

Environmental Management Plan

Project R11112

**Gasholder Demolition Works at
Huddersfield Gas Holder Huddersfield HD1 6AF**

Revision 01



Client:	Northern Gas Networks. (NGN)
Principal Contractor:	Erith Contractors Limited
Senior Project Manager:	Matthew Balson
Brief Description of Works:	Demolition and removal of the Old Gas works Club and the existing below ground column guided gasholder with provision made for all associated temporary works, inclusive of above & below ground redundant fill/return pipelines. And various small Buildings.
Principal Designer:	Northern Gas Networks

Document Ref	R11112 EMP	Rev No	01
First Issue Date	04/07/2024	Author	LF
Access Type	External		

Rev No.	Prepared by - Date	Details	Authorised by - Date
01	Laverne Fawthrop E&S Lead – North 04/07/2024	Reviewed at project commencement and reviewed by E&S Team. Issue for third party review	Frazer Pickering Site Manager 04/07/2024
02		Reviewed at 3 months. No changes to scope of works.	
03		Reviewed at 9 months or where a major change is experienced	
04			
05			
Project Title: R11112 - NGN GHD Huddersfield			
Approximate Value of Project: To be confirmed		Hazardous Waste Prefix Code: R11112 – 1 st HWTN will be ERITHC/_____	
Project Start Date: 22 nd July 2024		Projected Project End Date: 10 th March 2025	
Original Issue Date: 04/07/2024		Latest Revision Date: 04/07/2024 (Rev 01)	

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1. **Requirements of Environmental Management Plan**

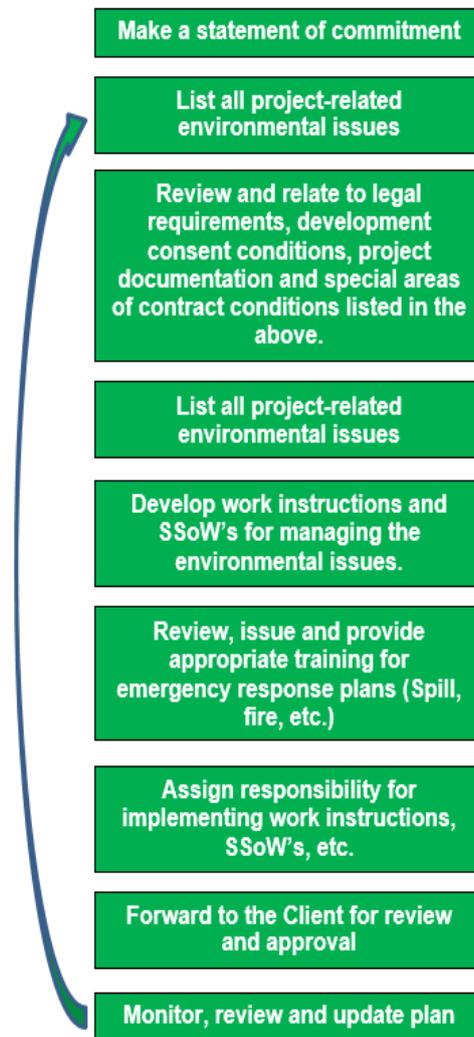
Policy

- Erith Contractors Limited Environmental and Sustainability Policies are followed and applied to the commitments to environmental governance generated directly or indirectly for the project as a matter of priority for Erith Group. Copies can be provided on request.
- Our sub-contractors and suppliers are highly encouraged to make the same considerations and sign up to environmental protection mitigation measures on the project.
- Sub-contractors are to be issued with this plan and to fully understand the duties we placed on them.
- Safe Systems of Work (SSoW), work instructions, risk assessments and method statements will be reviewed and implemented to minimise risk to the environment whilst on the project.
- Segregation of waste and materials on project will be implemented where there is adequate risk mitigation to the environment.
- Liaison with the Regulator (Environment Agency).

2. **Requirements and Regulatory Framework & Planning Conditions**

- What are the likely environmental impacts and issues for the project, both directly and indirectly?
- What likely harm these issues can cause to the surrounding environment.
- How we will manage these issues to minimise harm to the environment.
- Identification of source / pathway / receptor and mitigation measures
- The primary requirements of the planning consent are the implementation of the core document; the Environmental Management Plan (EMP). The EMP is required to encompass environmental controls when required with due consideration to relevant environmental legislation.
- The EMP provides the framework for which commitments made in the Environmental statement (ES) or any requirements of planning conditions can be realised. The EMP outlines the contractor's approach to environmental management throughout the construction phases with the primary aim of reducing any adverse impacts from construction on local sensitive receptors.
- A copy of our legal register, outlining current legislation and regulation can be provided on demand.

Summary of steps for developing an EMP



An EMP is a project specific plan, developed to ensure that all necessary and practicable measures are identified and implemented in order to protect the environment and comply with environmental legislation.

3. Parties to the Project, Site Location & Project Description

Title	Name
Client	<u>Northern Gas Networks</u> Senior Project Manager James Mark Johnson
Principal Designer (PD)	<u>Northern Gas Networks</u> CDM Principal Designer Michael Little
PD Project Assurance Officer(s)	<u>Northern Gas Networks</u> Project Assurance Officer - Darren Hutchinson
Principle Contractor (PC)	<u>Erith Contractors Ltd</u> Operations Director Simon Frost
PC Project Manager	<u>Erith Contractors Ltd</u> Project Manager Matthew Balson
PC Site Manager	<u>Erith Contractors Ltd</u> Site Manager Sean Frazer Pickering
PC Site Supervisor	<u>Erith Contractors Ltd</u> Site Supervisor Nick Marsland
PC Site Foreman / Temporary Works Supervisor	<u>Erith Contractors Ltd</u> Site Foreman Kevin Bennett
PC Associate Health and Safety Director Health and Safety Lead	<u>Erith Contractors Ltd</u> <u>Health & Safety Director</u> Chris Turok-Hallam <u>Health & Safety Lead</u> George Tomkins
PC Associate Environment & Sustainability Director Environment and Sustainability Lead	<u>Erith Contractors Ltd</u> <u>E&S Associate Director</u> Chris Turok-Hallam <u>E&S Lead</u> Laverne Fawthrop
Temporary Works Co-Ordinator	<u>Erith Contractors Ltd</u> Project Manager Matthew Balson
PC Project Administrator	<u>Erith Contractors Ltd</u> Environmental Scientist / Admin Amy Balson

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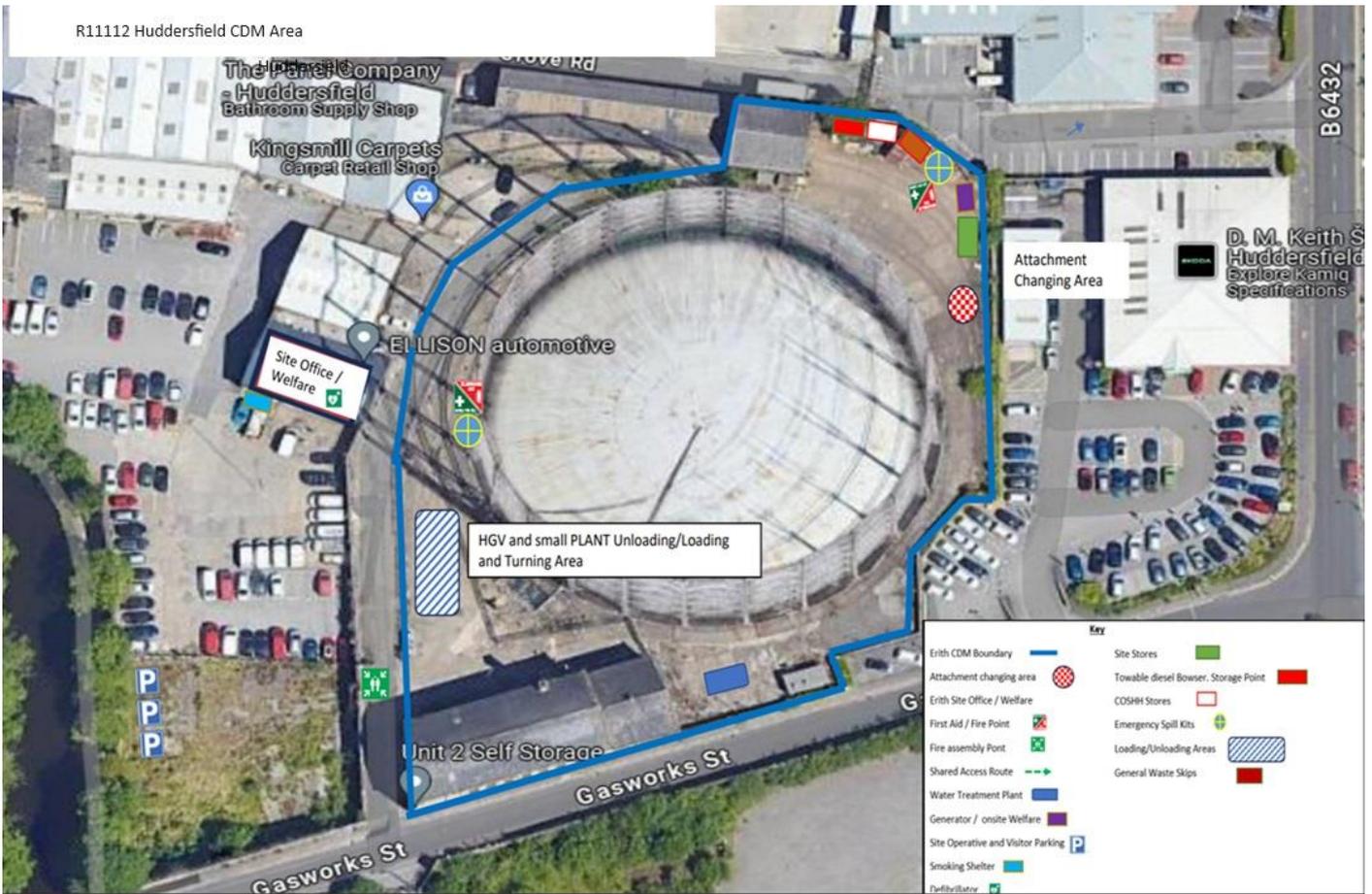


Figure 1: Site Location and Layout Plan



Figure 2: Water Treatment Plant's discharge route plan showing the approximate location of the discharge point at the Gas Club Building.

The site is currently owned by Northern Gas Networks. Access to site is via the existing gateway situated off Gas Works Street . The access gateway, internal roadways will be kept clear and unobstructed access will be maintained at all times for authorised NGN personnel in case of emergency to access their land

Site Hours of Work:

08.00 - 17:00 Monday to Friday

- No activities will take place on weekends and Bank Holidays unless undertaking emergency works or pre-approved works from the Client.
- In order to maintain these working hours, contractor(s) will require a period of 30 minutes before and at the end of the working shift to start up and close down the works activities.
- During the project period it may be necessary in exceptional circumstances to work outside the prescribed working hours. Should this occur, the hours and duration of these works will be subject to consultation with the Client and Kirklees Council (Huddersfield).

Key Outcomes	Date
Project Start	22 nd July 2024
Site Access	22 nd July 2024
Project Completion Date	10th March 2025 (34 weeks)

4. Responsibilities

Erith person responsible for implementation, management and review of the EMP:	Frazer Pickering – Project Site Manager
Erith Manager with overall responsibility for compliance with the EMP:	Matthew Balson – Senior Project Manager

Operations Director/Manager/Contracts Manager:

- **Senior Management is responsible for:-**
 - Ensuring that the EMP is developed and held on site and that it is implemented throughout all phases of the project. Ensuring the EMP details are updated as and when relevant information is provided by the stakeholders associated with each section of the EMP; e.g. further consent conditions, surveys, etc.
 - Maintaining the EMP and ensuring that all contractors and visitors comply with it.
 - Ensuring that environmental issues identified within the project Information and the pre-commencement site surveys and relevant information gathered from agencies, local councils etc are addressed.
 - Producing environmental project specific controls for all significant risks identified and implementing control measures to minimise the risk of damage to the environment.
 - Communicating the EMP and other related document to employees, contractors and client representatives.
- **Contractors and visitors to the project will be responsible for:-**
 - Ensuring that the control measures identified from environmental surveys are implemented as they are relevant to their work / visit.

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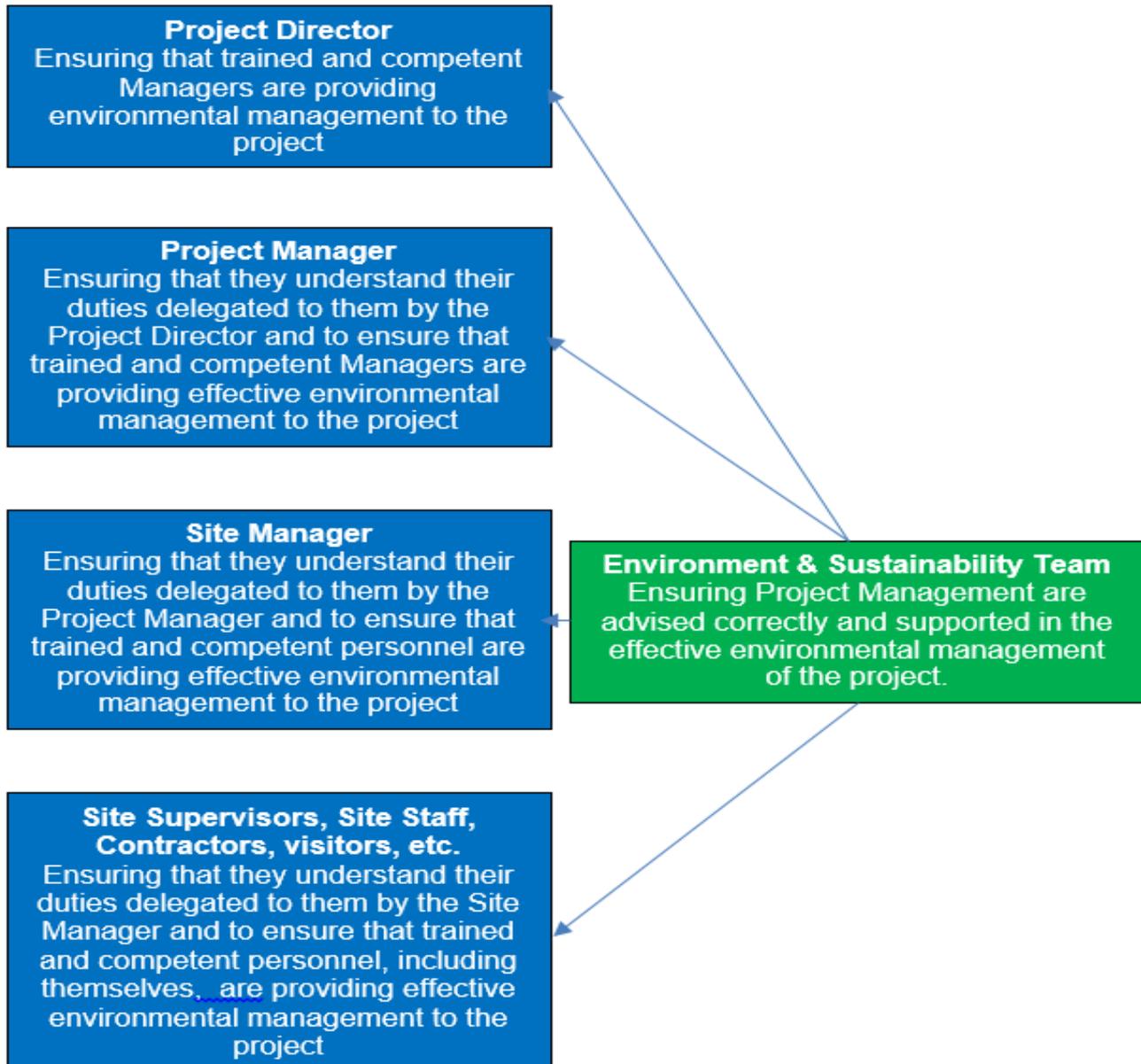
- Ensuring that the project management team are notified of any non-conformance of control measures or environmental incident where the environment has been put at risk.

- **Training and communication**

- All site personnel will be made aware of the key requirements with respect to the EMP and its implementation.
- All site personnel will receive an induction prior to starting work on the project. The induction will cover key environmental requirements. Additional training will be delivered as appropriate to the tasks undertaken through toolbox talks.
- A Safety Health Environmental & Quality (SHEQ) communications notice board will be set up in a suitable location and will as minimum the following useful and relevant information for staff during dewatering / demolition:
 - ECL Policies
 - Environmental Risk Assessment
 - Site Waste Management Plan
 - Spill Response Diagram
 - Relevant construction bulletins
 - Up to date site drainage plan showing Site Layout Waste, COSHH stores, drains, refuelling area.
- The information will be updated regular by the ECL Project Manager.

- **Inspection and Auditing**

- This plan will be reviewed 3-monthly as a minimum or when activities on site have undergone major changes, whichever is first.
- Following these reviews, the EMP and associated information the project team will be given training on the EMP.
- The site will undergo site visits and monthly environmental inspections performed by the E&S Lead. Provide continuous feedback on the environmental performance of the site and highlight areas for commendation as well as areas for improvement.
- Copies of all environmental inspection reports will be provided to NGN by the Project Manager whenever an inspection is carried out.



Environmental Assessment & Areas of Risk

The site will be assessed by reviewing the following factors:

- An environmental scoping assessment (ESA) to identify potential environmental impacts of the project will need to be carried out prior to project commencement. This assessment will be undertaken in several ways including a formal risk assessment process or a comprehensive site assessment.
- The assessment should examine the following:
 - Noise & Air Quality
 - Archaeology & Cultural Heritage
 - Landscape & Land Use
 - Ecology
 - Geology & Soils
 - Materials
 - Community Effects & Vehicular Travellers
 - Drainage & Water Environment
 - Waste (Refer to corresponding Site Waste Management Plan SWMP)
 - Sustainability

Where applicable, elements of the ESA are utilised in the EMP to produce a practical outline of the management of environmental risks of the project's construction phase.

Biodiversity

The EMP has includes a review of:

- Site Information provided at tender stage
- Env04: Environmental Aspects and Impacts Register (NGN, Rev 02, 17/06/2020)
- Guidance Notes for NGN Major Projects
- NGN Huddersfield Haz Dem 26/06/2024
- Bats

All species of British bat are listed as European Protected Species (EPS) on Schedule 2 of the *Conservation of Habitats and Species Regulations 2017* (as amended) This affords bats and their roosts strict protection. Additional protection for bats is also afforded under the *Wildlife and Countryside Act 1981* (as amended) and a subset of the British bat assemblage are listed as Priority Species.

Bat emergence and re-entry surveys (dusk emergence surveys and dawn re-entry surveys) are being undertaken by a Suitably Qualified Ecologist (SQE) through July-August 2024.

The SQE for the Project is:

Dru Hall BSc (Hons) MCIEEM, CEnv, Icen Ecology Ltd. T: 01263 478193

www.iceniecology.rocks

Mitigation: Briefing to site staff on identification of bat roosts and what to do if a bat is found; If evidence of roosting bats is found all works must cease and the Client informed. If required following receipt of bat survey results, a European Protected Species Mitigation Licence from Natural England must be applied for and granted before works can continue.

➤ **Nesting birds**

All birds, their nests and eggs are protected by Wildlife and Countryside Act (1981) under which it is an offence to intentionally kill, injure, disturb or take any wild bird. This legislation and its requirements should be highlighted in staff inductions, toolbox talks and signed by all contractors, operators and sub-contractors.

Any vegetation clearance any demolition of buildings will be undertaken with due consideration for potential use by birds. Where possible activities will be undertaken outside of the bird breeding season (March to August inclusive). Should the above timing constraints conflict with any timetabled works, a pre-commence check by the SQE will be carried out to ensure no nesting birds are present.

If any nesting birds are identified during the pre-works survey, they will be left in situ for their entire nesting period and alternative approaches to the work proposed. This may include leaving an exclusion zone around the nests to avoid disturbance.

If nesting birds are encountered during operations, contractors are to be advised to stop work immediately and report to the SQE for advice and production of a suitable revised method statement.

Wild birds - Avian influenza (bird flu)

Do not touch or pick up any dead or visibly sick birds that you find.

You should call the Defra helpline (03459 33 55 77) if you find:

- one or more dead bird of prey or owl
- 3 or more dead gulls or wild waterfowl (swans, geese and ducks)
- 5 or more dead birds of any species

Defra then collect some of these birds and test them to help us understand how the disease is distributed geographically and in different types of bird, not all birds will be collected. Wild birds are susceptible to a range of diseases and injuries and not all dead birds will have been infected with avian influenza.

Where dead birds are not required for surveillance purposes it is the landowner's responsibility to safely dispose of the carcasses.

➤ **Protected Trees & Woodland**

There are no tree preservation orders within the site that have been identified. NGN will have complete tree clearance works prior to commencement.

➤ **Invasive & Injurious Plant Species**

No protected (Schedule 8 of the Wildlife and Countryside Act 1981 as amended) plant species were identified within the survey boundary or immediately adjacent.

Air Quality

- It is recognized that a key concern for the local community, interested parties and the surrounding areas will be any disturbance to air quality caused by traffic and emissions generated during the project stages associated with the activities.
- In terms of the project phases of the project, mitigation measures will be implemented as part of a traffic management plan.
- The Traffic Management Plan (TMP) considers the effect of:
 - Changes to the existing highway network through road closures and regulation orders required by the scheme.
 - Vehicular activity generated by the project process
 - Public Traffic accessing the site during the project process
 - Designated haul routes and restricted routes for project traffic.
- The Erith site management team will be based on-site during the project period to ensure all contractors and material suppliers are safely implementing the TMP.
- All sub-contractors, operatives and suppliers will be made aware of the TMP.
- It also highlights the Traffic Management Principles and areas of storage and vehicles.
- Access to the site compound and works area for all project traffic will be from the existing highway network from Gasworks Street.
- In addition, the following traffic management principles should be observed:

- Delivery vehicles will supply and remove materials from site using the main access. In circumstances to reduce vehicular movements, deliveries will be made direct to the work zone to mitigate double handling and double vehicular movements.
 - Delivery vehicles whenever practical will avoid 'peak public traffic hours' to reduce traffic congestion and nuisance to the existing road and highway network.
 - To avoid traffic congestion and nuisance to the surrounding area all suppliers and contractors will be made aware of traffic routes.
 - Site entrance will be maintained and kept clean and clear. There will be a road sweeper in operation, when required and in line with the works activities to ensure no mud is left on the live highway as a direct result of the works.
 - All materials will be loaded within the site compound/boundary of the working zone to minimise congestion.
 - For environmental and road safety all materials containers leaving site will be appropriately covered to avoid soiling of the roads and highway. Engines of all vehicles, mobile and fixed plant on site are not left running unnecessarily.
 - Using low emission vehicles and plant fitted with catalysts, diesel particulate filters or similar devices.
 - Using ultra low sulphur fuels in plant and vehicles where possible.
 - Plant will be well maintained, with routine servicing of plant and vehicles to be completed in accordance with the manufacturer's recommendations and records maintained for the work undertaken.
 - All project vehicles, including off-road vehicles, will hold current MOT certificates, where applicable and where required due to the age of the vehicle and that they will comply with exhaust emission regulations for their class.
 - Ensure all vehicles switch off engines when stationary - no idling vehicles.
 - Avoiding the use of diesel- or petrol-powered generators and using mains electricity or battery powered equipment where available.
 - All commercial on road vehicles used in construction must meet the European Emission Standards pursuant to the EC Directive 98/69/EC (commonly known as Euro standards) of Euro 6 during any works.
- A traffic co-ordinator will be utilised during the project period to monitor heavy goods vehicle deliveries and collections of materials to and from the site to ensure compliance so far as practicable by contractors with the above requirements.
 - Only a limited number of car and HGV movements typically occur during the peak hours. The working hours of most operatives would not coincide with the network peak, processes would be programmed to avoid reliance on deliveries of materials during the more congested periods and delivery drivers would wish to avoid being on the network at congested times of the day when drivable hours used are disproportionate to the quantities of goods deliverable.
 - A list of Plant to be used on site is provided below:
 - Tracked Loader
 - Hydraulic Excavator
 - Mobile Crane
 - Lorries (HGV's)
 - Water and Fuel Bowsers
 - Mobile Treatment Plant
 - Dumpers

- Only trained, certified, competent operatives will be allowed to operate the plant machinery. A record of all operatives' certificates should be kept in the site office with LOLER and PUWER.
- All plant come to site with a current and up to date record of service and an annual inspection sheet. An onsite weekly inspection will be carried out by the Site Agent of all operated plant and recorded. All plant maintenance is to take place in the site compound only. Refuelling of all plant is to take place in the compound and drip trays are to be employed during the fuelling process (ref SPG 7).
- Management of Dust - The application of standard dust control measures included in the British Research Establishment guidance (Building Research Establishment, 2003) are normal working practice on all well managed construction sites in the UK. Standard measures will be applied to the construction areas within the Site as agreed with the local authority air quality/pollution control officer or Environmental Health Officer and in line with current legislation, Regulation and Sector Guidance:
 - Staff will be trained in the control of dust and will ensure the site is monitored for levels of surface dust.
 - Record all dust and air quality complaints, identifying cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
 - 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 logbook.
 - The access road into and out of the site will be monitored for excessive dust build up and "track-out", the transportation of dust and mud onto public highways.
 - The name and contact details of person(s) accountable for air quality and dust issues will be displayed on the site boundary. This may be the environment manager/engineer or the site manager.
 - Bonfires and burning of waste materials is prohibited on site.

Noise & Vibration

- Noise and vibration statutory nuisance are controlled under the Environmental Protection Act 1990 and in compliance with the Local Authorities' emissions standards and limits.
- The potential noise disturbance from the site may result from vehicle movements,
- Before works on site are commenced, all contractors should make available for inspection a method statement (in accordance with the principle described in BS 5228: 2009: Part 2: Code of practice for noise and vibration control on construction and open sites) stating precisely, the type of plant to be used and the proposed noise control methods.
- The contractors will also be required to comply with other relevant provisions of the Control of Pollution Act 1974. The contractor should also comply with the recommendations set out in BS 5228:1997 AMD 1 Code of practice for noise control on construction and demolition sites.
- Muffling should be in accordance with the recommendations set out in BS 5228:1997, Code of practice for noise control on construction and demolition sites:
- compressors will be fitted with properly lined and sealed acoustic covers, which should be kept, closed whenever in use.
- pneumatic percussive tools should be fitted with mufflers or silencers of the type recommended by the manufacturers.
- machines in intermittent use should be shut down in the intervening periods between work or throttled down to a minimum.
- Care should be taken when loading or unloading vehicles or dismantling scaffolding or moving materials etc. to reduce impact noise.
- Erith will follow best practicable means to reduce the noise effect on the local community including the following:

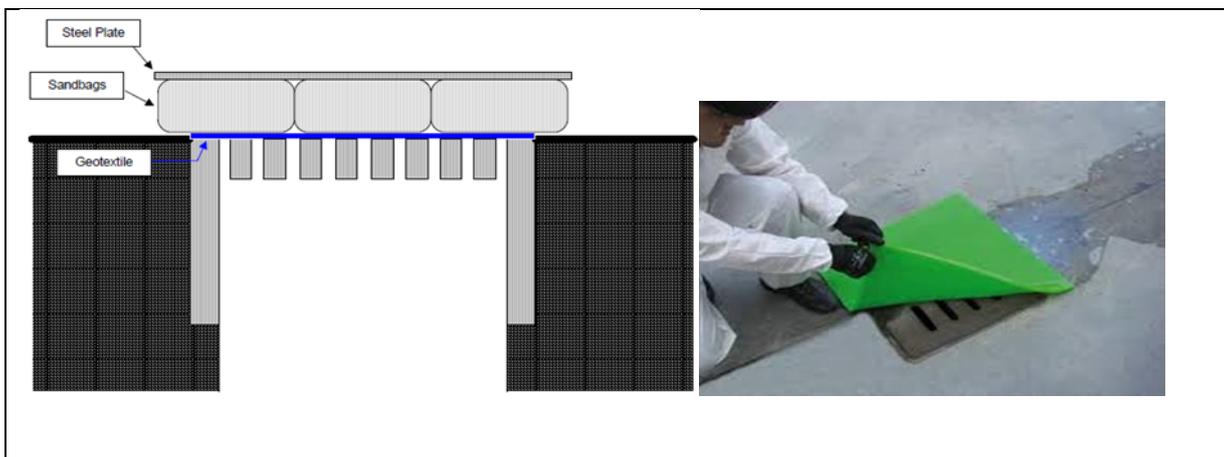
- Drop heights of materials from lorries and other plant will be kept to a minimum.
- Fixed and semi-fixed ancillary plant such as generators, compressors and pumps liable to create noise and/or vibration whilst in operation will, as far as reasonably practicable, be located away from sensitive receptors.
- The use of barriers to absorb and/or deflect noise away from noise sensitive areas will be employed where required and reasonably practicable.
- All plant used on site, paying particular attention to the integrity of silencers and acoustic enclosures will be maintained in good and efficient working order and operated such that noise emissions are minimised as far as reasonably practicable.
- As far as reasonably practicable, any plant, equipment or items fitted with noise control equipment found to be defective should not be operated until repaired.
- Where reasonably practicable, fixed items of construction plant should be electrically powered in preference to diesel or petrol driven.
- Vehicles and mechanical plant, where reasonably practicable, will be fitted with effective exhaust silencers and will be maintained in good working order and operated in a manner such that noise emissions are controlled and limited as far as reasonably practicable.
- Machines in intermittent use should be shut down or throttled down to a minimum during periods between works.
- Risk Assessments and Method Statements (RAMS) from contractors will be scrutinised and authorised before work commences to ensure the requirements above are understood, factored into working methods and adhered to.

Spill, Drainage and Surface Water Management

- **Sealing and preservation of drains and open culverts**

- The mark-up and site plan of all drains will be completed prior to commencement.
- Drains/manholes shall be sealed using a geotextile type membrane held in place with sandbags, all of which should be covered for protection using steel plate(s) as per diagrams in Figure 3.

Figure 3: Diagram showing sealing and preservation of drains using geotextile, sandbags and steel plate.



- **Fuel/Chemical Drums in Bunded Storage**

- To minimise any impact from material spillages, all oils, solvents, and paints used during construction will be stored within temporary bunded areas. Oil and fuel storage tanks will be stored in designated areas.
- All storage tanks for fuel and or chemicals shall be surrounded by a bund capable of retaining 110% of the volume of the largest single tank within the bunded area.
- The intake and outlet for the tanks shall be positioned inside the bund.
- Where possible store all bunded storage inside undercover. If storage is outside, a cover should be placed over the bund and ensure it cover the sides that receive the most severe weather. Provision shall be made to remove and dispose of the rainwater appropriately to ensure the specified volume is always available within the bund.
- Routine inspections of all secondary containment systems shall be carried out weekly by the ECL Site Manager.
- Refuelling of construction vehicles and the addition of hydraulic oils or lubricants to vehicles will take place in a designated area which will be away from surface water gullies or drains. In the event of a machine requiring refuelling outside of this area, fuel will be transported in a mobile double-skinned tank.
- The Control of Substances Hazardous to Health (COSHH) – Items of COSHH small enough to do so must be stored in a fireproof, lockable and bunded COSHH cabinet. COSHH will be access controlled by the Site Manager or deputy and signed in and out of stores.
- A dedicated spill response area will be established during the planned demolition works this will include but not limited to an adequate supply of spill kits, drain seals, hydrocarbon adsorbent packs -granules, PPE, Drums and IBCs for storage on any waste materials. Prior to using any IBC item on site, a recorded inspection shall be retained and held within the Project Folder.

- **Accidental Releases – Spill Procedures**

- Spill Kits will be present around the site area and spill kit bags in Plant. Spill Response procedures will be outlined to all staff (refer to Emergency Response Plan). All personnel working on the site will be suitably trained in the implementation of the procedures. Regular Toolbox Talks and Drills will be given to employees to train in the importance of spill response.
- Regular inspection, maintenance and restocking of spill kits will be completed by ECL Site Manager or deputy and compliance monitored through monthly environmental site audits.
- Spill kits should be suitable for the material they are required to contain/clean, i.e. oil kits for oils, chemical kits for other chemicals.
- When replenishing a spill kit it is important that the items are repacked in the order in which they will be required. Uppermost must be personal protective equipment, followed by absorbent materials with waste disposal bags on the bottom.
- A labelled drum or suitable container to store the disposal bags in until collection is arranged – Label and dispose of as hazardous waste EWC Code 15 02 02* – absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances.

- **Spill Kit Contents Checklist**

A standard spill kit (for oil/fuel spills) should contain:

1. **A wheelie bin or other container/strong bag.** You must properly label your bin and ensure it is easily accessible. Must contain a full supply and ensure sufficient stock of spill kit contents are maintained *at all times*.
2. **Absorbent socks.** These socks are flexible tubes made of absorbent material that you should place around the edges of a spill to contain it.
3. **Absorbent pads.** You should place absorbent pads over the body of the spill to soak up excess liquid. Again, you should ensure you purchase compatible pads. For example, oil-only spill kit absorbent pads are designed to repel water. This makes them ideal for cleaning up oil spills on water bodies, but they could be ineffective if you were cleaning up a large volume of AdBlue.
4. **Disposal bags and ties.** Once you have soaked up the spill, you should collect the used absorbent materials and place them into appropriately labelled disposable bags. You must have enough disposable bags and ties to hold all the used absorbent materials. Remember that you **must** treat used absorbents as you would the substance before it's been spilt and dispose of the waste appropriately (i.e. oil/fuel clean up = hazardous). Where granules are provided – brush and shovel are required.
5. **Personal protective equipment.** Include in your spill kit appropriate PPE where not already worn as part mandatory PPE, i.e. nitrile gloves.

Waste Management:

- A detailed Site Waste Management Plan (SWMP) produced by ECL has been developed for the project. This plan will be reviewed by NGN and signed off.
- ECL will be responsible for ensuring that all waste arisings during the project are managed and disposed of in a way that ensures compliance with procedures and the project's SWMP.
- All asbestos wastes shall be disposed of in accordance with the Control of Asbestos Regulations 2012.
- All waste containers will be stored safely and securely within the site boundary preventing unauthorised access and fly tipping. Waste skips or containers stored outside will be covered where possible to prevent waste from escape and to prevent rainwater ingress.
- Liquid waste to be stored with secondary containment, as required (either because it is hazardous waste, or if it is deemed to cause a significant adverse impact on the environment if released in the quantity that it is stored in).
- **Water Treatment Activities** – Refer to Appendix E – Water Treatment Plant – All dewatering activities at Huddersfield will be undertaken using Erith's SR2008 No 27 Mobile Plant Deployment Permit: JP3242YS/W0009.
- **Discharging Activities** – Yorkshire Water has issued NGN as Agreement to receive discharge from premises at the Huddersfield Gas Holder Site into the sewer on Gasworks Street marked in Figure 2. A copy of the will be displayed in the Erith Office.

Site Location:

- **Is the site surrounded by residential or industrial properties?**

Commercial properties to the north (The Panel Company Bathroom Shop) and east (DM Keith Skoda Garage) of the site and the public highway (Gas Works Street) to the south and carparking on the west.

- **Is the site close to a Site of Specific Scientific Interest (SSSI, MMO, and SPZ)?**
Review of UK Government internet site MAGIC confirmed that the site does not benefit from any statutory nature conservation designation. There are also no statutory designated sites within 500m of the site boundary.
- **Are there other sensitive receptors near the site (local schools, office blocks, water courses)**
Live services on site.

Site Information:

- **Is the site significantly contaminated (presence of coal tar, fuel tanks etc.)?**
Previously a gas distribution station.
How large is the site and what is the duration of works?
Approximately 9,000m² , 34 weeks

Resources:

- **Are there adequately trained personnel to carry out monitoring?**
Yes, undertaken in-house

Is there appropriate equipment available for the monitoring (e.g., Dust gauges, EVM7 etc.)?

Realtime Dust, noise, vibration and VOC monitoring

Further risk may be present as the project progresses. Areas of risk will be monitored as follows:



5. Risk review (pre- & post mitigation measures)

Probability x Severity = Degree of Risk

Probability Classification (P)	Severity Classification (S)	Degree of Risk (PxS)	Affected
0 = Impossible	0 = No incident / affect	0 = No risk	E = Environment
1 = Improbable – Very low probability of such an event occurring.	1 = Minor – Minor incident, resulting in minor environmental risk and little or no damage.	1 to 5 = Low Risk – ensures controls are adhered to and activity need not alter. Review and monitor.	ES = Eco-systems
2 = Remote – Would rarely occur.	2 = Moderate – Potential incident where if not managed may cause damage to property or the environment requiring remedial work.	6 to 10 = Moderate Risk – tolerable, but efforts should be made to reduce the risk where practicable. Review and monitor.	N = Neighbours and interested Parties
3 = Possible – May occur on occasions.	3 = Serious – Incident reportable to Client and Regulator, serious damage to property or the environment.	11 to 15 = Substantial Risk – all practicable measures must be taken to reduce the level of risk, tolerable only where risk reduction is impracticable or disproportionate to the risk involved. Review and monitor.	W = Watercourse and drainage systems
4 = Probable – Could occur frequently.	4 = Major – Incident resulting in serious or permanent damage to the environment, major or permanent damage to property.	16 -25 = Extreme Risk – Unacceptable except in extraordinary circumstances, all control measures must be taken regardless of cost. Review and monitor	A = Air quality
5 = Likely – Very likely to happen unless activity prevented.	5 = Catastrophic – Incident causing long-term or irreversible and severe destruction of property and to the environment.		

Risk Matrix – To be used to determine the degree of risk, i.e. 'how bad and how likely'						
0 = Impossible - No risk	Severity of Harm					
Probability of Harm	0 = No Affect	1 = Minor	2 = Moderate	3 = Serious	4 = Major	5 = Catastrophic
0 = Impossible	No Risk	No Risk	No Risk	No Risk		
1 = Improbable	No Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
2 = Remote	No Risk	Low Risk	Low Risk	Moderate Risk	Moderate Risk	Moderate Risk
3 = Possible	No Risk	Low Risk	Moderate Risk	Moderate Risk	Substantial Risk	Substantial Risk
4 = Probable	No Risk	Moderate Risk	Moderate Risk	Substantial Risk	Extreme Risk	Extreme Risk
5 = Likely	No Risk	Moderate Risk	Moderate Risk	Substantial Risk	Extreme Risk	Extreme Risk

When the detailed control measures in place are adhered to, the risks above should be reduced to an acceptable level.

Assessment Area: <u>Site Security</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
<p><i>Hazard:</i> Unauthorised access to sensitive areas of the project. <i>Impact:</i> Generation of dust, mud and detritus moved from the site to public highways and paths. Increase in exhaust, noise and vibration emissions from this activity. Potential; to illegal waste disposal “fly-tipping” Site could have a security risk from river borne traffic</p>	3	4	12	ES N W A	<p>Controls: 1. Provide adequate access with good visibility. 2. Use existing roads and pedestrian routes. 3. Visitors are challenged and guided to reception to report in. 4. All visitors to sign in and provide credentials 5. Project is boundary is secured and monitored by CCTV.</p> <p>Extent to which they control the risk: Avoid collision with objects, vehicles and personnel – Traffic Management Plan in place. Reduce risk of damage to flora and fauna – access controlled to gravel and hard standing areas. Prevent fly-tipping and illegal waste disposal Ensure that all visitors on site are aware of the environmental impacts. Prevent access to un-authorized</p> <p>Impact: Reduction in emissions Reduction of disturbance to local eco-systems and interested parties. Removal of fly-tipping risk Improvement of site security.</p> <p>Opportunities: Improved local liaison Improved area Positive public image Reduction in local crime</p>	1	4	4

Assessment Area: <u>Office Environment</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES-N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
<p>Hazard: <i>Potential to pollute local environment from wastes produced.</i> <i>Location of offices may promote pedestrian short-cuts across specific areas.</i> <i>Footprint of offices may cause local footprint damage to flora and fauna.</i> <i>Lack of waste management generating local pollution.</i> <i>Welfare emissions may cause local pollutions events and pollution interaction with watercourses</i></p>	3	3	9	ES N W A	<p>Controls: Inducted and trained staff Office environmental controls in place Waste segregation for waste types (See SWMP) Materials and waste testing to current protocols provided on specific materials and waste. Location of offices pre-determined Walkways to be pre-determined and highlighted away from risk areas. Toolbox talks issued to team regarding flora and fauna Waste management implemented at commencement (See SWMP). Welfare to be fully managed and kept tidy Near miss, spill and incident procedures fully implemented.</p> <p>Extent to which they control the risk: Pollution risk reduced dramatically. Reduce risk to flora and fauna Waste management is effective Welfare use prevents little or no risk to the local environment. Impact: Reduction of pollution Reduction of disturbance to eco-systems Protection of local environment and watercourses</p> <p>Opportunities: Maintained flora and fauna on-project Improved visual impact to interested parties Low / no impact on local resources. Legacy for future occupiers.</p>	1	3	3

Assessment Area: <u>Historical</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Hazard: Disturbance of historical areas. Damage to historical artefacts	3	3	9	ES N W A	<p>Controls:</p> <p>Historical survey completed by Client / Erith Contractors (This EMP), Electric Room/Station Governor Building, Antifreeze Building have no historical value. Where available, survey briefed out to project team, mindful of the heritage of the site.</p> <p>Review of grade listed buildings carried out – Deemed low / no risk ref Client Archaeological Study</p> <p>Watercourses/drainage identified and protected via working methods and briefings.</p> <p>Project team carrying out working watch on excavation areas for evidence of any historical importance and advising Client accordingly</p> <p>Extent to which they control the risk:</p> <p>Historical importance on projects has been identified.</p> <p>Site staff are aware of any historically important structures or areas.</p> <p>Watercourses have been highlighted and marked out on-project.</p> <p>Excavation areas are inspected regularly</p> <p>Impact:</p> <p>No / planned/ approved interference to historical areas or buildings</p> <p>Historical areas of concern will be highlighted to Management Team</p> <p>No impact to the culverts or water systems on, near or adjacent to the project.</p> <p>Excavation will not impact.</p> <p>Opportunities:</p> <p>Any areas highlighted are protected.</p> <p>Positive image for the project.</p> <p>No impact to local historical areas</p> <p>Legacy for future occupiers</p>	1	3	3

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Assessment Area: <u>Archaeology</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Hazard: Disturbance of historical areas. Damage to historical artefacts	3	3	9	ES N W A	<p>Controls:</p> <p>Historical survey completed by Client Where available, survey briefed out to project team. Review of grade listed buildings carried out – Deemed low / no risk Watercourses identified and protected via working methods and briefings. Project team carrying out working watch on excavation areas for evidence of historical importance. Works will be suspended if artefacts found.</p> <p>Extent to which they control the risk:</p> <p>Historical importance on projects has been identified. Site staff are aware of any historically important structures or areas. Watercourses have been highlighted and marked out on-project where applicable. Excavation areas are inspected regularly</p> <p>Impact:</p> <p>No interference to historical areas or buildings Historical areas of concern will be highlighted to Management Team No impact to the culverts or water systems on, near or adjacent to the project, where identified. Excavation will not impact.</p> <p>Opportunities:</p> <p>Any areas highlighted are protected. Positive image for the project. No impact to local historical areas Legacy for future occupiers</p>	1	3	3

Assessment Area: <u>Landscape & Visual Impact</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES-N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Landscape and visual importance damaged reducing quality of living. Damage to eco-systems. Pollution of local and further eco-systems Pollution of water systems and threat to visual conservation	4	4	12	ES N W A	<p>Controls: No culverts and water courses where identified Site drains protected where risk is shown. Planning for all excavations and groundworks Pre-determined areas of preservation Planning of project sympathetic with the local eco-systems Emergency Response Plan in place</p> <p>Extent to which they control the risk: No impact on local culverts and watercourses where identified. Preservation areas identified and protected as part of the project phase brief Plan is sympathetic to the local ecology Minimising the risk of habitat disturbance in the future.</p> <p>Impact: Culverts and watercourses remain protected Preservation areas protected phase by phase Risk of flood defences being breached reduced to minimal.</p> <p>Opportunities Positive image to potential future occupiers Legacy protected for further enjoyment Improvement of the environment Protection from flood events</p>	1	4	4

Assessment Area: <u>Energy Management</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Over-use of utilities on project Potential of pollution for fuel deliveries to generator Noise and exhaust emissions from generator. Potential for Effluent water pollution from welfare facilities	3	3	9	ES N W A	<p>Controls: Use of economic or hybrid generator Generator is noise deadening Modern emissions management on modern plant Welfare facilities enclosed and self-servicing. Facilities ran from stand-alone generator and not on parasitic supply from project. Staff briefed on energy efficiency Lights on sensors Solar powered office and welfare cabins</p> <p>Extent to which they control the risk: No impact on local energy provision Lower noise emissions Lower exhaust emissions Welfare facilities remain self-contained Staff highlight poor energy usage and actioned on. Heat will not be allowed to leave buildings for any extent of time resulting in lower heating demand. Lights will self-switch off to reduce energy use.</p> <p>Impact: Low energy use No use of mains supply Lower emissions</p> <p>Opportunities: Lesser impact to locals, residents and interested parties Reduction in utilities No demand on local grid where practicable.</p>	1	3	3

Assessment Area: <u>Neighbours & Interested Parties</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES-N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Emissions from project cause nuisance and health risks Negative visits from regulator Negative image for Client	4	4	16	ES N W A	<p>Controls: Culverts and water courses identified and protected where identified. Planning for all excavations and groundworks Pre-determined areas of preservation Planning of project sympathetic with the local eco-systems Liaison with local residents.</p> <p>Extent to which they control the risk: No impact on local culverts and watercourses Preservation areas identified and protected as part of the project phase brief Housing plan is sympathetic to the local ecology</p> <p>Impact: Culverts and watercourses remain protected where identified. Preservation areas protected phase by phase Reduction of repeated engineering due to consideration of future outfalls with the provision of a terminated additional outfall.</p> <p>Opportunities Positive image to local occupiers, visitors and interested parties. Legacy protected for further enjoyment Improvement of the environment</p>	1	4	4

Assessment Area: <u>Eco-Systems</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Damage and destruction of eco-systems	4	4	16	ES N W A	<p>Controls: Culverts and water courses identified and protected where required and risks identified Planning for all excavations and groundworks Pre-determined areas of preservation Planning interaction of housing estate sympathetic with the local eco-systems. Works carried out post-review of Client's ecological and asbestos reports. E&S Team to advise on protected species / species of interest.</p> <p>Extent to which they control the risk: No impact on local culverts and watercourses Preservation areas identified and protected as part of the project phase brief Plan is sympathetic to the local ecology. Flood risk reduced</p> <p>Impact: Culverts and watercourses remain protected where identified. Preservation areas protected phase by phase Eco-systems preserved.</p> <p>Opportunities Positive image to potential future occupiers Legacy protected for further enjoyment Improvement of the environment Reduction of flood risk in area caused by repeated works.</p>	1	4	4

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Assessment Area: <u>Storage & Handling of Materials</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES-N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Potential for pollution of ground water and air Potential for fire	4	5	20	ES N W A	<p>Controls: Teams briefed on safe storage of COSHH COSHH assessments available to review to all project staff Flammable materials stored separately Gases stored away from sources of ignition COSHH materials ordered by the smallest amount possible COSHH stores sited well away from the potential of ground pollution All, COSHH items kept in sealed containers to prevent air pollution. COSHH – COSHH should be access controlled and signed in and out of stores. Items of COSHH small enough to do so should be stored in a fireproof, lockable and bunded COSHH cabinet.</p> <p>Extent to which they control the risk: Team is COSHH aware Risk of fire eradicated COSHH materials stored in minimum amounts to reduce potential of pollution Reduction of leak events of COSHH materials</p> <p>Impact: Minimal risk of spills Minimal risk of fire COSHH stored at low levels Minimal risk of leaks</p> <p>Opportunities: Positive image to local occupiers, visitors and interested parties Legacy protected for further enjoyment Improvement of the environment</p>	1	5	5

Assessment Area: <u>Water Use & Discharge</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES-N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Potential of water pollution from our activities	4	5	20	ES N W A	<p>Controls: Watercourses and culverted rivers identified (see above) and protection measures put in place where risk is identified. All welfare facilities are self-contained and supporting. All chemicals are stored compliantly Plant oils and lubricants are management and removed from site under controlled conditions Chemicals are selected per their environmental impact. Sewerage and welfare waste is collected and disposed of compliantly In conjunction with the Client, appropriate permitting and exemptions will be gained and further control measures will be applied. Yorkshire Water Temporary Discharge Consent gained by NGN.</p> <p>Extent to which they control the risk: No pollution from welfare No chemical spills or leaks No pollution risk from plant oils and lubricants Sewerage and welfare waste managed compliant with little or no risk to eco-systems Compliant with current legislation and regulation</p> <p>Impact: Pollution risk minimised Works fully understood and approved by interested parties.</p> <p>Opportunities: Legacy protected for further enjoyment Improvement of the environment</p>	1	5	5

Assessment Area: <u>Flood & Climate</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Risk of flooding from pluvial or fluvial sources Risk of weather events impacting on project operations	2	2	4	ES N W A	<p>Controls: Project reviewed for flood risk prior to commencement of project (flood zone 1, an area with a low probability of flooding) Weather monitored and reported to team daily Plant and equipment withdrawn from local site risk of flood Emergency procedures for spill and flood trained out and tested</p> <p>Extent to which they control the risk Unable to foresee un-forecasted weather events Works phases planned to coincide with favourable weather patterns. Project boards to be updated with short-range weather forecasts Management of local flooding events Eradication of pollution from plant and machine from flood events Client to provide FRA's or equivalent, for phases of works Registration of key personnel to EA's flood warning text message service.</p> <p>Impact: Weather expectations managed where practicable Flooding events planned for No loss of plant and machine to flood Client will lead flood risk Vs. work phase</p> <p>Opportunities: Positive image to potential future occupiers Legacy protected for further enjoyment Improvement of the environment Interested parties have confidence of flood management from the project.</p>	1	2	2

Assessment Area: <u>Air Quality</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES-N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Risk of pollution from project operations Risk of ill health from emissions from project operations	4	5	20	ES N W A	<p>Controls:</p> <p>Use of modern hybrid generator Generator is noise deadening Modern emissions management on modern plant Welfare facilities enclosed and self-servicing. Facilities, where applicable, ran from stand-alone generator and not on parasitic supply from project. Staff briefed on energy efficiency Doors auto close Project lights on sensors Site Waste Management plan developed for project SWMP trained out to all key members of staff Waste segregation planned out prior to project start Regular inspections from management Provision of waste bins in key areas such as toilets and canteen Use of licenced waste carriers and disposal sites Waste containers placed away from areas of risk Regular waste container exchange / emptying Project reviewed for flood risk prior to commencement of project Weather monitored and reported to team daily Plant and equipment withdrawn from local site risk of flood Emergency procedures for spill and flood trained out and tested</p> <p>Extent to which they control the risk</p> <p>Unable to foresee un-forecasted weather events Management of local flooding events Eradication of pollution from plant and machine from flood events Client to provide FRA's for phases of works No pollution from welfare No non-reacted to chemical spills or leaks No pollution risk from plant oils and lubricants Sewerage and welfare waste managed compliant with little or no risk to eco-systems Team is COSHH aware Risk of fire eradicated COSHH materials stored in minimum amounts to reduce potential of pollution Reduction of leak events of COSHH materials Opportunities: Positive image to potential home buyers Legacy protected for further enjoyment Improvement of the environment</p> <p>Impact:</p> <p>Lower emissions to air, water and land No risk of emissions from welfare facilities</p>	1	5	5

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				<p>Less impact on local grid network No risk of non-compliant waste transfers or disposals No risk of waste spilling into eco-systems No risk of poor incident response from team</p> <p>Opportunities: Lessen impact on project Maintain progress in project Improve local environment for interested parties</p>			
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Assessment Area: <u>Flora & Fauna</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES-N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
<p>Damage to eco-systems on or adjacent to the project</p> <p>Risk of further propagation of invasive species</p> <p>Risk of resident trees and plants that enhance the green spaces for the area.</p>	3	3	9	ES N W A	<p>Controls:</p> <p>Use of economic generator Generator is noise deadening Modern emissions management on modern plant Welfare facilities enclosed and self-servicing. Facilities ran from stand-alone generator and not on parasitic supply from project. Staff briefed on energy efficiency Doors auto close Lights on sensors Site Waste Management plan developed for project SWMP trained out to all key members of staff Waste segregation planned out prior to project start Regular inspections from management Provision of waste bins in key areas such as toilets and canteen Use of licenced waste carriers and disposal sites Waste containers placed away from areas of risk Regular waste container exchange / emptying Project reviewed for flood risk prior to commencement of project Weather monitored and reported to team daily Plant and equipment withdrawn from local site risk of flood Emergency procedures for spill and flood trained out and tested Site Waste Management plan developed for project SWMP trained out to all key members of staff Waste segregation planned out prior to project start Regular inspections from management Provision of waste bins in key areas such as toilets and canteen Use of licenced waste carriers and disposal sites Waste containers placed away from areas of risk Regular waste container exchange / emptying</p> <p>Extent to which they control the risk:</p> <p>No pollution from welfare No chemical spills or leaks No pollution risk from plant oils and lubricants Sewerage and welfare waste managed compliant with little or no risk to eco-systems Team is COSHH aware Risk of fire eradicated</p>	1	3	3

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				<p>COSHH materials stored in minimum amounts to reduce potential of pollution Reduction of leak events of COSHH materials</p> <p>Impacts: No impact on sensitive areas Site waste managed professionally Lower, monitored emissions from site Improved site management within boundaries</p> <p>Opportunities: Positive image to potential future occupiers Legacy protected for further enjoyment Improvement of the environment</p>			
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Assessment Area: <u>Use of Machinery</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES-N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Damage and destruction to eco-systems on project	3	3	9	ES N W A	<p>Controls:</p> <p>Culverts and water courses identified and protected.</p> <p>Planning for all excavations and groundworks</p> <p>Pre-determined areas of preservation</p> <p>Planning of project sympathetic with the local eco-systems</p> <p>Use of economic generator where practicable</p> <p>Generator is noise deadening</p> <p>Modern emissions management on modern plant</p> <p>Welfare facilities enclosed and self-servicing. facilities ran from stand-alone generator and not on parasitic supply from project, where practicable.</p> <p>Staff briefed on energy efficiency</p> <p>Doors auto close</p> <p>Lights on sensors</p> <p>Site Waste Management plan developed for project</p> <p>SWMP trained out to all key members of staff</p> <p>Waste segregation planned out prior to project start</p> <p>Regular inspections from management</p> <p>Provision of waste bins in key areas such as toilets and canteen</p> <p>Use of licenced waste carriers and disposal sites</p> <p>Waste containers placed away from areas of risk</p> <p>Regular waste container exchange / emptying</p> <p>Inducted and trained staff</p> <p>Office environmental controls in place</p> <p>Waste segregation for waste types</p> <p>Location of offices pre-determined</p> <p>Walkways to be pre-determined and highlighted away from risk areas.</p> <p>Toolbox talks issued to team regarding flora and fauna and protection measures applicable.</p> <p>Waste management implemented at commencement (See SWMP).</p> <p>Welfare to be fully managed and kept tidy</p> <p>Near miss, spill and incident procedures fully implemented.</p> <p>Impact:</p> <p>No interaction with culverts and watercourses</p> <p>All works planned, and risks assessed prior to work phase</p> <p>Staff are trained and competent</p> <p>Opportunities:</p> <p>Positive image to potential future occupiers</p> <p>Legacy protected for further enjoyment</p> <p>Improvement of the environment</p>	1	3	3

Assessment Area: Material Transport & Traffic Management (See also Traffic Management Plan in PMP) Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES-N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
Damage to eco-systems and emissions from deliveries	3	4	12	ES N W A	<p>Controls:</p> <p>Culverts and water courses identified and protected.</p> <p>Planning for all excavations and groundworks</p> <p>Pre-determined areas of preservation</p> <p>Planning of housing estate sympathetic with the local eco-systems</p> <p>Use of economic generator</p> <p>Generator is noise deadening</p> <p>Modern emissions management on modern plant</p> <p>Watching brief for "track-out" of mud from the project.</p> <p>Welfare facilities enclosed and self-servicing.</p> <p>facilities ran from stand-alone generator and not on parasitic supply from project.</p> <p>Staff briefed on energy efficiency</p> <p>Doors auto close</p> <p>Lights on sensors</p> <p>Site Waste Management plan developed for project</p> <p>SWMP trained out to all key members of staff</p> <p>Waste segregation planned prior to project start</p> <p>Regular inspections from management</p> <p>Provision of waste bins in key areas such as toilets and canteen</p> <p>Use of licenced waste carriers and disposal sites</p> <p>Waste containers placed away from areas of risk</p> <p>Regular waste container exchange / emptying</p> <p>Inducted and trained staff</p> <p>Office environmental controls in place</p> <p>Waste segregation for waste types</p> <p>Location of offices pre-determined</p> <p>Walkways to be pre-determined and highlighted away from risk areas.</p> <p>Toolbox talks issued to team regarding flora and fauna and protection measures applicable.</p> <p>Waste management implemented at commencement (See SWMP).</p> <p>Welfare to be fully managed and kept tidy</p>	1	4	4

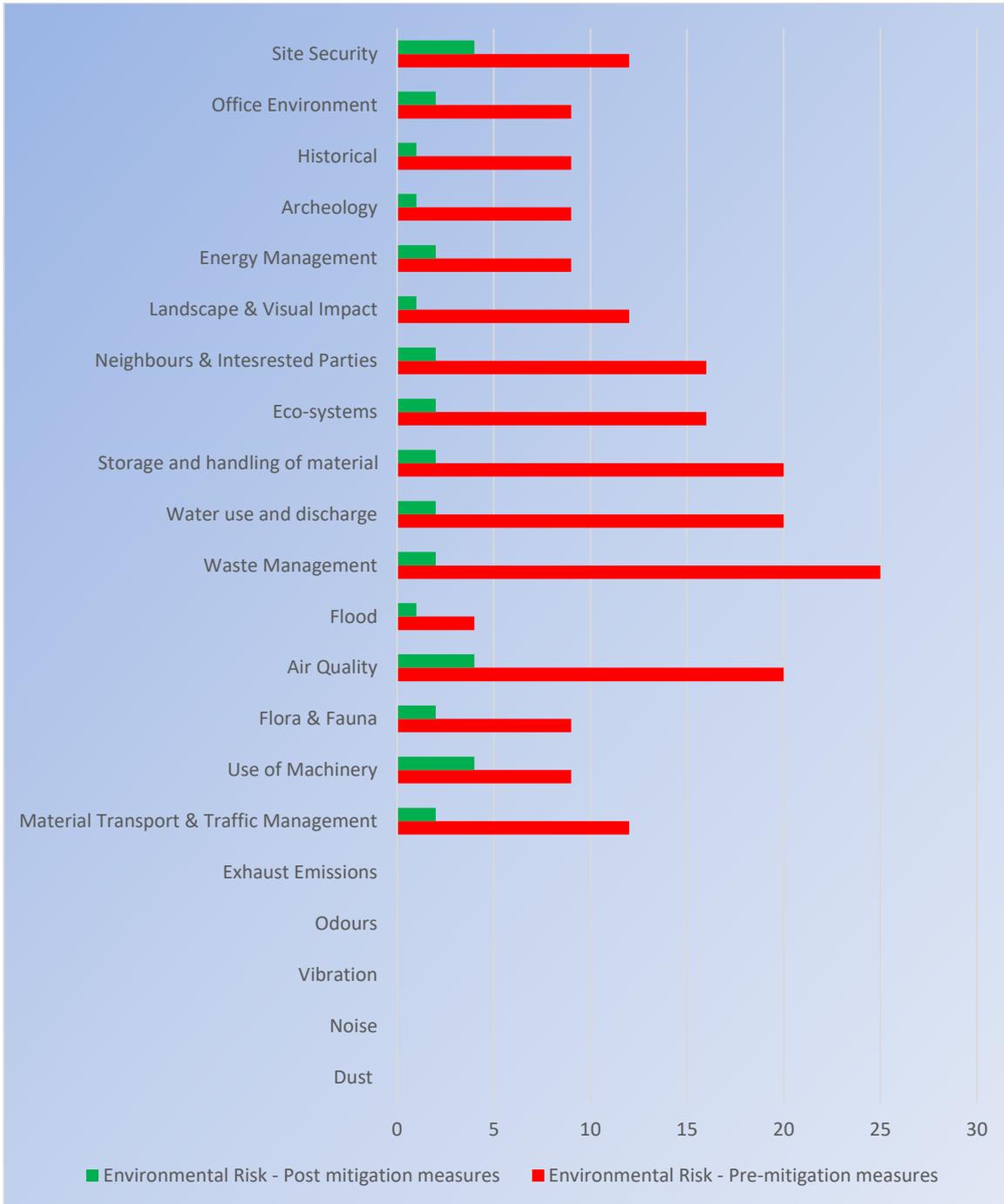
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				<p>Near miss, spill and incident procedures fully implemented.</p> <p>Impact: No interaction with culverts and watercourses All works planned, and risks assessed prior to work phase Staff are trained and competent</p> <p>Extent to which they control the risk: No pollution from welfare No chemical spills or leaks No pollution risk from plant oils and lubricants Sewerage and welfare waste managed compliant with little or no risk to eco-systems Team is COSHH aware Risk of fire eradicated</p> <p>Opportunities: Positive image to potential future occupiers Legacy protected for further enjoyment Improvement of the environment Protection of local flora and fauna</p>			
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Assessment Area: <u>Exhaust / Emissions</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
See Emissions								
Assessment Area: <u>Odours</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
See emissions								
Assessment Area: <u>Vibration</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
See emissions								
Assessment Area: <u>Noise</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
See emissions								
Assessment Area: <u>Dust</u> Hazards Identified & Risks Associated	Risk Ranking			Areas Affected – E-ES- N-W-A	What is already in place? Main control & mitigation measures and extent of controls	Residual Risk Rating		
	Probability	Severity	Significance			New Probability	New Severity	New Significance
See emissions								

6. Pre- & Post Mitigation Summary Graph

(Right-click the mouse over the chart and select "Edit Data". Enter data from above assessments both pre and then post measures and then click "X" to close and populate the graph)



Appendix A. EMP Training Register

EMP Training Register			
Environmental Management Plan, Environmental Risks and Aspects			
Record No.		Instructor	
Attendees			
	Name	Signature I have read and understood this method statement and will not deviate from it	Date
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
Operative Feedback and Suggestions			
<p>If you have any comments or ideas on better methods of working, then write them here and discuss them with the instructor</p>			

Appendix B. List of Waste Codes

Waste Code	Description of Waste
13 01 10*	Used mineral hydraulic oil (non-chlorinated)
13 02 04*	Waste engine, gear or lube oil (chlorinated)
13 02 05*	Waste engine gear or lube oil (non-chlorinated)
13 02 08*	Other waste engine, gear or lube oil
13 08 99*	Other waste oils e.g. oily gully/drain sludge
15 01 10*	Packaging containing dangerous substances e.g., old paint & chemical tins
15 01 11*	Metallic packaging containing a dangerous solid porous matrix (e.g., asbestos)
15 02 02*	Absorbents, filter material, wiping cloths, clothing contaminated by dangerous substances
16 01 03	Tyres
16 01 07*	Oil filters
16 05 05	Gases in pressure containers i.e., gas cylinders
16 06 01*	Lead batteries
16 07 08	Oily waste from transport and storage tanks
16 10 01*	Hazardous liquid material to be treated of site
17 01 01	Concrete
17 01 02	Bricks
17 01 03	Tiles and ceramics
17 01 06*	Concrete, bricks, tiles & ceramics containing dangerous substances
17 01 07	Non-hazardous mixture of concrete, bricks, tiles and ceramics e.g., mixed rubble
17 02 02	Glass from construction or demolition e.g., windowpanes
17 02 03	Plastic from construction or demolition e.g., UPVC plastic off-cuts
17 02 04*	Hazardous glass, plastic and wood e.g., telegraph poles
17 03 02	Bituminous mixtures that do not contain coal tar e.g., road plannings, Tarmac
17 04 01	Copper, Bronze, Brass from construction or demolition e.g., used copper piping
17 04 02	Aluminium from construction or demolition e.g., off-cuts, aluminium guttering
17 04 03	Lead from construction or demolition e.g., lead flashing
17 04 05	Iron & steel from construction or demolition e.g., steel scaffolding poles, iron grating
17 04 07	Mixed metals from construction or demolition
17 04 11	Cables that do not contain dangerous substances e.g., electric cabling
17 05 03*	Soil & stones containing dangerous substances e.g., contaminated soil
17 05 04	Soil and stones that do not contain dangerous substances e.g., clean soil
17 06 01*	Insulation materials containing asbestos
17 06 04	Insulation material that does not contain asbestos or other dangerous substances
17 06 05*	Construction materials containing asbestos e.g., bonded asbestos
17 08 02	Gypsum based construction material that do not contain dangerous substances e.g., plasterboard
17 09 03*	Other C & D materials containing dangerous substances e.g., mix of oil/solvents/C&D material
17 09 04	Other mixed C&D material that is not hazardous
20 01 13*	Solvents similar to that from households e.g., parts cleaners
20 01 21	Fluorescent tubes and other mercury containing material
20 01 33*	Hazardous batteries & accumulators that are collected separately
20 02 01	Garden or park waste that is biodegradable e.g., green material, wood and shrubs
20 03 03	Street cleaning residue e.g., gully material
20 03 04	Septic tank sludge
20 03 06	Waste from sewage cleaning

Document Ref	R11112 EMP	Rev No	01
First Issue Date	04/07/2024	Author	LF
Access Type	External		

Appendix C – Water Treatment Plant

Authorised treatment technologies and site waste treatment operations description.

- a generator (if required – typically we try to use a power supply on site to reduce the amount of diesel stored on site and the noise level),
- water pump and pipework,
- oil/grit water interceptor,
- air stripper, and
- a granular activated carbon filter.

This plant is contained within a temporary bund.

The sludge and oil/hydrocarbons are removed from site by vacuum tankers and enclosed skips.

The below is an example of the setup of the water treatment equipment used at the following gasholder site projects:

Beckton 2021, Braintree 2021, Leigh-on-Sea 2021, Cleckheaton 2023, Halifax 2024.

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Water Treatment Plant

The plant is to be sited atop hard standing away from below ground gas services.

Photoionization VOC detectors with audio and visual alarms at predetermined trigger levels are to be affixed to the anti climb panels encircling the plant.



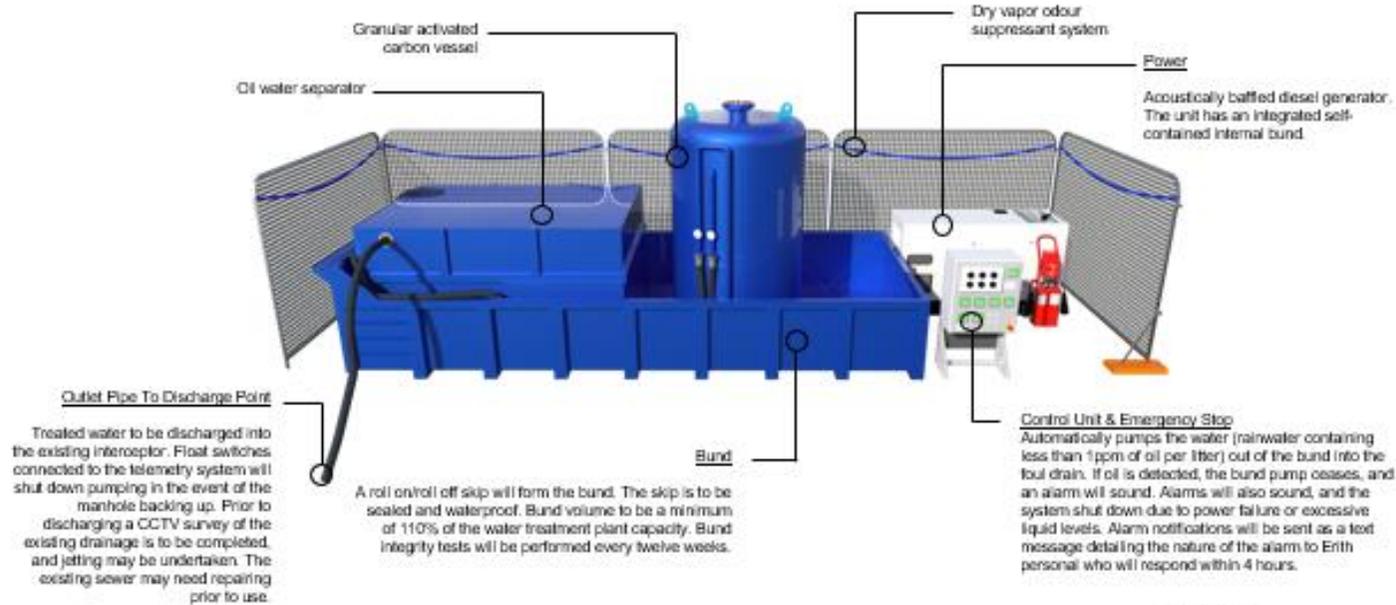
Spill Management

Liquid storage areas shall be assigned a spill kit suitable for both hydrophobic and hydrophilic liquids. Regular spill drills are to be conducted throughout the works. Nearby drains are to be sealed off.



Electromagnetic Flow Meter

Electronic flow meter with smartphone connectivity for digital data logging and remote monitoring.



Dewatering

Water is extracted using a 110v submersible pump mechanically lowered into the tank. The level of the pump is to be controlled and monitored by site staff to ensure that neither film oil or sludge inadvertently introduced to the treatment plant.



External View



Document Ref	R11112 EMP	Rev No	01
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Water will be recovered from within the gas holder structure by means of an electric pump. The pump and associated housing will be suspended approximately 0.5 m above any sediment.

To reduce sediment disturbance:

- the installation of the pumping equipment will be completed at least one day before pumping commences to allow any potentially disturbed sediment to settle out, and,
- the pump is lowered into the water very slowly to ensure the water is disturbed as little as possible.

Water will be pumped within appropriate pipework over the lip of the gas holder to the water treatment system, which as per the afore detailed diagram, consists of:

- an oil and sediment interceptor,
- air stripper/baffle box, and
- a granular activated carbon filter.
- Spill kit

Suspended solids in the water will be removed by the oil and sediment separator, the filter of which will be regularly monitored by the Erith site supervisor and the filter media will be refreshed when necessary.

Spent material from the filter will be sampled to determine the waste classification and disposed of at a suitably permitted facility.

Should any oil/hydrocarbons in liquid form and/or non-aqueous phase liquid be recovered in the dewatering process, this will be removed by the oil and water separator within the interceptor where it will be held securely bunded until it can be pumped out using vacuum tanker and sent for recovery at a permitted facility off site.

The water will pass through the air stripper/baffle box to remove any dissolved methane, to meet the discharge consent.

Then the water will pass through a 5 m³ carbon filter which acts as a polishing stage in the water treatment process to meet the requirements of the discharge consent and this will remove any residual organic contamination.

The water treatment equipment will be installed on an area of the site designated as suitable for the treatment activities by Erith. The area will be prepared to protect the underlying ground conditions, with an impermeable surface with no (sealed) drainage. The area will be subject to regular inspection and maintenance by both the site supervisor and the TCM to ensure there are no leaks or spills.

The water treatment system operates under both pumped and gravity flow with an automated valve system. The use of gravity dramatically reduces the energy required and therefore the carbon footprint of the project. Low noise, efficient pumps are used to ensure that no noise is

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produced that will be detectable from the site boundary. Prior to installation, the site layout is assessed in conjunction with the principal contractor to reduce the impact of these operations.

Should a pump failure occur within the gas holder, the valve will close to prevent uncontrolled syphoning.

The system uses float sensors and bund high level switches, these are all connected via a control panel that is in turn connected to a GSM telemetry system that alerts the site supervisor of any issues automatically around the clock and during non-working hours.

A sampling point is located at the discharge from the carbon vessel to allow sampling and laboratory analysis. Samples are recovered to determine water quality and ensure compliance with the discharge consent. Prior to final discharge, a totalising flow meter will be installed in order to measure the total volume discharged. Access to both the sampling point and flow meter will be always maintained to allow Northumberland Water and any third-party sampling as required.

Daily equipment checks for leaks are carried out on hoses and containment.

The treatment is carried out in accordance with the Northumberland Water discharge temporary agreement.

Sludge Volume Reduction

Once the water treatment has been completed, the remaining sludge is vacuumed from the gas holder onto a dewatering tanker, where a polymer flocculating agent is added. This process further dewateres the sludge and reduces the overall volume of the sludge for further treatment off site, which in turn reduces the number of vehicles required to remove the sludge.

The polymer flocculating agent is classified as non-hazardous and therefore it does not have a safety data sheet but the technical data sheet for the flocculating agent is as follows.



Technical Data Sheet

SNF (UK) Limited, Solutions House, Ripley Close, Normanby Industrial Estate - Normanby WF5 1TB - England, UK
 phone: 01221-211000 e-mail: technical@snf.co.uk

Flopam DW 2160

Form:	Viscous liquid
Color:	Milky
Ionic character:	Cationic
Charge density:	Very-high
Molecular Weight:	Very-high
Approx. bulk density :	1.10
pH:	6.5 ± 1.5 @ 5 g/l
Bulk viscosity (cP):	500
Maximum concentration (g/l):	10
Stability of D.I. solution (days):	1
Dilution to obtain 5 g/l active content :	100
Approx. viscosity @ 5 g/l (cP):	1800
Storage temperature (°C):	0 - 35
Shelf life (months) *:	12

* When some modes involving a 5°C temperature decrease/ increase.

Packing sizes

Pivotal pails	25 kg
Drums	225 kg
I.B.C.	1050 kg
Other dimensions	On request

This data in this Technical Data Sheet is provided for information only. It is correct to the best of our knowledge, information and belief at the date of its publication. It does not constitute a specification and no liability is assumed for freedom from any existing patents.

Site supervision plan for technically competent manager

The TCM will attend the site for a minimum of 1 hour per fortnight, during which time the TCM will inspect the setup and operation of the equipment and monitor the operation of the site to the requirements of the parameters identified in the deployment application and the permit. The following is an example of the report that will be produced electronically for each visit.

<p align="center">Technically Competent Manager's Inspection Check - 7623 – Sothern Gas Network – Old Kent Road</p> <p>conducted for</p> <p>Completed on 08 Nov 2017 12:10 PM</p> <p>Document No. 662106112017</p> <p>Conducted on 08 Nov 2017 11:00 AM</p> <p>Carried out by Raj Patel WAMITAB®: Level 4 - LNH Landfill Inert Waste, LNH Landfill Non-Hazardous Waste, CLR, Contaminated Land Remediation Continuing Competence - CCC13138 13/05/16-13/05/18 Raj Patel</p> <p>Disclaimer</p>	<p>The assessors believe the information contained within this risk assessment report to be correct at the time of printing. The assessors do not accept responsibility for any consequences arising from the use of the information herein. The report is based on matters which were observed or came to the attention of the assessors during the day of the assessment and should not be relied upon as an exhaustive record of all possible risks or hazards that may exist or potential improvements that can be made. Information on the latest workers compensation and OHS / WHS laws can be found at the relevant State Workcover / WorkSafe Authority.</p> <p>Confidentiality Statement</p> <p>In order to maintain the integrity and credibility of the risk assessment processes and to protect the parties involved, it is understood that the assessors will not divulge to unauthorized persons any information obtained during this risk assessment unless legally obligated to do so.</p> <p align="center">Table of Contents</p> <p>Technically Competent Manager's Inspection Check - 7594 Fulham Gasworks Demo 1</p> <p>Disclaimer 2</p> <p>Confidentiality Statement 2</p> <p>Audit 4</p> <p>COTC Coverage Time 4</p> <p>Weather Observations 4</p> <p>Compliance To Deployment / Permit 4</p> <p>Permit / Deployment Compliance 4</p> <p>Materials Testing 5</p> <p>Summary 5</p>	<p align="center">Audit</p> <table border="1"> <thead> <tr> <th>Question</th> <th>Response</th> <th>Details</th> </tr> </thead> <tbody> <tr> <td colspan="3">COTC Coverage Time</td> </tr> <tr> <td></td> <td>07:00 AM</td> <td></td> </tr> <tr> <td></td> <td>12:30 AM</td> <td></td> </tr> <tr> <td>Total time</td> <td>5 1/2 Hours</td> <td></td> </tr> <tr> <td colspan="3">Weather Observations</td> </tr> <tr> <td>Wind</td> <td>North West</td> <td></td> </tr> <tr> <td>Wind Strength</td> <td>Moderate</td> <td></td> </tr> <tr> <td>General Ground Conditions</td> <td>Damp</td> <td></td> </tr> <tr> <td>General Weather Conditions</td> <td>Cloudy</td> <td></td> </tr> <tr> <td colspan="3">Compliance To Deployment / Permit</td> </tr> <tr> <td>Is there adequate management cover on project?</td> <td>Yes</td> <td></td> </tr> <tr> <td>Has the Regulator visited site since the last visit?</td> <td>No</td> <td></td> </tr> <tr> <td>Is this being recorded?</td> <td>N/A</td> <td></td> </tr> <tr> <td>Are deployment details on display and clear?</td> <td>Yes</td> <td></td> </tr> <tr> <td>Can all key members of staff demonstrate they understand the limits and represents of the permit?</td> <td>Yes</td> <td>One Supervisor required further in formation on visit. This was provided.</td> </tr> </tbody> </table>	Question	Response	Details	COTC Coverage Time				07:00 AM			12:30 AM		Total time	5 1/2 Hours		Weather Observations			Wind	North West		Wind Strength	Moderate		General Ground Conditions	Damp		General Weather Conditions	Cloudy		Compliance To Deployment / Permit			Is there adequate management cover on project?	Yes		Has the Regulator visited site since the last visit?	No		Is this being recorded?	N/A		Are deployment details on display and clear?	Yes		Can all key members of staff demonstrate they understand the limits and represents of the permit?	Yes	One Supervisor required further in formation on visit. This was provided.
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As discussed, the treatment process is highly automated, and the Erith contract manager will monitor the site via mobile telemetry for each key processing stage.

Appendix D Communication & Environmental Signage

Figure 4: Think Green Site Signage



Figure 5: Emergency Spill Kit Station Signage



Figure 6: Example of ECL's SHEQ Alerts & Information Communications Board

