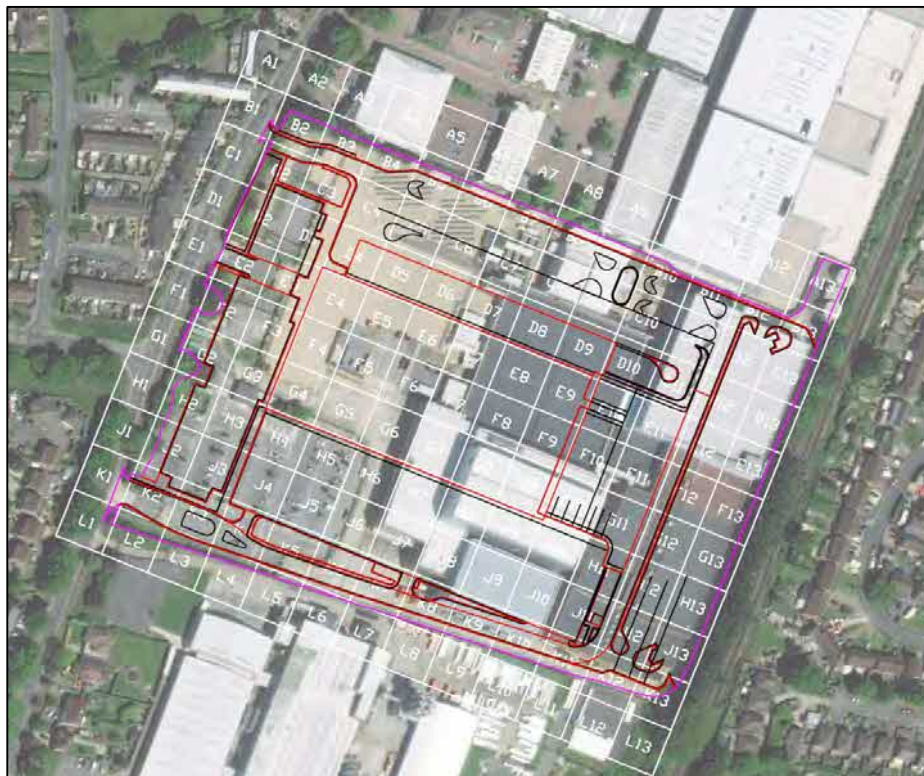


Verification Report – Materials Management & Remedial Earthworks

Pfizer
32 New Lane
Havant
PO9 2NG



Prepared for:

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EPS Project Reference: UK21.5634

Date Issued: 9th May 2022

Report Status: Issue 1



PFIZER, NEW LANE, HAVANT

NON-TECHNICAL CLIENT SUMMARY

This report constitutes the main verification record of the earthworks phase undertaken as part of the Remedial Strategy for the commercial redevelopment of the former Pfizer site in Havant.

- The site was previously a pharmaceutical manufacturing facility, currently undergoing commercial redevelopment into a single warehouse unit. As of February 2022 the site comprises a development platform with stockpiled crushed fill materials.
- Previous site investigations did not encounter significant gross contamination. Therefore a Remedial Strategy was prepared to focus on certain areas of concern and a pre-identified plasticiser hot spot through the earthworks. The legal re-use of suitable site-won soils was implemented under a Materials Management Plan (MMP) declared under CL:AIRE's Code of Practice prior to works commencing. This report verifies the MMP as well as the remedial earthworks, as they are essentially the same.
- EPS had a full-time site presence throughout the works, carried out over Winter 2021-22. This involved remedial oversight of the earthworks and the implementation of a discovery strategy to deal with any contamination encountered. Only sporadic hotspots of contaminated soils were encountered which failed re-use criteria as anticipated in the Remedial Strategy and this led to localised off-site disposal. The majority of the soils and fill materials were tested and found to be suitable for re-use in accordance with the strategy. Groundwater monitoring undertaken throughout the works has proven the water quality to be clean and unaffected by the works.
- The earthworks are now broadly completed to formation level with 8,988m³ of site-won soils now filled. The remaining earth movements will be carried out in the construction phase. This will include re-using c.35,000m³ of currently present stockpiled crushed fill materials, to be supplemented with drain age arisings in due course. These materials have already been tested and inspected as part of these works so no further environmental testing is considered necessary. No significant import of material is envisaged.
- Aspects of the Remedial Strategy remain outstanding and will be reported in a separate Construction Phase Verification Report, towards the end of 2022. This will cover the remaining installation of site-won materials, imported material quality (if any) plus the discretionary aspects of the Remedial Strategy in the building such as the installation of sub-floor soil gas protection.

By their very nature, the above bullet points represent a simplified summary of our work and should not be relied upon to form the basis for key decisions. A full picture is provided in the following report, or alternatively give us a call and we'll talk you through it.



Project Reference:	UK21.5634	
Title:	Verification Report - Materials Management & Remedial Earthworks - Pfizer Havant	
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Date:	9 th May 2022	
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Status:	Issue 1	
Previous Issue	Draft for Comment (18 th March 2022)	
Key Updates Since Previous Issue	1.3 Clarified position on planning approval for Remedial Strategy. 1.6 Additional detail on the measures within the Remedial Strategy which remain outstanding. 2.10 & Appendix D Additional details on how drainage was decommissioned. 2.10 Amended typographical error on tank location. - Removed 'draft' watermark	

Author:	Reviewed:	Authorised:
		
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Associate Director	Consultant	Director

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Where ground investigations have been conducted, these have been limited to the level of detail required for the site in order to achieve the objectives of the investigation.

Where visual checks for asbestos containing materials have been carried out by EPS, these have constituted a thorough search to a reasonable and practical degree, substantiated where possible by photographs and additional opinions by suitably qualified personnel.

The report has been written, reviewed and authorised by the persons listed above. It has also undergone EPS' in house quality management inspection. Should you require any further assistance regarding the information provided within the report, please do not hesitate to contact us.

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1 INTRODUCTION

Environmental Protection Strategies Ltd (EPS) were commissioned by Havant Property Investment LLP ('the client') to produce a Verification Report for the Materials Management Plan (MMP) & Remedial Earthworks recently undertaken at the former Pfizer site, 32 New Lane, Havant (the 'site'); see Figure 1. This former pharmaceutical facility is undergoing commercial redevelopment and this report represents verification of the earthworks phase.

The site is a former pharmaceutical distribution centre, which had been used for primary and secondary pharmaceutical manufacturing in the past. Pfizer were using the facility until mid-2021. The remedial earthworks were undertaken in Winter 2021/22 and as of the 18th February 2022 the site comprises a development platform complete to formation level with stockpiled crush material (and some materials pending crushing).

The work was commissioned in order to fulfil requirements relating to contaminated land for the demolition of the existing buildings and construction of a new commercial distribution facility with associated facilities and works (Havant Borough Council ref APP/21/00200 as amended by S73 application APP/21/01244).

The materials management planning and remedial earthworks are broadly the same process and indistinguishable in this instance, therefore this report is intended to verify both aspects and will be submitted to both Havant Borough Council (HBC) as well as CL:AIRE in due course. This report is also intended to present a clear record of the current condition of the property for commercial purposes.

Certain remedial measures will form part of the construction phase and be subject to a separate Construction Phase Verification Report at a later date, those measures (such as the installation of gas-resistant membranes in the new building) are not covered in this report.

Selected Site Photographs are included within sample-specific Survey123 reports which are described further in Section 2.3.1 and throughout relevant sections of this report.

This Verification Report is not intended to provide any further risk assessment of the contaminated land status at the site, which has already been outlined in previous reports. It is simply intended to evidence how the Remedial Strategy was implemented and complied with so that all stakeholders can have confidence in the current condition of the land and its legal compliance with both the planning process as well as waste management.

1.1 Project Team

The roles of the team involved in the earthworks were as follows:

- EPS - Oversight of materials management and remedial strategy
- TSL – Principal Contractor
- Collins Earthworks Ltd– Main earthworks contractor (sub-contracted by TSL)
- GSI – Geotechnical testing contractor (sub-contracted by TSL)

1.2 MMP Background

Reference should be made to the MMP (Appendix A) and in summary; the scenario outlined within the Definition of Waste: Development Industry Code of Practice (DoW CoP) relevant to the works was a 'reuse at the site of origin' approach. The status of the MMP is further described in Section 2.2.

1.3 Remedial Strategy & Implementation Plan

EPS have previously issued a Remedial Strategy & Implementation Plan which underpinned the MMP carried out at the site. The Remedial Strategy also references previous reports which informed it, including the refined Conceptual Site Model (CSM). This report should be read as relevant background:

- *Remedial Strategy & Implementation Plan – Pfizer, Havant* (UK20.5020D, Issue 6 dated October 2021).

HBC have informally accepted the Remedial Strategy, initially in terms of the re-use criteria (included in Appendix B) as presented in the MMP in October 2021 then these details have been submitted as a formal planning submission to discharge condition 11 on the planning permission, with Environmental Health, Environment Agency and Local Lead Flood Authority raising no objections to discharge this condition. The comments made by the EHO in a memo dated 9th March 2022 are included in Appendix C.

Based on the existing information, gross contamination of soils was not anticipated. However, localised soil contamination was a possibility particularly in certain areas of concern (based on combined lines of evidence including soil vapour analysis, the former building layout and principal drainage runs) as well as a specific hotspot of phthalate contamination identified in one borehole (BH3).

In light of this, a remedial strategy was prepared to address these areas along with a formalised 'discovery strategy' to apply during groundworks to identify the procedure to ensure any soil contamination is looked for, identified and managed appropriately. Throughout the groundworks, verification that the soils left on site are suitable for the new use would be required and this verification and its evidence is required to be presented in report form. The plan to collect the necessary evidence for such reporting was also intended to verify the Materials Management Plan.

Three 'Areas of Potential Concern' were identified (as shown below) and they all broadly were located in the eastern half of the site with the exception of the principal drainage runs which extended into the western section. Borehole BH3 was located in the north eastern section (visible on Figure 3). Coincidentally, the areas of cut defined by the earthworks team (TSL & Collins) were also largely within the eastern half as shown on Figure 2, which would benefit the discovery strategy as additional trial pitting was required in those areas if they were not otherwise to be disturbed.

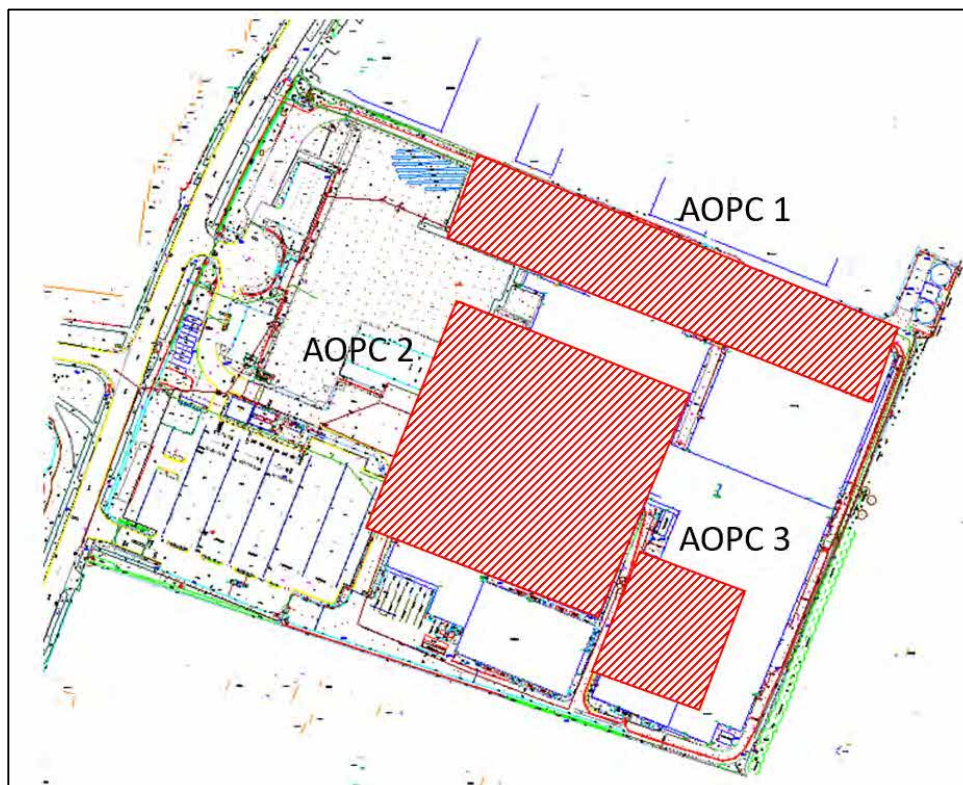


Figure 1 - Location of Areas of Potential Concern (from Remedial Strategy)

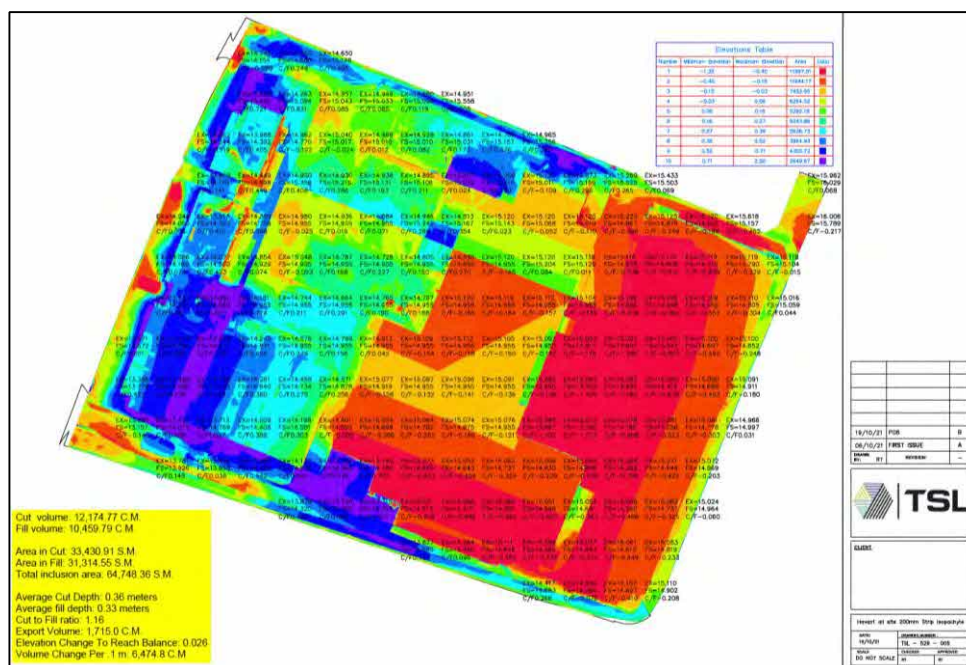


Figure 2– Cut & Fill Plan (from MMP – red denotes the cut, blue denotes fill)

There was no treatment or betterment of groundwater required in the Remedial Strategy, as risks to controlled waters from site-derived contamination had been dismissed in the CSM. However, there was a possibility that contamination would become remobilised during the earthworks.

Therefore as part of the Remedial Strategy, to ensure that the works did not disturb contamination and 'release' it to impact on groundwater, monitoring wells were to be retained and sampled throughout the works. The strategy recommended four groundwater wells be monitored every four weeks, and then finally at 12 weeks after the earthworks were complete. One of the wells was to be BH03. EPS selected six wells for this purpose including BH03, the rationale for the selected wells is given below along with a monitoring well location plan

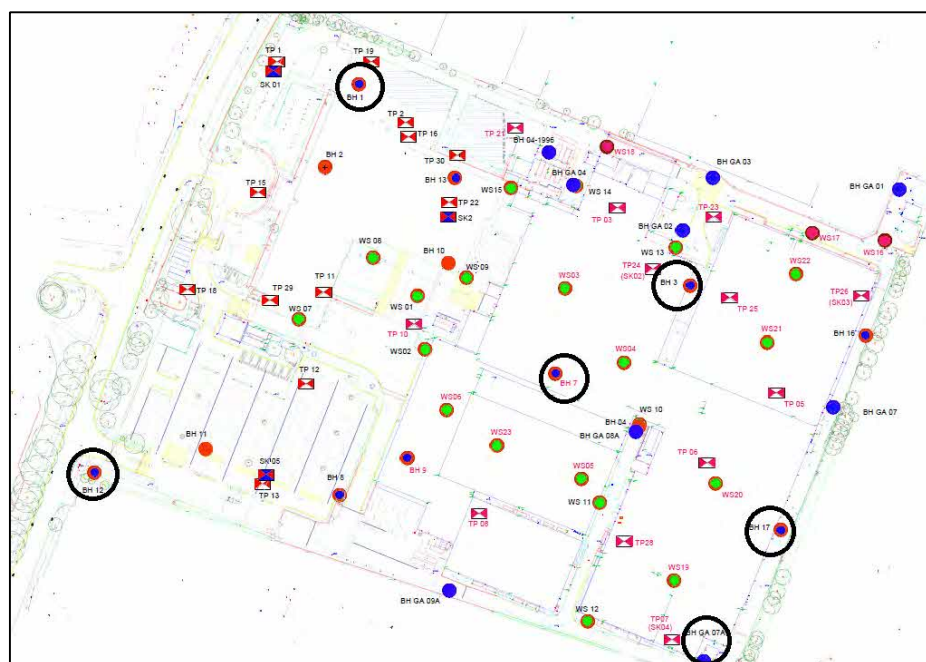


Figure 3 – Remediation Monitoring Wells (Groundwater)

The rationale for selecting monitoring wells to be retained throughout the works was driven by a balance between the technical requirements, and the realistic challenges of protecting monitoring wells (and safely sampling them) while large earth moving plant tracked across the site. EPS' rationale is presented below:

Monitoring Well	Rationale
BH3	Recorded initial unacceptable levels of phthalates (albeit in soils, not groundwater). High risk of well being damaged during excavations.
BH7	Hydraulically down-gradient of BH3 and located internally within a building. Groundwater is understood to flow to the south west. High risk of well being damaged during demolition.
BH1, 12, 17 & GA 07A	Positioned on site boundaries where the off-site risks to controlled waters could be monitored reliably throughout the works as the risk of damage to the wells was manageable.

1.4 Verification Objectives

The aspects of the Remedial Strategy covered within this Verification Report specifically involved the following objectives:

- Implement the Discovery Strategy to ensure safe development by overseeing earthworks and testing soils, in accordance with the Environment Agency's *Land Contamination: Risk Management guidance* (LC:RM, 2020) and the *National Planning Policy Framework*.
- Undertake targeted investigation of the BH3 Phthalate hotspot and ensure the Areas of Potential Concern are adequately investigated and any unsuitable soils are disposed (or treated) off-site under the appropriate duty of care.
- To oversee the implementation of the Materials Management Plan under CL:AIRE's *Definition of Waste: Development Industry Code of Practice (DoW CoP)*, whereby this report should fulfil the requirements of the MMP verification process.

1.5 Scope of Work

In accordance with *BS10175-'Investigation of Potentially Contaminated Sites'* and *BS5930:2015-'Code of practice for ground investigations'*, the following tasks were undertaken:

- Full time site presence during earthworks by an experienced EPS Geo-Environmental Engineer.
- Attendance of site meetings to advise project team on requirements and approaches to implementing the Remedial Strategy.
- Collection of visual and photographic records to demonstrate effective implementation of Remedial Strategy, as recorded on Survey123 App
- Sample collection and laboratory analysis of soils and groundwater to evaluate any potential contamination risks in accordance with published re-use criteria and the conceptual risk characterisation (i.e. the CSM).
- Production of a written Verification Report.

1.6 Remaining Verification of Remedial Strategy & MMP

Following this verification process, a Construction Phase Verification Plan will also be required which will cover:

- Reinstatement of remaining stockpiles (no further testing), see Section 3.
- Installation of barrier drinking water pipes (these are to be installed site-wide).
- Installation and independent 3rd party integrity testing of soil gas protection measures if requested by end-client (discretionary).
- Any import of materials including topsoil for any soft landscaping (currently no import is anticipated).

The only aspect of the above list that would be strictly required to comply with the planning process is the use of barrier drinking water pipes which were identified as necessary in the Remedial Strategy (albeit not needed across the whole site). Following discussions with the contractor it is more practical to simply install barrier pipes site-wide than attempt to use them in certain areas so that will be implemented.

The Construction Phase Verification Plan will be a considerably less expansive and onerous exercise compared to this report and no further materials management verification is envisaged beyond confirmation that the stockpiled materials currently on site were installed as intended.

1.7 Limitations and Constraints

The purpose of this report is to present the findings of a verification exercise conducted at the location(s) specified. When examining the data collected from the investigations made during the assessment, Environmental Protection Strategies Ltd (EPS) makes the following statements:

No investigation method is capable of completely identifying all ground conditions that might be present in the soil under a site or within soil brought to a site. Where outlined in our report, we have inspected the ground or soil by constructing a number of boreholes, trial pits or grab samples. The locations of these excavations are considered to be representative for the objectives of this verification process however, ground conditions are naturally variable and it may be possible that the ground conditions encountered may differ to those encountered during the investigation.

Where third party data has been consulted during compilation of this report, the validity of any data that has been supplied, and which are included in the report, have been assessed as far as possible by EPS, however EPS cannot guarantee the validity of these data.

EPS Ltd cannot confirm that Japanese Knotweed rhizomes do not exist at the site, this is due to the difficulty of identifying the plant, especially in the early stages of growth. It is recommended that if Japanese Knotweed, (or any other similarly invasive plants,) is suspected to be present, a specialist contractor should be commissioned to make a detailed assessment.

EPS are not licensed asbestos surveyors, and this report does not represent a formal asbestos survey. Asbestos has only been covered through soil analysis and field observations then discussed in relation future ground-driven risks. EPS understand that Asbestos Surveys of the buildings were carried out by others in the soft-strip exercise prior to demolition.

2 REMEDIAL EARTHWORKS

The remedial earthworks commenced shortly after the declaration of the Materials Management Plan on the 1st November 2021. EPS maintained a full time site-presence from before this time during the initial soft-strip and sporadic trial pitting from the 20th October throughout the works until this phase was completed in late February 2022. Full time presence ended on the 18th February with day-visits carried out in the following two weeks.

2.1 Materials Management Plan Status

The MMP was produced in accordance with CL:AIRE's *Definition of Waste: Development Industry Code of Practice* (DoW CoP) and was declared by a Qualified Person (Kate Wooldridge, QP #381) on the 1st November 2021 with a timestamp of 11:34:45.

Under the DoW CoP, a Verification Report is required to provide an audit trail to confirm works were undertaken in accordance with the MMP as well as to confirm any agreed variations.

The MMP was amended initially following comments from the Qualified Person prior to declaration (Revision 1, 26th October 2021), then additional minor amendments were also made post-declaration (Revision 2, 29th November 2021). The amendments related to a refined stockpiling approach taking account of feedback from the Principal Contractor, an updated Earthworks Specification and amended contingency details. These changes were discussed with CL:AIRE by the QP and EPS were advised to keep a record of the amendments and define them in this Verification Report.

The document control record for the MMP is included in the current version (Revision 2). The declaration and the MMP are included in Appendix A. The supporting information for the MMP is available upon request.

2.2 Material Tracking & Remedial Oversight

In order to track the MMP and the implementation of the Discovery Strategy, EPS had a permanent site presence throughout the works. This involved an experienced Geo-Environmental Engineer (Paul O'Connor) overseeing and being available as required to sample and steer the earthworks in this aspect.

2.2.1 Site Grid & Survey123™

To track the material movements, sampling locations and site records, EPS primarily used the site grid developed by TSL (and distributed to all parties working on the project). The grid, included in Figure 2, includes 143 squares which are 25x25m each. To further enhance the accuracy of EPS records and transparency of the sampling process, digital records were also included in the field and uploaded to ArcGISSurvey123 app using a tablet with GPS capabilities. The national grid references are included on the Survey123 reports but the sampling locations based on the grid cells (Figure 3) are more accurate.

In total, 137 Survey123 records were taken and broadly that was driven by one record for each soil sample. The small discrepancy (140 samples in total) is accounted for by collecting 2 samples from the same trial pits. The main benefit of the records is that they confirm the site grid where the sampling took place and include photographs of the material tested. The Survey 123 reports record the date in the American format (month/day/year).

The full set of Survey123 records are included in Appendix E and relevant records are referred to throughout this report.

2.2.2 Approach to Sampling & Nomenclature

In total 140 samples of soil and fill materials were collected along with 17 groundwater samples during the remedial earthwork phase. This does not include any of the samples undertaken as part of the preceding investigations. The rate and location of sampling positions was determined by the discovery strategy and at the discretion of the EPS Engineer as defined in the Remedial Strategy.

At the outset it was envisaged that the cut & fill process would be contained to within the discrete grid cells and the sampling would be focussed on the point of 'origin'. But in reality the process was an excavation within a grid cell, then a distribution of the material in a thin layer over a wider 'destination' area, which may have extended to beyond a single grid. So the initial origin samples may not have been particularly representative of the final grid cell where the material was re-instated, although still yielding valuable data. To ensure that representative data was gathered of both the 'origin' and 'destination' samples, the approach to sampling was refined to include both and this is reflected in the nomenclature which is as follows:

Sample Typ	No. of Samples	Identification	Example	Comment
BH3 hotspot	12	'TP BH3'	TP BH3 N1	Trial Pit Orientation (North, East) or B (bae) of excavation
Stockpile	5	'SP'	SP B10-C13 01	Stockpile number Cell range Numeric reference
Crushed Stockpile	38	'SP'	SP03 E5 18	Stockpile number Collected from cell Numeric reference
Trial Pit	22	'TP'	TP109 D10 1.5	Trial Pit Collected from cell Depth (m bgl)
Origin (cut)	30	'OR'	OR H6 01 Surface	Origin sample Collected from cell Numeric reference Depth of sample (m bgl)
Destination (fill)	33	'DT' *	DT J9 01 Surface	Destination sample Collected from cell Numeric reference Depth of sample (m bgl)
Groundwater	17	By Well Ref.	'BH03' – Groundwater samples from monitoring well BH03	-
Total (soil & groundwater)				157

* Count includes two samples erroneously labelled VS

* Samples relating to drainage features are referred to in this report, with 'drain' or 'int' (interceptor).

2.2.3 Analytical Suites

Initially EPS developed analytical suites for the principal contaminants of concern. This was largely based on the previous investigations, the CSM and input from the end-client which meant the suites were very broad-ranging as a result. To ensure the data was of high value, the initial intention was to only undertake the Full/Enhanced suites in areas of concern/hotspots where the additional data (relative to the Standard suite) would add value. However, primarily because of the phthalates and the difficulty identifying them in the field with visual/olfactory evidence, the full/enhanced suites were the most widely used as shown in the table below. The full sampling schedules are also included as Table 1 (soils) and Table 2 (water).

Testing Suites		No. of samples taken
Soils/Fill	Standard – PAH, Heavy Metals, Asbestos Screen, Cyanide (non-specified), Phenol (non-specified) & TPH CWG, BTEX	66
	Full/Enhanced – PAH, Heavy Metals, Asbestos Screen, Cyanide (non-specified), Phenol (non-specified), TPH CWG, BTEX, VOCs, SVOCs & Ammoniacal Nitrogen	69
	Waste – Standard & Full plus Inert WAC	3 (at request of TSL)
Tarmac	Coal tar (absence/presence), PAHs, biomarkers (triterpane triaromatic steranes), saturates, aromatics, resins, asphaltenes scanning electron microscopy.	2

Groundwater	Full – PAH, Heavy Metals, Cyanide, Phenol, TPH CWG, BTEX, VOCs, SVOCs & Ammonical Nitrogen	17
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Notes

PAH	Polycyclic Aromatic Hydrocarbons
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
TPH CWG	Total Petroleum Hydrocarbons (Criteria Working Group)
VOCs	Volatile Organic Compounds (SVOCs – Semi-Volatile)
WAC	Waste Acceptance Criteria

All soil analytical results are included in Appendix F, and all water analytical results are included in Appendix G. The sample locations are described in Table 3 as well Figure 3 where relevant.

2.3 Remedial Targets & Re-Use Criteria

Environmental re-use criteria were defined in the Remedial Strategy and MMP. These are included in a summary table in Appendix B and were subject to a written letter of approval by Jonathan Driver of HBC on the 20th October 2021 (letter is included in MMP).

Geotechnical criteria were presented in the Earthworks Specification by Pinnacle Consulting Engineers as described within the MMP.

All of the sample results and their status in relation to the environmental re-use criteria are given in Table 3. In addition, the individual sets of results relevant to specific parts of the site are given in Section 2.5 -2.8.

2.4 Soil Quarantine & Waste Management

Within the MMP (Supporting Documents), the earthworks phasing was included which showed a processing/quarantine area for potentially unsuitable soils pending test results. This quarantine area was setup in the south west of the site as intended. Samples collected from the quarantine area received the designation of SP01.

The quarantine area was surrounded by site won crushed material, nominally 0.4m high but with allowance made for the natural surface gradient. The quarantine area, including the surrounding crush, was completely covered with proprietary damp proof membrane (Visqueen plastic) before potentially unsuitable soils were imported into the area. This stockpile was also covered before forecast poor weather.

The waste management was undertaken by TSL although a small number of waste tests (SP01.1, SP01.2 & SP01.3) were taken to assist them in characterising the waste.

The materials identified as unsuitable and required off-site disposal in accordance with the Remedial Strategy are summarised as follows:

- 1) Arisings from BH3 hot-spot excavation, as summarised in Section 2.6. This equated to c.100 tonnes/8 loads of soils off-site disposal.
- 2) Excavation from phthalates failure material in stockpile, as summarised in Section 2.7. This equated to c.50m³. This resulted in an additional load of soil for off-site disposal.

- 3) A small amount of material excavated from the base of the interceptor structure excavated from G4 was also imported to the quarantine area but reused following receipt of favourable laboratory analysis (sample ref OR G4 Int 1, 2 & 3).

TSL have confirmed that the total number of loads taken for off-site disposal was 9. The waste transfer documentation is included in Appendix E.

2.5 Borehole BH3 (Phthalate Hotspot) November 2021

At borehole BH3, a localised excavation was required in the Remedial Strategy to remove unacceptable levels of the phthalates Bis (2-ethylhexyl) phthalate (B2eP) and Butylbenzyl phthalate (BBP) which were detected in the soils (at 53.568mg/kg), but not in the surrounding soils (at trial pits TP24 and TP25) or underlying groundwater sampled from BH3 itself, suggesting vertical migration was limited.

The source of this detection was not defined in the previous assessments. The contamination is likely to be have been associated with a coating substance emanating from a drain as there were drainage runs in that area with gullies and inspection chambers, as BH3 was external of the buildings. The coating may have been used for tabletting or packaging.

Due to the lack of clarity over the source of the phthalates in this location and the lack of field evidence of contamination when drilling BH3, it was not known whether the extent of the contamination would be obvious based on field observations. At these concentrations phthalates are odourless and colourless, and of low volatility. The Photo Ionisation Detector (PID) instrument used elsewhere on-site would detect VOCs, but likely not phthalates. However during the excavation, field evidence was recorded which allowed the excavation to be steered, as described in Survey123 report dated 12th September 2022 in Appendix E.

Due to careful excavation by TSL/Collins and supervision by EPS, the monitoring well at BH3 was retained whilst the excavation extended around it. As BH3 was in the original hot spot, and BH7 was hydraulically down gradient of it, both wells were retained as part of the groundwater monitoring programme (see Section 2.12).

Pertinent results from the excavation at BH3 are included in the table below.

BH 3 Initial Excavation 30/11/21

Contaminant	Re-use criteria (mg/kg)	No. of Samples	No of Detections	Range of Detections (mg/kg)		Highest Location & Depth (m bgl)	Achieved re-use criteria?	
				Min	Max		P	Y
Bis(2-ethylhexyl) phthalate (B2eP)	2.2	9	1	0.144		TP-BH3 E1 (1m)	P	
Butylbenzyl phthalate (BBP)	6.6	9	5	0.602	16.818	TP-BH3 S1 (1m)	Y (TP-BH3 E1)	

Relevant samples: TP-BH3 N1 (1.0m), TP-BH3 N2 (2.0m), TP-BH3 S1 (1.0m), TP-BH3 S2 (2.0m), TP-BH3 E1 (1.0m), TP-BH3 E2 (2.0m), TP-BH3 W1 (1.0m), TP-BH3 W2 (2.0m), TP-BH3 B (2.0m)

Once the initial excavation was completed, face & base verification testing of soil samples passed re-use criteria on all sides except the south (sample ref TP-BH3 S1,1m). As such, the excavation was extended in that orientation and the face and base results of that extension were then satisfactory, with all results below detection limits. The waste arisings were disposed of (see Appendix E). The excavation around BH3 was approximately 2m deep, and 8m wide/long centred on BH3. The southern extension added a further 5m in length, maintaining the same width and depth dimensions.

BH3 Extended Excavation 9/12/21

Contaminant	Re-use criteria (mg/kg)	No. of Samples	No of Detections	Range of Detections (mg/kg)		Highest Location & Depth (m bgl)	Achieved re-use criteria?	
				Min	Max		P	Y
Bis(2-ethylhexyl) phthalate (B2eP)	2.2	3	0	-	-	-	P	
Butylbenzyl phthalate (BBP)	6.6	3	0	-	-	-	P	

Relevant samples: TP BH3 SW (1.0m), TP BH3 S.2 (1.0m), TP BH3 SE (1.0m)

All samples from the extended excavation achieved re-use criteria. This was also corroborated field evidence, see Survey 123 reports.

2.6 Stockpile Failures (Phthalates) January 2022

During routine testing of stockpiled crushed fill materials, phthalates were encountered in two samples above re-use criteria. These were taken in sections of stockpiles referred to as SP02 and SP03.

Stockpile Testing Failures 21/12/21

Contaminant	Re-use criteria (mg/kg)	No. of Samples	No of Detections	Range of Detections (mg/kg)		Highest Location & Depth (m bgl)	Achieved re-use criteria?	
				Min	Max		P	Y
Bis(2-ethylhexyl) phthalate (B2eP)	2.2	5	5	0.304	4.618	SP02 J3 01		Y
Butylbenzyl phthalate (BBP)	6.6	5	1	0.803	2.109	SP02 K3 03	P	

Note:

- SP02 and SP03 were stockpiles of site won materials, principally below ground building foundations, crushed ready for future use as engineered fill.
- SP E6-G9 01 was a temporary stockpile of excess soil accumulated from cells E6 to G9 when foundations were being excavated from that area.

Relevant samples: SP02 J3 01, SP02 J4 02, SP02 K3 03, SP03 C5 01, SP03 C5 02

Condemning the whole stockpiles to landfill purely as a result of these selected samples would not be a pragmatic or necessary solution. The majority of these materials were derived from demolition arisings (from crushing the building and foundations) but it is plausible that some soil adhered to the

concrete foundations prior to crushing, although it seems equally likely that a residue from a drain or a coating used in the building could have caused the finding.

The failures were also marginal, and the re-use criteria for these phthalates were known to be conservative as described in the Remedial Strategy. But to deliver a pragmatic and suitable solution in accordance with the strategy, localised excavations were undertaken around the sampling points and those materials were removed for disposal off site. The waste transfer documentation is included in Appendix E.

EPS then re-tested the exposed sides of the excavations, and the results all achieved re-use criteria as summarised below

Stockpile Re-Testing Following Localised Excavation 17/1/21

Contaminant	Re-use criteria (mg/kg)	No. of Samples	No of Detections	Range of Detections (mg/kg)		Highest Location & Depth (m bgl)	Achieved re-use criteria?	
				Min	Max		P	Y
Bis(2-ethylhexyl) phthalate (B2eP)	2.2	6	3	0.192	0.414	SP02 J3 05P 1.0m	P	
Butylbenzyl phthalate (BBP)	6.6	6	1	0.767		SP02 J3 06P 1.50m	P	

Relevant samples: SP02 J3 04 P (2.0m), SP02 J3 05 P (1.0m), SP02 J3 06 P (1.50m), SP03 C5 09 P (1.0m), SP03 C5 10 P (2.0m), SP03 C5 11 P (1.0m).

No further removal of material was considered necessary from these stockpiles.

2.7 Areas of Potential Concern & Depth of Excavations

As stated in Section 1.3, coincidentally much of the eastern half of the site was to undergo a 'cut' and this should have helped with the exploration of the Areas of Potential Concern and the underpinning discovery strategy. However the cut was not intended to be very deep and in many areas was <0.5m hence why in the Remedial Strategy a provision was made for extra trial pitting in the areas of concern.

In reality, a significant challenge to the wider earthworks programme was the presence of deep foundations from the form Pfizer buildings. Primarily substantial ring-beam foundations resulted in a turn of soil consistently to around 1.5m depth across the vast majority of the site. The buildings on the southern border of the site, approximately cells G7 to J10 had pile foundations which were locally excavated to a depth of around 7m bgl. No visual or olfactory evidence of contamination was recorded in soils in this area.

Whilst these deep foundations were problematic for TSL and Collins, it did mean that EPS were able to implement the Discovery Strategy to a greater level of intensity and depth, by inspecting and sampling soils across the shallow profile to a greater level of detail and sampling density than originally planned. It did however mean that these structures had to be removed and that reduced the volume of site won soils and increased the crushed fill as described in Section 3. When encountered, samples

were collected from beneath excavated drainage pipework. Any materials which looked potentially unsuitable for reuse were moved to the quarantine area.

The consolidated results relative to re-use criteria covering these areas are included in Table 3.

2.8 General Material Re-Use

In areas which were otherwise not expected to be affected by contamination, there was still a need to test the material at sufficient rates to ensure it was suitable for re-use. Although this was likely to be true anyway given the visual absence of contamination and EPS' existing understanding of the soil quality based on previous investigations, the testing provides a clear record of material quality and the consistent achievement of re-use criteria.

The consolidated results covering these areas in terms of achieving re-use criteria are included in Table 3 and within the relevant Survey123 in Appendix D.

2.9 Asbestos in Soils

Significant concentrations of Asbestos Containing Materials or fibres in soils were not anticipated and were not encountered in the previous investigations. But with any made ground on previous commercial sites, the presence of asbestos should not be ruled out and as such it was tested for in all soil suites.

Lab analysis detected asbestos fibres in a two samples, but quantification showed the fibres to be below 0.001%, which is the accredited detection limit (and therefore the true result could be much lower) and all results were well within the re-use criteria. This suggests the soils have an unusually low amount of asbestos within them compared to typical brownfield sites in England where concentrations above this value are commonplace. No further action or detailed property registers are considered necessary under the Construction Design Management Regulations 2015 or the Control of Asbestos Regulations 2012.

2.10 Underground Tanks & Drainage Features

Four underground storage tanks were discovered on site and their locations are shown on Figure 3. The tanks were found in the following cells; A10 (east of the substation building), K6 & K7 (both beneath the former perimeter road) which were excavated completely and samples collected from the base of the excavations. No visual or olfactory evidence of contamination was seen in the soils excavated from, or remaining in the faces of, the excavations.

A further tank was located in cell B9 (immediately east of the substation). The tank consisted of a vertically orientated reinforced concrete ring structure approximately 6m in diameter. TSL decided to backfill the tank without excavating the structure. No evidence of contamination was seen.

An underground structure was located cell G4. The structure consisted of a three chambers formed from reinforced concrete and appeared consistent with an oil water interceptor.

The principal drainage runs were identified as an Area of Potential Concern in the Remedial Strategy and a high degree of confidence can be stated that these drainage runs were all excavated/inspected

and sampled for any residual contamination. This was made easier due to the deeper 'turn of soil' as described in Section 2.7 where the soils were excavated to at least 1.5m across the site, if not much deeper in certain areas and therefore expected to capture any unrecorded drainage. Samples relating to drainage features are referred to in this report, with 'drain' or 'int' (interceptor). The majority of drainage runs were simply encountered during earthworks rather than chased out. For where drains extended off site, TSL capped them in all locations to avoid run-off into the public drainage system. Connection into the remaining four drainage runs will be the first part of drainage works in the next phase (construction).

The exception to this was an asbestos drain encountered at the western edge of the site at the end of the earthworks and this was chased out and the asbestos subsequently removed from site. It was a storm water drain, which TSL permanently capped at the site boundary. This is the only drainage run that will not be used for the new development. The method used for these decommissioning works was mixing sand and cement, placing this into sandbags and placing in the mouth of the pipe at the boundary. The asbestos drain was chased out through cells G4 & 5. The excavation was estimated to be around 30m long and was perpendicular to New Lane. The location of these drains including the asbestos feature is shown on the plan included in Appendix D.

2.11 Groundwater Monitoring

The monitoring of selected wells was undertaken at roughly 4-weekly periods throughout the works.

At the outset of the earthworks there were 45 monitoring wells, and only six needed to be retained. The other 39 wells were formally decommissioned through grout pumping by Remediation Technologies Ltd.

The decommissioning comprised the sealing up of monitoring wells using a wet cement / grout slurry. The process involved the mixing up of a suitable slurry using dehydrated mix of cement, bentonite powder and water and then pumping it into the various monitoring wells previously installed. Displaced water from the various wells would then be extracted, contained and then processed through carbon before disposal to drain.

As with the previous investigation, 'low-flow' sampling techniques had been used in order to minimise the amount of sediment entrained in the samples. The full results are included in Appendix G and summarised as follows:

Contaminant	No. of Samples	No of Detections	Range of Detections (ug/ l)		Highest Location & Monitoring Visit No.
			Min	Max	
Arsenic	17	1	2.7		BH01 (#3)
Calcium	17	0	-		-
Chromium	17	2	1.7	3.4	BH03 (#2)
Copper	17	0	-	-	-
Lead	17	0	-	-	-
Mercury	17	0	-	-	-
Nickel	17	2	7	14	BH12
Selenium	17	1	-		-
Zinc	17	6	3	23	BH17
Naphthalene	17	0	-		-
Benzo[a]pyrene	17	0	-		-
TPH CWG	17	0	-		-
VOCs	17	1	3 (Chloroform)		BH01 (#3)
Phenols	17	0	-	-	Phenols
Phthalates	17	0	-	-	Phthalates
SVOCS(exc. Phenols/ Phthalates)	17	0	-	-	-
Cyanide	17	0	-	-	-
Ammoniacal Nitrogen	17	4	30	50	BH07 (#1)

Notes

-	Contaminant not found above laboratory detection limits
PAH	Polycyclic Aromatic Hydrocarbons
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
TPH CWG	Total Petroleum Hydrocarbons (Criteria Working Group)
VOCs	Volatile Organic Compounds (SVOCS – Semi-Volatile)

- Number of Samples: Six monitoring wells were scheduled to be sampled on three occasions through the earthworks, on the 29/11/21 (#1), 5/1/2022 (#2) & 2/2/2022 (#3). The only exception being on the first visit where BH17 was not accessible due to adjacent demolition work and therefore only five wells were sampled.
- No Contaminants of Concern were detected at concentrations above relevant screening criteria (as defined in the Phase II report). The dissolved metals detected are likely to reflect generally background concentrations. Therefore no further risk assessment for controlled waters or refinement of the CSM in this regard is considered necessary.
- The remedial earthworks do not appear to have influenced groundwater quality beneath the site. There is no trend of worsening concentrations during the course of the works.

A comprehensive investigation of soil vapour had been undertaken in the previous assessments and some additional simple screening of the surface materials was undertaken as part of these works just to highlight any areas potentially requiring further attention, although it was unlikely that significant volatile contamination would remain in the ground given the sampling data and aeration of the soils undertaken.

A Photo Ionisation Detector (PID) is a field instrument used to measure volatile organic hydrocarbon vapours. Vapour levels can be used to target remediation work, consequently a

PID was retained on site throughout the work to be used should any hydrocarbon contamination be encountered. Since no signs of such contamination were seen, a precautionary survey was performed on 16th February 2022. A shovel was used to disturb the surface layer of soil in every second available grid square on site. An extension hose attached to the PID was inserted into the disturbed soil and a measurement made. No hydrocarbon vapour readings were detected during the survey. Over 40 measurements were made across the site, principally in columns to the east of grid column "6". At the time of the survey, columns 1- 5 were either; occupied by offices, had not yet had its surface covering removed, was under a stockpile or was a working area where plant movements were ongoing. It is not deemed likely that any significant additional remedial works would be required in these grid cells so it is not considered a significant issue.

In the Remedial Strategy, in addition to the 4-weekly monitoring rounds there was also a visit scheduled for 12 weeks after the program had finished. Obviously the maintenance responsibility for retaining the wells for this duration would be quite significant for the principal contractor. As such, at the request of TSL, EPS reviewed the available data from the 3 existing rounds and concluded that given the complete absence of any significant contamination and the earthworks had largely concluded, there did not appear to be a need for any further monitoring. EPS spoke to Jonathan Driver in Environmental Health at Havant Borough Council on the 21st February 2022 and he was also of that view, in that additional monitoring was only necessary if it would add value to the characterisation of contamination at the site and that did not appear to be the case. This was confirmed in an email from Mr Driver received on the 9th March. So the requirement was dropped and the remaining six wells were decommissioned through grout pumping as before on the 1st March 2022 by Remediation Technologies Ltd.

2.12 Re-use of Tarmac (Coal Tar Analysis)

The presence of coal tar was not part of the re-use criteria in the Remedial Strategy but the re-use of tarmac containing coal tar under a U1 permit exemption is not allowed at hazardous concentrations (i.e. coal tar content above 0.1%). As such, for the modest volume of tarmac re-used at the Pfizer site it was tested for coal tar on a precautionary basis to ensure full compliance. The results are as follows, and show that the material did not contain hazardous concentrations of coal tar and would have been appropriate for re-use under a U1 exemption if one had been required (it was not as these materials were covered under the MMP).

Sample ref.	No. of Samples	Coal Tar Content
SP MAC WEST SP MAC EAST	2	<0.1 %

2.13 Geotechnical Testing

As required by the MMP and Earthworks Specification, geotechnical testing was required of both the materials subject to re-use and their performance following compaction. The results along with a covering letter from Pinnacle Consulting Engineers outlining how the materials complied is included in Appendix H.

3 MATERIALS MANAGEMENT

3.1 Details and Quantities of Excavated, Screened, Treated and Reused Soils

In terms of quantities of materials managed, the following table shows the estimated re-use quantities stated in the MMP compared to the actual quantities.

Material	Estimated Quantity from MMP	Actual Quantities
Site Won Fill Materials	Total Cut - 12,175m ³	Total Cut – 5,578.1m ³
	Total Fill - 10,460m ³	Total Fill - 8,988.0m ³
	= Surplus (export volume) of 1,715m ³	= Deficit (import volume) of 3,409.9m ³

The reason the earthworks balance went from a modest surplus to quite a large deficit is because the volumes of crushed materials generated through the demolition and foundation removal was larger than anticipated. The remaining earth movements will be carried out in the construction phase. This will include re-using c.35, 000m³ of currently present stockpiled crushed fill materials, to be supplemented with drainage arisings in due course. These materials have already been tested and inspected as part of these works so no further environmental testing is considered necessary. No significant import of material is envisaged. The remaining installation of site-won materials, imported material quality (if any) will be reported in a separate Construction Phase Verification Report.

4 VERIFICATION STATEMENT

On the basis of the information obtained by EPS and supplemented during the remedial works by both TSL and their sub-contractors, it is concluded that the earthworks aspects of the Remedial Strategy and the Materials Management Plan prepared for the former Pfizer site have been implemented satisfactorily. The current development platform for building the new unit should, through this report and associated records, have a clear audit trail demonstrating soil and groundwater quality and a clear 'bill of health' in terms of planning requirements, waste management and any liabilities relating to contaminated land.

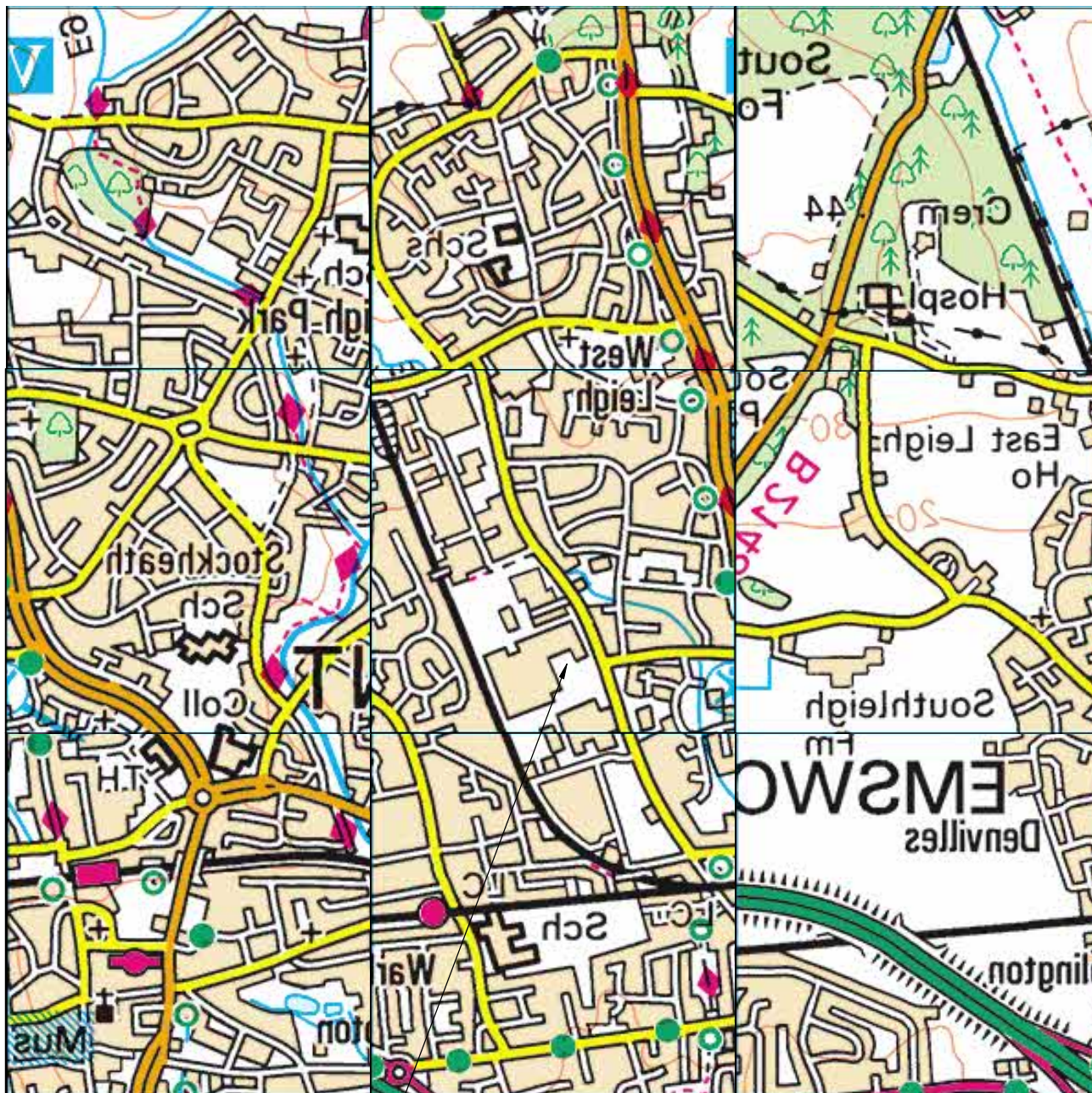
This position also completes the phase of the project covered by the Materials Management Plan.

For the aspects of the Remedial Strategy that remain outstanding, they will be reported in a separate Construction Phase Verification Report, likely in late 2022. This will cover the remaining installation of site-won materials, imported material quality (if any) plus the discretionary aspects of the Remedial Strategy in the building such as the installation of sub-floor soil gas protection.

5 GLOSSARY

ACM	Asbestos Containing Material
BTEX	Benzene, Toluene, Ethylbenzene & Xylenes
CSM	Conceptual Site Model
DEFRA	Department of Environment, Food and Rural Affairs
EA	Environment Agency
EPS	Environmental Protection Strategies Ltd
MTBE	Methyl Tert Butyl Ether
PAH	Polycyclic Aromatic Hydrocarbons
PID	Photo-Ionisation Detector
TPH CWG	Total Petroleum Hydrocarbons (Criteria Working Group)
VOCs	Volatile Organic Compounds (SVOCs – Semi-Volatile)
WAC	Waste Acceptance Criteria

FIGURES



Approximate Site Location

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Title: Site Location Plan

Project: 32 New Lane, Havant

Fig No: 1

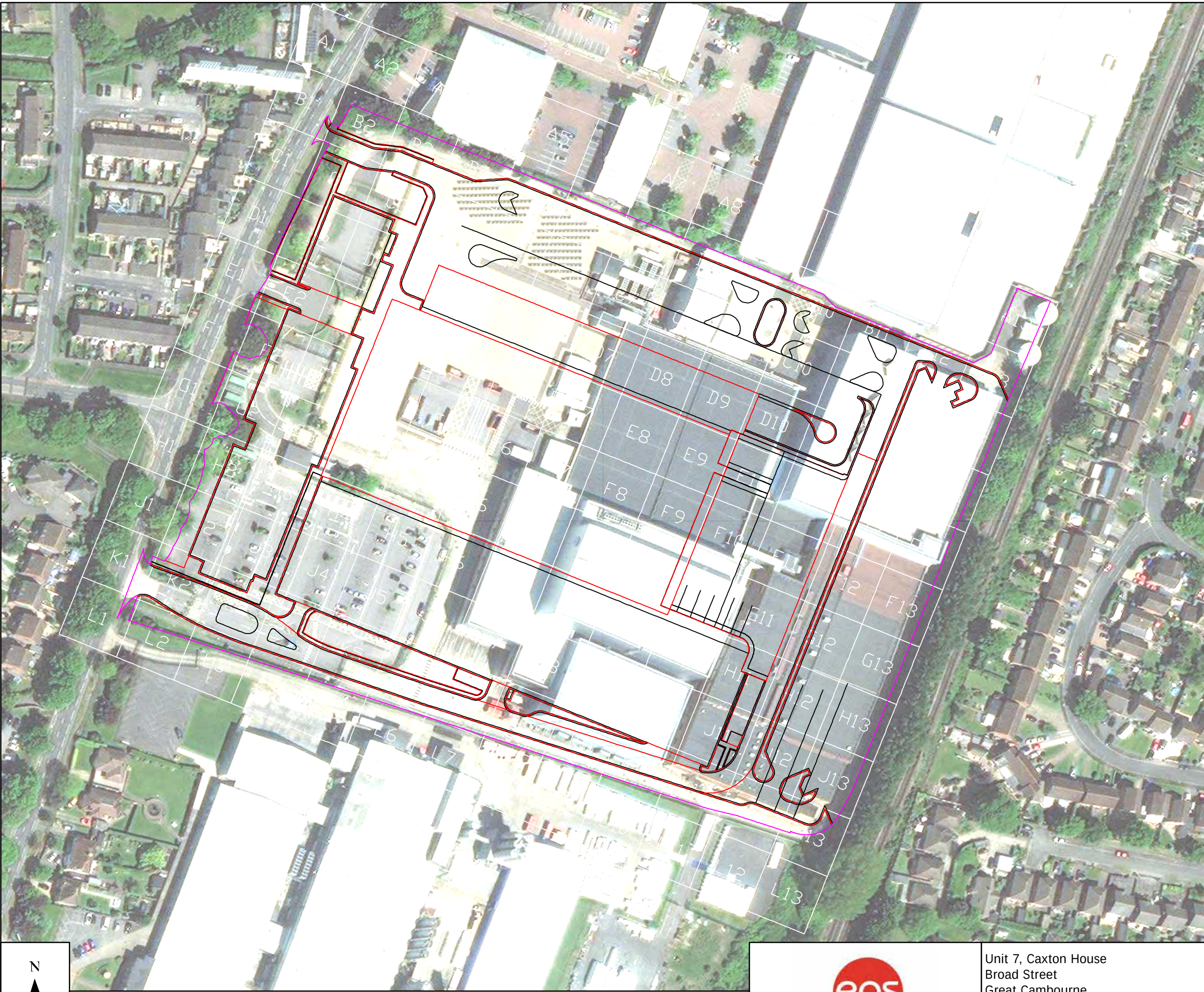
Scale: NTS

Drawn By: MJ **Approved By:** MB

Job No: UK2 1.5634

Dwg No: 32NewLane/ 0321/ 01

Date: March 2022



Legend

Title: Site Layout Plan

Project: Pfizer Havant

Client:HPI

Reference Scale: 1:1,500 @ A3

0

10

20

40

60

80

100

Meters

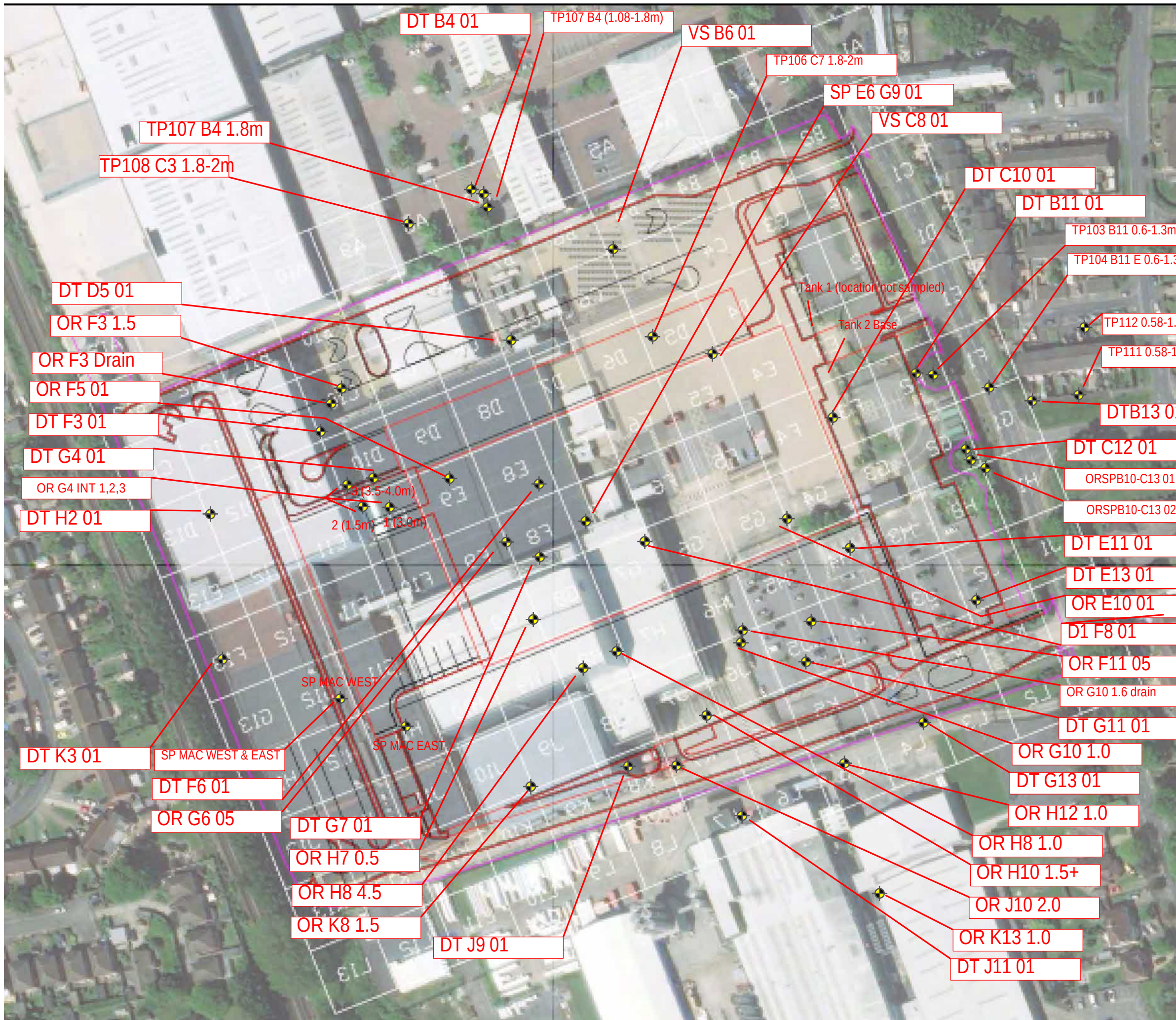


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Unit 7, Caxton House
Broad Street
Great Cambourne
Cambridge
CB23 6JN

Project No:	
Drawing No:	Revision:
Drawn By: KD	Date: 16/03/2022
Checked By:	Date:



KEY:

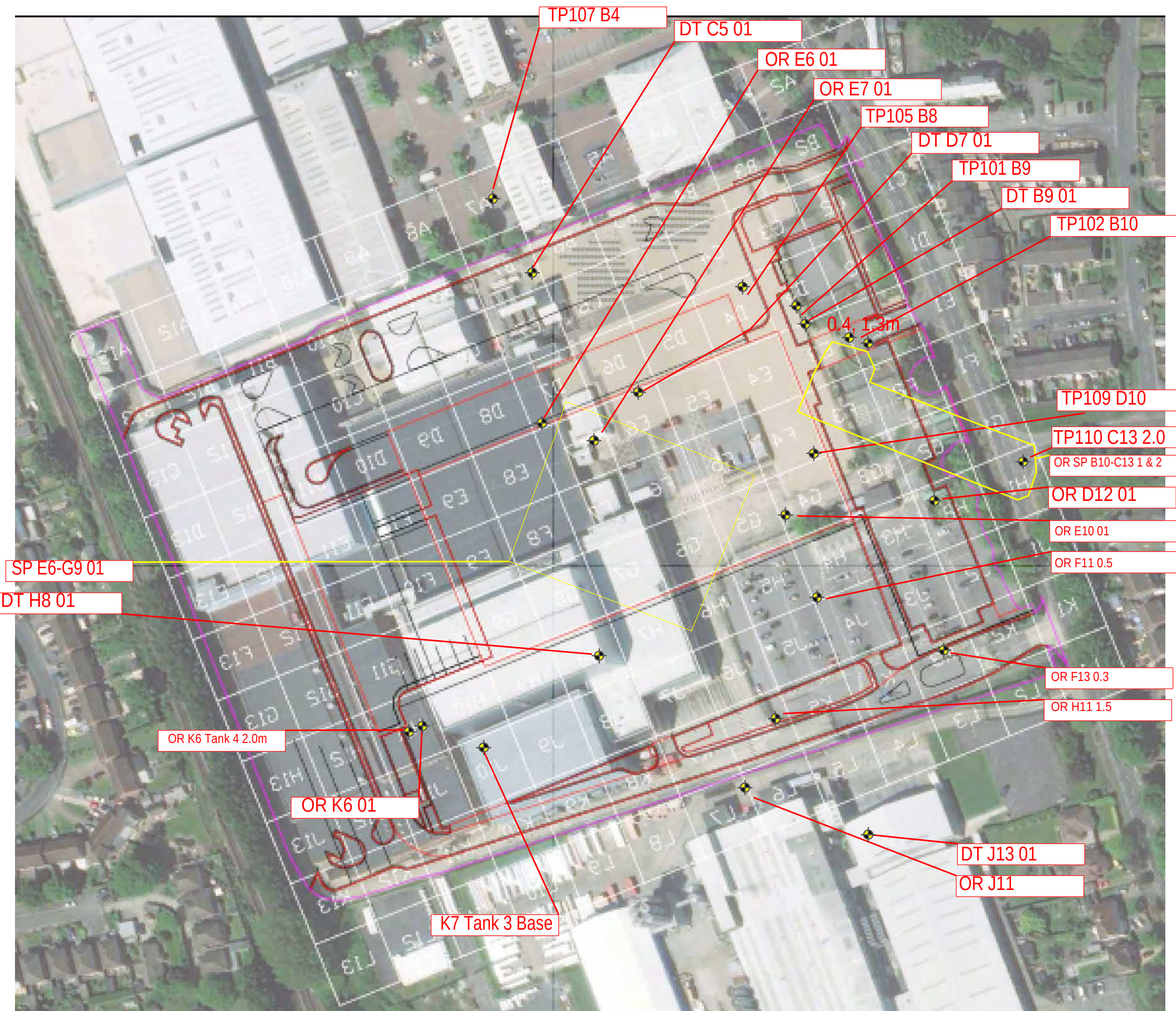
 Approximate Sampling Location

Figure 3: Verification Sampling Plan Pt 1

Project: Pfizer Havant

Scale: NTS - For Illustration purposes only
Drawn By: MB
Job No: UK21.5634
Dwg No: Pfizer/1603/3
Date: March 22





KEY:

 Approximate Sampling Location

Figure 3: Verification Sampling Plan Pt 2

Project: Pfizer Havant

Scale: NTS - For Illustration purposes only
Drawn By: MB
Job No: UK21.5634
Dwg No: Pfizer/1603/3
Date: March 22





Note. Stockpile 4 was eventually consolidated into stockpile 2.

Figure 4: Stockpile Plan correct 18-2-2022

Project: Pfizer Havant

Scale: NTS - For Illustration purposes only
Drawn By: MB
Job No: UK21.5634
Dwg No: Pfizer/1603/4
Date: March 22



Sample	Date Collected	Analysis
SP04 H4 01	21/01/2022	Full
SP04 J5 02	02/02/2022	Full

Sample	Date Collected	Analysis
SP03 C4 01	21/12/2021	Full
SP03 C4 02	21/12/2021	Full
SP03 D4 03	10/01/2022	Standard
SP03 C4 04	10/01/2022	Standard
SP03 D4 05	13/01/2022	Full
SP03 C4 06	13/01/2022	Full
SP03 C4 07	13/01/2022	Full
SP03 D4 08	13/01/2022	Full
SP03 C4 09 P	17/01/2022	Full
SP03 C4 10 P	17/01/2022	Full
SP03 C4 11 P	17/01/2022	Full
SP03 C4 12	21/01/2022	Full
SP03 D4 13	02/02/2022	Full
SP03 E4 14	02/02/2022	Full
SP03 E4 15	08/02/2022	Standard
SP03 C4 16	08/02/2022	Standard
SP03 F4 17	16/02/2022	Standard
SP03 E4 18	16/02/2022	Standard
SP03 E4 19	23/02/2022	Standard
SP03 E4 20	23/02/2022	Standard
SP03 F4 21	01/03/2022	Standard
SP03 F4 22	01/03/2022	Standard

Sample	Date Collected	Analysis
SP Mac West	31/01/2022	Coal Tar
SP Mac East	31/01/2022	Coal Tar

Sample	Date Collected	Analysis
SP02 J3 01	21/12/2021	Full
SP02 J4 02	21/12/2021	Full
SP02 K3 03	21/12/2021	Full
SP02 J3 04	17/01/2022	Full
SP02 J3 05	17/01/2022	Full
SP02 J3 06	17/01/2022	Full

Sample	Date Collected	Analysis
SP01 J1	30/11/2021	Waste
SP01 J2	30/11/2021	Waste
SP01 J3	30/11/2021	Waste

Sample	Date Collected	Analysis
SP Beach 1	08/11/2021	Standard
SP Beach 2	08/11/2021	Standard
SP Beach 3	08/11/2021	Standard

TO BE CRUSHED

SP 03 CRUSHED

SP02 CRUSHED

TARMAC STOCKPILE

SP01 QUARANTINE

'BEACH' GRAVEL

TABLES

Table 1 –Laboratory Analysis Schedule – Soils

Analytical Suite	Samples (depth mbgl)			No. Samples Submitted for Analysis
Standard	TP101 B9 (1.0) TP101 B9 (1.4) TP102 B10 (0.4) TP102 B10 (1.3) TP103 B11 (0.6) TP103 B11 (1.3) TP104 B11 (E) (0.6) TP104 B11 (E) (1.3) SP BEACH 1 (surface) SP BEACH 2 (surface) SP BEACH 3 (surface) TP106 C7 (1.0) TP106 C7 (2.0) TP107 B4 (1.0) TP107 B4 (1.8) TP108 C3 (1.0) TP108 C3 (2.0) OR D12 01 (1.0) DT B11 01 (surface) DT C10 01 (surface) DT C12 01 (surface) DT E9 01 (surface)	DT F8 01 (surface) DT G7 01 (surface) DT G9 01 (surface) SP03 D5 03 (surface) SP03 C6 04 (surface) OR G10 (1.0) OR H12 (0.5) OR K13 (1.0) DT F6 01 (0.0) DT B13 01 (0.0) DT G13 01 (0.0) OR H7 (0.5) DT E11 01 (surface) DT E13 01 (surface) OR F3 (1.5) OR G4 (surface) DT J13 01 (surface) OR H10 (1.5) OR H8 (1.0) OR H8 (4.5) OR K8 (1.8) SP03 E5 15 (surface)	SP03 C5 16 (surface) OR F3 DRAIN (2.5) DT F3 01 (surface) DT G4 01 (surface) OR F5 01 (surface) DT J9 01 (surface) DT H8 01 (surface) SP03 F4 17 (surface) SP03 E5 18 (surface) OR K6 01 (surface) DT K3 01 (surface) DT H2 01 (surface) DT H3 01 (surface) DT H5 01 (surface) OR H6 01 (surface) DT E2 01 (0.5) DT G2 01 (0.5) SP03 E4 19 (surface) SP03 E5 20 (surface) DT C2 01 (surface) SP03 F3 21 (surface) SP03 F4 22 (surface)	66
Full/ Enhanced	TP105 B8 (1.0) TP105 B8 (1.8) TP-BH3 N1 (1.0) TP-BH3 N2 (2.0) TP-BH3 S1 (1.0) TP-BH3 S2 (2.0) TP-BH3 E1 (1.0) TP-BH3 E2 (2.0) TP-BH3 W1 (1.0) TP-BH3 W2 (2.0) TP-BH3 B (2.0) TP BH3 SW (1.0) TP BH3 S.2 (1.0) TP BH3 SE (1.0) TP109 D10 (1.5) VS C8 01 (surface) VS B6 01 (surface) TP110 C13 (2.0) OR E10 01 (1.0) OR SPB10-C13 01 (surf) OR SPB10-C13 02 (surf)	OR E7 01 (1.0) OR E6 01 (1.0) DT D5 01(surface) DT B9 01(surface) DT B4 01(surface) DT C5 01 (surface) DT D7 01(surface) SP02 J3 01 SP02 J4 02 SP02 K3 03 SP03 C5 01 SP03 C5 02 SP E6-G9 01 OR F11 (0.5) OR F13 (0.3) OR G6 (0.5) SP03 D6 05 (surface) SP03 C6 06 (surface) SP03 C5 07 (surface) SP03 D5 08 (surface) SP02 J3 04 P (2.0)	SP02 J3 05 P (1.0) SP02 J3 06 P (1.5) SP03 C5 09 P (1.0) SP03 C5 10 P (2.0) SP03 C5 11 P (1.0) OR H11 (1.5) OR G10 (1.6) OR J11 (surface) SP03 C5 12 (surface) SP04 H4 01 (surface) SP03 D5 13 (surface) SP03 E5 14 (surface) SP04 J5 02 (surface) DT G11 01 (surface) OR J10 (2.0) DT J11 01 (surface) OR G5 DRAIN (1.3) OR G4 INT1 (3.0) OR G4 INT2 (1.5) OR G4 INT3 (3.5-4.0) B10 T2 BASE (surface) TP111 (0.5) TP111 (1.5) TP112 (0.5) TP112 (1.5) K7 TANK 3 BASE (3.0) OR K6 TANK 4 (2.0)	69
W aste	SP01.1 SP01.2 SP01.3			3
Coal Tar	SP MAC WEST SP MAC EAST			2
Total				140

Suites:

EPS Standard	PAH (US EPA17), Heavy Metals, Asbestos Screen, Cyanide (non-speciated), Phenol (non-speciated) & TPH CWG, BTEX
EPS Full/Enhanced	PAH (US EPA 17), Heavy Metals, Asbestos Screen, Cyanide (non-speciated), Phenol (non-speciated), TPH CWG, BTEX, VOCs, SVOCs & Ammoniacal Nitrogen
EPS Waste	Standard & Full plus Inert WAC (Waste Acceptance Criteria)
Coal Tar	Coal tar (absence/presence), PAHs, biomarkers (triterpanes, triaromatic steranes), saturates, aromatics, resins, asphaltenes and scanning electron microscopy.



Table 2 –Laboratory Analysis Schedule – Groundwater

Sample ID	Monitoring Round #1 29/11/21	Monitoring Round #2 5/1/22	Monitoring Round #3 2/2/22
BH01	1	1	1
BH03	1	1	1
BH07	1	1	1
BH12	1	1	1
BH17	*	1	1
BHGA 07A	1	1	1

Suites:

EPS Water
*

PAH (US EPA 17), Heavy Metals, Cyanide, Phenol, TPH CWG, BTEX, VOCs, SVOCs & Ammoniacal Nitrogen
Unsafe to access due to ongoing demolition work nearby



Table 3 –Consolidated Soil Results Compared to Re-Use Criteria

Sample Ref	Site Grid Locati	Observations/ Comments	Passed RE-USE CRITERIA P Y	For Failures of RE-USE CRITERIA		
				Sample Ref	Site Grid Location	Passed RE-USE CRITERIA
TP101 B9 (1.0)	B9	Trial pitting exercise to get an early soil sample data set	P			
TP101 B9 (1.4)	B9		P			
TP102 B10 (0.4)	B10		P			
TP102 B10 (1.3)	B10		P			
TP103 B11 (0.6)	B11		P			
TP103 B11 (1.3)	B11		P			
TP104 B11 (E) (0.6)	B12		P			
TP104 B11 (E) (1.3)	B12		P			
SP BEACH 1	C3	Stockpile of gravel surfacing.	P			
SP BEACH 2	C3		P			
SP BEACH 3	D3		P			
SP03 D5 03 (0.0)	D5		P			
SP03 C6 04 (0.0)	C6		P			
OR G10 (1.0)	G10		P			
OR H12 (0.5)	H12		P			
OR K13 (1.0)	K13		P			
DT F6 01 (0.0)	F6		P			
DT B13 01 (0.0)	B13		P			
DT G13 01 (0.0)	G13		P			
OR H7 0.5 (0.5)	H7		P			
DT E11 01 (surface)	E11		P			
DT E13 01 (surface)	E13		P			
OR F3 (1.5)	F3		P			
OR G4 (surface)	G4		P			
DT J13 01 (surface)	J13		P			
OR H10 (1.5)	H10		P			
OR H8 (1.0)	H8		P			
OR H8 (4.5)	H8		P			
OR K8 (1.8)	K8		P			
OR F3 DRAIN (2.5)	F3	Sample from beneath drain in F3	P			
DT F3 01 (surface)	F3		P			
DT G4 01 (surface)	G4		P			

Table 3 –Consolidated Soil Results Compared to Re-Use Criteria

Sample Ref	Site Grid Locat	Observations/ Comments	Passed RE-USE CRITERIA P Y	For Failures of RE-USE CRITERIA		
				Sample Ref	Site Grid Location/Comments	Passed RE-USE CRITERIA
OR F5 01 (0.0)	F5		P			
DT J9 01 (0.0)	J9		P			
DT H8 01 (0.0)	H8		P			
SP03 F4 17 (0.0)	F4		P			
SP03 E5 18 (0.0)	E5		P			
OR K6 01 (0.0)	K6		P			
DT K3 01 (0.0)	K3		P			
DT H2 01 (0.0)	H2		P			
DT H3 01 (surface)	H3		P			
DT H5 01 (surface)	H5		P			
OR H6 01 (surface)	H6		P			
DT E2 01 (0.5)	E2		P			
DT G2 01 (0.5)	G2		P			
SP03 E4 19	E4		P			
SP03 E5 20	E5		P			
DT E2 01 (0.5)	E2		P			
DT G2 01 (0.5)	G2		P			
DT H3 01 (0.0-0.1)	H3		P			
DT H5 01 (0.0-0.1)	H5		P			
OR H6 01 (0.5-1.0)	H6		P			
DT C2 01 (surface)	C2		P			
SP03 F3 21 (surface)	F3		P			
SP03 F4 22 (surface)	f4		P			
TP105 B8 (1.0)	B8		P			
TP105 B8 (1.8)	B8		P			
TP106 C7 (1.0)	C7		P			
TP106 C7 (2.0)	C7		P			
TP107 B4 (1.0)	B4		P			
TP107 B4 (1.8)	B4		P			
TP108 C3 (1.0)	C3		P			
TP108 C3 (2.0)	C3		P			
TP-BH3 N1 (1.0)	D10	BH3 Phthalate excavation	P			
TP-BH3 N2 (2.0)	D10		P			
TP-BH3 S1 (1.0)	D10		Y (phthalates)	TP BH3 SW (1.0m)	Additional testing undertaken after extension of BH3 hotspot excavation	P
				TP BH3 S.2 (1.0m)		P
				TP BH3 SE (1.0m)		P
TP-BH3 S2 (2.0)	D10		P			
TP-BH3 E1 (1.0)	D10		P			
TP-BH3 E2 (2.0)	D10		P			
TP-BH3 W1 (1.0)	D10		P			
TP-BH3 W2 (2.0)	D10		P			
TP-BH3 B (2.0)	D10		P			

Table 3 –Consolidated Soil Results Compared to Re-Use Criteria

Sample Ref	Site Grid Locati	Observations/ Comments	Passed RE-USE CRITERIA P Y	For Failures of RE-USE CRITERIA		
				Sample Ref	Site Grid Location	Passed RE-USE CRITERIA
TP BH3 SW (1.0)	D10	BH3 Phthalate excavation	P			
TP BH3 S.2 (1.0)	D10		P			
TP BH3 SE (1.0)	D10		P			
TP109 D10 (1.5)	D10		P			
VS C8 01 (surface)	C8	"VS" designation should be "DT"	P			
VS B6 01 (surface)	B6		P			
TP110 C13 (2.0)	C13		P			
OR E10 01 (1.0)	E10		P			
OR D12 01 (1.0)	D12		P			
OR SPB10-C13 01 (surf)	B10 - C13	Excess soil stockpile gathered from cell range	P			
OR SPB10-C13 02 (surf)	B10 - C13		P			
OR E7 01 (1.0)	E7		P			
OR E6 01 (1.0)	E6		P			
DT D5 01(surface)	D5		P			
DT B9 01(surface)	B9		P			
DT B4 01(surface)	B4		P			
DT C5 01 (surface)	C5		P			
DT D7 01(surface)	D7		P			
SP02 J3 01	J3		Y (phthalates)	SP02 J3 04 P (2.0)	Additional testing undertaken after excavation from stockpile SP02 in affected area	P
				SP02 J3 05 P (1.0)		P
				SP02 J3 06 P (1.5)		P
SP02 J4 02	J4		P			
SP02 K3 03	K3		P			
SP03 C5 01	C5		Y (phthalates)	SP03 C5 09 P (1.0)	Additional testing undertaken after excavation from stockpile SP03 in affected area	P
				SP03 C5 10 P (2.0)		P
				SP03 C5 11 P (1.0)		P
SP03 C5 02	C5		P			
SP E6-G9 01	E6-G9	Excess soil stockpile gathered from cell range	P			
OR F11 (0.5)	F11		P			
OR F13 (0.3)	F13		P			

Table 3 –Consolidated Soil Results Compared to Re-Use Criteria

Sample Ref	Site Grid Locati	Observations/ Comments	Passed RE-USE CRITERIA P Y	For Failures of RE-USE CRITERIA		
				Sample Ref	Site Grid Location	Passed RE-USE CRITERIA
OR G6 (0.50)	G6		P			
DT B11 01 (0.5)	B11		P			
DT C10 01 (0.5)	C10		P			
DT C12 01	C12		P			
DT E9 01	E9		P			
DT F8 01	F8		P			
DT G7 01	G7		P			
DT G9 01	G9		P			
SP03 D6 05 (surface)	D6		P			
SP03 C6 06 (surface)	C6		P			
SP03 C5 07 (surface)	C5		P			
SP03 D5 08 (surface)	D5		P			
SP02 J3 04 P (2.0)	J3		P			
SP02 J3 05 P (1.0)	J3		P			
SP02 J3 06 P (1.5)	J3		P			
SP03 C5 09 P (1.0)	C5		P			
SP03 C5 10 P (2.0)	C5		P			
SP03 C5 11 P (1.0)	C5		P			
OR H11 (1.5)	H11		P			
OR G10 (1.6)	G10		P			
OR J11 (surface)	J11		P			
SP03 C5 12 (surface)	C5		P			
SP04 H4 01 (surface)	H4		P			
SP03 D5 13	D5		P			
SP03 E5 14	E5		P			
SP04 J5 02	J5		P			
DT G11 01 (I)	G11		P			
OR J10 (2.0)	J10		P			
DT J11 01 (I)	J11		P			
OR G5 DRAIN (1.3)	G5	Sample from beneath drain in G5	P			
OR G4 INT1 (3.0)	G4	Interceptor excavation	P			
OR G4 INT2 (1.5)	G4		P			



Table 3 –Consolidated Soil Results Compared to Re-Use Criteria

Sample Ref	Site Grid Locati	Observations/ Comments	Passed RE-USE CRITERIA P Y	For Failures of RE-USE CRITERIA		
				Sample Ref	Site Grid Location	Passed RE-USE CRITERIA
OR G4 INT3 (3.5-4.0)	G4	Interceptor excavation	P			
B10 T2 BASE	B10	Tank 2 excavation	P			
TP111 (0.5)	A13	A13 trial pits	P			
TP111 (1.5)	A13		P			
TP112 (0.5)	A13		P			
TP112 (1.5)	A13		P			
SP03 E5 15	E5		P			
SP03 C5 16	C5		P			
K7 TANK 3 BASE (3.0)	K7	Tank 3 excavation	P			
OR K6 TANK 4 (2.0)	K6	Tank 4 excavation	P			

APPENDICES



APPENDIX A

Materials Management Plan & Qualified Person Declaration

Marcus Bell

Subject: FW: Declaration Receipt Issued - Pfizer MMP - Revisions

From: dowcop.declarations=claireinitiatives.com@mg.claireinitiatives.com <dowcop.declarations=claireinitiatives.com@mg.claireinitiatives.com> On Behalf Of Claire Initiatives
Sent: 01 November 2021 11:35
To: Kate Wooldridge <KWoolldridge@epstrategies.co.uk>
Subject: Declaration Receipt Issued

Definition of Waste Code of Practice Declaration 2021-11-01 11:34:45

Hello,

DoW CoP Declaration 2021-11-01 11:34:45 has been issued and submitted to the Environment Agency under the DoW CoP. A pdf copy is attached for your records.

You are reminded that if materials are not used in accordance with the Materials Management Plan or risk assessment or if it is discovered that materials were not suitable for use, were used in excessive quantity or in such a manner as to harm human health or pollute the environment, the Environment Agency may conclude that those materials were discarded and were waste.

You are also reminded that a Verification Report must be prepared on completion of the work as set out in the Remediation Strategy / Design Statement covering the site. This Verification Report must be provided to the Environment Agency upon request.

If you have any questions, please raise a Help Desk ticket at www.claire.co.uk/help-desk.

Regards,
The DoW CoP Team

CL:AIRE Initiatives Ltd

Chiltern House, Haddenham Business Centre, Thame Road, Haddenham, Buckinghamshire,

HP17 8BY. Tel: +44 (0)1844 296 112

Web: www.claire.co.uk

Business Registration No. 13628954

Materials Management Plan (MMP) Form

This form should be completed once the lines of evidence have been marshalled in relation to suitability for use, certainty of use and quantity required.

The answers to the questions posed within this form, together with the supporting information will constitute the MMP and must be provided to the Qualified Person. A Qualified Person may comment on draft versions of this MMP, but will not complete the Declaration until all the relevant documents, demonstrating lines of evidence have been provided for each site.

The person / organisation who will pay the Declaration fee should confirm that they have read and understand the Terms and Conditions relating to the payment of the Declaration fee to CL:AIRE. These can be found on the CL:AIRE website.

The person / organisation agreeing to pay the Declaration Fee - Name, organisation and contact details inc. email address	EPS Ltd, 7B Caxton House, Broad Street Cambourne, Cambridge CB23 6JN Contact: Marcus Bell – Associate Director mbell@epstrategies.co.uk
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☒ **I confirm I have read and understood the Terms & Conditions.**

Each question must be answered. If the question is not applicable please state this and provide a brief explanation.

1. Specify the scenario to which this MMP relates, as described in the CoP (1, 2, 3 or 4):

1. Reuse on the Site of Origin

In the case of a combination of reuse scenarios, please describe it below (e.g. (i) Reuse on Site of Origin and Direct Transfer of clean naturally occurring unpolluted soils, (ii) Reuse on the Site of Origin with Direct Transfer of clean naturally occurring soil to x number of development sites etc.):

2. Organisation and name of person preparing this MMP (full address and contact details)

Marcus Bell
EPS Ltd
7B Caxton House
Broad Street
Cambourne Cambridge
CB23 6JN
T:07872 069979/mbell@epstrategies.co.uk

Document Control

Date issued	25 th October 2021
1 st Revision date	26 th October 2021
2 nd Revision date	29 th November 2021
Summary of revision 1	- Amendments to Q5, Q19 (overall re-use volume), Q21c, Q22e
Summary of revision 2	- Revisions to Q21b) & 21d) on contingency parties. - Amendment to Q22d on site stockpiling procedure. (QP notified CL:AIRE of these changes on the 3rd Nov 2021). - New Earthworks Specification, referred to in Q13 & Q26 (for verification planning) and included as Appendix B: Item 7. - Summary table of environmental re-use criteria included as Appendix B Item 8 (included only for ease of use, no material changes).

Insert additional lines to the table above for any subsequent revisions.

Note - revisions to the MMP do not trigger an additional Declaration by a Qualified Person, unless an additional site is added to the project.

Revisions to the MMP must be recorded and summarised in the Document Control box above.

Site Details

3. Site / Project name(s)

Former Pfizer Site
32 New Lane
Havant
PO9 2NG

Landowners

4a. Name of Landowner(s) (full address and contact details) – Where excavated materials are arising from:

Landowner - Havant Property Investment LLP (Registered Number: OC431846)
38 Seymour Street
London
W1H 7BP
England

Contact - Russell Peters <rpeters@quartzprojectservices.com>
T: 020 3841 2288 M: 07768 746 031
34 Dover Street, London W1S 4NG

Summary and objectives

5a. Provide a brief description of the planned project and how excavated materials are to be reused.

The site is disused a pharmaceutical distribution centre, intended to undergo commercial redevelopment into a warehouse. The development requires a re-profiling (cut & fill) exercise as well as pile foundations which entails a reduced level dig across mainly in the eastern half of the site with raising in the western half, and to allow the placing of a piling mat. The approach to remediation during the earthworks phase is based on a formalised 'discovery strategy' to ensure any soil contamination is looked for, identified and managed appropriately.

6. Attach a location plan for the site(s) and a plan of the site(s) which identifies where different materials are to be excavated from, stockpile locations (if applicable), where materials are to be treated (if applicable) and where materials are to be reused.

Plan References:

Appendix A Item 1 - Site Location Plan
 Appendix A Item 2 - Site Layout Plan
 Appendix C Item 1 – Phasing Plan
 Appendix C Item 2 - Cut & Fill Isopachyte
 Appendix C Item 3 – Site Strip Volumes
 Appendix C Item 4 – Formation Volumes
 Appendix C Item 5 – Formation Plan

7. Attach a schematic of proposed materials movement. Where there is only one source area and one placement area briefly describe it below. For all other projects a schematic is required.

Source Area:

Appendix C Item 2 - Cut & Fill Isopachyte
 Appendix C Item 3 – Site Strip Volumes

Movement Plan:

Appendix C Item 1 – Phasing Plan

Re-Use Areas:

Appendix C Item 2 - Cut & Fill Isopachyte
 Appendix C Item 4 – Formation Volumes
 Appendix C Item 5 – Formation Plan

Parties Involved and Consultation – if more than one party please provide additional details for them and identify the location that they will be working e.g. where a site is zoned

8a. Main earthworks contractor(s) (full address and contact details) – Where excavated materials are arising from.

TSL Ltd.
 Chalfont Park House
 Chalfont Park
 Gerrards Cross
 Buckinghamshire
 SL9 0DZ

Contact Charlie O'Sullivan

Project Manager

M - +44 (0) 781 565 1785
 T - +44 (0) 845 330 7311
 F - +44 (0) 845 330 7309
 E - charlie.osullivan@tslprojects.com
 W - www.tslprojects.com

8b. Main earthworks contractor(s) (full address and contact details) - Where materials are to be reused:

As above (same site).

9. Treatment contractor(s) (full address and contact details) – for treatment on site of origin, or at a Hub site within a Cluster Project

N/A

10. Where wastes and materials are to be transported between sites provide details of the transport contractor(s) (full address, contact details and waste carriers registration details (if applicable)):

N/A

11. For each site where materials are excavated and where materials are to be reused provide Local Authority contact details (full address and named contacts):

For Planning – (Certainty of use)
 Planning Development Services
 Havant Borough Council
 Public Service Plaza, Civic Centre Road
 Havant, Hants PO9 2AX

Contact: David Eaves (case officer)
 T: 023 9244 6015
planning.development@havant.gov.uk

For Environmental Protection (Suitability for Use):
 Environmental Health
 Havant Borough Council
 Public Service Plaza, Civic Centre Road
 Havant, Hants PO9 2AX

Contact- Jonathan Driver (Regulatory Officer - Environmental Health)
 T: 023 9244 6670
 Jonathan.Driver.EHealth@havant.gov.uk

12a. For each site where materials are to be reused and for Hub Site locations provide Environment Agency contact details (full address and named contacts):

Environment Agency,
 EPS West & Central Waste Team Leader
 Solent & South Downs Area
 EA local waste team call centre on 0208 474 7974
waste@environment-agency.gov.uk

The local EA waste team were notified about the intention to utilise an MMP at this site on the 21st September 2021 and a response was received on the 8th October 2021, confirming that they have no objection to the use of the DoWCoP as intended at this site. The response is included in Appendix B Item 5.

For all Cluster Projects:
 NOT APPLICABLE

12b. Attach any relevant documentation from the EA relating to the excavation and reuse of the materials to demonstrate no objection to the proposals (see 3.37 of CoP)

EA DoWCoP Position Statement is included in Appendix B Item 4. The Local EA waste team consultation response is included in Appendix B Item 5.

Lines of Evidence

There is no one single factor that can be used to decide that a substance or object is waste, or when it is waste at what point it ceases to be waste. As complete picture as possible has to be created. The following sections require completion to ensure the correct decision is made.

If a requested item is not relevant it is important for you to clearly state why this is so (e.g. no planning permission required because permitted development status exists).

Suitable for use criteria

13. Please describe or provide copies of the required specification(s) for the materials to be reused on each site.

Reference: