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ENVIRONMENTAL RISK ASSESSMENT

for
MORLEYS QUARRY
ASTLEY, GREATER MANCHESTER

Report No 151/1

May 2025

For

ASTLEY SAND & AGGREGATES LIMITED
Astley House
Lower Green Lane
Astley
Greater Manchester
M29 9JZ

DOCUMENT CONTROL

DOCUMENT TITLE	Environmental Risk Assessment
REPORT NO	151/1
DATE ISSUED	27/5/2025
PREPARED BY	C Gettinby
REVISIONS	

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1. INTRODUCTION

1.1 Report Context

1.1.1 Starling Environmental Limited (SEL) has been commissioned by Astley Sand and Aggregates Limited (the operator) to prepare an environmental permit variation application for their aggregate recycling facility located at Morleys Quarry, Astley, Manchester, M29 7EW.

1.1.2 The site is regulated under permit EPR/LP3597SR which allows two separate activities; inert landfill and a Standard Rules permit SR2010No12 for the treatment of waste to produce soil, soil substitutes and aggregate. This allows processing of waste by sorting, separation, screening, crushing and blending.

1.1.3 The operator would like to vary the SR activity to a bespoke activity to increase the treatment and storage capacity as follows:

- Increase the annual throughput from 75,000 tonnes to 300,000 tonnes per year
- Increase the storage capacity from 40,000 tonnes to 60,000 tonnes

1.1.4 The operator would also like to reduce the number of waste types. There are no proposed changes to the treatment activities or the permit boundary. There are no proposed changes to the inert landfill activity.

1.1.5 This report assesses the risks of the proposed changes and has been prepared following guidance available on the gov.uk website, particularly:

- Risk Assessment for your Environmental Permit
- Non-hazardous and inert waste: Appropriate measures for permitted facilities
- Control & Monitor Emissions for your Environmental Permit

1.1.6 Risks identified in Sections 4 and 5 will be controlled through mitigation, as detailed in Section 6. Mitigation will be incorporated into the Environmental Management System.

1.1.7 All drawings referenced are contained in Appendix A.

1.2 Site Location and Surrounding Area

1.2.1 Morleys Quarry is located immediately south of the A580 East Lancashire Road, midway between the Lately Common roundabout and the main junction at Astley, approximately 2.5 km south-east of Leigh and 15 km west of Manchester. The national grid reference for the recycling area is at SJ 68812 99107. The site location is shown on Drawing No 151/01.

1.2.2 The site is in a rural location surrounded by mainly flat lying, open and featureless ground, the majority of which is farmland. There are a limited number of isolated residential properties in the vicinity of the site.

1.2.3 Approximately 820 m to the south are the Manchester Mosses which consist of raised bogs and mosses which include designations for Special Areas of Conservation (SAC) and Sites of Special Scientific Interest (SSSI).

1.2.4 The closest residential properties are Morleys Hall and Morleys Hall Farm approximately 120 m from the site boundary to the northeast.

1.3 Site Layout

1.3.1 Access to Morleys Quarry is off the westbound carriageway of the A580 via Morleys Lane. The site is a sand quarry which is being progressively restored by inert landfill. The quarry/landfill extends to the west and south of the recycling area, which is situated on the eastern periphery of the site, outside of the landfill footprint. The layout of the landfill site and location of the recycling area in relation to the landfill is shown on Drawing No 10543/41A.

1.3.2 The layout of the recycling area is shown on Drawing No 151/02. The recycling area is bounded by a vegetated screening bund to the east which is approximately 4 m high. The northern boundary (the site access road) is marked by a 2.5 m wooden fence. Concrete block bays are situated along the western and southern perimeters to house recycled products. Crushing and screening is carried out in the centre of the site. The weighbridges, site office, wheel wash and fuel store are located to the north-west of the recycling area.

1.3.3 The recycling area is surfaced with concrete and the surface drains into perimeter ditches which carry run-off to the landfill site settlement pond, before discharge to surface water course Moss Brook which is approximately 260 m south of the site. The discharge is permitted under the landfill activity and is monitored monthly.

2. CURRENT ACTIVITIES

2.1 The standard rules activity was added to the permit in 2012. The current permit allows importation of a range of waste types for processing to make aggregate products and soil substitutes. The permitted annual throughput is 75,000 tonnes and the maximum permitted quantity of waste for storage is 40,000 tonnes.

2.2 Construction, demolition and excavation waste is imported to site. Material is crushed and screened to produce recycled aggregates such as 6F2 and MOT Type 1.

2.3 Recycled products are produced according to a quality protocol to achieve end of waste status following the WRAP end of waste protocol. Products are stored in concrete block bays approximately 2.5 m high and tested for conformity. The recycled products are then reused as part of the circular economy.

2.4 Screened soil is also stored in a concrete block bay and tested against inert landfill waste acceptance criteria. If it is suitable it is transported to the landfill area for deposit.

2.5 The recycling area is also used to store non-waste products such as sand. These are stored in the concrete block bays.

3. PROPOSED CHANGES

3.1 Increase in Throughput

3.1.1 It is proposed to increase the maximum throughput to 300,000 tonnes per annum. This would allow increased recovery and recycling to accommodate the needs of the growing market requirement for recycled products. Increased throughput for the recycling area will allow more waste to be diverted from landfill and moved up the waste hierarchy, which is a legal requirement under the Waste (England and Wales) Regulations 2011.

3.2 Additional Storage Capacity

3.2.1 It is proposed to increase the permitted storage allowance to 60,000 tonnes. The additional capacity can be accommodated within the existing site. Incoming waste will be stored within the site as shown on the site layout plan.

3.2.2 Increased storage allowance will allow more flexibility when accepting waste from larger earthworks campaigns.

3.3 Changes to Waste Codes

3.3.1 It is proposed to reduce the number of permitted waste codes to those listed in Table 1. SR2010 No12 has been withdrawn and replaced by a new standard rules set, SR2022 No1. All of the waste types listed in Table 1 are listed on SR2022 No1.

Waste Code	Description
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07 *May include excavation from mineral workings*
01 04 09	Waste sand and clay *Must not include contaminated sand*
10 01 01	Bottom ash and slag only
10 01 15	Bottom ash and slag from co-incineration other than those mentioned in 10 01 14
10 12 08	Waste ceramics, bricks, tiles and construction products (after thermal processing)
10 13 14	Waste concrete only
17 01 01	Concrete *Must not include concrete slurry*
17 01 02	Bricks
17 01 03	Tiles and ceramics
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02 02	Clean glass Must not include fibreglass or glass fibre

Table 1 (continued over): Proposed Waste Types

Waste Code	Description
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01 *Only bituminous mixtures from the repair and refurbishment of the asphalt layers of roads and other paved areas (excluding bituminous mixtures containing coal tar and classified as waste code 17 03 01)* *Must not include coal tar or tarred products* *Must not include freshly mixed bituminous mixtures*
17 05 04	Soil and stones other than those mentioned in 17 05 03 *Must not contain any contaminated soil or stone from contaminated sites*
17 05 06	Dredging spoil other than those mentioned in 17 05 05 *Only inert aggregate from dredgings* *Must not contain contaminated dredgings* *Must not contain fines*
17 05 08	Track ballast, soil and stones other than those mentioned in 17 05 07 *Must not contain soil and stones from contaminated sites*
17 09 04	Mixed construction and demolition waste other than those mentioned in 17 09 01, 17 09 02 and 17 09 03 *mixed construction and demolition waste, limited to that generated from utilities trenching, consisting of sub base aggregates, and containing only material that would be described as 17 01 01, 17 03 02 and 17 05 04*
19 12 05	Glass *Does not include glass from cathode ray tubes*
19 12 09	Minerals (eg sand, stones) *Must not contain contaminated concrete, bricks, tiles, sand, stone or gypsum from recovered plasterboard*
19 12 12	Incinerator bottom ash, aggregate only
20 02 02	Garden and park waste (including cemetery waste) – soil and stones *Must not contain contaminated stones from garden and parks waste*

Table 1 continued: Proposed Waste Types

4. IDENTIFICATION OF RISKS

4.1 Receptors

4.1.1 The location of the site in relation to potential receptors is shown on Drawing No 151/03 and listed in Table 2 below.

Ref	Receptor	Direction from	Approximate Distance from site (m)
Residential			
1	Morleys Hall and Morleys Hall farm	NE	120
	Surrounding Farmsteads or Country House	N, W, S, E	185 – 1 Km
	Properties in Bedford	N	450 – 1 Km
	Properties in Town Lane	N	430 – 1 Km
Industrial/Commercial			
2	Sewage Works	NE	365
Public Rights of Way			
3	Surrounding Footpaths	N, W, S, E	Adjacent – 1 Km
Amenity/Recreation			
4	Morleys Hall (Wedding Venue)	NE	120
	Golf Range	N	350
	Leigh Cemetery	N	850
Water Features			
5	Farm Drains	N, W, S, E	Adjacent – 1 Km
	Netherbarrow Brook	W	50
	Bridgewater Canal	N	260
	Moss Brook	S	290
	Town Brook	E	620
	Bedford Brook	W	770
	Astley Brook	NE	790
Ecological Sites/Habitats			
6	Priority Habitat Woodland	N, W, E, W	On Site - 720
	Astley & Bedford Mosses (SSSI) & Site of Biological Importance	S	820
Educational Institutions			
7	St Mary's Catholic High School	NE	775
	Bedford High School	NW	940
Major Roads/ Transport Links			
8	East Lancashire Road (A580)	N	Adjacent to permit boundary; 80 m from waste processing area
Hospitals/ Health Care Institutions			
-	None identified	-	-

Table 2: Potential Receptors Within 1 km

4.1.2 There are a limited number of isolated residential properties and farms in the vicinity of the site, the closest being Morleys Hall and Morleys Hall Farm. Together these form a moated hall which is a Grade 2 Listed Building and Scheduled Monument approximately 100 m to the north-east. Sales House, located some 320 m to the south-east is also a Grade 2 Listed Building. The residential area of East Leigh is 470 m to the north-north-west.

Surface Water

4.1.3 The closest surface water course is Netherbarrow Brook located approximately 50 m west of the permit boundary. Moss Brook is approximately 260 m from the site to the south.

Groundwater

4.1.4 The underlying bedrock is Triassic Sherwood Sandstone strata[1] which is designated as a principal aquifer, which is described by the EA as consisting of 'strategically important rock units that have high permeability and water storage capacity'.

4.1.5 The site is situated in Zone III (Total Catchment) Source Protection Zone (SPZ) for groundwater running east to west across the boundary of the site.

Ecological Receptors

4.1.6 A pre-application conservation screening request was submitted to the EA to identify habitats or protected species that need to be considered in the application. This is contained in Appendix B.

4.1.7 Searches using the DEFRA magic map identified the following ecological sites within 2 km of the site.

Site	Designation	Distance from site (m)	Direction from site
Priority Habitat Deciduous Woodland	PHI	On site – 2000	N, S, E, W
Astley & Bedford Mosses (part of Manchester Mosses SAC)	SSSI, SAC	820	S
Risley, Holcroft and Chat Moss	NNR	1115	S

Table 3: Ecological Sites
PHI = Priority habitat Inventory
SSSI = Site of Special Scientific Interest
SAC = Special Area of Conservation
NNR = National Nature Reserve

4.1.8 A habitats assessment is required as there are qualifying sites within the 2 km screening distance. Risks specific to these habitats are considered in Table 10.

4.1.9 Astley and Beford Mosses are designated as a Site of Special Scientific Interest and also a Special Area of Conservation. They form part of the group of Manchester Mosses. The SSSI citation is contained in Appendix C and this describes this ecological site as follows:

[1] BGS Geology Viewer (BETA)

It represents one of the largest remaining fragments of Chat Moss, a lowland raised mire. The major habitats present are modified mire communities, heathland, woodland and acidic grassland, all developed over the cut peat surface and subject to variations of wetness according to the residual topography or drainage patterns.

The site is important for birds, in particular wintering raptors such as hen harrier, short-eared owl and merlin, and it supports breeding species such as curlew and long-eared owl. Nightjars, precariously confined to the remnant lowland mosslands in the county, may also breed.

4.1.10 The Risley, Holcroft and Chat Moss National Nature Reserve is also part of the Chat Moss group which the Astley and Bedford Mosses belongs to, but without the European designation.

4.2 Baseline Conditions

Wind Direction

4.2.1 Figure 1 shows a wind rose for data collected at Manchester Airport which is the closest recording station at approximately 17.5 km to the south-east. The data is published online by Iowa State University.[2]

4.2.2 The wind rose shows that the prevailing wind direction is from the south and west with wind speeds most frequently between 10 to 14.9 mph, ie gentle to moderate breeze on the Beaufort scale. The strongest winds also typically come from the south and west. Winds from the north and east are typically less frequent and much lower in strength.

4.2.3 With reference to the data it is considered that wind direction will be variable but with a prevalence towards the north and east.

4.2.4 The similarities and differences of the wind recording site have been reviewed. Manchester airport is approximately 70 m AOD and the site is around 20 m AOD. Although the airport is slightly higher elevation than the site, these are considered broadly similar as neither site is located either very close to sea level or very high above it. The wind recordings at the higher altitude recording site may be stronger than those experienced at the lower altitude on site, but it is not thought that this would be by a significant amount.

4.2.5 The prominent wind direction may be skewed slightly due to the openness to the south of the airport. Manchester airport is located close to the Cheshire Plains which are to the south, so it may record more wind from the southerly direction although the predominant wind direction for most of the UK is from the west.

[2] https://mesonet.agron.iastate.edu/sites/locate.php?network=GB__ASOS

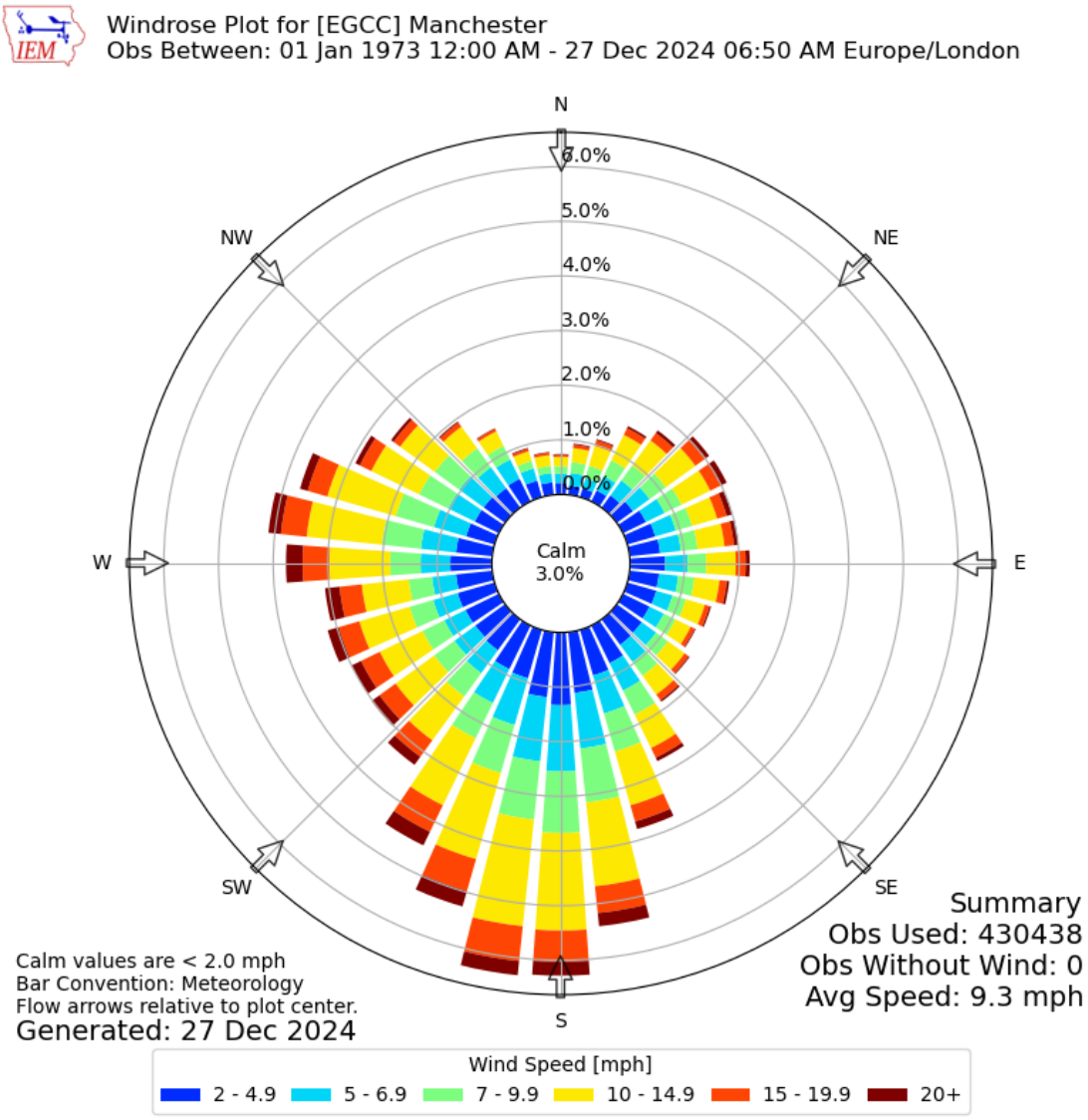


Figure 1: Wind Rose

4.2.6 Notwithstanding the slight skew to the south, it is considered that the two sites are of comparable topography to allow the airport to be used as a reliable indicator of wind direction and strength.

4.2.7 In relation to the site, the western and southern boundaries are open in aspect and there are no features which would skew or funnel the wind. The eastern and northern boundaries are screened by bunds and vegetation.

Rainfall

4.2.8 Reference has been made to Met Office data for Woodford in Greater Manchester available on the met office website[3], This is the nearest climate recording station to the site at approximately 20 km south. Total average annual rainfall during the period 1991 to 2020 was 868 mm. The number of days of rainfall greater than or equal to 1 mm was 156 days, providing natural dampening for 42% of the year.

Air Quality

4.2.9 According to the DEFRA interactive map tool[4] the site is not located within an Air Quality Management Area (AQMA). The closest AQMA is associated with the A580 East Lancashire Road, which is adjacent to the northern permit boundary but approximately 80 m from the edge of the waste treatment area. This is designated only for Nitrogen Dioxide, not for PM_{10}.

Potential for Flooding

4.2.10 According to the 'Flood map for planning' tool on the gov.uk website, the site is situated in Flood Zone 1, an area with a low probability of flooding.

4.3 Identification of Hazards

4.3.1 Potential hazards from the proposed changes to activities have been identified as:

- Noise and Vibration – from operation of the plant and HGVs
- Dust – generated in dry conditions from screening and crushing operations, stockpiles and site roads
- Mud on the road – deposited on the public highway by outgoing vehicles
- Uncontained run-off – surface water run-off which may contain suspended solids from stockpiled waste and site roads;
- Accidents (fire, acceptance of contaminated material, spillage of fuel/oil or escape of water from the washing operations)

4.3.2 The nature of wastes accepted at the site will result in negligible generation of odour due to the lack of biodegradable and/or odorous material. Likewise, the wastes will not generate litter or attract birds, vermin or insects.

[3] https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcqrqyr80
[4] https://uk-air.defra.gov.uk/aqma/maps/

4.3.3 The operation is not considered to pose a risk to air (excepting fugitive dust) due to the nature of waste materials that are accepted.

4.3.4 A Dust Emissions Management Plan has been prepared to assess the risks from dust and present mitigation and control measures. This is presented as Report No 151/2 and is included with the application.

5. RISK ASSESSMENT

5.1 Methodology

5.1.1 Overall risk is a combination of the severity of an event and the likelihood that it will occur. Probability of occurrence is designated as:

- Probable – expected to occur based on previous occurrences
- Likely – expected to occur due to proposed changes
- Possible – this may occur, it may or may not have happened occasionally in the past
- Unlikely – not expected to occur
- Very Unlikely – has never and is not expected to occur.

5.1.2 The magnitude of risk is determined by the probability of exposure and the severity of the consequences, whereby:

- High – severe and long lasting environmental effects to the wider locality
- Medium – effects to the local environment and community
- Low - minor, short lived effects just beyond the site boundary
- Negligible – no discernible effect beyond the site boundary

5.1.3 An event could have a high probability of occurring but have minor environmental consequences; therefore it will be designated as a low risk. Likewise a risk with severe consequences could be unlikely to occur and will be designated as a low risk. A high risk designation would be assigned to an event that has severe consequences and is expected to occur.

5.2 Assessment

5.2.1 The risks associated with the identified hazards have been assessed and are presented in Tables 4 to 10, including mitigation and control measures.

Hazard	Receptor	Pathway	Consequence	Probability of Exposure	Risk	Risk Management	Mitigated Risk
Noise from incoming and outgoing HGVs for additional throughput	Surrounding residential properties	Air (noise) Vibration (ground)	Nuisance noise from delivery vehicles during daytime working hours	Possible: closest residential properties are 120 m from the site boundary. A noise impact assessment has been carried out to assess the impacts However, no new activities will be carried out, just the current activities which are already considered to be acceptable.	Medium	• The noise impact assessment determined impacts to be low as the predicted noise was lower than the existing background noise at the nearest residences • The processing operations are screened to the north and east by a soil screening bund approx. 4 m high, which acts as an acoustic barrier • Site access is concrete surfaced and will be maintained to prevent pot-holes and minimise noise generated by vehicles; • Vehicle drivers to adhere to 10 mph speed limit • All machinery & plant maintained as per manufacturer's specifications for efficient running; • Noise only during daytime working hours, no night time operations; • Vehicles delivering waste to the site will be utilised to back load with product to reduce HGV movements	Low
Noise from aggregate processing (engine noise, reversing warning noise, material handling, crushing, & screening)			Nuisance noise detected beyond the site boundary from processing operations during daytime working hours		Medium		Low

Table 4: Assessment of Risks from Noise and Vibration

Hazard	Receptor	Pathway	Consequence	Probability of Exposure	Risk	Risk Management	Mitigated Risk
Mud on the road	Public highway (A580)	Material carried on vehicle wheels and axles on leaving the site.	Mud carried onto public highway which could be a skid hazard for motorists.	Possible	Medium	• Wheel wash is in place and all HGVs must drive through to exit the site • Concrete surfaced access road between site entrance and public highway • Site access road is checked daily, swept with a road sweeper.	Low

Table 5: Assessment of Risks from Mud on the Road

Hazard	Receptor	Pathway	Consequence	Probability of Exposure	Risk	Risk Management	Overall Risk
Dust from vehicle movements carrying additional input Dust from processing additional material Dust from stockpiled waste and products	Residents, agricultural land, priority habitat woodland	Dust carried off site on wheels of HGVs or windblown from site material and operations	Annoyance to neighbours due to dust soiling and loss of amenity, reduction in air quality and possible health impacts, smothering of habitat	Possible as the operation is a dust generating activity	Medium	• The site will operate with a Dust Emissions Management Plan to control the risk from dust • The processing and storage area is shielded by 4m high screening bund and 2.5 m high fence, preventing windblown dust leaving site towards the north and east which is the direction of the prevailing wind and the location of the closest residential receptors • Storage of products within concrete walled bays to prevent wind whipping. The quarantine bay and MOT Type 1 bay will be covered. • Stockpiles will be damped down with a bowser during dry conditions • Site access road is checked daily, swept with a road sweeper which provides dampening. • Site surface is dampened with a bowser and roadsweeper • Wheel wash used by exiting HGVs • All loads are covered on entering and exiting site	Low

Table 6: Assessment of Risks from Dust

Hazard	Receptor	Pathway	Consequence	Probability of Exposure	Risk	Risk Management	Mitigated Risk
Surface water run-off carrying sediment from stockpiled waste and site surface	Moss Brook 290 m S	Flow off site and into watercourse	Increased sediment load reducing water quality	Possible – surface water flows from the treatment area into the landfill site settlement pond and then out into a drain to the south and then into Moss Brook	Medium	• Run-off is intercepted by perimeter drain and is directed to the landfill site settlement pond • The outfall from the pond to Moss Brook is monitored monthly in accordance with permit conditions, including suspended solids • Permit conditions preclude acceptance of hazardous materials • Waste acceptance controls & pre-acceptance procedures will prevent acceptance of non-compliant waste types • In the event that non-conforming waste is unloaded the waste will be consigned to a quarantine area to await re-loading & removal off-site	Low
	Other surface water courses listed in Table 2			Unlikely - there is no direct pathway from the treatment area to these watercourses	Low		Low
	Groundwater (principal aquifer)	Percolation into underlying aquifer	None – sediment will sit on the surface, not percolate through	Very unlikely as treatment area is concrete surfaced so no pathway	Very Low		Low
Surface water run-off carrying dissolved contaminants	Moss Brook 290 m S	Flow off site and into watercourse	Reduction in water quality from dissolved contaminants	Unlikely – waste is generally inert	Low		Low
	Groundwater (principal aquifer)	Percolation into underlying aquifer		Very unlikely as treatment area is concrete surfaced so no pathway	Very Low		Low

Table 7: Assessment of Risk from Uncontained Run-off

Hazard	Receptor	Pathway	Consequence	Probability of Exposure	Risk	Risk Management	Overall Risk
Non-compliant waste types, eg hazardous dust from importation & processing of contaminated material	Site staff, neighbouring employees and local residents	Air	Inhalation of contaminated dust	Unlikely as hazardous material not included on permit but may accidentally be imported	Low	• Permit conditions preclude acceptance of hazardous materials • Waste acceptance controls & pre-acceptance procedures will prevent acceptance of non-compliant waste types • In the event that non-conforming waste is unloaded the waste will be consigned to a quarantine area to await re-loading & removal off-site	Low
Spillage or leakage of fuel, oils & coolants Minor (< 5 litres) Major (> 5 litres)	Surface water	Oil or fuel flows off site into surface water	Contamination of watercourse	Possible – run-off goes indirectly to Moss Brook	Medium	• Fuel stored in bunded tanks in concreted reception area • Vehicles inspected as part of daily checks for leaks • Tank inspection procedure • Oil stored in bunded area • Spillage procedure detailed in the EMS	Low
	Underlying ground and groundwater	Percolates through ground into principal aquifer	Contamination of principal aquifer	Unlikely – surface is concrete sealed	Low		
Fire and firewater	Closest residents and neighbouring businesses	Overland flow of firewater; Increased airborne particulates from smoke	Contaminated firewater flows off site; Smoke causes nuisance and respiratory effects to local residents	Unlikely - the risk of fire is very low as the material processed is non-combustible.	Low	• Permitted activities do not allow flammable materials to be accepted on site and burning of waste not allowed on site. • The site has a no-smoking policy	Low
Flooding		Site floods and waste is washed off-site, adding sediment to the water environment	Waste material may be washed out of the site	Unlikely: The site is in Flood Zone 1 (low probability)	Very Low	• Waste stored on site will be uncontaminated; no direct pathway to watercourse	Very Low

Table 8: Assessment of Risk from Accidents

Hazard	Receptor	Pathway	Consequence	Probability of Exposure	Risk	Risk Management	Mitigated Risk
Litter	Closest residents, agricultural neighbours and priority habitat	Litter in waste blown beyond site boundary	Litter in the neighbourhood reducing amenity	Unlikely – waste types are construction and demolition waste and would not include easily windblow items of litter such as paper and plastic	Low	• Waste acceptance procedures are in place to ensure only suitable waste types are accepted. • Permitted waste types are restricted to non-putrescible and non-biodegradable waste	Very low
Odour		Dispersion of odours from odorous waste	Odour in the local area and reduction in air quality and amenity	Unlikely – waste types are non-biodegradable so would not generate odours or attract pests	Low		
Pests		Pest attracted to waste or imported inside loads of waste	Pest dispersed in local area, annoying neighbours and disturbing habitats				

Table 9: Assessment of Risks from Litter, Odour and Pests

Hazard	Receptor	Pathway	Consequence	Probability of Exposure	Risk	Risk Management	Mitigated Risk
Noise and Vibration	Astley and Bedford Mosses SSSI, 820 m S	Noise through the air and vibration through the ground.	Disturbance to bird species	Very unlikely due to distance from the site	Negligible	• Site management measures as detailed in Tables 4 to 9 above.	Very Low
Dust		Airborne windblown dust.	Smothering habitat with dust	Very unlikely due to distance from the site			
Pests		Rodents overland; by air for flying insects and birds	Competing with native species for habitat and food source	Unlikely – waste types will not attract pests			
Litter		Windblown from site to SSSI	Contamination of habitat and attraction of pests	Very unlikely- waste types do not generate litter			
Odour		Air	None: odour is an amenity effect	Nil			
Accidents: Contaminated run-off, fuel spillage, fire.		Air and overland flow	Contamination of habitat with ash, firewater, fuel spillage	Very unlikely: no direct pathway for overland flow; and fire unlikely as waste types non-combustible			

Table 10: Assessment of Risks to Habitats Site - Astley and Bedford Mosses

6. MITIGATION AND CONTROL

6.0.1 Risks assessed as medium or high will require mitigation and control which is detailed below. Proposed measures are outlined below and have been incorporated into the EMS.

6.1 Noise and Vibration

6.1.1 A noise impact assessment has been carried out by specialist noise consultants PDA Limited and is presented as Report No 005502-8854-RDC-02. The assessment has been carried out in accordance with BS4142:2014+A1:2019. The impact of the proposed changes have been determined to be low.

6.1.2 Noise is mitigated further by carrying out operations only during the working day. Noise will be minimised by the maintenance of plant and the use of silencers and maintenance of roads. A noise management plan has been prepared to demonstrate how noise will be controlled and this is presented as Report No 151/3.

6.2 Mud on Road

6.2.1 Risks associated with mud on the road have been determined as medium.

6.2.2 This is mitigated to low risk by the use of a wheel wash and the concreted access road which is swept clean. The EMS includes procedures for the removal of any accidental deposit by a road sweeper, as well as regular checks and sweeping of the site entrance.

6.3 Dust

6.3.1 Risks from fugitive dust emissions were assessed as medium and a Dust Emissions Management Plan has been produced to demonstrate how dust will be managed to reduce the risk to an acceptable level. This is presented as Report No 151/2.

6.3.2 The site is shielded by the fence and bund to the north and east which prevents windblown dust from leaving the site. The stockpile of incoming waste and products could become dusty when dry and will be managed by damping down.

6.3.3 Dust monitoring will be carried out daily and contingency actions are in place to prevent dust emissions from occurring.

6.4 Control of Run-off

6.4.1 Surface water run-off drains according to the topography of the site towards the south-west boundary where it is intercepted in a ditch and flows to the landfill settlement pond to the south. The settlement pond has been moved around site as landfilling progresses, but it currently occupies the southern extent of Cell 7B, adjacent to the quarry sump shown on Drawing No 10543/62A Monitoring and Extraction Point Plan. Water drains from the pond to the quarry sump, from where it is discharged to Moss Brook under consent of the permit.

6.4.2 There is no pathway for surface water to flow from the treatment area towards the north.

6.4.3 The outflow from the quarry sump pond is monitored monthly in accordance with permit conditions. This includes analysis of the parameters listed in Table 11 below along with the compliance limits. Monitoring of the discharge provides an extra factor of safety to ensure that the settlement pond is effective and solids are not being discharged to the brook. Upstream and downstream samples from Moss Brook are also analysed.

Parameter	Limit
Ammoniacal Nitrogen	-
BOD	20 mg/l
Chloride	-
Suspended Solids	80 mg/l
Visual Oil and Grease	None visible
pH	>5 and <9
Electrical Conductivity	-

Table 11: Moss Brook Outfall Compliance Limits

6.5 Waste Acceptance

6.5.1 Unsuitable waste will be prevented from being accepted into the site by checks carried out as part of the waste acceptance procedures, summarised below.

6.5.2 Pre-Acceptance waste enquiries shall include information on the origin of the waste and whether it is from a contaminated site. When an enquiry is received, a member of the recycling team may carry out a site visit to inspect the waste. Photographs of the site and any stockpiles are taken. If the waste consists only of hardcore it will be accepted on the basis of the visual inspection.

6.5.3 In the case of waste which contains soil, classed as EWC 17 05 04, waste from greenfield sites will be accepted without analysis. Waste from brownfield sites will require chemical analysis to confirm that the soil is not contaminated. This is assessed by the technical assessor the outcome of the assessment is recorded. Contaminated waste will not be accepted.

6.5.4 If the waste is accepted as suitable it will be booked into site and undergoes further checks when it arrives.

6.5.5 Waste which is found to be unsuitable after delivery will be rejected.

6.6 Habitats Sites

6.6.1 Risks to the habitats site were assessed as negligible due to the distance from site and the operational controls in place.

7. CONCLUSIONS

7.1 The risks to the environment from the proposed activity have been determined and where required mitigation has been proposed to reduce the risks to an acceptably low level.

7.2 Noise will be minimised by the maintenance of plant and the use of silencers, maintenance of roads and working within the permitted operational hours.

7.3 Risks from surface water run-off are minimised through interception in a drainage ditch and settlement in the landfill settlement pond. The outflow from the pond is monitored under current permit conditions. The risks to groundwater are minimal as the site is surfaced with impermeable pavement.

7.4 Risks from accidents will be reduced through effective management of the site through an Environmental Management System, including waste acceptance procedures to prevent importation of contaminated waste.

7.5 Risks from mud on the road will be mitigated through the use of the wheel wash and the concreted access road, and regular road sweeping.

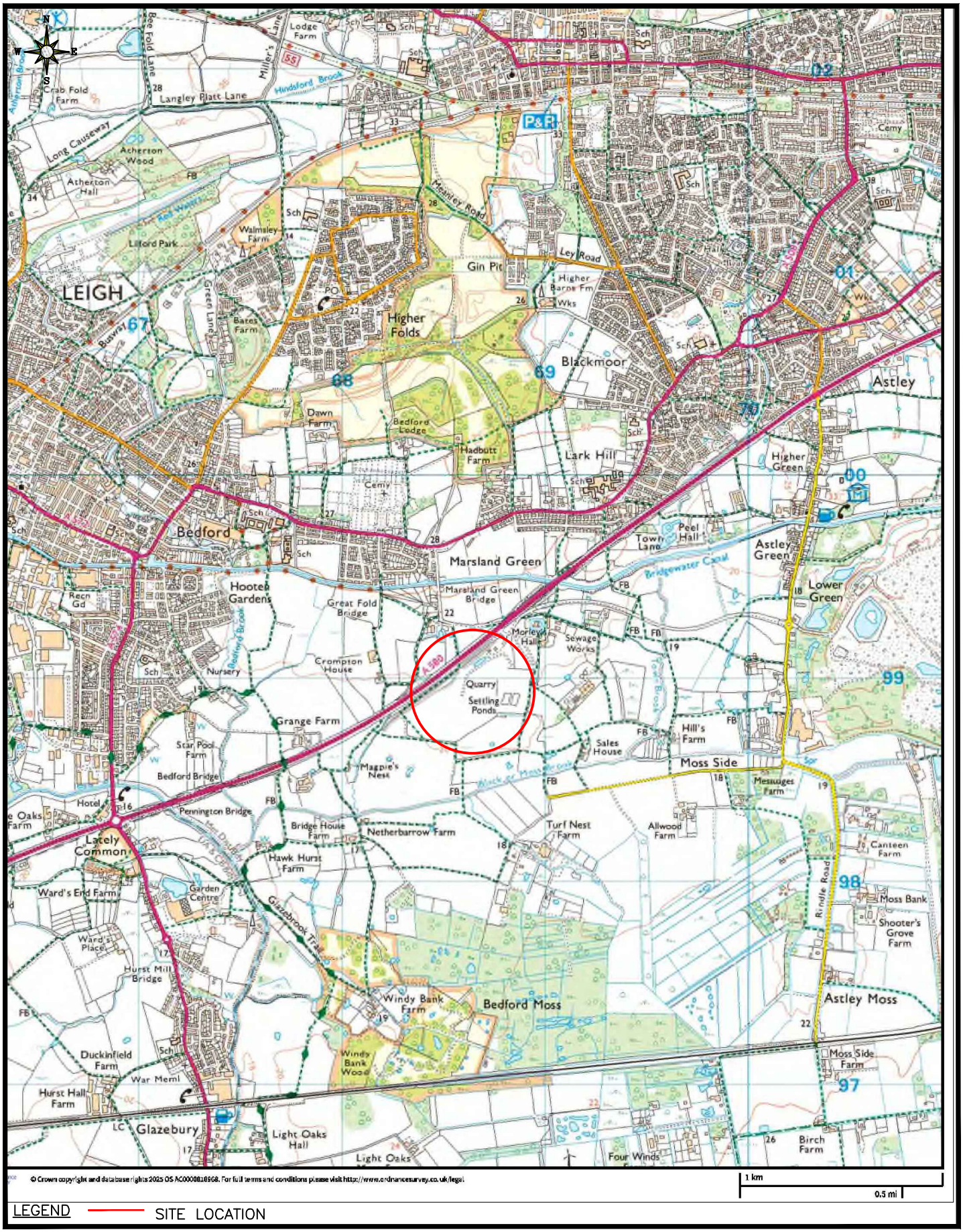
7.6 Risks from dust will be minimised by screening from the surrounding fence and bund, dampening and daily monitoring and management.

7.7 Risks to the habitats site are negligible due to the distance from site and the operational controls in place.

7.8 In conclusion it has been demonstrated that the risks posed by the proposed operation can be mitigated so they will not have a significant impact on the surrounding environment.

APPENDIX A

Drawings

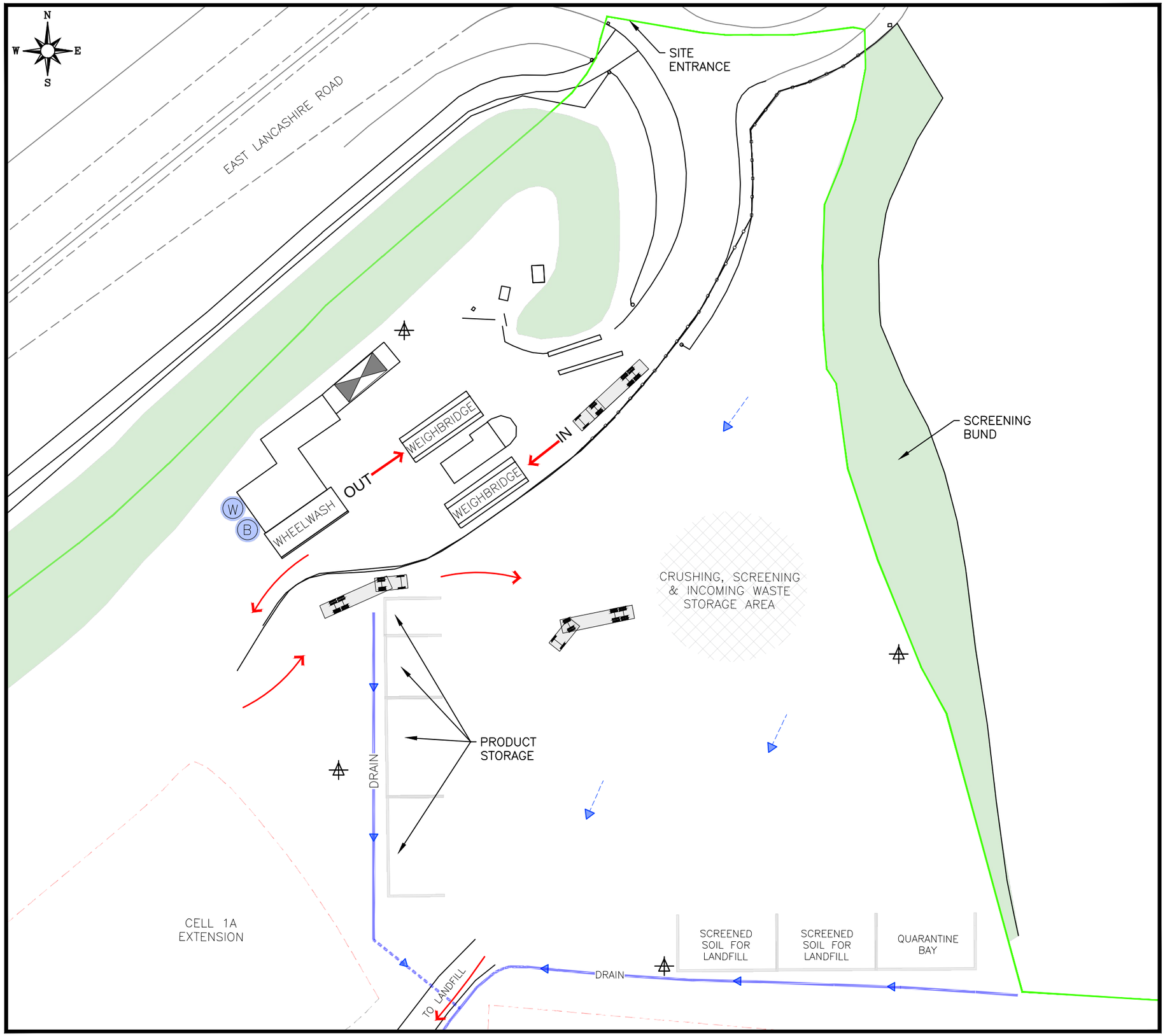


1 km
0.5 mi

LEGEND — SITE LOCATION

STARLING ENVIRONMENTAL LIMITED
67 Chorley Old Road, Bolton,
Greater Manchester, BL1 3AJ
www: starlingenvironmental.co.uk
email: claire@starlingenvironmental.co.uk
Tel: 07989 673122

CLIENT: ASTLEY SAND & AGGREGATES LIMITED		DRAWN BY: M.Y.B	APPROVED BY: C.G
JOB TITLE: MORLEYS QUARRY, LANDFILL SITE, ASTLEY		DATE: 17/03/2025	DRAWING No.: 151/01
DRAWING TITLE: SITE LOCATION PLAN		SCALE @ A4.: 1:25,000	



KEY

- PERMIT BOUNDARY
- 2.5 m WOODEN FENCE
- LANDFILL CELL BOUNDARY
- DRAIN CULVERT UNDER ACCESS ROAD
- 4 m HIGH VEGETATED SCREENING BUND
- FUEL
- SURFACE WATER DRAINAGE DIRECTION (SURFACE)
- DUST MONITORING POINT
- (W) WATER MAINS
- (B) BOWSER

REV.	DESCRIPTION	DATE	BY

STARLING ENVIRONMENTAL LIMITED
67 Chorley Old Road, Bolton, Greater Manchester, BL1 3AJ
www: starlingenvironmental.co.uk
email: claire@starlingenvironmental.co.uk
Tel: 07989 673122

CLIENT.

ASTLEY SAND & AGGREGATES LIMITED

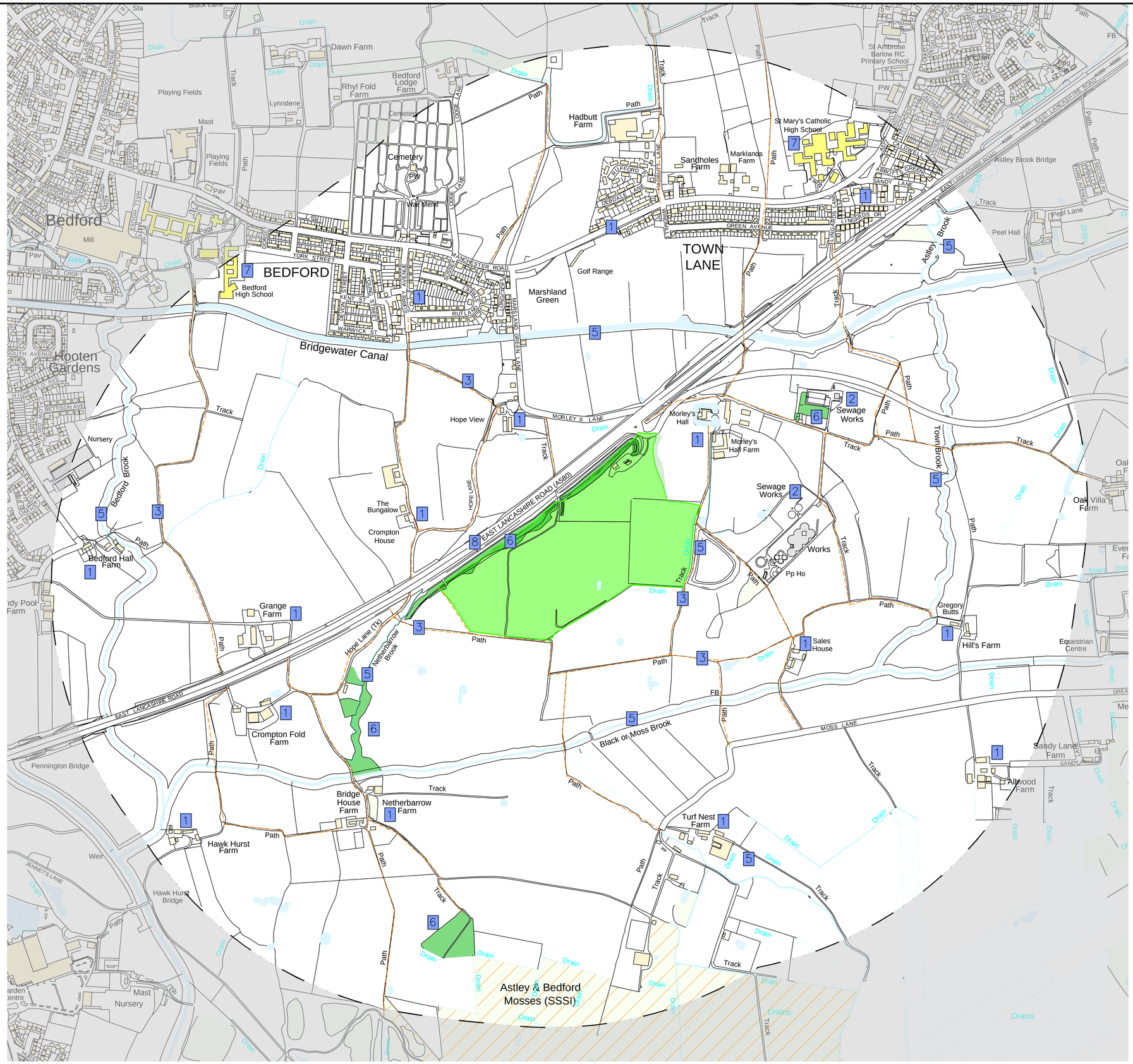
JOB TITLE.

MORLEYS QUARRY
LANDFILL SITE
ASTLEY

DRAWING TITLE.

RECYCLING AREA
LAYOUT

DRAWN BY.	APPROVED BY.	DRAWING No.
M.Y.B	C.G	151/02
DATE. 14/03/25	SCALE. 1:1000	



LEGEND

- PERMIT AREA
- 1 KM RECEPTOR BOUNDARY
- FOOTPATHS
- RESIDENTIAL PROPERTIES
- INDUSTRIAL/COMMERCIAL PROPERTIES
- ASTLEY & BEDFORD MOSSES SSSI & SITE OF BIOLOGICAL IMPORTANCE
- PRIORITY HABITAT WOODLAND
- WATERBODIES/WATERWAYS
- 1 RECEPTOR REFERENCE

PREDOMINANT WIND DIRECTION IS FROM THE SOUTH

REV.	DESCRIPTION	DATE	BY

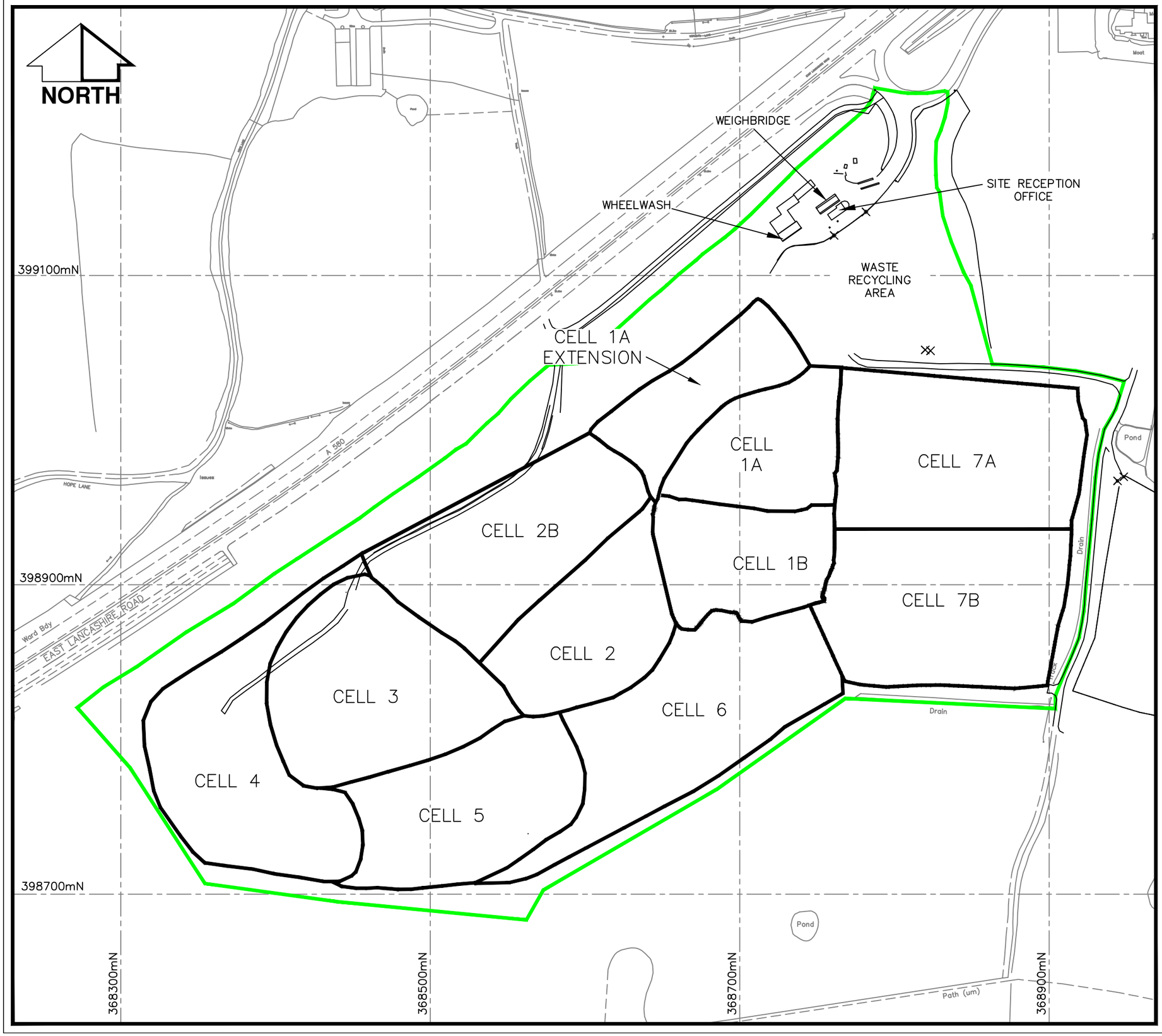
STARLING ENVIRONMENTAL LIMITED
67 Chorley Old Road, Bolton,
Greater Manchester, BL1 3AJ
www: starlingenvironmental.co.uk
email: claire@starlingenvironmental.co.uk
Tel: 07989 673122

CLIENT.
ASTLEY SAND & AGGREGATES LIMITED

JOB TITLE.
MORLEYS QUARRY
LANDFILL SITE
ASTLEY

DRAWING TITLE.
RECEPTORS WITHIN 1 KM

DRAWN BY.	APPROVED BY.	DRAWING No.
M.Y.B	C.G	151/03
DATE. 17/03/2025	SCALE @ A1. 1:5000	



KEY

REVISED PERMIT BOUNDARY

REV.	DESCRIPTION	DATE	BY
A	CELLS 7A & 7B ADDED	20.07.17	L.Mc.

THE ARLEY CONSULTING COMPANY LIMITED

Chorleian House
49-51 St Thomas's Road
Chorley, Lancashire PR7 1JE

Tel: 01257 278300
Fax: 01257 268063
E-mail: mailbox@taccl.co.uk

CLIENT.

ASTLEY SAND & AGGREGATES LTD

JOB TITLE.

MORLEYS QUARRY
LANDFILL SITE
ASTLEY

DRAWING TITLE.

CELL LAYOUT

DRAWN BY.	APPROVED BY.	DRAWING No.
M.Y.B.	M.L.	10543/41A
DATE. 07/06/2017	SCALE. 1:2500	

NORTH

399100mN

398900mN

398700mN

398500mN

368300mN

368500mN

368700mN

368900mN

369100mN

WEIGHBRIDGE

WHEELWASH

SITE RECEPTION OFFICE

WASTE RECYCLING AREA

BH1

BH2

BH3

BH4

BH4R

BH6

BH8

BH9

BH10

BH11

BH12

CELL 1A EXTENSION

CELL 1A

CELL 2B

CELL 1B

CELL 7A

CELL 2A

CELL 7B

CELL 3

CELL 6

CELL 4

CELL 5

LC1B

LC2A

LC2B

LC3

LC4

LC5

LC6

LC7A

LC7B

QUARRY SUMP

QUARRY SUMP DISCHARGE

SW-OUTFALL

SW1

SW2

The Bungalow

Crompton House

HOPE LANE

A580

EAST LANCASHIRE ROAD

Ward Bdy

Issues

Pond

Drain

Path (um)

Ponds

Tank

Path (um)

Black or Moss Brook

FB

KEY

- PERMIT BOUNDARY
- GAS MONITORING BOREHOLE
- DUAL/COMBINED GROUNDWATER & GAS
- GAS FLARE STACK EMISSION POINT
- GAS ENGINE EMISSION POINT
- SURFACE WATER SAMPLING POINT
- GROUNDWATER MONITORING BOREHOLE
- LEACHATE COLLECTION POINT
- LEACHATE MONITORING POINT
- LEACHATE DISCHARGE SAMPLING POINT

REV.	DESCRIPTION	DATE	BY
A	GROUNDWATER ABSTRACTION POINT ADDED	14.12.19	M.Y.B.

casey PRO-ENVIRONMENT

CLIENT.

ASTLEY SAND & AGGREGATES LTD

JOB TITLE.

MORLEYS QUARRY
ASTLEY

DRAWING TITLE.

MONITORING AND EXTRACTION POINT PLAN

DRAWN BY.	APPROVED BY.	DRAWING No.
M.Y.B.	M.L.	10543/62A

DATE.	SCALE.
29/03/2019	1:4000

APPENDIX B

EA Conservation Screening Report

APPENDIX C

SSSI Citation

Date Notified: 29 September 1989

File ref: SJ 69/5

County: Greater Manchester **Site Name: Astley & Bedford Mosses**

District: Wigan

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act, 1981.

Local Planning Authority: Wigan Metropolitan Borough Council

National Grid Reference: SJ 692975 **Area:** 92.2 (ha) 227.8 (ac)

Ordnance Survey Sheet 1:50,000: 109 **1:10,000:** SJ 69 NE

Date Notified (Under 1981 Act): 1989 **Date of Last Revision: –**

Other Information:
1. This is a new site.
2. Part of the site is a nature reserve owned and managed by the Lancashire Trust for Nature Conservation.

Description and Reasons for Notification:
Astley and Bedford Mosses are situated 14 km west of the centre of Manchester and 4 km south-east of Leigh. The site lies adjacent to the Liverpool to Manchester railway and is bordered on the other sides by agricultural land. It represents one of the largest remaining fragments of Chat Moss, a lowland raised mire some 25 square kilometres in extent developed over tills and Late-glacial flood gravels overlying Triassic sandstones of the Sherwood Sandstones Group. Most of the original extent of Chat Moss has been drained and reclaimed for agriculture or cut over for peat such that Astley and Bedford Mosses, although also subject in the past to some of these impacts, are higher than the surrounding countryside and still retain a considerable depth of peat.

The major habitats present are modified mire communities, heathland, woodland and acidic grassland, all developed over the cut peat surface and subject to variations of wetness according to the residual topography or drainage patterns.

Existing areas of mire are dominated by common cottongrass *Eriophorum angustifolium* and hare's-tail cottongrass *E. vaginatum* with occasional deergrass *Trichophorum cespitosum*. Bog mosses are scarce but *Sphagnum cuspidatum*, *S. recurvum*, *S. tenellum*, *S. fimbriatum* and *S. subnitens* occur in patches in the cottongrass, between tussocks of purple moor-grass *Molinia caerulea* or in and alongside some of the ditches.

As the peat becomes increasingly drier, the mire community is replaced by a monospecific sward of purple moor grass in which very few other species are present. Downy birch *Betula pubescens* also begins to establish with the result that a large proportion of the site exists as a mixture of these two species. This community varies in density from a closed birch woodland to a 'savannah'-like grassland with occasional trees.

Heather *Calluna vulgaris*, although scattered throughout, also dominates one are a of heathland at the north eastern edge of the site, where cranberry *Vaccinium oxycoccus* also occurs.

The site is important for birds, in particular wintering raptors such as hen harrier, short-eared owl and merlin, and it supports breeding species such as curlew and long-eared owl. Nightjars, precariously confined to the remnant lowland mosslands in the county, may also breed.

Survey opportunity: JNCC is undertaking a review of its National Site Network data products. If you use any of the information on this site, you can help us improve our data products by completing a short survey (open until 23:59 on Monday 5 May 2025).

Special Areas of Conservation

Manchester Mosses

Designated Special Area of Conservation (SAC)

Country	England
Unitary Authority	Cheshire, Greater Manchester
Centroid*	SJ691973
Latitude	53.47111111
Longitude	-2.465555556
SAC EU Code	UK0030200
Status	Designated Special Area of Conservation (SAC)
Area (ha)	170.49

* This is the approximate central point of the SAC. In the case of large, linear or composite sites, this may not represent the location where a feature occurs within the SAC.

Location of Manchester Mosses SAC

General site character

- Bogs, Marshes, Water fringed vegetation, Fens (89%)
- Broad-leaved deciduous woodland (11%)

Download the Standard Data Form for this site (PDF <100kb)

Note When undertaking an appropriate assessment of impacts at a site, all features of European importance (both primary and non-primary) need to be considered.

Annex I habitats that are a primary reason for selection of this site

- **7120 Degraded raised bogs still capable of natural regeneration**
  Mossland formerly covered a very large part of low-lying Greater Manchester, Merseyside and southern Lancashire, and provided a severe obstacle to industrial and agricultural expansion. While most has been converted to agriculture or lost to development, several examples have survived as **degraded raised bog**, such as Risley Moss, Astley & Bedford Mosses and Holcroft Moss on the Mersey floodplain. Their surfaces are now elevated above surrounding land due to shrinkage of the surrounding tilled land, and all except Holcroft Moss have been cut for peat at some time in the past. While past drainage has produced dominant purple moor grass *Molinia caerulea*, bracken *Pteridium aquilinum* and birch *Betula* spp. scrub or woodland, wetter pockets have enabled the peat-forming species to survive. Recent rehabilitation management on all three sites has caused these to spread.

Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site

- Not Applicable

Annex II species that are a primary reason for selection of this site

- Not Applicable

Annex II species present as a qualifying feature, but not a primary reason for site selection

- Not Applicable

Many designated sites are on private land: the listing of a site in these pages does not imply any right of public access.

Starling
Environmental
Limited