion 1: Due to immense tidal range (second-largest in world), this affects both the physical environment and biological communities.
- Ramsar criterion 3: Due to unusual estuarine communities, reduced diversity and high productivity.
- Ramsar criterion 4: This site is important for the run of migratory fish between sea and river via estuary. Species include Salmon (Salmo salar), sea trout (S. trutta), sea lamprey (Petromyzon marinus), river lamprey (Lampetra fluviatilis), allis shad (Alosa alosa), twaite shad (A. fallax), and eel (Anguilla anguilla). It is also of particular importance for migratory birds during spring and autumn.
- Ramsar criterion 5 - Assemblages of international importance: Species with peak counts in winter, comprising 70919 waterfowl (5 year peak mean 1998/99-2002/2003).
- Ramsar criterion 6 – species/populations occurring at levels of international importance: Qualifying Species/populations (as identified at designation):
    - Tundra (also known as Bewick's) swan (Cygnus columbianus bewickii) 229 individuals, representing an average of 2.8% of the GB population (5 year peak mean 1998/9- 2002/3);
    - Greater white-fronted goose (Anser albifrons albifrons) 2076 individuals, representing an average of 35.8% of the GB population (5 year peak mean for 1996/7-2000/01);
    - Common shelduck (Tadorna tadorna), 3223 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3);
    - Gadwall (Anas strepera strepera) 241 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9- 2002/3);
    - Dunlin (Calidris alpina alpine) 25082 individuals, representing an average of 1.8% of the population (5 year peak mean 1998/9-2002/3); and
    - Common redshank (Tringa totanus tetanus), 2616 individuals, representing an average of 1% of the population (5 year peak mean 1998/9- 2002/3).
- Ramsar criterion 8: The fish of the whole estuarine and river system is one of the most diverse in Britain, with over 110 species recorded. Salmon, sea trout, sea lamprey, river lamprey, allis shad, twaite shad, and eel use the Severn Estuary as a key migration route to their spawning grounds in the many tributaries that flow into the estuary. The site is important as a feeding and nursery ground for many fish species, particularly allis shad and twaite shad which feed on mysid shrimps in the salt wedge.

In addition, a number of species/ populations have been identified subsequent to the designation for possible future consideration under criterion 6. Further noteworthy species also occur regularly at levels of national importance during the breeding season, or occur with peak counts in spring / autumn, or winter

Factors potentially adversely affecting the ecological character of the site include dredging, erosion, and disturbance from recreation/ tourism.

Severn Estuary SPA

The Severn Estuary SPA covers approximately 25,000 ha and is described on the JNCC website as follows:

"*The Severn Estuary is located between Wales and England in south-west Britain. It is a large estuary with extensive intertidal mud-flats and sand-flats, rocky platforms and islands. Saltmarsh fringes the coast backed by grazing marsh with freshwater ditches and occasional brackish ditches. The seabed is rock and gravel with sub-*

tidal sandbanks. The estuary's classic funnel shape, unique in the UK, is a factor causing the Severn to have the second- highest tidal range in the world (after the Bay of Fundy in Canada). This tidal regime results in plant and animal communities typical of the extreme physical conditions of liquid mud and tide- swept sand and rock. The species-poor invertebrate community includes high densities of ragworms, lugworms and other invertebrates forming an important food source for passage and wintering waders. A further consequence of the large tidal range is an extensive intertidal zone, one of the largest in the UK. The site is of importance during the spring and autumn migration periods for waders moving up the west coast of Britain, as well as in winter for large numbers of waterbirds, especially swans, ducks and waders."

The SPA qualifying features include the following populations of European importance:

- Overwintering Bewick's Swans: 280 individuals, representing at least 4.0% of the wintering population in Great Britain (5 year peak mean 1991/2 - 1995/6);
- Overwintering Curlew: 3,903 individuals representing at least 1.1% of the wintering Europe - breeding population (5 year peak mean 1991/2 - 1995/6);
- Overwintering Dunlin: 44,624 individuals representing at least 3.2% of the wintering Northern Siberia/Europe/Western Africa population (5 year peak mean 1991/2 - 1995/6);
- Overwintering Pintail: 599 individuals representing at least 1.0% of the wintering North-western Europe population (5 year peak mean 1991/2 - 1995/6);
- Overwintering Redshank: 2,330 individuals representing at least 1.6% of the wintering Eastern Atlantic - wintering population (5 year peak mean 1991/2 - 1995/6);
- Overwintering Shelduck: 3,330 individuals representing at least 1.1% of the wintering North-western Europe population (5 year peak mean 1991/2 - 1995/6); and
- Ringed Plover, on passage: 655 individuals representing at least 1.3% of the Europe/Northern Africa - wintering population (5 year peak mean 1991/2 - 1995/6).

The estuary also regularly supports at least 20,000 waterfowl which meets the SPA qualifying criterion of being a wetland of international importance. This is summarised as follows:

Over winter, the area regularly supports 93,986 individual waterfowl (5 year peak mean 1991/2 - 1995/6) including: gadwall (*Anas Strepera*), Shelduck (*Tadorna tadorna*), Pintail (*Anas acuta*), Dunlin (*Calidris alpina*), Curlew (*Numenius arquata*), Redshank (*Tringa tetanus*), Bewick's Swan Cygnus (*Columbianus bewickii*), Wigeon (*Anas penelope*), Lapwing (*Vanellus vanellus*), Teal (*Anas cracca*), Mallard (*Anas platyrhynchos*), Shoveler (*Anas clypeata*), Pochard (*Aythya farina*), Tufted Duck (*Aythya fuligula*), Grey Plover (*Pluvialis squatarola*), White-fronted Goose (*Anser albifrons*), and Whimbrel (*Numenius phaeopus*).

Conservation Objectives

The Conservation Objectives for the SPA are as follows:

"*Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive, by maintaining or restoring;*

- *The extent and distribution of the habitats of the qualifying features*
- *The structure and function of the habitats of the qualifying features*
- *The supporting processes on which the habitats of the qualifying features rely*
- *The population of each of the qualifying features, and,*
- *The distribution of the qualifying features within the site.* "

Severn Estuary SAC UK0013030

The Severn Estuary SAC is described as extending to 73,715.40 ha, '*lying on the south west coast of Britain at the mouth of four major rivers (the Severn, Wye, Usk, and Avon). The immense tidal range (the second highest in the world) and classic funnel shape make the Severn Estuary unique in Britain and very rare worldwide. This tidal range creates strong tidal streams and high turbidity, producing communities characteristic of the extreme*

physical conditions of liquid mud and tide-swept sand and rocks. The Estuary includes a wide diversity of habitats including Sandbanks which are slightly covered by sea water all the time, Mudflats and sandflats not covered by sea water at low tide, Atlantic salt meadows, and Reefs, which are identified as Annex I habitat types in their own right'.

The qualifying habitats and features for the SAC are listed as follows:

- Qualifying habitats: The site is designated under Article 4(4) of the Directive (92/43/EEC) as it hosts the following habitats listed in Annex I:
- Annex I habitats that are a primary reason for selection of this site
    - 1130 Estuaries;
    - 1140 Mudflats and sandflats not covered by seawater at low tide; and
    - 1330 Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*).
- Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site
    - 1110 Sandbanks which are slightly covered by sea water all the time; and
    - 1170 Reefs.
- Annex II species that are a primary reason for selection of this site
    - 1095 Sea lamprey;
    - 1099 River lamprey;
    - 1102 Alosa alosa; and
    - 1103 Twaite shad.

Threats to the designated site and the qualifying features comprise:

- Other urbanisation, industrial and similar activities
- Changes in abiotic conditions
- Human induced changes in hydraulic conditions
- Outdoor sports and leisure activities, recreational activities
- Modification of cultivation practices

5.5 Relevant Wetland Bird Survey Data

Current data from the Wetland Bird Survey (WeBS)[2] on trends (between 19984/85 and 2009/2010) includes bird species that comprise part of the qualifying features for the overlapping designations. Long term trends (up to 25 years) recorded from the WeBS have been summarised as follows for qualifying features where trends data is available. The five year peak mean for the period 2012/13 to 2016/17 is also given.

Bewick's swan: 30% decrease in population. Peak mean = 180 individuals.

Numbers of Bewick's Swan over-wintering on Severn Estuary SPA have been stable in the medium-term having previously declined. Consequently, Alerts have been triggered for the long-term. Numbers of this species over-

[2] Available from https://app.bto.org/webs-reporting/?tab=alerts. Accessed 10/04/2019

wintering within South West and Wales Regions combined have been decreasing long term. Numbers of this species over-wintering in Great Britain have been decreasing in the medium-term having previously peaked. The trend on the site appears to be tracking that of the region although not the British trend. The increasing proportion of regional numbers supported by this site suggest the environmental conditions remain relatively favourable and also indicates that this site is becoming increasingly important on a regional scale for this species. In conclusion, the similarity between the site trend and the regional trend suggests that the declining numbers underpinning these Alerts result from broad-scale population trends.

Ringed plover: Peak mean = 1726

No trend information is available for this passage species

Curlew: 7% increase in population. Peak mean = 3641

Numbers of Curlew over-wintering on Severn Estuary SPA having remained relatively stable long term. Consequently, no Alerts have been triggered for this species. Numbers of this species over-wintering within South West and Wales Regions combined have been decreasing in the medium-term having previously peaked. Numbers of this species over-wintering in Great Britain have been decreasing in the medium-term having previously peaked. The trend on the site does not appear to be tracking that of the either the region or the British trend. The increasing proportion of regional numbers supported by this site suggest the environmental conditions remain relatively favourable and also indicates that this site is becoming increasingly important on a regional scale for this species.

Dunlin: 35% population decrease. Peak mean = 27089

Numbers of Dunlin over-wintering on Severn Estuary SPA have been stable in the medium-term having previously declined. Consequently, Alerts have been triggered for the long-term and the period since designation. Numbers of this species over-wintering within South West and Wales Regions combined have been decreasing in the medium-term having previously peaked. Numbers of this species over-wintering in Great Britain have been decreasing in the medium-term having previously peaked. The trend on the site appears to be tracking that of the region and British trends. In conclusion, the similarity between the declining site trend and the regional and British trends suggests that the declining numbers underpinning these Alerts result from broad-scale population trends.

Pintail: 58% increase in population. Peak mean = 681

Numbers of Pintail over-wintering on Severn Estuary SPA have been increasing long term. Consequently no Alerts have been triggered for this species. Numbers of this species over-wintering within South West and Wales Regions combined have been decreasing in the short-term having previously peaked. Numbers of this species over-wintering in Great Britain have been decreasing in the short-term having previously been relatively stable. The trend on the site appears to be tracking that of the region although not the British trend. The stable proportion of regional numbers supported by this site suggest the environmental conditions remain relatively favourable for this species.

Redshank: 30% increase. Peak mean = 5330

Numbers of Redshank over-wintering on Severn Estuary SPA have been increasing in the short-term having previously been relatively stable. Consequently no Alerts have been triggered for this species. Numbers of this species over-wintering within South West and Wales Regions combined having remained relatively stable long term. Numbers of this species over-wintering in Great Britain having remained relatively stable long term. The trend on the site does not appear to be tracking that of the either the region or the British trend. The increasing proportion of regional numbers supported by this site suggest the environmental conditions remain relatively favourable and also indicates that this site is becoming increasingly important on a regional scale for this species.

Shelduck: 102% population increase. Peak mean = 4385

Numbers of Shelduck over-wintering on Severn Estuary SPA have been increasing long term. Consequently no Alerts have been triggered for this species. Numbers of this species over-wintering within South West and Wales Regions combined have been decreasing in the medium-term having previously peaked. Numbers of this species over-wintering in Great Britain have been decreasing in the medium-term having previously peaked. The trend on the site does not appear to be tracking that of the either the region or the British trend. The increasing proportion of regional and even country-wide numbers supported by this site suggest the environmental conditions remain relatively favourable and that this site is becoming increasingly important for this species.

5.6 Potential Impacts and Effects

The potential impacts and effects on European (Natura 2000) sites are identified by considering the nature and scale of the development, the location relative to the European sites and any ecological connectivity[3] to the development site.

This section describes the predicted impacts and effects of the proposed development on the identified important ecological features. It should be noted that the predicted impacts and effects are considered only the with respect to the qualifying features of the Natura 2000 sites. Other species or habitats that may be present within the Natura 2000 sites are not addressed here and not considered relevant to the HRA process.

Potential for Direct Impacts

The construction footprint of the proposed asphalt plant is currently entirely comprised of concrete hard-standing, located at approximately 230m from the boundary of the Severn Estuary European designated sites. There is no risk of habitat damage, loss or fragmentation within the European sites within the zone of influence as there is no land take or works proposed within the boundary of the European sites.

Potential for Indirect Impacts

The Preliminary Ecological Appraisal concluded that there were two potential pathways by which significant indirect impacts or effects on the Natura 2000 sites could potentially occur: noise and air quality (through dust and/or gaseous or particulate emissions).

It is noted that the scoping response also identified a third potential indirect impact pathway: the release of contaminants during groundworks, that are currently sequestered in landfilled steelworks waste buried beneath the site (known as the frag tip) (Section 3, Page 3, Ecology and Landscape). Such contaminants could then potentially enter the surface water system and reach the Severn Estuary Natura 2000 sites. However, neither the frag tip capping, overburden, nor contents will be excavated and no contaminated contents are considered to be at risk of release. Therefore, this potential indirect impact pathway has been excluded from further consideration.

Noise

An assessment of the potential impact of operational noise for the asphalt plant was undertaken by TNEI Energy Consultancy[4]. This document is provided as Appendix 1 and has been used to inform the assessment of impact for the operational phase of the development. No formal acoustic appraisal has been conducted of the potential impact noise occurring during the construction phase, and consequently standardised figures for construction noise have been taken from British Standard BS 5228-1:2009 +A1:2014 *Code of Practice for Noise and Vibration Control on Construction and Open Sites*.

[3] Structural connectivity is equal to habitat continuity and is measured by analysing landscape structure, independent of any attributes of organisms. This definition is often used in the context of metapopulation ecology. Functional connectivity is the response of the organism to the landscape elements other than its habitats (i.e. the non-habitat matrix). This definition is often used in the context of landscape ecology. (Kettunen *et al*. 2007) http://ec.europa.eu/environment/nature/ecosystems/docs/adaptation_fragmentation_guidelines.pdf

[4] Noise Impact Assessment of Asphalt Plan: Rover Way, Celsa Site produced by TNEI Services Limited. Reference 13331-001-R2

Whilst the boundaries of the designated Natura 2000 sites lie approximately 230m from the boundary of the application site, noise has the potential to travel and indirectly impact sensitive important ecological features over a significant distance. This can be affected not only by the volume of the noise, but also the sound profile: consistent droning or rumbling noises are typically less disturbing than sudden, unpredictable noises as wildlife can more easily become acclimated to the former.

Not all the qualifying features of the Severn Estuary Natura 2000 sites are noise sensitive. For example, the habitats listed under the SAC qualifying features will not be significantly affected by noise. Whilst the listed fish species can be noise sensitive, there is only a limited period during which the high tide could bring them close enough to the application site to potentially be affected (the mean low water mark is approximately 1km away from the application site boundary), and the potential effect would only occur over a very small proportion of the Severn Estuary SAC's 73,715 hectares.

However, noise does have the potential to disturb the over-wintering bird populations for which the SPA and the Ramsar (in part) sites are designated.

Construction Phase Effects

Noise arising from site construction activities could result in an indirect, cumulative, temporary, adverse impact on the over-wintering bird populations of the Severn Estuary Natura 2000 sites, should they be of sufficient intensity. This could potentially result in birds being displaced from within the vicinity of the application site and losing access to foraging territory or other resources.

The profile of the construction noise will involve random loud noises with an unpredictable start, that commence at full or near full intensity; for example, concrete breaking or pile driving. Such noise profiles are particularly disturbing to birds as they do not give the opportunity for acclimation.

The construction process involves upgrading the existing concrete pad and installing a modular asphalt plant onto it, anchoring the plant using minor piles and anchor points with tensile cables. A settlement lagoon will also be created. Concrete breaking and pile driving are anticipated the most potentially disturbing element of the construction works from an acoustic perspective.

Figures from BS 5228 consider the average volume of noise from a hand-held concrete breaker to be 93dB at 10m (louder than similar equipment mounted on plant, as less insulation is typically added) and piling to be 120dB at 10m. It is typically accepted that point noise sources decrease in volume by 6dB every time the distance from the source doubles, when taken across a flat plane with no baffles/barriers. On this basis, the noise level from concrete breaking on the application site boundary would be anticipated to be approximately 66dB at the boundary of the Severn Estuary Natura 2000 sites, and the pile-driving to be approximately 93db. This is approximately equivalent to a running dishwasher and a lawn mower, respectively.

However, the intervening landscape between the application site and the Severn Estuary is not a flat unobstructed plane. To the east and south, the land outside the application site the landscape rises in a high bank covered in woodland (Figure 5: A view across the application site with the wooded embankment along the east and south of the application site seen on the centre-right of the image.). Both the bank and woodland will act as an effective baffle to noise propagation, likely to significantly reduce the noise level at the boundary of the Severn Estuary Natura 2000 sites.

Figure 5: A view across the application site with the wooded embankment along the east and south of the application site seen on the centre-right of the image.

A winter bird survey by Sturgess Ecology conducted in 2015[5] is referenced in documentation supporting the consented development on the moto-cross site, which lies between the Harsco Metals application site and the Severn Estuary Natura 2000 sites. This document reports the findings of 36 hours of over-wintering bird survey, including the recording of sources of potential disturbance. The documentation noted that a dump truck driving along the foreshore five hours before high tide had no discernible effect on the birds feeding on the mudflats. A dump truck is considered to have a typical noise level of 85dB at 10m (BS 5228).

This would support the view that the anticipated noise from the concrete breaking (66dB) would have no significant effect on feeding birds at low tide, and the noise from the pile driving (93dB) is unlikely to either, particularly once the baffling effect of the intervening bank and woodland are taken into account.

The landscape surrounding the application site is also industrial in character, with the application site being constructed within the grounds of an operational metals recycling facility and close to a steelworks. The existing soundscape is therefore one in which industrial noises including operating plant and metal processing are normal. Local bird populations, including those that are qualifying features for the Natura 2000 sites, will be habituated to a considerable degree of anthropogenic noise. Background noise levels close to the application site, on the road between the metals recycling facility and the sewage works to the west, were recorded to be 66dB, although it is noted that background noise levels on the shore will likely be lower.

Further, the foraging resource available to the over-wintering birds is not a fixed point located on the edge of the Natura 2000 site boundary. The mudflats extend out approximately 800m to the low tide line and run for many kilometres up and down the coast. Temporary displacement of over-wintering foraging birds from the area close to the application site that may potentially be affected by noise, (if displacement occurs) is highly unlikely to have a significant negative effect on the ability of the bird species to maintain their population status, and undermine the conservation objectives of the Natura 2000 sites.

[5] Sturgess Ecology (2015). Proposed Wind Turbine at Rover Way, Cardiff. Winter bird survey March 2015.

It is considered that prior to the implementation of any mitigation, there is a low risk of causing a temporary, reversible, negative effect on the qualifying features of the SPA as foraging birds may be temporarily displaced a short distance. However, this is not likely to significantly negatively affect the Natura 2000 sites.

Operational Phase Effects

TNEI Limited has undertaken an assessment of the operational noise emissions of the asphalt plant (Appendix 1). This has indicated that the highest predicted noise level at the boundary of the Natura 2000 sites, arising from the operation of the plant, will be 35 dB and will be significantly lower across the majority of the designated sites. Figure 3 in Appendix 1 presents a noise contour plot illustrating this.

35dB is equivalent to a whispered conversation or running refrigerator. It is therefore considered that there will be no significant risk of negative effects on the Natura 2000 sites arising from operational noise.

Air Quality

The Air Quality Chapter of the Environmental Statement (Chapter 9) lists a number of potential sources for air pollution that could potentially affect the Natura 2000 sites of the Severn Estuary. These include:

- dust and particulate matter emissions (PM10 and PM2.5) generated during construction activities, for example, site clearance, stockpiling, materials transport and trenching;
- increases in nitrogen dioxide (NO_2)/ nitrogen oxides (NO_x), PM10 and PM2.5 concentrations due to exhaust emissions arising from construction traffic and Non-Road Mobile Machinery (NRMM) plant;
- increases in NO_2/NO_x, PM10 and PM2.5 concentrations due to exhaust emissions arising from traffic generated by the proposed development once operational;
- increase in PM10 concentrations due to stack emissions associated with the operational phase; and
- increase in fugitive emissions (dust and odour) due to operational activities.

Construction Phase Effects

Based on the IAQM *Guidance on the Assessment of Dust from Demolition and Construction* the Air Quality chapter considered that there was no risk of significant negative impact from construction dust on ecological receptors (Paragraph 9.3.23 of the Environmental Statement). The Guidance considers that impacts from construction dust should be considered on ecological receptors within 50m of the application site boundary and the Severn Estuary Natura 2000 site boundary is approximately 230m away.

The Air Quality chapter appraised the anticipated changes in pollutant concentration from emissions of NO_x, PM10, and PM2.5 from traffic and plant particulate emissions arising from construction as being insignificant and at negligible risk of causing significant negative impact to the Severn Estuary Natura 2000 sites.

The Air Quality chapter concluded that there would be no risk of significant negative effects on the qualifying features of the Severn Estuary Natura 2000 sites during the construction phase (Table 9-21, Environmental Statement).

Operational Phase Effects

Following review, the Air Quality chapter concluded that there was the potential for dust emissions arising from operational activities to potentially have a negligible to minor negative direct effect on the Severn Estuary Natura 2000 sites.

The IAQM minerals guidance, applicable to the operational dust assessment, states that receptors within 250m from dust generating activities should be considered. In addition, the Environment Agency's AERA guidance states that assessment will need to consider SPAs, SACs or Ramsar sites within 10km of an installation.

Figure 6: Operational Dust Buffer (Severn Estuary Natura 2000 Sites)This demonstrates the small fraction of the Natura 2000 site boundary which falls within this buffer zone.

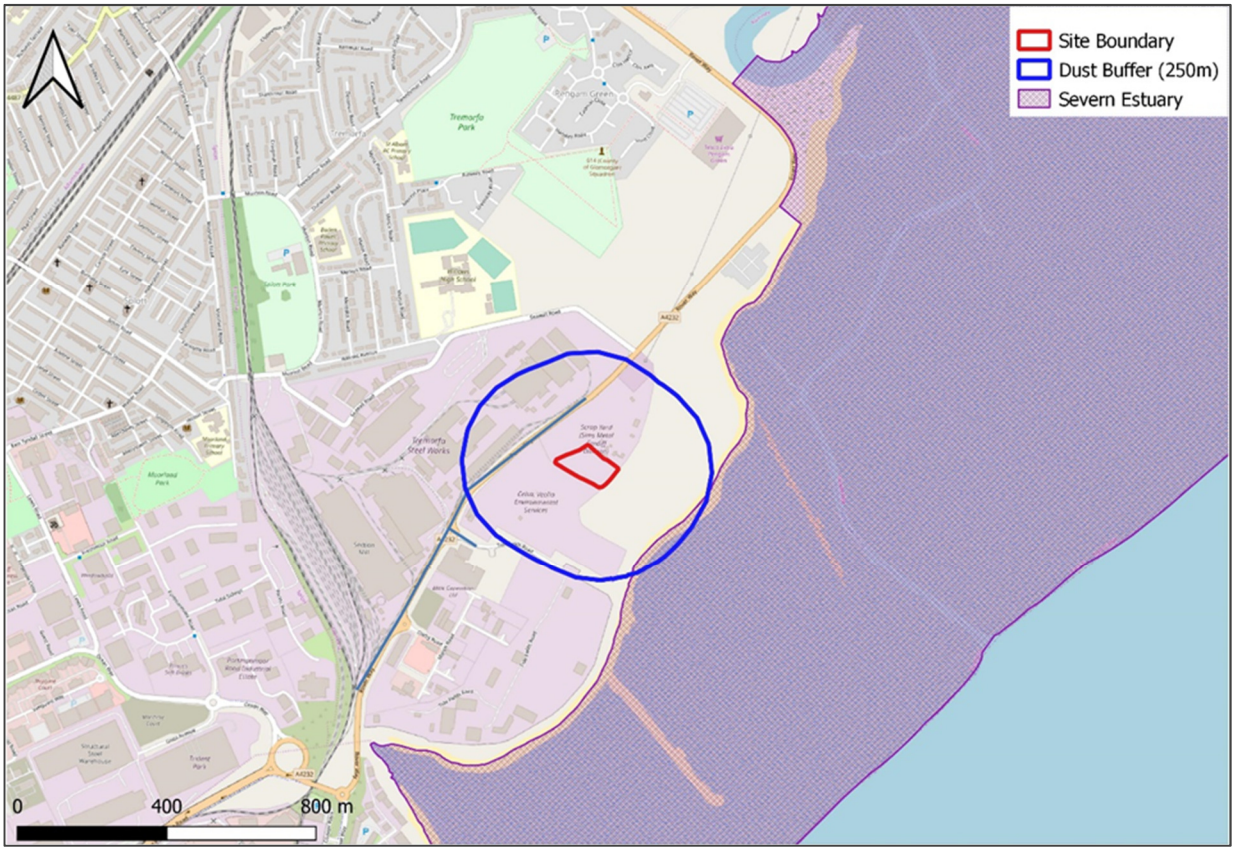


Figure 6: Operational Dust Buffer (Severn Estuary Natura 2000 Sites)

The habitats present within this region of the Natura 2000 site comprise mud flats that are washed twice daily by the tide. There is no significantly vegetated habitat with plants that could be negatively impacted by coating with dust (such as the Atlantic Salt Meadows for which areas of the Severn Estuary SAC are designated). The twice daily washing of the mud flats would prevent the build-up of any dust that may reach this far. Consequently, the qualifying features of the Natura 2000 within the potentially affected area are considered to have a low sensitivity to negative effects from dust deposition, and dust deposition is not anticipated to have a potential significant effect on any of the Severn Estuary Natura 2000 sites.

The Air Quality chapter of the Environmental Statement appraised the anticipated impacts of the proposed development on the Natura 2000 sites that may arise as a result of any increased vehicular traffic during operation. This was assessed using the worst-case scenario that every vehicle movement generated by the proposed development would head east from the application site and travel along the road closest to the Severn Estuary SAC (*i.e.* approximately 20 to 25m from the edge of qualifying Atlantic salt-meadow habitat), combined with the proposed plant's stack emissions.

The Air Quality assessment concluded that predicted increases in annual mean NOx, nutrient nitrogen and nitrogen contribution to acidity are all below 1% of the relevant Critical Level or Critical Load levels and so are considered to be 'insignificant'. The predicted increase in 24-hour mean NOx is less than 10% of the Critical Level across all the Severn Estuary SAC and is also considered to be 'insignificant'. Therefore, the air quality modelling has shown that air quality emissions arising from predicted traffic associated with the scheme would not be significant, even when using a worst-case assumption.

Therefore, no likely significant negative effects arising from air quality issues are anticipated during operation of the asphalt plant.

5.7 Cumulative Effects

Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can occur where a proposed development results in individually insignificant effects that, when considered in-combination with effects of other proposed or permitted plans and projects, can result in significant effects (CIEEM, 2018[6]).

Cumulative Noise Impacts

Committed developments at the Cardiff Motocross Centre MX and the SIMS Metal Recovery site are considered relevant as they are adjacent to the Site boundary. Construction impacts are temporary in nature and dependent on activities on any given day, with the likelihood of activities coinciding at a single location being limited.

Any cumulative noise-related impacts that may exist are limited to prolonged exposure to risk of effects rather than heightened risk on any given day (*e.g.* two sites may break concrete at different times, increasing the duration of noise).

The completion of the Cardiff Motocross Centre development to the east of the application site would ultimately provide a significant baffle to any construction noise arising from the application site. In addition to the construction of a biomass plant and industrial units, the proposals incorporate the construction of a large bund to provide visual and acoustic screening for the moto-cross site development from the coast. Should the Moto-cross Centre development be completed first, any risk of construction noise from the application site having a significant negative impact on the Severn Estuary Natura 2000 sites would be significantly reduced.

The proposed development is not considered likely to result in significant effects on the Severn Estuary Natura 2000 sites when considered in combination with other plans and projects, with respect to noise and acoustic impact.

Cumulative Air Quality Impacts

As set out in the Air Quality Chapter of the Environmental Statement (Chapter 9), an assessment has been undertaken of the air quality impacts of operational traffic from the proposed development on Atlantic Salt Marsh within the Severn Estuary SAC that considers both the proposed plant, and the cumulative effect of the plant with traffic from committed developments and also traffic that could occur from nearby land allocations.

The assessment has involved detailed air dispersion modelling has been undertaken using the Cambridge Environmental Research Consultants (CERC) ADMS Roads v4.1 air dispersion model, following guidance provided in LAQM.TG(16) to predict annual mean concentrations of nitrogen oxides (NOx).

The assessment has considered the likely changes in air quality as a result of the proposals according to the scenarios detailed above, on ambient NOx Air Quality Objectives (refer to as Critical Levels) and on nitrogen and acid deposition (refer to as Critical Loads). The assessment makes a number of 'worst case' assumptions in accordance with the instructed method, including:

- 100% of traffic generated by the scheme would travel north on Rover Way;
- 100% of traffic from committed developments would travel north Rover Way;
- That all committed development would be constructed;
- That the nearby allocated land will be entirely developed with traffic generating uses; and
- a single air quality model verification factor was applied across the modelled grid and transects, irrespective of their distance from the road.

When the cumulative effect of the scheme alongside committed developments and traffic arising from allocated land is considered, the air quality modelling does show that increases in annual mean NOx are seen above 1% of

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

the Critical Level at parts of the Severn Estuary SAC nearest to Rover Way. The air quality modelling shows that such exceedances only occur within a narrow strip of land on the periphery of the SAC that is nearest to Rover Way (Figure 11-2) and limited to an area of 1,327 m^2. This equates to approximately 0.0095% of the 1,400 hectares of the SAC Atlantic Salt Marsh resource.

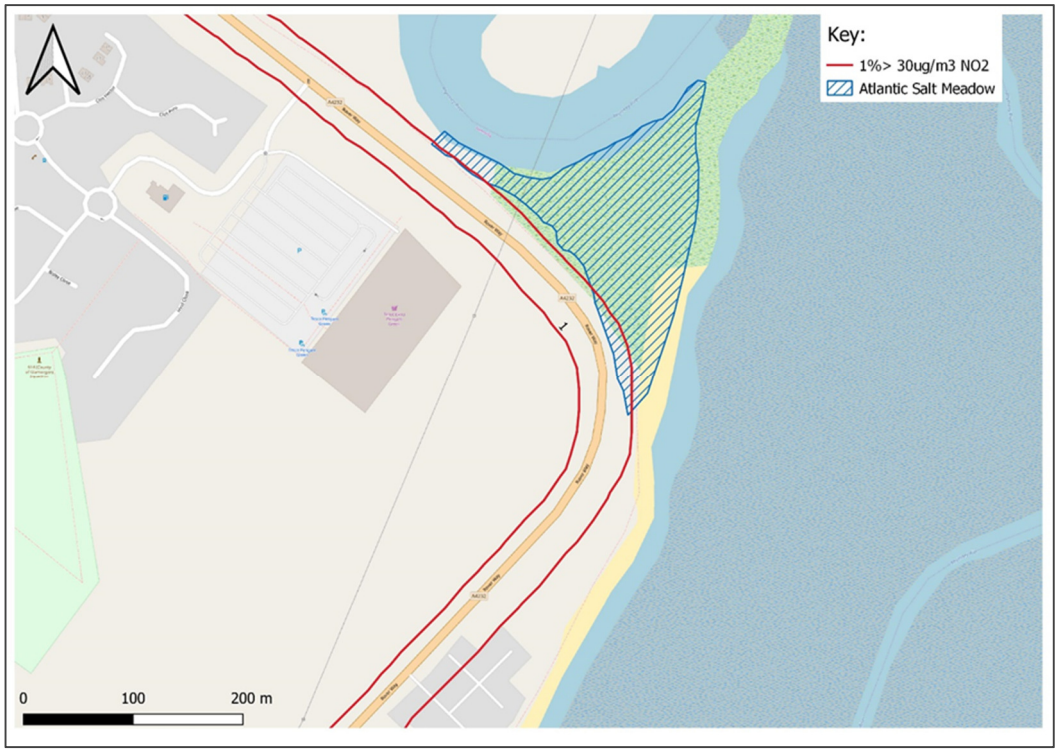


Figure 7: Annual mean NOx concentration >1% of the AQO

When the cumulative Do-Minimum and Do-Something scenarios are considered, it is clear that these exceedances would occur anyway in 2023 as a result of committed development, development of allocated land and the worst-case assumptions used for committed and allocated land inputs to the model. The emissions arising from already consented biomass facility development to the south-east alone would result in exceedance of the threshold in light of the worst-case scenario methodology.

Therefore, whilst the vehicle emissions anticipated as a result of the proposed development are insignificant when assessed alone, they will result in further exceedance of the threshold breached by the previously consented development (however negligibly). Likewise, any future development that generates traffic within the land allocation area will result in the threshold being breached further when assessed using the worst-case scenario methodology.

The anticipated physical impact of the threshold exceedance by the proposed development on the Atlantic salt-meadow is very difficult to quantify. At the worst-affected locations it is anticipated that the proposed development would contribute 0.42 µg/m^3 (0.00042 thousandths of a gram) to the existing background levels of nitrous oxides. Some of this may be deposited onto the Atlantic salt-meadow as nitrates, which would result in increased nutrient levels. Over time this fertilisation effect could result in reduced species diversity within the meadow, as less competitive plant species lose their advantage as nutrient levels increase. However, it is considered highly unlikely that the effect attributable to the portion of the increased nutrient load arising from the proposed development would be measurable.

5.8 Consideration of Findings

This report to inform HRA screening, based on available scientific information and project details provided indicates that the proposed asphalt plant is unlikely to have a significant negative effect on the Severn Estuary Natura 2000 sites when considered in isolation. Temporary disturbance of over-wintering bird species is technically possible during the construction process but this is not considered likely to be significant when considering the conservation objectives of the Severn Estuary Natura 2000 sites.

There is also considered to be potential for deposition of dust within the boundaries of the Natura 2000 sites during operation of the plant, but this is considered to be a negligible volume and unlikely to have a significant negative effect on the mudflats or over-wintering birds, particularly as the tide will wash the area twice a day.

With the implementation of appropriate mitigation, including the avoidance of particularly noisy construction activities such as concrete breaking or pile driving during the winter or at high tide, and best practice dust management, there is considered to be no risk of significant negative effects occurring as a result of the proposed asphalt batching plant development.

However, the cumulative impacts of the site's vehicle movements and emissions when considered with nearby consented developments and local plan allocations, would add to an already exceeded threshold for NOx deposition within an area of Atlantic salt-meadow that is a qualifying feature of the Severn Estuary SAC.

A 'worst-case scenario' assessment model was adopted that routed all traffic from the proposed asphalt plant and nearby consented developments east along Rover Way, adjacent to an area of Atlantic salt-meadow. This resulted in exceedance of the NOx deposition threshold across 1,327 m^2 of salt-meadow, equating to approximately 0.0095% of the 1,400 hectares of salt-meadow within the SAC. Previously consented developments are anticipated to result in exceedance of the threshold by themselves, before the contribution from the proposed asphalt plant is taken into consideration.

The contribution of the proposed development to the nutrient loading impacts on the salt-meadow is considered very difficult to quantify, and therefore uncertain, representing in effect a very small increase in nutrient input that may result in reduced species diversity over time. The asphalt plant proposals are considered highly likely to represent a negligible/unmeasurable fraction of the overall cumulative effect, and one which is likely to reduce in time with the introduction of higher proportions of electric vehicles. Whilst anticipated to be very small or negligible, any negative impact will affect the attainment of the conservation objectives for this qualifying feature.

Without mitigation it is considered that the proposals will exacerbate the existing anticipated cumulative impact and will result in a permanent reversible negative effect of uncertain significance (though anticipated to be very small or negligible) on a feature of Very High sensitivity (an internationally designated site). Due to the high sensitivity and international level designation of the Severn Estuary SAC, any negative impact upon the qualifying features should be subjected to Appropriate Assessment by the Local Authority.

Recommendations for ecological enhancement have also been made within the application site in line with national and local planning policy. If followed, the proposed development should have a minor positive impact on biodiversity at the local level, but this will have no significant effect, positive or negative, on the Natura 2000 sites.

This report does not constitute a 'screening assessment' and it is incumbent upon the competent authority to carry out the test for Likely Significant Effects as required under Article 6(3) of the Habitats Directive. The competent authority must now proceed with their assessment and provide a decision to the project proponent.

6.0 REFERENCES

Cooper, L. M. (2004). *Guidelines for Cumulative Effects Assessment in SEA of Plans*, EPMG Occasional Paper 04/LMC/CEA, Imperial College London.

Tyldesley. D., and Chapman, C., (2013) *The Habitat Regulations Assessment Handbook*, June 2018 Edition UK: DTA Publications Ltd.

European Commission (2001). *Assessment of Plans and Projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.*

European Commission (2000). *Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats Directive' 92/43/EEC.*

European Union Habitats Directive, (1992). *Council Directives 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.*

Scott Wilson and Levett-Therivel, (2006). *Appropriate Assessment of Plans.* Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants.

DRAWING 01

Site Survey Plan

Factory

ROVER WAY

Recycling Site Conveyors

N

SI

SI

SI

1

2

3

4

5

6

0 10 20 30 40m 60 80 100

Metres 1:1250

LEGEND

- APPLICATION SITE BOUNDARY
- SURVEY BOUNDARY
- HARDSTANDING
- EPHEMERAL STANDING WATER
- TALL WEEDS
- SI — SPECIES-POOR SEMI-IMPROVED GRASSLAND
- DENSE SCRUB
- SCATTERED TREES
- 1 — TARGET NOTE

HARSCO

SLR global environmental solutions

3RD FLOOR
THE BREW HOUSE
JACOB STREET
BRISTOL, BS2 0EQ

T: 01179 064280
www.slrconsulting.com

CELSA STEEL, ROVER WAY, CARDIFF

PHASE 1 HABITAT PLAN

DRAWING 1

Scale 1:1250 (A3)

Date JUNE 2019

DRAWN

416.09604.00001.27.001.0_PH1_HAB_PLAN.dwg

DRAWING 02

Designated Site Location Plan

Willows Mixed High School
Pengam Green
MADOC ROAD
MERCIA ROAD
MEREDITH ROAD
WILLOWS AVENUE
SEAWALL ROAD
SEAWALL ROAD
7m
CG
Drain
Outfall
Factory
Factory
Factory
ROVER WAY
Pipelines
Pipelines
LC
LC
LC
Recycling Site Conveyors
Conveyor
TIDE FIELDS ROAD
ROVER WAY
Mast
Tremorfa Industrial Estate
Track
0 50 100 150 200m 300 400 500
Metres 1:5000

NOTES

DESIGNATION INFORMAITON TAKEN FROM MAGIC DEFRA WEBSITE 25.06.2019.

LEGEND

- APPLICATION SITE BOUNDARY
- RAMSAR SITE
- SPECIAL PROTECTION AREAS (SPA)
- SPECIAL AREAS OF CONSERVATION (SAC)
- SITES OF SPECIAL SCIENTIFIC IMPORTANCE (SSSI)
- SITES OF IMPORTANCE FOR NATURE CONSERVATION (SINC)

HARSCO

SLR global environmental solutions
3RD FLOOR
THE BREW HOUSE
JACOB STREET
BRISTOL, BS2 0EQ
T: 01179 064280
www.slrconsulting.com

CELSA STEEL, ROVER WAY, CARDIFF

DESIGNATIONS

DRAWING 2

Scale 1:5000 (A3)

Date JUNE 2019

416.09604.00001.27.002.0_DESIGNATIONS.dwg

APPENDIX 01

Acoustic Impact Assessment Report - TNEI Services Limited

tnei

A specialist energy consultancy

Noise Impact Assessment

Asphalt Plant: Rover Way, Celsa Site

EAME

13331-001-R2
04 July 2019

PUBLISHED

EAME
Earth & Marine Environmental Consultants

tneigroup.com

Quality Assurance

TNEI Services Ltd and TNEI Africa (Pty) Ltd. ("TNEI") operates an Integrated Management System and is registered with Ocean Certification Limited as being compliant with ISO 9001(Quality), ISO 14001 (Environmental) and OHSAS 18001 (Health and Safety).

Disclaimer

This document is issued for the sole use of the Customer as detailed on the front page of this document to whom the document is addressed and who entered into a written agreement with TNEI. All other use of this document is strictly prohibited and no other person or entity is permitted to use this report unless it has otherwise been agreed in writing by TNEI. This document must be read in its entirety and statements made within may be based on assumptions or the best information available at the time of producing the document and these may be subject to material change with either actual amounts differing substantially from those used in this document or other assumptions changing significantly. TNEI hereby expressly disclaims any and all liability for the consequences of any such changes. TNEI also accept no liability or responsibility for the consequences of this document being relied upon or being used for anything other than the specific purpose for which it is intended, or containing any error or omission which is due to an error or omission in data used in the document that has been provided by a third party.

This document is protected by copyright and may only be reproduced and circulated in accordance with the Document Classification and associated conditions stipulated or referred to in this document and/or in TNEI's written agreement with the Customer. No part of this document may be disclosed in any public offering memorandum, prospectus or stock exchange listing, circular or announcement without the express and prior written consent of TNEI. A Document Classification permitting the Customer to redistribute this document shall not thereby imply that TNEI has any liability to any recipient other than the Customer.

Any information provided by third parties that is included in this report has not been independently verified by TNEI and as such TNEI accept no responsibility for its accuracy and completeness. The Customer should take appropriate steps to verify this information before placing any reliance on it.

Document Control

Revision	Status	Prepared by	Checked by	Approved by	Date
R0	DRAFT	JS	JM	JM	20/06/2019
R1	FIRST ISSUE	JS	JM	JM	21/06/2019
R2	FINAL ISSUE	JS	JM	JM	04/07/2019

TNEI Services Ltd

Company Registration Number: 03891836 **VAT Registration Number: 239 0146 20**

Registered Address	7th Floor	
Bainbridge House	West One	Spaces
86-90 London Road	Forth Banks	1 West Regent Street
Manchester	Newcastle upon Tyne	Glasgow
M1 2PW	NE1 3PA	G2 1RW
Tel: +44 (0)161 233 4800	Tel: +44 (0)191 211 1400	Tel: +44 (0)141 428 3180

TNEI Africa (Pty) Ltd

Registered: Mazars House, Rialto Rd, Grand Moorings Precinct, 7441 Century City, South Africa

Company Number: 2016/088929/07

1st Floor
Willowbridge Centre
Carl Cronje Drive
Cape Town
South Africa, 7530
Tel: +27 (0)21 974 6181

Contents

TABLES

APPENDICES

Appendix E – Figures

1 Introduction

TNEI have been commissioned to undertake an environmental Noise Impact Assessment (NIA) in order to support the planning applications and environmental permit applications for a number of developments located within the Celsa owned site on Rover Way, Cardiff. Three developments are proposed, specifically, a Metal Recycling Centre (already consented), a Shredder and Shear and an Asphalt Plant.

This report considers operations of the Asphalt Plant only (the Proposed Development), and is provided in order to support the Proposed Development's planning application, however, it should be noted that a cumulative noise impact assessment for all three developments will also be undertaken and this will be incorporated within a report to be issued at a later date for the Environmental Permitting application.

The Proposed Development is at approximate OS coordinates 321460, 176264.

The aims of the NIA are to:

- Identify potential noise sensitive receptors in the vicinity of the Proposed Development and quantify the existing baseline noise levels at these locations;
- Identify the noise sources associated with the operation of the Proposed Development;
- Calculate the likely levels of noise at the nearest receptors to determine the noise impacts associates with the Proposed Development; and,
- Indicate any requirements for mitigation measures, if required, in order to provide sufficient levels of protection for nearby receptors.

1.1 Nomenclature

Please note the following terms and definitions, which are used throughout this report:

- Emission refers to the noise level emitted from a noise source, expressed as either a sound power level or a sound pressure level;
- Immission refers to the sound pressure level received at a specific location from a noise source;
- SWL indicates the sound power level in decibels (dB);
- SPL indicates the sound pressure level in decibels (dB);
- NML refers to any location where baseline noise levels have been measured, Noise Monitoring Location.
- NSRs are all identified receptors which are sensitive to noise, Noise Sensitive Receptors; and
- NAL refers to any location where the noise immission levels are calculated and assessed, Noise Assessment Location.

In the interests of clarity, a Glossary of Terms is also provided as Appendix A. All Figures can be found in Appendix F.

Unless otherwise stated, all noise levels refer to free field levels i.e. noise levels without influence from any nearby reflective surfaces;

All grid coordinates refer to the Ordnance Survey grid using Eastings and Northings.

2 Project Description

2.1 Development Description

The Proposed Development is located within the Celsa site to the South of Rover Way, Cardiff.

The Proposed Development will consist of a Parker StarMix 4000 asphalt production plant. A drawing of the site layout is provided within Appendix B. The asphalt production facility will introduce new noise sources to the local area in the form of externally located fixed plant as well as some mobile plant. Specifically, the dominant noise sources which require consideration within the assessment will be:

- Tracked Excavator (loading materials into cold feed system);
- Cold Feed Conveyor;
- Aggregate Dryer;
- Loading Car;
- Loading Car Winch; and,
- Loading of asphalt into lorries.

The local noise environment at the site of the Proposed Development is dominated by noise from the existing industrial activities and processes being undertaken within the Celsa site and also road traffic on Rover Way.

2.2 Study Area

NSRs are properties, people or fauna which are sensitive to noise and, therefore, may require protection from nearby noise sources. A large number of residential NSRs are located to the north of the wider Celsa site, with the closest NSRs being located at approximately 500 m North West of the Proposed Development on Willows Avenue. A traveller site is located approximately 650 m to the North East on Rover Way. No nearby NSRs have been identified in any other directions.

The area around the coastline to the south and east of the development site is designated as SPA, Ramsar and SAC and as such it is also important to consider any noise effects that may occur to wildlife within these areas.

The Study Area, which is detailed within Figure 1 (in Annex E), has been defined through the identification of the closest NSRs to the development. Specifically, the study area is defined by the closest NSRs to the Proposed Development on the assumption that if noise levels are within acceptable levels at the closest receptors then it is reasonable to assume they will also be acceptable at more distant locations.

3 Assessment Methodology

3.1 Legislation and Policy Context

The overarching European legislation in respect of environmental noise is the 'Environmental Noise Directive' (END) (2002). The END aims to limit people's exposure to noise and requires each member state to provide data on noise exposure and to adopt action plans to prevent or reduce noise exposure and preserve environmental noise quality where it is already good.

3.1.1 Noise and Soundscape Action Plan 2018–2023

The Welsh Government, in 2018, published the Noise and Soundscape Action Plan 2018–2023 (NSAP), which outlines the Welsh public sector's strategic policy direction in relation to noise and soundscape management.

With regards to industrial noise the NSAP explains how noise from major industrial sources is regulated by Natural Resources Wales (NRW) through the Environmental Permitting Regulations 2016 (EPR). Paragraph 8.2.5 states;

"Under EPR, noise is regulated through the use of standard noise conditions and each site's environmental management plan, rather than through the use of specific limits. This provides greater flexibility for adaptation to a changing soundscape."

3.2 Assessment Methods

A number of standards and guidelines are available for the assessment of environmental noise from industrial developments. Typically, assessments are based on a comparison of likely noise levels against either 'context' based limits or a set of fixed limits.

Context based limits are set relative to the existing noise environment and may also consider the characteristics of the noise source(s), whilst fixed limits are usually set regardless of the existing noise environment or type of noise source(s).

In order to determine the most appropriate method of assessment TNEI undertook consultation with an Environmental Health Officer at Cardiff Council. It was agreed that where noise level modelling showed that noise immission levels from the proposed developments were at least 10 dB below the existing ambient levels then no further assessment would be necessary. If however, noise levels were above or within 10dB of the existing levels then a BS4142 'context based' assessment would be required. Baseline monitoring locations were also agreed with the EHO.

3.3 Calculation Methods

In order to predict the noise immission levels attributable to the Development a noise propagation model is constructed using the propriety noise modelling software CadnaA. Within the software, complex models can be produced in order to simulate the propagation of noise according to a range of international calculation standards.

For this assessment, noise propagation is calculated in accordance with ISO9613 '*Acoustics – Attenuation of sound during propagation outdoors'* using the following input parameters:

- Temperature is assumed to be 10°C and relative humidity as 70%;
- A ground attenuation factor of 0 (hard ground) is used; and

- Receiver heights are set to 4 m for residential buildings (to represent a first floor bedroom) and 1.5 m for the single story dwellings within the traveller site.

The noise propagation model is intended to give a good approximation of the specific sound level and the contribution of each individual sound source, however, it is expected that measured levels are unlikely to be matched exactly with modelled values and the following limitations in the model should be considered:

- In accordance with ISO9613, all assessment locations are modelled as downwind of all sound sources and propagation calculations are based on a moderate ground-based temperature inversion, such as commonly occurs at night. These conditions are favourable to the propagation of sound;
- Table 5 of ISO9613 estimates overall accuracy for broadband noise predictions of ± 3dB, with average source to receiver heights <5m, at distances of up to 1000m;
- The predicted barrier attenuation provided by local topography, embankments, walls, buildings and other structures in the intervening ground between source and receiver can only be approximated and not all barrier attenuation will have been accounted for; and
- The model assumes all sound sources are operating continuously and simultaneously, estimating a worst-case source noise level.

4 Baseline Sound Level Monitoring

Attended baseline sound level monitoring was undertaken at the three locations agreed with the EHO on the 12th and 13th May 2019 during daytime periods only. No night-time working is proposed however some operations may occur from 06:00 onwards and include Sundays. As such, baseline monitoring was conducted during early morning and Sunday time periods as well as during regular daytime working hours.

Table 4-1 details the Noise Monitoring Locations (NMLs), which are also displayed on Figure 1 (in Annex E).

Table 4-1: Baseline Noise Monitoring Locations

NML		Coordinates		Comments
ID	Descriptor	Easting	Northing	
NML01	Willow Avenue	321084	176583	Representative of closest NSRs to the North West on Willows Avenue.
NML02	Rover Way	321788	176715	Representative of NSRs within the traveller site on Rover Way.
NML03	Runway Road	321283	177044	Representative of closest NSRs to North in the area of Pengam Green and Tremorfa Park.

Throughout all of the monitoring periods wind speeds were low and no precipitation events were noted.

The noise monitoring equipment consisted of a Cirrus Optimus Green integrating sound level meter (SLM) fitted with a standard wind shield. All noise monitoring equipment (calibrator, SLM and microphone) used for the study are categorised as Class 1, as specified in IEC 61672-1 'Electroacoustics. Sound level meters. Specifications' (IEC, 2002). The equipment was calibrated on site at the beginning and end of each measurement period with no significant deviations noted. Appendix C contains the equipment and laboratory calibration details.

All measurements were made with the sound level meter (SLM) and microphone mounted on a tripod approximately 1.5 meters above the ground and away from nearby reflective surfaces i.e. building façades, fences etc.

At all locations, measurements were logged in 5 minute periods. Table 4-2 details the arithmetic average $LAeq_{(5mins)}$ Ambient Sound Level, for a number of periods of interest including, early mornings, Sundays and weekdays.

Early morning measurements consisted of at least a 15-minute survey at each NML between 06:00 and 07:10 per day.

Measurements made after 07:00 for all NMLs were conducted during both morning and afternoon periods for a minimum of 75 mins total survey time per day.

A breakdown of the logged LAeq sound levels can be found in Appendix C.

Table 4-2: Average Ambient Sound Levels, dB $L_{Aeq(5mins)}$

Measurement Location		Measurement period			
ID	Descriptor	Sunday: Early Morning 06:00 – 07:00	Sunday: Daytime	Weekday: Early Morning 06:00 – 07:00	Weekday: Daytime
NML01	Willow Avenue	61	61	62	64
NML02	Rover Way	70	74	76	75
NML03	Runway Road	44	46	51	48

5 Operational Noise Impacts

5.1 Modelling of Individual Sources

The noise model considers all of the individual sound sources detailed within Section 2.1.

In order to determine appropriate source noise levels (the Specific Sound Level) for input into the noise model TNEI undertook noise monitoring of a similar development operated by the planning applicant at their site in Rotherham.

The same SLM and associated equipment as used for the baseline data was used for the specific sound level monitoring, which was conducted on site during normal operations.

The measured SPL data for each noise source is provided in Appendix D. Table 5-1 details the calculated SWL data used in the noise model for each source. The conversion from SPL to SWL is undertaken automatically within the CadnaA software and is based on the measurement distance and the proximity of the source to any reflective surfaces during the measurement period.

Table 5-1: SWL for Parker StarMix 4000 Modelled Sound Sources, dB

Name	31.5	63	125	250	500	1000	2000	4000	8000	A	lin
Aggregate Dryer	101	99	99	96	94	89	87	82	77	96	106
Cold Feed Conveyor	87	91	86	83	81	78	74	69	64	83	94
Loading Car	115	115	114	109	103	100	98	94	89	107	120
Material loading into lorries	101	103	96	94	92	92	93	94	89	100	107
Winch for Loading	101	96	91	90	89	90	88	89	84	95	103

Along with the fixed plant detailed above, a tracked excavator will be used to load materials into the asphalt plant. This has been modelled as a fixed-point source in the area of the asphalt bins. In reality the excavator will move around the site, therefore, noise levels will fluctuate, however, given the separation distances between source and receiver and the fact that the point source is assumed to be operating continually it is thought that this provides a reasonable approach to modelling. Source level data for the excavator has been taken directly from Annex C of BS5228:2009+A1:2014 '*Code of practice for noise and vibration control on construction and open sites. Noise*'. The BS5228:2009 standard contains sound power level data for a variety of construction plant. This data was obtained from field measurements of actual plant operating on construction and open sites in the United Kingdom and is therefore appropriate to use as source level data for the noise propagation calculations.

5.2 Calculated Noise Immission Levels

The broadband noise immission levels have been calculated assuming all plant is operating continuously and concurrently and at maximum capacity.

The predictions have been made for a total of four assessment locations and these are detailed in Table 5-2. In addition, Figures 2 and 3 presents an isopleth noise contour plot for a height of 4 m overlaid on digital mapping data. Figure 2 details the noise propagation towards the residential receptors. Figure 3 is provided to illustrate the noise propagation in the areas of the ecological receptors.

Table 5-2: Noise immission Levels, dB $LAeq_{(t)}$

Noise Assessment Location		Predicted Noise Level, dB $L_{Aeq(t)}$
NAL ID	**NAL Descriptor**	**NAL ID**
NAL01	Willows Avenue	37
NAL02	Traveller Site	34
NAL03	Greenbay Road	33
NAL04	Hind Close	33

6 Noise Impact Assessment

6.1 Noise Impacts on Residential Receptors

Table 6-1 compares the predicted noise levels with the lowest measured ambient sound levels, which in all cases were between 06:00 and 07:00 on Sunday morning.

Table 6-1: Comparison of Predicted Versus Existing Ambient Sound Levels (on Sunday mornings)

NAL ID	Ambient Sound Level, dB $L_{Aeq(t)}$	Predicted Noise Level, dB $L_{Aeq(t)}$	Margin Above/Below (+/-) Existing Levels, dB
NAL01	61	37	-24
NAL02	70	34	-36
NAL03	44	33	-11
NAL04	44	33	-11

It can be seen that for all NALs the predicted levels are more than 10 dB below the existing ambient sound levels. Accordingly, no further assessment for residential receptors is required.

6.2 Noise Impacts on Ecological Receptors

Figure 3 illustrates how the sound levels propagate outwards from the Proposed Development across the designated SPA/Ramsar/SAC sites. It can be seen that along the shoreline to the south of the Proposed Development the predicted noise level varies between 30 and 35 dB $L_{Aeq(t)}$. 35 dBA is the maximum level within any of the designated areas. No baseline sound level measurements have been undertaken in this area for comparison, however, given the amount of existing industrial activity in the area it is expected that ambient sound levels will be higher than the predicted levels.

It is noted that in a 2017 noise assessment report[1] for another nearby proposed development by Industrial Noise and Vibration Centre Ltd (INVC) the existing noise levels measured close to the Celsa site and approximately 250 m from the coast, were around 63 dB $L_{Aeq(85\ mins)}$.

With due regards to the above, it is assumed that noise levels across the designated areas will not be increased due to operations from the Proposed Development. Accordingly, no adverse noise impacts are anticipated.

[1] *Report number 8804, Environmental Noise Assessment — Industrial development at Parc Calon Gwyrdd, Rover Way, Cardiff:* (August 2017) INVC Ltd

7 Summary

In order to assess the impact of noise emissions from the proposed asphalt plant development, TNEI has produced a noise propagation model in accordance with ISO9613-2, which predicts the noise immission levels at the nearest identified NSRs.

The assessment has been made against the existing ambient sound levels, which were quantified through baseline noise level monitoring during early mornings, Sundays and regular weekday working hours.

During consultation with Cardiff Council it was agreed that if noise immission levels were predicted to be more than 10 dB below the existing noise levels then no further assessment would be necessary. The assessment has determined that noise immission levels are likely to be more than 10dB below the existing noise levels at all receptor locations and for all proposed working periods.

Figure 3 illustrates the predicted sound levels across the nearby SPA/Ramsar/SAC sites. The highest predicted noise level from the Proposed Development in these areas is approximately 35 dB $L_{Aeq(t)}$ and across the majority of the designated areas it will be lower than this. Given that the existing noise levels are expected to be significantly higher than the predicted levels it is unlikely that operational noise from the Proposed Development will result in an increase in overall noise levels.

Accordingly, it is considered that the Proposed Development will not have an adverse noise impact on the local area.

Nothwithstanding the above, it is noted that a cumulative noise assessment will be undertaken as part of the Proposed Development's Environmental Permit application, which will consider the overall noise output from the Celsa site, including existing, consented and other proposed activities and developments.

Appendix A – Glossary of Terms

Attenuation: the reduction in level of a sound between the source and a receiver due to any combination of effects including: distance, atmospheric absorption, acoustic screening, the presence of a building façade, etc.

Background Sound Level: the sound level rarely fallen below in any given location over any given time period, often classed according to daytime, evening or night-time periods. The LA90 indices (see below) are typically used to represent the background sound level.

Broadband Noise: noise with components over a wide range of frequencies.

Decibel (dB): the ratio between the quietest audible sound and the loudest tolerable sound is a million to one in terms of the change in sound pressure. A logarithmic scale is used in sound level measurements because of this wide range. The scale used is the decibel (dB) scale which extends from 0 to 140 decibels (dB) corresponding to the intensity of the sound level.

dB(A): the ear has the ability to recognise a particular sound depending on its pitch or frequency. Microphones cannot differentiate sound in the same way as the ear, and to counter this weakness the sound measuring instrument applies a correction to correspond more closely to the frequency response of the human ear. The correction factor is called 'A Weighting' and the resulting measurements are written as dB(A). The dB(A) weighting is internationally accepted and has been found to correspond well with people's subjective reaction to sound levels and noise. Some typical subjective changes in sound levels are:

- a change of 3dB(A) is just perceptible;
- a change of 5dB(A) is clearly perceptible;
- a change of 10dB(A) is twice (or half) as loud.

Directivity: the property of a sound source that causes more sound to be radiated in one direction than another.

Emission: the sound energy emitted by a sound source (e.g. a wind turbine).

Frequency: the pitch of a sound in Hz or kHz. See Hertz.

Ground Effects: the modification of sound at a receiver location due to the interaction of the sound waves with the ground along its propagation path from source to receiver. Described using the term 'G', and ranges between 0 (hard ground), 0.5 (mixed ground) and 1 (soft ground).

Hertz (Hz): sound frequency refers to how quickly the air vibrates, or how close the sound waves are to each other (in cycles per second, or Hertz (Hz)).

Immission: the sound pressure level detected at a given location (e.g. the nearest dwelling).

Isopleth: a line on a map connecting points of equal value, for example air pressure, noise level etc.

Noise: unwanted sound

Lw: is the sound power level. It is a measure of the total sound energy radiated by a sound source and is used to calculate sound levels at a distant location. The *LWA* is the A-weighted sound power level.

Leq: is the equivalent continuous sound level, and is the sound level of a steady sound with the same energy as a fluctuating sound over the same period. It is possible to consider this level as the

ambient noise encompassing all noise at a given time. The LAeq,T is the A-weighted equivalent continuous sound level over a given time period (T).

L90: index represents the sound level exceeded for 90 percent of the measurement period and is used to indicate quieter times during the measurement period. It is often used to measure the background sound level. The LA90,10min is the A-weighted background sound level over a ten minute measurement sample.

Sound Level Meter: an instrument for measuring sound pressure level.

Sound Pressure Level: a measure of the sound pressure at a point, in decibels.

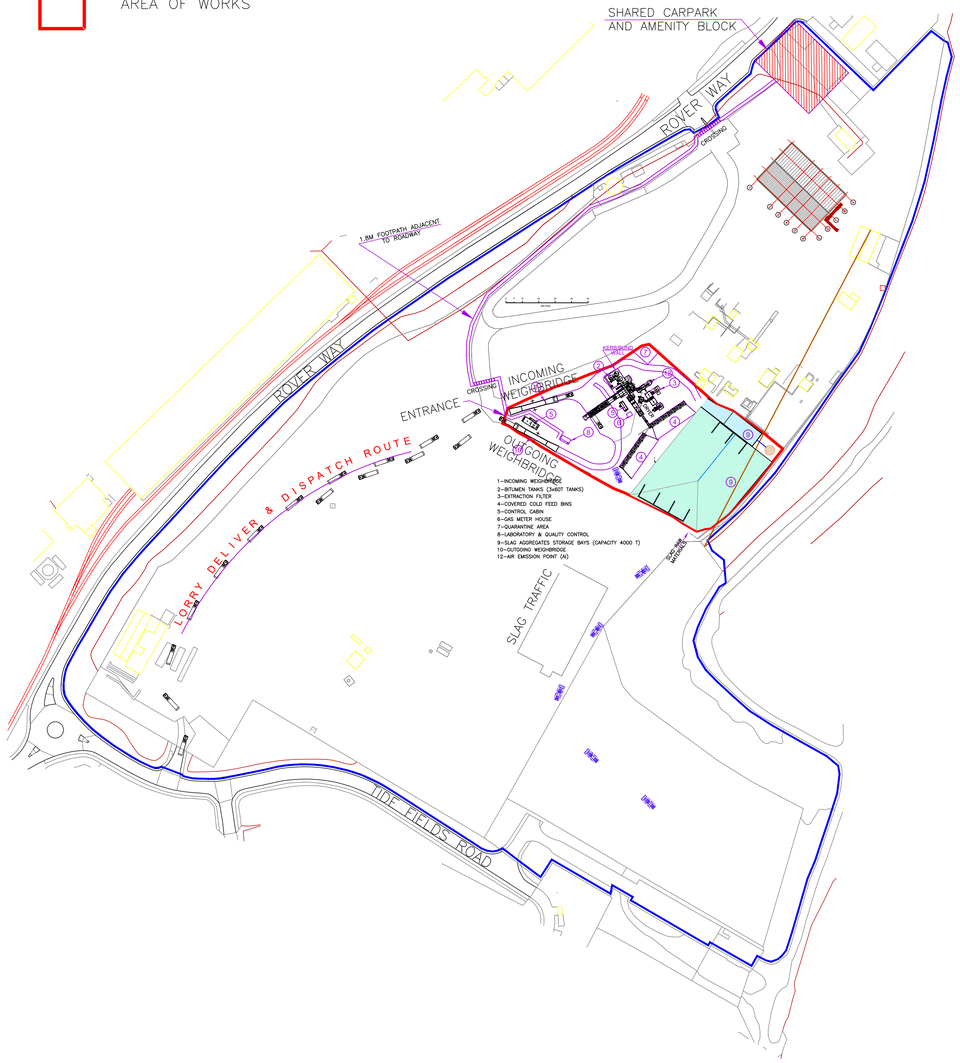
Tonal Noise: noise which covers a very restricted range of frequencies (e.g. a range of ≤20 Hz). This noise is subjectively more annoying than broadband noise.

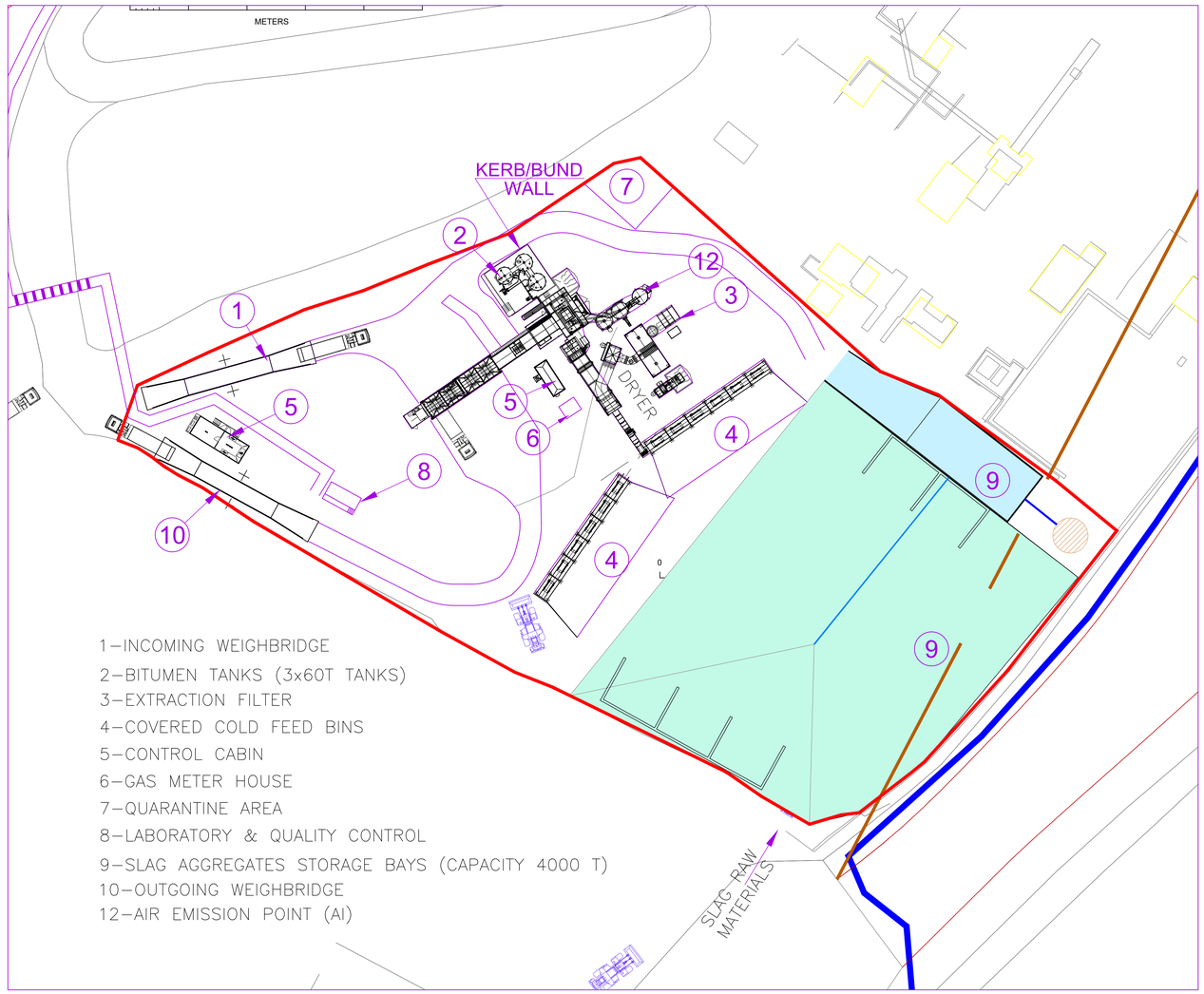
Appendix B – Site Information

LEGEND

DENOTES CELSA SITE OWNERSHIP
AREA = 150,669m² (15.07ha)

AREA OF WORKS





ASPHALT PLANT AREA
(CIRCA 10,022 M²)
SCALE 1:500 ON A0

NOTES

1. Do not scale from this drawing
2. Dimensions are for reference only
3. Plants' components and their locations are preliminary and may change during design stage
4. This drawing is prepared, in part, based on information provided by others. While this information is believed to be reliable, Harsco Metals assume no responsibility for inaccuracies, errors or omissions that might have been incorporated into this drawing as a result of incorrect information provided to us
5. This drawing is for planning purposes only. Not to be used for construction

RevNo	Revision note	Date	Signature	Checked
1	STREET NAMES ADDED	01.10.2018	AI	
0	RELEASED FOR DISCUSSION	26.09.2018	AI	

OWNER: HARSCO METALS&MINERALS
ENGINEERING DEPT.
HARSCO HOUSE, Bradmarsh Business Park, The Point, Bradmarsh Way
Rotherham, S60 1 BW, UK. TELEPHONE +44(0)1709 536850, FAX +44(0)1709 536805

VENDOR/CONSULTANT:

PROJECT: ASPHALT PRODUCTION AT CELSA CARDIFF

PROJECT No.: O1994

	NAME	SIGN	DATE
ENGR	AI		25.09.18
DRAWN	AI		26.09.18
CHKD			
APPD			

TITLE:- NEW ASPHALT PLANT AT CELSA CARDIFF. LOCATION PLAN OPTION 7.5

SCALE 1:1250

DRG. NO. O1994-00-01-07.05

SIZE A0 REV. 0

RELEASED FOR
☑ PRELIMINARY ☐ INFORMATION ☐ APPROVAL ☐ FABRICATION ☐ CONSTRUCTION

Appendix C – Baseline Data

Certificate of Calibration

Cirrus Research plc
dedicated to noise measurement

Equipment Details

Instrument Manufacturer	Cirrus Research Plc
Instrument Type	CR:171B
Description	Sound Level Meter
Serial Number	G078532

Calibration Procedure

The instrument detailed above has been calibrated to the publish test and calibration data as detailed in the instrument hand book, using the techniques recommended in the latest revisions of the International Standards IEC 61672-1:2013, IEC 61672-1:2002, IEC 60651:1979, IEC 60804:2001, IEC 61260:1995, IEC 60942:2003, IEC 60942:1997, IEC 61252:1993, ANSI S1.4-1983, ANSI S1.11-1986 and ANSI S1.43-1997 where applicable.
Sound Level Meters: All Calibration procedures were carried out by substituting the microphone capsule with a suitable electrical signal, apart from the final acoustic calibration.

Calibration Traceability

The equipment detailed above was calibrated against the calibration laboratory standards held by Cirrus Research plc. These are traceable to International Standards {A.0.6}. The standards are:

Microphone Type	GRAS 40AP	Serial Number	173198	Calibration Ref.	0170
Calibrator Type	B&K 4231	Serial Number	2594796	Calibration Ref.	A1811

Calibrated by

Calibration Date 28 September 2018

Calibration Certificate Number 264128

This Calibration Certificate is valid for 12 months from the date above.

Cirrus Research plc, Acoustic House, Bridlington Road, Hunmanby, North Yorkshire, YO14 0PH
Telephone: +44 (0) 1723 891655 Fax: +44 (0) 1723 891742
Email: sales@cirrusresearch.co.uk

CERTIFICATE OF CALIBRATION

ISSUED BY **Cirrus Research plc**

DATE OF ISSUE **28/09/18** CERTIFICATE NUMBER **122474**

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: 211155D

Calibration procedure

Date of calibration: 18 September 2018

Open circuit: 48.1 mV/Pa

Sensitivity at 1 kHz: -26.4 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: 98.90 kPa

Temperature: 21.0 °C

Humidity: 62.0 %

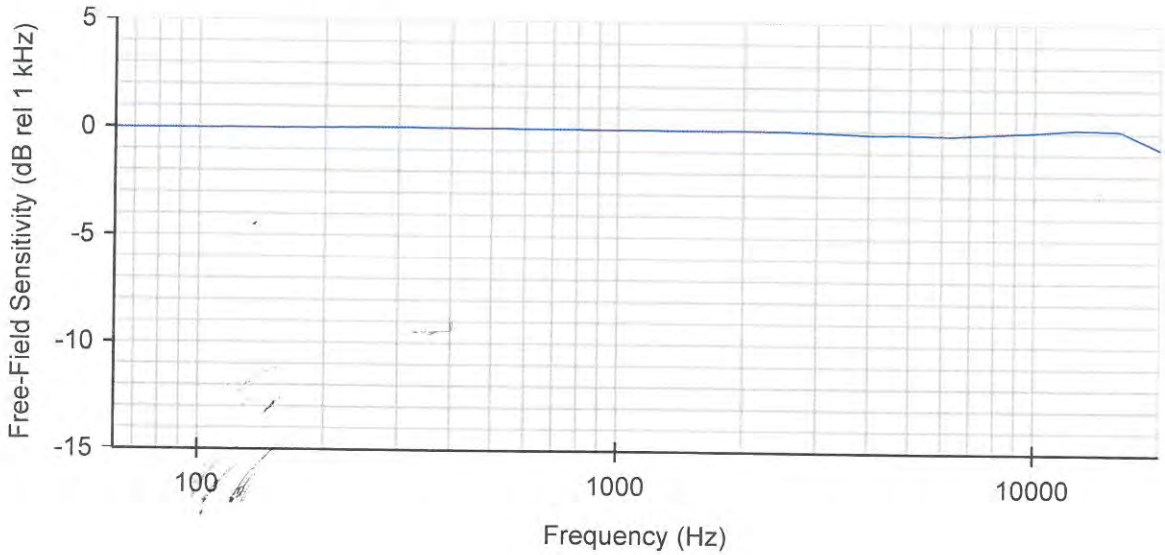
CERTIFICATE OF CALIBRATION

Certificate Number: **122474**

Free-Field Frequency Response : Tabular

Frequency (Hz)	Free-Field Sensitivity (dB rel 1 kHz)	Actuator Response (dB)
63	-0.02	-0.21
80	-0.02	-0.10
100	-0.02	-0.04
125	0.01	0.02
160	-0.01	0.02
200	0.02	0.05
250	0.05	0.04
315	0.04	0.05
400	0.03	0.04
500	0.03	0.04
630	0.02	0.03
800	0.01	0.00
1 000	0.00	-0.02
1 250	0.00	-0.05
1 600	-0.01	-0.13
2 000	0.00	-0.22
2 500	-0.01	-0.36
3 150	-0.06	-0.61
4 000	-0.14	-0.97
5 000	-0.13	-1.46
6 300	-0.17	-2.16
8 000	-0.07	-3.20
10 000	0.02	-4.70
12 500	0.17	-6.29
16 000	0.13	-7.66
20 000	-0.74	-9.76

Free-Field Frequency Response : Graphical



Certificate of Calibration

Certificate Number: **122473**

Date of Issue: **28 September 2018**

Instrument

Manufacturer: **Cirrus Research plc** Serial Number: **78218**

Model Number: **CR:515**

Calibration Procedure

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 IEC 60942:2003 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.

Date of Calibration: **28 September 2018**

Calibration Results

Measurement	Level (dB)	Frequency (Hz)	Distortion (% THD + Noise)
1	94.04	1000.1	0.32
2	94.00	1000.1	0.34
3	94.00	1000.1	0.36

Average	**94.01**	**1000.1**	**0.34**
Uncertainty	± 0.13	± 0.1	± 0.10

The reported uncertainties of measurement are expanded by a coverage factor of k=2, providing a 95% confidence level.

Cirrus Research plc, Acoustic House, Bridlington Road
Hunmanby, North Yorkshire, YO14 0PH, United Kingdom
Telephone: 0845 230 2434 **Int**: +44 1723 891655
Email: sales@cirrusresearch.co.uk
Web: www.cirrusresearch.co.uk
UK Registration No. 987160

bsi. ISO 9001:2015 Quality Management FM 531001
ISO 14001 Environmental Management EMS 552104

Environmental Conditions

Pressure:	**1025.10 kPa**
Temperature:	**23.0 °C**
Humidity:	**45.5 %**

Evidence of Pattern Approval

The manufacturer's product information indicates that this model of sound calibrator has been formally pattern approved to IEC 60942:2003 Annex A to Class 1. This has been confirmed with the PhysikalischTechnische Bundesanstalt (PTB).

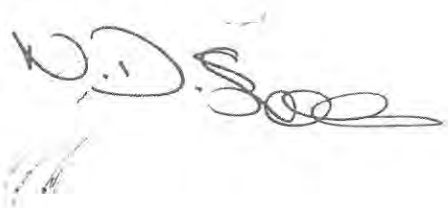
Statement of Calibration

As public evidence was available, from a testing organisation responsible for approving the results of pattern evaluation tests, to demonstrate that the model of sound calibrator fully conformed to the requirements for pattern evaluation described in Annex A of IEC 60942:2003, the sound calibrator tested is considered to conform to all the Class 1 requirements of IEC 60942:2003.

Calibration Laboratory

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

Test Engineer: Nigel Smith



Measurement Time	Duration	Measurement ID	LAeq	Location
12/05/2019 06:30	00:05:00	5	62	NML01
12/05/2019 06:35	00:05:00	6	59.2	NML01
12/05/2019 06:40	00:05:00	7	62.5	NML01

Measurement Time	Duration	Measurement ID	LAeq	Location
12/05/2019 07:45	00:05:00	18	57.7	NML01
12/05/2019 07:50	00:05:00	19	51.6	NML01
12/05/2019 08:50	00:05:00	30	63.8	NML01
12/05/2019 08:55	00:05:00	31	67.3	NML01
12/05/2019 09:00	00:05:00	32	55.9	NML01
12/05/2019 11:00	00:05:00	38	62.1	NML01
12/05/2019 11:05	00:05:00	39	61	NML01
12/05/2019 11:10	00:05:00	40	58.9	NML01
12/05/2019 11:15	00:05:00	41	59.7	NML01
12/05/2019 11:20	00:05:00	42	61.2	NML01
12/05/2019 11:25	00:05:00	43	62.8	NML01
12/05/2019 11:30	00:05:00	44	62.1	NML01
12/05/2019 11:35	00:05:00	45	60.8	NML01
12/05/2019 11:40	00:05:00	46	61.4	NML01
12/05/2019 13:20	00:05:00	67	62.5	NML01

Measurement Time	Duration	Measurement ID	LAeq	Location
13/05/2019 06:25	00:05:00	88	62.7	NML01
13/05/2019 06:30	00:05:00	89	61.6	NML01
13/05/2019 06:35	00:02:03	90	62.3	NML01

Measurement Time	Duration	Measurement ID	LAeq	Location
13/05/2019 07:40	00:05:00	100	64.1	NML01
13/05/2019 07:45	00:05:00	101	63.6	NML01
13/05/2019 07:50	00:05:00	102	67.1	NML01
13/05/2019 08:45	00:05:00	112	60.9	NML01
13/05/2019 08:50	00:05:00	113	64.3	NML01
13/05/2019 08:55	00:05:00	114	64.9	NML01
13/05/2019 12:10	00:05:00	136	63.9	NML01
13/05/2019 12:15	00:05:00	137	63	NML01
13/05/2019 12:20	00:05:00	138	64.6	NML01
13/05/2019 12:25	00:05:00	139	64.4	NML01
13/05/2019 12:30	00:05:00	140	64.2	NML01
13/05/2019 12:35	00:05:00	141	63.6	NML01
13/05/2019 12:40	00:05:00	142	63.7	NML01
13/05/2019 12:45	00:05:00	143	63.7	NML01
13/05/2019 12:50	00:05:00	144	63.5	NML01
13/05/2019 12:55	00:05:00	145	65.7	NML01
13/05/2019 13:00	00:05:00	146	64.4	NML01
13/05/2019 13:05	00:05:00	147	63.5	NML01

Measurement Time	Duration	Measurement ID	LAeq	Location
12/05/2019 06:00	00:05:00	1	68.5	NML02
12/05/2019 06:05	00:05:00	2	70.2	NML02
12/05/2019 06:10	00:05:00	3	69.8	NML02

Measurement Time	Duration	Measurement ID	LAeq	Location
13/05/2019 06:00	00:04:37	83	76.8	NML02
13/05/2019 06:05	00:05:00	84	75.1	NML02
13/05/2019 06:10	00:05:00	85	76	NML02

Measurement Time	Duration	Measurement ID	LAeq	Location
12/05/2019 07:25	00:05:00	14	71.6	NML02
12/05/2019 07:30	00:05:00	15	70.9	NML02
12/05/2019 08:30	00:05:00	26	71.9	NML02
12/05/2019 08:35	00:05:00	27	72.8	NML02
12/05/2019 14:00	00:05:00	70	70.5	NML02
12/05/2019 14:05	00:05:00	71	73.6	NML02
12/05/2019 14:10	00:05:00	72	74.4	NML02
12/05/2019 14:15	00:05:00	73	74.8	NML02
12/05/2019 14:20	00:05:00	74	74.9	NML02
12/05/2019 14:25	00:05:00	75	74.8	NML02
12/05/2019 14:30	00:05:00	76	75.7	NML02
12/05/2019 14:35	00:05:00	77	75.4	NML02
12/05/2019 14:40	00:05:00	78	75.2	NML02
12/05/2019 14:45	00:05:00	79	72.9	NML02
12/05/2019 14:50	00:05:00	80	74.5	NML02
12/05/2019 14:55	00:05:00	81	74.7	NML02

Measurement Time	Duration	Measurement ID	LAeq	Location
13/05/2019 07:10	00:05:00	96	75.8	NML02
13/05/2019 07:15	00:05:00	97	75.6	NML02
13/05/2019 08:25	00:05:00	109	72.8	NML02
13/05/2019 08:30	00:05:00	110	73.6	NML02
13/05/2019 11:00	00:05:00	122	75	NML02
13/05/2019 11:05	00:05:00	123	75.2	NML02
13/05/2019 11:10	00:05:00	124	74.9	NML02
13/05/2019 11:15	00:05:00	125	74.5	NML02
13/05/2019 11:20	00:05:00	126	76	NML02
13/05/2019 11:25	00:05:00	127	74.7	NML02
13/05/2019 11:30	00:05:00	128	74.9	NML02
13/05/2019 11:35	00:05:00	129	74.1	NML02
13/05/2019 11:40	00:05:00	130	72.8	NML02
13/05/2019 11:45	00:05:00	131	74.8	NML02
13/05/2019 11:50	00:05:00	132	75.1	NML02
13/05/2019 11:55	00:05:00	133	74.8	NML02

Measurement Time	Duration	Measurement ID	LAeq	Location
12/05/2019 06:55	00:05:00	9	43.5	NML03
12/05/2019 07:00	00:05:00	10	43.8	NML03
12/05/2019 07:05	00:05:00	11	45.5	NML03

Measurement Time	Duration	Measurement ID	LAeq	Location
13/05/2019 06:42	00:02:21	91	48.8	NML03
13/05/2019 06:45	00:05:00	92	51.5	NML03
13/05/2019 06:50	00:05:00	93	48.8	NML03
13/05/2019 06:55	00:03:02	94	53.6	NML03

Measurement Time	Duration	Measurement ID	LAeq	Location
12/05/2019 08:05	00:05:00	22	40.7	NML03
12/05/2019 08:10	00:05:00	23	40	NML03
12/05/2019 09:10	00:05:00	34	47.8	NML03
12/05/2019 09:15	00:05:00	35	43.3	NML03
12/05/2019 09:20	00:05:00	36	43.6	NML03
12/05/2019 12:10	00:05:00	53	49.7	NML03
12/05/2019 12:15	00:05:00	54	50.7	NML03
12/05/2019 12:20	00:05:00	55	47.5	NML03
12/05/2019 12:25	00:05:00	56	46.7	NML03
12/05/2019 12:30	00:05:00	57	47.5	NML03
12/05/2019 12:35	00:05:00	58	45.9	NML03
12/05/2019 12:40	00:05:00	59	49.4	NML03
12/05/2019 12:45	00:05:00	60	45	NML03
12/05/2019 12:50	00:05:00	61	47.2	NML03
12/05/2019 12:55	00:05:00	62	46.1	NML03
12/05/2019 13:00	00:05:00	63	47.8	NML03
12/05/2019 13:05	00:05:00	64	50	NML03

Measurement Time	Duration	Measurement ID	LAeq	Location
13/05/2019 08:00	00:05:00	105	48.6	NML03
13/05/2019 08:05	00:05:00	106	47.2	NML03
13/05/2019 09:05	00:05:00	116	41.7	NML03
13/05/2019 09:10	00:05:00	117	46.9	NML03
13/05/2019 09:15	00:05:00	118	49.3	NML03
13/05/2019 09:20	00:05:00	119	45	NML03
13/05/2019 13:15	00:05:00	150	46.5	NML03
13/05/2019 13:20	00:05:00	151	47.1	NML03
13/05/2019 13:25	00:05:00	152	46.8	NML03
13/05/2019 13:30	00:05:00	153	46.5	NML03
13/05/2019 13:35	00:05:00	154	62.1	NML03
13/05/2019 13:40	00:05:00	155	54.8	NML03
13/05/2019 13:45	00:05:00	156	43.6	NML03
13/05/2019 13:50	00:05:00	157	49.7	NML03
13/05/2019 13:55	00:05:00	158	51.8	NML03
13/05/2019 14:00	00:05:00	159	52.4	NML03
13/05/2019 14:05	00:05:00	160	53.8	NML03
13/05/2019 14:10	00:05:00	161	43.4	NML03
13/05/2019 14:15	00:05:00	162	41.1	NML03
13/05/2019 14:20	00:05:00	163	48.3	NML03

Appendix D – Noise Modelling Data

Cirrus Research plc

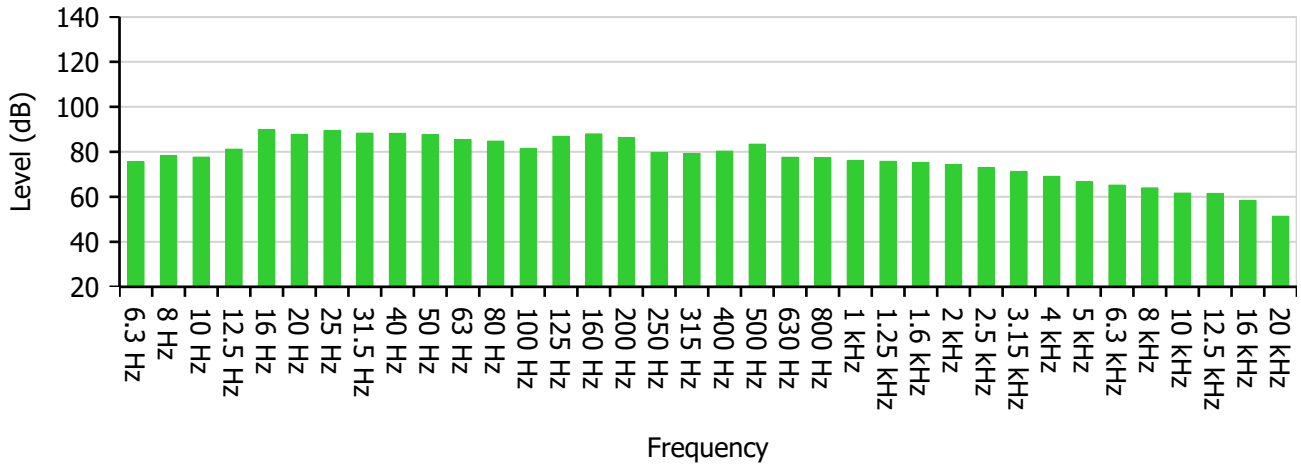
tnei

Measurement 1:3-Octave Report

Name	Aggregate Dryer at 1 m			
Time	30/05/2019 11:18:20	**Person**	**Place**	**Project**
Duration	00:01:00	Ewan Watson	Harsco Rotherham	Cardiff Asphalt
Instrument	G056468, CR:171B			

Calibration

Before 30/05/2019 10:06 Offset -0.28 dB **After** Offset



Frequency (Hz)	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**
Level (dB)	75.7	78.3	77.7	81.2	89.9	87.8	89.4	88.3	88.2
-	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**
-	87.7	85.3	84.8	81.5	86.9	88.0	86.2	79.7	79.3
-	**400**	**500**	**630**	**800**	**1 000**	**1 250**	**1 600**	**2 000**	**2 500**
-	80.3	83.4	77.6	77.4	76.0	75.8	75.3	74.4	73.0
-	**3 150**	**4 000**	**5 000**	**6 300**	**8 000**	**10 000**	**12 500**	**16 000**	**20 000**
-	71.3	69.1	66.8	65.2	64.0	61.7	61.5	58.3	51.4

Highest Band	16 Hz	89.9 dB

ReportId

Cirrus Research plc

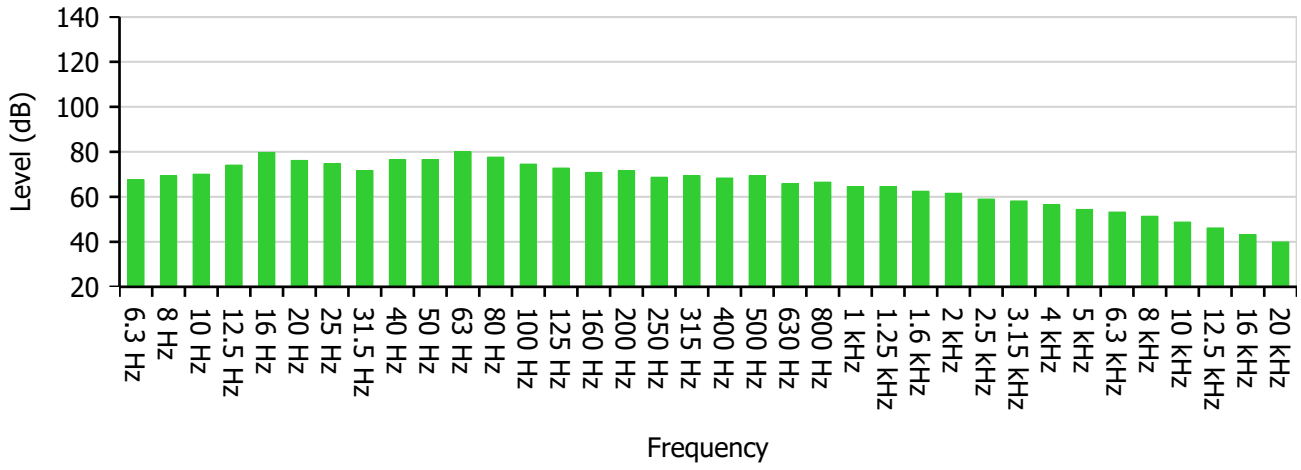
tnei

Measurement 1:3-Octave Report

Name	Cold Feed Conveyor at 1 m			
Time	30/05/2019 11:21:03	**Person**	**Place**	**Project**
Duration	00:01:00	Ewan Watson	Harsco Rotherham	Cardiff Asphalt
Instrument	G056468, CR:171B			

Calibration

Before 30/05/2019 10:06 Offset -0.28 dB **After** Offset



Frequency (Hz)	6.3	8	10	12.5	16	20	25	31.5	40
Level (dB)	67.6	69.3	70.1	74.1	79.7	76.2	74.7	71.7	76.6
-	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**
-	76.6	80.0	77.7	74.6	72.8	70.9	71.6	68.7	69.4
-	**400**	**500**	**630**	**800**	**1 000**	**1 250**	**1 600**	**2 000**	**2 500**
-	68.4	69.4	65.8	66.5	64.6	64.6	62.5	61.6	59.0
-	**3 150**	**4 000**	**5 000**	**6 300**	**8 000**	**10 000**	**12 500**	**16 000**	**20 000**
-	58.2	56.5	54.4	53.2	51.4	48.8	46.2	43.2	40.0

Highest Band	63 Hz	80.0 dB

ReportId

Cirrus Research plc

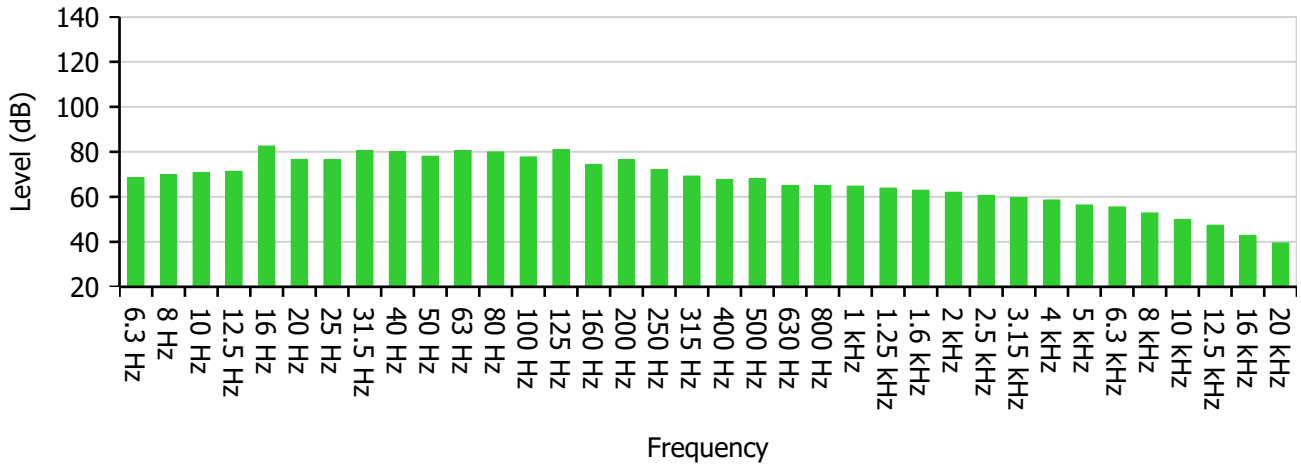
tnei

Measurement 1:3-Octave Report

Name	Loading Car at 10 m			
Time	30/05/2019 11:24:14	**Person**	**Place**	**Project**
Duration	00:01:00	Ewan Watson	Harsco Rotherham	Cardiff Asphalt
Instrument	G056468, CR:171B			

Calibration

Before 30/05/2019 10:06 Offset -0.28 dB **After** Offset



Frequency (Hz)	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**
Level (dB)	68.6	69.9	70.7	71.3	82.6	76.7	76.5	80.6	80.0
-	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**
-	78.1	80.6	79.9	77.8	80.9	74.2	76.5	72.1	69.2
-	**400**	**500**	**630**	**800**	**1 000**	**1 250**	**1 600**	**2 000**	**2 500**
-	67.7	68.2	65.1	65.1	64.8	63.9	63.0	62.1	60.7
-	**3 150**	**4 000**	**5 000**	**6 300**	**8 000**	**10 000**	**12 500**	**16 000**	**20 000**
-	59.6	58.6	56.4	55.5	52.9	50.0	47.4	42.9	39.5

Highest Band	16 Hz	82.6 dB

ReportId

Cirrus Research plc

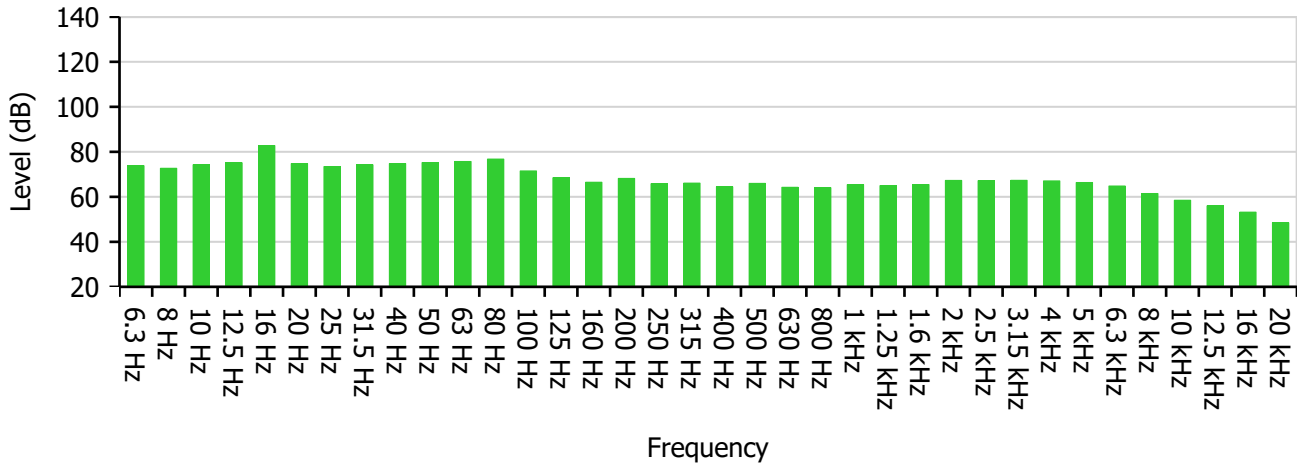
tnei

Measurement 1:3-Octave Report

Name	Loading material into lorries at 10 m			
Time	30/05/2019 11:27:32	**Person**	**Place**	**Project**
Duration	00:01:34	Ewan Watson	Harsco Rotherham	Cardiff Asphalt
Instrument	G056468, CR:171B			

Calibration

Before 30/05/2019 10:06 Offset -0.28 dB **After** Offset



Frequency (Hz)	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**
Level (dB)	73.8	72.7	74.3	75.1	82.8	74.8	73.5	74.2	74.8
-	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**
-	75.2	75.7	76.8	71.5	68.5	66.5	68.2	65.8	66.1
-	**400**	**500**	**630**	**800**	**1 000**	**1 250**	**1 600**	**2 000**	**2 500**
-	64.5	66.0	64.3	64.1	65.4	65.0	65.5	67.3	67.2
-	**3 150**	**4 000**	**5 000**	**6 300**	**8 000**	**10 000**	**12 500**	**16 000**	**20 000**
-	67.3	67.1	66.4	64.8	61.5	58.5	56.0	53.2	48.5

Highest Band	16 Hz	82.8 dB

ReportId

Cirrus Research plc

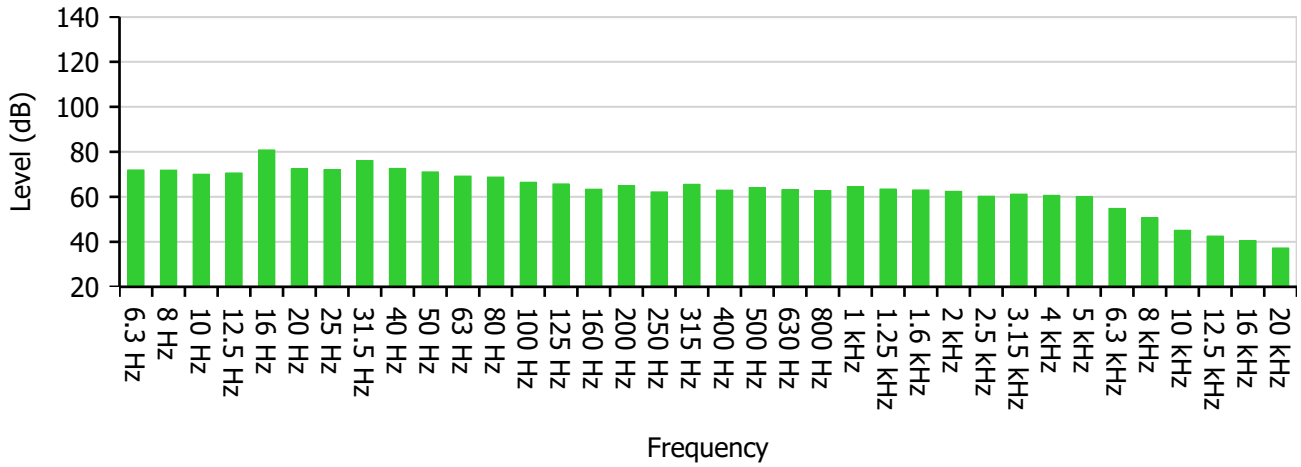
tnei

Measurement 1:3-Octave Report

Name	Winch for skip car at 1 m (measurement #01)			
Time	30/05/2019 11:29:52	**Person**	**Place**	**Project**
Duration	00:00:20	Ewan Watson	Harsco Rotherham	Cardiff Asphalt
Instrument	G056468, CR:171B			

Calibration

Before 30/05/2019 10:06 Offset -0.28 dB **After** Offset



Frequency (Hz)	6.3	8	10	12.5	16	20	25	31.5	40
Level (dB)	72.0	71.9	70.1	70.6	80.8	72.4	72.1	76.2	72.7
-	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**
-	71.1	69.2	68.8	66.5	65.8	63.4	65.0	62.2	65.6
-	**400**	**500**	**630**	**800**	**1 000**	**1 250**	**1 600**	**2 000**	**2 500**
-	63.0	64.1	63.2	62.8	64.6	63.5	63.1	62.5	60.3
-	**3 150**	**4 000**	**5 000**	**6 300**	**8 000**	**10 000**	**12 500**	**16 000**	**20 000**
-	61.2	60.7	60.1	54.9	50.7	45.2	42.6	40.6	37.3

Highest Band	16 Hz	80.8 dB

ReportId

Cirrus Research plc

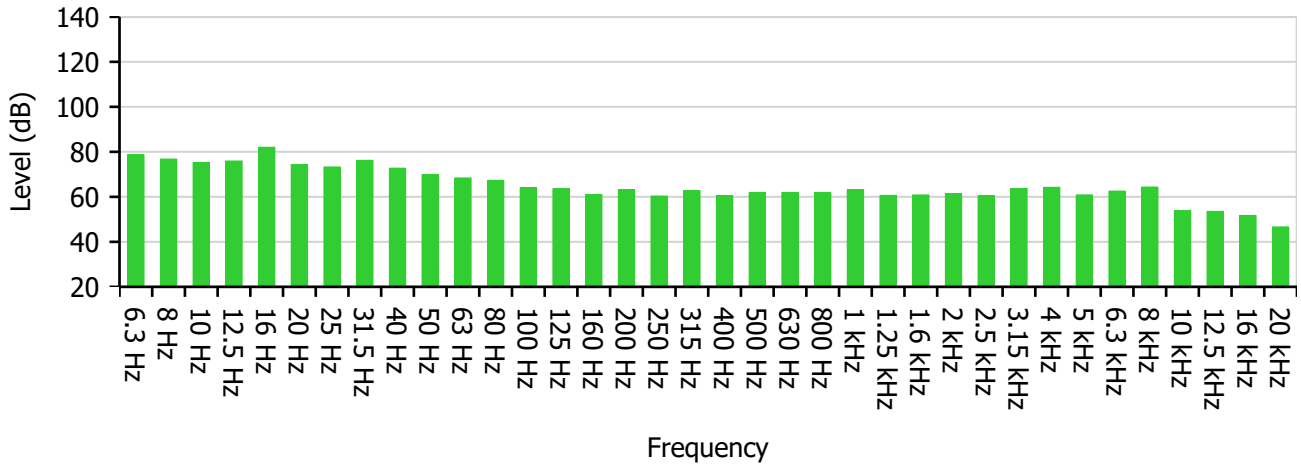
tnei

Measurement 1:3-Octave Report

Name	8			
Time	30/05/2019 11:30:23	**Person**	**Place**	**Project**
Duration	00:01:01	Ewan Watson	Harsco Rotherham	Cardiff Asphalt
Instrument	G056468, CR:171B			

Calibration

Before 30/05/2019 10:06 Offset -0.28 dB **After** Offset

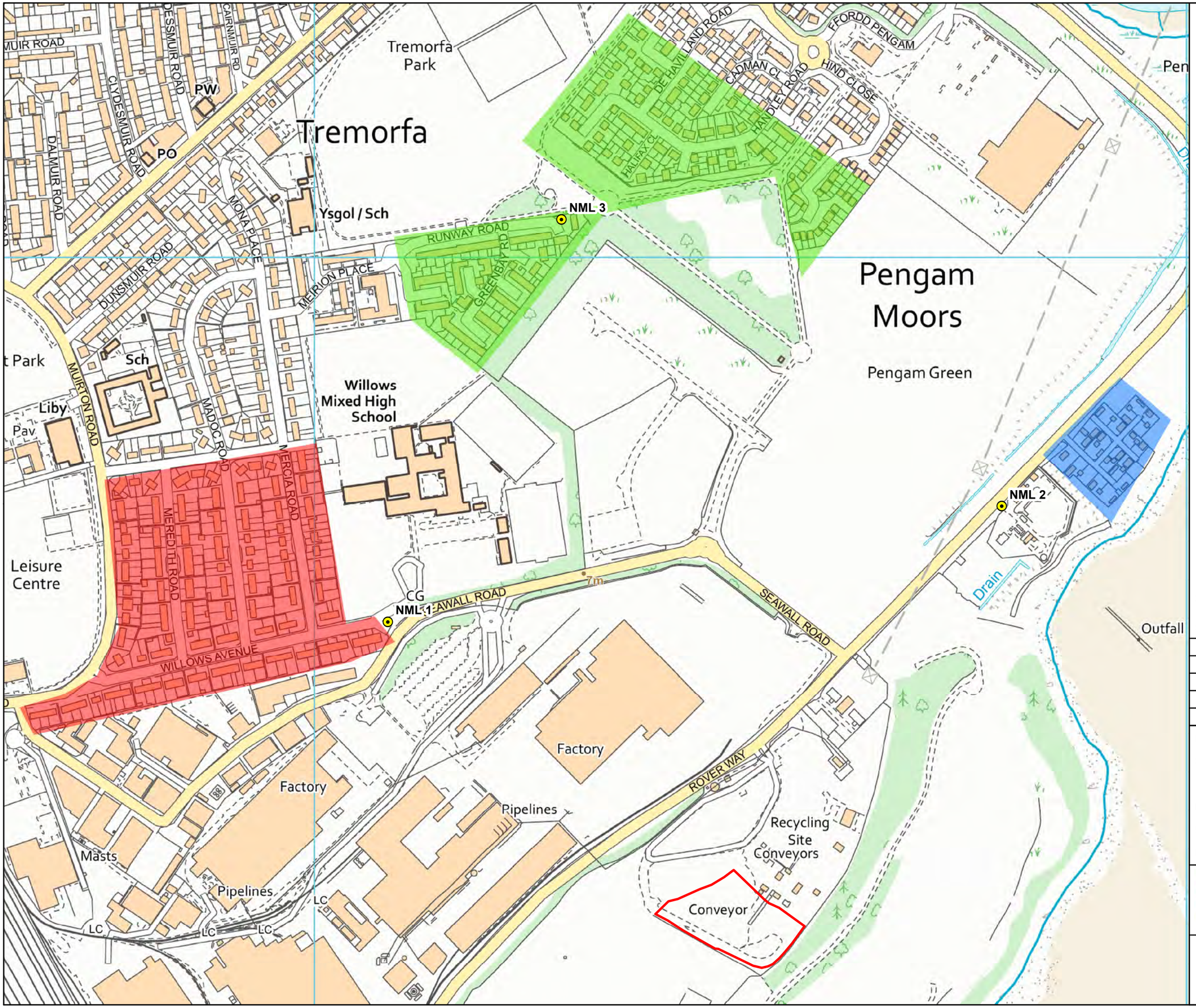


Frequency (Hz)	**6.3**	**8**	**10**	**12.5**	**16**	**20**	**25**	**31.5**	**40**
Level (dB)	78.7	76.8	75.3	75.9	82.0	74.4	73.3	76.2	72.7
-	**50**	**63**	**80**	**100**	**125**	**160**	**200**	**250**	**315**
-	69.8	68.4	67.3	64.1	63.6	61.1	63.2	60.4	62.8
-	**400**	**500**	**630**	**800**	**1 000**	**1 250**	**1 600**	**2 000**	**2 500**
-	60.5	62.0	62.0	62.0	63.1	60.7	60.8	61.4	60.5
-	**3 150**	**4 000**	**5 000**	**6 300**	**8 000**	**10 000**	**12 500**	**16 000**	**20 000**
-	63.7	64.2	60.9	62.6	64.4	53.8	53.6	51.7	46.6

Highest Band	16 Hz	82.0 dB

ReportId

Appendix E – Figures



Legend

- Site Boundary
- Noise Monitoring Locations (NMLs)

Nearest Noise Sensitive Receptors (NSRs)

- NSRs represented by NML 1
- NSRs represented by NML 2
- NSRs represented by NML 3

0 50 100 Metres

N

REV.	DETAILS	DRAWN	CHK'D	APP'D	DATE
R0	FIRST ISSUE	JR	JS	JS	20/06/2019

Project	Cardiff Metal Recycling Plant
Client	EAME
Title	Noise Study Area
Figure No.	1
Scale	1:4,000 @A3
Doc. Ref.	13331-002

EAME Earth & Marine Environmental Consultants

tnei

Tremorfa

Ysgol / Sch

RUNWAY ROAD

MELROSE PLACE

NAL03 - Greenbay Road

Willows Mixed High School

NAL04 - Hind Close

Pengam Moors

Pengam Green

NAL02 - Traveller Site

ROVER WAY

Outfall

NAL01 - Willows Avenue

40dB

45dB

50dB

55dB

60dB

65dB

70dB

Recycling Site Conveyors

Inset Scale 1:1,500

Contains Ordnance Survey data © Crown copyright and database right 2019

Legend

- Noise Assessment Location (NAL)
- Noise Sources
- Buildings
- Noise Contours (1dB Increments)
- Noise Contours (5dB Increments)

Predicted Noise Levels (dBA)

- 30-35
- 35-40
- 40-45
- 45-50
- 50-55
- 55-60
- 60-65
- 65-70
- 70-75
- 75-80
- 80>

Noise contours modelled in accordance with ISO9613-2:1996 at a height of 4m and displayed on a 10m by 10m grid.

All noise sources assumed to be operating concurrently and continually at maximum output.

All levels shown as dB LAeq(t).

0 50 100 Metres

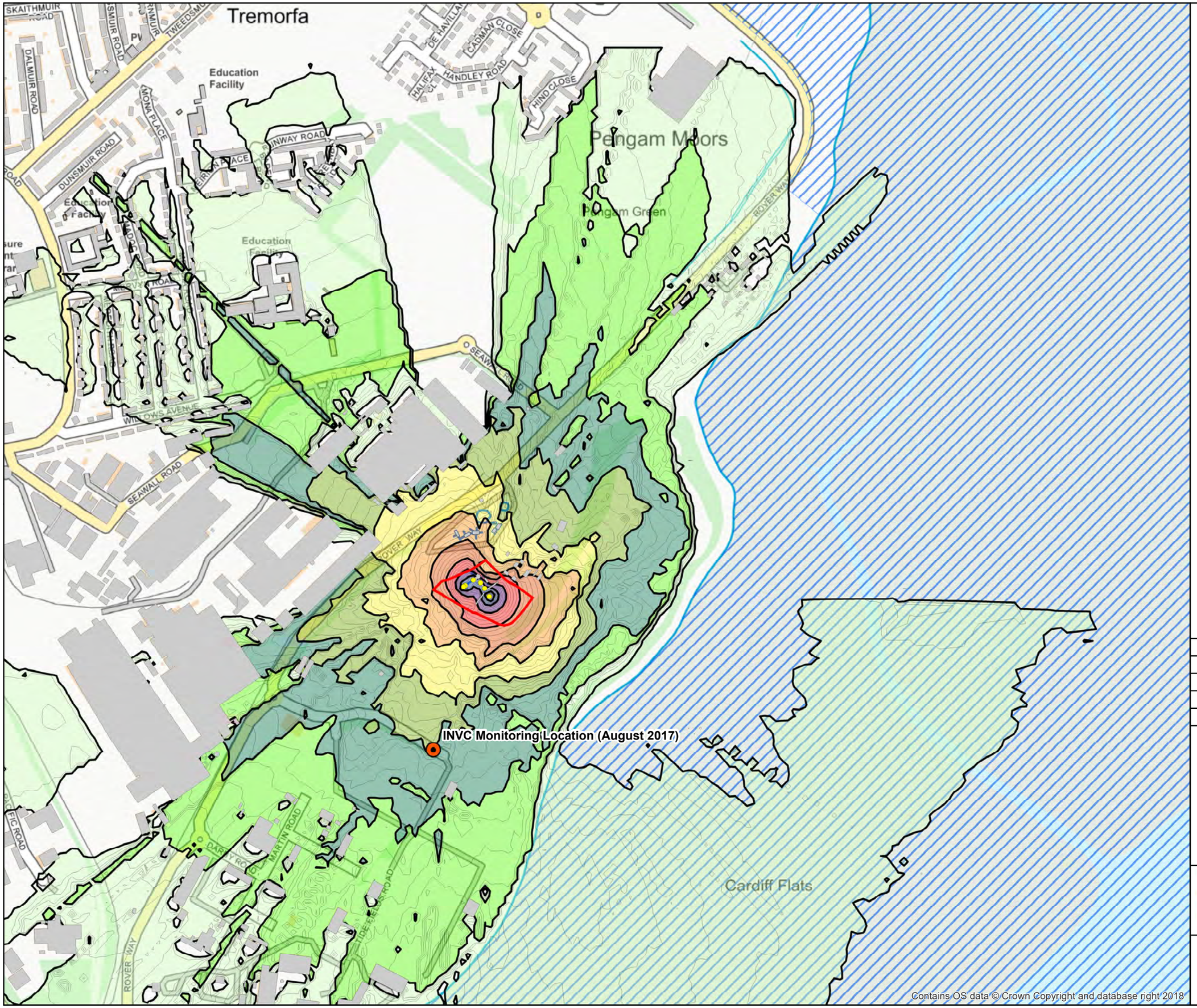
N

REV.	DETAILS	DRAWN	CHK'D	APP'D	DATE
R1	SECOND ISSUE	EW	JS	JS	04/07/2019
R0	FIRST ISSUE	JR	JS	JS	20/06/2019

Project	Cardiff Metal Recycling Plant
Client	EAME
Title	Noise Contour Plot (Asphalt Plant)
Figure No.	2
Scale	1:4,000 @A3
Doc. Ref.	13331-003

EAME Earth & Marine Environmental Consultants

tnei



Legend

- INVC Monitoring Location (August 2017)
- Noise Sources
- Buildings
- Noise Contours (1dB Increments)
- Noise Contours (5dB Increments)

Predicted Noise Levels (dBA)

- 30-35
- 35-40
- 40-45
- 45-50
- 50-55
- 55-60
- 60-65
- 65-70
- 70-75
- 75-80
- 80>
- Special Area of Conservation

Noise contours modelled in accordance with ISO9613-2:1996 at a height of 4m and displayed on a 10m by 10m grid.

All noise sources assumed to be operating concurrently and continually at maximum output.

All levels shown as dB LAeq(t).

0 75 150 Metres

N

REV.	DETAILS	DRAWN	CHK'D	APP'D	DATE
R0	FIRST ISSUE	EW	JS	JS	04/07/2019

Project	Cardiff Metal Recycling Plant
Client	EAME
Title	Ecological Receptor Noise Contour Plot (Asphalt Plant)
Figure No.	3
Scale	1:6,000 @A3
Doc. Ref.	13331-004

EAME Earth & Marine Environmental Consultants

tnei

EUROPEAN OFFICES

United Kingdom

AYLESBURY
T: +44 (0)1844 337380

BELFAST
T: +44 (0)28 9073 2493

BRADFORD-ON-AVON
T: +44 (0)1225 309400

BRISTOL
T: +44 (0)117 906 4280

CAMBRIDGE
T: + 44 (0)1223 813805

CARDIFF
T: +44 (0)29 2049 1010

CHELMSFORD
T: +44 (0)1245 392170

EDINBURGH
T: +44 (0)131 335 6830

EXETER
T: + 44 (0)1392 490152

GLASGOW
T: +44 (0)141 353 5037

GUILDFORD
T: +44 (0)1483 889800

LEEDS
T: +44 (0)113 258 0650

LONDON
T: +44 (0)203 691 5810

MAIDSTONE
T: +44 (0)1622 609242

MANCHESTER
T: +44 (0)161 872 7564

NEWCASTLE UPON TYNE
T: +44 (0)191 261 1966

NOTTINGHAM
T: +44 (0)115 964 7280

SHEFFIELD
T: +44 (0)114 245 5153

SHREWSBURY
T: +44 (0)1743 23 9250

STAFFORD
T: +44 (0)1785 241755

STIRLING
T: +44 (0)1786 239900

WORCESTER
T: +44 (0)1905 751310

Ireland

DUBLIN
T: + 353 (0)1 296 4667

France

GRENOBLE
T: +33 (0)4 76 70 93 41