

Cefn Saeson Comprehensive School

Verification Report





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Remediation Strategy and Discovery Strategy

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ACRONYMS/ABBREVIATIONS

Acronyms/Abbreviations	Definition
AOD	above Ordnance Datum
bgl	below ground level
BGS	British Geological Survey
BTEX	Benzene, Toluene, Ethylbenzene and Xylenes
C4SL	Category 4 Screening Levels
CIEH	Chartered Institute of Environmental Health
CLEA	Contaminated Land Exposure Assessment
CoC	Constituent of Concern
CSM	Conceptual Site Model
DEFRA	Department of Environment, food and Rural Affairs
DQRA	Detailed Quantitative Risk Assessment
DTS	Desktop Study
DRO	Diesel Range Organics
DWS	Drinking Water Standard
EA	Environment Agency (England)
EPH	Extractable Petroleum Hydrocarbons
EQS	Environmental Quality Standards
FOC	Fraction Organic Carbon
GPR	Ground Penetrating Radar
LOD	Limit of detection
LQM	Land Quality Management
NRW	Natural Resources Wales
OS	Ordnance Survey
PAH	Polycyclic aromatic hydrocarbon
PCB	Polychlorinated biphenyl
PPE	Personal Protection Equipment
ppm	parts per million
PRO	Petroleum Range Organics
SGV	Soil Guideline Values
SOM	Soil Organic Matter
SVOC	Semi-volatile organic compounds
TPH	Total Petroleum Hydrocarbon
TSV	Tier 1 Screening Values
VOC	Volatile Organic Carbon
VPH	Volatile Petroleum Hydrocarbons

1.0 INTRODUCTION

1.1 INSTRUCTION

Tetra Tech Ltd ('Tetra Tech') was commissioned by Morgan Sindall (the client) to provide consultancy services to address the contaminated land planning conditions associated with the Cefn Saeson Comprehensive School development.

1.2 BRIEF

A planning application (ref: P2019/5028) for "the demolition of existing school and construction of a new comprehensive school with car parking, accesses, sport facilities, external lighting, CCTV, landscaping, drainage works, changes to ground levels plus associated works" at Cefn Saeson Comprehensive School was submitted to Neath Port Talbot council on 30th May 2019. The planning permission was approved on 20th July 2019 subject to a number of planning conditions. The planning permission includes a condition relating to ground contamination within the site, namely:

Condition 10

No development shall commence on Phase 2 of the approved development, as identified in the Construction Method Statement, until a remediation scheme to bring the site to a condition suitable for the intended use by removing any unacceptable risks to human health, buildings, other property and the natural and historic environment shall be prepared and submitted to and agreed in writing with the Local Planning Authority. The scheme shall include all works to be undertaken, proposed remediation objectives, remediation criteria and site management procedures. The measures proposed within the remediation scheme shall be implemented in accordance with an agreed programme of works.

Reason: To ensure that risks from land contamination to the future users of the land and neighbouring land are minimised, together with those to controlled waters, property and ecological systems, and to ensure that the development can be carried out safely without unacceptable risks to workers, neighbours and other offsite receptors, and to ensure compliance with Policies SP16 and EN8 of the Neath Port Talbot Local Development Plan.

A Remediation Strategy Document was prepared for the site and presented in the following document:

- Cefn Saeson Comprehensive School, Remediation Strategy and Discovery Strategy, Phase 2, June 2021, Tetra Tech.

This Verification Report aims to summarise the works associated with the discharge of the above relevant planning condition as specified in the remediation strategy document.

In addition, this report provides an audit trail to demonstrate that the Materials Management Plan (MMP), which was declared to CL:AIRE on 12th October 2021, has been carried out in full.

1.3 REPORT SCOPE

The overall objectives of the Remediation Verification Report are as follows:

- Summary of the site history, environmental setting and project description.
- Validation testing and results.
- Details of mitigation measures undertaken and a residual risk assessment.
- Record of material tracking including importation of materials and off-site disposal of wastes.
- Record of any variations from the Design Statement/ Materials Management Plan.

1.4 LIMITATIONS

The recommendations and opinions expressed in this report are based on information obtained as part of the desk study or provided by others. Information provided from other sources is taken in good faith and Tetra Tech cannot guarantee its accuracy.

This report is subject to the report conditions presented in Appendix A.

The information contained in this report is intended for the use of the Morgan Sindall and Tetra Tech can take no responsibility for the use of this information by any third party or for uses other than that described in this report or detailed within the terms of our engagement.

2.0 SITE INFORMATION

2.1 LOCATION

The site is located at Cefn Saeson Comprehensive School on Afan Valley Road, Castell-Nedd/Neath, SA11 3TA. The site is approximately 2.21 ha in area and is centred on National Grid Reference (NGR) 277265, 196139. The approximate postcode of the site is SA11 3TA.

A site location plan is presented in Figure 1.

2.2 SITE DESCRIPTION

Prior to redevelopment, the wider site was occupied by the Cefn Saeson Comprehensive school site, with buildings, hard standing, car parking and paths in the north and west of the site and playing fields in the south east. Two sports courts (one all weather and one tarmac) are located in the north of the site.

The newly built school building was constructed on the playing fields to the east of the former school building, whereas the new school sports fields and multi use game fields were constructed on the site of the former school buildings.

2.3 PROPOSED DEVELOPMENT

The redevelopment of the school site was split into two phases.

'Phase 1' of the development involved the reprofiling and construction of the new school building on the eastern portion of the school site, formerly occupied by the school playing fields.

'Phase 2' of the development involved the demolition of the existing school and construction of a 'Multi Use Games Area' with an access road/bus drop off point adjacent to the west boundary. The proposed development plan for the wider Cefn Saeson School (Drawing reference 6W007-WSP-00-XX-DR-C-0 dated August 2019) is presented at the end of this report.

This verification plan considers the Phase 2 Development only.

2.4 GEOLOGY, HYDROGEOLOGY AND HYDROLOGY

Ground conditions on site were anticipated to comprise Made Ground underlain by Glacial Till in the west and Head deposits in the east of the site, underlain by solid geology of the Brithdir Member with a coal seam out cropping south of the site.

The Brithdir Member is designated as a Secondary A aquifer, the Glacial Till designated as a Secondary Undifferentiated aquifer and the Head deposits and unproductive strata. Based on historical borehole logs groundwater was anticipated to be around 0.9m bgl.

The Cefn Saeson Dingle water course was noted adjacent to the north east boundary running east to west, feeding into the Prewylfa Brook. Nant Gelli-Gaer was noted 200m south of the site running east to west feeding Crythan Brook.

Findings from the Ground Investigations are summarised in Section 2.7.

2.5 RADON

The BRE document 211 (Scivyer, 2015) mapping coverage for the site area was consulted and indicates that the site is located within an area where basic radon protection measures are required for new developments. However, the proposed development plan for the Phase 2 Development Area does not indicate the construction of any enclosed buildings or structures on site.

2.6 SUMMARY OF SITE HISTORY

The historical mapping obtained for the WYG DTS (February 2019) was used to review the previous site use of the Phase 2 Development Area. Available historical mapping shows the site to have remained as agricultural/grass land from the earliest available mapping (1878) to mapping from 1949-1975. The school appears on mapping dated to 1975. A chimney is identified in the central/south east of the site which is identified from the 1975 to 1993 mapping.

2.7 SUMMARY OF PREVIOUS REPORTS

The following reports have been produced for the wider Cefn Saeson Comprehensive School development site and should be read in conjunction with this report:

- WYG (February 2019), Phase 1 Geo-environmental Assessment Desk Top Study ref: A110444 (hereby referred to as WYG DTS February 2019).
- WYG (August 2019) Ground Investigation Report ref: A110444 (hereby known as WYG GIR August 2019).
- Tetra Tech (March 2021) Cefn Saeson Comprehensive School Stockpile Sampling Letter Report ref: B027006 – Cefn Saeson CS MMP (hereby known as Stockpile Sampling Letter Report 2021).
- Tetra Tech (May 2021) Ground Investigation Report version 2 ref: B027006 (hereby known as TT GIR May 2021).
- Tetra Tech (January 2022) Ground Investigation Report version 3 ref: B027006 (hereby known as TT GIR January 2022).

Relevant information from these reports has been extracted and summarised in the following sections. A plan of site investigation locations is presented in Figure 2.

2.7.1 WYG (Tetra Tech) DTS February 2019

Morgan Sindall commissioned a Geo-environmental Desk Top Study assessment of the Cefn Saeson Comprehensive School site in February 2019 to provide a preliminary qualitative geotechnical and contamination risk assessment on the proposed redevelopment of the site.

The site was noted to consist of the existing comprehensive school and multi-level grassed areas used as sport pitches along with a concrete tennis court and an all weather sports pitch in the north. The topography of the site was noted to decrease in elevation from the south to the western corner. During a site walkover no obvious signs of contamination were noted.

The site was noted to be within a Coal Mining Risk Reporting Area and a Development High Risk Area. A Coal Authority report was obtained but did not indicate the presence of past or present coal mining in the vicinity of the site.

The site is shown to have been a mixture of woodland and open pasture land until the construction of the site in the 1970s. Mapping from 1999 shows structural changes to the school and the construction of additional buildings. In the surrounding area, land is shown to have been predominantly woodland/open pasture until the construction of residential housing from 1935 west.

2.7.2 WYG (Tetra Tech) GIR August 2019

Morgan Sindall commissioned an intrusive ground investigation and report of the Cefn Saeson Comprehensive School site in August 2019 to aid in the design of the new school. The ground investigation was intended to obtain information relating to geotechnical and geo-environmental properties of the ground. The ground investigation covered both Phase 1 and Phase 2 site areas.

A ground investigation was undertaken between December 2019 and January 2019 comprising of the following scope of works:

- Six cable percussive boreholes to a maximum depth of 6.60m bgl.
- Eight machine excavated trial pit to a maximum depth of 2.80m bgl.
- Five windowless sample boreholes to a maximum depth of 5.00mbgl.
- In-situ testing (California Bearing Ratio and permeability testing) undertaken at various locations across the site.
- Six return monitoring visits undertaken for ground gas and groundwater monitoring and sampling.

Of the exploratory locations discussed above, two trial pits (TP03 and TP04), two window sample boreholes (WS03 and WS04) and one CBR test location (CRB02) were undertaken within the Phase 2 development area; site investigation works were initially limited in the Phase 2 area of the site due to its ongoing usage as an active school site.

The investigation encountered ground conditions of Topsoil (max. depth 0.3m bgl) or Made Ground of reworked soils (maximum 6.00m bgl) overlying glacial deposits (max. depth 6.30m bgl) overlying Brithdir Member (max. depth 6.60m bgl). With respect to the Phase 2 development area, the maximum depth of Made Ground encountered was 2.50m bgl at WS03 with bedrock encountered from a minimum depth of 1.75m bgl at TP04. Groundwater was encountered between 1.50m bgl and 3.70m bgl.

In the Phase 2 development area groundwater was encountered between 1.80m and 2.40m bgl., thought to be representative of perched water within Glacial Till.

Subsequent monitoring found groundwater levels between a minimum of 0.09m bgl and 2.72m bgl both recorded at BH03 in different rounds. Groundwater sampling was undertaken using Low Flow methodology as described in the WYG GIR August 2019 report Section 4.3.2. Ground gas monitoring indicated maximum gas concentrations of 7.6% for carbon dioxide and 7.8% for methane with a maximum flow rate of 1.2l/hr.

Representative soil and groundwater samples were obtained during the ground investigation and subsequent monitoring and tested for a range of contaminants. The results of the soil analysis were compared against screening values for a public open spaces end use as specific screening criteria for school facilities are not available. No contaminants of concern were noted exceeding their relevant screening values. The results of the groundwater analysis were compared against industry screening values for controlled waters. Elevated concentrations metals of Polyaromatic hydrocarbons (PAHs) and Total Petroleum Hydrocarbons (TPH) were noted at BH06 and BH03.

The results of the ground gas monitoring indicate a peak methane concentration of 7.8% at WS04 and peak carbon dioxide concentration of 7.6% at WS03 both located within the Phase 2 development area. Based on the available data the site was classified as Characteristic Situation 2 i.e. low risk but requiring basic gas protection measures for new developments.

Based on the information within the report the following sources were noted to have a **Low** risk to human health:

- Ground gases derived from organic content in re-worked Made Ground and Till.
- Radon.

A **Low** risk was also identified to groundwater and surface water from elevated heavy metals, TPH and PAHS.

2.7.3 Tetra Tech Stockpile Sampling Letter Report 2021

Tetra Tech was commissioned by Morgan Sindall to undertake soil sampling of stockpiled site won materials on the Phase 1 development, for re-use within the wider Phase 2 area of the site under the framework of a Materials Management Plan (MMP).

Sampling of the stockpiled materials was undertaken on the 11th February 2021 by Tetra Tech in order to assess the suitability of the stockpiled materials for re-use. Four stockpiles totalling approximately 9,750m³, comprised of Glacial till and Weathered Brithdir Member were sampled. Eleven samples were collected via hand excavation and scheduled for a range of solid and leachable chemical analyses.

Soil results were initially screened against Tier 1 screening criteria relating to a Public Open Space (Park) with a Soil Organic Matter (SOM) content of 1% as being the most appropriate given the proposed end use. The screening exercise has highlighted no exceedances above the Public Open Space (Park) criteria.

The screening assessment of the leachate samples resulted in exceedances identified for four analytes (copper, fluoranthene, benzo(b)fluoranthene, and benzo(a)pyrene). An M-BAT assessment reduced the bioavailable copper concentration to below that of the bioavailable screening value. Given the small number of exceedances against conservative screening criteria, the environmental setting of the site and the predominate, natural nature of the site won soils; the risk to controlled waters was considered to be low.

The NRW response to the letter report dated 21/04/2021 indicated that they had no objections to the material being re-used on the site under an MMP:

“As we discussed earlier, NRW do not comment or approve CLAIRE declarations, however we are notified of their use.

Given the information you have provided I would consider that the material you wish to use is site won material which is yet to enter the waste stream. As such its reuse on the site of production in the manner described is appropriate.”

2.7.4 Tetra Tech GIR April 2021

Morgan Sindall commissioned an additional phase of intrusive ground investigation at the site in April 2021 to aid in the design of the new coach drop off point and MUGA's. The ground investigation was intended to obtain information relating to ground conditions of Phase 2 of the development, i.e. the area currently occupied by the existing school building.

A ground investigation was undertaken between the 17th of February and 23rd of February 2021, comprising five windowless sample boreholes to a maximum depth of 5.00mbgl across Phase 2 of the site. One return monitoring visit was undertaken for ground gas and groundwater monitoring and sampling.

The investigation encountered ground conditions of topsoil (max. depth 0.22m bgl, two locations) or Made Ground of reworked soils (maximum 2.50m bgl) overlying glacial deposits (max. depth 5.00m bgl) overlying Brithdir Member (max. depth 2.50m bgl).

Representative soil and groundwater samples were obtained during the ground investigation and subsequent monitoring and tested for a range of contaminants. The results of the laboratory testing indicated localised, elevated pH, lead and hydrocarbons in soils at WS105, in the south of the site in the location of the existing staff car park. Whilst, these exceedances were thought to present a low risk to current site users and a low/moderate risk to future site users, it was recommended that further ground investigation is undertaken in this area to delineate the extent of hydrocarbon contamination.

The results of the groundwater analysis indicated site wide marginally elevated concentrations of heavy metals and PAHs exceeding their relevant screening criteria. However, based on marginal exceedances and low permeability superficial deposits the risk to the underlying Secondary A Aquifer within the Brithdir Member and surface water features off-site was considered to be low. No groundwater information was available from WS105, in the area of elevated hydrocarbon and therefore a low/moderate risk was identified to underlying, localised groundwater. Additional groundwater sampling was recommended in this area to allow for an updated risk assessment.

The results of the ground gas monitoring indicated a peak methane concentration of 7.8% at WS04 and peak carbon dioxide concentration of 7.6% at WS03 both located within the Phase 2 development area. Based on the available data the site was classified as Characteristic Situation 2 i.e. low risk but requiring basic gas protection measures for new developments.

Based on the findings of the risk assessment the following recommendations were initially made:

- A post demolition survey was recommended for the areas currently covered by the building footprint.

- Further ground investigation in the vicinity of WS105 to include soil sampling and the installation of a groundwater monitoring well.
- A proactive approach to be adopted across the site to identify any previously unidentified contamination.
- All movement of materials should be undertaken in conjunction with the Materials Management Plan (MMP).
- A remediation strategy may be required for the re-use of materials from the vicinity of WS105.
- A Waste Classification is required for any soils designated for off-site disposal to include Waste Assessment Criteria (WAC) testing.

2.7.5 Tetra Tech GIR May 2021 (Version 2)

Morgan Sindall commissioned an additional phase of intrusive ground investigation at the site in May 2021, focusing on the Upper Staff Car Park area, where hydrocarbon impacted soils were discovered in WS105.

Following an additional day of window sampling conducted on the 8th of May 2021, representative soil and obtained during the ground investigation were tested for a range of contaminants.

The ground investigation and subsequent laboratory testing of soil samples indicated elevated concentrations of the following contaminants within the Phase 2 area of the site:

- Visual and olfactory contamination of oily substance
- TPH, mainly composed of Aliphatic carbon bands C12 to C35, and aromatic bands C12 to C21;
- Heavy metals Arsenic, Beryllium, Lead and Zinc;
- Polyaromatic Hydrocarbons.

These contaminants have been identified in an area of the site, centred around exploratory hole WS105, with total TPH values in the Made Ground sub base beneath the car park surfacing ranging up to 3,450mg/kg. When screened against Generic Assessment Criteria for a 'Public Open Space – Park' end use, only lead was found to exceed the GAC. The GIR was updated in May 2021 to include this latest phase of site investigation works.

In line with Land Contamination Risk Management (LCRM) procedures, a CIRIA 552 (CIRIA, 2001) compliant risk assessment has been presented in TT GIR April 2021 indicating the following potential pollutant linkages requiring additional risk management procedures.

Table 2-1 – Summary of Potential Pollutant Linkages Requiring Additional Risk Management

Source	Pathway	Receptor	Comment
Visual hydrocarbon contamination, containing TPH, heavy metals and PAHs	Inhalation, ingestion and dermal contact	Future Site Users	Concentrations in exceedance of the Generic Assessment Criteria for a 'Public Open Space – Park' end use indicates that Made Ground is unsuitable for use at or close to the surface beneath the site.
	Leaching and vertical/ lateral migration of contaminants	Controlled Waters	In the absence of further site investigation, and detailed quantitative risk assessment, the hydrocarbon and heavy metal contamination is considered to present a moderate risk to controlled waters.
	Phytotoxicity (prevention or inhibition of plant growth)	Natural Environment - Phytotoxicity	Heavy metal and hydrocarbon contamination in made ground may inhibit plant growth.

2.7.6 Tetra Tech GIR January 2022 (Version 3)

An additional phase of GI was undertaken between September and December 2021, following progressive demolition of the former school buildings within Phase 2 of the development. Ten trial pits (TP201 to TP210) excavated across areas of the site formerly occupied by the school buildings and hard standing, to allow for additional sampling and logging of soils.

During this additional phase, ten soil samples were collected from across formerly inaccessible areas beneath the school buildings, and were analysed for the presence of asbestos containing materials and a range of organic and inorganic contaminants.

No exceedances of the human health screening criteria were noted for organic or inorganic determinants when compared to the human health screening criteria.

However, asbestos was identified within one soil sample – TP209, located within the centre of the former school building, at a depth of 0.20mbgl to 0.90mbgl. The sample was scheduled for quantification testing, which showed that the sample contained trace amounts of asbestos – less than 0.001%. However, due to the identification of this asbestos, management procedures were put into place to make sure that site construction staff were not placed at risk, and that the identified asbestos did not pose a risk to end users following the completion of the development. Further details are presented at Section 3.5 of this report.

3.0 VERIFICATION INFORMATION

3.1 INTRODUCTION

This Verification Report has been prepared in order to demonstrate compliance with the requirements of the MMP and to discharge relevant planning conditions associated with the construction of the school.

The key elements of the works are summarised below and described in detail further within this report:

- Retention and re-use of site won soils;
- Validation and soils testing;
- Stockpiling of excavated materials; and,
- Residual Risk Assessment.

3.2 RE-USE OF SITE WON MATERIALS

Re use of site won materials was progressed in accordance with the MMP and remediation strategy for the site, with stockpiles and previously tested clean, naturally occurring materials transferred from Phase 1 of the development to Phase 2 to allow for the construction of the playing fields and MUGAs.

In addition to site won materials, clean concrete materials from the demolition of the former school builds were crushed and utilised under areas of hardstanding (e.g. car parking, access roads and the bus bay), as per the MMP.

3.3 RE USE OF TREATED SITE MATERIALS

Remediation of the hydrocarbon impacted material within the former staff car park area proceeded according to the methodology set out in the Envirotreat June 2021 remediation method statement (Appendix XXX), and the Tetra Tech June 2021 Remediation Strategy.

A delineation exercise was conducted via trial pitting, with delineation undertaken by visual and olfactory assessment of the material within the sides and base of the excavation, in addition to headspace analysis using a handheld Photo Ionisation Detector (PID).

Following delineation of the soils requiring treatment, the treatment was gridded, and E-clay formulation and cementitious material added in situ via grout pump. The impacted soils and treatment mixture were then mixed in situ. In total, 560m³ of contaminated material was delineated and treated versus the 600m³ estimated prior to the treatment works.

The treated materials were then transferred to an area requiring fill within the Phase 2 area of the site and were emplaced under 600mm+ of clean cover beneath the school playing fields, comprised of site won glacial till and topsoil and a no-dig geotextile layer.

3.3.1 Validation Testing

Validation testing of the treated soils was conducted via leachability testing, and screened against the validation criteria provided in Envirotreat's Method Statement, derived from WHO DWS and UK DWS. Two composite samples from the treated material samples were compared against the leachability criteria, with no exceedances of the criteria detected. Lab certificates for the sampled treated material are included within Appendix C.

3.4 IMPORTATION OF MATERIALS TO SITE

No bulk fill materials were imported to site, with reuse of materials won from Phase 1 of the development progressing as per the MMP (see Appendix D)

The importation of materials to site was limited to 200m³ of topsoil for landscaped areas from an accredited supplier, with the provided topsoil conforming to *BS3882:2015 British Standard Topsoil*.

3.5 UNFORESEEN CONTAMINATION

The provision for the identification of previously unidentified contamination was outlined in Section 5 of the Remediation Strategy and Discovery Strategy (TT, June 2021). The findings are summarised below.

3.5.1 Positive Asbestos Identification

As summarised in Section 2.7.6, asbestos was identified within one sample collected from beneath the position of the former school building during the final phase of ground investigation, on the 02/12/2021. This phase of investigation was undertaken following the demolition of the former school buildings to provide additional coverage in the area of the site which was previously inaccessible. The initial reported result was less than 0.1% asbestos by mass, of free chrysotile fibers; the result was reported on 07/12/2021 (Appendix E).

Immediately following the reporting of the asbestos identification by the laboratory, the specialist asbestos removal contractor for the site were notified and risk management measures were put into place to reduce the risk to site construction workers. The risk management measures emplaced were as follows:

- Full asbestos quantification testing of the sample was progressed;
- All site workers were made aware of the location of the positive asbestos identification through site toolbox talks;
- Dust suppression during dry and/or windy conditions was put into place via water spraying;
- Access to the area in the vicinity of the positive asbestos identification via staff on foot was restricted;
- A watching brief for asbestos containing materials was enacted via toolbox talks.

These measures were enacted whilst quantification testing of the asbestos was progressed.

Reporting of the asbestos quantification result took place on 04/01/2022. Following full analysis, the sample was found to contain less than 0.001% chrysotile asbestos by mass.

Whilst there is no published screening value for asbestos, such a result indicates that only trace amounts of asbestos are present. The presence of asbestos fibers in such low quantities presents a low risk to human health. Additionally, the soil sample was collected from an area which was to be filled, being capped by 1.0m of clean, site won soil (glacial till) derived from Phase 1 of the development.

The remaining 9 exploratory positions advanced beneath the location of the former school buildings detected no asbestos, and screening of soil analyses for a range of common contaminants demonstrated no exceedance of the GAC.

Mitigation measures including toolbox talks, dust suppression and PPE were emplaced to protect construction workers during the filling of the area in the vicinity of TP209 during February of 2022, and the results of the post demolition GI and risk assessment were published within the updated January 2022 GIR, and provided to the local authority for review.

For correspondence with Morgan Sindall relating to the mitigation measures emplaced following the identification of asbestos within soils, please refer to Appendix F.

3.5.2 Other Unforeseen Contamination

With the exception of the above noted asbestos identification beneath the former school building, Morgan Sindall reports that no other areas of unforeseen contamination were encountered during the development works (Appendix D)

3.6 MATERIAL MOVEMENT SUMMARY

A summary of the material movements at the site are summarised in Table 3-1, below. Quantities outlined below include re-use volumes within Phase 2 of the Cefn Saeson site, moved from the stockpiles created during the cut exercise in Phase 1.

The volume of treated soils produced was marginally smaller than originally estimated, with 560m³ of contaminated material was delineated and treated versus the 600m³ estimated prior to the treatment works.

Morgan Sindall confirmed that the total material quantities used largely conformed to the pre-earthworks cut and fill estimations. Examples of site diaries kept during the movement of material is included within Appendix G.

Table 3-1 - Material Movement Summary

Material Type	Total Cut (m ³)	Material Stockpiled (m ³)*	Materials for Re-Use (m ³)	Materials Removed from Site as Waste (m ³)
Topsoil	-	2,500	2,500	0
Re-worked & natural (Glacial Till soils)	9,526	5,813	14,018	1,321
Overburden (weathered bedrock)	-	753	753	0
Demolition Crush	-	1,500	1,500	0
Treated Soils	560	-	560	0
Total (m³)	10,086	10,566	19,331	1,321

4.0 RESIDUAL RISK ASSESSMENT

4.1 RESIDUAL RISK ASSESSMENT OVERVIEW

A Residual Risk Assessment has been undertaken for the site based upon the development as constructed, the verification works undertaken and residual materials remaining at the site.

The site has been considered with regard to current UK legislation and guidance, namely Part 2A of the Environmental Protection Act 1990 and the Contaminated Land (Wales) Regulations 2006, as amended, and in accordance with current UK good practice guidelines (for example BS10175:2011).

In general, ground contamination can occur through several causes. For a risk of pollution or environmental harm to occur as a result of ground contamination, all of the following elements must be present:

- Source, i.e. a substance that is capable of causing pollution or harm;
- Pathway, i.e. a route by which the contaminant can reach a target; and,
- Receptor (target), i.e. something which could be adversely affected by the contaminant.

If one of these elements is absent there can be no significant risk. If all are present then the magnitude of the risk is a function of the magnitude and mobility of the source, the sensitivity of the receptor and the nature of the migration pathway. The key source, pathways and receptor model is outlined below within the context of development at the site.

4.1.1 Potential Sources of Contamination

The main potential sources of contamination on the site are summarised below:

- Potential for ground contamination associated with treated hydrocarbon impacted soils;
- Potential for ground contamination associated with historical deposits of Made Ground beneath the former school building;
- Potential for asbestos associated with former development on site;
- Potential for contamination associated with historic boiler house/ chimney and car parks on site.

4.1.2 Potential Contaminant Pathways

The following contaminant pathways are considered to potentially be active based on the current site use and proposed development:

Human Exposure Pathways

- Direct dermal contact or ingestion of soils, or inhalation of dust and/or vapours (i.e. human interaction with surface and sub-surface materials).

Environmental Pathways

- Leaching and horizontal or vertical migration through the unsaturated ground, either through permeable sub-surface materials and/or preferential pathways;
- Lateral and vertical migration of groundwater through permeable sub-surface materials and/ or preferential pathways;
- Leaching to surface water run-off/drainage;
- The migration and accumulation of gases or vapours through permeable sub-surface materials and/ or preferential pathways.

4.1.3 Potential Receptors at Risk

The following potential receptors have been identified:

Human Health

- Future site users
- Adjacent site users (Residential).

Wider Environment

- Secondary A Aquifer within the Brithdir Member;
- Surface waters i.e. Cefn Saeson Dingle and Nany Gelli-Gaer
- Plant uptake.

4.2 POST VALIDATION GROUND CONDITIONS RISK ASSESSMENT

By considering the sources, pathways and receptors, an assessment of the residual environmental risk is made with reference to the significance and degree of the risk based on the validation of remedial measures undertaken as part of the development. This assessment is based on consideration of whether the source contamination can reach a receptor and hence whether it is of major or minor significance. The risk assessment addresses a public building end use.

Table 4-1 – CIRIA C552 Residual Risk Assessment

This matrix is based on CIRIA C552 risk evaluation methodology						
Source	Pathway	Recept or	Consequence of risk being realised	Probability of risk being realised	Risk Classification	Potential risk management requirements
Potential for low quality Made Ground across the site associated with former development	Direct dermal contact or ingestion of soils, or inhalation of dust and/or vapours	Future site users	Medium	Unlikely	Low	The site has been subject to a cut and fill exercise with clean, naturally occurring materials sourced from the Phase 1 development area of the site. This material was verified as suitable for reuse via stockpile sampling prior to the issue of the remediation strategy.

This matrix is based on CIRIA C552 risk evaluation methodology						
Source	Pathway	Recept or	Consequence of risk being realised	Probability of risk being realised	Risk Classification	Potential risk management requirements
Potential for asbestos containing materials within Made Ground	Inhalation of fibres	Future site users	Medium	Unlikely	Low	During an additional phase of GI undertaken between September and December 2021, soil samples were collected from across formerly inaccessible areas beneath the school buildings, and were analysed for the presence of asbestos containing materials and fibres. Out of ten samples, asbestos was identified within one soil sample – TP209, located within the centre of the former school building, at a depth of 0.20mbgl to 0.90mbgl. The sample was scheduled for quantification testing, which showed that the sample contained trace amounts of asbestos – less than 0.001%. The soil sample was collected from an area which was to be filled, being capped by 1.0m of clean glacial till derived soils from Phase 1 of the development. Mitigation measures including toolbox talks, dust suppression and PPE were emplaced to protect construction workers during the filling of the area in the vicinity of TP209 during February of 2022, and the results of the post demolition GI and risk assessment were published within the updated January 2022 GIR and provided to the local authority for review. The remaining 9 exploratory positions advanced beneath the location of the former school buildings detected no asbestos.

This matrix is based on CIRIA C552 risk evaluation methodology						
Source	Pathway	Recept or	Consequence of risk being realised	Probability of risk being realised	Risk Classification	Potential risk management requirements
Hydrocarb on Impacted soils beneath former car park area.	Direct dermal contact or ingestion of soils, or inhalation of dust and/or vapours	Future site users	Medium	Unlikely	Low	Hydrocarbon impacted soils were delineated and treated. The treated materials were then transferred to an area requiring 2.0m of fill within the Phase 2 area of the site, beneath the new school playing fields. The treated were emplaced under 600mm+ of clean cover beneath the school playing fields, comprised of site won glacial till and topsoil and a no-dig geotextile layer.
	Leaching and vertical/ lateral migration of contaminants	Second ary A Aquifer (Brithdir member)	Medium	Unlikely	Low	Leachability testing of hydrocarbon impacted soils demonstrated no exceedances of WHO / DWS environmental screening criteria. With the treatment of hydrocarbon impacted soils from the former staff car park area and in the absence of any further significant sources of contamination and presence of low permeability Glacial Till soils underlying the site, the risk to groundwater is likely to be low.
		Surface waters		Unlikely	Low	

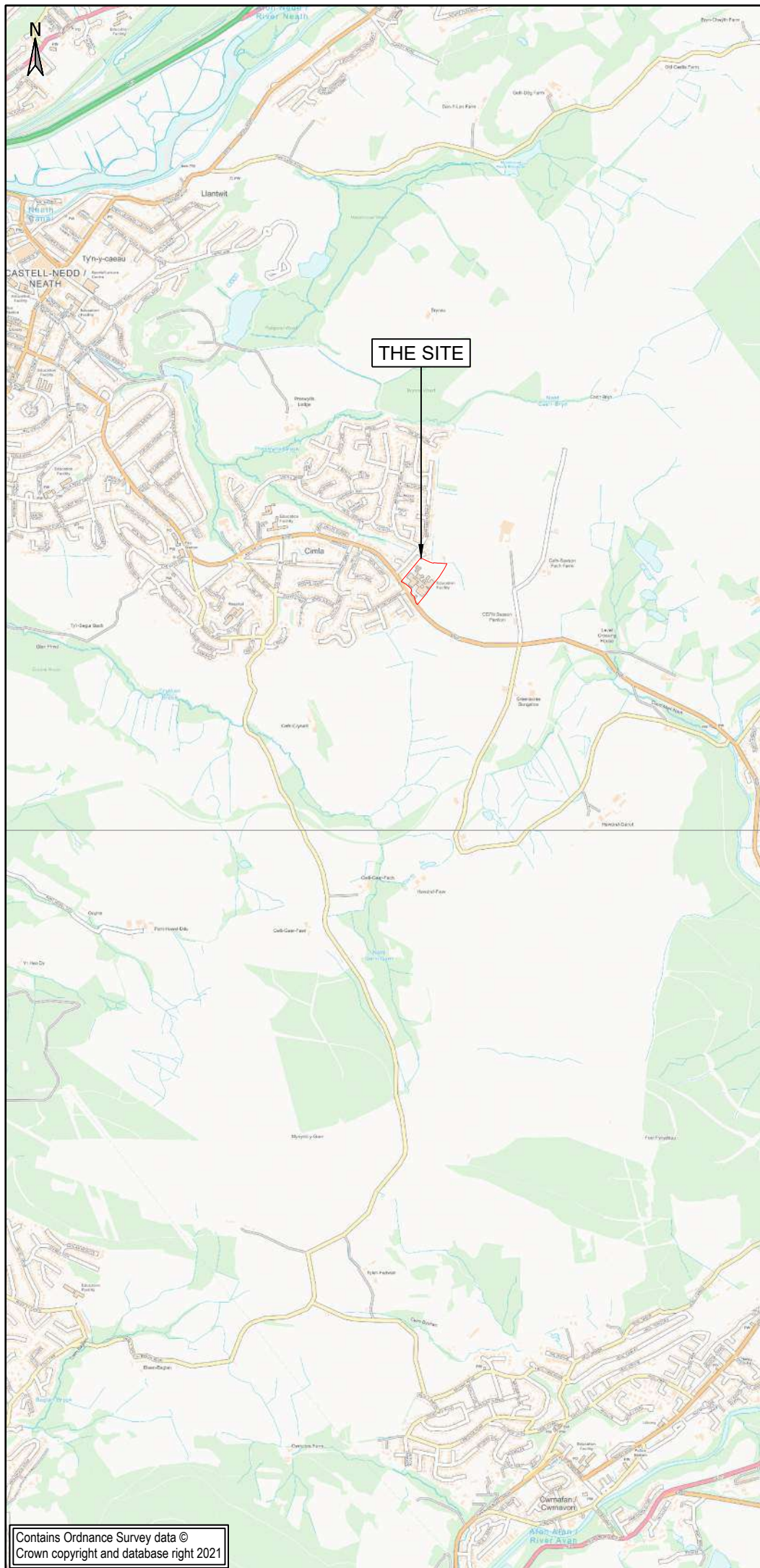
5.0 RESIDUAL RISK SUMMARY AND CONCLUSIONS

Based on the construction works undertaken in general accordance with the Design Remediation & Reactive Strategy, the revised risk assessment highlights that the site poses a low residual risk.

The residual risks are not considered to be unacceptable and this report should be included in the sites Operation and Maintenance (O&M) Manual, specifically in relation to deriving appropriate working practices and PPE for any future maintenance work involving ground excavation.

FIGURES

Figure 1- Site Location Plan



PRELIMINARY ISSUE

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Rpty	Description	Date	Dm / Chk / App						

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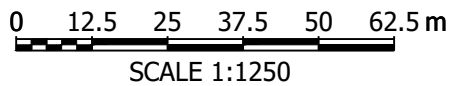
CEFN SAESON COMPREHENSIVE SCHOOL

Sheet Title

SITE LOCATION PLAN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A4	Suitability
784-B027006	PP	APR '21	-	APR '21	-	APR '21	As Shown	S0
Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision	
B027006	- TTE	- 00	- XX	- DR	- U	- 0001	P01	

Figure 2 – Site Investigation Location Plan



LEGEND:

 TP TRIAL PIT LOCATIONS (DECEMBER 2021)

 TP TRIAL PIT LOCATIONS (SEPTEMBER 2021)

 ADDITIONAL INVESTIGATION WINDOW SAMPLE HOLES (MAY 2021)

 WS WINDOW SAMPLE LOCATIONS (FEBRUARY 2021)

PREVIOUS SI LOCATIONS

 BH BOREHOLE LOCATIONS

 CBR CBR LOCATIONS

 TP TRIAL PIT LOCATIONS

 WS WINDOW SAMPLE LOCATIONS

R02	ADDITIONAL TRIAL PITS ADDED.	06.12.2021	PP	LH
R01	ADDITIONAL GI LOCATIONS ADDED.	04.10.2021	PP	LH
P01	PRELIMINARY FIRST ISSUE	26.05.2021	PP	AJ

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Project Name
CEFN SAESON COMPREHENSIVE SCHOOL

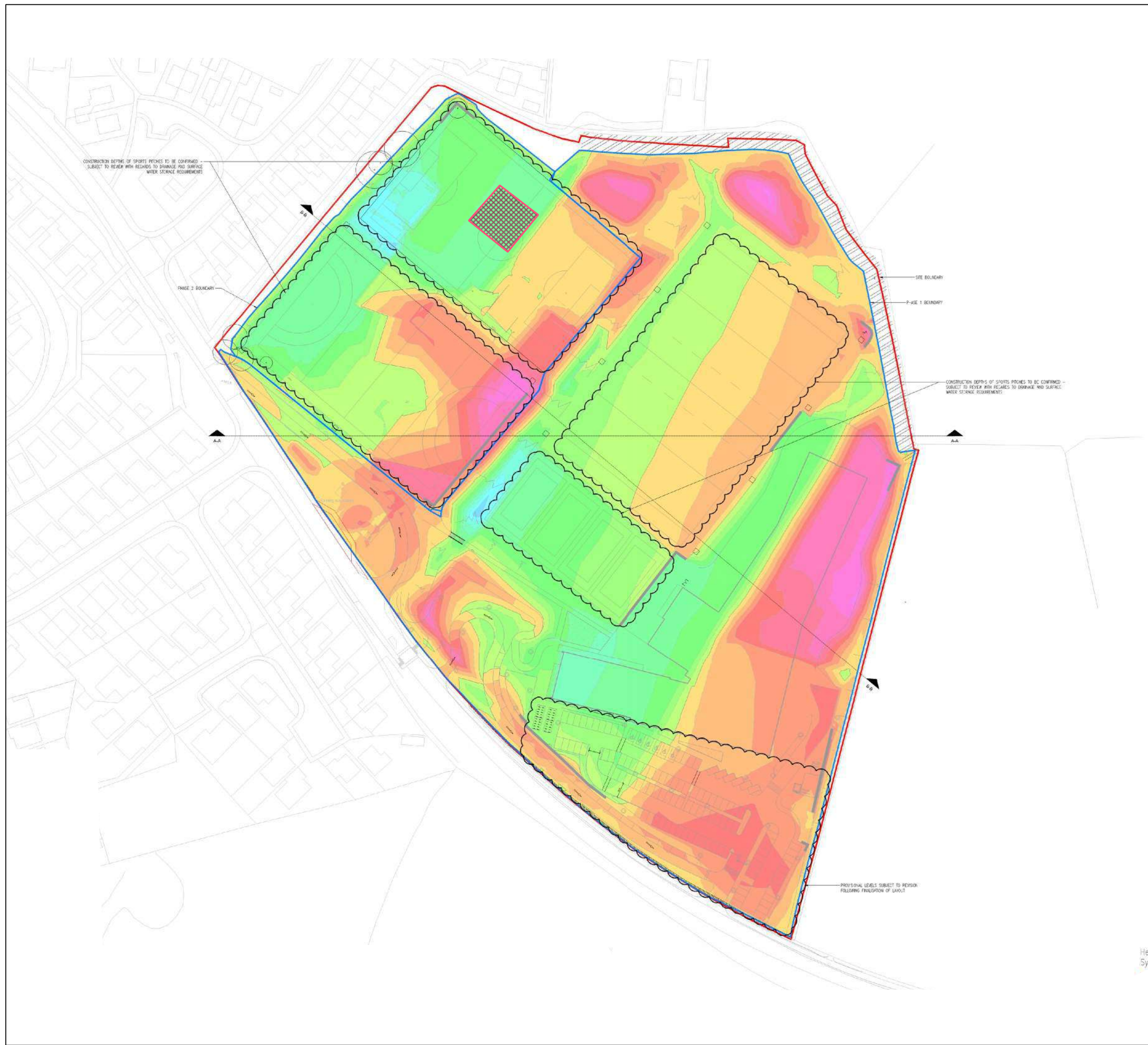
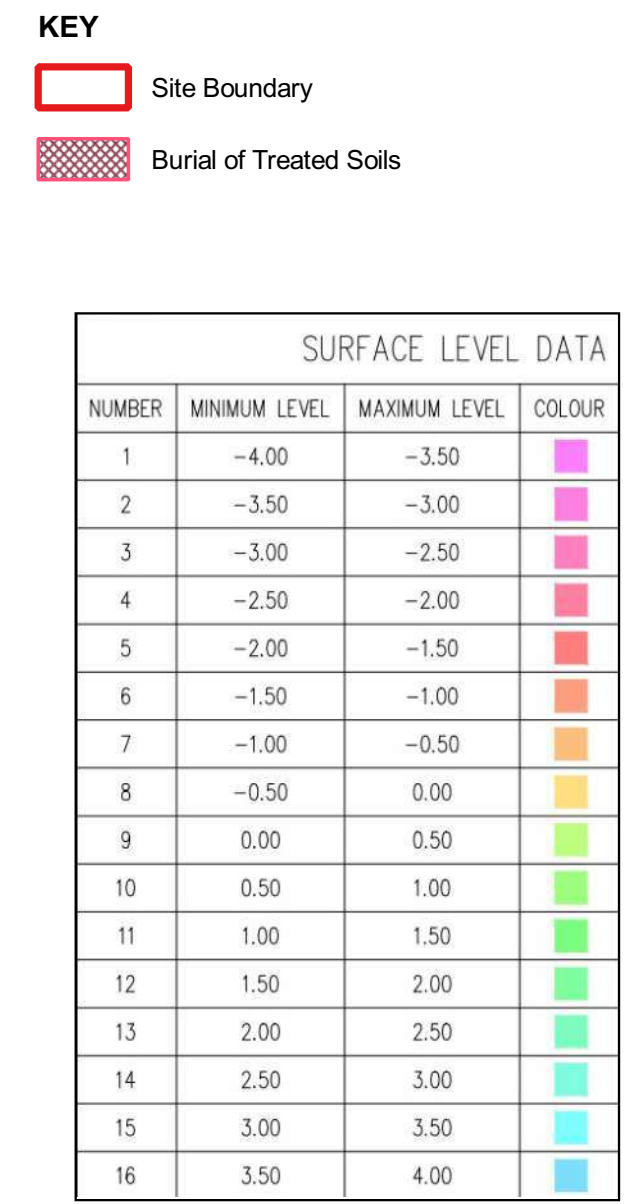
Sheet Title
SITE INVESTIGATION LAYOUT PLAN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A3	Suitability
784-B027006	PP	MAY '21	KW	MAY '21	AJ	MAY '21	As Shown	SD

Client Project Number	Originator	Volume/System Level/Location	Type/Code	Role	Number	Revision
B027006	TTE	- 00 - XX - DR - U -	0002			R02

Figure 3 – Proposed Development Cut and Fill

FIGURE 3
Treated Materials and Cut and Fill Plan



APPENDICES

APPENDIX A – REPORT CONDITIONS

APPENDIX A - REPORT CONDITIONS

This report is produced solely for the benefit of *Morgan Sindall* and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site.

This report is based on a visual site inspection, reference to accessible referenced historical records, information supplied by those parties referenced in the text and preliminary discussions with local and Statutory Authorities. Some of the opinions are based on unconfirmed data and information and are presented as the best that can be obtained without further extensive research. Where ground contamination is suspected but no physical site test results are available to confirm this, the report must be regarded as initial advice only, and further assessment should be undertaken prior to activities related to the site. Where test results undertaken by others have been made available these can only be regarded as a limited sample. The possibility of the presence of contaminants, perhaps in higher concentrations, elsewhere on the site cannot be discounted.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, being subject to risk analysis, we are unable to give categoric assurances that they will be accepted by Authorities or Funds etc. without question as such bodies often have unpublished, more stringent objectives. This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Tetra Tech. In time improved practices or amended legislation may necessitate a re-assessment.

The assessment of ground conditions within this report is based upon the findings of the study undertaken. We have interpreted the ground conditions in between locations on the assumption that conditions do not vary significantly. However, no investigation can inspect each and every part of the site and therefore changes or variances in the physical and chemical site conditions as described in this report cannot be discounted.

The report is limited to those aspects of land contamination specifically reported on and is necessarily restricted and no liability is accepted for any other aspect especially concerning gradual or sudden pollution incidents. The opinions expressed cannot be absolute due to the limitations of time and resources imposed by the agreed brief and the possibility of unrecorded previous use and abuse of the site and adjacent sites. The report concentrates on the site as defined in the report and provides an opinion on surrounding sites. If migrating pollution or contamination (past or present) exists further extensive research will be required before the effects can be better determined.

APPENDIX B – ENVIROTREAT REMEDIATION METHODOLOGY



Cefn Saeson Comprehensive School

REMEDIATION METHOD STATEMENT

Prepared by:

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Tel: 01384 288876

Document No	Issue Date	Description	Prepared by:	Checked by	Approved by:
ETL/SSF/CEFN/01	June 2021	Original	Simon Farr	Andy Norman	Neil Mcleod

Cefn Saeson CS – Remediation Method Statement

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Cefn Saeson CS – Remediation Method Statement

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Cefn Saeson CS – Remediation Method Statement

Introduction:

Envirotrete Technologies Limited [ETL] has been requested by Pritchard Holdings to provide a Remediation Method Statement to detail the proposed remediation works to address the identified petroleum hydrocarbon and heavy metals soil contamination at the Cefn Saeson Comprehensive School on Afan Valley Road, Neath, SA11 3TA.

The new development site is located adjacent to the existing Cefn Saeson school (P2019/5028), with the existing sports fields being used as the location for the new school building. It is situated on the edge of Cimla, Neath with housing to the western and southern boundaries.

It is our understanding that an area of shallow contamination has been identified under the existing school car park (south-east corner of existing school development).

The overall objectives of the remediation would be to address the requirements for the protection of human health and protection of groundwater.

A number of remediation options were considered for the remediation of the identified soil contamination, including:

- Do nothing - this was not considered an option due to potential risks to groundwater associated with the identified contamination
- Excavate and remove from site to a suitably licenced facility - this option, although meeting the remediation aims, was discounted as not being in keeping with the Morgan Sindall waste management plan and waste hierarchy principles. The contaminated soils were also not considered suitable for disposal / reuse at local restoration sites.
- Bioremediation - this strategy would address the identified hydrocarbon contamination. However the timeframe would be too long and not in accordance with the overall programme of works. Additionally, the metals contamination within the soils do not lend themselves to bioremediation.
- Chemical stabilisation - this would achieve all the remediation aims (treated material would be placed below a suitable approved capping and the treatment would reduce contaminate mobility to a suitable level) and in a timely manner.

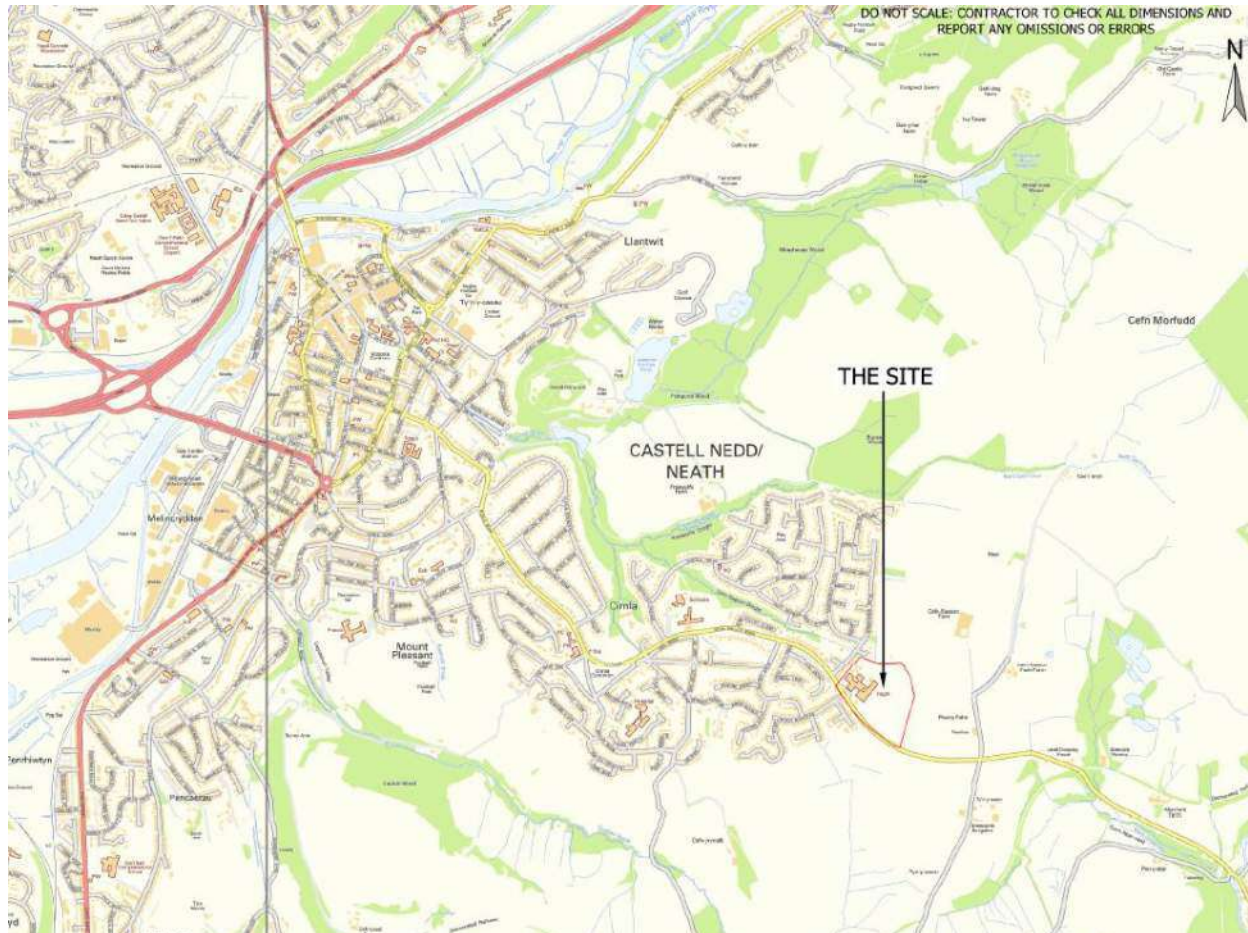
Cefn Saeson CS – Remediation Method Statement

Site Overview and Plan:

The site is the former Cefn Saeson Comprehensive School.

The site location is shown in Figure 1 below and the area of identified contamination is shown in Figure 2 below.

Figure 1 – Site Location



Cefn Saeson CS – Remediation Method Statement

Figure 2 – Contamination Hotspot / Area of New Development



Summary of Previous Site investigations:

The site has been subject to a site investigation undertaken by WYG in February 2019. Additional testing has been undertaken in 2021 within the existing school car park ((following elevated levels of pollutants being identified within this area).

Contamination Summary:

Identified contamination within the car parking area was centred around WS105 and WS204. This was primarily related to metal and hydrocarbon contamination, which was assessed to be hazardous following a HazWasteOnline assessment.

Based on the assumed area and the depth of the contamination, volumes requiring treatment are considered to be less than 500m³. Delineation will be carried out to determine the full extent of the contamination.

The contamination summary is shown in Table 1 below.

Cefn Saeson CS – Remediation Method Statement

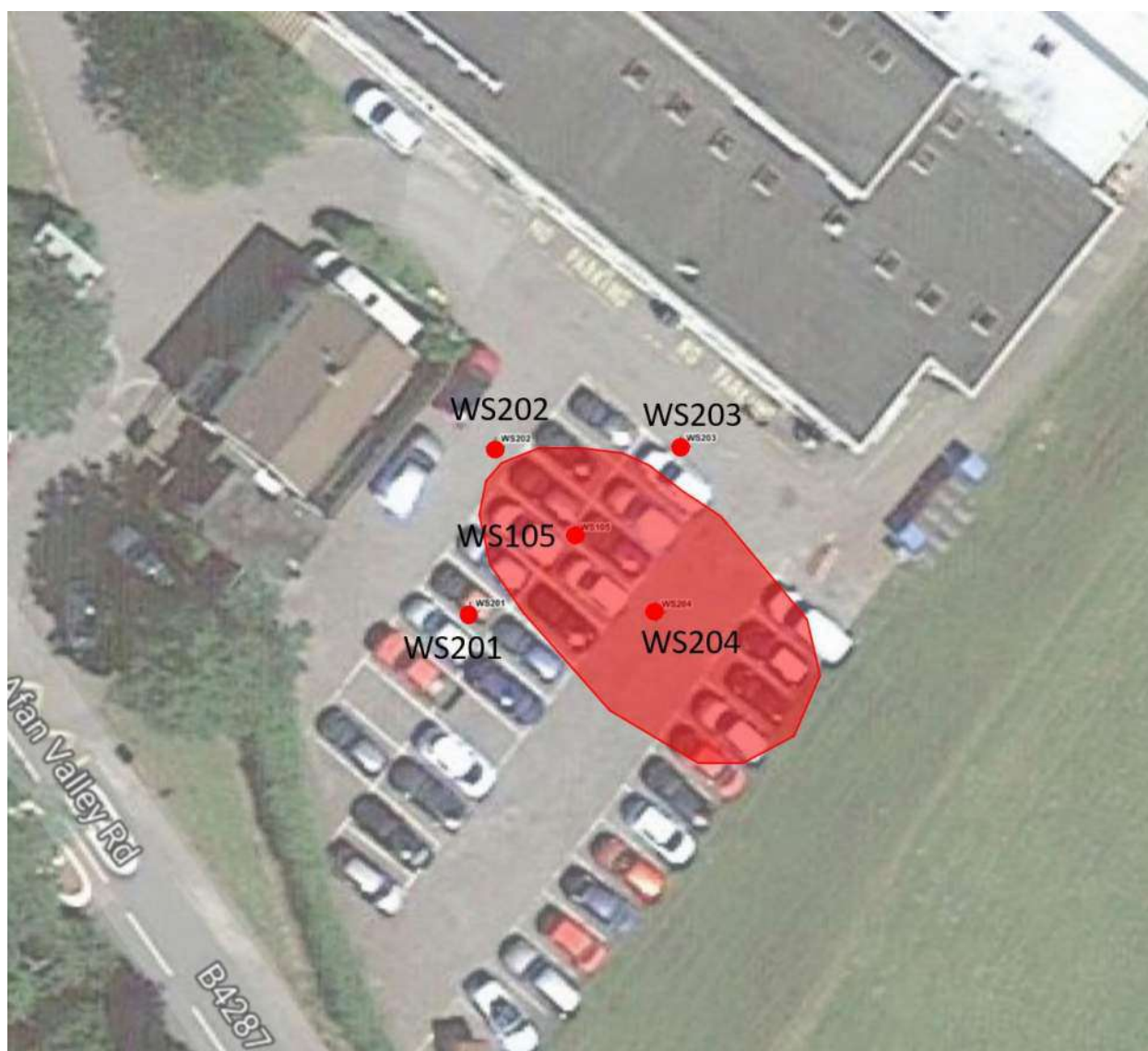
Table 1 – Site Investigation Results

	Depth (m bgl)	TPH (mg/kg)	Lead (mg/kg)	Zinc (mg/kg)
WS201	0.25 – 0.60	397	92.5	165
WS202	0.60 – 0.80	72.3	39.6	156
WS203	1.30 – 1.80	341	224	424
WS203	1.80 – 2.00	< 10	18.1	76.3
WS204	0.10 – 0.30	397	181	418
WS204	0.30 - 0.60	3,450	2,860	4,910
WS204	0.70 – 1.00	< 10	14.5	54
WS204	1.50 – 2.00	< 10	35	97.3
WS105	0.10 – 0.25	116	54.3	214
WS105	0.35 – 0.60	9,320	4,390	7,220
WS105	1.00 – 1.20	3,080	39.1	80.5
WS105	1.80 – 2.00	< 10	15	83

The indicative treatment area is shown in Figure 3 below (centred around WS204 and WS105). At this stage the source has not been fully delineated.

Cefn Saeson CS – Remediation Method Statement

Figure 3 – Indicative Contaminated Soil Area



Cefn Saeson CS – Remediation Method Statement

Remediation Strategy:

The Proposed Remediation Strategy is designed to address the identified contamination as referenced in the WYG reported analysis and as summarised in this document above.

The prime contaminants of concern have been identified as total petroleum hydrocarbons and heavy metals.

Both of these pollutants could potentially impact human health receptors (site workers and end site users, through direct contact or inhalation of potential gases) and groundwater receptors (both underlying groundwater).

Following a Remediation Options Appraisal, Envirotreant are proposing the use of E-Clay Stabilisation to address the source contamination (both contaminated soils and any associated contaminated groundwater encountered). This will protect the identified receptors. Human health risks would also be addressed by means of a 'pathway break' i.e, the car parking area.

The following scope of works is proposed to address the identified remediation requirements:

- Delineation of the hydrocarbon / metal contaminated area (assessment / confirmatory analysis as required)
- In-situ E-Clay stabilisation of the impacted area (following delineation) and validation
- Provision of a Validation and Verification Report

Delineation of Impacted Area:

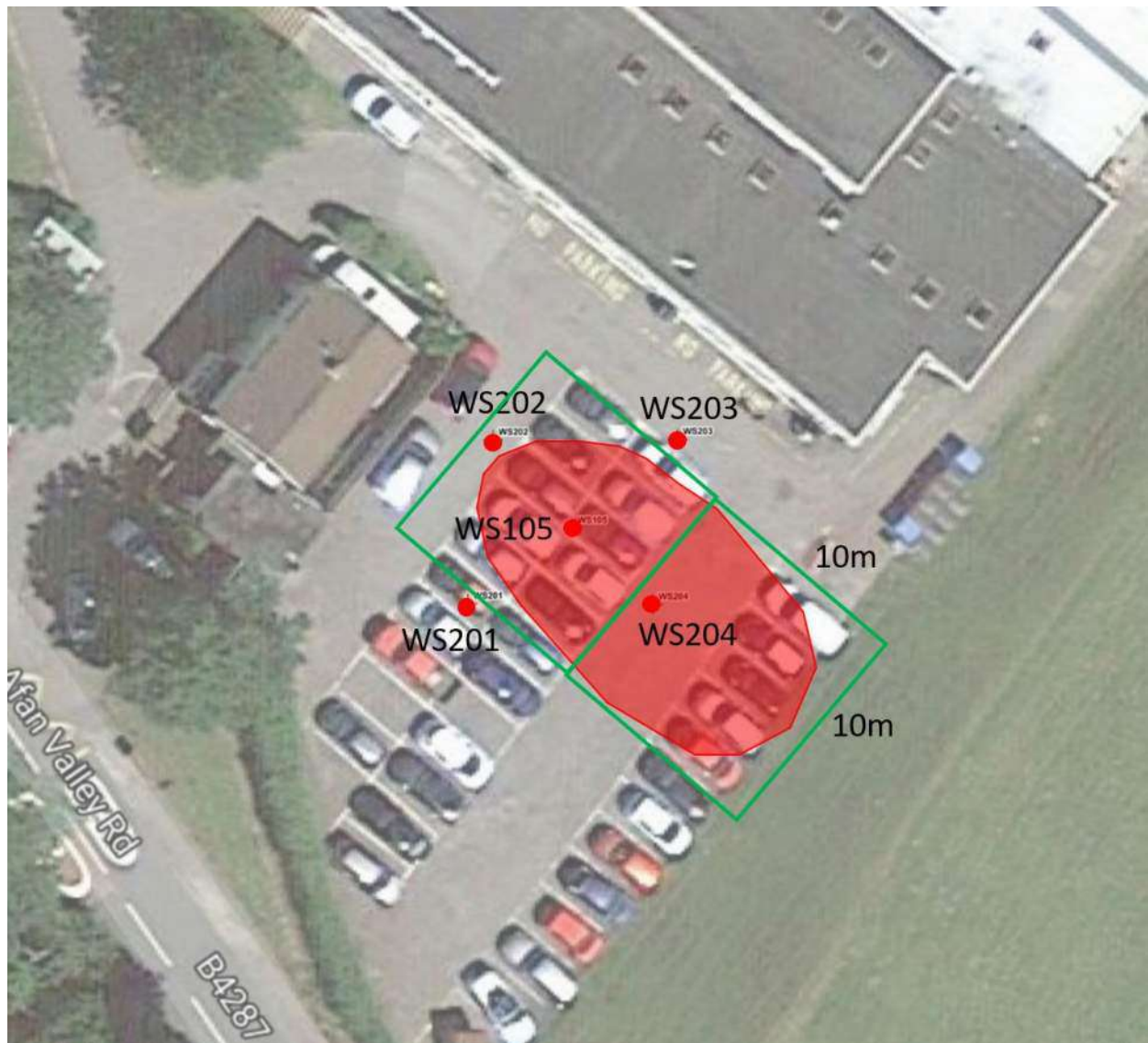
The envisaged treatment area is shown in Figure 4 below.

A series of trial pits will be excavated around the impacted area to confirm the lateral and vertical extent of the identified hydrocarbon contamination. Soils will be initially assessed using visual and olfactory methods and by headspace analysis using a handheld Photo Ionisation Detector [PID]. Soil samples from the trial pitting delineation exercise will be submitted to a UKAS / MCERTS accredited laboratory for analysis to confirm hydrocarbon concentrations are below the acceptable threshold limits.

Delineation criteria cannot be based on an assessment against EQS / DWS as previous site investigations have shown that the made ground exceeds these parameters. We therefore propose using totals values for TPH and metals as encountered in the surrounding made ground as criteria i.e TPH 500 mg/kg, Lead 500 mg/kg and Zinc 500 mg/kg.

Cefn Saeson CS – Remediation Method Statement

Figure 4 – Indicative Contaminated Area

**Remediation Criteria:**

WYG compared borehole groundwater data against EQS and where EQS are not available, compared with UK Drinking Water Standards.

In line with the above information, the results of chemical testing of water samples have been assessed against available Environmental Quality Standards (EQS) for freshwater; which are considered protective of surface water features beyond the site boundary. Where no EQS is available, the UK Drinking Water Standards (UKDWS) are used instead. The comparison of a concentration against a UKDWS is considered highly conservative but serves to provide an indication of the level of contamination (or otherwise) within groundwater beneath the site and offers protection to the quality of groundwater within the Secondary A Aquifers.

World Health Organisation (WHO) drinking water standards have been used to screen recorded TPH (Aromatic/Aliphatic) concentrations in the water samples. Tier 1 screening assessment against EQS and UKDWS allows for an initial assessment of the results, after which a more targeted assessment can be made based on the derived conceptual site model.

Cefn Saeson CS – Remediation Method Statement

No site specific derived remediation criteria was developed, however an assessment of groundwater undertaken by WYG confirmed lead groundwater concentrations observed at 97.6 ug/l and Zinc groundwater concentrations observed at 214 ug/l were acceptable in their statement,

“it can be suggested that the Made Ground on site will have a minimal impact on any perched groundwater within the site.”

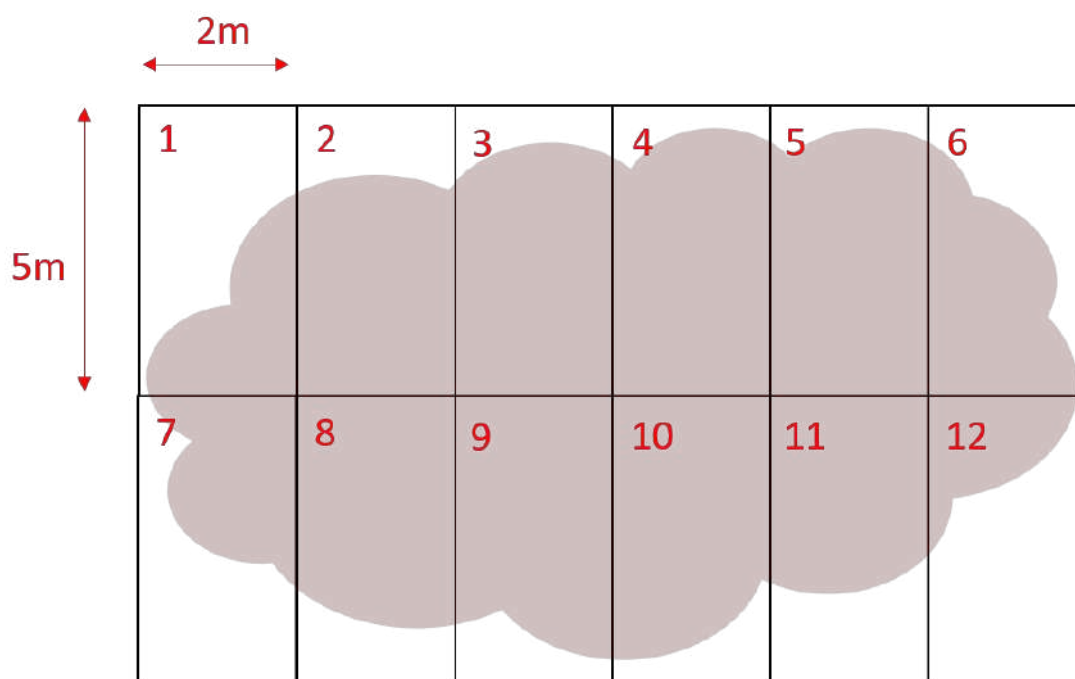
We would adopt WHO DWS for TPH banding

In-Situ E-Clay Stabilisation:

The treatment process will involve the use of E-Clay Stabilisation utilising a site-specific E-Clay formulation designed to chemically immobilise the identified contaminants of concern (within the soils and associated groundwater). Cementitious materials will also be added to provide a degree of physical stabilisation – the treatment process will produce a friable material.

The *in-situ* treatment approach will involve ‘gridding up’ the proposed treatment areas to ensure that the correct quantity of E-Clay slurry and other additives are applied to the contaminated soils. This is shown schematically in Figure 5 below.

Figure 5 – Schematic Showing Potential ‘Gridding up’ of Treatment Area.



Each treated area will require the addition of required volume of E-Clay slurry and cement as determined by the Project Manager (based on treatment volumes, etc).

In each treatment area the local site level will be reduced to remove surface soils (nominally 250 – 750 mm). These soils will be temporarily set aside. The site-specific E-Clay formulation will be produced on-site in slurry form using a grout mixer - proprietary chemical reagents are added to a pre-prepared bentonite slurry – the slurry can either be produced using mains or ‘grey’ water removed from the excavations.

The E-Clay slurry will be pumped from the grout mixer into the void spaces created by either the initial reduced level dig or by the tank excavations. Bentonite and Cementitious materials will be

Cefn Saeson CS – Remediation Method Statement

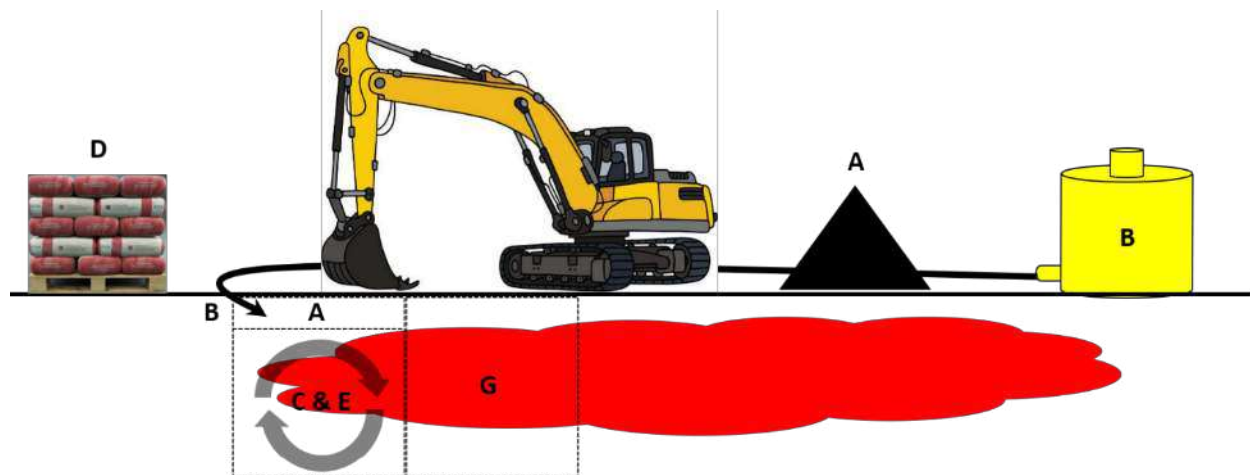
added in dry form. The soils and associated groundwater will be mixed with the treatment additives until a homogenous treated mass is produced. Previously set aside soils will then be replaced and further treated until homogenous.

Once complete further areas are treated until the whole contamination area is treated.

The *in-situ* treatment process is shown schematically in Figure 6 below:

Cefn Saeson CS – Remediation Method Statement

Figure 6 - Schematic Showing *In-Situ* Treatment Process



- A. Reduce suitable area of ground (eg 5m x 2m) by circa 250 – 750 mm and set aside in local stockpile (safely away from excavation to avoid potential collapse).
- B. Add required volume of E-Clay slurry to treat volume of soil (eg 5m x 2m x overall treatment depth).
- C. Using the excavator bucket mix the E-Clay slurry and in-situ soils to required depth until homogenous.
- D. Add dry Bentonite and Cement.
- E. Using the excavator bucket mix the Bentonite and Cement and in-situ soils to required depth until homogenous.
- F. Add back the previously set aside soils and mix until homogenous.
- G. Repeat in next area until all contamination is treated.

Validation of the treated materials will be carried out by a granular leach testing methodology by an accredited laboratory. Representative samples will be taken at a frequency of one sample for every 100m³ of soils treated.

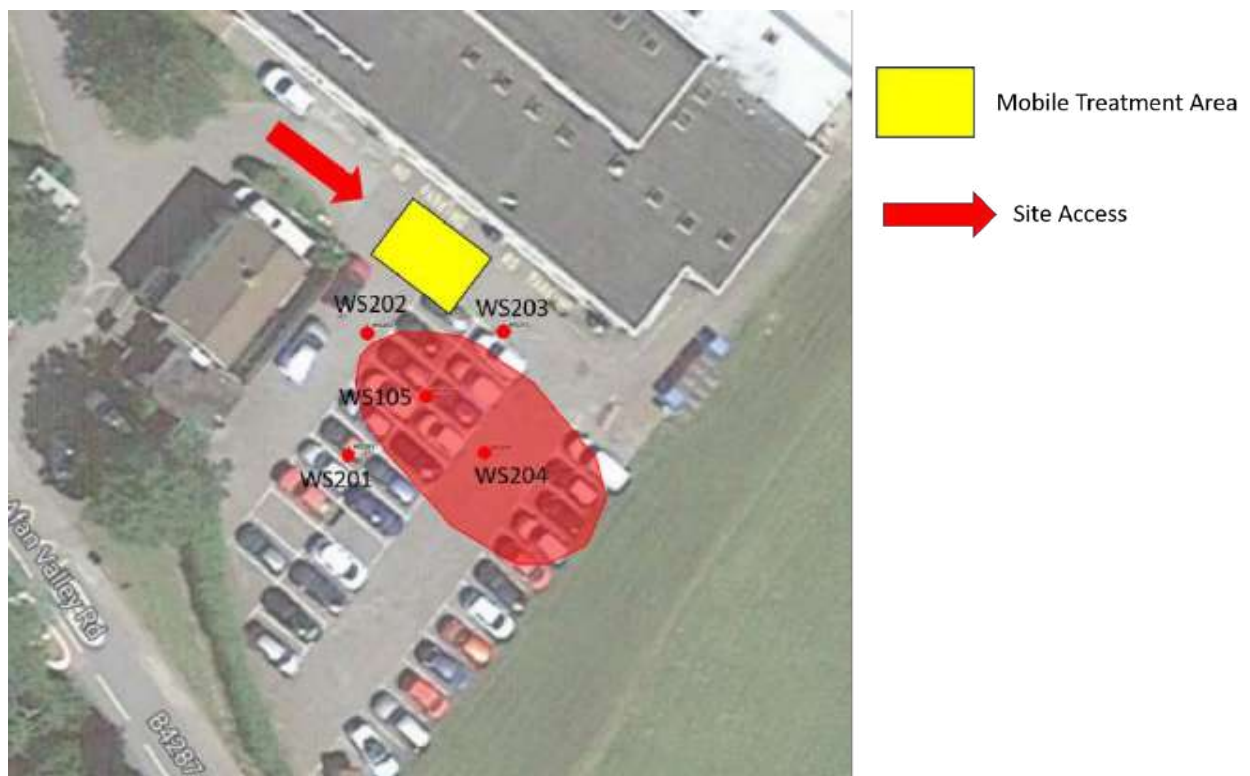
The remediation target criteria are designed to protect controlled waters - see Validation Section.

Should any treated sample fail to achieve the designated remediation target criteria then the material will be retreated to achieve compliance.

The proposed site set-up is shown in Figure 7 below. The mobile treatment area is shown in Figures 8 and 9 below.

Cefn Saeson CS – Remediation Method Statement

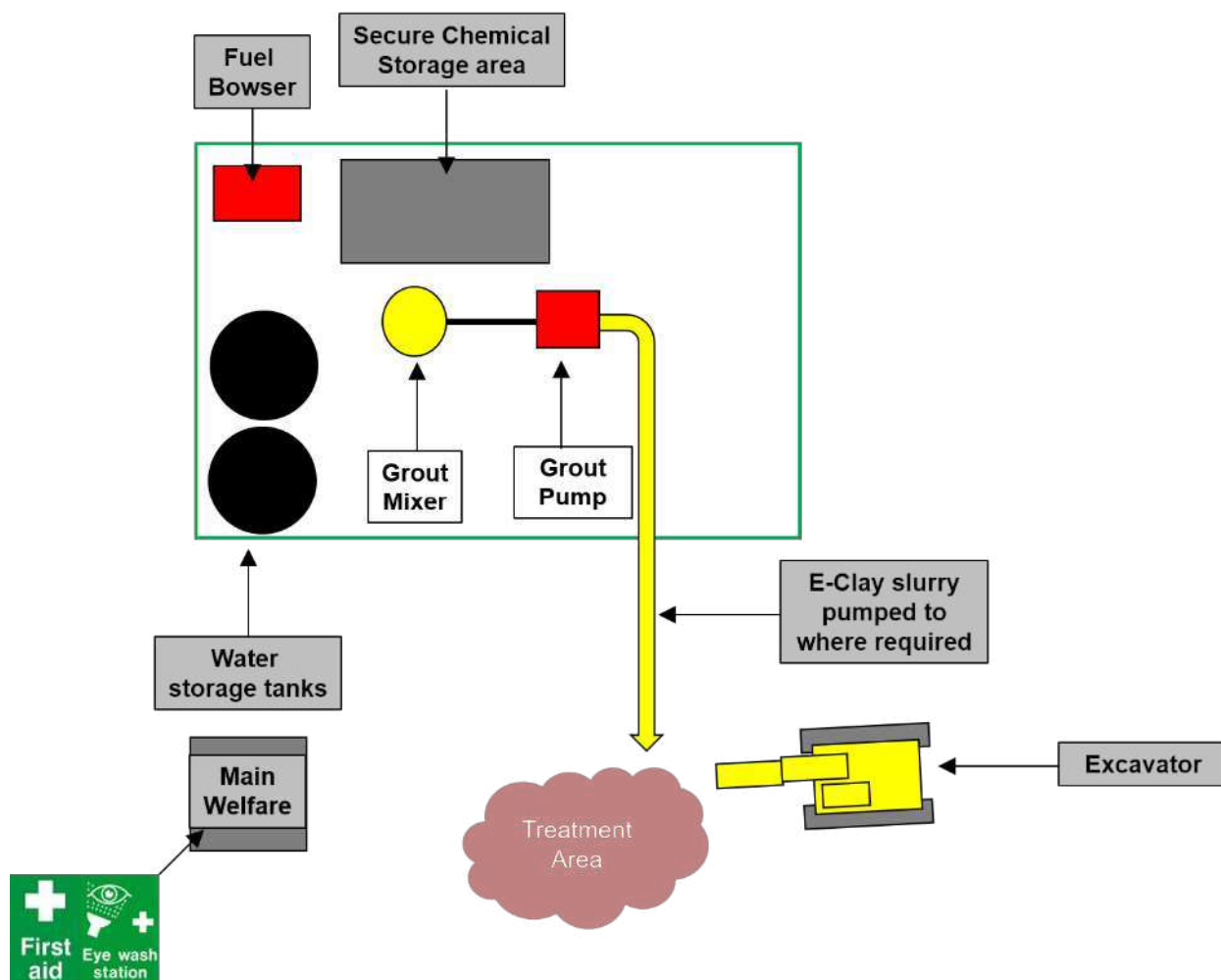
Figure 7 – Site Set-Up



Overall site security will be supplied and maintained by Principal Contractor or Main Contractor.

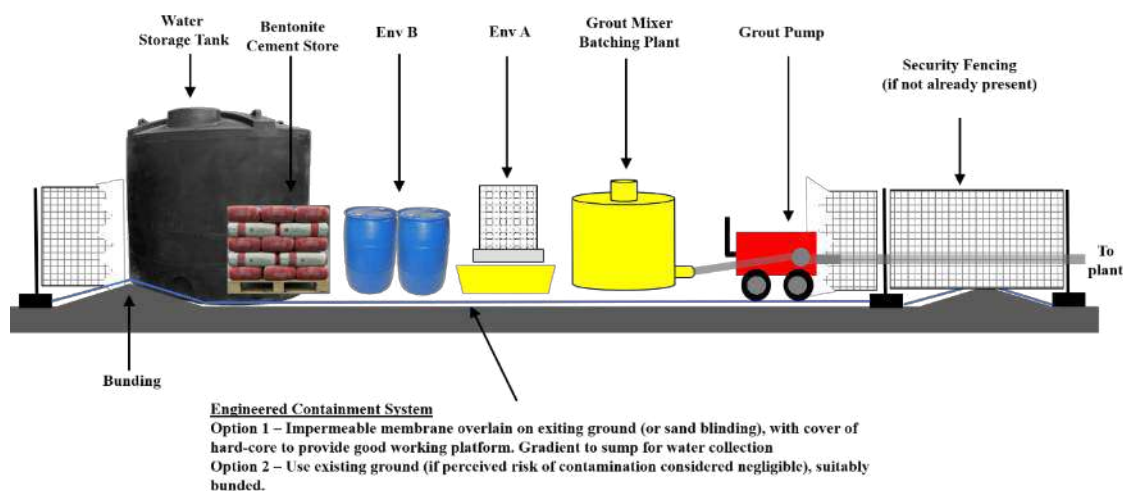
Cefn Saeson CS – Remediation Method Statement

Figure 8 – Generic Mobile Treatment Area



The welfare will be supplied by Main Contractor.

Figure 9 – Generic Mobile Treatment Area



Cefn Saeson CS – Remediation Method Statement

Organisational Structure / Key Personnel:

It would be the intention for ETL to carry out the required remediation works.

The proposed organisational structure is shown in Figure 10 below:

Figure 10 - Proposed Organisational Structure



ETL contact details are as follows:

Envirotreant Technologies Limited,
LCP House,
Pensnett Trading Estate,
Kingswinford,
West Midlands.
DY6 7NA
01384 288876

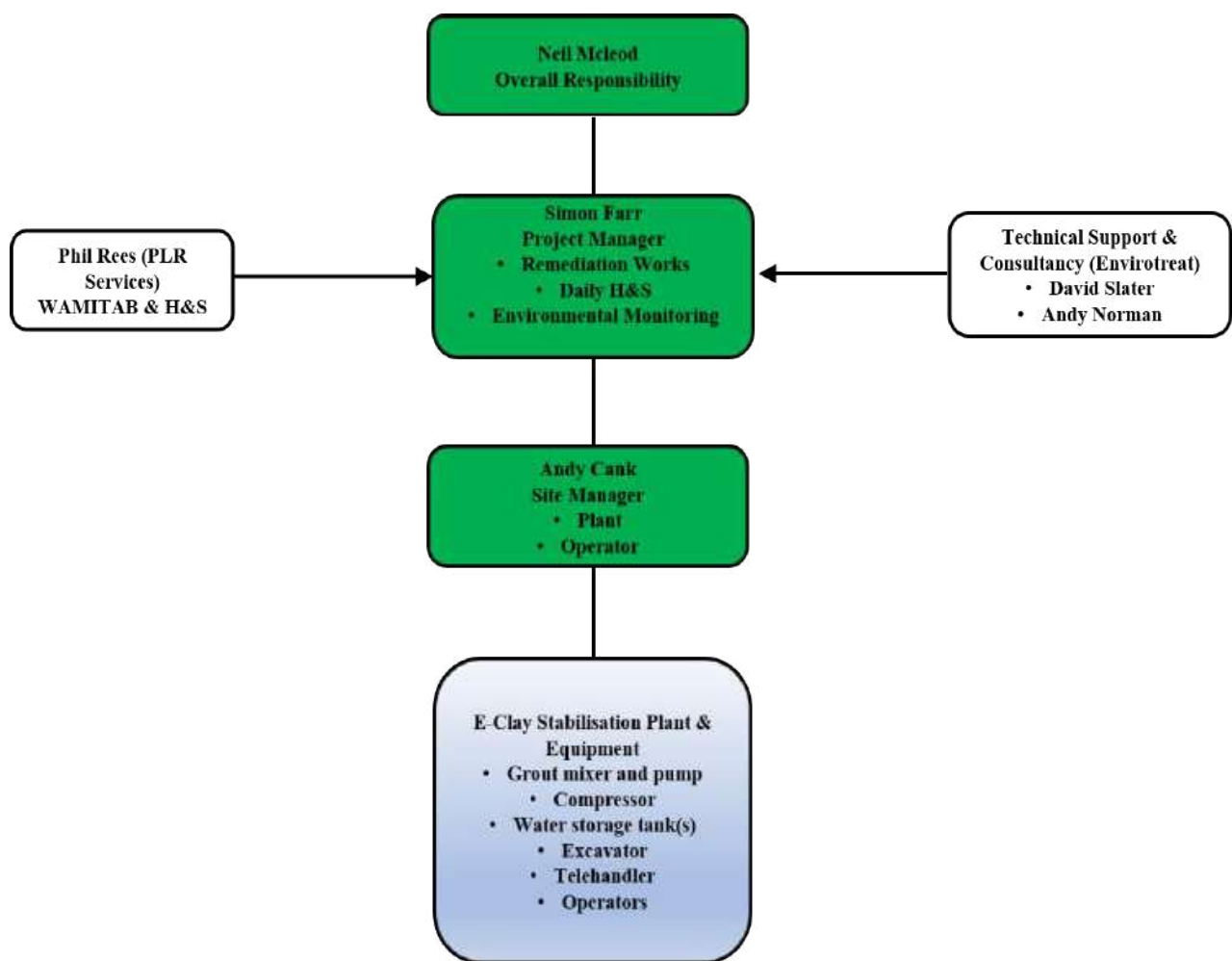
Cefn Saeson CS – Remediation Method Statement

Key contacts are;

- Neil Mcleod (Technical Director - 07968 496927 – neil.mcleod@envirotreat.com)
- Simon Farr (Project Manager - 07803 174046 – simon.farr@envirotreat.com)
- Andy Norman (Principal Consultant – 07949 423059 – andy.norman@envirotreat.com)
- David Slater (Technical Manager - 07949 205896 – david.slater@nvirotreat.com)

Neil McLeod is responsible for application of the remediation technologies in accordance with the procedures and safe systems of work outlined in this document. The site responsibilities are summarised in Figure 11 below.

Figure 11 – Site Responsibilities



The Project Manager and Technical Manager (Simon Farr and / or David Slater) responsibilities would be as follows:

- All site works
- Safety issues
- Quality issues

Compilation, revision and maintenance of the quality system

Cefn Saeson CS – Remediation Method Statement

Health and safety risk assessments identifying potential hazards and risks to site operatives are to be completed and communicated to those all involved through a site induction process implemented prior to works commencing on-site. All prevailing site health & safety procedures take precedence.

A Site-Specific Quality Plan will be prepared which will set out all the quality control and quality assurances protocols along with required monitoring / recording procedures to ensure the precise application of the technology.

Quality Risk Assessments identifying potential risks to the quality of operations on-site are to be completed and communicated to those involved. The assessment sheets will also include controls and measures to ensure quality is stringently adhered to at all times during application of the remediation process. These assessments will form part of the overall validation process.

A comprehensive Site-Specific Health & Safety Method Statement will be produced including welfare requirements, COSHH, PPE, manual handling, noise, etc to ensure the safety of those working on site and to protect the surrounding environment.

WAMITAB Supervision:

Philip Rees will be act as WAMITAB / Health and Safety advisor for ETL.

Induction and Instruction:

All staff will undertake a site induction by ETL. This will include requirements in line with current COVID-19 guidelines.

The Project Manager would be responsible for ensuring that all ETL staff are fully inducted, trained and supervised in all remediation activities to be carried out on-site. The induction and instruction will be recorded in the Safety & Environmental Plan held on site and a copy can be provided where necessary. If any of the work activities change during the course of a project, an assessment of the hazards and risks associated with the work activity would be undertaken and further job-specific training would be given by the Site Manager / Project Manager as required. All personnel attending site would be required to read the Health, Safety and Environmental Plan, undergo appropriate induction and sign the record book accordingly.

Quality Control:

A daily / weekly record of works (including hours operated, volumes treated, site checks, plant records, etc) will be documented. The record sheets will be reviewed by the ETL Project Manager and on approval will be signed and incorporated into the Site-Specific Quality Plan held on site.

All works will be undertaken in accordance (not exclusively) with:

- HSG66 - Protection of workers and the general-public during development of contaminated land.
- Managing Health and Safety in construction - Construction (Design and Management) Regulations 2015 – HSE Publication (L153).

Cefn Saeson CS – Remediation Method Statement

Validation:

The soil delineation will be validated by visual and olfactory methods initially and confirmed via the collection of samples from the sides and base of the excavated areas. The samples will be submitted to a UKAS/MCERTS accredited laboratory for TPH-CWG / metals analysis.

Validation of the treated materials will be carried out by an accredited laboratory using a granular leach testing methodology (i.e. following treatment utilising the *in-situ* E-Clay stabilisation process). Representative samples will be taken at a frequency of one sample for every 100m³ of soils treated. The samples will be submitted to a UKAS / MCERTS accredited laboratory for leaching for the identified contaminants of concern in accordance with BS 12457 – 2 (i.e., 10:1 granular leaching test).

Any treated materials not meeting the remediation criteria will re-treated as required.

Environmental Monitoring and Site Controls:Control of Mud and Debris:

The control and prevention of mud and debris being transported off-site will be dependent upon a number of factors. These include the weather and / or the amount of traffic and personnel travelling across the site.

Mitigating measures should therefore reflect the type of operation being carried out and it is not expected that stringent controls, such as those implemented on licensed landfill sites for the control of mud and debris, will need to be applied.

The potential risk for movement of mud and debris off-site is low to negligible during the project and negligible following completion.

The works will be undertaken in-situ.

No vehicles will leave the site other than plant on completion of the works. A visual inspection of all vehicles will be undertaken before allowing them to move off-site.

Control of Potentially Polluting Leaks, Spillages and Aerial Emission:

A number of control measures will be undertaken to minimise the perceived risks and hazards associated with the remediation process.

The works will be undertaken in-situ.

All work will be carried out within a designated area to protect the surrounding environment from potential spillages within the working area.

Fire on the Operating Site:

Due to proposed remediation works, the potential risk from fire to the surrounding environment is negligible. Wastes that are classified as explosive or highly flammable (Special Waste Hazard code H1, H3-A and H3-B) have not been identified on-site.

Identification of the type, composition and relevant hazardous properties of the contaminants on-site is an integral part of the site investigation stage. This information ensures that all wastes, whatever their nature and composition, can be treated and handled in accordance with the hazards they represent.

The emergency procedures for a fire or explosion on-site are detailed in the Fire Action Plan within the site-specific Health and Safety file, in accordance with the Health and Safety at Work Act 1974, and in collaboration with the local Fire Authority.

ALL fires or explosions on-site are considered an emergency and will be treated as such. To prevent the occurrence of a fire or explosion on-site, smoking and the use of naked flames will be prohibited within the treatment zone and fuel storage area.

Only suitably trained personnel, in accordance with the manufacturer's specifications, will carry out maintenance on plant and equipment. Relevant training will be given to all personnel on what to do in the event of a fire and in the use of the firefighting equipment.

Cefn Saeson CS – Remediation Method Statement

Waste Quantity Measurement Systems:

ETL are not operating a licensed landfill and as such there is not expected to be any material transported on or off the site (with regards to the treatment process) during the project. Waste Quantity Management Systems are not therefore applicable.

Asbestos Contaminated Materials / Control of Dust:

Asbestos contaminated materials have not been identified on site. Should asbestos containing materials be encountered during the works it will be necessary to carry out a detailed assessment of the nature and quantity of asbestos to determine the risk classification in accordance with the CL:AIRE CAR-SOIL Guidelines and also to determine whether the asbestos contamination is above or below the 0.1% hazardous threshold. This will determine the course of action required for addressing the material i.e. either treatment for reuse on-site in designated areas of the site if low risk / non-notifiable or offsite disposal to a suitably licensed landfill site if considered to be notifiable and licenced asbestos work.

Appropriate environmental controls will be implemented to monitor and control dust emissions from the site which will also control the potential risks associated with the potential release of asbestos fibres.

These environmental controls will include (as a minimum):

- Damping down on dry days to minimise the risk of dust being generated which could potentially impact on offsite receptors. The damping down process will also control the potential release of asbestos fibres. A suitable water supply will be available at all times for this purpose
- The implementation of effective dust monitoring which will be undertaken at areas of the site deemed to pose a potential risk to offsite receptors. Should the monitoring demonstrate at any time that the potential risk is a concern then the works will cease immediately, and the methodology will be reviewed and demonstrated to be acceptable prior to remediation works recommencing on-site. The monitoring process will be fully supervised by ETL and daily records will be maintained in the Quality Plan.

Control of Dust:

It is unlikely that dust will be generated from the excavation and treatment process.

Local dust will be generated from opening bentonite bags, operatives will use PPE.

Daily dust monitoring assessments will be undertaken by ETL at key Environmental Monitoring Locations (see Figure 17 below) – these will be recorded in the Quality Plan.

Background monitoring will be undertaken to determine baseline levels. Trigger levels will be exceedance of background levels.

The pathway identified for the transport of odours across the site boundary is via air emissions, with potential receptors being site operatives, the public, neighbours and site visitors. Risks beyond the site boundary are low due to the distances involved.

Control of Odours and VOCs:

There is a potential that odours could be generated from the remediation works. Volatilisation and the production of odours are therefore deemed to be of medium risk.

These risks will be minimised by undertaking the remediation in-situ.

Cefn Saeson CS – Remediation Method Statement

The pathway identified for the transport of odours across the site boundary is via air emissions, with potential receptors being site operatives, the public, neighbours and site visitors. Risks beyond the site boundary are low due to the distances involved.

Simple olfactory monitoring and VOC monitoring (via hand-held PID) will be undertaken by ETL at key Environmental Monitoring Locations (see Figure 12) during operating days and records of any odours noted in the site logbook.

Background monitoring will be undertaken to determine baseline levels for odours and 1ppm Benzene adopted at the site boundary.

Control of Noise:

Receptors at risk are site operatives and the local community. Noise during the works may originate from the plant and vehicles delivering / removing materials to / from the site.

Noise monitoring (via a hand-held noise meter) will be undertaken by ETL at key Environmental Monitoring Locations (see Figure 12) during operating days.

The delivery process is not generally noisy and will only take place during sociable working hours.

Background monitoring will be undertaken to determine baseline levels. Trigger levels will be 5dbA over background.

Maintenance Procedures.

Maintenance of all plant and equipment required for the treatment process including slurry production will be carried out by qualified engineers. Checks of all plant and equipment will take place on a daily basis and will be recorded within the Quality Plan (a copy of which will be stored on site during the remediation works). Maintenance of the ECS will be undertaken during the course of the remediation works through the visual inspection of the liner system. Any damage to the ECS will be repaired and recorded in the site logbook.

Contamination:

No off-site vehicle or machine / plant traffic movement will be allowed without prior first being decontaminated.

Records:

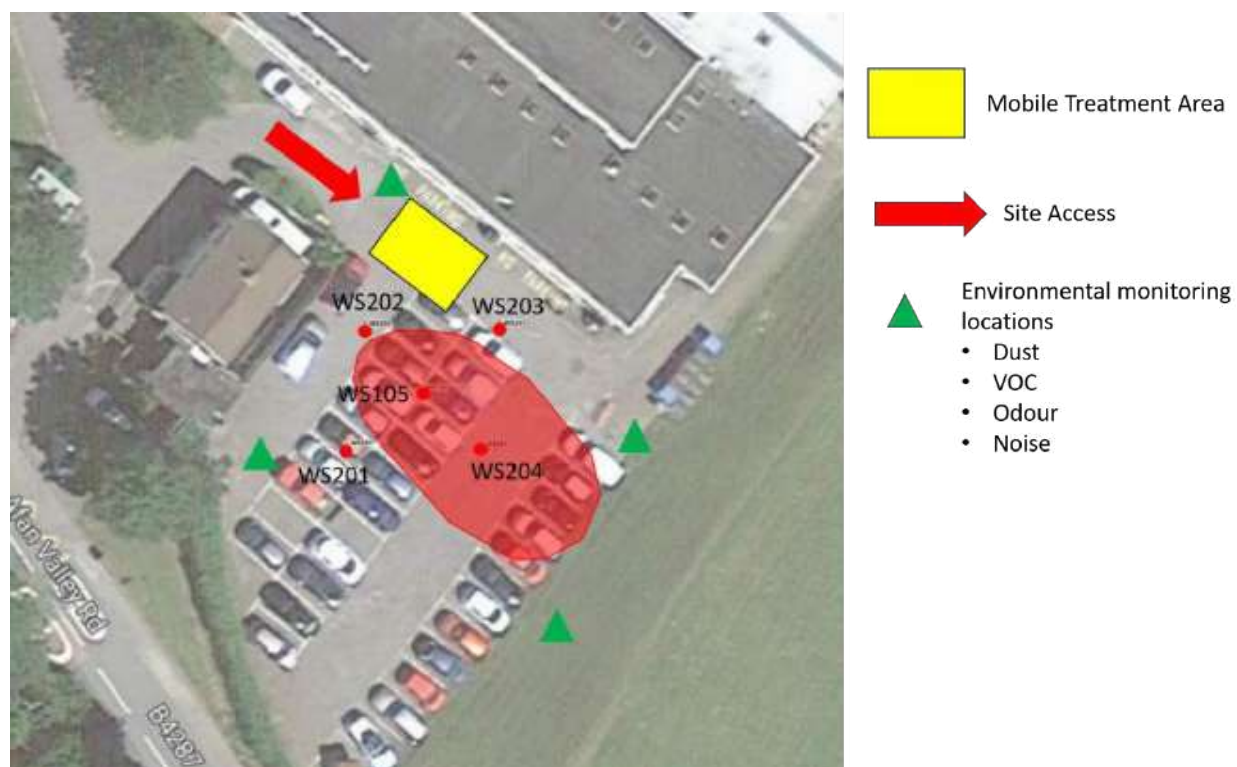
All records regarding the installation, commissioning, operation and maintenance procedures will be noted within the site logbook.

Site Demobilisation:

On completion of the activities summarised above, all plant and equipment associated with the remediation works will be cleaned down (where applicable) and safely removed from site.

Cefn Saeson CS – Remediation Method Statement

Figure 12 – Environmental Monitoring Locations



Cefn Saeson CS – Remediation Method Statement

Regulatory Requirements:

It would **not** be necessary to formally deploy ETL's Mobile Treatment Permit for the soil excavation and disposal works on the basis of small volume.

Treated waste will be deemed "recovered" and reused onsite on the basis that the materials will be compliant with the designated remediation criteria.

The works are anticipated to start on the 14th June 2021 and expected to take one week to complete.

Operational Requirements:

The following equipment will be utilised for the remediation (treatment) works:

- Welfare facilities (to include changing area, toilets, washing facilities and rest / canteen)
- Excavator
- Telehandler
- Mobile Plant (grout mixer and pumps, air compressor, water tanks).

The following staffing levels are proposed:

- Plant Operatives (E-Clay preparation, excavator and telehandler operator)
- Project Manager
- Site Supervision

Other requirements:

- Site-Specific Health & Safety File
- Health & Safety Risk Assessment and Method Statement
- Site-Specific Quality Plan File

Personal Protective Equipment:

Personal Protective Equipment will be provided for onsite personnel where deemed necessary (i.e. where engineering controls and safe systems of work are not considered an effective safeguard against risks to safety and health) in accordance with the Personal Protective Equipment at Work Regulations 1992.

- Minimum site PPE includes the provision of the following to ISO standards:
- Safety Helmet
- Hi-Visibility Jacket / Waistcoat
- Safety Boots
- Builders Gloves
- Eye Protection
- Ear Protection (to be determined on-site)

Cefn Saeson CS – Remediation Method Statement

Warning signs indicating that construction activities are in progress will be displayed in and around the site where required. A weekly general inspection of conditions on-site including, noise control, dust control, boundary fences etc, etc will be carried out by an ETL representative and recorded and contained within the quality plan. Further to this an inspection of any plant and equipment hired by ETL will be undertaken and recorded and again contained within the quality plan. Inspection of plant and equipment will be carried out by the specialist contractor, prior to start-up each day. Inspection is primarily for possible leakages and/or any potential health hazards. If any item appears unsatisfactory it should be reported to an ETL representative and this should be noted, and appropriate action taken.

- A Health & Safety file will be compiled and maintained on site.
- A Quality File will be compiled and maintained on site.

Hours of Operation.

The proposed working hours on site are as follows:

- Weekdays: 08:00hrs - 17:00hrs
- Saturday N/A
- Sunday/Bank Holidays N/A

APPENDIX C – TREATED MATERIAL LABORATORY CERTIFICATES



Simon Farr
Envirotest Ltd
LCP House
Pensnett Estate
Kingswinford
West Midlands
-

t: 01384 288876

e: simon.farr@envirotest.com

i2 Analytical Ltd.
7 Woodshots Meadow,
Croxley Green
Business Park,
Watford,
Herts,
WD18 8YS

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 21-82546

Project / Site name: Cefn Saeson School Neath

Samples received on: 22/06/2021

Your job number:

**Samples instructed on/
Analysis started on:** 22/06/2021

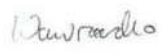
Your order number:

Analysis completed by: 25/06/2021

Report Issue Number: 1

Report issued on: 25/06/2021

Samples Analysed: 2 leachate samples


Signed:

Joanna Wawrzeczko
Technical Reviewer (Reporting Team)
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils - 4 weeks from reporting
leachates - 2 weeks from reporting
waters - 2 weeks from reporting
asbestos - 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement.
Application of uncertainty of measurement would provide a range within which the true result lies.
An estimate of measurement uncertainty can be provided on request.



Analytical Report Number: 21-82546

Project / Site name: Cefn Saeson School Neath

Lab Sample Number				1912613	1912614
Sample Reference				Treated 1	Treated 2
Sample Number				None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied
Date Sampled				21/06/2021	21/06/2021
Time Taken				None Supplied	None Supplied
Analytical Parameter (Leachate Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (dissolved)	µg/l	1	ISO 17025	18	21
Boron (dissolved)	µg/l	10	ISO 17025	120	120
Cadmium (dissolved)	µg/l	0.08	ISO 17025	< 0.08	< 0.08
Chromium (dissolved)	µg/l	0.4	ISO 17025	1.2	1.3
Copper (dissolved)	µg/l	0.7	ISO 17025	26	30
Lead (dissolved)	µg/l	1	ISO 17025	2.4	3.4
Mercury (dissolved)	µg/l	0.5	ISO 17025	< 0.5	< 0.5
Nickel (dissolved)	µg/l	0.3	ISO 17025	3.3	3.9
Selenium (dissolved)	µg/l	4	ISO 17025	< 4.0	< 4.0
Zinc (dissolved)	µg/l	0.4	ISO 17025	16	10

Monoaromatics & Oxygenates

Benzene	µg/l	1	ISO 17025	< 1.0	< 1.0
Toluene	µg/l	1	ISO 17025	< 1.0	< 1.0
Ethylbenzene	µg/l	1	ISO 17025	< 1.0	< 1.0
p & m-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
o-xylene	µg/l	1	ISO 17025	< 1.0	< 1.0
MTBE (Methyl Tertiary Butyl Ether)	µg/l	10	NONE	< 10	< 10

Petroleum Hydrocarbons

TPH-CWG - Aliphatic >C5 - C6	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C6 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aliphatic >C10 - C12	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C12 - C16	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C16 - C21	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic >C21 - C35	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aliphatic (C5 - C35)	µg/l	10	NONE	< 10	< 10

TPH-CWG - Aromatic >C5 - C7	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C7 - C8	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C8 - C10	µg/l	1	ISO 17025	< 1.0	< 1.0
TPH-CWG - Aromatic >C10 - C12	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C12 - C16	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C16 - C21	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic >C21 - C35	µg/l	10	NONE	< 10	< 10
TPH-CWG - Aromatic (C5 - C35)	µg/l	10	NONE	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample



Analytical Report Number : 21-82546
Project / Site name: Cefn Saeson School Neath

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
NRA Leachate Prep	10:1 extract with de-ionised water shaken for 24 hours then filtered.	In-house method based on National Rivers Authority	L020-PL	W	NONE
Metals by ICP-OES in leachate	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L039-PL	W	ISO 17025
Boron in leachate	Determination of boron in leachate. Sample acidified and followed by ICP-OES.	In-house method based on MEWAM	L039-PL	W	ISO 17025
TPHCWG (Leachates)	Determination of dichloromethane extractable hydrocarbons in leachate by GC-MS.	In-house method	L070-PL	W	NONE
BTEX and MTBE in leachates (Monoaromatics)	Determination of BTEX and MTBE in leachates by headspace GC-MS.	In-house method based on USEPA8260	L073B-PL	W	ISO 17025

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30°C.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

APPENDIX D – MORGAN SINDALL MMP CORRESPONDANCE

Hi Peter,

Apologies for the delay, please see below responses to your queries. Trust this is sufficient to close planning conditions 9 & 10.

Cheers

James Harding MRICS BSc (Hons)

Senior Quantity Surveyor

Construction Central – Cardiff / Bristol

D: 02920 811398 M: 07583 062829 James.Harding@morgansindall.com



Morgan Sindall Construction & Infrastructure Ltd

Unit 5, Cae Gwyrdd

Greenmeadow Springs Business Park,

Tongwynlais,

Cardiff CF15 7AB

T 02920 811398

morgansindall.com

From: Murphy, Peter <Peter.Murphy@tetrattech.com>

Sent: 08 July 2022 17:01

To: Smith, Alex (MS) <Alex.Smith@morgansindall.com>; James, Adam <Adam.James@tetrattech.com>

Cc: Harding, James (MS) <James.Harding@morgansindall.com>; Roberts, Sarah <Sarah.Roberts2@tetrattech.com>

Subject: RE: Cefn Saeson - Tetra Tech Invoice

Hi Alex,

We can get this pulled together but it would be helpful to have the information listed below to include in the report – this is the wish list from the MMP:

Record keeping will document the dates of excavation, volumes and areas of the site relating to the following:

- Excavation and off-site disposal of surface materials as part of the initial site strip *This information has already been issued for the MMP*
- Excavation, stockpiling and subsequent placement of topsoil / subsoil materials for re-use within areas of soft landscaping and capping systems in areas of the site which require remediation from contaminants identified within the Made Ground. *This information has already been issued for the MMP*
- Movement of materials in-line with the proposed cut and fill exercises. *This information has already been issued for the MMP*
- Any imported materials to cover shortfalls *we imported circa 200m3 of topsoil, plus imported stone for site wide construction details as standard – however not related to remediation*
- Excess / unsuitable materials disposed of off-site. *None, re-used as agreed strategy. Information already given and included within MMP*
- Any variations from the MMP documented above *None*

For some of the above confirmation will be enough; e.g. you didn't have to import or export any materials, you didn't encounter any more unforeseen contamination etc.

For the rest, whatever you've got on file would be helpful if you can dig it out: any updated cut and fill drawings that were done as you went along, volume calcs, site surveys, photos, tracking forms, site diaries, transfer tickets, etc. We've got the results of the additional pitting that we did at the end of 2021 that we can include.

Give me a call if you need any pointers, happy to discuss.

Best wishes,

Peter Murphy BSc (Hons) MSc FGS
Senior Geo-Environmental Consultant

Tetra Tech
5th Floor, Longcross Court, 47 Newport Road, Cardiff, CF24 0AD

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Tetra Tech Limited. Registered in England number: 1959704
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds LS1 4ER VAT No: 431-0326-08.



From: Alex.Smith@morgansindall.com <Alex.Smith@morgansindall.com>
Sent: 07 July 2022 12:17
To: James, Adam <Adam.James@tetratech.com>
Cc: James.Harding@morgansindall.com; Murphy, Peter <Peter.Murphy@tetratech.com>
Subject: RE: Cefn Saeson - Tetra Tech Invoice

Morning both, have we had the full verification report to satisfy condition 12 below, see the email below from Asbri ?

Cheers

Alex

Hi Alex,

I have followed up with the planning officer Kittie and will provide an update once received.

The latest condition tracker is attached. This outlines the following conditions still require discharge:

Live applications

- P2021/0697 - Conditions 9 (ground investigation report) and 10 (remediation strategy)

Requires submission

- Condition 12 – remediation verification report for phase 2;
- Condition 15 – Noise complaint scheme;
- Condition 17 – Road Safety Audits

Should you have any queries please do not hesitate to contact me.

Thanks,

Liam Griffiths – Senior Planner

Asbri Planning Ltd | T: 02920 732652 | M: 07943 835843 | W: <http://www.asbriplanning.co.uk>

APPENDIX E – ASBESTOS IN SOIL LAB CERTIFICATES

Tetra Tech
5th Floor, Longcross Court
47 Newport Rd
Cardiff
Cardiff
UK
CF24 0AD

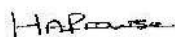


Attention : Peter Murphy
Date : 4th January, 2022
Your reference : B027006
Our reference : Test Report 21/19345 Batch 1
Location : Cefn Saeson
Date samples received : 4th December, 2021
Status : Final Report
Issue : 1

Eleven samples were received for analysis on 4th December, 2021 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Hayley Prowse

Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Tetra Tech
Reference: B027006
Location: Cefn Saeson
Contact: Peter Murphy
EMT Job No: 21/19345

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	4-6	7-9	13-15	22-24	25-27	28-30	31-33				Please see attached notes for all abbreviations and acronyms		
Sample ID	TP8	TP9	TP7	TP9	TP10	TP10	TP10						
Depth	0.00-0.20	0.20-0.60	0.40-0.60	0.90-1.10	0.60-0.65	0.80-1.00	1.20-1.40						
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	02/12/2021	02/12/2021	02/12/2021	02/12/2021	02/12/2021	02/12/2021	02/12/2021						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	04/12/2021	04/12/2021	04/12/2021	04/12/2021	04/12/2021	04/12/2021	04/12/2021				LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	0.1	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	0.6	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	9.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	67	<4	<4	<4	<4	<4	<4				<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	140	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	<7	76	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM8/PM16
>C35-C44 (EH_1D_AL)	17	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-44 (EH+HS_1D_AL)	234	76	<26	<26	<26	<26	<26				<26	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	4.9	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	31	<4	<4	<4	<4	<4	<4				<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	88	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	144	60	<7	<7	27	23	<7				<7	mg/kg	TM5/PM8/PM16
>EC35-EC44 (EH_1D_AR)	28	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-44 (EH+HS_1D_AR)	296	60	<26	<26	27	<26	<26				<26	mg/kg	TM5/PM8/PM16
Total aliphatics and aromatics (C5-44) (EH+HS_CU_1D_Total)	530	136	<52	<52	<52	<52	<52				<52	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5 ^{SV}	<5 ^{SV}	<5	<5	<5 ^{SV}	<5 ^{SV}				<5	ug/kg	TM36/PM12
Benzene #	<5	<5 ^{SV}	<5 ^{SV}	<5	<5	<5 ^{SV}	<5 ^{SV}				<5	ug/kg	TM36/PM12
Toluene #	25	30 ^{SV}	16 ^{SV}	9	15	14 ^{SV}	6 ^{SV}				<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	<5 ^{SV}	<5 ^{SV}	<5	<5	<5 ^{SV}	<5 ^{SV}				<5	ug/kg	TM36/PM12
m/p-Xylene #	13	7 ^{SV}	<5 ^{SV}	<5	<5	<5 ^{SV}	<5 ^{SV}				<5	ug/kg	TM36/PM12
o-Xylene #	8	<5 ^{SV}	<5 ^{SV}	<5	<5	<5 ^{SV}	<5 ^{SV}				<5	ug/kg	TM36/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15				<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	15.5	14.9	21.6	14.6	23.7	15.7	12.1				<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3				<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.3858	0.7223	0.2531	0.3623	0.2580	0.0514	0.0619				<0.0015	g/l	TM38/PM20
Chromium III	22.1	32.4	25.4	24.9	33.0	27.7	29.2				<0.5	mg/kg	NONE/NONE
Free Cyanide	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	mg/kg	TM89/PM45
Fraction Organic Carbon	0.019	0.040	0.022	0.014	0.015	0.021	0.018				<0.001	None	TM21/PM24
pH #	10.52	11.24	5.63	11.55	10.49	6.92	5.08				<0.01	pH units	TM73/PM11

Element Materials Technology

Client Name: Tetra Tech
Reference: B027006
Location: Cefn Saeson
Contact: Peter Murphy
EMT Job No: 21/19345

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

[illegible]

Element Materials Technology

Client Name: Tetra Tech
Reference: B027006
Location: Cefn Saeson
Contact: Peter Murphy
EMT Job No: 21/19345

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	13-15	19-21									Please see attached notes for all abbreviations and acronyms		
Sample ID	TP7	TP8											
Depth	0.40-0.60	0.80-1.00											
COC No / misc													
Containers	V J T	V J T											
Sample Date	02/12/2021	02/12/2021											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	04/12/2021	04/12/2021									LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6	<10	<10									<10	ug/l	TM36/PM69
>C6-C8	<10	<10									<10	ug/l	TM36/PM69
>C8-C10	<10	<10									<10	ug/l	TM36/PM69
>C10-C12	<5	<5									<5	ug/l	TM5/PM16/PM30
>C12-C16	<10	<10									<10	ug/l	TM5/PM16/PM30
>C16-C21	<10	<10									<10	ug/l	TM5/PM16/PM30
>C21-C35	<10	<10									<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35	<10	<10									<10	ug/l	TM5/PM16/PM30/PM30
Aromatics													
>C5-EC7	<10	<10									<10	ug/l	TM36/PM69
>EC7-EC8	<10	<10									<10	ug/l	TM36/PM69
>EC8-EC10	<10	<10									<10	ug/l	TM36/PM69
>EC10-EC12	<5	<5									<5	ug/l	TM5/PM16/PM30
>EC12-EC16	<10	<10									<10	ug/l	TM5/PM16/PM30
>EC16-EC21	<10	<10									<10	ug/l	TM5/PM16/PM30
>EC21-EC35	<10	<10									<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35	<10	<10									<10	ug/l	TM5/PM16/PM30/PM30
Total aliphatics and aromatics(C5-35)	<10	<10									<10	ug/l	TM5/PM16/PM30/PM30/PM30
MTBE	<5	<5									<5	ug/l	TM36/PM69
Benzene	<5	<5									<5	ug/l	TM36/PM69
Toluene	<5	<5									<5	ug/l	TM36/PM69
Ethylbenzene	<5	<5									<5	ug/l	TM36/PM69
m/p-Xylene	<5	<5									<5	ug/l	TM36/PM69
o-Xylene	<5	<5									<5	ug/l	TM36/PM69
Total Phenols HPLC	<0.05	<0.05									<0.05	mg/l	TM26/PM0
Sulphate as SO4 #	80.0	41.4									<0.5	mg/l	TM38/PM0
Chloride #	2.7	4.7									<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2									<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02									<0.02	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.28	0.12									<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.30	0.13									<0.03	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01									<0.01	mg/l	TM89/PM0
Dissolved Organic Carbon	5	3									<2	mg/l	TM60/PM0
pH	6.58	7.19									<0.01	pH units	TM73/PM0
Total Alkalinity as CaCO3	14	46									<1	mg/l	TM75/PM0

Client Name: Tetra Tech
Reference: B027006
Location: Cefn Saeson
Contact: Peter Murphy

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
21/19345	1	TP8	0.00-0.20	6	07/12/2021	General Description (Bulk Analysis)	SOIL/STONE
					07/12/2021	Asbestos Fibres	NAD
					07/12/2021	Asbestos ACM	NAD
					07/12/2021	Asbestos Type	NAD
					07/12/2021	Asbestos Level Screen	NAD
21/19345	1	TP9	0.20-0.60	9	07/12/2021	General Description (Bulk Analysis)	SOIL/STONE
					07/12/2021	Asbestos Fibres	Fibre Bundles
					07/12/2021	Asbestos Fibres (2)	Free Fibres
					07/12/2021	Asbestos ACM	NAD
					07/12/2021	Asbestos ACM (2)	NAD
					07/12/2021	Asbestos Type	Chrysotile
					07/12/2021	Asbestos Type (2)	Amosite
					07/12/2021	Asbestos Level Screen	less than 0.1%
					13/12/2021	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					13/12/2021	Total Detailed Gravimetric Quantification (% Asb)	<0.001 (mass %)
					13/12/2021	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	<0.001 (mass %)
21/19345	1	TP7	0.40-0.60	14	07/12/2021	General Description (Bulk Analysis)	Soil/Stones
					07/12/2021	Asbestos Fibres	NAD
					07/12/2021	Asbestos ACM	NAD
					07/12/2021	Asbestos Type	NAD
					07/12/2021	Asbestos Level Screen	NAD
21/19345	1	TP9	0.90-1.10	24	07/12/2021	General Description (Bulk Analysis)	soil/stones
					07/12/2021	Asbestos Fibres	NAD
					07/12/2021	Asbestos ACM	NAD
					07/12/2021	Asbestos Type	NAD
					07/12/2021	Asbestos Level Screen	NAD
21/19345	1	TP10	0.60-0.65	27	07/12/2021	General Description (Bulk Analysis)	Soil/Stones
					07/12/2021	Asbestos Fibres	NAD
					07/12/2021	Asbestos ACM	NAD
					07/12/2021	Asbestos Type	NAD
					07/12/2021	Asbestos Level Screen	NAD

Client Name:	Tetra Tech
Reference:	B027006
Location:	Cefn Saeson
Contact:	Peter Murphy

[illegible]

Client Name: Tetra Tech
Reference: B027006
Location: Cefn Saeson
Contact: Peter Murphy

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/19345

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 21/19345

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM16/PM30/PM69	please refer to PM16/PM30 and PM69 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes

EMT Job No: 21/19345

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes		AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM69	One part soil is mixed with 10 parts water in a vial leaving no headspace. The mixture is shaken and then left to leach for 24 hours before VOC analysis.			AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes

EMT Job No: 21/19345

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 First edition (2006)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.			AR	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes		AR	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM131	Quantification of Asbestos Fibres and ACM based on HSG248 First edition:2006, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes

EMT Job No: 21/19345

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

APPENDIX F – ASBESTOS MITIGATION CORRESPONDANCE

Tetra Tech
5th Floor, Longcross Court
47 Newport Rd
Cardiff
Cardiff
UK
CF24 0AD

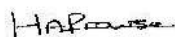


Attention : Peter Murphy
Date : 4th January, 2022
Your reference : B027006
Our reference : Test Report 21/19345 Batch 1
Location : Cefn Saeson
Date samples received : 4th December, 2021
Status : Final Report
Issue : 1

Eleven samples were received for analysis on 4th December, 2021 of which eight were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Hayley Prowse

Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Tetra Tech
Reference: B027006
Location: Cefn Saeson
Contact: Peter Murphy
EMT Job No: 21/19345

Report : Solid

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	4-6	7-9	13-15	22-24	25-27	28-30	31-33				Please see attached notes for all abbreviations and acronyms		
Sample ID	TP8	TP9	TP7	TP9	TP10	TP10	TP10						
Depth	0.00-0.20	0.20-0.60	0.40-0.60	0.90-1.10	0.60-0.65	0.80-1.00	1.20-1.40						
COC No / misc													
Containers	V J T	V J T	V J T	V J T	V J T	V J T	V J T						
Sample Date	02/12/2021	02/12/2021	02/12/2021	02/12/2021	02/12/2021	02/12/2021	02/12/2021						
Sample Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil						
Batch Number	1	1	1	1	1	1	1						
Date of Receipt	04/12/2021	04/12/2021	04/12/2021	04/12/2021	04/12/2021	04/12/2021	04/12/2021				LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6 (HS_1D_AL) #	0.1	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>C6-C8 (HS_1D_AL) #	<0.1	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>C8-C10 (HS_1D_AL)	0.6	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>C10-C12 (EH_CU_1D_AL) #	9.5	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				<0.2	mg/kg	TM5/PM8/PM16
>C12-C16 (EH_CU_1D_AL) #	67	<4	<4	<4	<4	<4	<4				<4	mg/kg	TM5/PM8/PM16
>C16-C21 (EH_CU_1D_AL) #	140	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM8/PM16
>C21-C35 (EH_CU_1D_AL) #	<7	76	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM8/PM16
>C35-C44 (EH_1D_AL)	17	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM8/PM16
Total aliphatics C5-44 (EH+HS_1D_AL)	234	76	<26	<26	<26	<26	<26				<26	mg/kg	TM5/PM8/PM16
Aromatics													
>C5-EC7 (HS_1D_AR) #	<0.1	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>EC7-EC8 (HS_1D_AR) #	<0.1	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>EC8-EC10 (HS_1D_AR) #	<0.1	<0.1 ^{SV}	<0.1 ^{SV}	<0.1	<0.1	<0.1 ^{SV}	<0.1 ^{SV}				<0.1	mg/kg	TM36/PM12
>EC10-EC12 (EH_CU_1D_AR) #	4.9	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2				<0.2	mg/kg	TM5/PM8/PM16
>EC12-EC16 (EH_CU_1D_AR) #	31	<4	<4	<4	<4	<4	<4				<4	mg/kg	TM5/PM8/PM16
>EC16-EC21 (EH_CU_1D_AR) #	88	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM8/PM16
>EC21-EC35 (EH_CU_1D_AR) #	144	60	<7	<7	27	23	<7				<7	mg/kg	TM5/PM8/PM16
>EC35-EC44 (EH_1D_AR)	28	<7	<7	<7	<7	<7	<7				<7	mg/kg	TM5/PM8/PM16
Total aromatics C5-44 (EH+HS_1D_AR)	296	60	<26	<26	27	<26	<26				<26	mg/kg	TM5/PM8/PM16
Total aliphatics and aromatics (C5-44) (EH+HS_CU_1D_Total)	530	136	<52	<52	<52	<52	<52				<52	mg/kg	TM5/PM8/PM16
MTBE #	<5	<5 ^{SV}	<5 ^{SV}	<5	<5	<5 ^{SV}	<5 ^{SV}				<5	ug/kg	TM36/PM12
Benzene #	<5	<5 ^{SV}	<5 ^{SV}	<5	<5	<5 ^{SV}	<5 ^{SV}				<5	ug/kg	TM36/PM12
Toluene #	25	30 ^{SV}	16 ^{SV}	9	15	14 ^{SV}	6 ^{SV}				<5	ug/kg	TM36/PM12
Ethylbenzene #	<5	<5 ^{SV}	<5 ^{SV}	<5	<5	<5 ^{SV}	<5 ^{SV}				<5	ug/kg	TM36/PM12
m/p-Xylene #	13	7 ^{SV}	<5 ^{SV}	<5	<5	<5 ^{SV}	<5 ^{SV}				<5	ug/kg	TM36/PM12
o-Xylene #	8	<5 ^{SV}	<5 ^{SV}	<5	<5	<5 ^{SV}	<5 ^{SV}				<5	ug/kg	TM36/PM12
Total Phenols HPLC	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15				<0.15	mg/kg	TM26/PM21B
Natural Moisture Content	15.5	14.9	21.6	14.6	23.7	15.7	12.1				<0.1	%	PM4/PM0
Hexavalent Chromium #	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3	<0.3				<0.3	mg/kg	TM38/PM20
Sulphate as SO4 (2:1 Ext) #	0.3858	0.7223	0.2531	0.3623	0.2580	0.0514	0.0619				<0.0015	g/l	TM38/PM20
Chromium III	22.1	32.4	25.4	24.9	33.0	27.7	29.2				<0.5	mg/kg	NONE/NONE
Free Cyanide	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5				<0.5	mg/kg	TM89/PM45
Fraction Organic Carbon	0.019	0.040	0.022	0.014	0.015	0.021	0.018				<0.001	None	TM21/PM24
pH #	10.52	11.24	5.63	11.55	10.49	6.92	5.08				<0.01	pH units	TM73/PM11

Element Materials Technology

Client Name: Tetra Tech
Reference: B027006
Location: Cefn Saeson
Contact: Peter Murphy
EMT Job No: 21/19345

Report : CEN 10:1 1 Batch

Solids: V=60g VOC jar, J=250g glass jar, T=plastic tub

EMT Sample No.	13-15	19-21									Please see attached notes for all abbreviations and acronyms		
Sample ID	TP7	TP8											
Depth	0.40-0.60	0.80-1.00											
COC No / misc													
Containers	V J T	V J T											
Sample Date	02/12/2021	02/12/2021											
Sample Type	Soil	Soil											
Batch Number	1	1											
Date of Receipt	04/12/2021	04/12/2021									LOD/LOR	Units	Method No.
TPH CWG													
Aliphatics													
>C5-C6	<10	<10									<10	ug/l	TM36/PM69
>C6-C8	<10	<10									<10	ug/l	TM36/PM69
>C8-C10	<10	<10									<10	ug/l	TM36/PM69
>C10-C12	<5	<5									<5	ug/l	TM5/PM16/PM30
>C12-C16	<10	<10									<10	ug/l	TM5/PM16/PM30
>C16-C21	<10	<10									<10	ug/l	TM5/PM16/PM30
>C21-C35	<10	<10									<10	ug/l	TM5/PM16/PM30
Total aliphatics C5-35	<10	<10									<10	ug/l	TM5/PM16/PM30/PM30
Aromatics													
>C5-EC7	<10	<10									<10	ug/l	TM36/PM69
>EC7-EC8	<10	<10									<10	ug/l	TM36/PM69
>EC8-EC10	<10	<10									<10	ug/l	TM36/PM69
>EC10-EC12	<5	<5									<5	ug/l	TM5/PM16/PM30
>EC12-EC16	<10	<10									<10	ug/l	TM5/PM16/PM30
>EC16-EC21	<10	<10									<10	ug/l	TM5/PM16/PM30
>EC21-EC35	<10	<10									<10	ug/l	TM5/PM16/PM30
Total aromatics C5-35	<10	<10									<10	ug/l	TM5/PM16/PM30/PM30
Total aliphatics and aromatics(C5-35)	<10	<10									<10	ug/l	TM5/PM16/PM30/PM30/PM30
MTBE	<5	<5									<5	ug/l	TM36/PM69
Benzene	<5	<5									<5	ug/l	TM36/PM69
Toluene	<5	<5									<5	ug/l	TM36/PM69
Ethylbenzene	<5	<5									<5	ug/l	TM36/PM69
m/p-Xylene	<5	<5									<5	ug/l	TM36/PM69
o-Xylene	<5	<5									<5	ug/l	TM36/PM69
Total Phenols HPLC	<0.05	<0.05									<0.05	mg/l	TM26/PM0
Sulphate as SO4 #	80.0	41.4									<0.5	mg/l	TM38/PM0
Chloride #	2.7	4.7									<0.3	mg/l	TM38/PM0
Nitrate as NO3 #	<0.2	<0.2									<0.2	mg/l	TM38/PM0
Nitrite as NO2 #	<0.02	<0.02									<0.02	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH3 #	0.28	0.12									<0.03	mg/l	TM38/PM0
Ammoniacal Nitrogen as NH4 #	0.30	0.13									<0.03	mg/l	TM38/PM0
Total Cyanide #	<0.01	<0.01									<0.01	mg/l	TM89/PM0
Dissolved Organic Carbon	5	3									<2	mg/l	TM60/PM0
pH	6.58	7.19									<0.01	pH units	TM73/PM0
Total Alkalinity as CaCO3	14	46									<1	mg/l	TM75/PM0

Client Name: Tetra Tech
Reference: B027006
Location: Cefn Saeson
Contact: Peter Murphy

Note:

Asbestos Screen analysis is carried out in accordance with our documented in-house methods PM042 and TM065 and HSG 248 by Stereo and Polarised Light Microscopy using Dispersion Staining Techniques and is covered by our UKAS accreditation. Detailed Gravimetric Quantification and PCOM Fibre Analysis is carried out in accordance with our documented in-house methods PM042 and TM131 and HSG 248 using Stereo and Polarised Light Microscopy and Phase Contrast Optical Microscopy (PCOM). Samples are retained for not less than 6 months from the date of analysis unless specifically requested.

Opinions, including ACM type and Asbestos level less than 0.1%, lie outside the scope of our UKAS accreditation.

Where the sample is not taken by a Element Materials Technology consultant, Element Materials Technology cannot be responsible for inaccurate or unrepresentative sampling.

EMT Job No.	Batch	Sample ID	Depth	EMT Sample No.	Date Of Analysis	Analysis	Result
21/19345	1	TP8	0.00-0.20	6	07/12/2021	General Description (Bulk Analysis)	SOIL/STONE
					07/12/2021	Asbestos Fibres	NAD
					07/12/2021	Asbestos ACM	NAD
					07/12/2021	Asbestos Type	NAD
					07/12/2021	Asbestos Level Screen	NAD
21/19345	1	TP9	0.20-0.60	9	07/12/2021	General Description (Bulk Analysis)	SOIL/STONE
					07/12/2021	Asbestos Fibres	Fibre Bundles
					07/12/2021	Asbestos Fibres (2)	Free Fibres
					07/12/2021	Asbestos ACM	NAD
					07/12/2021	Asbestos ACM (2)	NAD
					07/12/2021	Asbestos Type	Chrysotile
					07/12/2021	Asbestos Type (2)	Amosite
					07/12/2021	Asbestos Level Screen	less than 0.1%
					13/12/2021	Total ACM Gravimetric Quantification (% Asb)	<0.001 (mass %)
					13/12/2021	Total Detailed Gravimetric Quantification (% Asb)	<0.001 (mass %)
					13/12/2021	Total Gravimetric Quantification (ACM + Detailed) (% Asb)	<0.001 (mass %)
21/19345	1	TP7	0.40-0.60	14	07/12/2021	General Description (Bulk Analysis)	Soil/Stones
					07/12/2021	Asbestos Fibres	NAD
					07/12/2021	Asbestos ACM	NAD
					07/12/2021	Asbestos Type	NAD
					07/12/2021	Asbestos Level Screen	NAD
21/19345	1	TP9	0.90-1.10	24	07/12/2021	General Description (Bulk Analysis)	soil/stones
					07/12/2021	Asbestos Fibres	NAD
					07/12/2021	Asbestos ACM	NAD
					07/12/2021	Asbestos Type	NAD
					07/12/2021	Asbestos Level Screen	NAD
21/19345	1	TP10	0.60-0.65	27	07/12/2021	General Description (Bulk Analysis)	Soil/Stones
					07/12/2021	Asbestos Fibres	NAD
					07/12/2021	Asbestos ACM	NAD
					07/12/2021	Asbestos Type	NAD
					07/12/2021	Asbestos Level Screen	NAD

Client Name:	Tetra Tech
Reference:	B027006
Location:	Cefn Saeson
Contact:	Peter Murphy

[illegible]

Client Name: Tetra Tech
Reference: B027006
Location: Cefn Saeson
Contact: Peter Murphy

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 21/19345

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 21/19345

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.			AR	Yes
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.	Yes		AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM16/PM30	Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE/Water samples are extracted with solvent using a magnetic stirrer to create a vortex.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.			AR	Yes
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8/PM16	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required/Fractionation into aliphatic and aromatic fractions using a Rapid Trace SPE.	Yes		AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM16/PM30/PM69	please refer to PM16/PM30 and PM69 for method details			AR	Yes
TM5/TM36	please refer to TM5 and TM36 for method details	PM8/PM12/PM16	please refer to PM8/PM16 and PM12 for method details			AR	Yes
TM21	Modified BS 7755-3:1995, ISO10694:1995 Determination of Total Organic Carbon or Total Carbon by combustion in an Eltra TOC furnace/analyser in the presence of oxygen. The CO2 generated is quantified using infra-red detection. Organic Matter (SOM) calculated as per EA MCERTS Chemical Testing of Soil, March 2012 v4.	PM24	Dried and ground solid samples are washed with hydrochloric acid, then rinsed with deionised water to remove the mineral carbon before TOC analysis.			AD	Yes

EMT Job No: 21/19345

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM0	No preparation is required.			AR	Yes
TM26	Determination of phenols by Reversed Phased High Performance Liquid Chromatography and Electro-Chemical Detection.	PM21B	As Received samples are extracted in Methanol: Water (60:40) by reciprocal shaker.			AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009; SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes		AR	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009; SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.			AD	Yes
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry); WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009; SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM15	Acid digestion of dried and ground solid samples using Aqua Regia refluxed at 112.5 °C. Samples containing asbestos are not dried and ground.	Yes		AD	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.			AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM12	Modified US EPA method 5021A v2:2014. Preparation of solid and liquid samples for GC headspace analysis.	Yes		AR	Yes
TM36	Modified US EPA method 8015B v2:1996. Determination of Gasoline Range Organics (GRO) in the carbon chain range of C4-12 by headspace GC-FID. MTBE by GC/FID co-elutes with 3-methylpentane if present and therefore can give a false positive. Positive MTBE results will be re-run using GC-MS to double check, when requested.	PM69	One part soil is mixed with 10 parts water in a vial leaving no headspace. The mixture is shaken and then left to leach for 24 hours before VOC analysis.			AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM0	No preparation is required.	Yes		AR	Yes
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AD	Yes

EMT Job No: 21/19345

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM38	Soluble Ion analysis using Discrete Analyser. Modified US EPA methods: Chloride 325.2 (1978), Sulphate 375.4 (Rev.2 1993), o-Phosphate 365.2 (Rev.2 1993), TON 353.1 (Rev.2 1993), Nitrite 354.1 (1971), Hex Cr 7196A (1992), NH4+ 350.1 (Rev.2 1993) – All anions comparable to BS ISO 15923-1: 2013	PM20	Extraction of dried and ground or as received samples with deionised water in a 2:1 water to solid ratio using a reciprocal shaker for all analytes except hexavalent chromium. Extraction of as received sample using 10:1 ratio of 0.2M sodium hydroxide to soil for hexavalent chromium using a reciprocal shaker.	Yes		AR	Yes
TM60	TC/TOC analysis of Waters by High Temperature Combustion followed by NDIR detection. Based on the following modified standard methods: USEPA 9060A (2002), APHA SMEWW 5310B:1999 22nd Edition, ASTM D 7573, and USEPA 415.1.	PM0	No preparation is required.			AR	Yes
TM65	Asbestos Bulk Identification method based on HSG 248 First edition (2006)	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM0	No preparation is required.			AR	Yes
TM73	Modified US EPA methods 150.1 (1982) and 9045D Rev. 4 - 2004) and BS1377-3:1990. Determination of pH by Metrohm automated probe analyser.	PM11	Extraction of as received solid samples using one part solid to 2.5 parts deionised water.	Yes		AR	No
TM74	Analysis of water soluble boron (20:1 extract) by ICP-OES.	PM32	Hot water soluble boron is extracted from dried and ground samples using a 20:1 ratio.	Yes		AD	Yes
TM75	Modified US EPA method 310.1 (1978). Determination of Alkalinity by Metrohm automated titration analyser.	PM0	No preparation is required.			AR	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM0	No preparation is required.	Yes		AR	Yes
TM89	Modified USEPA method OIA-1667 (1999). Determination of cyanide by Flow Injection Analyser. Where WAD cyanides are required a Ligand displacement step is carried out before analysis.	PM45	As received solid samples are extracted with 1M NaOH by orbital shaker for Cyanide, Sulphide and Thiocyanate analysis.			AR	Yes
TM131	Quantification of Asbestos Fibres and ACM based on HSG248 First edition:2006, HSG 264 Second edition:2012, HSE Contract Research Report No.83/1996, MDHS 87:1998, WM3 1st Edition v1.1:2018	PM42	Modified SCA Blue Book V.12 draft 2017 and WM3 1st Edition v1.1:2018. Solid samples undergo a thorough visual inspection for asbestos fibres prior to asbestos identification using TM065.	Yes		AR	Yes

EMT Job No: 21/19345

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
NONE	No Method Code	NONE	No Method Code			AD	Yes
NONE	No Method Code	PM17	Modified method BS EN12457-2:2002 As received solid samples are leached with water in a 10:1 water to soil ratio for 24 hours, the moisture content of the sample is included in the ratio.				
NONE	No Method Code	PM4	Gravimetric measurement of Natural Moisture Content and % Moisture Content at either 35°C or 105°C. Calculation based on ISO 11465:1993(E) and BS1377-2:1990.			AR	

APPENDIX G – SELECTED SITE DIARIES

Management Review Pack Appendix 1 - Site Diary

Daily Site Diary 21 February 2022

Site manager's commentary / calls made and received / delays / problems / defects / visitors of note

Main Activities Progressed

Ian Thomas:

Returned to site today to begin work on connection to SW06.

Machine operative down today (Personal reasons)

Pritchard's Earthworks -

Moving material around on hockey pitch - Using Cen-dri to material so that it is able to go offsite as currently its U/S to use as fill material due to weather conditions for so long.

27.01.22

Grass pitch and batter handed over (to be checked (SURVEY WILL BE NEEDED TO BE COMPLETED AGAIN DUE TO ITC ACTIVITY & PRITCHARD'S SOIL PUSHED OVER THE TOP) to ITC to complete drainage.

With lots of overnight rain and continued throughout this morning heavy rutting has occurred whilst doing/ using the grass field to traverse to complete drainage, repair work will be necessary once drainage has been completed.

Large quantities of material have been stockpiled onto current grass pitch formation to be treated and ready to place in final phase of hockey pitch.



Muck away continued today - Still having to use CENDRI to manage material before it leaves site.

Capping stone is being delivered today.....

Continue with Laying geotextile and capping layer to the South, East side of the hockey pitch. - Stockpiling stone today

Path behind RW8 has been checked and has a surcharge of material 282mm above formation.

15/02/22 / 16/02/22

Works have been delayed due to excessive weather conditions - stockpile of stone and little muck away due to the material being so wet.

18 & 21/02/2022

Very high winds so we have been unable to use the Cendri to treat the material to make it manageable. Clean up works to the lane.

Pump to deal with ground water- ongoing work.

SWSGL - 3G PITCH

Laying tarmac base course to MUGA



Perimeter fencing -

Not on site until end of week.

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Matters Affecting Programme

Subcontractor Performance Issues

Outstanding Information Effecting Progress of Key Works

SHE Issues

Quality Issues

Customer Related Events

Any Other Related Events (Calls made and received and visitors of note)

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Management Review Pack Appendix 1 - Site Diary

Subcontractor Counts

* Key

S - Supervisor, T - Trade, L - Labourer, D - Direct apprentice, P - Pooled apprentice

Contract:	Cefn Saeson Comprehensive School	Contract number:	26W007				Date:	21/02/2022			
Trade / Contractor	Company name	Numbers*									
		S		T		L		D		P	
Other Trade	MS (MEST) LIMITED	1	8.0	0	0.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Groundworks	Prichard's	1	8.0	4	32.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Groundworks	IAN THOMAS CONSTRUCTION SERVICES LIMITED	1	8.0	0	0.0	1	8.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Sports Surface	South Wales Sports Grounds Contractors Ltd	1	8.0	5	40.0	5	40.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Fencing	PERIMETER FENCING SOLUTIONS LTD	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Total Numbers		4	32.0	9	72.0	6	48.0	0	0.0	0	0.0

Morgan Sindall Staff

Name	Job Title	Hours	Direct Apprentice	Pooled Apprentice	Comments
Alexander Smith	Project Manager	8.0			Office
James Harding	Quantity Surveyor	8.0			Office
Andrew Thomson	Site Manager	8.0			
Gareth James	Project Manager	0.0			Office
Ian Collins	Site Engineer	8.0			
Justin Lawrence	Foreman	8.0			

Ongoing Checks

Ongoing Check	Matters arising from ongoing checks
Procurement schedules reviews?	☐
Information required reviewed?	☐
Customer instructions reviewed?	☐
Drawings reviewed?	☐
Plant downtime recorded?	☐
Test results satisfactory?	☐
Material storage satisfactory?	☐

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Health and Safety evaluations completed?	☐	
Relevant photos taken (progress, SHEQ?)	☐	
Defects recorded and issued?	☐	

Weather Effects

Weather	AM	PM	Lost	Effects
Rainfall (hrs)	0.0	0.0	0.0	
Max temp	8.0	10.0	0.0	
Min temp	6.0	10.0	0.0	
Frost Hours	0.0	0.0	0.0	
Visibility	N/A	N/A	0.0	Good:
Wind speed	54	35	8.0	High winds all day preventing fence post works & Cendri works
Ground conditions	N/A	N/A	8.0	Wet: Very wet

Signed site manager:	Andrew Thomson	Date:	23/02/2022 10:08:20
Signed project manager:		Date:	

Management Review Pack Appendix 1 - Site Diary

Daily Site Diary 22 April 2020

Site manager's commentary / calls made and received / delays / problems / defects / visitors of note

Main Activities Progressed

Shufflebottom:

Easy edge install.
Snagging and finals.
Anticipate complete Fri.

Massey Cladding.

Netting and edge protection team on site.
Re-instate south elevation roof EP.
Continue netting to zone B
Continues.
Kevin Spear on site with full crew.
Re-commencing where they left off.

Stud welders

Confirmed return to site Mon 27th April.
No change.

ITCS:

Phase 2 / Block A GF Slab Part 1 Pour

Phase 2 / Block A GF Slab Part 2 install gas membrane, erect edge shutters/steel fixing

Phase 4 / Block B Under slab drainage, reduced level dig, column encasements, black jacking

Phase 3 / Main Hall grouting

RW1 Shuttering

RW3 Fixing and shuttering to base

RW6 Excavation works



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Bluewater recruitment

Daily cleaning whole day repeat process to all surfaces, on going since beginning of Covid 19 protocols.

M&P

Continued with insulation and brick bars to sports hall.
DPC install sports hall.
Moving boards to 1st floor slab zone A
Umbrella detail continued to zone A 1st floor.

Note: 1 man a labourer to MS due to Justin Lawrence currently sick.

ETS

Not on site

Prichard's

Continue muck shift on site.
2 360's 2 dumpers.
Reworking west stockpiles to create space for further material and carparking.
Stockpiles will be grass seeded when complete.



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Matters Affecting Programme

Subcontractor Performance Issues

Outstanding Information Effecting Progress of Key Works

SHE Issues

ITCS:
Dust suppression measures undertaken



Quality Issues

Customer Related Events

Any Other Related Events (Calls made and received and visitors of note)

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Subcontractor Counts

*** Key**

S - Supervisor, T - Trade, L - Labourer, D - Direct apprentice, P - Pooled apprentice

Contract:	Cefn Saeson Comprehensive School	Contract number:	26W007				Date:	22/04/2020			
Trade / Contractor	Company name	Numbers*									
		S		T		L		D		P	
Groundworks	IAN THOMAS CONSTRUCTION SERVICES LIMITED	2	16.0	22	176.0	0	0.0	0	0.0	0	0.0
Work location and activity	Site Wide	Brief description of days work and activities				Refer site diary					
SFS	M&P Contractors Wales Limited	2	16.0	7	56.0	0	0.0	0	0.0	0	0.0
Work location and activity	Phase 1 / Sports Hall	Brief description of days work and activities				Refer site diary					
Steelwork	Shufflebottom Ltd	1	8.0	1	8.0	0	0.0	0	0.0	0	0.0
Work location and activity	Phase 3 / Main Hall	Brief description of days work and activities				Refer site diary					
Roofing	MASSEY CLADDING SOLUTIONS LIMITED	2	16.0	16	128.0	1	8.0	0	0.0	0	0.0
Work location and activity	Site Wide	Brief description of days work and activities				Refer site diary					
Cleaning	Blue Water recruitment limited	0	0.0	2	16.0	0	0.0	0	0.0	0	0.0
Work location and activity		Brief description of days work and activities				Refer site diary					
Electrical	ETS CYMRU LIMITED	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
Work location and activity		Brief description of days work and activities				Refer site diary					
Groundworks	TOM PRICHARD CONTRACTING LIMITED	1	8.0	3	24.0	0	0.0	0	0.0	0	0.0
Work location and activity	Site Wide	Brief description of days work and activities				Refer site diary					
Total Numbers		8	64.0	51	408.0	1	8.0	0	0.0	0	0.0

Ongoing Checks

Ongoing Check		Matters arising from ongoing checks
Procurement schedules reviews?	☐	
Information required reviewed?	☐	
Customer instructions reviewed?	☐	
Drawings reviewed?	☐	
Plant downtime recorded?	☐	
Test results satisfactory?	☐	
Material storage satisfactory?	☐	
Health and Safety evaluations completed?	☐	
Relevant photos taken (progress, SHEQ?)	☐	
Defects recorded and issued?	☐	

Weather Effects

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Weather	AM	PM	Lost	Effects
Rainfall (hrs)	0.0	0.0	0.0	Beautiful day
Max temp	0.0	0.0	0.0	
Min temp	0.0	0.0	0.0	
Frost Hours	0.0	0.0	0.0	
Visibility	N/A	N/A	0.0	Good:
Wind speed	0	0	0.0	
Ground conditions	N/A	N/A	0.0	Dry:

Signed site manager:	Gareth James	Date:	24/04/2020 08:09:26
Signed project manager:		Date:	

Management Review Pack Appendix 1 - Site Diary

Daily Site Diary 1 July 2021

Site manager's commentary / calls made and received / delays / problems / defects / visitors of note

Main Activities Progressed

MS

Co-ordinating & H&S to site

Pritchard's - 1 SS, 11 Lab

Demolition team continuing soft strip to rear demountable units

Groundworks start on site - 1 Eng, 4 CPCS

Digging through contaminated ground, dozer building levels and being rolled every 300mm compacted 50mm



ITC X 3

Excavation to bottom end of bus bay to tie new storm drain into existing



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Matters Affecting Programme

Subcontractor Performance Issues

Outstanding Information Effecting Progress of Key Works

SHE Issues

Quality Issues

Customer Related Events

Any Other Related Events (Calls made and received and visitors of note)

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Subcontractor Counts

*** Key**

S - Supervisor, T - Trade, L - Labourer, D - Direct apprentice, P - Pooled apprentice

Contract:	Cefn Saeson Comprehensive School	Contract number:	26W007				Date:	01/07/2021			
Trade / Contractor	Company name	Numbers*									
		S		T		L		D		P	
Cleaning	JSM SECURITY LTD	0	0.0	1	8.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Other Trade	MS (MEST) LIMITED	1	8.0	0	0.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Groundworks	Prichard's	2	16.0	6	48.0	9	72.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Groundworks	IAN THOMAS CONSTRUCTION SERVICES LIMITED	1	8.0	3	24.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Total Numbers		4	32.0	10	80.0	9	72.0	0	0.0	0	0.0

Morgan Sindall Staff

Name	Job Title	Hours	Direct Apprentice	Pooled Apprentice	Comments
Alexander Smith	Project Manager	8.0			
Alex Rowlands	Quantity Surveyor	8.0			WFH
Mike Thomas	Project Director	8.0			HFW
David Evans	Senior Design Manager	8.0			WFH
Luke Owen	Managing Quantity Surveyor	8.0			WFH
James Harding	Quantity Surveyor	8.0			WFH
Andrew Thomson	Site Manager	0.0			

Ongoing Checks

Ongoing Check	Matters arising from ongoing checks
Procurement schedules reviews?	☐
Information required reviewed?	☐
Customer instructions reviewed?	☐
Drawings reviewed?	☐
Plant downtime recorded?	☒ Pritchard's plant driver down yesterday & today, servicing this week.
Test results satisfactory?	☒ Asbestos removal results received.
Material storage satisfactory?	☐
Health and Safety evaluations completed?	☐

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Relevant photos taken (progress, SHEQ?)	☐	
Defects recorded and issued?	☐	

Weather Effects

Weather	AM	PM	Lost	Effects
Rainfall (hrs)	0.0	0.0	0.0	
Max temp	0.0	0.0	0.0	
Min temp	0.0	0.0	0.0	
Frost Hours	0.0	0.0	0.0	
Visibility	N/A	N/A	0.0	Good:
Wind speed	0	0	0.0	
Ground conditions	N/A	N/A	0.0	Dry:

Signed site manager:	Andrew Thomson	Date:	02/07/2021 08:12:29
Signed project manager:		Date:	

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Daily Site Diary 16 July 2021

Site manager's commentary / calls made and received / delays / problems / defects / visitors of note

Main Activities Progressed

MS

Co-ordinating & H&S to site

Gateman



Pritchard's - 1 SS, 11 Lab

Demolition team continuing soft strip to 1st floor classrooms

ARTICO - 1SS + 2 Lab

Asbestos strip to block A started, site set up, DCU, skips etc.

Groundworks - 2 SS, 1 Eng, 4 CPCS

Pritchard's groundworks dozer working through old compound area levelling. Two dumpers moving earth from top site to lower level.



ITC X 4

Continuing new storm drain up through the bus bay passed the new pond to site boundary

**Matters Affecting Programme****Subcontractor Performance Issues****Outstanding Information Effecting Progress of Key Works****SHE Issues**

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Quality Issues

Customer Related Events

Any Other Related Events (Calls made and received and visitors of note)

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Subcontractor Counts

* Key

S - Supervisor, T - Trade, L - Labourer, D - Direct apprentice, P - Pooled apprentice

Contract:	Cefn Saeson Comprehensive School	Contract number:		26W007				Date:		16/07/2021	
Trade / Contractor	Company name	Numbers*									
		S		T		L		D		P	
Cleaning	JSM SECURITY LTD	0	0.0	1	8.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Other Trade	MS (MEST) LIMITED	1	8.0	0	0.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Groundworks	Prichard's	2	16.0	6	48.0	9	72.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Groundworks	IAN THOMAS CONSTRUCTION SERVICES LIMITED	1	8.0	3	24.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Total Numbers		4	32.0	10	80.0	9	72.0	0	0.0	0	0.0

Morgan Sindall Staff

Name	Job Title	Hours	Direct Apprentice	Pooled Apprentice	Comments
Alexander Smith	Project Manager	8.0			WFH
Alex Rowlands	Quantity Surveyor	8.0			WFH
Mike Thomas	Project Director	8.0			HFW
David Evans	Senior Design Manager	8.0			WFH
Luke Owen	Managing Quantity Surveyor	8.0			WFH
James Harding	Quantity Surveyor	8.0			WFH
Andrew Thomson	Site Manager	8.0			
Gareth James	Project Manager	8.0			

Ongoing Checks

Ongoing Check	Matters arising from ongoing checks
Procurement schedules reviews?	☐
Information required reviewed?	☐
Customer instructions reviewed?	☐
Drawings reviewed?	☐
Plant downtime recorded?	☐
Test results satisfactory?	☐

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Material storage satisfactory?	☐	
Health and Safety evaluations completed?	☐	
Relevant photos taken (progress, SHEQ?)	☐	
Defects recorded and issued?	☐	

Weather Effects

Weather	AM	PM	Lost	Effects
Rainfall (hrs)	0.0	0.0	0.0	
Max temp	0.0	0.0	0.0	
Min temp	0.0	0.0	0.0	
Frost Hours	0.0	0.0	0.0	
Visibility	N/A	N/A	0.0	Good:
Wind speed	0	0	0.0	
Ground conditions	N/A	N/A	0.0	Dry:

Signed site manager:	Andrew Thomson	Date:	16/07/2021 15:03:08
Signed project manager:		Date:	

Management Review Pack Appendix 1 - Site Diary

Daily Site Diary 11 February 2022

Site manager's commentary / calls made and received / delays / problems / defects / visitors of note

Main Activities Progressed

Ian Thomas:

Land drain laid to the West perimeter batter. (To be continued....)

Drainage line to bottom of batter of grass football pitch to attenuation pond.

Removing 2 panels to RW9 & re-fix

Pritchard's Earthworks -

Moving material around on hockey pitch - Using Cen-dri to material so that it is able to go offsite as currently its U/S to use as fill material due to weather conditions for so long.

27.01.22

Grass pitch and batter handed over (to be checked (SURVEY WILL BE NEEDED TO BE COMPLETED AGAIN DUR TO ITC ACTIVITY & PRICHARD'S SOIL PUSHED OVER THE TOP) to ITC to complete drainage.

With lots of overnight rain and continued throughout this morning heavy rutting has occurred whilst doing/ using the grass field to traverse to complete drainage, repair work will be necessary once drainage has been completed.

Large quantities of material have been stockpiled onto current grass pitch formation to be treated and ready to place in final phase of hockey pitch.

Muck away continued today - Still having to use CENDRI to manage material before it leaves site.

Capping stone is being delivered today.....

Continue with Laying geotextile and capping layer to the South, East side of the hockey pitch.

Path behind RW8 has been checked and has a surcharge of material 282mm above formation.

Pump to deal with ground water- ongoing work.



SWSGL - 3G PITCH

Laying out geotextile membrane and type 3 stone

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Management Review Pack Appendix 1 - Site Diary

Fence posts installed along East boundary



Perimeter fencing -

Fence posts & panels to 3G steps
New alignment of fencing to accommodate steps down to 3G
Awaiting mini-digger to move fencing to continue perimeter fencing.

Matters Affecting Programme

Subcontractor Performance Issues

Outstanding Information Effecting Progress of Key Works

SHE Issues

Quality Issues

Customer Related Events

Any Other Related Events (Calls made and received and visitors of note)

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Management Review Pack Appendix 1 - Site Diary

Subcontractor Counts

* Key

S - Supervisor, T - Trade, L - Labourer, D - Direct apprentice, P - Pooled apprentice

Contract:	Cefn Saeson Comprehensive School	Contract number:	26W007				Date:	11/02/2022			
Trade / Contractor	Company name	Numbers*									
		S		T		L		D		P	
Other Trade	MS (MEST) LIMITED	1	8.0	0	0.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Groundworks	Prichard's	1	8.0	5	40.0	0	0.0	0	0.0	0	0.0
Work location and activity	Civils	Brief description of days work and activities				Civils					
Groundworks	IAN THOMAS CONSTRUCTION SERVICES LIMITED	1	8.0	2	16.0	1	8.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Sports Surface	South Wales Sports Grounds Contractors Ltd	2	16.0	5	40.0	2	16.0	0	0.0	0	0.0
Work location and activity	Refer to site diary	Brief description of days work and activities				Refer to site diary					
Fencing	PERIMETER FENCING SOLUTIONS LTD	1	8.0	1	8.0	0	0.0	0	0.0	0	0.0
Work location and activity	Refer to diary	Brief description of days work and activities				Refer to diary					
Total Numbers		6	48.0	13	104.0	3	24.0	0	0.0	0	0.0

Morgan Sindall Staff

Name	Job Title	Hours	Direct Apprentice	Pooled Apprentice	Comments
Alexander Smith	Project Manager	8.0			Office
James Harding	Quantity Surveyor	8.0			Office
Andrew Thomson	Site Manager	8.0			
Gareth James	Project Manager	0.0			Office
Ian Collins	Site Engineer	8.0			
Justin Lawrence	Foreman	8.0			

Ongoing Checks

Ongoing Check	Matters arising from ongoing checks
Procurement schedules reviews?	☐
Information required reviewed?	☐
Customer instructions reviewed?	☐
Drawings reviewed?	☐
Plant downtime recorded?	☐
Test results satisfactory?	☐
Material storage satisfactory?	☐

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Management Review Pack Appendix 1 - Site Diary

Health and Safety evaluations completed?	☐	
Relevant photos taken (progress, SHEQ?)	☐	
Defects recorded and issued?	☐	

Weather Effects

Weather	AM	PM	Lost	Effects
Rainfall (hrs)	0.0	0.0	0.0	
Max temp	6.0	7.0	0.0	
Min temp	0.0	5.0	0.0	
Frost Hours	0.0	0.0	0.0	
Visibility	N/A	N/A	0.0	Good:
Wind speed	0	0	0.0	
Ground conditions	N/A	N/A	4.0	Dry: Ground water still a major factor. Material has been so wet for so long that we still need to use cendri inorder to be able to use existing material to lay and use for muck off site.

Signed site manager:	Andrew Thomson	Date:	11/02/2022 15:41:23
Signed project manager:		Date:	

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