

CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

Whitbrook Power,
Land to the West Side of Hanson Street, Middleton,
M24 6AG

Prepared for: AMP Energy Services (Asset Co.)
Limited

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1.0 Introduction

SLR Consulting Limited (SLR) has been appointed by AMP Energy Services (Asset Co) Ltd (AMP) to produce a Construction Environmental Management Plan (CEMP) in support of development Whitbrook Power on Land On The West Side Of Hanson Street, Middleton, M24 6AG.

1.1 Background

The proposed development, known as Whitbrook Power, is for a 5MW (2 x 2.5MW unit) FEF (Flexible Energy Facility) and associated ancillary equipment. It is one of several similar AMP Clean Energy facilities around the UK, commonly referred to as 'Urban Reserves'.

The Rochdale Borough Council granted permission for the following development within the Decision Notice dated 5th February 2021 (Application Ref: 20/01585/FUL):

'Construction of a gas powered energy reserve plant (2 no. 2.5MW generators) with associated infrastructure, landscaping, perimeter fencing and provision of new vehicular access.'

Condition 5 of the permission states that:

'No development shall take place (including any Site clearance or preparation works) until a Construction Environmental Management Plan (CEMP) has been submitted to, and approved in writing by the Local Planning Authority. For the avoidance of doubt, this shall include the following

- a. the parking of vehicles of Site operatives and visitors;*
- b. loading and unloading of plant and materials;*
- c. storage of plant and materials used in constructing the development;*
- d. the erection and maintenance of security hoarding;*
- e. measures to mitigate the risk of contaminated surface water run-off to the watercourse during Site clearance and the breaking-up and removal of the existing concrete surface;*
- f. measures to protect surrounding sensitive receptors from fugitive dust and debris both during and after the construction phase;*
- g. hours of construction, including deliveries (which should not take place outside of the hours of 08:00-18:00 Monday to Friday and 09:00-14:00 Saturday, with no work taking place on Sundays or Bank Holidays); and;*
- h. a survey of the Site and surrounding area detailing the presence of invasive species, and in the event that invasive species are discovered, a method statement detailing avoidance, control and eradication measures.*

The approved method statement shall be adhered to throughout the construction period. The development shall not be carried out otherwise than in accordance with the approved method statement.

Reason: To minimise the detrimental effects to the natural environment through risks of pollution during the construction phase in accordance with Policies DM1, G7 and G9 of the Core Strategy and the National Planning Policy Framework.

Reason for Pre-Commencement: Site clearance poses a threat to the surrounding natural environment and a scheme therefore needs to be agreed in advance of any works taking place'.

This Construction Environmental Management Plan (CEMP) relates to the construction of the Energy Facility, it has been produced to discharge Condition 5 meeting the above requirements.

This CEMP is a 'live' document which must be reviewed and updated as the proposed development passes through the consenting, demolition and construction process. It is a contractor tool and should be used as a continuous link for environmental issues at all stages of the construction for the proposed development.

2.0 Development Site and Proposals Summary

This Section provides a summary of the Development Site (the 'Site') in terms of its location, layout and means of access, and a summary of the proposals.

2.1 Site Location

The Site comprises a roughly rectangular parcel of land (with a slanted western edge) covering approximately 0.1ha on land to the west of Hanson Street, Middleton, Manchester.

The Site is accessible through existing double gates (on the eastern boundary of the wider freehold area) from Hanson Street, and via an existing route through the wider freehold area, which leads to the open northern Site boundary.

The grid reference of the Site is (X) 387366; (Y) 406099 and a Site Location Plan is included as Drawing 01.

2.2 Existing Site

The Site is made up of concrete hardstanding and is currently used for storage of materials.

The Whitbrook Site is surrounded by a mixture of manufacturing and commercial uses with the surrounding land use being as follows:

- to the north: a commercial warehouse, beyond which are further industrial use buildings, a residential allotment, a large residential area and a cemetery;
- to the east: an area used for storage and industrial sheds, beyond which is an industrial area and an area of disused land which is being colonised by trees/ shrubs. Further east is a large residential area;
- to the south: several industrial warehouses beyond which is a church and residential area. The River Irk is located 100m to the south of the Site at its closest point; and
- to the west: Whit Brook running within trees and shrubs beyond which are commercial outlets and a residential area.

2.3 Proposals Summary

The proposed development, known as Westgate Power, is for a 5MW (2 x 2.5MW unit) FEF (Flexible Energy Facility) and associated ancillary equipment.

It is one of several similar AMP Clean Energy facilities around the UK, commonly referred to as 'Urban Reserves'. These energy facilities generate electricity locally. This provides a cost-effective solution to the growing need for local grid capacity. All the electricity produced by AMP Clean Energy's FEF facilities is exported to the local network at 11kV. This means that all the energy produced is consumed locally, the proposed development would support local businesses, developments and the roll-out of electric vehicle (EV) charging points.

The Proposed Site Layout Plan is included in Appendix 01.

3.0 Project Programme

This Section provides a summary of the Programme of Works at the application Site.

3.1.1 Phasing of works including start/finish dates.

Phasing of works will commence in Q1 2023 and will include; Mobilisation, Groundwork, Piling, Electrical Installation, Infrastructure Installation, and Commissioning. Project completion will be Q4 2023.

3.1.2 Hours of working.

The construction programme is expected to last 6 months. The proposed construction hours are 08:00-20:00 hrs Monday to Friday and 08:00-13:00hrs on Saturday.

Sunday & Bank Holiday working hours will be agreed with the Local Planning Authority (LPA) as necessary.

3.1.3 HGV Forecast

Approximately 60 HGV trips will be required to complete the construction phase. It is expected that construction traffic movements will be confined to standard working hours e.g. 08:00-18:00hrs, Monday through Friday, and 08:00-13:00hrs on Saturdays.

Once the development construction phase is completed, no HGV trips will be generated thereafter.

Traffic generated by the Site would be limited to occasional maintenance trips.

3.1.4 Site Operatives

- Groundworks Phase x 5;
- Pilers x 5;
- Electrical Installation x 5;
- Infrastructure Installation x 10; and
- Commissioning x 3.

There is expected to be no more than 20 operatives on site at any time.

4.0 Construction Site Details

This Section discusses the construction Site in terms of vehicular and pedestrian access, general layout, security measures, and parking arrangements.

4.1 Access

Vehicular (and pedestrian) access to the Site will be possible through existing double gates (on the eastern boundary of the wider freehold area) from Hanson Street, and via an existing route through the wider freehold area, which leads to the open northern Site boundary.

4.2 Site Layout

4.2.1 Internal layout of compound

A construction Site layout plan is included at **Appendix 02**.

4.2.2 Site Office and Welfare Facilities

Construction Welfare Facilities will include:

- Office;
- Canteen;
- Toilet; and
- Drying Room.

Site Office and Staff Welfare Facilities are shown on the plan included at **Appendix 02**.

4.2.3 Parking

Contractors will be encouraged to use group transport where possible. This is likely to be particularly relevant where specialist groups of skilled workers are required to live in local accommodation during the week, whilst they work on the Site.

Parking within the boundary of the application Site is available to construction operatives and will be strictly controlled. Site Operatives/Contractors will be provided with parking privileges only after consideration of all other solutions and it is determined as being a necessity.

4.2.4 Loading and Unloading of Plant and Materials

Vehicle Scheduling

A total of 100 vehicle movements are expected for deliveries to the Site during the construction period; therefore, the Site will generate a total of 60 HGV / LGV movements per month, plus a small number of trips to and from the Site by construction workers.

It is anticipated that given the relatively low number of HGV's required to complete the construction phase of the development, HGV movements can be scheduled and managed with the minimum of difficulty. The following measures are recommended:

- the access route will be organised in advance and manned to ensure the access is clear. Where necessary, scheduled trips will be agreed with the local businesses to ensure that the proposed times are suitable and minimise the impacts;

- a 'just in time' delivery schedule for Plant machinery and materials may prove essential in order to avoid congestion within the compound, and also in the interests of health and safety;
- arrival and departure of HGVs to and from the Site will be restricted to 08:00 to 18:00hrs Monday to Friday and 08:00 to 13:00hrs on Saturdays. No working or deliveries will be allowed on Sundays and Bank Holidays;
- where possible, all construction vehicle activity will be undertaken outside of peak periods on the local highway network and, where possible, when the access route generally has the lowest level of car parking;
- all HGV deliveries will be welcomed by a trained Banksman to direct delivery vehicles arriving and departing from the Site through the commercial estate; and
- all contractors, sub-contractors etc. will be formally notified of scheduling requirements.

Abnormal Loads

Likely construction methodology suggests that there will be no abnormal loads required during the construction phase. However, should the construction methodology alter due to contractor preference, the correct procedures for notifying the local highways authorities would be adhered to.

4.2.5 Storage of Plant and Materials

A designated area for the storage of Plant machinery and building materials will be provided, however, as space is limited within the Site compound, a 'just in time' delivery schedule for Plant machinery and materials may prove essential in order to avoid congestion within the compound, and also in the interests of health and safety.

Materials will be stored in a manner that minimises risk to the environment. A designated area for the storage of Plant machinery and building materials will be provided and shown on the plan included at **Appendix 02**.

4.2.6 Security Hoarding and Displays

The Site will be secured with hoarding to prevent all access from the public highway other than via the identified construction Site access point. During construction 2.4m high palisade fence will be constructed on all boundaries to form an enclosed compound.

The contractor will assume responsibility for the initial erection and subsequent maintenance of security heras fencing around the perimeter of the Site.

Various signage will be displayed at appropriate locations on the hoarding, including a mandatory Health & Safety notice board, located at the main entrance, and signage regarding mandatory PPE requirements and key contact information. The various safety signage will be monitored by the Site Manager to ensure it is always present and legible.

The Site security hoarding and signage will be positioned as shown within the Construction Site Layout Plan at **Appendix 02**.

5.0 Mitigation Measures

The following Section considers various methods and practices which may be implemented in order to mitigate the various concerns explored within the planning decision.

5.1 Measures to Control Dust and Debris

This has been considered in detail within Section 6 of this CEMP.

5.2 Measures to Control the risk of Contaminated Surface Water Run Off

Development of the Site will involve breaking out the existing concrete surface and the creation of small and defined concrete plinths for the power units, oil tanks, substation, transformer, and gas kiosk. The access and egress route to the north, which is overlain with an existing tarmac surface, will be retained. All remaining areas will be covered by a coarse and permeable gravel material (railway ballast) installed over a weed membrane and suitable sub-base.

A raised kerb will be installed along the western (downgradient) boundary of the site to deflect any surface flows draining along the access track onto the gravel surfaced area. This kerb, which will extend along the full western boundary of the site will also prevent rapid through flows within the gravel towards Whit Brook.

A Drainage letter and Drainage Plan were produced in February 2021 showing the proposed surface cover and the raised kerb line and are presented in **Appendix 03**.

5.2.1 Pollution Control

Pollution Control

Due to the proximity to Whit Brook a flood risk activity permit from the EA would be required ahead of any construction works. The permit would cover any proposed physical structures along the western edge of the site as well as the construction works on site.

Alongside the permit the contractor would provide:

- Detailed methods of surface water control, treatment and mitigation;
- Discharge locations and timeframes (especially where anticipated to exceed three months);
- Inspection, monitoring and sampling arrangements; and
- Contingency arrangements.

When providing these details, the contractor shall consider:

- Consent and compliance obligations
- Regulator guidance such as the Environment Agency treatment and use of water containing concrete and silts <https://www.gov.uk/government/publications/treating-and-using-water-that-contains-concrete-and-silt-at-construction-Sites-rps-235/treating-and-using-water-that-contains-concrete-and-silt-at-construction-Sites-rps-235>
- SEPA Engineering in the Water Environment Good Practice Guide Temporary Construction Methods https://www.sepa.org.uk/media/150997/wat_sg_29.pdf
- Industry good practice such as CIRIA guidance documents, including Control of Water Pollution from Construction Sites

- Guide to Good Practice (SP156), Control of Water Pollution from Construction Sites – Guidance for Consultants

Pollutant Removal

Pollutants that may be present in any surface water, associated with the construction stage, will either be removed or suitably treated prior to discharge, to ensure there is no wider adverse environmental impact. Any water requiring removal from works involving concrete/cement is not to be discharged either to ground or surface waters without sufficient treatment, and without appropriate permits.

The treatment provided will remove suspended solids in the effluent, using settlement basins, skips or proprietary treatment equipment (Silt buster or similar) and will include pH adjustment to an acceptable range. Treated water will be assessed for its suitability for discharge, in accordance with permit limits. Any accumulated solid cement wastes would be removed, in accordance with the Contractor's waste duty of care and, if necessary, to an appropriately licenced facility for disposal.

5.3 Avoidance, Control and Eradication Measures for Invasive Species

This has been considered in detail within Section 7 of this CEMP.

6.0 Dust Management Strategy

This section sets out the Dust Management Strategy (DMS) component of the CEMP and includes a qualitative risk assessment, identification of measures to control dust generation and monitor releases, and the management actions that will be taken in response to a dust-related event/incident.

It is considered that, given the size and the existing asphalt/concrete surface of the Site, there is extremely limited chance of any dust impacts as a result of trackout. Heavy Duty Vehicles (HDVs) are unlikely to be able to fully access/manoeuvre around the Site and any surface which they travel over will be paved. As such, the requirement for wheel washing facilities are not considered necessary as vehicles are highly unlikely to collect dust at this particular Site.

6.1 Key Guidance and Methodology

In developing the DMS, the document 'Guidance on the assessment of dust from demolition and construction' (2016)¹, published by the Institute of Air Quality Management (IAQM), has been consulted. The guidance includes a methodology for qualitative risk assessment and recommendations for best practice mitigation defined on the basis of risk.

6.1.1 DMS Structure

The DMS is structured as follows:

- dust risk assessment - to inform the selection of appropriate dust control measures, abatement equipment, and monitoring;
- dust control measures, abatement equipment, and monitoring; and
- actions that will be taken in response to a dust event.

Dust Management Strategy will be monitored and reviewed as part of the wider CEMP management process.

6.2 Dust Risk Assessment

The assessment has been undertaken using the IAQM guidance. The full methodology (including risk assessment matrices) is set out in the guidance document available on the IAQM website; the general approach is summarised below. The assessment of risk is determined by considering the risk of dust effects arising from four activities in the absence of mitigation (three of which are relevant in this assessment):

- demolition;
- earthworks;
- construction; and
- trackout

¹

Institute of Air Quality Management (IAQM), Guidance on the assessment dust from demolition and construction (2016).

The assessment methodology considers three separate dust impacts with account being taken of the sensitivity of the area that may experience these effects:

- annoyance due to dustsoiling;
- the risk of health effects due to an increase in exposure to PM₁₀; and
- harm to ecological receptors.

The first stage of the assessment involves a screening exercise to determine if there are sensitive receptors within threshold distances of the Site activities associated with the construction of the scheme. No further assessment is required if there are no receptors within a certain distance of the works: 350 metres for human receptors and 50 metres for designated ecological receptors.

The dust emission class (or magnitude) for each activity is determined on the basis of the guidance, indicative thresholds and professional judgement by a technically competent assessor. The risk of dust effects arising is based upon the relationship between the dust emission magnitude and the sensitivity of the area. The risk of impact is then used to determine the mitigation requirements.

6.2.1 Assessment Screening

There are 'human receptors' within 350 metres of the Application site but no designated ecological receptors within 50 metres of the Site boundary or within 50 metres of the Site access roads. Therefore, an assessment of dust on ecological receptors can be screened out from this assessment, but an assessment of dust at human receptors is required.

6.2.2 Potential Dust Emission Magnitude

The Site is currently vacant with no buildings requiring demolition. The Site is considered small, at approximately 110m², and the ground comprises concrete hardstanding which is likely to result in negligible trackout impacts. Earthworks will be required to connect the Site to the electricity grid. The electrical point of connection is located at Townley Street Primary Substation on Townley Street, 150m from the Site. The closest gas connection is located approximately 70m away, directly outside the site entrance on Hanson Street. Construction on site will consist of the two Urban Reserve gensets which will be housed within 40ft steel containers, a gas kiosk, a transformer, a neutral earthing resistor, a customer substation, a distribution network operator's substation, palisade fencing and one steel oil storage tank.

The potential dust emission magnitude based upon the IAQM guidelines for each activity is described in Table 7- 1.

Table 7-1
Potential Dust Emission Magnitude

Activity	Comments	Dust Emission Magnitude
Demolition	The Site is currently vacant with no existing buildings or structures present. Therefore, no demolition activities are proposed to take place.	N/A
Earthworks	The Site is approximately 110m ² . No substantial earthworks are required on site, however there is a requirement for connections to be made to the electricity and gas networks, both of which are located within the Site boundary. Excavation works will be short term in nature and removed earth will be replaced once cables have been laid.	Small
Construction	Urban Reserve gensets are housed in a steel container, which has negligible potential for dust generation. Construction of a small gas kiosk, a customer substation, and a distribution network operator's substation is required. The total building volume is <25,000m ³ .	Small
Trackout	The potential for trackout from the Site is considered to be small. <10 HDVs will be required on site at any one time and there are likely to be no unpaved roads given the concrete hardstanding already in place.	Small

6.2.3 Sensitivity of the Area

The sensitivity of the area takes account of a number of factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of those receptors;
- in the case of PM₁₀, the local background concentration; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust.

The Site setting is presented in Figure 7-1 showing the proximity of receptors in relation to the IAQM distance criteria; the sensitivity of the area and the factors considered are presented subsequently in Table 7-2.



Figure 7-1 Site Setting; Construction Dust Assessment Buffers

Table 7-2
Sensitivity of the Area

Sensitivity to:	Comments	Sensitivity
Dust Soiling Impacts	The surroundings predominantly comprise of existing commercial use with >1 commercial properties (medium sensitivity receptors) located within 20m of the Site. There are limited residential (high sensitivity receptors) receptors within proximity of the Site, with 1-10 receptors within 100m of the Site. In addition, there are 1 -10 residential dwellings within 20m of the access routes up to 50m from the Site entrance(s) – commensurate of a small site.	Medium (all activities)
Human Health Impacts	The maximum 2019 mapped background PM ₁₀ concentration for the 1km ² grid squares centred on the Site (centroid NGR: x387500, y406500) is estimated to be 12.3µg/m ³ (i.e. falls into the <24µg/m ³ class). As above, there are >1 medium sensitivity receptors within 20m of the Site, 1-10 high sensitivity receptors within 100m of the Site and 1-10 high sensitivity receptors within 20m of the Site entrance on access roads.	Low (all activities)

6.2.4 Risk of Impacts (Unmitigated)

The outcome of the assessment of the potential ‘magnitude of dust emissions’, and the ‘sensitivity of the area’ are combined in Table 7-3 below to determine the risk of impact which is used to inform the selection of appropriate mitigation.

Table 7-3
Risk of Dust Impacts

Potential Impact	Demolition	Earthworks	Construction	Trackout
Dust Soiling Impacts	N/A	Low Risk	Low Risk	Negligible
Human Health Impacts	N/A	Negligible	Negligible	Negligible

6.3 Dust Control

Measures for minimising, controlling, and monitoring dust emissions from the facility are outlined in this section and have been based upon the stated guidance and outcome of the risk assessment.

6.3.1 Overview

The key method of controlling dust emissions is through good site design, management practices, and subsequent good housekeeping; ‘avoidance’, is the key method of controlling dust emissions.

The control hierarchy has been based on:

- good operating and management practices to avoid emissions arising from activities;
- good process design to minimise emissions;
- abatement or control to reduce dust emissions; and
- disrupting the emission pathway to sensitive receptors, i.e., shielding receptors through the use of screening (e.g. locating stockpiles in sheltered areas as far as practicable).

6.3.2 Dust Control Measures

Management Actions and Dust Control Techniques

Control measures that will be employed on site are detailed in Table 7-4 below.

Table 7-4
Dust Management and Control Techniques

Site Application	Mitigation Measures
Highly Recommended	
Communications	Display the name and contact details of person(s) accountable for air quality and dust issues on the Site boundary. This may be the environment manager/engineer or the site manager.
	Display the head or regional office contact information.
Monitoring	Carry out regular site inspections to monitor compliance with the CEMP, record inspection results, and make an inspection log available to the local authority when asked.
	Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Operating Vehicle / Machinery and Sustainable Travel	Ensure all vehicles switch off engines when stationary - no idling vehicles.
	Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
Operations	Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
	Ensure an adequate water supply on the Site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
	Use enclosed chutes and conveyors and covered skips.
	Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.

Site Application	Mitigation Measures
Preparing and Maintaining the Site	Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
	Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
	Avoid site runoff of water or mud.
Site Management	Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
	Make the complaints log available to the local authority when asked.
	Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
Waste Management	Avoid bonfires and burning of waste materials.
Desirable	
Construction	Avoid scabbling (roughening of concrete surfaces) if possible.
	Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
Monitoring	Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of the Site boundary, with cleaning to be provided if necessary.
Operating Vehicle/Machinery and Sustainable Travel	Impose and signpost a maximum-speed-limit of 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).
Operations	Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.
Preparing and Maintaining the Site	Fully enclose site or specific operations where there is a high potential for dust production and the Site is active for an extensive period.
	Keep site fencing, barriers and scaffolding clean using wet methods.
	Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
	Cover, seed or fence stockpiles to prevent wind whipping.

6.3.3 Dust Monitoring

Meteorological Conditions

Weather forecasts will be monitored on a daily basis to predict weather conditions such as prolonged dry, hot spells or significantly strong winds which may generate elevated levels of dust. Using this information, necessary precautionary measures may be employed on site, including suspension of certain activities if necessary.

Visual Dust Monitoring

Dust monitoring is undertaken visually by the Site Manager each day. Observations will be recorded in the Site Logbook.

Attention is paid to:

- weather conditions;
- potential for dust emissions from access road and haul roads (dry disaggregated (loose) dust); and
- airborne dust within the Site boundary and whether it has potential to cross the Site boundary.

Results of the visual dust monitoring during incidents/contingency actions are recorded in the Site Logbook which is kept in the Site office (an example *pro-forma* is included within **Appendix 01**). The following details are recorded:

- weather conditions (wind speed (qualitative i.e. strong, light etc), direction, rainfall);
- current site operations;
- identification of any significant dust on site or dust dispersion beyond the Site boundary; and
- additional mitigation measures put in place, if required.

In the event of a complaint more frequent or off-site visual monitoring will be undertaken, if required, until the issue is resolved as described in the Dust Action Plan contingency measures.

Monitoring Impacts

Monitoring of impacts will be achieved by recording and monitoring complaints. Complaints may be reported directly to site, or via Local Environmental Health.

Complaint records will include: the date and time, nature of complaint, locality of complaint, name of complainant (if available), a summary of investigation and actions taken and outcome. The complaint response and investigation procedure are outlined within Section 8.4.4.

7.0 Invasive Species

The following Section outlines the results of the invasive species survey undertaken at the Site and surrounding area.

7.1.1 Method Statement

The walkover survey was undertaken on the 12th January 2023 by Mr Christopher Hall MSc. The survey comprised of an inspection of the site area, including the adjacent watercourse.

The survey checked for the presence of invasive species, including Japanese knotweed, Himalayan balsam, rhododendron, buddleia and cotoneaster.

7.1.2 Avoidance Measures

Where possible, avoid excavating soils within the 5m buffer zone around areas of Japanese knotweed to prevent further spread of the plant.

Discuss with the landowner with regards to their duty of care to control an invasive species.

7.1.3 Limitations

As the site visit was undertaken in winter some signs of invasive species may not be apparent on the ground, this can include signs of Himalayan balsam, giant hogweed and Japanese knotweed (usually where found in small quantities). As such there is a risk that some species have been missed.

7.2 Avoidance, Control and Eradication Measures for Invasive Species

The site visit identified Japanese knotweed (*Fallopia japonica*) and buddleia (*Buddleia davidii*) either on the site or within five meters of the site boundary. There is also a risk of Himalayan balsam (*Impatiens glandulifera*) on the site due to the nearby watercourse.

7.2.1 General Considerations

As the site survey was undertaken at a time when field evidence of many invasive species are not easily identified certain precautions should be adopted, particularly at the start of construction. This would include the following:

- Weekly checks of the site to identify the presence of Schedule 9 invasive species.
- Regular vehicle hygiene by ensuring wheels are cleaned on and off site.

7.2.2 Japanese Knotweed

Whilst no Japanese knotweed was discovered on the site itself, there is significant quantities of the plant located on the opposite side of the Whit Brook from the site and approximately 5m upstream from the site.

Any soil excavated within 5m of these incidences of Japanese Knotweed will need to be treated and disposed of at a suitable waste management site.

Typical management for soil containing sections of the plant involve excavation, spraying with herbicides and being left out to dry, with further rounds of spray treatment to ensure all parts of the plant are dead.

7.2.3 Buddleia

Buddleia located on site can be removed wholesale, ensuring the root system is removed during excavations. It can also be treated with herbicide for smaller incidents.

7.2.4 Himalayan Balsam

While not recorded on the site, this has been included here due to the limitation of timings and the presence of a watercourse which would assist in the spread of this species.

Standard control measures include either spraying or pulling of the plants before July. As the plant is an annual it can easily be controlled by either method. Herbicide use should be restricted to glyphosate only due to the presence of watercourses.

8.0 CEMP Implementation

The following Section outlines the various components that comprise the CEMP and discusses how they will be implemented.

8.1 CEMP Coordinator

The Local Planning Authority will be provided with the Construction Site Manager's contact details prior to the commencement of the construction phase.

The Site Manager will be responsible for the implementation and operation of the CEMP and may assume the role of CEMP Coordinator.

Alternatively, this role may be delegated to someone suitable, but the responsibility remains with the Site Manager. This will be made clear within the terms of the contract.

8.2 CEMP Responsibilities

A competent person shall be on Site during all working hours who is responsible for management measures. Responsibilities shall be allocated to specific personnel to ensure that the potential for any event/incident which would pose a detrimental effect/impact on the immediate or surrounding environment is effectively controlled (see Table 8-1).

Table 9-1
CEMP Responsibilities

Actions	Responsibility
Application of plant / working area	Operatives
General Monitoring and Reporting of Incidents	All Operatives
Routine Visual Monitoring of elements considered as having potential to cause an incident or event	Site Manager / CEMP Coordinator
Environmental and waste compliance	Site Manager / CEMP Coordinator
Coordinating Access Road Cleaning	Site Manager / CEMP Coordinator
Monitoring Meteorological Forecast	Site Manager / CEMP Coordinator
Completing Event/Incident Forms	Site Manager / Managing Director
Liaison with Public and Regulator	Site Manager / CEMP Coordinator
Coordinating CEMP Updates	Site Manager / CEMP Coordinator

8.3 Implementation

8.3.1 Site Information Sheet

The CEMP will be applicable to all Site operatives – Ants Group LTD

It will be provided to contractors as part of the tender process to ensure that any constraints are accounted for.

A Site Information Sheet will be produced which will provide a summary of the following:

- Transport;
 - Access requirements/route restrictions;
 - Site operative travel options/parking arrangements;
- Measures to control noise and vibration;
- Measures to control Site lighting impacts;
- Measures to water run off;
- Measures to control dust; and
- Monitoring and reporting procedures.

The information will be provided to all individuals prior to commencement on Site and considered during the appointment of construction contractors/sub-contractors.

The Site Information Sheet will be an all-encompassing document which includes all Site mitigation measures including transport related information such as HGV routeing. A single document would simplify implementation.

8.3.2 Introduction and Training

All personnel on Site shall be made aware that it is within the scope of their responsibility to ensure that the CEMP is strictly adhered to.

In the interests of ensuring that the occurrence of events/incidents is minimised, each employee will be made aware of the importance of pre-emptive mitigation, and the most effective measures available to facilitate this.

Plant and equipment operators must be trained and experienced in the plant that they operate. Certification will be required to establish this in each case and will be held on-Site and available for inspection at any time.

8.3.3 Ongoing Staff/Driver/Contractor Information

The Site's restrictions, implemented measures, and operational preferences will be reaffirmed during regular staff/contractor briefing sessions on Site.

8.4 Monitoring and Reporting

8.4.1 Liaison with Community and Regulators

The Site Manager (or nominated representative) will act as liaison with the various regulators and local community regarding any issues deemed to have the potential to be the cause of an event/incident.

The nominated representative shall respond promptly to all complaints by undertaking an investigation into the event/incident, including general conditions, operations on Site, and mitigation measures in place at the time of the complaint. Complainants will be informed regarding the investigation.

Following the receipt of a complaint, an Event/Incident Form shall be completed and the results of the subsequent investigation kept in the Site Logbook.

8.4.2 Monitoring & Reporting

Monitoring and reporting procedures will be implemented at the Site prior to the commencement of the construction works and will be maintained throughout the period of construction.

The procedures will encourage all stakeholders to report any issues, breach of restrictions or risks to Site management.

All staff will be expected to contribute to the monitoring and reporting programme, highlighting any issues or concerns they have. Site management contact details will be advertised at the Site access in order to allow members of the public to report any issues.

All feedback received will be recorded and considered during Site meetings.

8.4.3 Record Keeping

The operator shall keep records of all monitoring, contingency actions, investigations, and complaints on Site in accordance with the CEMP, these shall be made available to the regulator to examine on request.

8.4.4 Complaints Procedure

Complaints may be notified to the Site Management either during or after an event/incident, and directly by the complainant or indirectly through a regulator who was notified.

Complaints must be recorded in the Site Logbook, entries should include the following information:

- date and time of complaint;
- name of complainant (if given);
- nature of complaint;
- locality of complaint; and
- a summary of investigation i.e. actions taken and the outcome thereof.

Complaint respondents will be required to comprehensively investigate the event/incident, implement additional control or management measures to prevent re-occurrence of the event/incident, and subsequently update the CEMP, as necessary. Complainants will be informed of the findings of any investigation and any subsequent action taken.

Investigations will include, but not be limited to:

- visit by Site personnel to location of complainant to verify issue (if the complaint is made 'after' rather than 'during' an event/incident this may not be possible);
- review of Site activities at time of event/incident to investigate potential sources;
- if the event is an occurring or a recurring event/incident, undertake more frequent on-Site and off-Site visual monitoring and record findings;
- review of control measures and management actions at time of event/incident;
- review of meteorological conditions at time of event/incident; and
- reporting of findings.

8.5 CEMP Update and Review

This CEMP is a controlled document, and forms part of the Site management documentation. The CEMP is intended to serve as a reference during daily operations, and will be updated should the following occur:

- significant changes are made to plant or operational practices;
- the regulator requests that the CEMP is updated; or

- complaints are received which on subsequent investigation result in the identification of further control measures or remedial action in addition to those set out within this CEMP.

8.6 Contingency Plans

Contingency plans have been defined to react to situations where monitoring indicates that an element of the construction or ongoing operation of the Site is not completely under control, control measures have failed, or that adverse impact has occurred or may occur.

This includes events/incidents which have the potential to cause an unacceptable impact on the local community. Contingency measures have been identified as follows:

- visual monitoring of elements deemed to have the potential to cause a detrimental effect on the immediate and/or surrounding environment; and
- complaints received from members of the public or neighbouring businesses. Table 8-2 outlines specific Contingency Actions as appropriate to an event/incident.

Table 9-2
Contingency Plans

Event or Incident	Contingency Actions
Visual monitoring indicates that an element of the construction or ongoing operation of the Site is likely to cause nuisance	• Notify management and record observations in Site Logbook. • Continue to monitor situation. • Investigate and identify source/cause of potential nuisance. • If a source/cause of potential nuisance is from a particular source then review mitigation options. • Review application of control measures, as relevant to the individual element. • Apply appropriate contingency measures as required e.g.: further street sweeping (relating to dust management). • Ultimately cease identified operation if it cannot be effectively controlled.
Notes: • Record details in Site Logbook. • CEMP may require updating on basis of results of investigations.	
Event or Incident	Contingency Actions
Complaint received from members of the public or neighbouring businesses	• Notify management. • Follow complaint reporting and investigation procedure.
Notes: • Complaints will be reported to the relevant authorities. • CEMP may require updating on basis of results of investigations.	

8.7 CEMP Implementation Action Plan

The Action Plan constitutes the core of the CEMP as it specifies necessary measures and actions to achieve its goals; Table 8-3 below lists the actions specified within this CEMP.

Table 9-3
CEMP Implementation Actions

Category	Action	When?
Information	Provide the CEMP to bidding contractors to consider its requirements.	Contractor tender process.
Implementation	Appoint Site Manager / CEMP Coordinator.	Prior to construction commencing.
Information	Contractors to provide all Site Operatives with Site Information Sheet detailing all measures and restrictions.	Prior to construction commencing/throughout.
	Reiterate restrictions and initiatives during regular briefings and Site meetings.	Prior to construction commencing/throughout.
Monitoring and Reporting	Set up and inform others of the monitoring and reporting procedures.	Prior to construction commencing/throughout.
Update and Review	The CEMP will be updated to remain relevant in the context of the construction methodology and background conditions.	Following an event, complaint or change in Site/background conditions.

9.0 Summary and Review of Condition 5

This Construction Environmental Management Plan has been produced to manage the impacts of the construction phase on the local environment, in accordance with Condition 5 of the Decision Notice dated 5th February 2021 (Application Ref: 20/01585/FUL).

Table 9-1 considers the elements of Condition 5, and identifies where each has been addressed within this report:

Table 10-1
Condition 5 Checklist

Condition 5	
'No development shall take place (including any Site clearance or preparation works) until a Construction Environmental Management Plan (CEMP) has been submitted to, and approved in writing by the Local Planning Authority. For the avoidance of doubt, this shall include the following: a) the parking of vehicles of Site operatives and visitors; b) loading and unloading of plant and materials; c) storage of plant and materials used in constructing the development; d) the erection and maintenance of security hoarding; e) measures to mitigate the risk of contaminated surface water run-off to the watercourse during Site clearance and the breaking-up and removal of the existing concrete surface; f) measures to protect surrounding sensitive receptors from fugitive dust and debris both during and after the construction phase; g) hours of construction, including deliveries (which should not take place outside of the hours of 08:00-18:00 Monday to Friday and 09:00-14:00 Saturday, with no work taking place on Sundays or Bank Holidays); and; h) a survey of the Site and surrounding area detailing the presence of invasive species, and in the event that invasive species are discovered, a method statement detailing avoidance, control and eradication measures. The approved method statement shall be adhered to throughout the construction period. The development shall not be carried out otherwise than in accordance with the approved method statement. Reason: To minimise the detrimental effects to the natural environment through risks of pollution during the construction phase in accordance with Policies DM1, G7 and G9 of the Core Strategy and the National Planning Policy Framework. Reason for Pre-Commencement: Site clearance poses a threat to the surrounding natural environment and a scheme therefore needs to be agreed in advance of any works taking place.'	
Element	See Report Section

Condition 5	
the parking of vehicles of Site operatives and visitors	4.2.3
loading and unloading of plant and materials	4.2.4
storage of plant and materials used in constructing the development	4.2.5
the erection and maintenance of security hoarding	4.2.6
measures to mitigate the risk of contaminated surface water run-off to the watercourse during Site clearance and the breaking-up and removal of the existing concrete surface	5.2
measures to protect surrounding sensitive receptors from fugitive dust and debris both during and after the construction phase	6.0
hours of construction, including deliveries	3.2
a survey of the Site and surrounding area detailing the presence of invasive species and in the event that invasive species are discovered, a method statement detailing avoidance, control and eradication measures	7.0

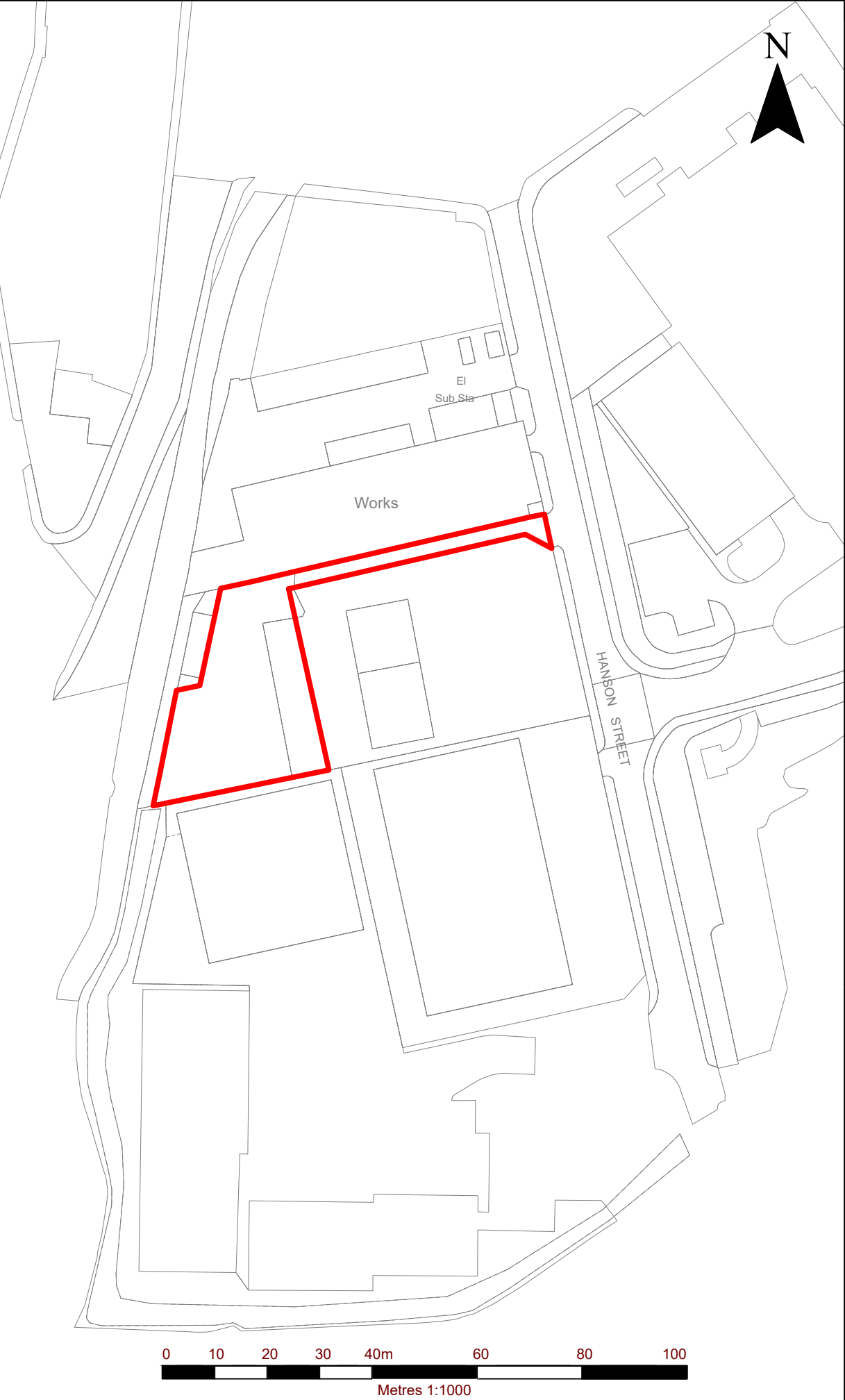
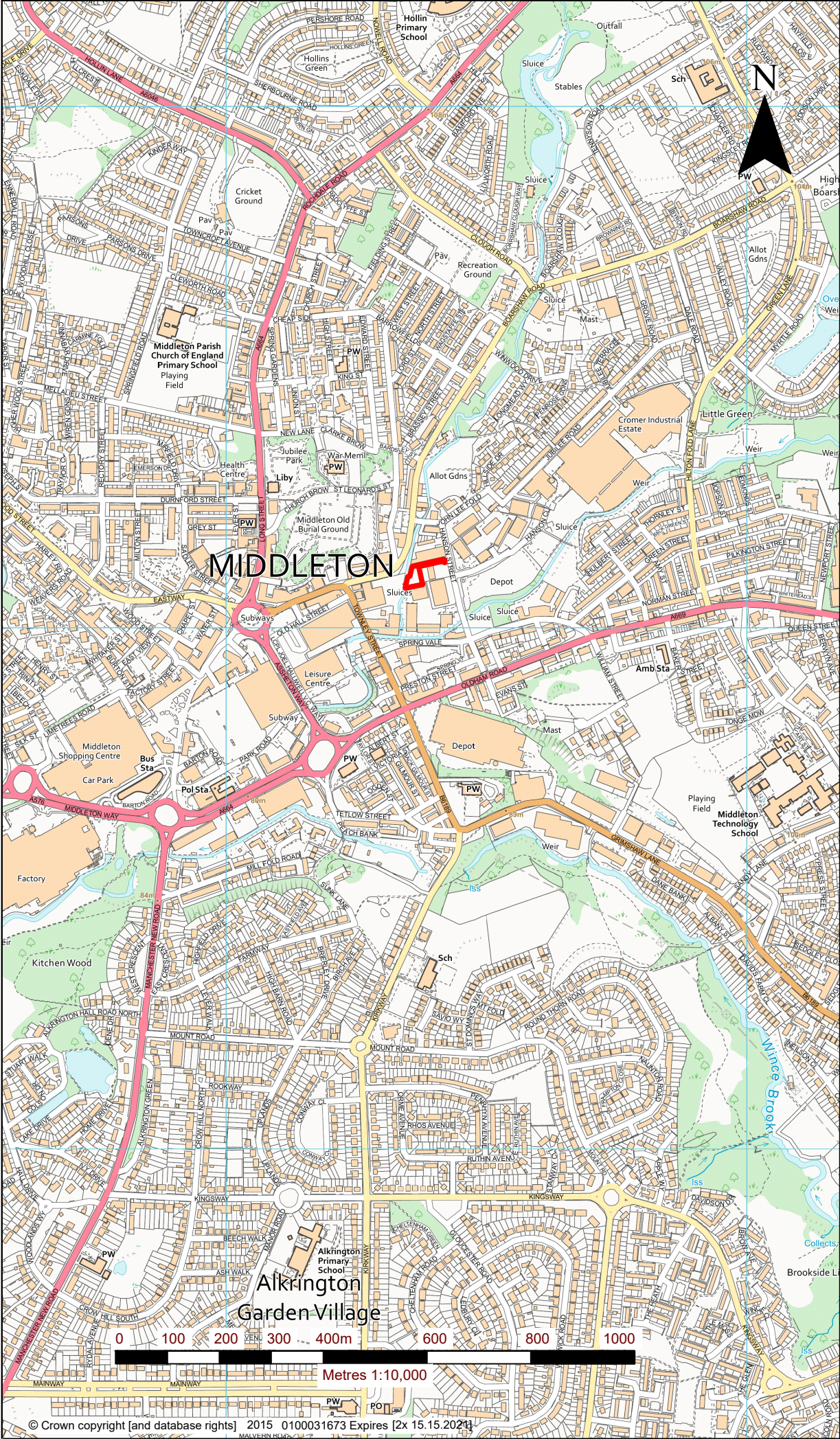
On the basis of the above it is considered that the CEMP is suitable for the discharge of Condition 5, and therefore written approval from the Local Planning Authority.

APPENDIX 01

Planning Drawings

- Drawing WHB-01 – Site Location Plan;
- Drawing WHB-02A – Proposed Site Layout Plan;
- Drawing WHB-02B – Proposed Site Layout Plan;

08071.00001.16.WHB-01.0 Site Location Plan.dwg



LEGEND

 SITE BOUNDARY



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SLR

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WHITBROOK POWER
URBAN RESERVE

SITE LOCATION PLAN

WHB-01

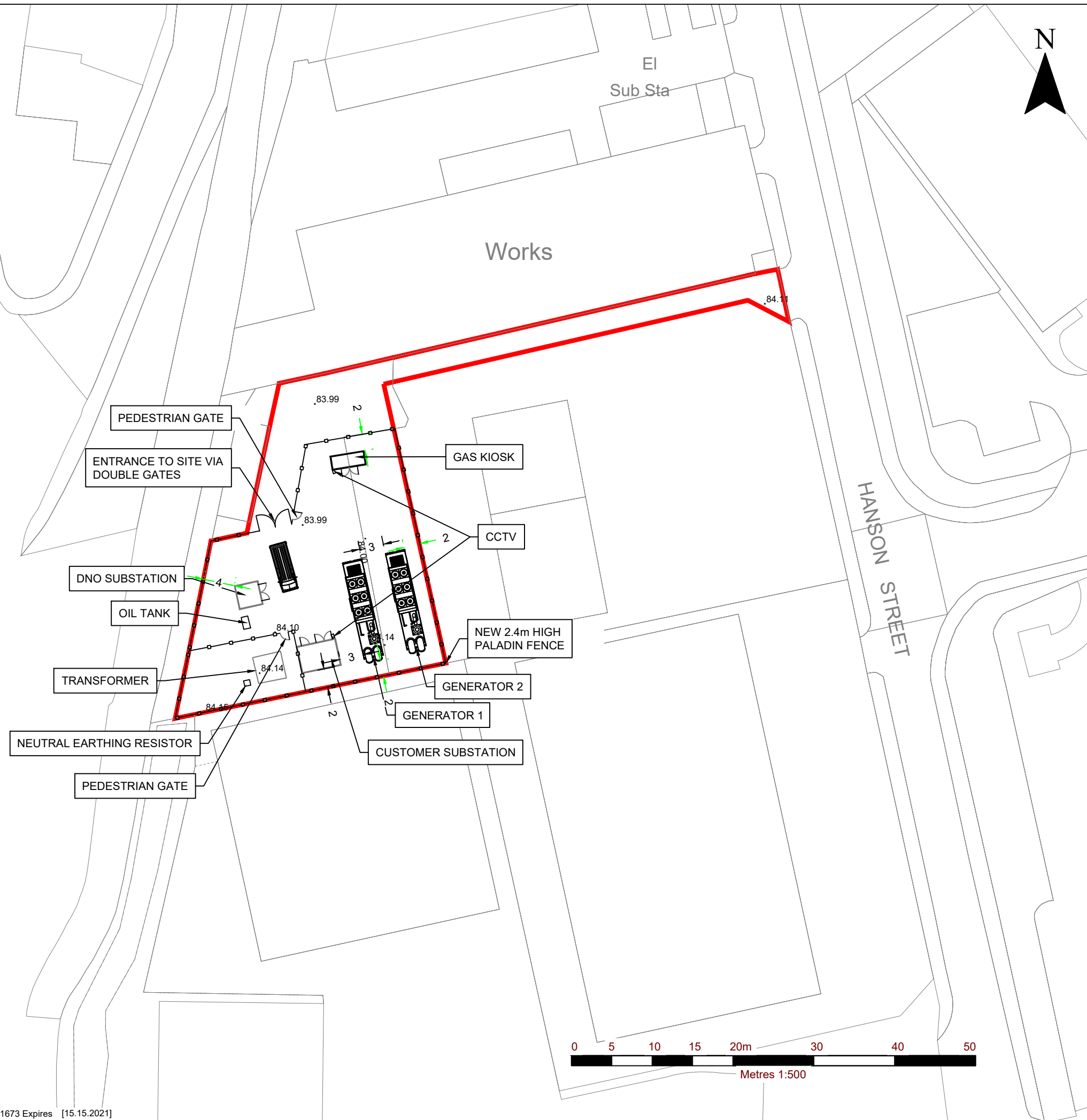
Scale AS SHOWN

Date DECEMBER 2020

08071.00001.16.WHB-02A.2 Proposed Site Layout Rev C.dwg

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LEGEND

- SITE BOUNDARY (0.10ha)
- 2.4m HIGH PALADIN FENCE

DIMENSIONS SHOWN IN GREEN ARE BOUNDARY OFFSETS. DIMENSIONS SHOWN IN BLACK ARE OFFSETS BETWEEN INFRASTRUCTURE.

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MIDDLETON, MANCHESTER, M24 6AG

WHITBROOK POWER
URBAN RESERVE

PROPOSED SITE LAYOUT

WHB-02A - REV C

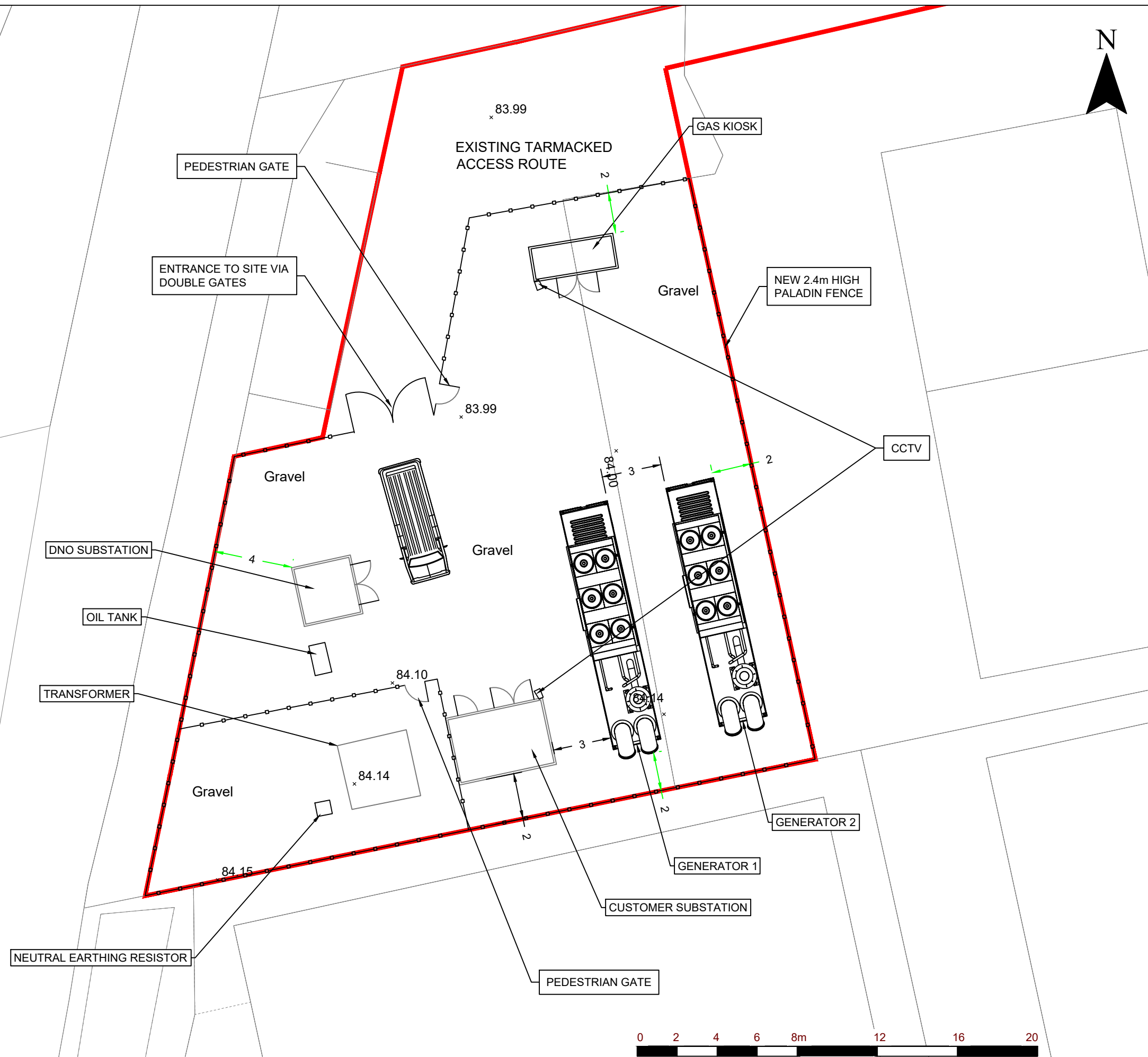
Scale AS SHOWN

Date MARCH 2021

08071.00001.16.WHB-02B.2 Proposed Site Layout - Rev C.dwg

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WHITBROOK POWER
URBAN RESERVE

PROPOSED SITE LAYOUT

WHB-02B - REV C

Scale AS SHOWN	Date MARCH 2021
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APPENDIX 03

Drainage Letter and Plan Feb 2021

05 February 2021

Kate Fletcher,
Rochdale Borough Council,
Planning and Development,
Number One Riverside,
Smith Street,
Rochdale,
OL16 1XU.

Your Ref: 20/01585/FUL

Dear Kate Fletcher,

RE: PLANNING APPLICATION 20/01585/FUL WHITBROOK POWER, MIDDLETON, M24 6AG

1. INTRODUCTION

This letter relates to proposals for land on the west side of Hanson Street, Middleton, Manchester. The post code for the site is M24 6AG and the site is centred on National Grid Reference (NGR) 87372 06102.

In December 2020, planning permission was sought from Rochdale Borough Council for a:

“Proposed Urban Reserve Flexible Energy Facility including 2 x 2.5MW power units in steel containers, with 7m high exhaust stack and ventilation/cooling equipment, 2 substations, a gas kiosk, transformer, neutral earthing resistor, oil storage tank, 2.4m high palisade fence and gate fencing the southwest corner, 2.4m high palisade fence and gate on northern main development boundary.”

Correspondence on the application from the planning officer at Rochdale Borough Council, dated 29th January 2021; requested details of the proposed Surface Water Drainage to aid determination of the planning application.

This note, prepared under the supervision of Daniel Watson (C.WEM), provides additional details on the surface cover, drainage, and proposed pollution control of the site.

2. BASELINE POSITION

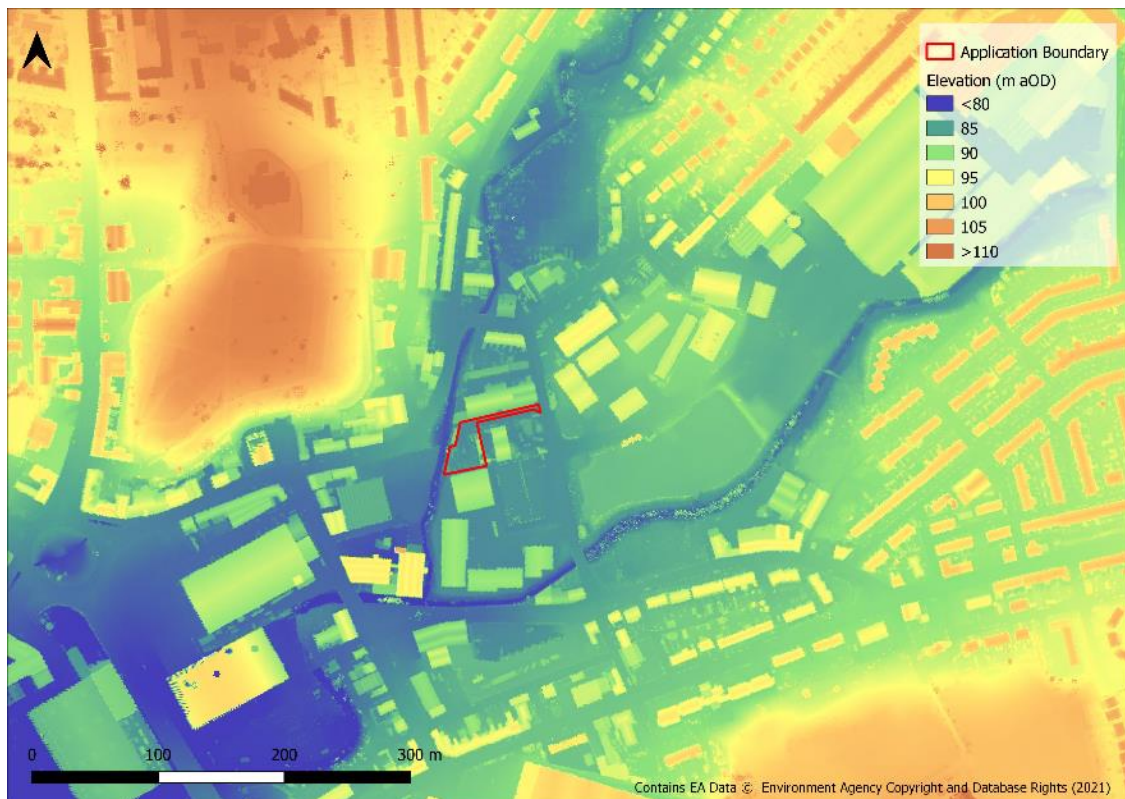
The site covers an area of 0.1 ha and is located on an existing mixed industrial and commercial site west of Hanson Street. The site is currently covered with impermeable concrete (Figure 1) and is used for storage of materials. A watercourse called Whit Brook forms the western site boundary.

Figure 1: Photo showing site surface cover



Based on Environment Agency LiDAR data (Figure 2) the site is almost flat at an elevation of around 84m aOD with a slight down sloping gradient west towards Whit Brook. The surrounding industrial/commercial parcel is at a very similar level with higher ground present to the north and east and lower ground west and south along Whit Brook and the River Irk.

Figure 2: 1m Digital Surface Model (DSM) LiDAR Plot



British Geological Survey (BGS) mapping¹ indicates that the bedrock underlying the site is the Pennine Lower Coal Measures formation, comprised of mudstone, siltstone, and sandstone. The bedrock is shown to be overlain by alluvial deposits (clay, silt, sand, and gravels) across the eastern part of the site and glaciofluvial sheet deposits (sand and gravel) across the western part of the site.

Natural soils in the area are described² to be, “*Freely draining slightly acid sandy soils*”. The site is not located within a groundwater source protection zone³.

BGS borehole records from approximately 150m to south of the site (SD80NE72-73) are contained in Annex 01. These suggest that the actual geology locally is comprised of made ground, predominantly sand, gravels, and ash debris, down to variable depths of 0.4-2.4m. Beneath this silty gravels and sands were encountered. Groundwater was observed in these boreholes at depths of between 3.9 and 4m below ground level.

In summary, observations indicate that beneath the concrete surface at the site there is likely to be made ground, which will likely predominantly constitute reworked sand and gravels mixed with construction debris. Beneath this, records suggest that the natural drift deposits will again predominantly comprise of sands and gravels. There is no evidence of shallow groundwater locally and

1 Geology of Britain Viewer, British Geological Survey, NERC, 2018 [accessed January 2021]

2 Soilscape website, Cranfield Soils and Agrifood Institute, <http://www.landis.org.uk/soilscales/#> [accessed January 2021]

3 Magic map website, <https://magic.defra.gov.uk/MagicMap.aspx> [accessed January 2021]

groundwater is likely to be in continuity with flows in the adjacent channel of Whit Brook at an elevation of around 81m aOD (i.e. ~3m below site levels).

Based on observation it is believed the site is not formally drained and as such surface runoff would drain directly to the watercourse as overland flow. Small drainage features, displayed in Figure 3, were identified within a concrete slab in the eastern part of the site; however, these do not appear to connect into a below ground drainage network. Therefore, all discharges from this system will route runoff west directly to the watercourse as overland flow.

Figure 3: Photo showing on site drainage features



3. DRAINAGE PROPOSALS

The development site is small (0.1ha) and the scheme proposals are deliberately simple and light weight to minimise engineering requirements and associated costs. This allows the resulting generation capacity to flexibly be provided in existing industrial areas where there is demand, adding resilience to the electrical generation and supply system.

Development of the site will involve breaking out the existing concrete surface and the creation of small and defined concrete plinths for the power units, oil tanks, substation, transformer, and gas kiosk. The access and egress route to the north, which is overlain with an existing tarmac surface, will be retained. All remaining areas will be covered by a coarse and permeable gravel material (railway ballast).

A raised kerb will be installed along the western (downgradient) boundary of the site to deflect any surface flows draining along the access track onto the gravel surfaced area. This kerb, which will extend along the full western boundary of the site will also prevent rapid through flows within the gravel towards Whit Brook.

A site layout plan showing the proposed surface cover and the raised kerb line is included in Annex 02.

The specification for the surface cover is that the railway ballast will be installed over a weed membrane and suitable sub-base.

- Material: Grey granite stone (Network Rail approved railway ballast)
- Particle Size: 31.5mm to 50mm.
- Void ratio: 30%
- Depth: Minimum depth 150mm, average depth 300mm

Images showing the installed surface finish at other comparable sites developed by AMP are provided in Annex 03.

Storm water falling on the gravel areas and water that is shed from the power units / concrete plinth areas and the access route will rapidly infiltrate into the void space within the gravels and will then percolate gradually into the ground. Given the mapped and observed geology locally, predominantly sands and gravels, water should be able to freely infiltrate to the ground and exceedance of the infiltration capacity is considered highly unlikely.

It should be noted that the removal of the existing concrete surface and the installation of the gravel voids will make the occurrence and severity of any discharge from the site far lower than for the current situation.

4. ASSESSMENT OF DRAINAGE CAPACITY

Table 1 below summarises and contrasts key aspects of the existing situation and the proposed scheme.

Table 1 – Comparison of pre and post development drainage

	Existing Situation	Proposed Scheme
Site Area	1000 m ²	
Impermeable Cover (access)	267 m ²	
Impermeable Cover (main site)	733 m ³	106 m ²
Permeable Cover	0.0 m ²	627 m ²
6hr, 1 in 1 AEP rainfall depth ^a	21.81 mm	
6hr, 1 in 30 AEP rainfall depth ^a	51.68 mm	
6hr, 1 in 100 AEP rainfall depth ^a	69.50 mm	
6hr, 1 in 100 AEP rainfall depth ^a + 40% climate change allowance	97.30 mm	
Rainfall volume (1 in 1 AEP)	21.81 m ³	
Rainfall volume (1 in 30 AEP)	51.68 m ³	
Rainfall volume (1 in 100 AEP)	69.50 m ³	
Rainfall volume (1 in 100 AEP + 40%) ^b	97.30 m ³	
Potential infiltration volume (6 hrs) ^c	0 m ³	135.40 m ³
Available shallow storage in gravel void space ^d	0 m ³	56.41 m ³
a – estimated using the FEH depth duration frequency modelling (2013) b – design event is considered to be the 1 in 100 annual probability 6-hour storm with a 40% uplift to account for climate change c – This is based on the permeable area and an infiltration rate of 1×10^{-5} m/s which is considered (SuDS Manual Table 25.1) to be typical for the sand substrate (slightly silty, slightly clayey sand) d – based on an average gravel depth of 0.3m and a void ratio of 30%		

The data included within Table 1 indicates that the amount of storage for storm water created by the proposed scheme, plus the infiltration to the ground, is in excess of what will be required to accommodate projected volumes of storm water.

The ground conditions and subsequent infiltration volume of 135.40m³ over 6 hours is significantly more water storage than projected volumes during extreme events including the 40% uplift climate change scenario. Infiltrated runoff/groundwater in the superficial deposits will flow west towards Whit

Brook. Therefore, runoff from site will be attenuated but ultimately discharged into Whit Brook across a longer lag time.

The existing access and egress route to north will retain its tarmac impermeable cover however a raised kerb is to be constructed along the western site boundary, illustrated in Annex 02. This will therefore prevent unrestricted flow of runoff into Whit Brook and divert water towards the permeable gravelled area. This will additionally prevent rapid throughflow in the gravel base towards Whit Brook, ensuring runoff is infiltrated to ground. This ultimately demonstrates a 100% reduction in runoff from the existing site for events up to the 1 in 100 plus 40% climate change.

In conclusion, the development of the site in line with the plan contained in Annex 02, will reduce runoff, and encourage infiltration to the ground. The scheme will also provide significant storage to hold flows from larger storms and the net result of this is that discharges from the site should be negligible and far lower than the current situation.

This passive approach to managing storm water from the site is considered robust and proportionate to the nature and scale of the scheme proposed. Ongoing maintenance requirements will be restricted to basic housekeeping to remove vegetation growth in the permeable areas of the site. This will be undertaken annually by the site operator.

5. POLLUTION CONTROL

The applicant will be installing onsite a purpose-built dual oil tank. The tank will be of steel construction and will include a double wall and integral bund of sufficient size that, should there be a leak, the bund has sufficient capacity to capture the oil and prevent ground contamination. Specification details for the tank are provided in Annex 04.

The remainder of the site will have a very low potential for the generation of a surface water pollution and, aside from very occasional access for maintenance, the site will not be trafficked. There should therefore be no concern in allowing runoff from the site to drain freely to the ground.

We trust that the information provided gives you with sufficient information to discharge the condition.

Yours sincerely

SLR Consulting Limited



Daniel Watson (C.WEM)
Principle Hydrologist

ANNEX 01

BGS BOREHOLE RECORDS

Norwest Holst Soil Engineering Ltd.

F5492

BOREHOLE LOG

Borehole No.

5

Contract No.

Location.....Irk Valley, Middleton

Client.....Rochdale Metropolitan Borough Council

Method of Boring.....Percussion

Diameter of Borehole.....150 mm

Sheet.....1 of.....1

Chainage.....

Ground Level.....82.50 m.A.O.D.

Date.....7/3/83

SD 80 NE 72

Description of Strata	Legend	Depth Below G.L.(m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/ R.Q.D.%	Daily Progress
TOPSOIL.		0.30	82.2				
MADE GROUND: Medium dense dark grey to brown ash, sand and housebrick debris.		2.40	80.1		1.00 2.00	13 7	
Loose brown fine and medium SAND		3.20	79.3		3.00	5	
Loose brown clayey very silty fine SAND with some root remains.		3.90	78.6	150mm to 6.0m	4.00	21	
Medium dense grey and brown medium SAND with some fine to coarse well rounded gravel and occasional large cobbles - boulders.		6.00	76.5		5.00 6.00	18 28	
NOTE: Sand exhibited an 'oily' smell which might be the cause of the grey colour.							

Type of Sample

- ☒ S.P.T. ☒ Undisturbed
☒ C.P.T. ☒ Vane
☐ Jar ☐ Water
☐ Bulk ☐ Piezometer

Remarks (Observations of Ground Water etc.)

Water struck at 3.90 m, moderate inflow, casing at 3.90 m.
 Final standing water level at 3.50 m.
 Chiselling boulders in gravelly sand, 1 hr.

Water levels are subject to seasonal or tidal variations and should not be taken as constant.

Norwest Holst Soil Engineering Ltd.

Borehole No.

6

Contract No. F5492

BOREHOLE LOG

Location IRK Valley, Middleton

Sheet 1 of 1

Client Rochdale Metropolitan Borough Council

Chainage

Method of Boring Percussion

Ground Level 84.30 m.A.O.D.

Diameter of Borehole 150mm

Date 3/3/83-6/3/83

SD 80NE 73

Description of Strata	Legend	Depth Below G.L. (m)	O.D. Level (m)	Casing Depth at Sampling	Sampling and Coring	"N"/R.Q.D. %	Daily Progress
MADE GROUND: Tarmac.		0.20	84.1				
MADE GROUND: Gravel.		0.40	83.9				
Medium dense becoming very dense brown silty very gravelly SAND with some large cobbles and boulders.		6.00	78.3	150mm to 6.0m	1.00 2.00 3.00 4.00 5.00 6.00	7 12 50* for 25mm 50 No penetration 50* for 25mm 50* for 25mm	

Type of Sample

- Is S.P.T. Undisturbed
 Ic. C.P.T. Vane
 O Jar Water
 ● Bulk Piezometer

Remarks (Observations of Ground Water etc.)

* Seating blows only.

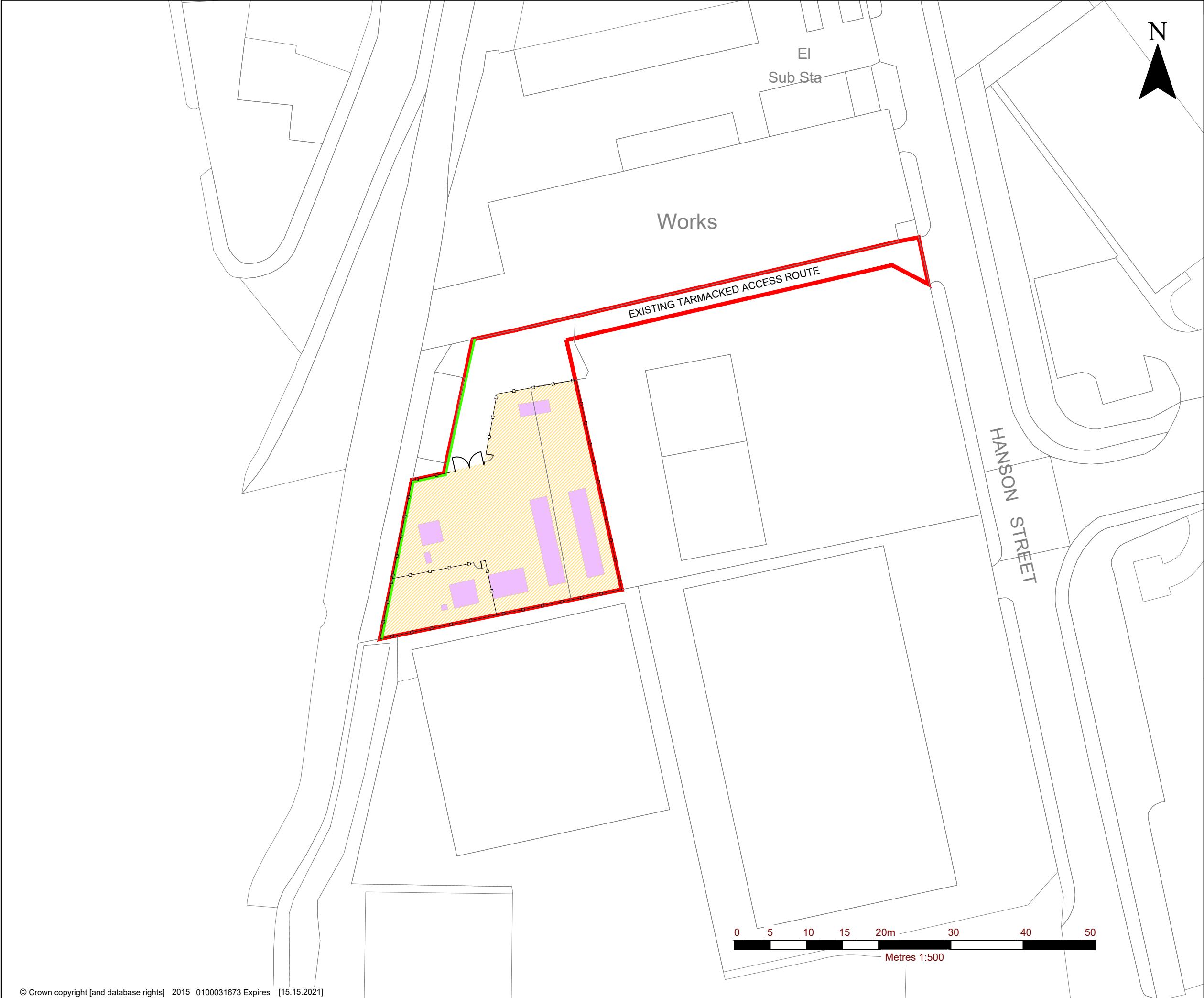
Standing water level 4.00m.
 Chiselling and driving boulder from 3.00m to 6.00m - 4hrs.

Water levels are subject to seasonal or tidal variations and should not be taken as constant

ANNEX 02

SITE LAYOUT PLAN

08071.00001.16.WHB-001.0 Drainage Plan.dwg



LEGEND

	SITE BOUNDARY (0.10ha)
	GRAVEL - PERMEABLE (626.79m²)
	CONCRETE - IMPERMEABLE (106.37m²)
	RAISED KERB

SUITE 5, BRINDLEY COURT
GRESLEY ROAD
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MIDDLETON, MANCHESTER, M24 6AG

WHITBROOK POWER
URBAN RESERVE

DRAINAGE PLAN

WHB-001

Scale AS SHOWN

Date FEBRUARY 2021



ANNEX 03

DETAILS OF PROPOSED SURFACE COVER MATERIAL

Figure A1: Photograph showing finish of railway ballast on a comparable site

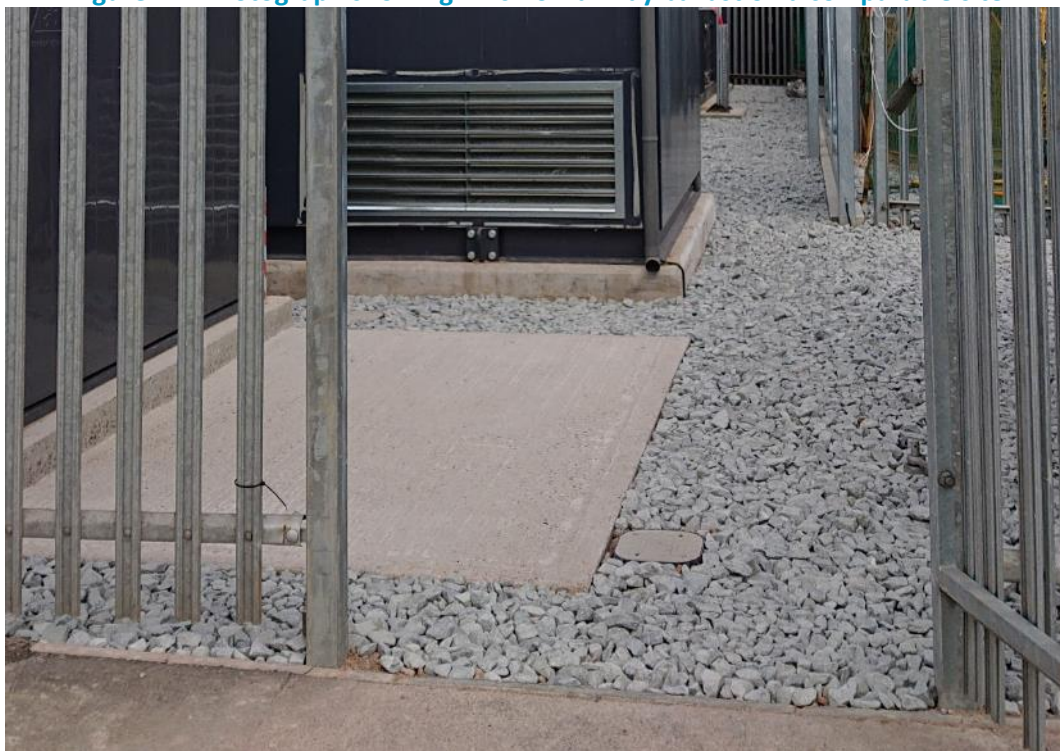
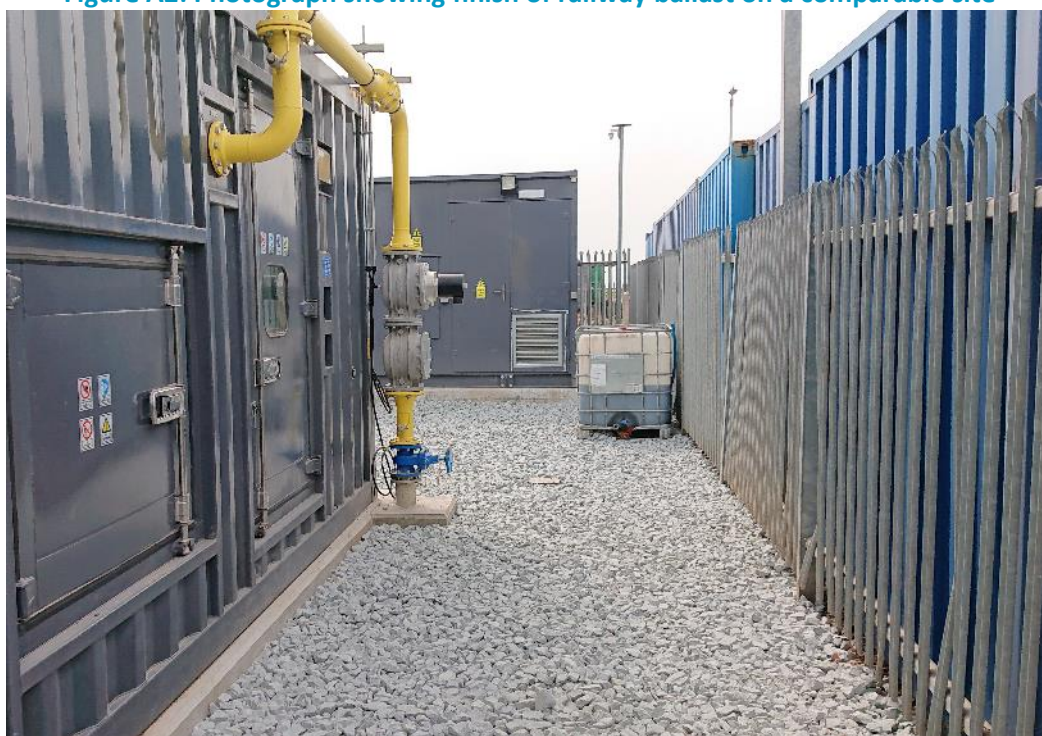


Figure A2: Photograph showing finish of railway ballast on a comparable site



ANNEX 04

OIL TANK SPECIFICATION

Capacity

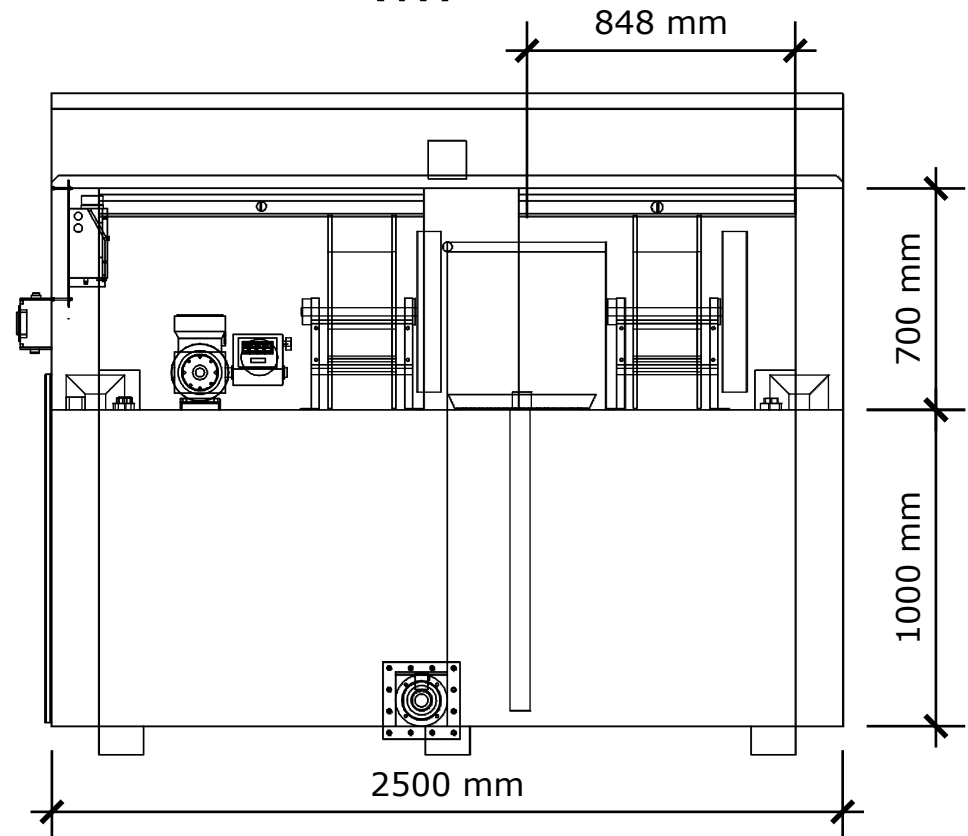
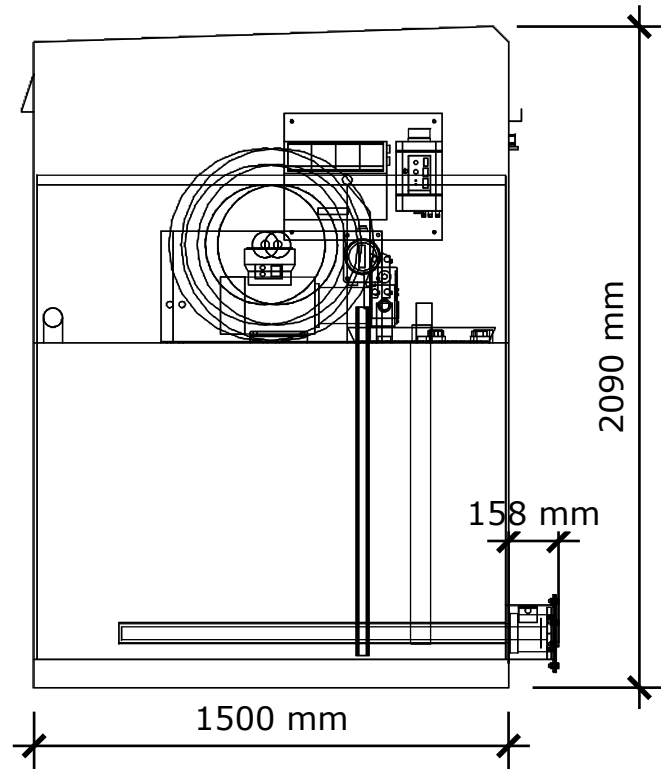
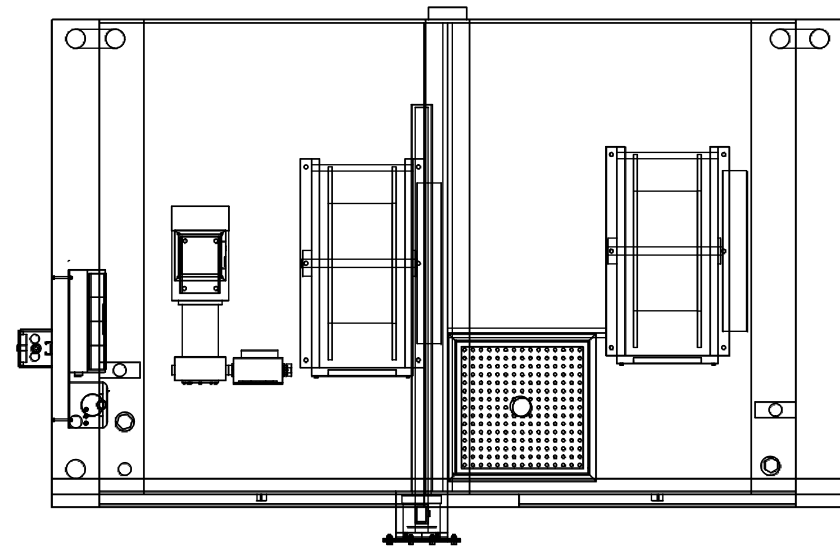
Clean oil 1,500 Litres Safe working capacity
Clean oil 1,628 Litres Brim Full inc 2.5% ullage
Waste oil 1,500 Litres Safe working capacity
Waste oil 1,628 Litres Brim Full inc 2.5% ullage
Bunded Area 3,750 Litres Bund Capacity inc 10%

Tank Build

3mm S275 hot rolled plate M/S
120x80mm Floor runners
All pipework British Standard Pipe (BSP)
580mm spaced internal stiffeners
Dry Lifting eyes
Cabinet vent
Aluminium extruded lockable roller door

Tank test

BS 799 part 5 British standards build
0.3 Bar Inner tank & pipe pressure test
0.1 Bar Outer bund area pressure test



Tank Size (Litres)
3000 SWC

Customer
HW Energy

Scale :00
Do not scale drawing



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