

Supporting Information for  
Environmental Permit  
Variation



## Point of Ayr Gas Terminal

### Groundwater Treatment during Pumping Trial

For Stuart Wells Ltd



Soilfix Limited  
10 St. Martin's  
Industrial Park,  
Avonmouth,  
Bristol BS11 0RS  
Tel: 0117 982 0025  
[info@soilfix.co.uk](mailto:info@soilfix.co.uk)

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**Site:** ENI Facility  
Point of Ayr Gas Terminal  
Flintshire  
Wales  
CH8 9RD

**Prepared by:** Soilfix Limited  
Unit 10 St. Martins Industrial Park  
Avonmouth  
Bristol  
BS11 0RS  
Tel: 0117 982 0025

**Client:** Stuart Wells Limited  
Stuart House,  
Hargham Road,  
Shropham,  
Norfolk,  
NR17 1DT  
Tel: 01953 454540

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Signatures:						

## Contents

<b>1</b>	<b>Introduction.....</b>	<b>1</b>
1.1	Site Summary.....	1
1.2	Objectives of this Document .....	2
1.3	Site Setting .....	2
1.4	Sources of Information .....	2
<b>2</b>	<b>Materials to be Treated.....</b>	<b>3</b>
2.1	Groundwater Conditions.....	3
2.2	Wastewater Conditions .....	4
2.3	Type and Volume of Waste.....	4
2.4	Maximum Throughputs of Waste .....	4
<b>3</b>	<b>Groundwater Pumping and Treatment Tests .....</b>	<b>5</b>
3.1	Pump Testing and Groundwater Treatment.....	5
3.2	Water Treatment System .....	5
3.2.1	Plant and Equipment.....	6
3.3	PFAS Breakthrough Trials .....	6
3.4	Treated Effluent.....	7
3.5	Validation Approach .....	7
3.5.1	Pumping Tests.....	7
3.5.2	Breakthrough Trials.....	8
<b>4</b>	<b>Site Infrastructure and Staffing .....</b>	<b>9</b>
4.1	Security Provisions.....	9
4.2	Manning of the Site .....	9
4.3	Site Personnel (including WAMITAB) .....	9
4.4	Hours & Dates of Operation .....	10
4.5	Cessation of Operation.....	10
<b>5</b>	<b>Pollution Control.....</b>	<b>11</b>
5.1	Emergency Procedures.....	11
5.2	Location of Emergency Response Equipment.....	11

5.3	<i>Protection of on-site Drainage</i> .....	11
5.4	<i>Fuel and Chemical Storage</i> .....	12
5.5	<i>Waste Storage</i> .....	12
5.5.1	Skips and Bins .....	12
5.5.2	Contaminated Water Containment .....	12
5.6	<i>Water Treatment Plant</i> .....	13
5.7	<i>Discovery Strategy for Unforeseen Contamination</i> .....	14
5.8	<i>Conceptual Site Model and Risk Assessment</i> .....	14
5.9	<i>Litter</i> .....	14
5.10	<i>Pests</i> .....	14
<b>6</b>	<b>Monitoring and Controls Plan</b> .....	<b>15</b>
6.1	<i>Materials Tracking</i> .....	16
6.2	<i>Environmental Controls</i> .....	16
6.2.1	Dust.....	16
6.2.2	Noise .....	17
6.2.3	Odours/ VOCs.....	17
6.2.4	Vibration.....	17
6.3	<i>Environmental Monitoring</i> .....	18
6.4	<i>Emission Action Plan</i> .....	18
<b>7</b>	<b>Appendices</b> .....	<b>20</b>
	<i>Appendix A – Drawings</i> .....	21
	<i>Appendix B – Discovery Strategy for Unexpected Contamination</i> .....	22
	<i>Appendix C – Remediation Stage Conceptual Site Model/ Risk Assessment</i> .....	23
	<i>Appendix D – Environmental Monitoring Form</i> .....	24
	<i>Appendix E – WAMITAB certificates</i> .....	25

# 1 Introduction

## 1.1 Site Summary

Soilfix Limited (Soilfix) has been appointed by Stuart Wells Ltd (the client), on behalf of ENI UK Limited (ENI), to carry out Groundwater Remediation Pilot Trials at the Point of Ayr Gas Terminal, Talacre, Flintshire, Wales, CH8 9RD (the site).

The National Grid Reference for the centre of the site is: SJ 12281 84036.

The site is a former gas refining facility which is due to be converted from a traditional Gas Compression and Treatment facility at Point of Ayr, in north Wales, into a CO<sub>2</sub> Electrical Compression Station allowing for permanent CO<sub>2</sub> storage in offshore depleted fields under Liverpool Bay.

Historic handling and use of Aqueous Film Forming Foam (AFFF) firefighting foam at the site has resulted in a legacy of soil, concrete and groundwater Per- and Poly-Fluoroalkyl Substances (PFAS) contamination at the site.

Spatially the distribution of PFAS impacted soils and groundwaters generally reflects historic incidents and known usage of AFFF, in the southeast area of the site. Perfluorooctanesulfonic acid (PFOS) is typically the predominant compound (>70% of the total PFAS in 32 soil samples during an intrusive investigation) and is being used as a marker compound for monitoring within these trials.

The site boundary is highlighted by a red dashed line shown on drawing C568\_SF001 in Appendix A. The extent of the area for the proposed pumping tests and water treatment is shown by a solid red line on the same drawing.

The site has an active Environmental Permit from Natural Resources Wales (NRW), permit reference EPR/DP3934EW, which permits the process gas from the off-shore Douglas Platform to meet sales requirements. There are a number of point source emissions stipulated within the permit for emissions to air and surface water. The pumping test will be undertaken under a Groundwater Investigation Consent (GIC) (which has been compiled and applied for by Stuart Wells Ltd) obtained from NRW.

Proposed treatment on this site is the treatment of groundwater abstracted from a designated abstraction borehole, installed by Stuart Wells, as part of the Groundwater Pumping and Treatment Tests. This pumping trial is to support understanding of the dewatering requirements for proposed future construction works. The Water Treatment System (WTS) to service this pumping trial will be capable of removing suspended solids and dissolved phase organic contaminants using Granular Activated Carbon (GAC). Treated water will be discharged into a Firewater Holding Tank which forms part of the site's water management, authorised under the Environmental Permit.

A small volume of water will also be treated as part of supplementary PFAS breakthrough trials, where water with more elevated PFAS concentrations will be pumped through a smaller GAC vessel, to provide information on contaminant loading until saturation point within the GAC (i.e. the GAC becomes 'spent') and breakthrough of PFAS within the effluent water is observed. Note this effluent water shall be captured by the larger GAC

vessels that are present from the main pumping trial. The aim of this is also to inform the design of future construction dewatering / treatment.

Drawing C568\_SF001 shows the proposed site layout during the works.

The proposed timeframe of the pilot trials is five weeks, with the water treatment plant in operation for shorter periods within this timeframe, and not continuous for the duration.

## 1.2 Objectives of this Document

The objective of this document is to provide the client and ENI UK Ltd site-specific information of the provision and operation of a mobile plant water treatment system, to facilitate small-scale groundwater pumping tests that will generate data to assist in final construction design for future remediation of PFAS at the site. In addition, PFAS breakthrough trials will be carried out, which will also provide data for future groundwater treatment designs. This information is to support the variation of the site's existing Environmental Permit (operated by ENI UK Ltd) with NRW. NRW have been consulted and advised that a variation to the existing permit would be a more efficient route to beginning the pumping trial on site, as opposed to deploying a Mobile Plant Permit (which Soilfix does also hold).

## 1.3 Site Setting

The site is accessed from Station Road and lies within an area of mixed industrial, residential and agricultural land.

The Dee Estuary (Site of Special Scientific Interest, Special Protection Area, Special Area of Conservation and Ramsar) are located 258m to the east of the installation. The Gronant Dunes and Talacre Warren (Site of Special Interest) is located 898 metres to the north of the installation.

Current site neighbours include:

- North: Residential properties and caravan park
- East: RSPB Point of Ayr – Dee Estuary
- South: Point of Ayr Colliery and railway track with agricultural land behind
- West: Mixed commercial and light industrial development, railway track with agricultural land behind

## 1.4 Sources of Information

Our understanding of the site has been based on information supplied at tender stage, subsequent discussions with the client, as well as Soilfix assessments, specifically:

- ERM Detailed Quantitative Risk Assessment (DQRA) Report, 7<sup>th</sup> May 2025; and,
- Information on pumping tests as provided by Stuart Wells Ltd.

## 2 Materials to be Treated

### 2.1 Groundwater Conditions

Elevated concentrations of Per- and Poly-Fluoroalkyl Substances (PFAS) are present within groundwater, particularly in the southeast corner of the site, which correlates to elevated soil concentrations and historic handling and use of AFFF in that area.

Recent (March 2024) groundwater monitoring data indicates there are PFOS exceedances of annual averages (AA) and Maximum Allowable Concentrations (MAC) when compared against freshwater and marine EQS. Exceedances are highlighted in green (AA) and orange (MAC) in Figure 1 below.

Conditions of groundwater to be treated from the designated pumping test borehole will be from the cleanest area of the site, based on available data. No PFOS was detected at WS210 and BH160 and are the closest monitoring locations from the proposed borehole. Figure 1 below shows the proposed location of the new borehole. It is understood that this abstraction location has been agreed with NRW, to reduce the potential for PFAS-impacted water to be encountered during the trial. Therefore, minimal PFAS concentrations are expected to be encountered during this pumping trial.

**Figure 1: Borehole location plan of new/ existing boreholes and PFOS exceedances**



## 2.2 Wastewater Conditions

Due to the low presence of PFAS/ PFOS in the groundwater within the location for the pumping tests, a source of groundwater containing known elevated concentrations will be used for the PFAS breakthrough trials.

Recent (August 2024) monitoring of the Wastewater Pond showed a concentration of 1.71ug/l of PFOS and circa 3µg/l of total PFAS.

The scale of the trial will be based upon these concentrations, to provide effective GAC consumption information.

## 2.3 Type and Volume of Waste

**Table 1: Summary of estimated volumes of waste to be treated by mobile plant:**

Waste Type	EWC code	Quantity (m <sup>3</sup> )	Medium
Groundwater	191308	1,900*	Liquid

\* The volume above includes the total volume abstracted from the pumping test borehole (1,800m<sup>3</sup>) and pumped from the Wastewater Pond for the breakthrough trials (100m<sup>3</sup>). Should any recirculation be required to achieve the proposed 100ng/l total PFOS / PFOA target or water quality standards prior to discharge this volume is included in the above total.

## 2.4 Maximum Throughputs of Waste

The WTS will be operational at a maximum hourly rate of 18m<sup>3</sup>/hr, or 432m<sup>3</sup> based on a 24hr operational day. The Pump Test and groundwater PFAS breakthrough trials are anticipated to last for a maximum of five weeks.

The total volume above has been calculated based on anticipated hours of operation of the system to facilitate the pumping and breakthrough trials. The system will not be operated 24/7 for the entire five-week programme.

Flowmeter readings will be taken to measure flowrates are being achieved to and to monitor waste volumes abstracted and treated. Soilfix will provide the client with treatment volumes, to support any records required by NRW for the site's Environmental Permit.

## 3 Groundwater Pumping and Treatment Tests

### 3.1 Pump Testing and Groundwater Treatment

Stuart Wells will be installing a borehole for the proposed pumping tests; the approximate location is shown in Figure 1 and on drawing C568\_SF001 in Appendix A. The location has been selected as it is furthest from previous groundwater PFAS detections, and a requirement that the tests are carried out within the cleanest area, to minimise existing plume movements. The borehole will be the nominated well to perform the pumping tests where groundwater will be pumped from the well continuously at a flow rate of 18m<sup>3</sup>/hr for 24hours a day for an anticipated period of 3 days.

Soilfix's WTS will connect to Stuart Wells' abstraction pipework to facilitate treatment of any abstracted groundwater, prior to discharge into a holding tank (existing Firewater Pond).

### 3.2 Water Treatment System

All fluids shall be transferred into a lamella settlement tank to clarify the water and remove the bulk of suspended solids. Groundwater will be pumped into a sand/ bag filter to remove the majority of suspended solids. This effluent will then pass through a series of two granular activated carbon (GAC) vessels to reduce the loading of dissolved phase organic contaminants within the groundwater. Transfer pumps and associated pipework will connect the outlet of the second GAC vessel to the nominated discharge location (Firewater Pond).

Vessels for clean backwash water and backwash sludge settlement will also be provided, for system maintenance if required.

For further details on WTS set-up and pollution prevention controls, please see Section 5 below.

Sampling ports will be installed on the inlet and outlet of the GAC vessels to allow ease of sampling for compliance monitoring, as detailed in Section 3.6 below.

A system schematic drawing can be found in Appendix A.

**Figure 2: Typical Water Treatment System Plant**

### 3.2.1 Plant and Equipment

The plant and equipment to be used for the groundwater pilot trials and water treatment are listed below. A system schematic drawing can be found in Appendix A.

- 40kV generator for powering the WTS (provided by the client);
- 50m<sup>3</sup> Lamella Settlement Tank;
- Buffer Tank;
- Suspended solids filtration vessel (Sand or Bag Filter);
- Series of two GAC two GAC vessels;
- Transfer pumps and associated pipework from WTS to discharge location; and,
- 1m<sup>3</sup> clean backwash tank and 2.5m<sup>3</sup> backwash sludge settlement tank.

### 3.3 PFAS Breakthrough Trials

The 18m<sup>3</sup>/hr system will be adapted to facilitate the PFAS breakthrough trials.

A connector will be fitted from the outlet of the sand/ bag filter to divert water at a reduced volume of 2m<sup>3</sup>/hr through a 'mini-GAC' vessel, which has been scaled to allow for breakthrough to occur based on known carbon adsorption capacity. A flow meter will be installed to monitor flow rates and volumes treated, prior to breakthrough of PFAS contaminants in the effluent water. Effluent water shall be fed back into the main system, passing through the two large GAC vessels prior to discharge.

Sampling ports pre-and post-trial shall be incorporated into the system, with monitoring detailed in Section 3.6.2 below.

### 3.4 Treated Effluent

Prior to works commencing it is understood that the Firewater Holding Pond will be emptied by ENI.

Any treated waters from this pumping trial that have passed through the WTS will be pumped into the Firewater Holding Pond, which is an isolated holding tank that can be used to assess the water quality prior to any discharge into the surface water (Dee Estuary), via the Talacre New Drain. Discharge via this outlet is in accordance with the site's Environmental Permit.

The treated effluent after the first pass through Soilfix's WTS shall be pumped in the empty Firewater Pond as a holding tank. Once the pumping tests and breakthrough trials are complete, ENI shall carry out compliance monitoring of the accumulated water. Should the water be of a suitable quality to allow for discharge in line with the current water site permit consents, then the water will be pumped into the Wastewater Pond.

Should the water not be of suitable quality, it will be passed through the WTS again and the sampling repeated.

### 3.5 Validation Approach

As detailed in the introduction section, this document is to support preliminary pump tests and PFAS breakthrough trials, which will provide data for a wider construction design for groundwater management at the site.

There is no validation criteria in relation to groundwater targets at present.

#### 3.5.1 Pumping Tests

Soilfix have proposed to NRW a discharge target of 100ng/l PFOS / PFOA prior to release of treated waters under the existing water discharge regime, to which no objection has been raised to date. This target is in line with the findings of ERM's DQRA, which suggested a maximum permissible PFOS concentration in the site surface water discharge of 0.12ug/l (120ng/l). The 100ng/l target therefore offers further betterment.

Soilfix will sample abstracted and treated waters to confirm water quality as stipulated by NRW under the site's Environmental Permit.

Water treatment works shall be validated by regular sampling of the inlet and outlet sampling ports within the WTS. Samples will be taken in specified sample containers and sent to a UKAS accredited laboratory for third party analysis. The following sampling regime will be undertaken to validate the reduction of dissolved phase contaminants through the WTS, and to monitor the lifespan of the activated carbon vessel(s) before they become spent.

Full analytical suite to include general contaminants and full PFAS suite:

- Inlet of first GAC vessel 'GAC IN';
- Outlet of second GAC vessel 'GAC OUT'

### 3.5.2 Breakthrough Trials

The testing regime for the PFAS breakthrough trials will be limited to the PFAS suite only, for additional inlet/outlet of the small vessel.

Analytical testing to include full PFAS suite:

- Inlet of mini-GAC vessel 'MINI-GAC IN';
- Outlet of mini-GAC vessel 'MINI-GAC OUT'

## 4 Site Infrastructure and Staffing

### 4.1 Security Provisions

Soilfix will be operating as an appointed sub-contractor under Stuart Wells (who are in turn operating on behalf of Saipem) who are the Principal Contractor (PC) for the works. Soilfix will provide relevant H&S information to the PC under CDM Regulations.

The PC will be responsible for the site's security including external security fencing and control of any entrance gates. There are strict security procedures for admission to site and it is understood that these procedures shall remain in place for the duration of these works.

Where required, Soilfix will also install temporary interior fencing and signage to isolate certain high-risk activities to prevent unauthorised access where required. These include but are not limited to; secondary fencing to further isolate plant and equipment including the water treatment plant, chemical storage etc.

Soilfix will operate under Saipem site rules, H&S and emergency procedures as briefed by the PC, alongside Soilfix's own safe systems of work.

### 4.2 Manning of the Site

An experienced Soilfix Site Manager will be on site full-time throughout the duration of the works. The Site Manager will take onsite ownership of the project and report directly to the Project Manager.

The WTS will be fully automated and designed to be operational for 24hours a day and therefore does not need to be manned during operation once the system is set-up and fully commissioned.

It is currently not envisaged that the WTS will be in operation over the weekend.

### 4.3 Site Personnel (including WAMITAB)

The water treatment works will be supervised full time by an experienced, Site Management Safety Training Scheme (SMSTS)-accredited Site Manager. Soilfix propose to use a Site Manager, with the project overseen by a Project Manager. Operation of the WTS including installation, operation and maintenance will be carried out by a specialist supplier. All personnel involved will hold as a minimum a valid CITB CSCS card and SSSTS (Site Supervisor Safety Training Scheme) qualification and the supervisor will hold as a minimum a SMSTS qualification.

Other staff including Soilfix employed or local agency staff will operate plant, equipment and provide labour under supervision. All site staff will receive appropriate training with regard to potential contamination on site, the associated risks, control measures and emergency procedures. A record of all attendees at induction training and toolbox talks will be kept in the site filing system.

Regular Soilfix Project Workshops will be carried out to discuss progress of works, current and upcoming activities and address any issues on site for resolution. The Workshop will be led by the Contracts Manager or Project Manager.

The Waste Management Industry Training and Advisory Board (WAMITAB) Certificates for the Technically Competent Managers proposed on this project are included in Appendix E.

#### **4.4 Hours & Dates of Operation**

Operational site hours will be between 8:00am to 6:00pm, Monday to Thursday and 8:00am to 3:00pm on Friday. It is not expected that work will be required at weekends.

It is anticipated that the pumping tests and groundwater treatment trials will take place over 5 weeks in July/August 2025, when the permit variation has been agreed.

#### **4.5 Cessation of Operation**

After completion of the pilot trials all pumps and pipework will be removed from remediation and monitoring wells as well as full demobilisation of all treatment plant and welfare.

## 5 Pollution Control

### 5.1 Emergency Procedures

Soilfix will produce a site-specific Risk Assessment Method Statement for the (RAMS) which covers the preparation, installation and operation of the water treatment plant, prior to commencement of works. This will detail emergency procedures in relation to health, safety and environmental aspects. All site personnel will receive an induction from a qualified Site Manager or Supervisor which includes details of emergency response equipment.

Soilfix will produce an adequately detailed emergency response plan, to include environmental pollution incidents. The following elements will be included:

- Location of Assembly Point;
- Instruction on what to do in an emergency;
- Identification of firefighting and spill response equipment; and,
- Special arrangements for evacuation in high-risk areas

The Principal Contractor is to include within the Construction Phase Plan a Site Fire Action Plan that clearly identifies fire preventative measures and incorporates the provision of appropriate firefighting equipment, maintenance of existing escape routes, signage etc.

### 5.2 Location of Emergency Response Equipment

The Soilfix welfare area (currently assumed to be the existing ENI office facilities in the west of the site) will have a suitable fire extinguisher, spill kit, eye wash and first aid kit facilities. Oil spill kits will be positioned near all plant, equipment and storage vessels which have liquid fuel. Chemical spill kits will be positioned near COSHH storage areas. Additional fire extinguishers will be positioned near works areas.

### 5.3 Protection of on-site Drainage

The ERM DQRA report summarises the current drainage system on the site and provides a drainage layout plan so Soilfix can identify and protect live drains.

Any live sewerage drains in the vicinity of the water treatment works will be protected by drain covers or sandbags.

The water treatment vessels will be bunded to minimise risk of contaminated water leaking into live drains. Pipework will be tested prior to use and inspected regularly for condition and leaks.

There will be no intrusive works below ground being carried out that might impact underground pipes and services.

Treated waters will be pumped into an isolated tank, the Firewater Pond, until testing has confirmed it is suitable for discharge.

## **5.4 Fuel and Chemical Storage**

Soilfix will hold an inventory of all COSHH materials to be used and stored in the treatment area. A COSHH assessment will be carried out prior to any such material being delivered to site, and data sheets obtained directly from the supplier where possible. COSHH assessments will include the safe handling of materials from a Human Health perspective but also storage and handling from an environmental protection perspective. All personnel using COSHH items will be briefed on the assessment prior to use.

Small volume COSHH items will be stored in a secured and labelled COSHH container within the water treatment plant area. Emergency spill response equipment will be positioned in proximity to the container, suitable for the chemicals stored.

Liquid fuel (diesel) stored in bulk quantities (>200 litres) will be stored with secondary containment, in accordance with the site's Environmental Permit.

Other liquids stored in containers such as intermediate Bulk Containers (IBCs) will be stored on a dedicated IBC bund or engineered bund with a minimum capacity of 110% of the capacity of the containers.

All bunds will be inspected for integrity as part of the site inspections and infiltrated rainwater pumped out periodically as required.

## **5.5 Waste Storage**

### **5.5.1 Skips and Bins**

Dedicated skips and bins will be provided by the Principal Contractor and Soilfix personnel will use the dedicated skips and bins provided.

### **5.5.2 Contaminated Water Containment**

The WTS will be installed within an impermeable bund that is 100% the volume of the largest vessel.

The bund will be sealed/ tested for leakages as part of the commissioning process and ongoing inspection to ensure it maintains integrity.

All liquid holding vessels will remain stored within the bund until disposal or collection.

All abstraction and discharge pipework outside of the bund will be tested and inspected for condition and repaired/ replaced as required.

**Figure 3: Proposed Construction of Impermeable Bund for Liquids Containment**

## 5.6 Water Treatment Plant

All abstracted liquids shall be transferred to the WTS. All pipework and systems will be tested with clean water prior to use on site and the WTS will be stored in a constructed impermeable bund. The bund will be constructed on existing hardstanding and inspected for any cracks which will be sealed. The bund walls will be constructed using bricks/ breeze blocks which will be sealed using a sealant paint. The bund will be tested to ensure it is watertight using clean water prior to operation of plant. Should the conditions of the existing hardstanding not be sufficient then Soilfix shall create a watertight bund through the use of an earth bund and line with impermeable membrane (i.e. Damp-Proof Membrane).

Pipework and bunds will be inspected for condition during routine inspections as part of operation and maintenance (O&M) procedures. CSDs include high level float switches for the vessels and the compound bund.

Until an appointed WTS supplier is contracted then the specific design of the WTS, including critical safety devices (CSDs), cannot be detailed. It is anticipated that the dewatering requirements will be manually operated i.e. during operational hours only.

The system will be operated by a control panel; a basic control system which will provide automatic shutdown of the system in the event of a fault or high-level alarm. CSDs include high level float switches that can turn off pumps if water levels become too high in vessels (i.e. OWSS) or bunds.

The system is fully automated with telemetry. Pumps and the WTS system can be controlled remotely, meaning Soilfix and the supplier will be notified of any alarms being triggered and act accordingly. Remote access also allows the plant provider to monitor the system, and advise any maintenance required to prevent faults or shutdowns occurring.

The system will be installed and commissioned by dry testing followed by wet testing with clean water, prior to pumping of any contaminated groundwater. All pipework and joints will be pressure tested and signed off prior to use. All plant shall be operated and maintained according to the manufacturers' instructions and as detailed with the supplier's operation and maintenance manual (O&M manual), with routine inspections carried out to ensure the plant is operating safely and efficiently.

## **5.7 Discovery Strategy for Unforeseen Contamination**

Whilst the investigations previously undertaken on the site are considered to be thorough it remains possible that unexpected conditions may be encountered during the works. Should unexpected conditions be encountered then the Discovery Strategy included in Appendix B will be followed.

## **5.8 Conceptual Site Model and Risk Assessment**

A number of activities proposed to take place on site have the potential to pose a risk to underlying groundwater.

Soilfix consider there to be a low risk to the groundwater during the water treatment works due to measures to be put in place as detailed below. A Conceptual Site Model and Risk Assessment for the works can be found in Appendix C.

## **5.9 Litter**

There will be a general waste skip available on site for litter as well as bins with secure lids in welfare areas. Routine litter picking shall be carried out across the site during the works. Site walkovers will be carried out at least weekly, to make sure hygiene standards are being maintained. A Method Statement and Risk Assessment for housekeeping will be followed.

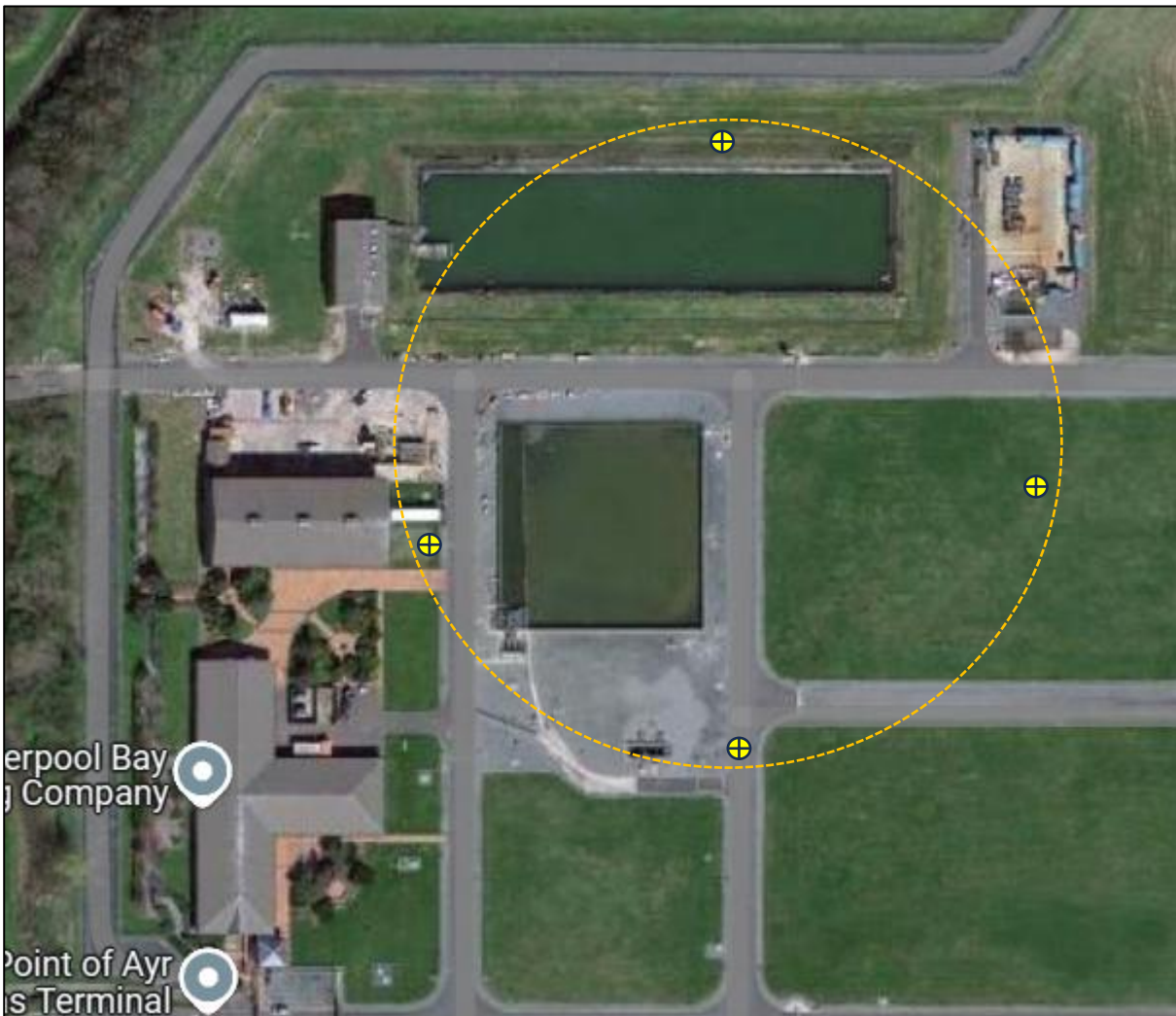
## **5.10 Pests**

To prevent pests all food shall be stored inside the locked welfare cabin or preferably removed from site. Litter and waste shall be minimised by regular disposal. Regular toolbox talks with regards to maintaining good hygiene standards will be carried out to all site personnel. Due to the nature of the works and materials Soilfix consider that the risk from pests to be minimal.

## 6 Monitoring and Controls Plan

Soilfix propose localised qualitative monitoring for noise, dust and odours at perimeter locations of the water treatment works and related areas, to support the existing emissions monitoring as part of the site's Environmental Permit. Due to the works taking place within a small area of the larger site, typical boundary monitoring is considered excessive and unlikely to be of value so far from operations.

The perimeter of the area designated for qualitative monitoring and environmental monitoring point locations (EMP1 – EMP4) are highlighted in drawing C568. SF-001 in Appendix A.



All qualitative monitoring will be undertaken by experienced Soilfix site operatives, trained in the use of the necessary equipment. Data interpretation will be performed by Soilfix remediation engineers. All aspects of the monitoring will be conducted under the supervision and guidance of the Soilfix Project and Technical Manager. The Project Manager would be responsible for acting upon the results of the monitoring. The results of monitoring will be available as required.

The site monitoring form can be found in Appendix D.

## 6.1 Materials Tracking

Water treatment monitoring will be carried out as part of these works.

Rates of groundwater abstraction and treatment will be taken by frequent readings of the in-line flow meter as part of the WTS. This will enable treated volumes and flow rates to be determined and recorded.

Data for the water treatment influent/ effluent streams, flowmeter readings and chemical analysis shall be recorded in a spreadsheet available to all personnel involved in the project. Data analysis shall be looked at by members of the team to enable assessment of the WTS including contaminant removal efficiency.

Each time a sample is taken it will be recorded on the site Testing Tracker form. The date of sampling and dispatch to the laboratory will be recorded as will the Unique Identification Code (UIC) for each sample. When the results for a sample are received the Laboratory Report number will be added and then an assessment of the results will be undertaken by a suitably experienced and qualified member of the site staff. Samples are to be sent to a UKAS accredited laboratory for testing.

## 6.2 Environmental Controls

### 6.2.1 Dust

The risk of dust generation as part of these works is deemed low. To prevent and minimise dust generation to reduce the impact on the surrounding environment a range of measures will be implemented by Soilfix throughout the works:

- Controlling traffic movements to 10mph maximum speed limit;
- Engines shall be switched off when not in use and not be revved. Idling kept to an absolute minimum;
- The tyres and undercarriage of vehicles departing the site onto public roads shall be inspected and, where necessary, cleaned via a jet wash before entering onto public roads. Use of road sweeper to maintain external roads if required;
- Temporary fencing (where used) to be adorned with dust nettings if dust becoming a nuisance;
- Materials will be handled with care to prevent dropping from height and creating dust (and noise);
- Enclosed vessels and covered skips will be used, wherever possible;
- Positioning of activities where possible away from site boundaries and sensitive receptors, including the storage of materials;
- Monitor and record weather conditions (including wind speed/ direction) and ensure adequate water supply/ source during dry, dusty conditions;
- Dust suppression of haul roads and source materials as required, using towable bowser;
- All plant, equipment and vehicles to be modern and well-maintained in line with manufacturers recommendations; and,

- The use of diesel or petrol powered generators to be avoided and mains electricity/ battery powered equipment to be utilised where practicable.

### 6.2.2 Noise

Noise generated from the water treatment system will be assessed to protect on-site workers and off-site receptors. The following measures will be implemented by Soilfix to reduce levels of noise:

- The site hours will prevent early starts and minimise nuisance to local residents;
- Shouting and raised voices to be kept to a minimum – radios prohibited unless two-way radios for site communications;
- All site personnel (including Soilfix appointed sub-contractors) will be advised in the site induction of the site rules and the impact of noise on the sensitive receptors. This will be further communicated through events such as toolbox talks and daily briefings;
- A speed limit of 10mph on site;
- All plant and vehicles will be subject to regular maintenance and servicing under manufacturers instructions;
- Engines should be switched off when not in use. Revving/ idling of plant and equipment will be minimised across site. All motors will remain covered at all times to minimise the likelihood of noise generation;
- Use of modern and well-maintained silenced generators for water treatment units. Location of generators will be as far from sensitive receptors and welfare/ offices as practically possible; and,
- Plant will also be selected to ensure low noise and vibration levels only, and positioned as far from sensitive receptors and welfare/ offices as practically possible (activity dependent).

### 6.2.3 Odours/ VOCs

The groundwater treatment works have a low potential to generate odour, gases and vapours (minimal considering the potential contaminants present). The following procedures will be implemented to minimise associated nuisance:

- Use of fully enclosed system and treatment of water through granular activated carbon filters prior to discharge to holding tank;
- Minimising exposed skips and liquid settlement/ storage tanks to atmosphere by closing or covering vessels, or using closed system designs (i.e. WTS); and,
- Fuel storage in dedicated COSHH store.

### 6.2.4 Vibration

It is not anticipated that vibration will be generated as part of the works however to protect off-site receptors including residents and buildings, the following measures will be implemented by Soilfix to reduce levels of vibration:

- The site hours will prevent early starts and minimise nuisance to local residents;
- The use of modern, well-maintained plant; and,
- Positioning of plant and equipment away from sensitive receptors and boundary locations.

### 6.3 Environmental Monitoring

Drawing C568\_SF-001 in Appendix A shows the location of proposed fixed environmental monitoring points (EMP) around the remediation site boundaries. The location of any roving locations will be recorded on the daily monitoring form and will dependant on locations and type of works activities. An Emissions Monitoring pro-forma is included in Appendix D. Environmental monitoring will be carried out by competent remediation personnel, overseen by personnel with a minimum of 8 years remediation experience.

Should on-site sources of noise/ odours be identified then they will be noted on the daily form so that if there are any issues identified it will allow any remedial actions to be targeted.

Environmental monitoring will be undertaken to ensure the works do not adversely affect nearby receptors. The following parameters will be monitored:

- Dust;
- Noise; and
- Odours.

Environmental monitoring will be undertaken at baseline and throughout the operations. The frequency of the monitoring will be reviewed as necessary and if conditions on site change.

Based upon the guidance provided and upon Soilfix’s experience, it is proposed that the levels presented in Table 1 are the targets not to be exceeded at site boundary locations.

**Table 1: Summary of Environmental Monitoring regime:**

Species	Threshold	Method of Monitoring	Frequency	Locations
Dust	No nuisance	Visual	Daily (when system operational)	EMPs 1-4
Noise	No nuisance	Auditory	Daily (when system operational)	EMPs 1-4
Odours	No nuisance	Olfactory	Daily (when system operational)	EMPs 1-4

### 6.4 Emission Action Plan

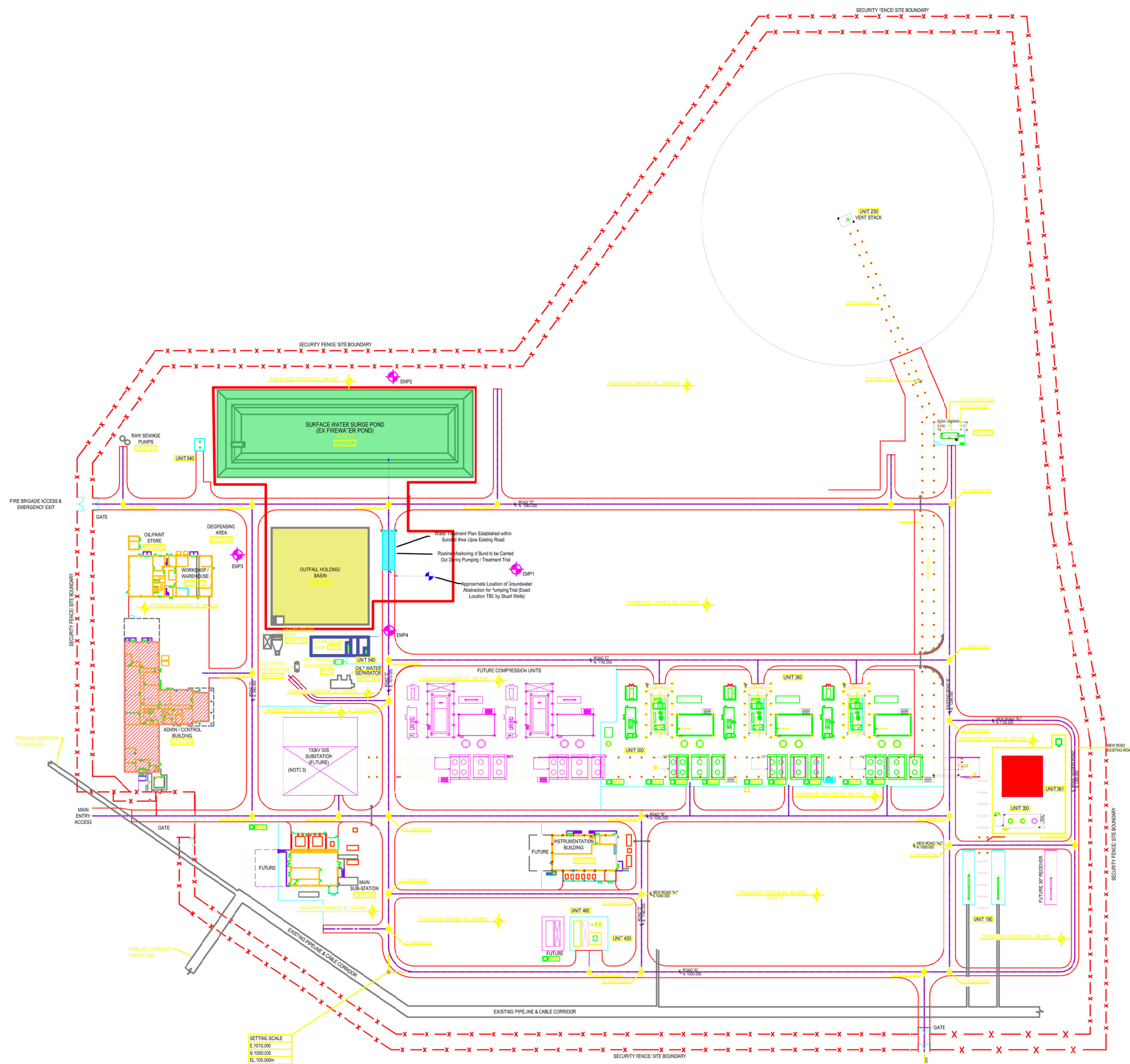
In the event of a threshold level being exceeded the works will be reviewed and the source of the emission will be investigated. Efforts will then be made to attenuate the emission through modifications to plant or operating

procedures. This could encompass dampening down of roadways, review of working practices or programme of works or additional engineered controls. If this cannot be practically achieved, then Soilfix will seek agreement on alternative options from the relevant regulatory authorities.

Soilfix will develop site-specific Emergency Response Plans prior to works commencing. All site operatives will be briefed on these procedures through a site induction and toolbox talks. Identified hazards associated with activities on the site will be addressed in the site-specific method statements.








## 7 Appendices

## Appendix A – Drawings



SETTING SCALE  
 E: 10:1  
 N: 1000:1  
 EL: 100:100m

# LEGEND

-  Approximate Location of New Grounwater Abstraction Well to Used for the Pumping Trial
-  Approximate Location of Water Treatment Plant During Pumping Trial
-  Ex-Firewater Pond to be Utilised as Temporary Holding Basin for Treated Waters
-  Outfall Basin
-  Existing Site Offices / Canteen to be Used as Welfare - Contractor's Parking Assumed to be Off-site in Visitor Car Park
-  Approximate Extent of Pumping Trial Works
-  Environmental Monitoring Point

E		
D		
C		
B		
A	Preliminary Issue	18/06/25
Rev.	Description	Date



+44 (0) 1268 502 272 (Essex)  
 +44 (0) 117 982 0025 (Bristol)  
 info@soilfix.co.uk  
 www.soilfix.co.uk

Site Address:  
**Point of Ayr Gas Terminal**

Title: Preliminary Site Layout Plan for Water Treatment Plant during Pumping Trial

Client: Stuart Wells Ltd (on behalf of Saipem / ENI)

Drawn: TB	Checked: EG	Appvd: EG	Rev: A
Contract: C568.STU	Dwg No: SF-001	Scale:	A3

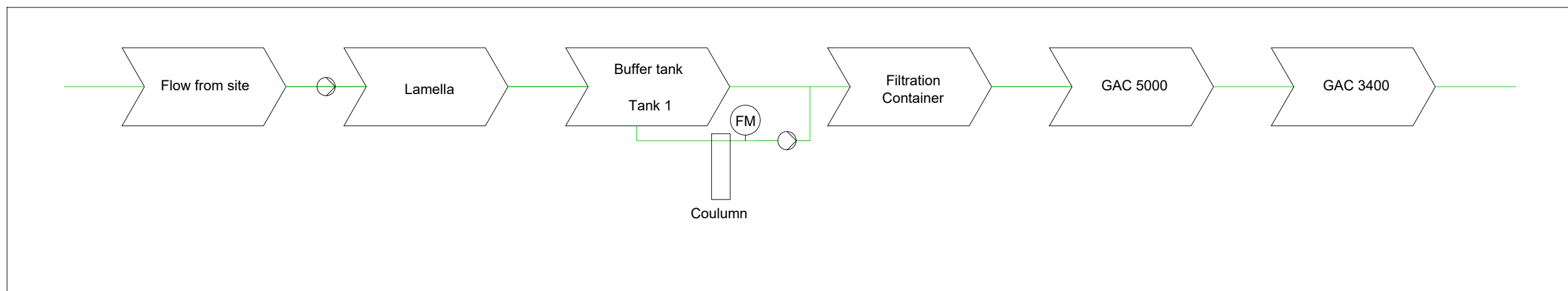
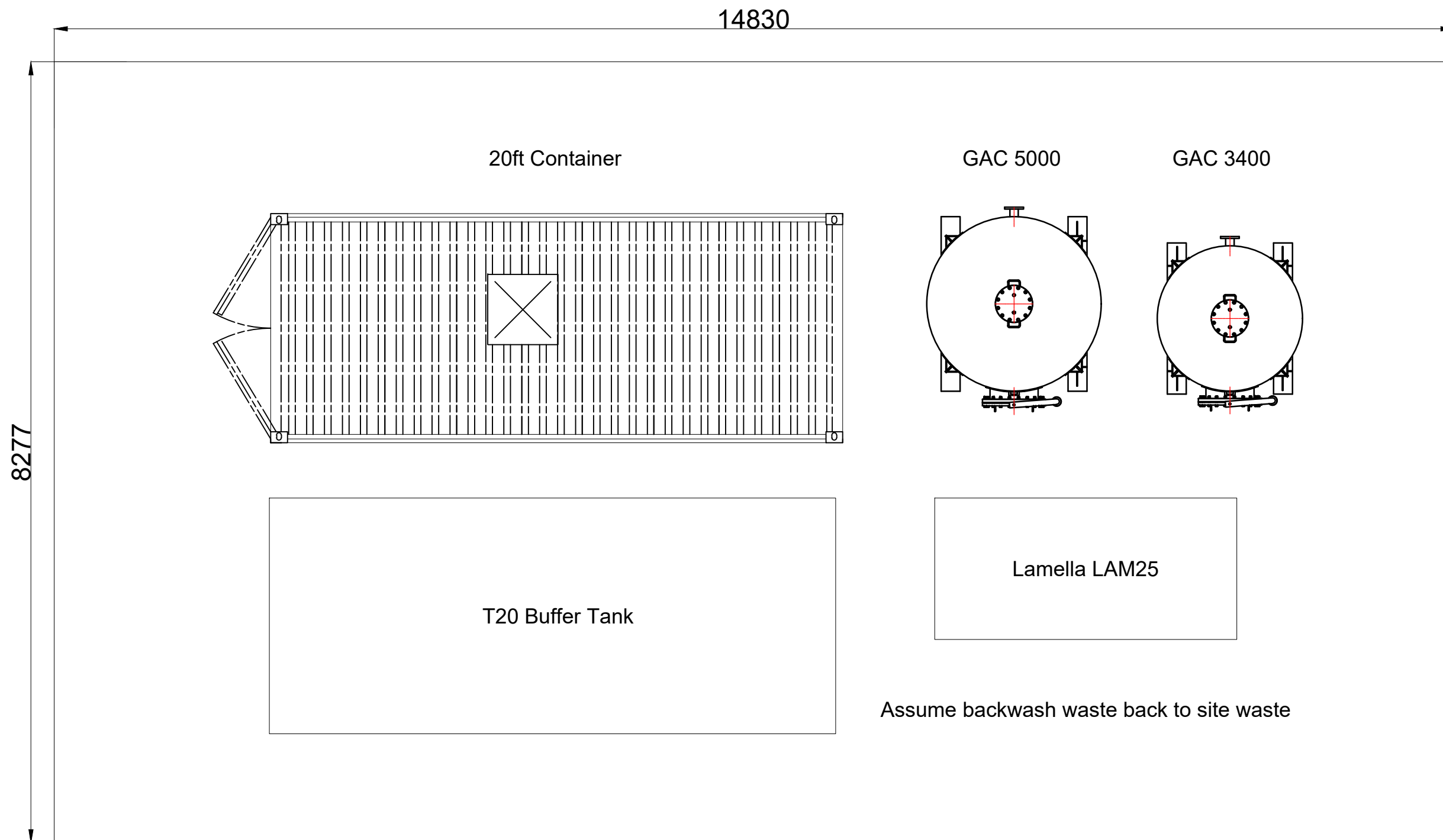
Cornelsen Ltd.  
Unit 26, Southfield Road Trading Estate  
Nailsea, BS48 1JJ  
TEL: 01275 856700  
WEBSITE : www.cornelsen.co.uk  
E-MAIL : sales@cornelsen.co.uk

Client  
**Soilix**  
Project  
**Talacre**  
TITLE  
**GA - Plan view**

NO **2869-G-001**  
ISSUE **01**  
CONCEPT **Cornelsen Ltd**  
DRAWN BY **MI**  
DATE **18/06/2025**  
SCALE **NTS**  
CHECKED BY **--** INITIAL  
ORIGINAL SIZE **A3**

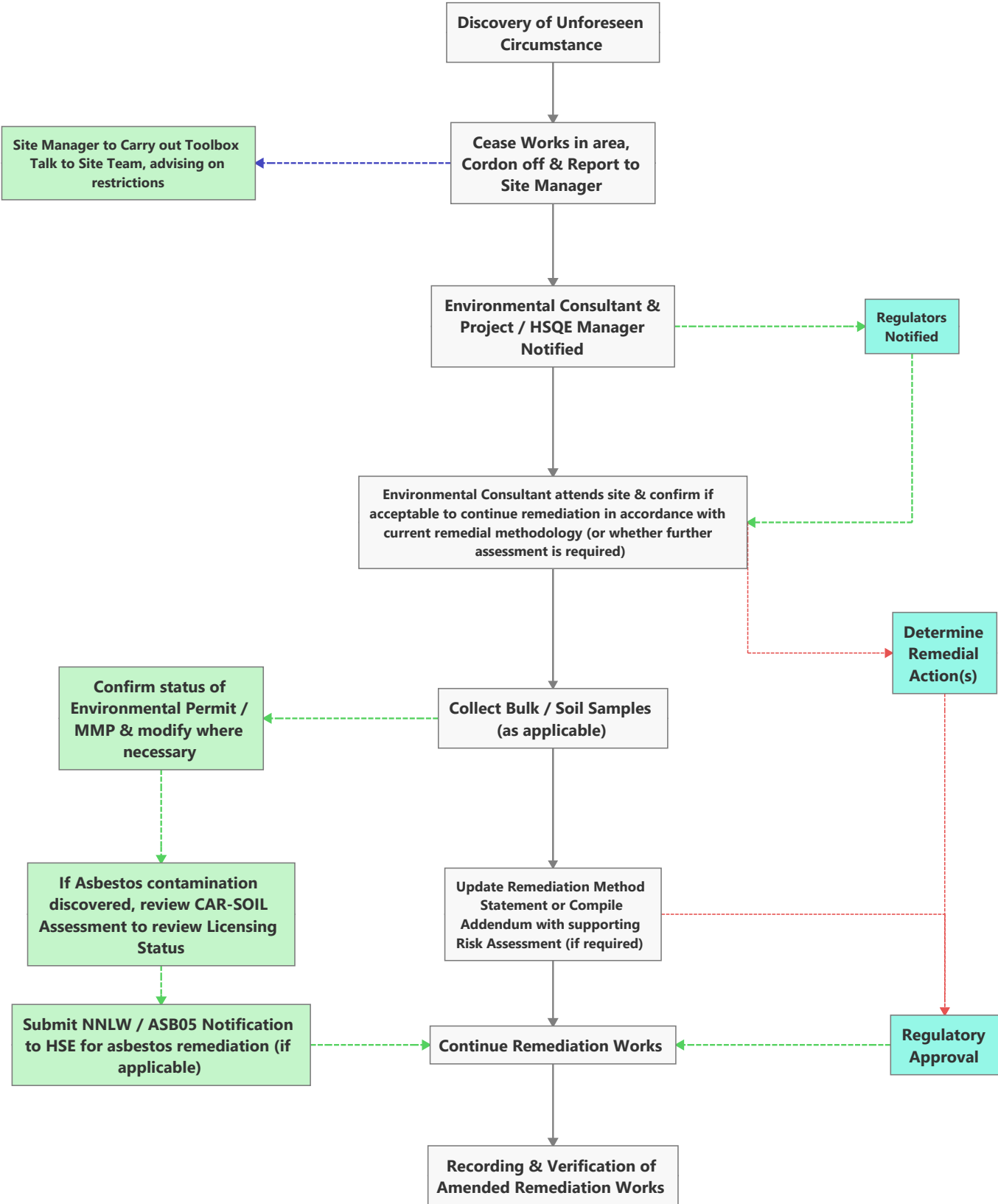
ISSUE	DATE	REVISION	Ini
0			

Notes: -



## Appendix B – Discovery Strategy for Unexpected Contamination

**Discovery Strategy  
Flowchart for Unforeseen  
Contamination and / or  
Objects**



## Appendix C – Remediation Stage Conceptual Site Model/ Risk Assessment

Hazard	Receptor	Probability (p)	Severity (s)	Significance (p x s)	Justification for magnitude	Proposed Control / Risk Management	New probability (p)	New Severity (s)	New Significance (p x s)	Residual Risk (with controls)
Direct contact with contaminants (PFAS)	Human (Remediation and site-wide workers, off-site receptors)	3	2	6	Short term exposure	Correct use of PPE (e.g. gloves, goggles, overalls, respirators etc.). Keep road-going vehicles on hardstanding as far as practicable and outside the working area at all times (except for during lifting of water treatment plant into / out of bund area). All remediation mobile plant to stay within the remediation boundary and bunded area to avoid tracking material onto peripheral areas.	1	2	2	Low
	Pollution to site drainage / underlying soils	2	3	6	Small volume of treatment and short duration. Bunded plant area	Ensure all treatment plant is placed within bunded plant area. Routine monitoring of bund integrity and plant / hose connections.	1	3	3	Low
	Pollution to underlying soils/ controlled waters	2	3	6	Small volume of treatment and short duration. Bunded plant area	Operation and maintenance of the water treatment plant (WTP) being utilised by Soilfix during the works. WTP and holding tanks stored on impermeable bunded, 110% volumes of largest vessel. Critical safety devices to pump out water in case bund fills up. System run by telemetry. Regular plant and pipework inspections.	1	3	3	Low
Contact with chemicals - fuel, oil, remediation reagents (COSHH)	Human (Remediation and site-wide workers)	4	4	16	COSHH items on site	Site personnel to wear appropriate PPE (e.g. gloves, light eye protection). Personnel handling fuel and chemicals to be briefed in COSHH assessment. Storage of all COSHH items in designated store or for bulk volumes, in fenced off area with appropriate signage.	2	4	8	Low to medium
	Pollution to underlying soils/ controlled waters	4	2	8	Relatively small quantity will be stored on site.	COSHH items to be stored as per the assessment, keep dry, away from incompatible materials/ direct sunlight etc. Appropriate signage and emergency spill response kit accessible in area. Use of plant nappies in bucket change, areas and equipment with engines. Secondary containment such as bunding or impermeable membrane for liquid materials.	2	2	4	Low
Fuel / oil leaks or spills from mobile plant used for remediation	Site drainage and underlying soils	4	2	8	Relatively small quantity will be stored on site.	Bunded storage. Regular inspection. Fuel storage appropriate to size of site and number of plant to avoid unnecessary volumes. Spill kits next to fuel storage or refuelling locations. Use of plant nappies in bucket change, areas and equipment with engines. Site security maintained at all times (including out of hours) to minimise risk of vandalism/ theft	2	2	4	Low
Inhalation of dust	Human (Site personnel)	2	2	4	Works in summer months. Minimal dust generation anticipated from works	Plant to be modern and well maintained. No engine idling. Daily site walkover and visual monitoring of emissions. Site perimeter visual monitoring for dust. Proposed works unlikely to generate dust.	2	2	4	Low
Noise exposure	Human (Site personnel)	2	4	8	Water treatment plant / generated power	Plant to be modern, well maintained and silenced where possible. No engine idling. Active work areas away from site boundaries where possible. Daily site walkover and auditory monitoring of emissions for onsite workers and offsite receptors. Ear protection to be worn on site if above threshold values and signage displayed where mandatory.	2	2	4	Low
Vibration	Operational plant area	1	4	4	No breaking work required	Currenty no significant vibration generating activities proposed during these works. Works during agreed site hours only. Plant to be modern, well maintained. Plan and manage tasks with significant potential for vibration to minimise nuisance as much as reasonably practicable, in particular breakout of concrete. Breakout works to be carried out in such a manner that minimises noise emissions e.g. saw cutting, sectional demolition. Active work areas away from site boundaries where possible. Intensity of works considered and assessed depending on work locations.	1	4	4	Low
Plant/ vehicle movements	Human (Site personnel)	3	5	15	Minimal plant & equipment deliveries	Vehicle and pedestrian routes to be clearly separated as per Traffic Management Plan and physically on site where possible. All site operatives to wear high vis clothing. Banksmen to be used when vehicles manoeuvring on site. Traffic Management Plans to be briefed if changes are made and as part of site induction. Regular toolbox talks on plant movement and how to safely work around plant.	1	5	5	Low to medium
Unauthorised entry	Human (Site personnel) and company assets	1	4	4	Site is well secured	Existing ENI / Saipem security measures to remain in place during works. Warning signage to be displayed on perimeter fencing. No unauthorised personnel allowed into works area. Items to be stored locked away and out of site to prevent encouraging intruders as much as practicably possible.	1	4	4	Low
Slips, trips and falls	Human (Site personnel)	4	4	16	Systems with pipework across work areas	Work area to be clear of debris. No unauthorised access to works area. Operations to be restricted to daylight hours or with additional lighting. Hazard tape or ramps to go over any pipework that intersects walkway. Good housekeeping on site and in welfare areas. Regular toolbox talks on housekeeping and STFS.	2	4	8	Low to medium
Waste storage and treatment - Control of pests, scavengers and litter	Human (Site personnel, offsite residents)	3	2	6	Small scale site and timeframe	Food and general waste put in designated bins, inside welfare containers or with localie lids for outside bins. Bins not to overflow - regular emptying into main general waste also prior to disposal offsite. Nitrile gloves to be worn if handling waste where direct contact could occur. Maintain good hygiene practices and encourage others. Regular site walkovers and litter picks if required. Regular toolbox talks on housekeeping if standards are not maintained.	1	2	2	Low

Probability (P)		Severity (S)		Significance (PxS)	
0 = Impossible	3 = Likely	0 = No injury/affect	3 = Reportable injury/affect	1 to 4 = Low	11 to 18 = Medium to high
1 = Improbable	4 = Very likely	1 = Trivial injury/affect	4 = Major injury/affect	5 to 8 = Low to medium	19 to 24 = High
2 = Possible	5 = Certain	2 = Minor injury/ effect	5 = Death	9 to 10 = Medium	

Overall combined significance of the task is LOW to MEDIUM - extra care required

## Appendix D – Environmental Monitoring Form



## SF003 Site Diary and Environmental Monitoring Record

**Project Address: Point of Ayr, Talacre**

**Date:**

**Contract No: C568**

**Site Manager:**

<b>Time Monitoring Carried out:</b>				
<b>Relevant Drawing Nr. / ID:</b>				
<b>Recorded by:</b>				
<b>Weather:</b>				
<b>Wind Direction (going to):</b>				
<b>Wind Speed<sup>1</sup>:</b>				
Monitoring Location	Noise <sup>2</sup>	Dust <sup>3</sup>	Odour <sup>4</sup>	Comments
EMP1				
EMP2				
EMP3				
EMP4				

<b>Control Measures being Used (e.g. dust cannon, misting system):</b>			
<input type="checkbox"/> Dust Cannon	<input type="checkbox"/> Misting System	<input type="checkbox"/> Other .....	
<input type="checkbox"/> Towable suppression unit	<input type="checkbox"/> Atomising unit	<input type="checkbox"/> Other .....	
<input type="checkbox"/> Pressure washer	<input type="checkbox"/> Odour Suppression	<input type="checkbox"/> Other .....	

<b>Key to Grades</b>	
<p><b><sup>1</sup> Wind Speed (Beaufort Scale):</b></p> <ul style="list-style-type: none"> <li>- 0 calm - smoke rises vertically</li> <li>- 1 light air - smoke drifts</li> <li>- 2 light breeze - feel wind on exposed skin</li> <li>- 3 gentle breeze – small leaves &amp; twigs moving</li> <li>- 4 moderate breeze – dust &amp; loose paper move</li> <li>- 5 fresh breeze – moderate size branches move</li> <li>- 6 strong breeze – empty bins blow over</li> <li>- 7 High wind – effort to walk against</li> <li>- 8 Gale – twigs break, walking impeded</li> <li>- 9 Strong Gale – branches break, signs over</li> <li>- 10 Storm – trees uprooted</li> <li>- 11 violent storm</li> <li>- 12 hurricane</li> </ul>	<p><b><sup>2</sup>Noise:</b></p> <ul style="list-style-type: none"> <li>- A = Normal conversation possible at 2m</li> <li>- B = Conversation possible with raised voices</li> <li>- C = Shouting required to hear at 2m distance</li> </ul> <p><b><sup>3</sup> Dust:</b></p> <ul style="list-style-type: none"> <li>- A = Not Noticeable</li> <li>- B = Slight dust visible</li> <li>- C = Moderate dust visible</li> <li>- D = Strong / Unacceptable dust visible</li> </ul> <p><b><sup>4</sup> Odour:</b></p> <ul style="list-style-type: none"> <li>- A = Not Noticeable</li> <li>- B = Slight odour noticeable</li> <li>- C = Moderate odour noticeable</li> <li>- D = Strong / Unacceptable odour noticeable</li> </ul>

## Appendix E – WAMITAB certificates

# WAMITAB

WASTE MANAGEMENT INDUSTRY TRAINING AND ADVISORY BOARD

CERTIFICATE No: 06767

## CERTIFICATE OF TECHNICAL COMPETENCE

*This Certificate confirms that*

James Hayward

has demonstrated the standard of technical competence required for the management  
of a facility of the type set out below

*Facility Type:*

Level 4 in Waste Management Operations - Managing

Treatment Hazardous Waste (Remediation 4TMHCL)



Authorising Signatures:

Director General

*Lid Sheng*

Director

*J. Watson*

Date of issue:

26 April 2005



Qualifications and  
Curriculum Authority

# WAMITAB

Waste Management Industry Training and Advisory Board

## National Vocational Qualification

### Qualification Title:

Level 4 in Waste Management Operations - Managing Treatment Hazardous Waste  
(Remediation 4TMHCL)

### Qualification Number:

10026587

This Certificate is awarded to

James Hayward

Awarded: 26/04/05

Serial No:011688/4TMHCL

### Authorised

Director General  
WAMITAB

Qualifications Manager  
WAMITAB

WAMITAB, Waste Management Industry Training & Advisory Board, Peterbridge House, 3 The Lakes, Northampton, NN4 7HE

Tel: 01604 231950 Fax: 01604 232457 E mail: [info.admin@wamitab.org.uk](mailto:info.admin@wamitab.org.uk) web: [www.wamitab.org.uk](http://www.wamitab.org.uk)



Qualifications and  
Curriculum Authority

# WAMITAB

Waste Management Industry Training and Advisory Board

## Qualification Title:

**Level 4 in Waste Management Operations - Managing Treatment Hazardous Waste (Remediation 4TMHCL)**

## Qualification Number:

10026587

## Units gained by James Hayward

K1013867	Control the reception of hazardous waste
M1013871	Control the movement, sorting and storage of hazardous wastes.
U1051769	Monitor procedures to control risks to health and safety (Employment NTO Unit B)
F1013860	Control maintenance and other engineering operations
J1013861	Control improvements to waste management operations
U1026119	Support the efficient use of resources (MCI Unit B1)
U1027789	Create effective working relationships (MCI Unit C4)
R1013863	Provide information to support decision making on a waste management site
M1013918	Control site operations for the remediation of contaminated land
F1013924	Control the disposal of outputs and residues from the remediation of contaminated land
H1014015	Ensure protection of the environment on hazardous waste treatment or transfer sites
K1013884	Review the performance of teams and individuals

**Serial No:** 011688/4TMHCL

WAMITAB, Waste Management Industry Training & Advisory Board, Peterbridge House, 3 The Lakes, Northampton, NN4 7HE

Tel: 01604 231950 Fax: 01604 232457 E mail: [info.admin@wamitab.org.uk](mailto:info.admin@wamitab.org.uk) web: [www.wamitab.org.uk](http://www.wamitab.org.uk)

# WAMITAB

WASTE MANAGEMENT INDUSTRY TRAINING AND ADVISORY BOARD

CERTIFICATE No: 08634

## CERTIFICATE OF TECHNICAL COMPETENCE

*This Certificate confirms that*

Gary John Watkins

has demonstrated the standard of technical competence required for the management  
of a facility of the type set out below

*Facility Type:*

Level 4 in Waste Management Operations - Managing

Treatment Hazardous Waste (Remediation 4TMHCL)



Authorising Signatures:

Director General

*[Signature]*

Director

*[Signature]*

Date of Issue:

10 April 2007



Certificate No. OCC4776

## Operator Competence Certificate

**Qualification Title:**

**Waste and Resource Management - Land Remediation Activities -  
3VWRMd**

**This Certificate is awarded to**

**Jamie Mitchell**

**Awarded: 03/04/2014**

**Authorised**

A handwritten signature in black ink, appearing to read "A. James".

**WAMITAB Chief Executive Officer**

A handwritten signature in black ink, appearing to read "J. Khan".

**CIWM Chief Executive Officer**



**The Chartered Institution  
of Wastes Management**

This certificate is jointly awarded by WAMITAB and the Chartered Institution of Wastes Management (CIWM) and provides evidence to meet the Operator Competence requirements of the Environmental Permitting (EP) Regulations, which came into force on 6 April 2008.



00054263



# WAMITAB

Waste Management Industry  
Training and Advisory Board



The Chartered Institution  
of Wastes Management

Certificate No. OCC2730

## Operator Competence Certificate

Qualification Title:

Waste and Resource Management - Land Remediation Activities -  
3VWRMd

This Certificate is awarded to

**Stephen George Jackson**

Awarded: 22/02/2012

Authorised

WAMITAB Director General

CIWM Chief Executive Officer



This certificate is jointly awarded by WAMITAB and the Chartered Institution of Wastes Management (CIWM) and provides evidence to meet the Operator Competence requirements of the Environmental Permitting (EP) Regulations, which came into force on 6 April 2008.



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