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ALTILIUM METALS

BLACK MASS PROCESSING AND THE PRODUCTION OF INORGANIC CHEMICALS

DUST AND EMISSIONS MANAGEMENT PLAN

NOVEMBER 2024

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ALTILIUM METALS

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DUST AND EMISSIONS MANAGEMENT PLAN

NOVEMBER 2024

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APPENDICES

DRAWINGS	TITLE	SCALE
BM12446-001-P0	Permit Boundary Plan	1:500 @ A2
BM12446-004	Receptor Plan	1:10,000 @ A3

VERSION CONTROL

Version	Date	Changes made by	Changes made
1	March 2024	WA	Original

1 INTRODUCTION

1.1.1 Altilium Metals have commissioned Wardell Armstrong in preparing a Dust and Emissions Management Plan for their site at Unit 2 Plymbridge House, Estover Road, Plymouth, PL6 7PY.

1.1.2 Activites undertaken at the facility will comprise of storage and treatment of waste black mass from end of life lithium batteries, and the subsequent production of cathode active materials.

1.1.3 The purpose of the Dust and Emissions Management Plan (DEMP) is to identify potential sources of dust from the Site activities and describe the dust control measures that are to be implemented.

1.1.4 Section 2 details the site setting and activities that are to be undertaken at the Site.

1.1.5 Section 3 details the potential sources of dust from Site activities.

1.1.6 Section 4 describes the operational controls that will be in place to ensure that the production of dust is minimised.

1.1.7 Section 5 provides details of monitoring that will be undertaken at the Site.

1.1.8 Section 6 sets out the site complaint procedure.

1.1.9 Section 7 confirms that this plan will be subject to regular review by an appropriately trained person.

2 SITE SETTING AND ENVIRONMENTAL RISK

2.1 Site Setting and Location

2.1.1 The address of the site is Unit 2 Plymbridge House, Estover Road, Plymouth, PL6 7PY. The National Grid Reference (NGR) for the site is SX 51606 59801.

2.1.2 The site location and permit boundary are shown on drawing BM12446-001-P0.

2.1.3 The site is not situated within an Air Quality Management Area[1].

2.1.4 The site is situated within Estover Industrial Estate, which has a number of existing commercial and industrial units. Beyond Estover Industrial Estate there are more

[1] https://uk-air.defra.gov.uk/aqma/maps/

industrial and commercial estates, including the Mars Wrigley UK chewing gum manufacturing facility. To the south and southwest is the town of Estover.

2.1.5 The nearest residential receptors are houses on Forget Me Not Lane, 380m to the northeast of the site.

2.1.6 The nearest hospital/medical receptor is Plymouth Dialysis Centre, 190m to the west.

2.1.7 There are several schools within 2km of the Site, the closest being Thornbury Primary School, 730m to the west.

2.1.8 The nearest ecological receptor is the Plymbirdge Lane & Estover Road SSSI, which is comprised of two small sites, the closest being Estover Road which is less than 10m from the rear of the site building.

2.1.9 A drawing showing the receptors within 2km of the facility boundary is provided in drawing BM12446-004.

2.2 Source-pathway-receptor Conceptual Site Model

2.2.1 A source-pathway-receptor conceptual model has identified the likely risk of dust and emissions to sensitive receptors, and is set out in Table 2.1 below along with the control measures in place to break the pathway.

Table 2.1: Source-pathway-receptor Conceptual Site Model

Source	Pathway	Receptor	Control Measure
Point Source Emissions to Air	Airborne	Local residents, local businesses, nearby habitats	Gasses are extracted from various stages of the processes and subject to chemical scrubbing or other treatment to reduce emissions of dust.
Vehicle Movements	Airborne Tracked out of the site by vehicles	Local residents, local businesses nearby habitats	Due to the nature of the business and the fact that operations take place inside a building in purpose built reaction vessels vehicles will not disturb dust from the process. clean surfaces will be maintained.
Unloading/loading of materials	Airborne	Local residents, local businesses, nearby habitats	Only relatively small quantities of potentially dust emitting materials will be handled at the facility.

Table 2.1: Source-pathway-receptor Conceptual Site Model			
Source	**Pathway**	**Receptor**	**Control Measure**
			Black mass will be delivered in secure bags
Fugitive Emissions: handling of black mass	Airborne	Local residents, local businesses, nearby habitats	Bagged black mass will only be opened inside the building, and will be transferred directly to the enclosed process.
Fugitive Emissions: handling of product	Airborne	Local residents, local businesses, nearby habitats	Product stored in appropriate bags or containers.

3 POTENTIAL SOURCES OF DUST AND EMISSIONS

3.1.1 The potential sources of dust associated with the site activities are as follows:

- unloading and unbagging of black mass;
- material handling.

3.1.2 The black mass will undergo a series of steps and phases during chemical treatment, which utilise liquids including deionised water and chemicals in liquid form. This will reduce the likelihood of dust being generated during treatment and processing. The most likely source of dust emissions is from the handling of black mass prior to the treatment process begins.

3.1.3 All steps of the process take place in enclosed vessels.

3.1.4 The final product will be appropriately packaged before transport off site.

3.1.5 In addition to the potential generation of dust, there will be four point source emission to air.

4 DUST AND PARTICULATE MANAGEMENT

4.1 General

4.1.1 The potential for site operations to generate dust can be minimised by operating in accordance with the best practice measures to control and mitigate the generation of dust. The following measures will be implemented to prevent dust emissions as far as possible.

4.2 Waste Acceptance

4.2.1 Stringent waste acceptance procedures are to be implemented at the site, ensuring that only suitable materials (black mass) are accepted for treatment.

4.2.2 Black mass will arrive in powdered form, in sealed bags with a capacity of 1,000kg each. It is expected that approximately 100 tonnes of black mass feedstock will be processed per annum (a maximum of 750kg per day).

4.2.3 The closed bags will remain sealed until inside the building, and will only be opened inside a powder containment cupboard and disbursed into aliquots for chemical processing.

4.3 Visual Inspection

4.3.1 Staff will maintain a visual awareness for emissions of dust throughout the working day.

4.3.2 Working areas will be visually inspected at least once per day to identify the accumulation of dust materials.

4.3.3 In the event that accumulations of dust are identified, or airborne dust is observed onsite, a member of staff will undertake cleaning as required.

4.3.4 The Site Manager will be notified in the event that abnormal levels of dust are generated and deposition is occurring. It is not anticipated that dust deposition will be likely to occur outside of the building, but in the event that this is the case, the Site Manger will be notified.

4.3.5 A record will be made in the site diary of the source of the dust emissions and the remediation measures that were implemented.

4.4 Infrastructure

4.4.1 Equipment will be subject to regular maintenance in accordance with the manufacturer's guidelines.

4.4.2 Records of site inspections, testing and monitoring will be retained on-site and made available to the Environment Agency upon request.

4.4.3 Incidents relating to dust emissions will be recorded in the site diary. Records will be made to the Environment Agency upon request.

4.5 Water Supply

4.5.1 Clean water only will be used for dust suppression to avoid the recirculation of fine material.

4.5.2 A continuous water supply will be maintained at the site from the mains supply, to be utilised as and when required.

4.5.3 Continuous water suppression across the site is not considered necessary due to the low risk and existing control measures in place. Damping down will only be utilised as and when dust is visually detected in the air flow. As the process takes place in enclosed vessels and the majority of the steps include wet processing dust is not expected to be a major issue.

4.5.4 Instances where dampening of surfaces is undertaken will be recorded in the site diary.

4.6 Training

4.6.1 Site staff will be made aware of their responsibilities in preventing the generation of dust during site operations, including appropriate handling procedures of black mass.

4.6.2 All staff will receive training on how dust emissions can be prevented and emergency preparedness if planned dust mitigation fails.

4.6.3 Staff operating plant and equipment will receive training on potential dust sources and how to prevent emissions.

4.6.4 The performance of site staff and dust mitigation measures will be reviewed on a regular basis.

4.6.5 High standards of housekeeping will be maintained at all times.

4.6.6 A physical copy of the Dust and Emissions Management Plan will be retained at all times and made available to employees. A digital copy will also be held.

4.7 Emergency Procedures

4.7.1 If emissions of dust are observed to be originating from the site, the Site Manager will be notified, and mitigation measures implemented as soon as possible.

4.7.2 An investigation will be undertaken to determine the source of the dust emissions. Site staff will undertake visual inspections around the site, and once the source is determined, dampening or brushing will be undertaken as necessary.

4.7.3 If substantial amounts of dust are being produced at the site, site operations may cease and the Environment Agency contacted.

4.7.4 In the event of failure of equipment vital to the dust suppression, replacement equipment will be sourced promptly and maintained on site until the equipment is repaired or replaced.

5 PARTICULATE MATTER MONITORING

5.1.1 The implementation of measures that are outlined in this plan will ensure that the risk of dust is minimised.

5.1.2 The risk of dust emissions is not deemed significant enough to warrant routine quantitative monitoring at or around the site. Daily visual inspections are considered to be sufficient. Should the situation change, for example persistent dust complaints are received, quantitative monitoring for deposition of dust (and airborne particulate matter if necessary) will be considered.

5.1.3 Visual monitoring for particulates will be undertaken at least once per working day. This will form part of the daily site inspection checks.

6 REPORTING AND COMPLAINTS RESPONSE

6.1 Recording Complaints

6.1.1 Should a complaint be received, either from a member of the public or a Regulator, this will be recorded on a form prepared for that purpose. The Dust Complaint Log Sheet is provided in Appendix 1 and should be used for this purpose.

6.1.2 The following information will be recorded:

- Contact details of the complainant;
- Date and time of the incident;
- Nature of the incident;
- Weather conditions at the time (including wind strength and direction, any precipitation, temperature).

6.1.3 The information will be passed onto the facility manager, or their designated deputy, for action.

6.1.4 An investigation will be carried out to determine the activities taking place on site at the time of the incident and the likely cause of the dust emissions.

6.1.5 The designated manager responsible and on duty will determine the measures required to prevent further significant emissions and will implement action(s) to resolve the issue.

6.1.6 The complainant will be informed of the outcome of the investigation, the remedial measures proposed and the likely time scale for implementation (unless they have indicated that they do not wish to be contacted).

6.1.7 A record of the complaint and the actions taken will be retained on site and these records will be made available to the Environment Agency upon request.

6.2 Reporting of Complaints

6.2.1 The responsible person receiving the complaint at the site will initially record the key details of the complaint in accordance with the Complaints and Feedback Procedure. Key information will be recorded at this time in order to facilitate further suitable investigation.

6.2.2 Site management will be informed of the complaint as soon as possible, including the location, time and date of the complaint being lodged (where available).

6.2.3 Where there are consistent complaints regarding dust from the site or where there is a major incident and pollution is known to have occurred, to be likely to have occurred, the Environment Agency will be informed as soon as possible by telephone:

- Environment Agency 24 hour service incident hotline number: 0800 80 70 60.

6.2.4 Written reports will subsequently be provided to the Environment Agency in line with permit conditions.

6.2.5 The complaint log will be reviewed on an annual basis, to assess any trends or common issues. Where necessary, the Dust and Emissions Management Plan will be updated as a result, and targets for improvement will be put into place.

6.2.6 A date will be set for when corrective action(s) should be completed by, and actions will be reviewed and recorded to demonstrate that improvements have been implemented as required.

7 REVIEW AND RESPONSIBILITY

7.1.1 This Dust and Emissions Management Plan will be reviewed by the Site Manager annually. Updated versions will be issued as necessary with mitigation and/or

operational changes outlined. The version history will be updated each time to maintain a record of changes.

7.1.2 Where there have been substantiated complaints or issues regarding dust emissions from the site the DEMP will be reviewed as required in order to address these issues and to check whether the current procedures remain suitable at the site. If it is found that improvements could be made the plan will be revised and updated.

7.1.3 It is the responsibility of senior site staff to ensure that the Dust and Emissions Management Plan is enforced and that all employees are made aware and understand the contents of the plan.

APPENDIX 1

Dust Complaint Form

Dust Complaint Form

Complainant Details	
Complainant Name -	
Address – Postcode -	
Customer Contact Details -	
Tel -	
Email -	
Date -	
Complaint Ref Number -	
Complaint Details -	

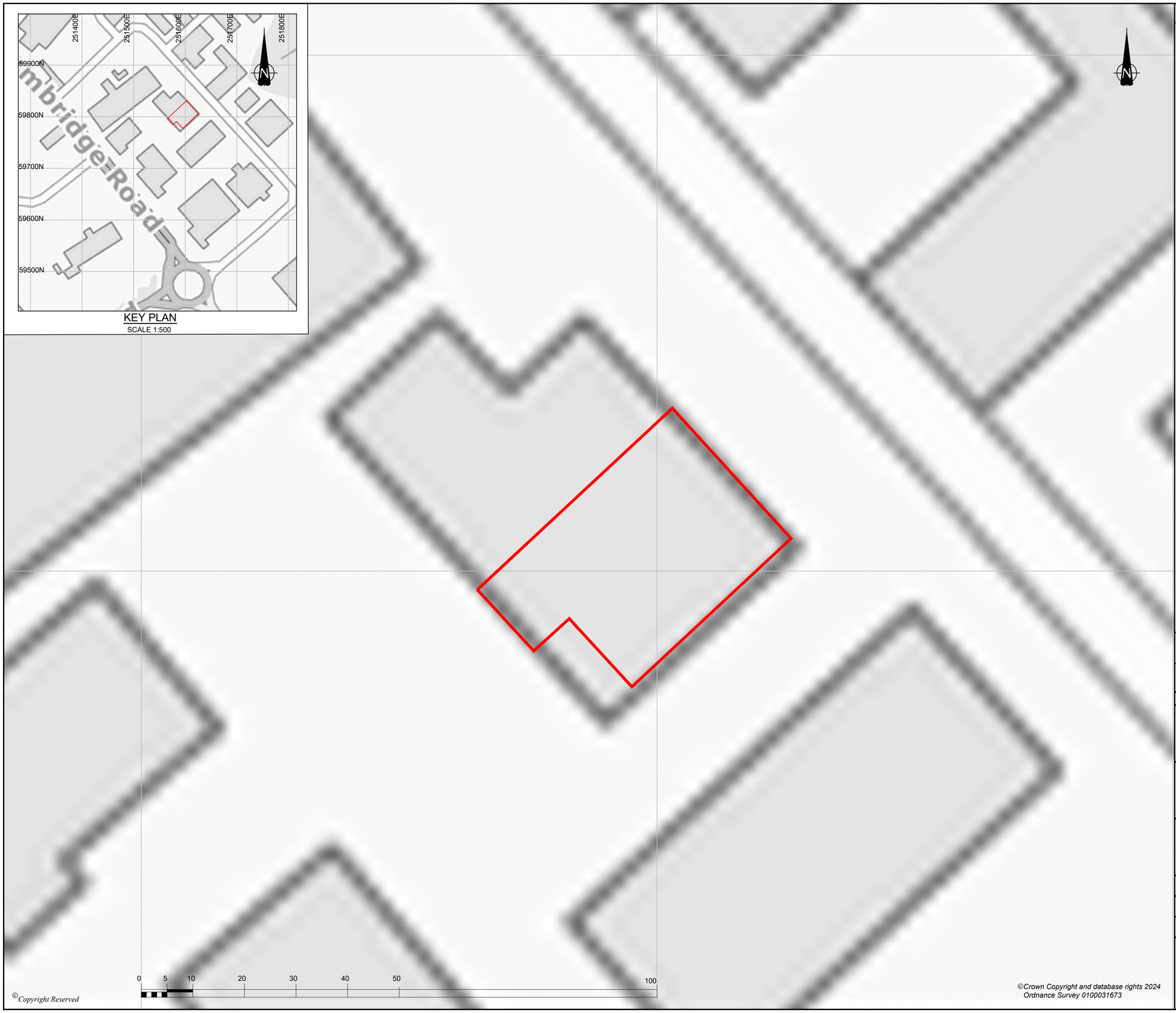
Investigation Details	
Investigation carried out by -	
Position -	
Date & time investigation carried out -	
Weather conditions -	
Wind direction and speed -	
Investigation findings -	
Feedback given to Environment Agency and/or local authority -	
Date feedback given -	
Feedback given to public -	
Date feedback given -	

Review and Improve	
Improvements needed to prevent a reoccurrence -	
Proposed date for completion of the improvements -	
Actual date for completion -	
If different insert reason for delay -	
Does the dust management plan need to be updated -	
Date that the dust management plan was updated -	

Closure	
Site manager review date	
Site manager signature to confirm no further action required	

DRAWINGS

KEY PLAN
SCALE 1:500



DO NOT SCALE FROM THIS DRAWING

KEY

SITE BOUNDARY

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
B	UPDATE RED LINE BOUNDARY	28-03-25	DG	LP	LP
A	FIRST ISSUE	12-03-24	DR	LP	LP

CLIENT

ALTILIUM METALS LTD.

PROJECT

ACT 2,
UNIT 2 PLYMBRIDGE HOUSE,
ESTOVER ROAD, PLYMOUTH

DRAWING TITLE

PERMIT BOUNDARY PLAN

DRG No.	REV	SUIT. CODE
BM12446-001	B	

DRG SIZE	SCALE	DATE
A2	1:500	13/10/23

DRAWN BY	CHECKED BY	APPROVED BY
SJB	LP	LP

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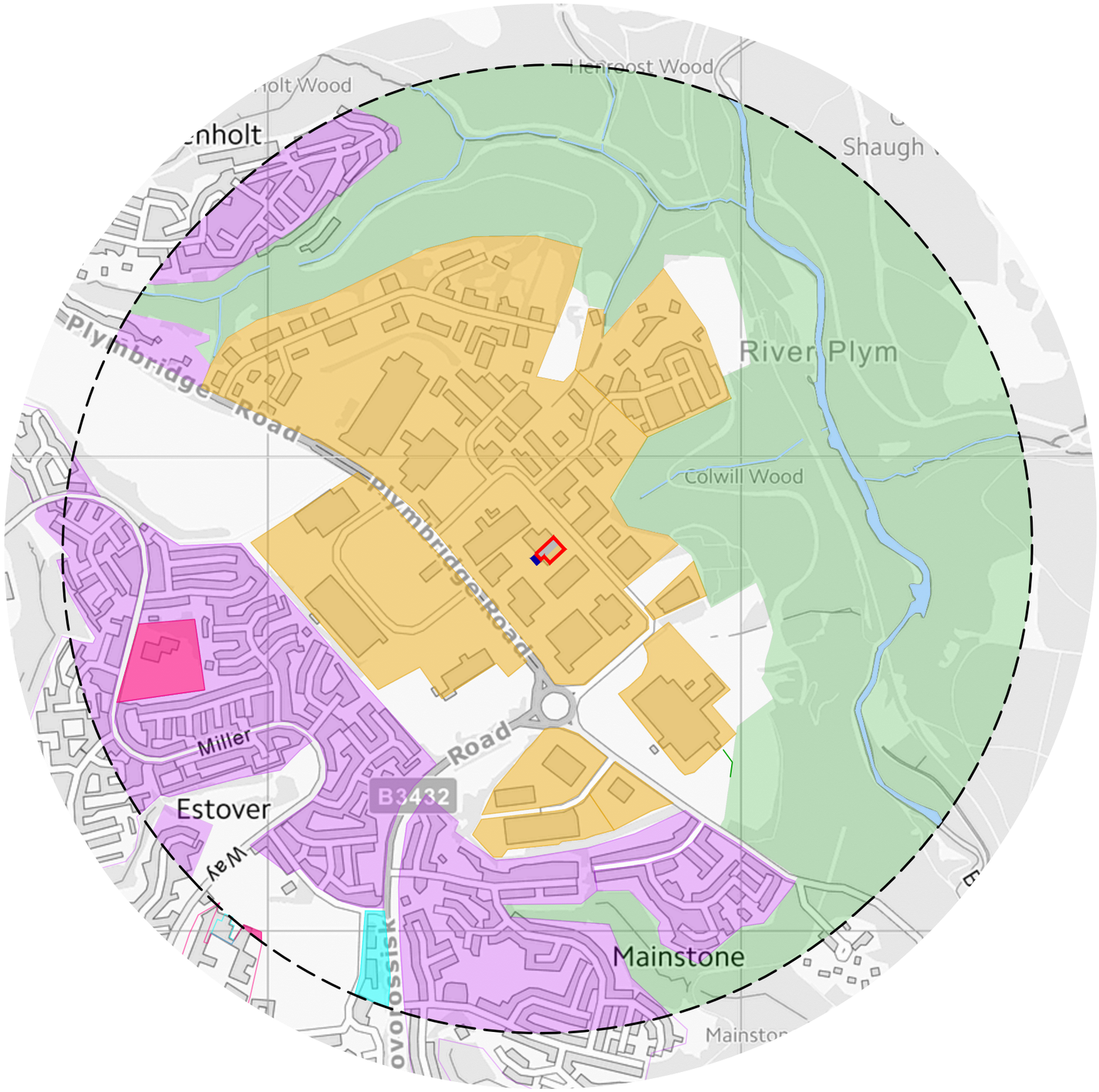
N:\BM\BM12446 - ALTILIUM METALS\03 - DESIGN\AUTOCAD\BM12446-001-B PERMIT BOUNDARY PLAN.DWG



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DO NOT SCALE FROM THIS DRAWING

REFERENCE

- PERMIT BOUNDARY
- 1km BOUNDARY OFFSET FROM SITE
- INDUSTRIAL RECEPTOR
- COMMERCIAL RECEPTOR
- RESIDENTIAL RECEPTOR
- WOODLAND RECEPTOR
- PLYMOUTH PEAR SSSI
- SCHOOL
- RIVER

REVISION	DETAILS	DATE	DR'N	CHK'D	APP'D
B	UPDATE RED LINE BOUNDARY	28-03-25	DR	LP	LP
A	FIRST ISSUE	07-03-24	DR	LP	LP

CLIENT

ALTILIUM METALS LTD

PROJECT

ACT 2,
UNIT 2 PLYMBRIDGE HOUSE,
ESTOVER ROAD, PLYMOUTH

DRAWING TITLE

RECEPTOR PLAN

DRG No.	REV	SUIT. CODE
BM12446-004	B	

DRG SIZE	SCALE	DATE
A3	1:10000	06-03-24

DRAWN BY	CHECKED BY	APPROVED BY
DR	LP	LP

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