soiltechnics

environmental ▪ geotechnical ▪ building fabric

Site Condition Report

Kemira Chemicals, Goole

December 2024

soiltechnics
environmental ▪ geotechnical ▪ building fabric

Project Details

Site:	Kemira Chemicals, Goole
Document Title:	Site Condition Report
Document no.:	STW6820-R01-Rev_A
Date:	December 2024
Client:	Kemira Chemicals UK Ltd
Issuing office:	Soiltechnics Ltd Unit 9, Clarence Avenue, Westpoint Enterprise Park, Trafford Park, Manchester M17 1QS Tel: 01604 781 877 E-mail: mail@soiltechnics.net

Document history and status

Revision	Date	Description	Author	Reviewer
A	December 2024	First Issue	JB	MOH

Table of Contents

List of Tables

List of Figures

1 Introduction

1.1 Scheme Outline

1.1.1 Kemira Chemicals UK Ltd operate a chemical manufacturing facility situated at 5 New Potter Grange Rd, Goole DN14 6BZ. Activities on site are currently permitted under Environmental Permitting Regulation (EPR) Permit Number EPR/TP3135PX. The permit covers the operation for the production of the coagulant PIX122 (Ferric Sulphate solution).

1.1.2 The Kemira Goole plant currently supplies up to 200KTonne/annum of the coagulant PIX122 to the water industry for purification of drinking water and for waste-water treatment.

1.1.3 A permit variation has been applied for (EPR/TP3135PX/V005), for the expansion of the site footprint and the subsequent installation of addition equipment to allow further use of the Magnetite as a raw material. This is necessary due to an increase in demand from the market due to the lower phosphorus discharge limits imposed on waste water treatment.

1.1.4 Under the permit variation, the extra equipment required will be one additional 58 m^3 dissolving tank, one new condenser, one 30 m^3 final product adjustment tank, one 100 m^3 process water tank, and a Magnetite storage warehouse with transportation conveyor to the plant.

1.1.5 The proposed expansion at Goole will increase supply capacity of the coagulant PIX122 by a further 70KTonne/annum (an increase of 35%).

1.1.6 The plan below shows the current site layout (blue boundary) and the additional area (red boundary) for planned expansion

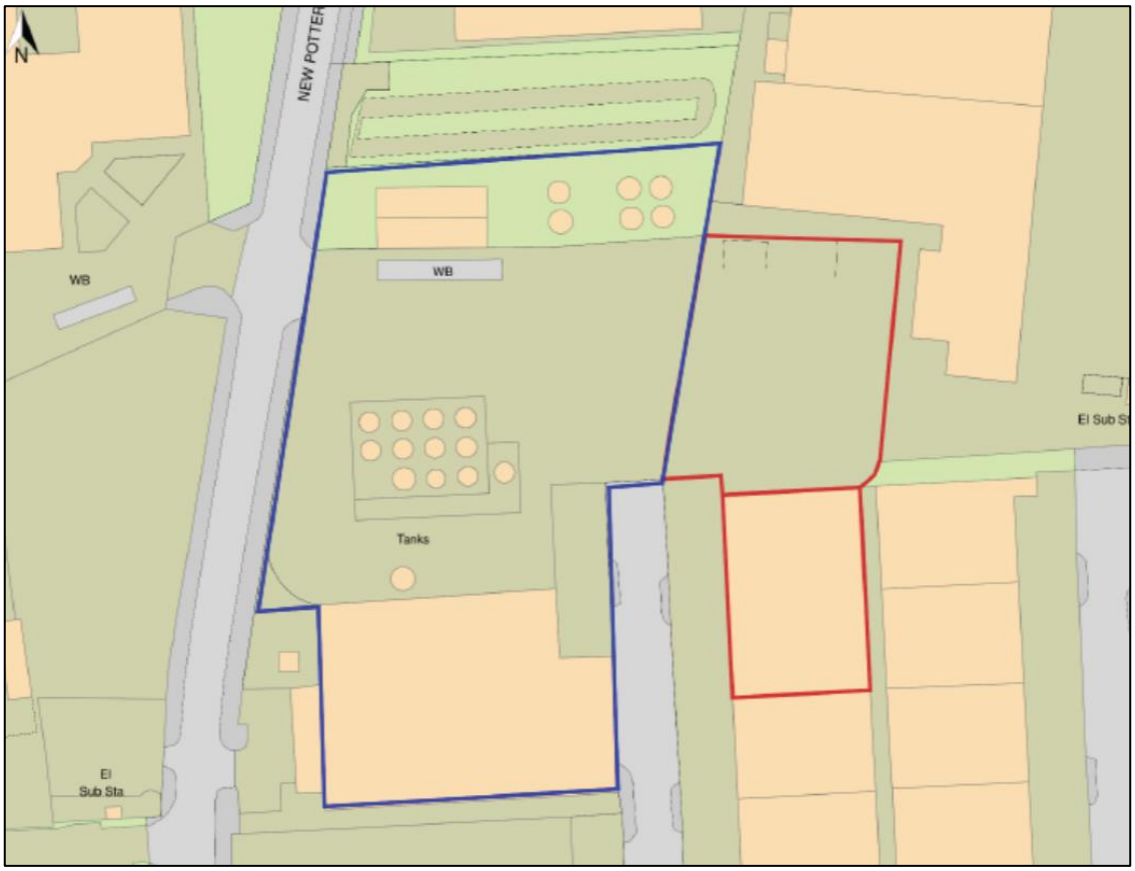


Figure 1-A: Site plan with proposed expansion area

1.1.7 This report presents the findings of a desk based Site Condition Report to satisfy the additional information required to support the permit variation at the site. Should the risk assessment establish a relevant pollutant linkage to either soil or groundwater as a result of the activities outlined under the proposed permit variation, an intrusive ground investigation may be required to establish baseline conditions.

1.2 Brief

1.2.1 The report is based on the change in activities and information outlined above; should the permit activities change then it will be necessary to review the conclusions and recommendations presented in this report.

1.2.2 The overall brief of the works is to support the permit variation by satisfying the additional information required outlined in the EA letter sent 31/10/2024. A copy of the letter is included in Appendix D Section 4 of the letter outlines the requirement for a Site Condition Report to support the permit variation as detailed below:

- *A Site Condition Report is required for applications that increase the installation boundary. If your proposed activity involves the use, production or release of relevant hazardous substances, you must submit baseline data as part of your application SCR. Hazardous substance is determined by its pollution potential by considering its chemical and physical properties such as: composition, physical state, solubility, toxicity, mobility, persistence etc.*

1.2.3 As per the above, the scope the report will address proposed activities within the red line boundary for the additional area.

1.2.4 The scope of this report includes a desk-based risk assessment. As the proposed activity does not involve the use, production, or release of hazardous substances a baseline report is not considered necessary, as discussed in the subsequent sections of this report.

1.3 Risk Assessment Framework

1.3.1 The framework for undertaking the soil and groundwater risk assessment in accordance with the Emissions Directive EPR Guidance is based upon the following documents.

Title	Document Reference	Publisher	Investigation Scope
Code of practice for ground investigations	BS 5930: 2015 + A1:2020	British Standards Institution	Phase 1: Desk study
Investigation of potentially contaminated sites – Code of practice	BS 10175: 2011+A2:2017	British Standards Institution	Preliminary Investigation (desk study)
Land contamination risk management	Online resource	Environment Agency	Stage 1 Risk Assessment: Tier 1: Preliminary risk assessment

Table 1-A: Definition of Investigation Scope

1.4 Limitations

1.4.1 Soiltechnics disclaims any responsibility to our Client and others in respect of any matters outside the scope of this report. This report has been prepared with reasonable skill, care and diligence in accordance with the terms of our contract, taking account of the resources, investigations and testing devoted to it by agreement with our Client. This report is confidential to our Client and Soiltechnics accepts no responsibility of whatsoever nature to third parties to whom this report or any part thereof is made known. Any such party relies upon the report at their own risk.

2 Site Details

2.1 Site Description

2.1.1 The site is located at 5 New Potter Grange Rd, Goole DN14 6BZ. The National Grid Reference for the approximate centre of the site is 472950, 423550 with an approximate area of 0.7 Ha (increasing to 0.9 ha under the proposed permit variation). The site is within the wider industrial area located to the west of Goole town centre.

2.1.2 The surrounding area is primarily industrial and commercial land with the closest residential property being approximately 210m to the north off Rawcliffe Road, with further dwellings located along this road.

2.1.3 The site is run by Kemira Chemicals UK Ltd and it is understood that Ferric Sulphate ($Fe_2(SO_4)_3$) solution is manufactured onsite by the reaction of sulphuric acid (H_2SO_4) with either copperas ($FeSO_4$) or magnetite ($FeSO_4$).

2.1.4 The site comprises hardstanding cover, storage tanks in the centre of the site for the storage of sulphuric acid and ferric sulphate solution, and the production plant in the south of the site. A carpark is located in the southwest corner of the site.

2.1.5 An aerial site plan is presented below.

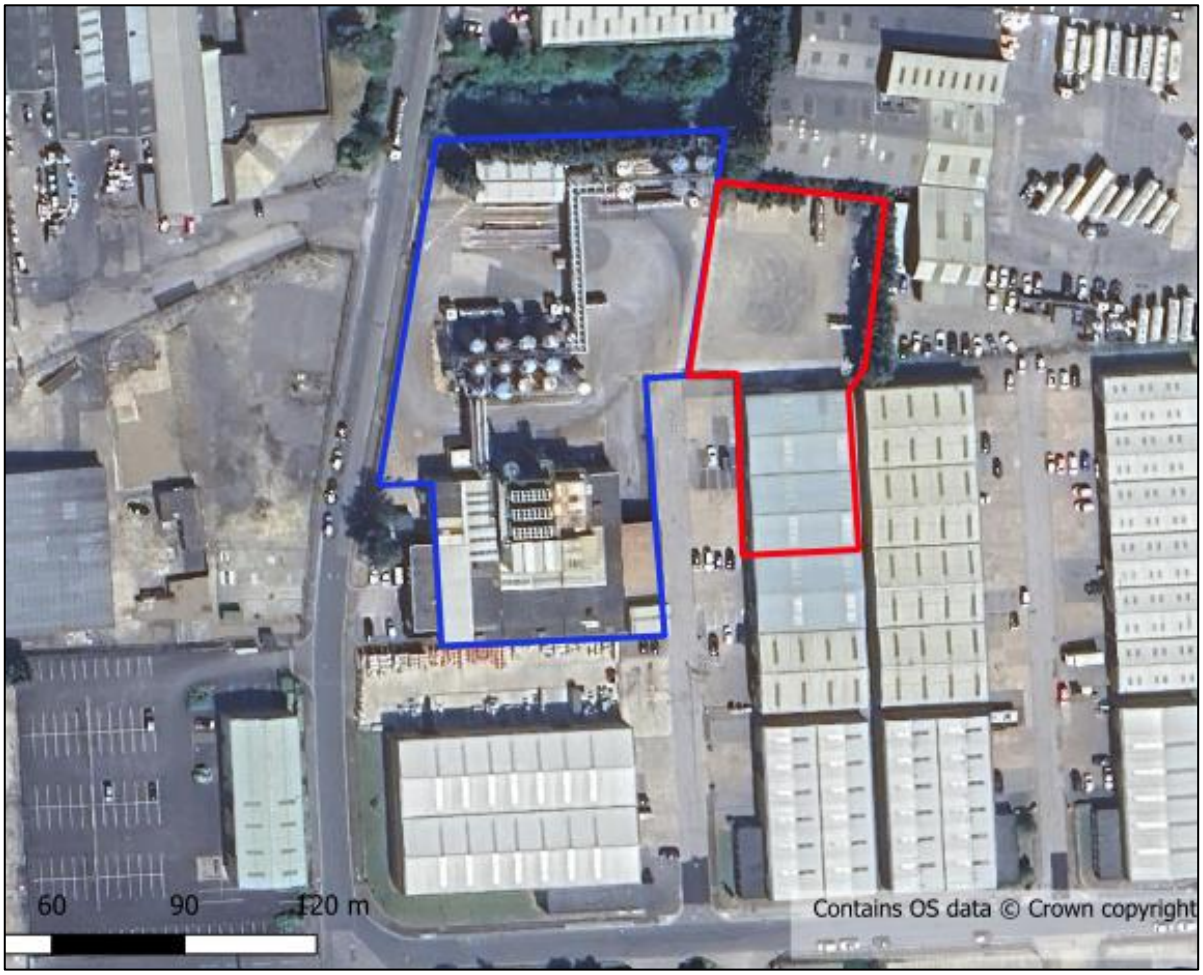


Figure 2-A Aerial Site Plan

2.2 Site History

2.2.1 Earliest historical mapping circa late 1800s shows the site and wider area utilised as agricultural land. During the mid-1900s, the wider area became industrialised to form the current industrial estate. The site was first developed as a chemicals works circa. 1970s and extended to encompass the development area in the late 1980s.

2.3 Geo-environmental Setting

2.3.1 A ground investigation on site was completed by Soiltechnics in September 2019 as detailed in the Ground Investigation Report (ref: R-STR4829M-G01). An extract of the report is included in Appendix B. A summary of ground conditions encountered on site are detailed in below.

2.3.2 Made Ground was present across the site to a maximum depth of 1.30m, comprising clay soils with small quantities of demolition materials. This was underlain by cohesive Alluvium to 4.85m depth. It should be noted that artificial Warp soils were also recorded, but due to their similar depositional characteristics and consistency identified across the site, we were unable to differentiate between the two stratum and have thus described all near surface natural soils as Alluvium.

2.3.3 The Alluvium was underlain by granular deposits of the Breighton Sand Formation to 7.80m depth, and bedrock of the Sherwood Sandstone Group. The bedrock typically comprised weathered sandstone, recovered as dense sand. Groundwater is considered to be present in the Breighton Sand Formation and Sherwood Sandstone Group, confined by the overlying Alluvium deposits.

2.3.4 The Warp is recorded as a Secondary A Aquifer (permeable layers capable of supporting water supplies at a local rather than strategic scale and forming in some cases an important source of base flow to rivers).

2.3.5 The underlying sandstone comprises a Principal Aquifer (strategically important rock that has high permeability and water storage capacity). The site is not located within a source protection zone.

2.3.6 The River Ouse flows in an easterly direction and is located approximately 2km to the east of the site. The Goole Canal and Dutch River which flow east into the River Ouse are located approximately 1km south of the site. Various drainage ditches are located within the vicinity of the site, the closest of which that is down hydraulic gradient is located approximately 350 m south of the site. The rural area to the north and west is well drained by a series of surface water ditches; however, these are largely absent within the built up industrial and residential areas, where surface water will be channelled into below ground drainage infrastructure.

2.3.7 The location of nearby surface water courses are shown in the figure below.

Figure 2-B: Surface Water Features

2.4 Pollution Incidents

2.4.1 No pollution incidents to controlled waters have been recorded on site.

2.4.2 An EPR Compliance Assessment Report was completed on 08/08/2024 outlining an inspection following a pollution incident report for a pollution incident that was found to be from offsite. The report is included in Appendix F. The pollution incident involved a discharge of odorous high ammonia liquid from a private pumping station on land to the other side of New Potter Grange Road.

2.4.3 During the investigation, a connection on site between an interceptor and surface water drain, which should have been running to a foul sewer was found. Upon discovery, the connection was blocked to avoid potential future pollution events. Photographic evidence was supplied 13/08/2024 showing completion of the work.

2.5 Contamination Encountered

2.5.1 As part of the previous Laboratory testing results of chemical contaminants within soils and groundwater showed no unacceptable levels of contamination were present with respect to human health and controlled waters receptors.

2.5.2 No significant source of ground gas generation was identified on site.

2.6 Permit Summary

2.6.1 The key information provided in the Environmental Permit are detailed in the table below. The full permit is included in Appendix C.

Aspect	Detail
Site Address	Kemira Chemicals (UK) Limited New Potter Grange Road M62 Trading Estate Goole East Yorkshire DN14 6BZ
Name of permit holder	KEMIRA CHEMICALS (UK) LIMITED
Permit reference	EPR/TP3135PX
Date of commencement	20/03/2020
Permitted activities	The listed activities within the permit are detailed below: • Production of ferrous/ferric sulphate from Copperas or Magnetite • Oxidation of ferrous to ferric sulphate • Production of ferric nitrate • Production of calcium nitrate The following directly associated activities are detailed below: • Slurry preparation – preparation of poly aluminium chloride slurries • Steam generation – operation of oil fired boiler for generation of process steam • Air abatement – the use of air abatement systems via wet scrubber and dust extractor
Variation to permit	Expansion of the site footprint and the subsequent installation of addition equipment to allow further use of the Magnetite as a raw material. No change in activities or processes.
Emissions to groundwater	None permitted
Emissions to land	None permitted
Soil and groundwater monitoring records	Soil and groundwater testing from the previous site investigation did not indicate any unacceptable elevated levels of contaminants with respect to human health and controlled water receptors.

Table 2-A: Permit Summary

2.6.2 Small quantities AdBlue, filter aid, and dry polymer are stored on site.

2.6.3 Surface water drainage flows from yard areas are currently managed on site through an interceptor before passing into the public drainage system in New Potter Grange Road.

2.6.4 All storage tanks are contained within bunded secondary containment which undergoes daily checks. Rainwater collected within this closed system is collected and reused within the production process.

2.6.5 All tanker vehicle loading and unloading points are controlled and designed to prevent spillage escaping via a closed system. Rainwater collected within this closed system is collected and reused within the production process.

2.6.6 An Environment Health and Safety Quality Policy provided by Kemira is provided in 0.

2.7 Proposed Expansion

2.7.1 The proposed expansion relating to the permit variation comprises the following key elements:

- 1 x new dissolver vessel
- 1 x new adjustment vessel
- 1 x new filter press

- 1 x new water storage vessel replacing an existing unused scrubber vessel in the tank farm area.
- Building modifications to accommodate the above.

2.7.2 The magnetite storage capacity of the site is proposed to increase from 3,500MT to 5,000MT as part of the expansion.

2.7.3 The new processing lines and storage vessels are to be located within the existing site boundary, and typically in a similar layout as the current operations. The new building and yard area within the planned expansion are to be used for material storage only and no chemical processes will be taking place within the area. A proposed layout is presented in Appendix A.

2.7.4 A conveyor system will be introduced to carry crushed magnetite from the storage location to the top of the process vessels. The conveyor will be fully enclosed to protect the magnetite from the elements.

2.7.5 No on site drainage alterations are required as part of the proposed works.

3 Tier 1 Preliminary Contamination Risk Assessment

3.1 Objectives

3.1.1 The objective of this preliminary risk assessment (PRA) is to determine whether the release of significant unacceptable contamination to soil and groundwater is likely as a result of the change in activities on site. The assessment comprises the following steps:

- Identify potential contaminant linkages (PCLs) between sources, pathways and receptors.
- To provide data to assist in the design of potential exploratory and detailed intrusive investigations and to give an early indication of possible remedial requirements, if necessary.

3.2 Evaluation Criteria

3.2.1 Although this report is being produced to support a permit variation rather than a permit application, the following assessment is undertaken within the legislative framework of the Environmental Permitting Regulations. Therefore, the assessment needs to identify if site activities could pose an unacceptable risk to the environment, within the context of the proposed permit variation. In the context of the existing site use, as a minimum, land should not be capable of being determined as 'contaminated land' under Part IIA of the Environmental Protection Act 1990.

3.2.2 The risk criteria for the permit variation are based on a 'minimal risk' approach, whereas under the existing land use a designation of 'contaminated land' would only apply if there is a significant possibility of significant harm (SPOSH).

3.3 Methodology

3.3.1 The objectives listed above are achieved by utilising the information presented within the desk study to develop an initial conceptual site model (iCSM) and identification of potential unacceptable risks. Depending upon the outcome of the Tier 1 assessment, it may be necessary to undertake a Tier 2 generic quantitative risk assessment (GQRA).

3.3.2 An iCSM relies upon the identification and assessment of PCLs. A contaminant linkage comprises of three key components:

- Source – a contaminant or pollutant that is in, on or under the land and that has the potential to cause harm or pollution.
- Pathway – Current and post-development routes by which a receptor is, or could be, affected by a contaminant.
- Receptor – Something that could be adversely affected by a contaminant, for example a person (current and proposed end users or neighbours), controlled waters and ecosystems.

3.3.3 The Tier 1 risk assessment has been produced with reference to the following guidance:

- 'Land contamination risk management' (EA, 2021).
- BS 10175:2011+A2:2017 'Investigation of potentially contaminated sites – Code of Practice'.
- CIRIA C552 'Contaminated land risk assessment- a guide to good practice', 2001.
- BS EN ISO 21365:2020 'Soil quality – Conceptual site models for potentially contaminated sites'

- BS 8576:2013 'Guidance on investigations for ground gas – Permanent gases and Volatile Organic Compounds (VOC)'.

3.4 Source Assessment

3.4.1 The scope of the assessment relates to the proposed increased production of ferric sulphate solution using magnetite as outlined within the application for the permit variation:

- Expansion of the site footprint and the subsequent installation of addition equipment to allow further use of the Magnetite as a raw material. Proposed increase in supply capacity at the plant by a further 70 KTonne/annum.

3.4.2 No discharges to land or water are permitted.

3.4.3 The production of ferric sulphate involves the addition of magnetite as a water slurry to sulphuric acid and water. The resulting solution undergoes oxidation via the addition of oxygen. The specification for raw materials is as follows:

- Water: 33.8 ton
- Sulphuric Acid (96%): 30.7 ton
- Magnetite: 17.5 ton

3.4.4 The expansion will increase overall volume of raw materials stored on site and the overall volume of ferric sulphate produced. No additional biproducts resulting from the process will be produced.

3.4.5 The table below summarises identified sources based on the findings of the desk study. Where appropriate, further discussion has been provided in the paragraphs which follow.

Potential Sources	Contaminant(s) of concern	Detail
On-site sources		
Raw material storage	Sulphuric acid, magnetite	Leaks and spillages arising from storage, handling an use of materials
Produce	Ferric sulphate solution	

Table 3-A: Contamination source assessment

3.5 Receptor Assessment

3.5.1 The following table summarises the identified receptors based on current site conditions and our understanding of the proposed end use:

Receptor Category	Principal Receptor	Receptor present?	Detail
Soils	Soils underlying site	Yes	Made Ground materials overlying Warp Deposits, Alluvium and Sherwood Sandstone Formation.
Controlled waters	Surface waters	No	Surface water is captured and drained to a foul sewer. Interceptors are present and all storage vessels have secondary bunds. The closest down gradient surface water receptor is 350 m south of the site.
	Groundwater	Yes	Site over superficial Secondary A Aquifer and bedrock Principal Aquifer.
Sensitive ecosystems and species	Current site	No	Site is not currently within, or proposed to form, a designated environmentally sensitive area (e.g. SSSI, RAMSAR, AONB, SPA, SAC).

Table 3-B: Receptor assessment

3.6 Pathway Assessment

3.6.1 Table 3-C summarises generic pathways for the site which could be viable for the underlying soils and identified controlled water receptors, given our understanding of the hydrogeological model and assuming a range of contaminants resulting from site activities.

3.6.2 It should be noted that the site has been designed to operate on an impermeable surface in order to break any contaminant pathways.

Soil and Controlled Water Exposure Pathways	Pathway Present	Mechanism
Site characteristics		
Leaching via infiltration through unsurfaced areas, and surface run-off	×	Mobilisation
Leaching via infiltration through cracks/joints in hardstanding areas and drainage infrastructure	✓	Mobilisation
Leaching via saturation from groundwater flooding and shallow/perched groundwater bodies	×	Mobilisation
Infiltration through sustainable drainage systems	×	Mobilisation
Preferential lateral pathways (e.g. underground services)	✓	Migration
Preferential vertical pathways (e.g. piling, vibro-stone columns)	×	Migration
Hydrogeological characteristics		
Vertical migration through permeable strata into shallow aquifers and perched groundwater bodies	✓	Migration
Vertical migration through permeable strata into sensitive aquifers at depth	×	Migration
Lateral migration within shallow and perched groundwater bodies into surface waters	✓	Migration

Table 3-C: Generic pathway assessment

3.7 Conceptual Site Model (CSM)

3.7.1 The table below presents our approach to the assessment of risks associated with PCLs. The categories below are based upon the definitions within CIRIA C552 (2001), with the addition of a 'negligible likelihood' scenario, which is to be used where there is no realistic scenario in which harm could occur. The conceptual site model (CSM) is presented within the following tables overleaf.

		Consequence of harm			
		Severe	**Medium**	**Mild**	**Minor**
Probability of harm	**High likelihood**	**Risk: Very high** (high – severe)	**Risk: High** (high – medium)	**Risk: Moderate** (high – mild)	**Risk: Moderate/Low** (high – minor)
	Likely	**Risk: High** (likely – severe)	**Risk: Moderate** (likely – medium)	**Risk: Moderate/Low** (likely – mild)	**Risk: Low** (likely - minor)
	Low Likelihood	**Risk: Moderate** (low – severe)	**Risk: Moderate/Low** (low – medium)	**Risk: Low** (low – mild)	**Risk: Very low** (low – minor)
	Unlikely	**Risk: Moderate/Low** (unlikely – severe)	**Risk: Low** (unlikely – medium)	**Risk: Very low** (unlikely – mild)	**Risk: Very low** (unlikely – minor)
	Negligible Likelihood	**Risk: Low** (negligible– severe)	**Risk: Very Low** (negligible– medium)	**Risk: Very Low** (negligible– mild)	**Risk: Negligible** (negligible– minor)

Table 3-D: CSM risk ratings

RECEPTOR: CONTROLLED WATERS				
Potential Source	**Contaminants of Concern**	**Pathway**	**Tier 1 Risk Assessment** (probability of harm x consequence)	**Discussion**
Raw material storage	Sulphuric Acid	Leaching and vertical migration (Groundwater) Lateral Migration (Surface water)	**Risk: Low** (unlikely – medium)	Sulphuric acid is contained within an integrally bunded above ground tank. The tank has secondary containment which is checked daily. Any spills which occur would be mitigated by the impermeable hardstanding surface and isolated drainage, which would allow effective cleanup. The addition of new the dissolver and adjustment vessel are adjacent to existing process infrastructure, and not within the new expansion area to the east nor in other areas on site which are not already housing permitted activities. Therefore, the impact of increased throughout provides minimal additional risk over what the permitted activities already pose.
	Magnetite	Leaching and vertical migration (Groundwater) Lateral Migration (Surface water)	**Risk: Low** (unlikely – medium)	The planned expansion includes the increased storage capacity of Magnetite from 3500mt to 5000mt. Magnetite is a solid, non-hazardous substance and hardstanding cover across site will mitigate against contact with underlying soils and leaching to groundwater.
Produce	Ferric Sulphate Solution	Leaching and vertical migration (Groundwater) Lateral Migration (Surface water)	**Risk: Low** (unlikely – medium)	Ferric sulphate solution produced as part of the oxidising processes is loaded and transported offsite. All tanker vehicle loading and unloading points are controlled and designed to prevent spillage escaping via a closed system. The impact of increased throughout provides minimal additional risk over what the permitted activities already pose.

Table 3-E: CSM – controlled waters risk

4 Conclusions

4.1 Discussion of Potential Contaminant Linkages

4.1.1 The site is considered to be in a moderate sensitivity area due to the underlying Principal Aquifer, however, overlying cohesive alluvium will provide some protection to the aquifer. Sensitive surface watercourses are not located within close proximity to the site, however, drainage infrastructure impacted by spill events would create a preferential pathway to receptor at distance.

4.1.2 Previous ground investigation on site did not identify any unacceptable levels of contamination were present within soils or groundwater with respect to human health and controlled waters receptors.

4.1.3 The expansion activities outlined in the proposed permit variation will result in an increase in magnetite storage within the expanded area. It will also result in a conveyer system, additional vessels and increase in chemical processing volume within the current site area. The expansion will result in an increased supply capacity by a further 70KTonne/annum.

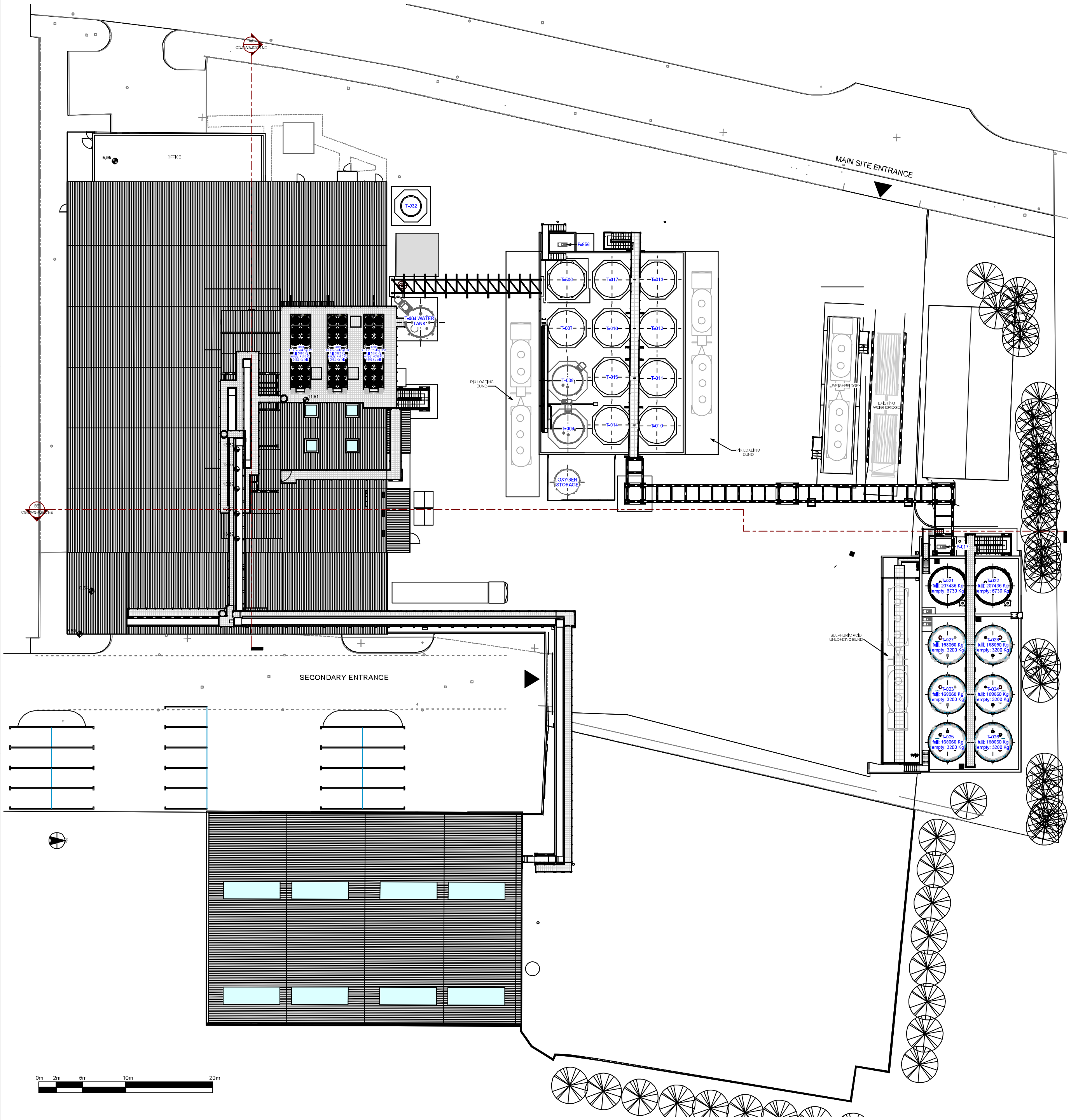
4.1.4 Magnetite is a solid, non-hazardous substance, and given the hardstanding cover across the site, it is unlikely to contact underlying soils on site, and stored indoors, thus minimising leaching to groundwater. The increased storage capacity from 3500MT to 5000MT for magnetite is not considered to pose an unacceptable risk to the condition of the site.

4.1.5 All storage tanks for raw materials are contained within bunded secondary containment which undergoes daily checks. All tanker vehicle loading and unloading points are controlled and designed to prevent spillage escaping via a closed system.

4.1.6 Whilst the capacity of the throughput activities are being increased, the processes are remaining unchanged. The increase in output of ferric sulphate solution is not considered an unacceptable risk to the condition of the site. As no hazardous substance storage or permitted activities are taking place outside existing footprints, and not within the expansion area to the east, no further investigative works or baseline assessment are considered necessary as part of the Site Condition Report.

soiltechnics
environmental ▪ geotechnical ▪ building fabric

Appendix A Drawings



REV	DATE	REVISION DESCRIPTION	EXECUTED	CONTROLLED	APPROVED	CLIENT CHECK
03	09/10/2023	NEW EQUIPMENT	KREJ-FPa	M. BENUZZI	M. BENUZZI	
02	29/09/2023	GENERAL UPDATE	KREJ-FPa	M. BENUZZI	M. BENUZZI	
01	06/09/2023	FIRST ISSUE	KREJ-FPa	M. BENUZZI	M. BENUZZI	

CONTRACTOR:
VTU-Engineering Italia S.r.l.
Via G. di Vittorio 16
I-39100 Bolzano

PROJECT NO: KEM-IB27
DRAWING NO: KEM-IB27-CS-DWG-020.03-E
CONTRACT NO:
FILE NO: KEM-IB27-CS-DWG-020.03-E
PROJECT NO:
DRAWING NO:
CONTRACT NO:
FILE NO:

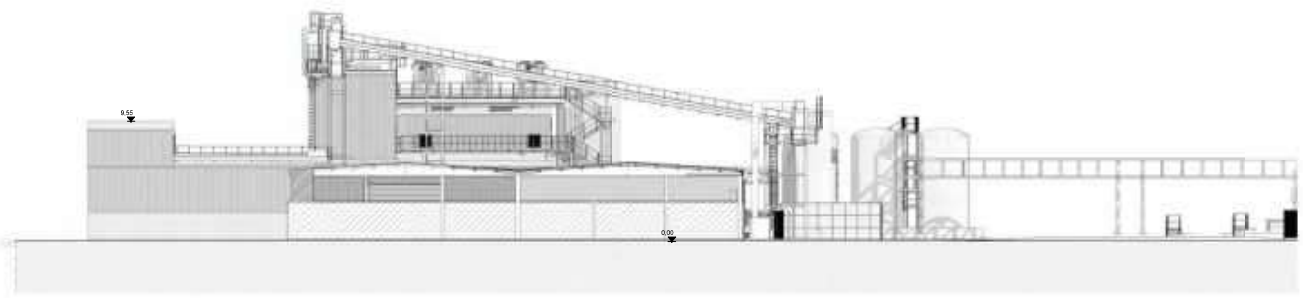
OWNER:
Kemira Chemicals UK Ltd
New Potter Grange Road 5
Goole - East Yorkshire - DN14 6BZ, UK
Phone +44 1274 517460

ORIGINAL STAMP:

SUBJECT:
GOOLE EXPANSION PROJECT II
General Plot Plan

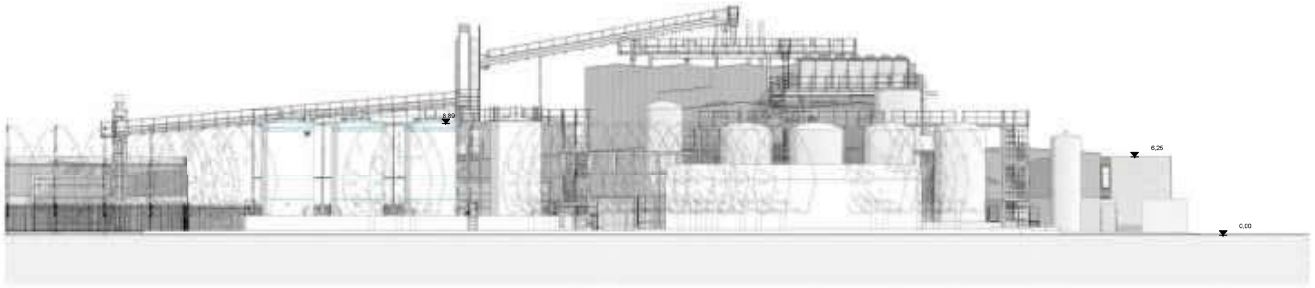
DRAWING NO: KEM-IB27-CS-DWG-020.03-E
SCALA: 1:150
FILE NO: KEM-IB27-CS-DWG-020.03-E
SHEET NO: 01 of 01

0m 2m 5m 10m 20m



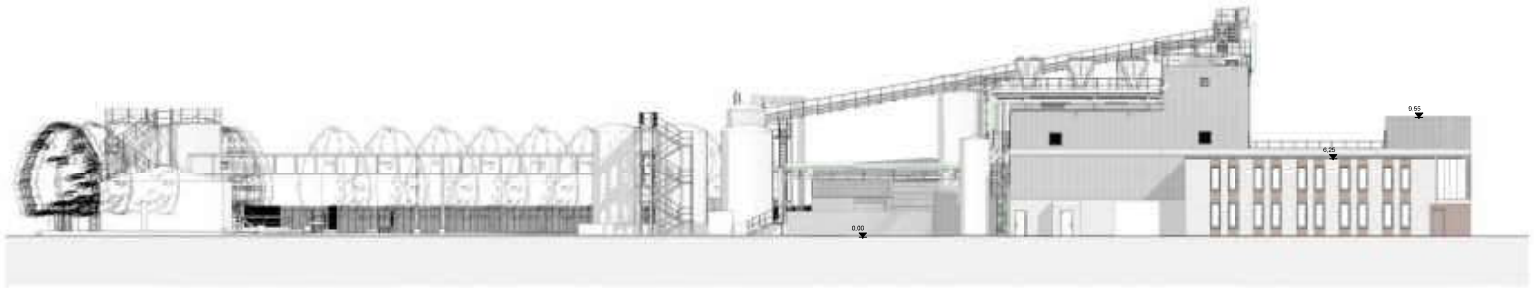
AFTER - East Building Elevation

Scale : 1 : 200



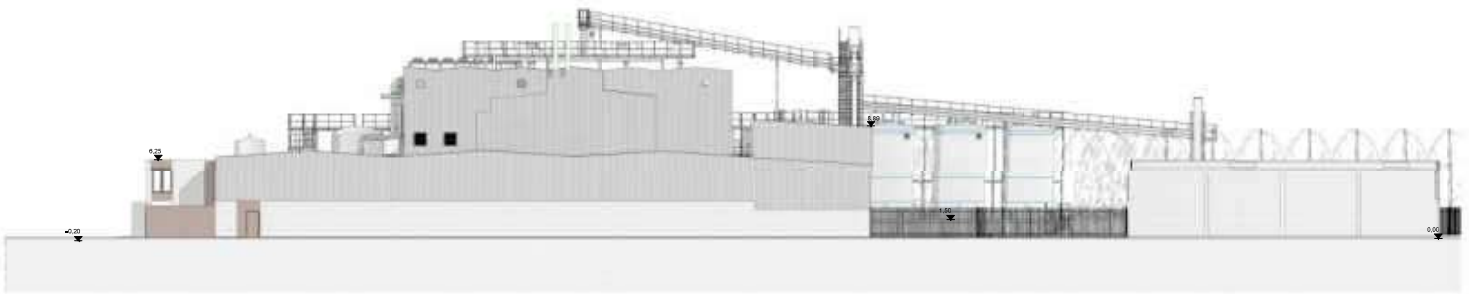
AFTER - North Building Elevation

Scale : 1 : 200



AFTER - West Building Elevation

Scale : 1 : 200



AFTER - South Building Elevation

Scale : 1 : 200

REV	DATE	REVISION DESCRIPTION	EXECUTED	CONTROLLED	APPROVED	CLIENT CHECK
03	05/10/2025	NEW EQUIPMENT	KRE-Pa	M. BENUZZI	M. BENUZZI	
02	29/09/2025	GENERAL UPDATE	KRE-Pa	M. BENUZZI	M. BENUZZI	
01	08/09/2025	FIRST ISSUE	KRE-Pa	M. BENUZZI	M. BENUZZI	

CONTRACTOR:
VTU
VTU-Engineering Italia S.r.l.
Via G. di Vittorio 16
I-39100 Bolzano

PROJECT NO: KEM-IB27
DRAWING NO: KEM-IB27-CS-DWG-027.0-E
CONTRACT NO:
FILE NO: KEM-IB27-CS-DWG-027.0-E
PROJECT NO:
DRAWING NO:
CONTRACT NO:
FILE NO:

OWNER:
kemira
Kemira Chemicals UK Ltd
New Potter Grange Road 5
Goole - East Yorkshire - DN14 6BZ, UK
Phone +44 1274 517460

ORIGINAL STAMP:

SUBJECT:
GOOLE EXPANSION PROJECT II
Building Elevations

DRAWING NO: KEM-IB27-CS-DWG-027.0-E
SCALE: 1:200
FILE NO: KEM-IB27-CS-DWG-027.0-E
SHEET NO: 01 of 01

soiltechnics
environmental ▪ geotechnical ▪ building fabric

Appendix B Ground Investigation Report Extracts

soiltechnics

environmental ▪ geotechnical ▪ building fabric

Proposed tank farm
Kemira Chemicals UK
Goole

Ground Investigation Report

Revision 01 (June 2020)

Unit 9, Clarence Avenue, Westpoint Enterprise Park, Trafford Park, Manchester, M17 1QS

t: 0161 9470270 **e**: mail@soiltechnics.net **w**: www.soiltechnics.net

6 Ground conditions encountered

6.1 Soils / Rocks

6.1.1 Exploratory excavations encountered a similar profile of soils considered to comprise Made Ground overlying naturally deposited Alluvium, with Breighton Sand Formation and Sherwood Sandstone Group.

6.1.2 Made Ground

6.1.2.1 Made Ground soils were encountered in all locations except TP04 to depths of between 0.15m and 1.30m and typically comprised firm to very stiff medium to very high strength brown slightly gravelly slightly sandy clay. Gravels comprised predominantly sandstone and mudstone with smaller quantities of limestone and demolition material such as concrete and asphaltic concrete. In locations within the area of the traffic islands Made Ground was overlain by a layer of gravel up to 0.15m thick. In locations in the grassed area in the north of the site the excavations were overlain by a layer of reworked Topsoil with a thickness of between 0.15m and 0.50m.

6.1.3 Alluvium

6.1.3.1 As discussed in Section 3, the local superficial deposits comprise predominantly of Warp and Alluvium. Warp and Alluvium exhibit similar characteristics, and if such Warp deposits are present on site it is difficult, if not impossible, to distinguish from naturally deposited A Alluvium. Therefore, we have classified all near surface naturally deposited soils as Alluvium.

6.1.3.2 Alluvium was present in all locations beneath Made Ground deposits to depths of between 4.00m and 4.85m where penetrated. The soils typically comprise firm to very stiff, medium to very high strength, greyish brown, slightly silty, slightly sandy clay. Deeper horizons have a laminated structure and bluish grey colour. In the northern grassed part of the site the Alluvium soils are highly desiccated at shallow depths, likely due to the influence of the large coniferous trees along the northern and eastern boundaries of the development area and representative in-situ shear strength measurements could not be taken. Strata described as sandy silt were noted locally in three locations (RH01, DTS01, DTS03 and DTS05) between thicknesses of 0.30m and 0.70m at depths of 2.3m to 3.1m. Silt deposits were further located between depths of 0.4m and 1.25m in RH02.

6.1.4 Breighton Sand Formation

6.1.4.1 The Alluvium soils are underlain by soils of the Breighton Sand Formation to depth of between 7.00m and 7.80m in RH01 and RH02 respectively. These soils comprise medium dense to dense, brown, slightly clayey, gravelly, medium sand and slightly clayey very sandy gravel. Gravels comprise predominantly sandstone and mudstone. In the location of RH01, water inflow was observed in this stratum as detailed in Section 6.4 below.

6.1.5 Sherwood Sandstone Group

6.1.5.1 Bedrock of the Sherwood Sandstone Group was encountered in the locations of RH01 and RH02 from depths of 7.00m and 7.80m, to a maximum termination depth of 20.50m. Due to the weakness and weathering of the rock, adequate core recovery could not be consistently achieved, and deposits were often recovered as very dense sands rather than bedrock rock. Typically, the unweathered Sherwood Sandstone was noted to be destructured, comprising of extremely weak, reddish brown, medium sandstone. In the locations of RH01 and RH02, water inflow was observed in this stratum as detailed in Section 6.4 below.

6.1.6 Summary

6.1.6.1 The following table summarises the geology encountered;

Table summarising soil types

Strata	Depth to bottom (m)	Thickness (m)	Summary description
Made Ground	0.15 – 1.30	0.15 – 1.30	Firm to very stiff medium to very high strength brown slightly gravelly slightly sandy clay
Alluvium	4.00 – 4.85	3.85 – 4.40	Firm to very stiff medium to very high strength greyish brown slightly silty slightly sandy clay with localised silt bands
Breighton Sand Formation	7.00 – 7.80	2.00 – 3.00	Medium dense to dense brown slightly clayey gravelly sand and clayey sandy gravel
Sherwood Sandstone Group	>20.5m	Not proven	Weathered very dense sands and extremely weak reddish brown destructured medium sandstone

Table 6.1.6.1

6.1.6.2 With the exception of Made Ground, the investigation generally confirmed published geological records. Although we consider Warp soils to potentially be present, as stated in Section 3.5, we have described all as all near surface soils as Alluvium due to their similar characteristics.

6.2 Geotechnical parameters

6.2.1 The following table summarises test data in the Made Ground deposits: -

Table summarising soil testing and derived geotechnical parameters for Made Ground					
Geotechnical parameter	**Method**	**Value range**	**Characteristic value**	**Comments**	**Notes**
Weight density (above water table)	Soil descriptions	16-22kN/m^3	16kN/m^3	Derived from BS 8004 figure 1. Lowest value utilised in foundation design	
Undrained Shear strength (kN/m^2)	In-situ testing	50-175kN/m^2	70kN/m^2	Lower bound value chosen as characteristic value	1
Table 6.2.1					

1. Drawings presented in Appendix C2.

6.2.2 The following table summarises test data in the Alluvium deposits: -

Table of soil testing and derived geotechnical parameters for Alluvium					
Geotechnical parameter	**Method**	**Value range**	**Characteristic value**	**Comments**	**Notes**
Weight density (above and below water table) (kN/m^3)	Soil descriptions	16 – 22kN/m^3	16kN/m^3	Derived from BS 8004 figures 1 & 2. Lowest value to be used in structural design	
Plasticity index	Laboratory testing	22 - 35	30	Report most common as representative of strata	1
Water content (%)	Laboratory testing	21 - 50	32	Report most common as representative of strata	1
Undrained Shear strength (kN/m^2)	In-situ and laboratory testing	30-225kN/m^2	75kN/m^2	Pessimistic value adopted from line of best fit at likely foundation depth	2
Coefficient of volume compressibility (M_V) (m^2/MN)	Insitu and laboratory testing	0.24 -0.28	0.25	Laboratory value adopted at cell pressure of 100kPa	1, 3
Undrained deformation modulus (E_U)	Insitu and laboratory testing		5455MN/m^2	Derived following Stroud and Butler and CIRIA 143 & C760	1, 2
SPT 'N' Value	In-situ testing	2 - 50	7	Lower bound value adopted	3
Table 6.2.2					

1. Laboratory testing presented in Appendix F2. Drawings presented in Appendix C2
2. Drawings Presented in Appendix C1

6.2.3 The following table summarises test data in the Breighton Sand Formation soils: -

Table of soil testing and derived geotechnical parameters for Breighton Sand Formation					
Geotechnical parameter	**Method**	**Value range**	**Characteristic value**	**Comments**	**Notes**
Weight density (above water table) (kN/m3)	Soil descriptions	16 - 21kN/m^3	16	Derived from BS 8004 figure 1. Lowest value to be used in structural design	
Weight density (below water table) (kN/m^3)	Soil descriptions	18 – 23kN/m^3	18	Derived from BS 8004 figure 2. Lowest value to be used in structural design	
SPT 'N' Value	In-situ testing	5 - 50	20	Lower bound value adopted	1
Table 6.2.3					

1. Drawings presented in Appendix C1.

6.2.4 The following table summarises test data in the Sherwood Sandstone Group.

Table of soil testing and derived geotechnical parameters for Sherwood Sandstone Group

Geotechnical parameter	Method	Value range	Characteristic value	Comments	Notes
Weight density (above and below table) (kN/m^3)	Soil descriptions	18 - 23kN/m^3	18	Derived from BS 8004 figure 1. Lowest value to be used in structural design	
SPT 'N' Value	In-situ testing	50+	50	Measured value	1

Table 6.2.4

1. Drawings presented in Appendix C1.

6.3 Topsoil

6.3.1 As a practice we have adopted the following policy for description of Topsoil. If surface soils exhibit a visually significant organic content and darker colour than the soils it overlies (which are considered to be naturally deposited) then we will describe the soil as Topsoil. In some cases, it is difficult to visually distinguish the interface between Topsoil and subsoils below, which may also exhibit an organic content, and in such cases, we will adopt an estimate of the interface but may also use the terms 'grading into' with some defining depths.

6.3.2 If 'Topsoil' deposits include materials such as ash, brick and other man-made materials, or the Topsoil overlies Made Ground deposits we will term the material 'Made Ground', even though it may still be able to support vegetable growth, and potentially reused as Topsoil.

6.3.3 Topsoil can be classified following a number of test procedures as described in BS3882:2015 *'Specification for Topsoil'* to allow its uses to be determined. We do not carry out such testing unless specifically instructed to do so.

6.4 Groundwater

6.4.1 Groundwater inflows were observed in many of the exploratory excavations. A summary of our observations is tabulated below: -

Table summarising groundwater observations

Exploratory point	Date of observation	Depth (m) below ground levels	Observations
RH01	30/07/2019	5.00 10.00	Rising to 4.60m after 20 minutes. Recorded at 7.9m depth at start of next day drilling. Recorded at 3.4m on completion go borehole and removal of casings.
RH02	01/08/2019	10.00	Rising to 8.40m in 20 minutes.
DTS02	31/07/2019	5.00	Rising to 3.60m in 30 minutes.
DTS03	31/07/2019	3.00	Falling to 3.65m in 30 minutes.
RH01	09/08/2019 27/08/2019 05/09/2019	3.40 3.44 3.42	Monitoring observation.
RH02	09/08/2019 27/08/2019 05/09/2019	3.70 3.75 3.74	Monitoring observation.

Table 6.4.1

6.4.2 It should be noted that water levels will vary depending generally on recent weather conditions and only long-term monitoring of levels in standpipes will provide a measure of seasonal variations in groundwater levels.

6.5 Evidence of contamination

6.5.1 During excavation of our exploratory points, no evidence of contamination was noted, other than the general observation of the presence of Made Ground. No visual evidence of Asbestos Containing Materials (ACMs) was observed.

6.6 Obstructions and instability

6.6.1 No in-ground obstructions (other than bedrock) or significant instability were encountered during our site investigations.

8 Chemical contamination

8.1 Contaminated land, regulation and liabilities

8.1.1 Statute

8.1.1.1 Part IIA of the Environment Protection Act 1990 became statute in April 2000. The principal feature of this legislation is that the hazards associated with contaminated land should be evaluated in the context of a site-specific risk-based framework. More specifically contaminated land is defined as:

> *"any land which appears to the local authority in whose area it is situated to be in such a condition, by reasons of substances in, on or under the land, that:*
>
> *a) Significant harm is being caused or there is a significant possibility of such harm being caused; or*
> *b) Pollution of controlled waters is being or is likely to be caused".*

8.1.1.2 Central to the investigation of contaminated land and the assessment of risks posed by this land is that:

i) There must be contaminants(s) at concentrations capable of causing health effects (*Sources).*
ii) There must be a human or environmental receptor present, or one which makes use of the site periodically *(Receptor)*; and
iii) There must be an exposure pathway by which the receptor comes into contact with the environmental contaminant *(Pathway).*

8.1.1.3 In most cases the Act is regulated by Borough or District Councils and their role is as follows:

i) Inspect their area to identify contaminated land
ii) Establish responsibilities for remediation of the land
iii) See that appropriate remediation takes place through agreement with those responsible, or if not possible:
- by serving a remediation notice, or
- in certain cases, carrying out the works themselves, or
- in certain cases, by other powers

iv) keep a public register detailing the regulatory action which they have taken

8.1.1.4 For "special" sites the Environment Agency will take over from the Council as regulator. Special sites typically include:-

- Contaminated land which affects controlled water and their quality
- Oil refineries
- Nuclear sites
- Waste management sites

8.1.2 Liabilities under the Act

8.1.2.1 Liability for remediation of contaminated land would be assigned to persons, organisations or businesses if they caused, or knowingly permitted contamination, or if they own or occupy contaminated land in a case where no polluter can be found.

8.1.3 Relevance to predevelopment conditions

8.1.3.1 For current use, Part IIA of the Environmental Protection Act 1990 provides the regulatory regime. The presence of harmful chemicals could provide a 'source' in a 'pollutant linkage' allowing the regulator (local authority or Environment Agency) to determine if there is a significant possibility of harm being caused to humans, buildings or the environment. Under such circumstances the regulator would determine the land as 'contaminated' under the provision of the Act requiring the remediation process to be implemented.

8.1.4 Relevance to planned development

8.1.4.1 The developer is responsible for determining whether land is suitable for a particular development or can be made so by remedial action. In particular, the developer should carry out an adequate investigation to inform a risk assessment to determine:

a) Whether the land in question is already affected by contamination through source – pathway – receptor pollutant linkages and how those linkages are represented in a conceptual model
b) Whether the development proposed will create new linkages e.g. new pathways by which existing contaminants might reach existing or proposed receptors and whether it will introduce new vulnerable receptors, and
c) What action is needed to break those linkages and avoid new ones, deal with any unacceptable risks and enable safe development and future occupancy of the site and neighbouring land?

8.1.4.2 Building control bodies enforce compliance with the Building Regulations. Practical guidance is provided in Approved documents, one of which is Part C, '*Site preparation and resistance to contaminants and moisture'* which seeks to protect the health, safety and welfare of people in and around buildings, and includes requirements for protection against harm from chemical contaminants.

8.1.5 Pollution of controlled waters

8.1.5.1 Part IIA of the Environment Protection Act 1990, defines pollution of controlled waters as

'The entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter'

8.1.5.2 Paragraphs A36 and A39 of statutory guidance (DETR 2000) further define the basis on which land may be determined to be contaminated land on the basis of pollution of controlled waters.

'Before determining that pollution of controlled waters is being, or likely to be, caused, the Local Authority should be satisfied that a substance is continuing to enter controlled waters, or is likely to enter controlled waters. For this purpose, the local authority should regard something as being likely when they judge it more likely than not to occur'

'Land should not be designated as contaminated land where:

a) A substance is already present in controlled waters:
b) Entry into controlled waters of that substance from the land has ceased, and
c) It is not likely that further entry will take place.

Substances should be regarded as having entered controlled waters where:

a) They are dissolved or suspended in those waters; or
b) If they are immiscible with water, they have direct contact with those waters, or beneath the surface of the waters'

8.1.5.3 Controlled waters are defined in statute to be:

'territorial waters which extend seawards for 3 miles, coastal waters, inland freshwaters, that is to say, the waters in any relevant lake or pond or of so much of any relevant river or watercourse as is above the freshwater limit, and groundwaters, that is to say, any waters contained in underground strata.'

8.1.6 Further information

8.1.6.1 The above provides a brief outline as regards current statute and planning controls. Further information can be obtained from the Department for the Environment, Food and Rural Affairs (DEFRA) and their Web site www.defra.gov.uk.

8.2 Objectives and procedures

8.2.1 Objectives

8.2.1.1 This report section discusses investigations carried out with respect to chemical contamination issues relating to the site. The investigations were carried out to determine if there are any liabilities with respect to Part IIA of the Environment Protection Act. As stated in Section 2.4.2, the investigation process followed the principles of BS10175: 2011 *'Investigation of potentially contaminated sites – Code of Practice',* with the investigation combining a desk study (preliminary investigation) together with the exploratory and main investigations (refer BS10175: 2011 for an explanation).

8.2.1.2 This section of the report produces *'Conceptual models'* based on investigatory data obtained to date. The conceptual model is constructed by identification of *contaminants* and establishment of feasible *pathways* and *receptors.* The conceptual model allows a *risk assessment* to be derived. Depending upon the outcome of the risk assessment it may be necessary to carry out remediation and/or further investigations with a view to eliminating, reducing or refining the risk of harm being caused to identified receptors. If appropriate, our report will provide recommendations in this respect.

8.2.1.3. Clearly, we must consider the current pre-development condition, establishing risks which may require action to render the site safe to all relevant (current) receptors meeting the requirements of current legislation (Part IIA of the Environmental Protection Act 1990).

8.2.1.4 Definition of terms used in the preceding paragraph and subsequent parts of this section of the report are presented in Appendix B.

8.2.2 Procedure to assess risks of chemical contamination

8.2.2.1 For the purposes of presenting this section of this report, we have adopted the following sequence in assessing risks associated with chemical contamination.

Table outlining sequence to assess risk associated with chemical contamination

Conceptual model element	Contributory information	Outcome
Receptor	Development categorisation	Identification of receptors at risk of being harmed Method of analysing test data Criteria for risk assessment modelling
Pathways	Geology and ground conditions Development proposals	Identification of critical pathways from source to receptor
Source	Previous site history Desk study information Site reconnaissance Fieldwork observations	Testing regime Identification of a chemical source Analysis of test data and other evidence

Table 8.2.2

8.2.2.2 We have adopted, in general, the procedures described in CIRIA C552 *'Contaminated land risk assessment - a guide to good practice'* in deriving a risk assessment. Initially we have carried out a 'phase 1 assessment' based on desk study information and site reconnaissance, to produce an initial conceptual model and thus a preliminary risk assessment. This model / assessment is then used to target fieldwork activities and laboratory testing, with the results of this part of the investigation used to allow a phase 2 assessment to be produced by updating the conceptual model and refining the risk assessment.

8.3 Development characterisation and identified receptors

8.3.1 Site characterisation

8.3.1.1 The nature of the site has a significant influence on the likely exposure pathways between potentially contaminated soils and potential receptors. The following table summarises elements which characterise the site based on site observations and desk study information.

Summary of site characteristics		
Element	**Source / criteria**	**Characteristic**
Current land use	Observations	Chemicals works
Future land use	Advice	Chemicals works
Site history	Desk study	Undeveloped until construction of chemical works between 1967 and 1978, expanding to include development area between 1987 and 1990
Geology	Site investigation	Made Ground up to 1.30m depth Alluvium to up to 4.85m depth Breighton Sand Formation up to 7.80m depth Sherwood Sandstone Group proven to 20.50m and likely to around 250m in thickness
Ground water	Aquifer potential	Secondary A aquifer within superficial deposits Principal aquifer within Sherwood Sandstone Group Groundwater not present in Alluvium, but encountered within granular strata at depth with groundwater rising to 3.40m during monitoring.
	Abstractions	Groundwater abstraction for private use 81m west
	Source protection zone	Site not within source protection zone
Surface waters	Location	Unnamed drainage ditch 121m west of site
	Abstractions	Nearest 1785m east, used for industrial purposes
Table 8.3.1		

8.3.2 Identified receptors

8.3.2.1 The principal receptors subject to harm caused by any contamination of the proposed development site are as follows.

Principle Receptor	Detail
Humans	Users of the current site
	End user of the developed site
	Construction operatives and other site investigators
Vegetation	Plants and trees, both before and after development
Controlled waters	Surface waters (Rivers, streams, ponds and above ground reservoirs)
	Ground waters (used for abstraction or feeding rivers / streams etc)
Building materials	Materials in contact with the ground
Table 5.3.2	

8.3.2.2 This section of the report assesses those receptors listed above. Section 10 provides a risk assessment in relation to building materials.

8.3.3 Human receptors

8.3.3.1 The Contaminated Land Exposure Assessment (CLEA) model can be used to derive guideline values, against which land quality data can be compared to allow an assessment of the likely impacts of soil contamination on humans. The parameters used within the model can be chosen to allow guideline values to be derived for a variety of land uses and exposure pathways. For example, a construction worker is likely to be exposed in different ways and for different durations than an adult in a residential setting.

8.3.3.2 On the basis that the current site is restricted to industrial activities, an adult is considered the appropriate critical receptor. Following completion of the proposed tank farm and associated infrastructure, the critical site user (receptor) is again considered to be an adult. This criterion has been used in the conceptual model for the current and future site use. Our assessment also considers construction operatives as adult receptors.

8.3.4 Vegetation receptors

8.3.4.1 Soil contaminants can have an adverse effect on plants if they are present at sufficient concentrations. The effects of phytotoxic contaminants include growth inhibition, interference with natural processes within the plant and nutrient deficiencies.

8.3.4.2 Vegetation is present to the northern and eastern site boundaries in the vicinity of the proposed tank farm and is anticipated to remain. Consequently, vegetation is considered to be a viable receptor.

8.3.5 Water receptors

8.3.5.1 All superficial deposits on site are classified as Secondary A aquifers, and underlying Sherwood Sandstone Group is classified as a Principal aquifer. A groundwater abstraction point is also located 81m west of the site. Consequently, groundwater is considered to be a viable receptor.

8.3.5.2 An unnamed drainage ditch is present 121m west of the site at roughly similar elevation to the site. Due to the distance and presence of positively drained development between the site and the ditch, it is not considered to be a viable surface water receptor.

8.3.6 Summary of identified receptors

8.3.6.1 Based on the above assessments, the following table summarises identified and critical receptors.

Table summarising identified (viable) receptors				
Principle Receptor	**Detail**	**Viable and critical receptors**		
		Viability and justification		**Critical receptor**
Humans	Users of the current site	Yes	Site restricted to industrial activities	Adult
	End user of the developed site			
	Construction operatives and other site investigators	Yes		Adult
Vegetation	Current site	Yes	Trees on boundary	Vegetation
	Developed site	Yes	Trees to remain	
Controlled waters	Surface waters (Rivers, streams, ponds and above ground reservoirs)	No	Drainage ditch distant	Surface waters
	Ground waters (used for abstraction or feeding rivers / streams etc)	Yes	Secondary A and Principal aquifers present, groundwater abstraction 81m west	Groundwater
Building materials	Materials in contact with the ground	Yes	Assessed in report section 10	Building materials
Table 8.3.6				

8.4 Identification of pathways

8.4.1 Pathways to human receptors

8.4.1.1 Guidance published by the Environment Agency in Science Report SC050021/SR3 *'Updated technical background to the CLEA model'* provides a detailed assessment of pathways and assessment and human exposure rates to source contaminants. In summary, there are three principal pathway groups for a human receptor:

Table summarising likely pathways	
Principal pathways	**Detail**
Ingestion through the mouth	Ingestion of air-borne dusts
	Ingestion of soil
	Ingestion of soil attached to vegetables
	Ingestion of home-grown vegetables
Inhalation through the nose and mouth.	Inhalation of air-borne dusts
	Inhalation of vapours
Absorption through the skin.	Dermal contact with dust
	Dermal contact with soil
Table 8.4.1	

8.4.1.2 The site is currently a chemical works and will remain so following development. The majority of the site is covered with hardstanding but the northern part of the development area where the tank farm will be constructed is grassed and some of this surface will remain. Consequently, all of the above pathways are anticipated to be present with the exception of those relating to home grown vegetables.

8.4.1.3 A summary of our pathway assessment is presented in Section 8.4.4.

8.4.2 Pathways to vegetation

8.4.2.1 Guidance published by the Environment Agency in Science Report SC050021/SR (Evaluation of models for predicting plant uptake of chemicals from soil) provides a detailed assessment of plant uptake pathways. In summary, plants are exposed to contaminants in soils by the following pathways:

- Passive and active uptake by roots.
- Gaseous and particulate deposition to above ground shoots.
- Direct contact between soils and plant tissue.

8.4.2.2 All of the above routes of exposure are considered to be present for vegetation.

8.4.3 Pathways to controlled waters

8.4.3.1 A number of pathways exist for the transport of soil contamination to controlled waters. A summary of these pathways is presented below:

- Percolation of water through contaminated soils.
- Near-surface water run-off through contaminated soils.
- Saturation of contaminated soils by flood waters.

8.4.3.2 The majority of the site will be covered by hardstanding and drainage systems, limiting percolation of water through any contaminated soils. However, some soft landscaping will be retained, and a residual risk remains. The Alluvium soils are effectively impermeable and will prevent the formation of a pathway to the Principal aquifer in the Sherwood Sandstone Group at depth. However, the Alluvium soils contain a Secondary A aquifer to which there may be a feasible pathway. Therefore percolation of water through contaminated soils will be considered a viable pathway.

8.4.3.3 The site is located on a flood plain and consequently saturation of contaminated soils by flood waters will be considered a viable pathway.

8.4.3.4 The following table summarises our controlled waters pathway assessment:

Table summarising controlled waters pathway assessment			
Pathway	**Likelihood of pathway occurring**	**Receptor**	**Justification**
Percolation of water through contaminated soils	Low likelihood	Groundwater	Direct migration of water from surface into Alluvium.
Near surface run-off through contaminated soils	Unlikely	Surface water	Receptors distant and positively drained development between.
Saturation of contaminated soils by floodwaters	Possible	Surface water	Site located in a floodplain
Table 8.4.3.4			

8.4.4 Summary of identified likely pathways

8.4.4.1 Based on the above assessments, the following table summarises likely pathways of potential chemical contaminants at the site to identified receptors.

Table of likely pathways		
Receptor group	**Critical receptor**	**Pathway**
Current and proposed site users and construction operatives	Adult	Ingestion of air-borne dusts
		Ingestion of soil
		Inhalation of air-borne dusts
		Inhalation of vapours
		Dermal contact with dust
		Dermal contact with soil
Vegetation		Root uptake, deposition to shoots and foliage contact.
Controlled waters	Groundwater	Percolation of water through contaminated soils
	Surface water	Saturation of contaminated soils by flood waters
Table 8.4.4		

8.5 Assessment of sources of chemical contamination

8.5.1 Introduction

8.5.1.1 Initially, potential sources of contamination are assessed using the following elements of the investigation process.

- Site activities and reconnaissance
- History of the site
- Desk study information
- Geology
- Fieldwork

8.5.1.2 These elements will dictate a relevant soil/water testing regime to quantify possible risks of any identified contaminative sources which may harm identified receptors.

8.5.2 Source assessment – Site activities and reconnaissance

8.5.2.1 The client has advised us of the processes utilised onsite for production of Ferric Sulphate solution, utilised as a coagulant for the water treatment industry. Ferric Sulphate ($Fe_2(SO_4)_3$) solution is manufactured onsite by the reaction of sulphuric acid (H_2SO_4) with either copperas ($FeSO_4$) or magnetite ($FeSO_4$). The raw materials, mgnetite and copperas, are stored in a powdered form in the main building while sulphuric acid, the end product, and various intermediate stages are stored in liquid form in various tanks throughout the facility, principally in the large tank farm to the centre of the site. No other chemicals, such as oxidising agents, are used or produced on a large scale. The above chemicals – iron, iron minerals and sulphuric acid are not generally regarded as contaminants or typically tested for. However, sulphuric acid has the potential to alter the pH of soils, and sulphates can pose a risk to construction materials in contact with the ground such as concrete, which is assessed further in Section 10.

8.5.2.2 Six bottles of Mercury Chloride waste were noted during the site reconnaissance. We are informed that this is produced as a by-product of quality assurance testing of the completed product using mercury powder. We are informed that this waste represents about 10 months output (a single pallet). While the volumes of mercury powder and mercury chloride involved are small, the potential for any contamination, if present, will be assessed in our standard metals test suite.

8.5.2.3 Storage of an unknown quantity of gas oil (red diesel) was noted, and this is likely related to small vehicles and generators. The site is visited by a large number of heavy goods vehicles each day and there is a small risk of contamination by fuel and mineral oils (TPH), as well as fuel additives such as Methyl tert-butyl ether (MTBE). The onsite skips observed during the reconnaissance are not considered to comprise a significant potential source.

8.5.2.4 Based on the above a number of potentially contaminative sources have been identified which could affect near surface soils and pose a risk to identified receptors.

8.5.3 Source assessment – History of the site

8.5.3.1 The history of the site and its immediate surroundings based on published Ordnance Survey maps is described in Section 3.

8.5.3.2 Based on published historical maps, the site has had no other uses before the present chemical works was developed between 1967 and 1978. The potential for contamination associated with such land use is assessed in Section 8.5.2. As with all building constructed in the 20th Century, is it feasible that Asbestos Containing Materials (ACM) may have been used in construction.

8.5.3.3 The surrounding area has been extensively developed with light industry such as depots, builder's yards, warehouses and unspecified works, since the construction of the surrounding industrial estate, initially between 1965 and 1976. Tanks, of unknown contents, were also noted as close as 70m west. Therefore, it is feasible that the site may have been affected by the surrounding land uses prior to the development of the site. Any contamination is likely to be limited to commonly occurring metals and organic compounds, with a possibility of Asbestos Containing Materials. Substations were noted 80m to the northwest and southwest on the 1991 map, however this post-dates the use of PCBs in electrical substations and are not worthy of further consideration

8.5.4 Source assessment – Desk study information

8.5.4.1 Envirocheck presents a detailed database of environmental information in relation to the site including;

- Pollution incidents
- Landfill sites
- Trading activities

8.5.4.2 A historic minor pollution incident occurred in 1991, located 65m south of the development area, and involved pollution of an unknown freshwater stream. Further details are not supplied. Given the location and severity of the incident, it is unlikely to have affected the site.

8.5.4.3 There are no registered or historical landfill sites within 1000m of the development area. From information summarised in Section 3.9, we consider the recorded offsite trading activities and associated potential contaminants to be similar to those discussed in Section 8.5.3.

8.5.5 Source assessment – Geology

8.5.5.1 The geological map of the area indicates the topography local to the site is formed in deposits of Alluvium, Warp, Breighton Sand Formation and bedrock of the Sherwood Sandstone Group. Typically, and in our experience, such deposits do not exhibit any abnormal concentrations of naturally occurring chemical contaminants.

8.5.5.2 Envirocheck records estimated background soil chemistry for the site as follows:

- Arsenic: 15-25mg/kg
- Cadmium: <1.8mg/kg
- Chromium: 60-90mg/kg
- Lead: <100mg/kg
- Nickel: 15-30mg/kg

8.5.5.3 Based on the above, such concentrations fall below current soil guideline values for proposed end use of the site.

8.5.6 Source assessment - Fieldwork observations

8.5.6.1 None of the exploratory excavations exposed soils or groundwater displaying visual or olfactory evidence to indicate the presence of a source of chemical contamination, other than the general presence of Made Ground.

8.5.7 Source assessment - summary

8.5.7.1 Based on the paragraphs above, we have identified the following potential sources of contamination: -

Table summarising results of source assessment

Source	Origin of information	Possible contaminant	Probability of risk occurring	Likely extent of contamination
On site				
Chemical works	Site reconnaissance	Extreme pH, mercury, ACMs, inorganic and organic contaminants	Low likelihood	Delivery, processing and spill areas
Vehicle movements	Site reconnaissance	TPH	Low likelihood	Site wide
Made Ground	Fieldwork observations	Metals, PAHs, TPH, ACMs	Possible	Site wide
Adjacent sites				
Works, depots, warehouses, tanks and builder's yards	Site reconnaissance, desk study	Metals, PAHs, TPH, ACMs	Low likelihood	Site wide

Table reference 8.5.7

8.6 Initial Conceptual Model

8.6.1 Based on our assessment of potential contaminative sources, identified receptors and viable pathways to receptors described in preceding paragraphs, we have produced an initial conceptual model in the form of a table which is presented in Appendix I.

8.6.2 Based on the conceptual model there are risks which exceed the low category which in our opinion are unacceptable and require either remedial action or further investigation by laboratory testing of soil / water samples to refine the risk assessment.

8.7 Laboratory testing

8.7.1 Testing regime

8.7.1.1 The following table summarises the chemical testing scheduled as well as a rationale for the testing;

Table summarising scheduled testing

Exploratory point	Depth (m)	Strata/ medium	Targeted sampling?	Scheduled testing	Rationale
TP01 TP02 DTS01	1.00 0.40 0.10	Made Ground	N	Suite 17 and Asbestos Identification	General site coverage
DTS01	0.10	Made Ground	Y	Asbestos Identification and Quantification	Quantification of identified asbestos
DTS02 TP03	0.20 0.30	Made Ground	N	Suite 1 and Asbestos Identification	General site coverage
DTS03 DTS04 RH02 TP01 TP05 TP06 TP06	1.00 0.10 0.30 0.10 0.50 0.40 1.00	Alluvium Made Ground Made Ground Made Ground Made Ground Made Ground Alluvium	N	pH	General site coverage
RH01 RH02	3.44 3.75	Groundwater Groundwater	N	Suite 3	General site coverage

Table 8.7.1.1

Refer to Appendix B for testing suite descriptions

8.7.1.2 It should be noted that Suite 17 also includes assessment of volatile organic compounds such as MTBE.

8.7.1.3 The results of laboratory determination of concentration of chemical contaminants are presented in Appendix G.

8.7.2 Criteria for assessment of test data – Human receptors

8.7.2.1 Assessment of laboratory test data has been carried out with reference to current nationally recognised documents listed in the final page of Appendix B. Due to changes in guidance on contaminated land, items 6-8 and item 10 in the document listing above have been withdrawn. In the absence of alternative guidance however we have used these documents. Where new guidance is available, this has been followed in preference to superseded guidance.

8.7.2.2 The Land Quality Management (LQM) and the Chartered Institute of Environmental Health (CIEH) have derived Suitable for Use Levels (S4ULs) which are presented in *'The LQM/CIEH S4ULs for Human Health Risk Assessment'* (2015). S4ULs have been used as a screening tool to assess the risks posed to the health of humans from exposure to soil contamination in relation to appropriate land uses. Where published S4ULs are not available, we have adopted C4SLs (Category 4 Screening Levels) produced by DEFRA or SGVs (Soil Guideline Values) as appropriate. In the absence of any of these criteria we have adopted Soil Screening Values (SSV) derived by Soiltechnics and by Atkins (SSV^{ATK}). The CLEA model used to derive SSVs has been used with toxicology data presented by the EA, LQM/CIEH and Atkins (in that order of preference). SSVs produced by Atkins are presented on their $ATRISK^{SOIL}$ website.

8.7.2.3 S4ULs, C4SLs, SGVs, SSVs and SSV^{ATK}s represent 'intervention values'; indications to an assessor that soil concentrations above these levels might present an unacceptable risk to the health of site users. These guideline values have been produced using conceptual exposure models, which use assumptions and are applied to differing end uses of land. If the values are exceeded, it does not necessarily imply there is an actual risk to health and site-specific circumstances should be considered. Conversely, where a critical pathway or chemical form of the contaminant has not been evaluated, a risk may be present even if the adopted guideline value has not been exceeded.

8.7.2.4 Due to the size of the sample population, we have directly compared metals and PAH contaminants against guideline values. TPH contamination results are also compared directly with corresponding S4ULs. The S4UL fractions for PAHs and TPHs are dependent on the Soil Organic Matter (SOM) content of the soils. We have adopted the relevant guideline values based on SOM testing.

8.7.2.5 We have adopted guidelines for commercial land use for current and proposed end users of the site.

8.7.3 Criteria for assessment of test data – Construction operatives

8.7.3.1 In the absence of guidelines we have adopted commercial guideline values for assessment of construction operatives.

8.7.4 Criteria for assessment of test data – Vegetation

8.7.4.1 Guidance published by Forest Research in "*BPG Note 5 - Best Practice Guidance for Land Regeneration*" suggests that a residential without plant uptake or industrial/commercial CLEA model should be adopted for this receptor. Specific guideline values are provided for copper and zinc at 130mg/kg and 300mg/kg respectively within BPG 5, however, this document has recently been withdrawn. As a practice we have adopted the industrial / commercial CLEA model for assessment of test data for vegetation.

8.7.4.2 It is difficult to quantify the phytotoxity of a contaminant as large variations exist between plant tolerances, soil effects and synergistic/antagonistic reactions between chemicals. Due to the complexities of the effects of soil contamination on different plant species, we recommend that the test results presented in this report are passed to a landscape architect for the selection of suitable planting.

8.7.5 Criteria for assessment of test data – Controlled waters

8.7.5.1 For interpretation of test data in relation to water receptors we have directly compared measured values with the Drinking Water Standards (DWS) as presented in *"The Water Framework Directive (Standards and Classification) Directions (England and Wales)* 2015*"*. Where DWS are not available we have adopted EQS values where applicable.

8.7.5.2 Given the site is located over a principal aquifer, and a groundwater abstraction is located adjacent to the west, the use of drinking water standards is considered appropriate within our assessment.

8.7.6 Evaluation of test data – Human receptors

8.7.6.1 Tables summarising and analysing test data are presented in Appendix H. The following table summarises the outcome of the analyses.

Table summarising assessment of test data for Human receptors

Analysis tables	Receptor group	Critical receptor	CLEA model	Inorganic contaminants	Organic contaminants
1, 2 and 3	Current and proposed site users and construction operatives	Adult	Commercial / Industrial	No exceedances	No exceedances

Table 8.7.6.1

8.7.6.2 Based on the above, laboratory testing has not identified any measured concentrations of contaminants which exceed current guideline values for human receptors. Based on the above evaluation, the concentrations of contaminants measured on soil samples taken from the site are considered unlikely to exhibit significant contamination from a perspective of human receptors.

8.7.6.3 It should also be noted that concentrations of a small number of SVOCs were measured at or marginally above detectable limits in near surface soils across the development area. Such contaminants are unlikely to pose a risk to human health via pathways associated with dermal contact or ingestion. The greatest risk will be associated with vapour pathways and background inhalation. Given the relatively insignificant concentrations measured, however, it is considered unlikely that such contaminants would pose a risk to human health via vapour pathways.

8.7.6.4 Asbestos was identified in one sample of Made Ground tested from DTS01 at a depth of 0.10m. Asbestos was identified as a bundle of Chrysotile fibres associated with near surface gravel deposits. Quantification analysis indicates 0.002% free asbestos fibres present.

8.7.6.5 The recorded concentrations of asbestos within the soils are considered to be very low (in accordance with current guidance), and no asbestos containing materials were observed during the fieldworks. Based on this, the risk of harm being caused to the health of construction operatives is considered to be low, and the risk to end users of the site very low (in accordance with current guidance). However, it would be recommended to provide a watching brief during the construction works and ensure groundworkers have received asbestos awareness training, in case asbestos containing materials are present. In such circumstances, it would be recommended to halt the works to allow further assessment to take place to ensure appropriate control measures are in place.

8.7.6.6 We have undertaken a number of additional pH tests to determine if soils in the development area have undergone acidification as a result of the onsite processes, which include the use of sulphuric acid. In total 17 samples have been tested to maximum depth of 7.00m. pH ranges from 7.6 to 8.4 with an average of 8.0. On this basis there is no evidence of acidification of onsite soils.

8.7.6.7 Based on the above evaluation, we are of the opinion that the near surface soils are unlikely to exhibit significant contamination from a perspective of human receptors.

8.7.7 Evaluation of test data – Vegetation

8.7.7.1 Comparison of test data with guideline values is presented on Tables 1 to 3 in Appendix H. None of the measured concentrations exceed the adopted guideline values. On this basis, we are of the opinion that measured concentrations are unlikely to exhibit significant contamination with respect to vegetation.

8.7.7.2 It is difficult to quantify the phytotoxity of a contaminant as large variations exist between plant tolerances, soil effects and synergistic/antagonistic reactions between chemicals. Due to the complexities of the effects of soil contamination on different plant species, we recommend that, should proposals for vegetation be revised, the test results presented in this report are passed to a landscape architect for the selection of suitable planting.

8.7.8 Evaluation of test data – Controlled waters

8.7.8.1 With reference to Table 4 in Appendix H, none of the measured concentrations of soluble contaminants exceed the relevant guidelines outlined in Section 8.7.5. It should be noted that, in the case of cyanide and benzo(a)pyrene, the minimum detection limit of the laboratory (5 and 0.01µg/l respectively) exceeds the guidelines for each contaminant. Given the minimal concentrations measured in other contaminants, in addition to the solid soil analysis which does not indicate the presence of such contamination, the likelihood of soluble concentrations of cyanide and benzo(a)pyrene persisting in groundwater is considered to be low.

8.7.8.2 The pH of both water samples was 7.8, which does not indicate that the groundwater on site has been affected by site processes.

8.7.8.3 Based on the above evaluation, we are of the opinion that the near surface soils are unlikely to exhibit significant contamination with respect to water resources.

8.8 Updated conceptual model

8.8.1 Having now completed analysis of laboratory testing, we can now update our conceptual model which is presented in Appendix I.

8.8.2 Current site users

8.8.2.1 Chemical testing indicates that the level of contamination present does not pose an unacceptable level of risk to current site users. However, we recommend that if the development does not proceed as planned, further consideration is given to the presence of asbestos fibres noted near surface in the area of DTS01.

8.8.3 Proposed site users

8.8.3.1 The end users of the site are considered to be site operatives and construction operatives utilising the development, which will be covered in plant and hardstanding. Based on such there would be no viable exposure routes to the very low quantities of asbestos present in the underlying soils within the area of DTS01, and therefore there will be no unacceptable level of risk to proposed site users. In addition, measured concentrations of contaminants do not pose a risk of causing harm to the health of proposed users.

8.8.4 Construction operatives

8.8.4.1 Based upon the findings of the site investigation works, measured concentrations of contaminants are considered to pose a very low risk of causing harm to the health of construction operatives, and no special precautions are considered required, beyond those expected for any brownfield site.

8.8.4.2 Within the area of DTS01, very low quantities of asbestos have been identified in near surface gravel deposits, present at 0.1m depth, and the risk to construction operatives is considered to be low.

8.8.4.3 As the concentration of loose asbestos fibres are very low, they are not considered to represent a significant risk to construction operatives during any excavation works, and the natural dilution in the atmosphere would likely result in negligible air-borne fibre concentrations. However, the presence of asbestos may be an indicator that asbestos containing materials are present within gravel surfacing, and therefore a watching brief is recommended as a precaution during excavation works in such material in order to identify potential asbestos containing materials.

8.8.5 Controlled waters

8.8.5.1 Based on the updated conceptual model none of the assessed risks exceed the low category and, on this basis, no remedial action is considered necessary at this stage to render the site fit for purpose.

8.9 Remedial action

8.9.1 We do not consider any remedial actions are required for the construction of the proposed tank development.

8.10 Risk assessment summary and recommendations

8.10.1 Based on our assessments described above, we can provide the following summary and recommendations for each identified receptor.

8.10.2 Current and proposed site users

8.10.1.1 Based on our assessments described above, there is not considered to be an unacceptable level of risk to current or proposed end users of the site, and no remedial actions are considered necessary. However, we recommend that if the development does not proceed as planned, consideration is given to the presence of asbestos fibres noted near surface in the area of DTS01.

8.10.3 Construction operatives and other site investigators

8.10.3.1 There is considered to be a very low risk to construction operatives and no special precautions are considered required, beyond those expected for any brownfield site.

8.10.3.2 Within the area of DTS01, the risk to construction operatives is considered to be low, as asbestos has been detected at very low quantities within the near surface gravel deposits. No special controls are considered to be required for the construction works within this area beyond those expected for any brownfield site; however, we would recommend good working practices, hygiene precautions and briefings/training are adopted on site. Such practices could include: -

- Asbestos awareness briefings should be included as part of the site inductions and an appropriate action plan is in place for dealing with unexpected contamination and suspected asbestos containing materials;

- Control of material movements to minimise dust generation, for example by reducing drop heights and ensuring buckets are not over-loaded;
- If unavoidable dusts are being generated, materials should be dampened down with a surfactant;
- Blading or covering short-term stockpiles;
- Covering or seeding long-term stockpiles;
- Asbestos awareness training
- A watching brief during enabling works

8.10.3.3 Guidance on safe working practices can be obtained from the following documents

- The Health and Safety Executive Publication *"Protection of Workers and the General Public during the Development of Contaminated Land"* (HMSO) and
- "*A Guide to Safer Working on Contaminated Sites"* (CIRIA Report 132).

8.10.3.4 In addition, reference should be made to the Health and Safety Executive. In all cases work shall be undertaken following the requirements of the Health and Safety at Work Act 1974 and regulations made under the Act including the COSHH regulations.

8.10.4 Controlled waters

8.10.4.1 As no source of significant chemical contamination has been identified on site, we are of the opinion that the site represents a low risk of causing harm to water receptors

8.10.5 Vegetation

8.10.5.1 As no source of significant chemical contamination has been identified on site, we are of the opinion that the site represents a low risk of causing harm to vegetation.

8.11 Statement with respect to National Planning Policy Framework

8.11.1 Providing the recommendations described above are satisfactorily completed, we are of the opinion the proposed development will be safe and suitable for use for the purpose for which it is intended, thus meeting the requirements of the National Planning Policy Framework section 178, and compliant with the Building Regulations Part C, '*Site preparation and resistance to contaminants and moisture'*.

8.12 On Site Monitoring

8.12.1 No monitoring or further works is considered necessary. However, ground conditions can be variable and areas which have not been investigated at this stage, may exhibit higher levels of contamination. If such areas are exposed at any time during construction, we will be pleased to re-attend site to assess what action is required to allow the development to safely proceed.

soiltechnics
environmental ▪ geotechnical ▪ building fabric

Appendix C Environmental Permit

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Kemira Chemicals (UK) Limited

Kemira Chemicals (UK) Limited
New Potter Grange Road
M62 Trading Estate
Goole
East Yorkshire
DN14 6BZ

Permit number

EPR/TP3135PX

Kemira Chemicals (UK) Limited
Permit number EPR/TP3135PX

Introductory note

This introductory note does not form a part of the permit

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. Only the variations specified in schedule 1 are subject to a right of appeal.

This variation is to facilitate an increase in ferric sulphate production capacity from 150,000 to 250,000 tonnes per year. There is one new 58m^3 dissolver, two new 30m^3 reactors and a new tank farm of six 100m^3 final product storage tanks and two 100m^3 sulphuric acid tanks connected to the process building by an overhead pipe-bridge. The dissolver is enclosed and vented via a condenser to the existing scrubber. The reactors are connected to the existing emission point via the existing scrubber when venting. The tank farm storage tanks breathe naturally. The installation boundary has been extended for the new tank farm and tanker loading bay. The scheduled activities in Table S1.1 of this permit have been updated to reflect increasing to three dissolvers (making ferrous/ferric sulphate solution) and five reactors (oxidation of ferrous to ferric sulphate solution).

The main features of the permit are as follows.

The Kemira Chemicals (UK) Limited site is approximately centred on National Grid Reference SE 72948 23555. The installation is permitted to produce inorganic salts such as ferric sulphates, calcium nitrate and ferric nitrate as covered by the description in Section S.4.2 Part A (1) a) (iv) in Schedule 1 of the EP Regulations.

A number of inorganic salts for the use in water treatment are manufactured at the installation primarily by dilution of high concentration salts or reaction with acids in vessels of capacity between 10 and 30 cubic metres, at temperatures between 70 and 130°C, and up to 14 bar pressure.

The principal permitted reactions are:

Dissolution of magnetite in sulphuric acid;
Dissolution of Copperas (ferrous sulphate hydrate) in sulphuric acid;
Oxidation of ferrous sulphate to ferric sulphate with oxygen at high pressure.

Dissolution of ferric sulphate in water, including oxidation of residual ferrous sulphate to ferric sulphate using small quantities of sodium chlorate; reaction of hydrofer (ferric sulphate hydroxide) with sulphuric acid; slurry formation of polyaluminium chloride; reaction of calcium hydroxide with nitric acid; and the reaction of ferric hydroxide with nitric acid. A small boiler burning low sulphur oil is used for process steam generation to heats solutions. At the time of issue of this variation there is no production of nitrates.

The finished products are filtered either using a filter press or through filter socks before transfer to storage. Oxides of sulphur, oxides of nitrogen and dusts are liberated from the processes. These are treated using wet scrubbing techniques before release to the atmosphere. The scrubber liquors are reused in the process.

The installation is completely on hard standing concrete surface. Drainage from the process areas is reused in the process. Some surface waters from the roadway drain to sewer. Uncontaminated surface water is pumped to the River Don. There are no discharges to groundwater.

The installation is within the screening distance (the nearest being approx. 2km) of four Special Areas of Conservation, four Special Protected Areas, three Ramsar designated sites and a Site of Special Scientific Interest as well as Oak Hill local wildlife site at 640m.

The main solid waste streams generated at the permitted installation are filter cake and sludge wastes, and these are stored in closed enclosed containers prior to disposal to landfill.

The activities carried out at the installation do not have the potential to cause odour since there are no odorous materials used at the installation.

Noise is controlled by enclosing processes within buildings. It is unlikely that there will be significant noise at the installation boundary.

The potential for accidents that could adversely affect the environment is not considered to be significant.

The installation is managed under the internationally recognised Environmental Management System ISO14001, such that environmental issues are incorporated into all relevant aspects of the business activities.

The schedules specify the changes made to the permit.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	**Date**	**Comments**
Application received EPR/TP3135PX/A001	Duly made 29/08/05	Application for inert and excavation waste transfer station and composting facility.
Additional information received	31/01/06; 03/02/06; 13/02/06.	Information on BAT assessments, monitoring, impact assessments, emissions to sewer, fugitives, energy, site report, and site plan
Additional information received	13/02/06	Information on improvements, emissions to sewer and water, raw material and waste storage, waste streams, abatement, fugitives, and monitoring
Permit determined EPR/TP3135PX	16/03/06	Original Permit issued to Kemira Chemicals (UK) Limited
Variation application EPR/TP3135PX/V002	Duly made 07/06/13	Application to vary permit to remove emission points and include the installation of a new reactor, one stock tank and one buffer tank.
Variation determined EPR/TP3135PX/V002	20/08/13	Varied permit issued to Kemira Chemicals (UK) Limited
Variation application EPR/TP3135PX/V003	Duly made 06/03/18	Application to vary and update the permit to modern conditions.
Additional information received	06/03/18	Confirmation of contingency plans and procedures.
Variation determined EPR/TP3135PX/V003	09/04/18	Varied and consolidated permit issued.
Variation application EPR/TP3135PX/V004	Duly made 09/12/19	Application to add one dissolver, two reactors and a tank farm to facilitate an increase in production capacity
Additional information request	18/02/20	Updated site plan received 18/02/20
Variation determined EPR/TP3135PX/V004 (Billing ref. CP3402BD)	20/03/20	Varied and consolidated permit issued.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/TP3135PX

Issued to

Kemira Chemicals (UK) Limited ("the operator")

whose registered office is

Bowling Park Drive
West Bowling
Bradford
West Yorkshire
BD4 7TT

company registration number **00907866**

to operate a regulated facility at

Kemira Chemicals (UK) Limited
New Potter Grange Road
M62 Trading Estate
Goole
East Yorkshire
DN14 6BZ

to the extent set out in the schedules.

The notice shall take effect from 20/03/20

Name	Date
~~**[name of authorised person]**~~**Philip Lamb**	**20/03/2020**

Authorised on behalf of the Environment Agency

Schedule 1

The following conditions were varied as a result of the application made by the operator:

Table S1.1 referenced in condition 2.1.1 was amended

Table S1.2 referenced in condition 2.3.1 was amended

Site plan referenced in condition 2.2.1 was amended

The following conditions were varied as a result of an Environment Agency initiated variation:

Condition 4.2.5 (annual solvent emissions plan submission) was deleted

Table S4.3 referenced in condition 4.2.2(c) was amended to delete annual releases of oxides of nitrogen performance parameter.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/TP3135PX

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/TP3135PX/V004 authorising,

Kemira Chemicals (UK) Limited ("the operator"),

whose registered office is

Bowling Park Drive
West Bowling
Bradford
West Yorkshire
BD4 7TT

company registration number **00907866**

to operate an installation at

Kemira Chemicals (UK) Limited
New Potter Grange Road
M62 Trading Estate
Goole
East Yorkshire
DN14 6BZ

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Philip Lamb~~[name of authorised person]~~	**20/03/2020**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazardous property associated with the waste, if applicable; and

(e) the waste code of the waste.

2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2 and S3.3.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) point source emissions specified in tables S3.1, S3.2 and S3.3.

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the annual production /treatment data set out in schedule 4 table S4.2; and

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.3 Notifications

4.3.1 In the event:

(a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

(i) inform the Environment Agency,

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

(iii) take the measures necessary to prevent further possible incidents or accidents;

(b) of a breach of any permit condition the operator must immediately—

(i) inform the Environment Agency, and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

(c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

In any other case:

(a) the death of any of the named operators (where the operator consists of more than one named individual);

(b) any change in the operator's name(s) or address(es); and

(c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.3.7 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:

(a) a decision by the Secretary of State not to re-certify the agreement;

(b) a decision by either the operator or the Secretary of State to terminate the agreement; and

(c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	**Description of specified activity**	**Limits of specified activity**
S.4.2 Part A (1) a) (iv) Producing inorganic chemicals such as salts	Production of ferrous/ferric sulphate from Copperas or Magnetite (three dissolvers)	From receipt of raw materials to transfer or dispatch of product solution. Handling, storage, recycling and despatch of waste materials arising from the listed activity. Treatment of flue gases and monitoring systems including recycling of waste materials arising.
S.4.2 Part A (1) a) (iv) Producing inorganic chemicals such as salts	Oxidation of ferrous to ferric sulphate (five reactors)	From receipt of ferrous/ferric sulphate solution to dispatch of finished product. Handling, storage, recycling and despatch of waste materials arising from the listed activity. Treatment of flue gases and monitoring systems including recycling of waste materials arising.
S.4.2 Part A (1) a) (iv) Producing inorganic chemicals such as salts	Production of ferric nitrate	From receipt of raw materials to dispatch of finished product. Handling, storage, recycling and despatch of waste materials arising from the listed activity. Treatment of flue gases and monitoring systems including recycling of waste materials arising.
S.4.2 Part A (1) a) (iv) Producing inorganic chemicals such as salts	Production of calcium nitrate	From receipt of raw materials to dispatch of finished product. Handling, storage, recycling and despatch of waste materials arising from the listed activity. Treatment of flue gases and monitoring systems including recycling of waste materials arising.
Directly Associated Activity		
Slurries preparation	Preparation of poly aluminium chlorides slurries	From receipt of raw materials to dispatch of finished product. Handling, storage, recycling and despatch of waste materials arising from the listed activity. Treatment of flue gases and monitoring systems including recycling of waste materials arising.
Steam generation	Operation of oil fired boiler for generation of process steam	From receipt of raw material. Conditions of low sulphur oil in a boiler of capacity 1.51 MW net thermal input to generate process steam. Handling, storage, recycling and despatch of waste materials arising from the activity.
Air abatement	The use of air abatement systems via wet scrubbers and dust extractor	From the generation of emissions resulting from salts manufacture to discharge to atmosphere.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application EPR/TP3135PX/A001	The responses to question 2.1 and 2.2 and 2.10 of the application.	29/08/05
Responses dated 31/01/06, 03/02/06 and 13/02/06 to request for information dated 12/01/06	Response to Item 1 detailing plant operations; item 2 and item 3 detailing abatement plant; item 8 detailing fugitive emissions; item 9 detailing bunding; and item 13 and 14 detailing monitoring techniques.	31/01/06 03/02/06 13/02/06
Response dated 13/02/06 to request for information dated 06/02/06	Responses to item 3 detailing IBC storage; and item 8 detailing safety relief of pressure vessels.	13/02/06
Application EPR/TP3135PX/V002	Responses to Part C3 section 3 of the application form and other referenced supporting documentation, including a revised site layout plan.	Duly Made 07/06/13
Application EPR/TP3135PX/V003	Response to question 3d Management systems of the Application form C2. Responses and the documents provided to question 3a Technical standards, question 3c Types and amounts of raw materials of the Application form C3.	06/03/18
Additional information request e-mail dated 01/03/18	Response to question regarding the contingency plans and procedures that will apply to the new proposed stage in the process.	06/03/18
Application EPR/TP3135PX/V004	Application Submission Letter process and equipment changes description including the in maximum oxidation reactor pressure from 6.3 to 14 barg.	Duly Made 09/12/19

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	With reference to Section B2.2.39 of the Application the operator shall complete the installation of the new raw materials off-loading bay to the timescale indicated in the response to item 2 for further information needed 06/02/06 and received on 13/02/06.	Completed
IC2(a)	The Operator shall submit a written Energy Efficiency Plan (the Plan) to the agency, having due regard to Sector Guidance Note S4.03 draft 1, 12 May 2004, Section 2.7. The Plan shall include proposal for the installation of energy efficient measures identified and a timetable for their implementation. The Plan shall include an Energy Balance Diagram, the energy efficiency measures detailed in Section B2.7.6 of the Application, and a review of the energy efficient building service measures detailed in section B2.7.4 of the Application.	Completed
IC2(b)	On receipt of written agreement by the Agency to the proposal and the timetable required by improvement condition 2(a), the Operator shall carry out the improvements and submit a report in writing to the Agency.	Completed
IC3	The Operator shall submit a formal written Site Closure Plan to the Agency, having due regard to section 2.11 of Sector Guidance Note S4.03 Draft 1, 12 Man 2004.	Completed

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
-	-

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements[1]						
Emission point ref. & location	**Source**	**Parameter**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1 [on site plan in Schedule 7]	Scrubber stack	Sulphur dioxide SO_2	50 mg/m^3	15 minutes average	Annual	TGN M21 (AM for BS EN 14791)
		Particulate matter	10 mg/m^3	1 hour average	Annual	BS EN 13284-1
Note 1: Limits and reference period listed, unless otherwise agreed by the Environment Agency.						

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1 [on site plan in schedule 7 emission to River Don]	Surface water	No parameters set	No limit set	–	–	–

Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements						
Emission point ref. & location	**Source**	**Parameter**	**Limit (incl. Unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
S1 [on site plan in schedule 7 emission to Yorkshire Water Goole Sewage Treatment Works]	Potentially contaminated road drainage	No parameter	No limit set	–	–	–

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Emissions to air Parameters as required by condition 3.5.1.	A1	Every 12 months	1 January

Table S4.2: Annual production/treatment	
Parameter	**Units**
Production of sulphate solutions	tonnes
Production of nitrate solutions	tonnes
Production of aluminium solutions	tonnes

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Water usage	Annually	tonnes
Energy usage	Annually	MWh
Waste return	Annually	tonnes
Annual releases of sulphur dioxide	Annually	g/tonne
Annual releases of particulates	Annually	g/tonne all solutions
Potable water use	Quarterly	m^3/t all solutions

Table S4.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air	Form air 1 or other form as agreed in writing by the Environment Agency	01/03/18
Water usage	Form / FP3138SB / WU1	16/03/06
Energy usage	Form / FP3138SB / E1	16/03/06
Waste return	Form / FP3138SB / R1	16/03/06
Other performance indicators	Form / FP3138SB / PI1	16/03/06

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“disposal”. Means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Hazardous property” has the meaning in Annex lll of the Waste Framework Directive.

“Hazardous waste” has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste

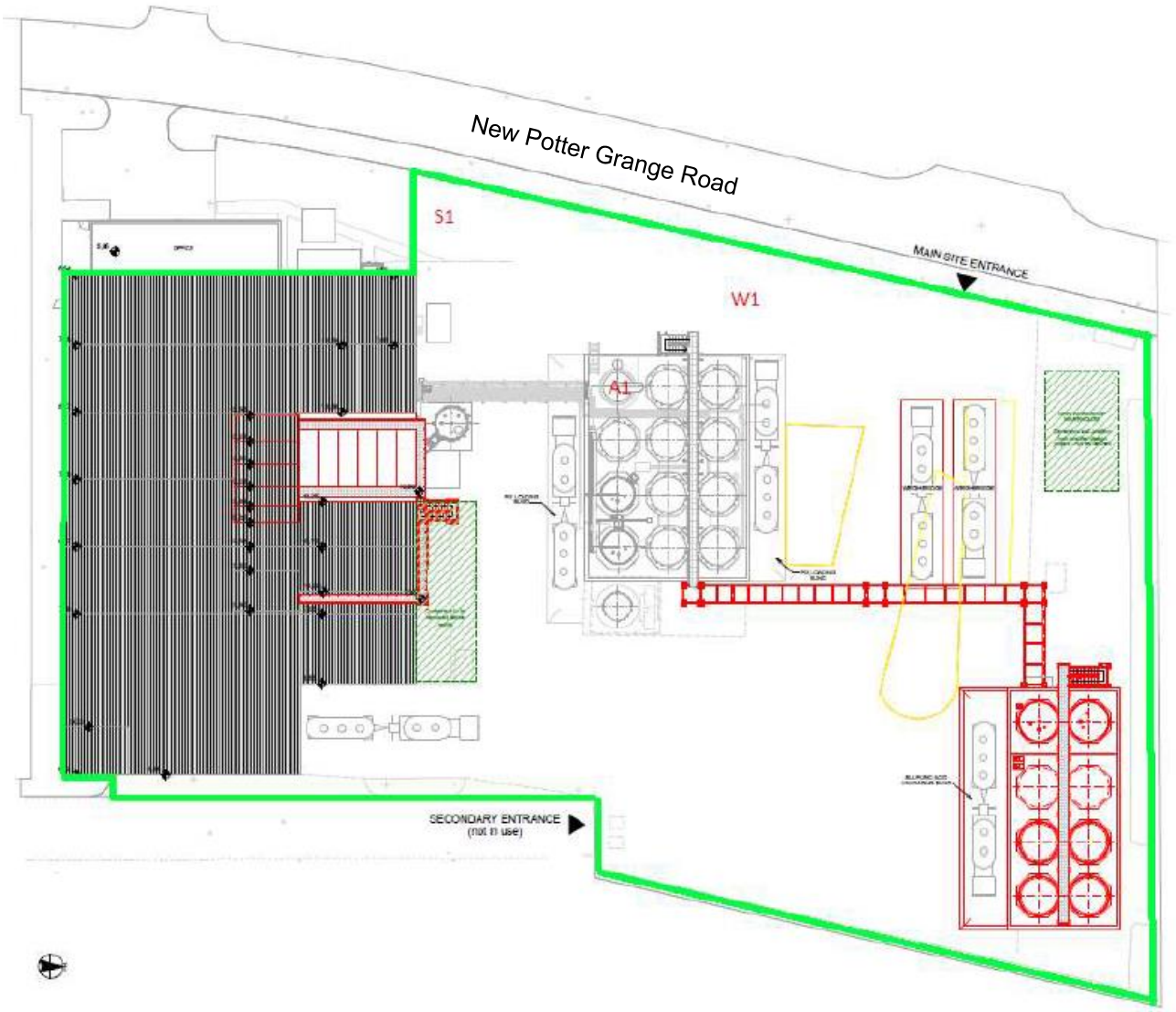
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

“year” means calendar year ending 31 December.

Schedule 7 – Site plan



END OF PERMIT

soiltechnics
environmental ▪ geotechnical ▪ building fabric

Appendix D EA Letter

Gary Pickard

Our ref:
EPR/TP3135PX/V005

Date: 31/10/2024

Dear Gary

We need more information about your application and additional application charge

Application reference: EPR/TP3135PX/V005
Operator: KEMIRA CHEMICALS (UK) LIMITED
Facility: Kemira Chemicals (UK) Limited EPR/TP3135PX

Thank you for your application received on 19/01/2024. The following is to confirm our conversation of 31/10/2024.

Application fee

Unfortunately, the application payment you sent is incorrect. The correct application charge is £ 11,888.

The changes requested in this permit application makes it a substantial variation. Therefore, the charge for this is as per the charge code 1.4.4 of the table of charges for a substantial variation - £11,888.

Your application requires an assessment under the Habitats Regulations. The charge for this assessment is not included in your baseline application charge. You will therefore need to make an additional payment of £779.

The total application fee amounts to £12,667. You have made a payment of £6,604. This leaves a balance of **£6,063** to pay.

Additional information

I need to ask you for some missing information before I can do any more work on your application. Please provide us with more information to the following questions:

1. **Contact information of a 'relevant person'**

   Kindly provide us with the email address of the Company Secretary/Director.

   This information is required for serving Schedule 5 notices and issuing decisions.

2. **Form Part F1**

Kindly re-submit form F1 with the appropriate information.

a. Please enter the correct activity charge in section 1.

b. Please confirm whether you are claiming confidentiality for any information you provided when the application was submitted.

In form F1, you have not ticked the box under section 4 to claim confidentiality. However, under section 6 you have ticked the box which says that you have provided a supporting letter for claiming confidentiality.

c. The declaration in section 5 should be signed by a relevant person or you must provide a letter of authorization signed by a relevant person.

In case of a company, relevant person means a director, manager, company secretary or any similar officer listed on current appointments in Companies House. A relevant person makes the declaration. If a manager or other employee not listed on current appointments at Companies House fills the declaration on behalf of the company, we will need confirmation by letter or email from a relevant person.

d. Please untick the box under section 5: Declaration – for transfers only and remove the information in that section.

3. **Summary of EMS**

Kindly provide a summary of your management system. This should include how you will address the changes resulting from this variation into your management system. Alternatively, this could also be the contents page (index) of your management system.

Please note that we do not require a full Management System document.

4. **Site Condition Report**

Kindly provide a site condition report in accordance with the guidance Environmental permitting: H5 Site condition report - GOV.UK (www.gov.uk)

A site condition report is required for applications that increase the installation boundary. If your proposed activity involves the use, production or release of relevant hazardous substances, you must submit baseline data as part of your application SCR. Hazardous substance is determined by its pollution potential by considering its chemical and physical properties such as: composition, physical state, solubility, toxicity, mobility, persistence etc.

5. **Storage and secondary containment**

Kindly provide the details of the infrastructure for the new tanks such as tank specification, surfacing, secondary containment. Please refer to preventing leaks from containers for guidance when formulating your response.

You must provide adequate bunding such that the bunds have a capacity larger than both of the following:

- *110% of the largest tank the bund is protecting*
- *25% of the combined volume of all the tanks the bund is protecting*

6. **BAT assessment**

Kindly provide a BAT assessment against the relevant best available techniques.

You have stated BAT for Industrial Cooling systems and Energy efficiency in Table 3 – Technical Standards of form Part C3. Please provide a BAT assessment against these as well as The Inorganic Chemicals Sector (EPR 4.03).

7. **Abatement techniques**

Kindly provide information on any abatement techniques to be used on the new emission point sources to air. If you do not plan to use abatement, please justify why this is not required.

8. **Site specific risk assessment**

Kindly provide a site specific risk assessment in accordance with the guidance Risk assessments for your environmental permit - GOV.UK (www.gov.uk) and how you plan to control these risks based on the guidance Control and monitor emissions for your environmental permit - GOV.UK (www.gov.uk).

9. **Flood risk**

The site is within flood zone 2 and 3. Kindly confirm if you have considered the risk of pollution in a flooding event and if this has been covered under the site Accident Management Plan or in the Management System.

If yes, please provide evidence, this could be the summary of the main contents of the risks and mitigation measures.

10. **Emissions to air risk assessment**

You have not provided a risk assessment for emissions to air given the addition of 5 new emission points. Kindly provide a H1 risk assessment in accordance with the guidance Air emissions risk assessment for your environmental permit - GOV.UK.

Please send the information and payment within 10 working days of this letter. Details of how to pay are given in Part F of the application form. If we don't hear from you, we must return your application.

When we receive the requested information and payment, we'll continue to check your application. We'll check to see if there's enough information for the application to be 'duly made'. Duly made means that we have all the information we need to begin determination. Determination is where we assess your application and decide if we can allow what you've asked for.

We'll let you know by letter whether your application can be duly made. If it can't be duly made, we'll return your application to you.

If we do have to return your application we'll send you a partial refund of your application payment. We'll retain 20% of the application charge to cover our costs in reviewing your application and requesting information. This maximum amount we'll retain is capped at £1,500. Further information on charging can be found at: https://www.gov.uk/government/publications/environmental-permitting-ep-charges-scheme

If you have any questions please phone me on 07721681625 or email Anjali.Ozhakkal@environment-agency.gov.uk

Yours sincerely

Anjali Ozhakkal
Permitting Officer

soiltechnics
environmental ▪ geotechnical ▪ building fabric

Appendix E Environmental Health and Safety Policy

SHE 01: Environment, Health, Safety & Quality Policy

Table of Contents

1. PURPOSE

The EHSQ Policy sets out Kemira's general approach and commitment together with the arrangements in place for managing Environment, Health, Safety, and Quality in the UK.
As defined in Kemira's Code of Conduct, Kemira strives to protect the Environment, Health and Safety and to promote Quality in all of its businesses.
It is a legal requirement under the Health and Safety at Work Act 1974 that a written Policy with respect to the Health and Safety at Work of employees and an organisation for carrying out that policy is prepared and issued. It is also a requirement under ISO 9001, ISO 14001, OHSAS 18001 & ISO 45001 to put in place a Policy that is supported by senior management.
The Management of Health and Safety at Work Regulations 1999 also require the provision of arrangements for the planning, organisation, control, monitoring and review of measures for employee safety. Recommendations on consultation on Health and Safety matters are set out in the Safety Representatives and Safety Committees Regulations 1977 as amended by the Management of Health and Safety at Work Regulations 1992 and the Health and Safety (Consultation with Employees) Regulations 1996.

2. SCOPE

This Policy determines the level of commitment and minimum requirements for Environment, Health, Safety and Quality as well as energy efficiency within Kemira Chemicals (UK) Ltd.
This Policy applies to all Kemira Chemicals (UK) Ltd employees, suppliers, external workforce, contingent workers and visitors associated with our operations. This includes operations based at Bradford, Ellesmere Port, Goole and Teesport sites.

3. REFERENCES

3.1 The Health and Safety at Work etc Act 1974
3.2 The Management of Health and Safety at Work Regulations 1999
3.3 The Management of Health and Safety at Work Regulation 1992
3.4 Kemira Group EHSQ Policy
3.5 ISO 9001, 14001 & 45001 Requirements
3.6 Safety Representatives and Safety Committees Regulations 1977
3.7 Health and Safety (Consultation with Employees) Regulations 1996
3.8 Kemira code of conduct

4. DEFINITIONS

External Workforce	• Outcomes delivered for Kemira. However work is not performed under Kemira management or supervision • Employed by a 3rd party
Contingent worker	• Employed and salary paid by a 3rd party • Working for Kemira under Kemira's management and supervision.
Kemira employees	• Relationship via employment • Salary is paid by Kemira payroll

Visitor	• Any person, whether employed by Kemira or not, who visits a Kemira facility but does not work there regularly and has not received a full EHSQ induction training appropriate to that site.

5. ENVIRONMENT, HEALTH, SAFETY, and QUALITY (EHSQ) POLICY

The employees of Kemira Chemicals (UK) Ltd are committed to the protection of the environment and the health, safety and security of all stakeholders in our businesses. As a Company, we demonstrate this commitment by:

- Communicating this policy throughout every level of the organisation, to include employees, customers, external workforce, contingent workers and external bodies as appropriate.
- Communicating with our employees, neighbours, regulators and customers concerning Environmental, Health, Safety, Security and Quality matters.
- Continually improving Environmental, Health, Safety, Security and Quality performance via our certificated EHSQ management systems.
- Developing and providing high quality products and services through the lifecycle that meet customer needs and regulatory requirements in an environmentally responsible manner.
- A helpful, supportive and collaborative approach will be followed when working with colleagues, suppliers, external workforces, and others to ensure the effective management of the EHSQ systems on all UK sites.

Kemira Chemicals (UK) Ltd is further committed to meeting all applicable legislative, regulatory, Kemira Group and other requirements by:

- Preventing accidents, incidents, injury and ill health as our first priority, by systematically assessing EHSQ hazards and risks to cover all of our operations; two-way communications, consultation and engagement on EHSQ matters with our employees, is a fundamental part of the EHSQ success. All employees are encouraged to report any incidents, shortcomings, failures or concerns with respect to EHSQ.
- Maintaining and developing our manufacturing facilities to a safer level of operation;
- Preventing and reducing pollution and minimising waste by promoting sustainability of processes including recovery, reuse and recycling of materials. Also, by conserving energy and natural resources;
- Identifying and managing security exposures;
- Ensuring our people are adequately instructed and trained on the health and safety issues that affect them, and the safe working practices that should be followed. We will ensure the health and safety competence of our contingent workers, external workforces and stakeholders:
- Assessing our occupational health risks. All our people will be informed of the occupational health risks that affect their work. We will take action to prevent, reduce or control occupational health risks to an acceptable level and reduce the potential for ill health, including assessing all our people's fitness for work:
- Informing customers in the safe use and disposal of our products;
- Setting and reviewing measurable objectives and targets to improve performance related to our EHSQ objectives.
- Use of proven best available technology when designing, building or upgrading our production plants.
- We promote personal involvement and teamwork to meet our EHSQ objectives to enhance customer satisfaction and to continually improve the effectiveness of the EHSQ management system.
- We strive to work only with suppliers, external workforces, distributors and transporters that share these commitments.
- We recognise our responsibility to provide quality products and services, which fully meet the requirements of our customers. This is achieved through the training, personal involvement and teamwork of all employees.

- Reduce greenhouse gas emissions, releases to air, water and soil, water use and waste generation and through circular economy principles, energy efficiency and energy sourcing management
- Enhance the positive impacts of our operations on our people, our business partners, the environment and surrounding communities

At each Site we have systems and procedures to implement the EHSQ Policy, and an annual set of Site Objectives that define specific goals consistent with the Policy, current corporate and local national requirements and with continuous improvement as a common theme.
This Policy supports the Kemira Group EHSQ Policy.

This Policy will be periodically reviewed to ensure its appropriateness to cover the full scope of Kemira Chemicals (UK) Ltd management systems, and its effectiveness in providing a framework for setting EHSQ objectives.

D Normington
Managing Director

6. RESPONSIBILITIES

Each Kemira UK Plant Manager has overall responsibility for the operation of the Policy and Programme on their site(s). The operation of the Environment, Health, Safety, and Quality (EHSQ) Policy in individual departments is the responsibility of line management in those departments.

Each Kemira UK Plant Manager is committed to and responsible for the Environment, Health, Safety and Quality performance and maintaining a culture of sustainability within Kemira. Through continuous development of skills and awareness, Kemira's management ensures that employees understand their responsibilities and know how to follow the respective procedures and instructions.

The EHS Manager fulfils the role of competent person as outlined in the Management of Health and Safety at Work Regulations 1999.
Individual safety responsibilities and competencies are specified in writing for all levels of management down to first line Supervision.

Kemira's employees are expected to show a high degree of professionalism and have a personal sense of responsibility with respect to Environment, Health, Safety and Quality.

Each individual on site also has the responsibility of observing site and statutory rules for his/her own safety, and for the safety of others as affected by their own acts or omissions as outlined in the Health and Safety at Work Act 1974.

All contractors, suppliers and other service providers who perform work on behalf of or with Kemira shall comply with all applicable EHSQ and energy regulations, the Code of Conduct for Business Partners as well as with this Policy.

Kemira is responsible for training and informing the contractors and suppliers about Kemira EHSQ requirements and targets.

Kemira's employees and operations will comply with all applicable EHSQ and energy efficiency, labour and human rights laws, regulations and internal Kemira requirements. Kemira will continue to honour our commitment to voluntary programs such as Responsible Care and UN Global Compact.

7. PERFORMANCE MONITORING

The operation of the sites EHSQ Management System and the sites performance against the programme is monitored by a framework set out in the management programme encompassing a series of internal and external audits. A management review meeting will be carried out twice annually with the inputs and outputs reported to top level management.

8. TRADE UNION SAFETY REPRESENTATION AND CONSULTATION WITH EMPLOYEES.

Under the Safety Representative and Safety Committee Regulations 1977 (as amended), safety representation is accepted from the recognised Trade Union.
On the Bradford site this obligation is met by Trade Union Safety representation on the Site Safety and Environmental Committee, involvement in Departmental Safety Group meetings, involvement in accident investigations, being advised on matters concerning the health and safety of employees and undertaking workplace inspections.
Where employees are not represented under the Safety Representatives and Safety Committees Regulations 1977 (Trade Union Safety Representatives), the Health and Safety (Consultation with Employees) Regulations 1996 will apply. This allows consultation with employees directly as individuals, or through elected health and safety representatives (known as "representatives of employee safety" in

the Regulations), or a combination of the two. This is the case at the Teesport, Goole and Ellesmere Port sites.
Safety Representatives are accorded all rights as set out in the Code of Practice on Safety Representatives as approved by the Health and Safety Executive.

SUMMARY OF CHANGE

DATE	SECTION	BRIEF DESCRIPTION OF CHANGE	
February 2009	All	Revision to apply to all UK sites	S.L Smith
September 2009	All	Revision to apply to all UK sites	S.L Smith
February 2010	All	Annual review and changes to Job Titles	S.L Smith
January 2011	All	Review for 2011	S.L Smith
January 2012	All	Annual review no significant changes	S.L Smith
March 2014	All	Minor amendments to policy wording	P.Rees
March 2015	All	Annual review - Policy template change, font changed, additional sections included and additional wordings added to policy	K.Afuwape
May 2016	All	Annual review – Merged the Quality policy within the EHS policy. Added reference to the Kemira code of conduct. Referenced the Kemira group EHSQ policy within the text. Additional sections included.	K.Afuwape and I.Gourley
May 2017	All	Annual review	I.Gourley
May 2018	All	Annual Review. David Normington MD signature added to Policy	MP Wood
June 2019	All	Annual Review	MP Wood
June 2020	All	Annual review: Include section on training and occupational health and reference to ISO 45001, Page numbers added.	DG Nield
October 2020	All	Updated to include Contingent Workers, action from Management Review Meeting.	DG Nield
February 2022	All	Annual review – added a few statements from the global policy regarding sustainability and compliance	I Gourley/ S Saxton
July 2024	All	General review	S Saxton

soiltechnics
environmental ▪ geotechnical ▪ building fabric

Appendix F EPR Compliance Assessment Report

Environment Agency	**EPR Compliance Assessment Report**	Report ID: TP3135PX/0514822

This form will report compliance with your permit as determined by an Environment Agency officer

Site	Kemira Chemicals (UK) Limited EPR/TP3135PX			Permit Ref	TP3135PX	
Operator/ Permit holder	KEMIRA CHEMICALS (UK) LIMITED					
Date	08/08/2024			Time in	12:15	Out 12:45
What parts of the permit were assessed	Inspection following pollution incident report					
Assessment	Site Inspection	EPR Activity:	Installation X	Waste Op	Water Discharge	
Recipient's name/position	KEMIRA					
Officer's name	Ralph Bolton			Date issued	13/08/2024	

Section 1 - Compliance Assessment Summary

This is based on the requirements of the permit under the Environmental Permitting Regulations (EPR). A detailed explanation and any action you may need to take are given in the "Detailed Assessment of Compliance" (section 3). This summary details where we believe any non-compliance with the permit has occurred, the relevant condition and how the non-compliance has been categorised using our Compliance Classification Scheme (CCS). CCS scores can be consolidated or suspended, where appropriate, to reflect the impact of some non-compliances more accurately. For more details of our CCS scheme, contact your local office.

Permit Conditions and Compliance Summary				Condition(s) breached
a) Permitted activities	**1**. Specified by permit	N		
b) Infrastructure	**1.** Engineering for prevention & control of pollution	N		
	2. Closure & decommissioning	N		
	3. Site drainage engineering (clean & foul)	C3		3.1.1
	4. Containment of stored materials	N		
	5. Plant and equipment	N		
c) General management	**1**. Staff competency/ training	N		
	2. Management system & operating procedures	N		
	3. Materials acceptance	N		
	4. Storage handling, labelling, segregation	N		
d) Incident management	**1**. Site security	N		
	2. Accident, emergency & incident planning	N		
e) Emissions	**1.** Air	N		
	2. Land & Groundwater	N		
	3. Surface water	A		
	4. Sewer	N		
	5. Waste	N		
f) Amenity	**1**. Odour	N		
	2. Noise	N		
	3. Dust/fibres/particulates & litter	N		
	4. Pests, birds & scavengers	N		
	5. Deposits on road	N		
g) Monitoring and records, maintenance and reporting	**1**. Monitoring of emissions & environment	N		
	2. Records of activity, site diary, journal & events	N		
	3. Maintenance records	N		
	4. Reporting & notification	N		
h) Resource efficiency	**1**. Efficient use of raw materials	N		
	2. Energy	N		

KEY: **C1, C2, C3, C4** = CCS breach category **(* suspended scores are marked with an asterisk),**
A = Assessed (no evidence of non-compliance), **N** = Not assessed, **NA** = Not Applicable, **O** = Ongoing non-compliance – not scored
MSA, **MSB**, **TCM** = Management System condition A, Management System Condition B and Technically Competent Manager condition which are environmental permit conditions from Part 3 of schedule9 EPR (see notes in Section 5/6).

Number of breaches recorded	1	**Total compliance score** (see section 5 for scoring scheme)	4

If the Total No Breaches is greater than zero, then please see Section 3 for details of our proposed enforcement response

Section 2 – Compliance Assessment Report Detail

This section contains a report of our findings and will usually include information on:

- the part(s) of the permit that were assessed (e.g. maintenance, training, combustion plant, etc)
- where the type of assessment was 'Data Review' details of the report/results triggering the assessment
- any non-compliances identified
- any non-compliances with directly applicable legislation
- details of any multiple non-compliances
- information on the compliance score accrued inc. details of suspended or consolidated scores.
- details of advice given
- any other areas of concern
- all actions requested
- any examples of good practice.
- a reference to photos taken

This report should be clear, comprehensive, unambiguous and normally completed within 14 days of an assessment.

Inspection following pollution report, pollution to stream which Yorkshire Water surface water sewer discharges to - the surface water sewer runs under the pavement adjacent to site boundary. A discharge of odorous high ammonia liquid from a private pumping station on land the other side of New Potter Grange Road was identified as the likely main source of the pollution.
Yorkshire Water's investigation also found a direct connection from an interceptor sump (INT1) on Kemira's site to the surface water sewer, with evidence of orange discolouration at outfall point into the sewer. This drainage run should go to foul sewer, a drainage survey was carried out by a contractor in May, this did not identify this connection to the surface water sewer. There was no flow into the surface water from this connection at the time of my visit, so no breach of the surface water emissions criteria E3 identified, but likely to have been low level intermittent pollution impact. I have given a category 3 breach against the Site Drainage Engineering criteria B3.
Prompt action has been taken to block off this connection, photographic evidence supplied 13/8/2024 showing completion of the work.

Yorkshire Water also identified a flow into the surface water sewer at emission point SW4 on drainage plan (no rainfall at time). This was from a hose turned on during acid tanker delivery for potential use to protect health and safety of driver in event of acid contamination, the hose is fed into a surface water drain. As this is clean water, this is not a pollution issue. The delivery area has a sump to contain any spillages during deliveries.

Section 3- Enforcement Response — Only one of the boxes below should be ticked

You must take immediate action to rectify any non-compliance and prevent repetition.
Non-compliance with your permit conditions constitutes an offence* and can result in criminal prosecutions and/or suspension or revocation of a permit. Please read the detailed assessment in Section 2 and the steps you need to take in Section 4 below.

Non-compliance with **MSA, **MSB** & **TCM** do not constitute an offence but can result in the service of a compliance, suspension and/or revocation notice.*

Other than the provision of advice and guidance, at present we do not intend to take further enforcement action in respect of the non-compliance identified above. This does not preclude us from taking enforcement action if further relevant information comes to light or advice isn't followed.	
In respect of the above non-compliance you have been issued with a warning. At present we do not intend to take further enforcement action. This does not preclude us from taking additional enforcement action if further relevant information comes to light or offences continue.	X
We will now consider what enforcement action is appropriate and notify you, referencing this form.	

Section 4- Action(s)

Where non-compliance has been detected and an enforcement response has been selected above, this section summarises the steps you need to take to return to compliance and also provides timescales for this to be done.

Criteria Ref.	CCS Category	Action Required / Advised	Due Date

See Section 1 above			
B3	C3	Seal of connection from INT1 to surface water sewer - ACTION ALREADY COMPLETED 13/8/2024	27/08/2024

Section 5 - Compliance notes for the Operator

To ensure you correct actual or potential non-compliance we may

- advise on corrective actions verbally or in writing
- require you to take specific actions in writing
- issue a notice
- require you to review your procedures or management system
- change some of the conditions of your permit
- decide to undertake a full review of your permit

Any breach of a permit condition is an offence* and we may take legal action against you.

- We will normally provide advice and guidance to assist you to come back into compliance either after an offence is committed or where we consider that an offence is likely to be committed. This is without prejudice to any other enforcement response that we consider may be required.
- Enforcement action can include the issue of a formal caution, prosecution, the service of a notice and or suspension or revocation of the permit.
- A civil sanction Enforcement Undertaking (EU) offer may also be available to you as an alternative enforcement response for this/these offence(s).

See our Enforcement and Civil Sanctions guidance for further information

A breach of permit condition **MSA, MSB & **TCM** is not an offence but may result in the service of a notice requiring compliance and/or suspension or revocation of the permit*.

This report does not relieve the site operator of the responsibility to

- ensure you comply with the conditions of the permit at all times and prevent pollution of the environment
- ensure you comply with other legislative provisions which may apply.

Non-compliance scores and categories

CCS category	Description	Score
C1	A non-compliance which could have a **major** environmental effect	60
C2	A non-compliance which could have a **significant** environmental effect	31
C3	A non-compliance which could have a **minor** environmental effect	4
C4	A non-compliance which has **no** potential environmental effect	0.1

Operational Risk Appraisal (Opra) - Compliance assessment findings may affect your Opra score and/or your charges. This score influences the resource we use to assess permit compliance.

MSA, MSB & TCM are conditions inserted into certain permits by Schedule 9 Part 3 EPR

MSA requires operators to manage and operate in accordance with a written management system that identifies and minimises risks of pollution.

MSB requires that the management system must be reviewed, kept up-to-date and a written record kept of this.

TCM requires the submission of technical competence information.

Section 6 – General Information

Data protection notice

The information on this form will be processed by the Environment Agency to fulfill its regulatory and monitoring functions and to maintain the relevant public register(s). The Environment Agency may also use and/or disclose it in connection with:

- offering/providing you with its literature/services relating to environmental matters
- consulting with the public, public bodies and other organisations (e.g. Health and Safety Executive, local authorities) on environmental issues
- carrying out statistical analysis, research and development on environmental issues
- providing public register information to enquirers
- investigating possible breaches of environmental law and taking any resulting action
- preventing breaches of environmental law
- assessing customer service satisfaction and improving its service
- Freedom of Information Act/Environmental Information Regulations request.

The Environment Agency may pass it on to its agents/representatives to do these things on its behalf. You should ensure that any persons named on this form are informed of the contents of this data protection notice.

Disclosure of information

The Environment Agency will provide a copy of this report to the public register(s). However, if you consider that any information contained in this report should not be released to the public register(s) on the grounds of commercial confidentiality, you must write to your local area office within 28 days of receipt of this form indicating which information it concerns and why it should not be released, giving your reasons in full.

Customer charter

What can I do if I disagree with this compliance assessment report?

A permit holder can challenge any part of the CAR form by writing to the Environment Agency office local to the site within 28 days of receipt. If the issue cannot be resolved by the local office, a permit holder may request an appeal of the regulatory decision by emailing enquiries@environment-agency.gov.uk within 14 days of receipt of the outcome.

If you are still dissatisfied, you can make a complaint to the Ombudsman. For advice on how to complain to the Parliamentary and Health Service Ombudsman phone their helpline on 0345 015 4033.