

Sovereign Distillery, Huyton

Coal Mining Risk Assessment





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Coal Mining Risk Assessment

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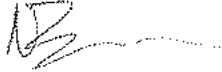
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EXECUTIVE SUMMARY

The Site	The site is located at The Sovereign Distillery, Huyton Business Park, Liverpool L36 6AD and has an area of approximately 4.2 hectares. The site comprises of warehouses, hardstandings and a grassed area towards the west of the site.
Site History	The earliest map of 1849 indicates the site to be agricultural fields with residential buildings and a farm in the south and south west of the site. Commercial development began on the site circa 1975 onwards.
Geology	Published information indicates the following: • Made Ground associated with the existing land use. • Superficial strata comprising Glacial Till across site. • Bedrock Strata consisting of Pennine Middle and Lower Coal Measures. Two faults are recorded as underlying the site with a northern fault cross cutting the site to the north running east to west and downthrowing strata to the north. The central fault cross cuts the centre of site running from the northeast to the southwest and downthrows strata to the east.
Coal Authority Search Information	A Consultants Mining Report provided by the Coal Authority details: • Three Coal Seams subcropping the site, Pigeon House, Tenlands and Rushy Park. • Eight mine entries present onsite. • No records of subsidence. • No records of mine gas. No Coal Authority Abandonment plans are available for seams within 70m bgl.
Ground Investigation	Ground investigation has been undertaken at the site and comprised: • Ten window sample boreholes to a maximum depth of 5.45m bgl; • Six rotary boreholes to a maximum depth of 35.90m bgl • Two foundation pits to 1.20m bgl. Three gas and groundwater monitoring visits undertaken to date.
Encountered Strata	The encountered strata comprised: • Made Ground was encountered across site comprised of concrete/asphalt and locally clayey topsoil overlying granular sub base and reworked natural strata to a maximum encountered depth of 3.10m bgl. • Superficial glacial deposits comprising firm sandy gravelly clay and locally gravelly silty sand recorded up to a maximum depth of 6.50m bgl. • Bedrock strata was encountered in fourteen of the exploratory holes from between 2.10m and 6.50m bgl to a maximum depth of 35.90m bgl.
Coal Seams	Coal was observed in five exploratory holes at varying depth though was recorded as being intact with no evidence of broken ground or voiding identified.
Coal Mining Risk	Based on the information consulted, there is: • A Low risk relating to shallow mine workings. • A Low to Moderate risk relating to mine gas (subject to completion of the ongoing gas monitoring). • A Low to Moderate risk relating to potential unrecorded mine entries.
Recommendations	Watching brief for the site strip to look for potential mine entries. Buildings should not be constructed within the coal subcrops where rock head is shallow and is above / close to the founding level of new structures. Mine gas risk should be determined through the completion of the gas and groundwater monitoring, three remaining visits.

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1.0 INTRODUCTION

1.1 INSTRUCTION

Following completion of a Desk Top Study (DTS) for the site in February 2021, Tetra Tech Ltd (Tetra Tech) was commissioned by Network Space Developments Huyton Limited (the Client) to undertake a Coal Mining Risk Assessment and Investigation for a site known as Sovereign Distillery, Huyton Business Park, Liverpool (known hereafter as “the site”).

The location of the site is shown on Drawing B029681-TTE-00-XX-DR-U-0001-01 (Site Location Plan).

1.2 BRIEF

The brief was to provide a Coal Mining Risk Assessment and Investigation Report to address the coal mining issues onsite for the Phase A area as detailed by drawing 12211-AEW-XX-XX-DR-A-0503, dated January 2022. The report will detail the coal mining legacy, ground conditions and identify any residual coal mining risk.

1.3 PROPOSED DEVELOPMENT

It is understood that the site is to be redeveloped for warehousing and office use. The series of redevelopments include the addition of loading docks between units C and F, a full redevelopment of unit F, the removal of warehouse F and Unit E and new build units comprising of warehouse G1 and G2. Proposed changes to the site are detailed on drawing 12211-AEW-XX-XX-DR-A-0503, dated January 2022.

1.4 REPORT SCOPE

In line with the requirements of the Coal Authority, a Coal Mining Risk Assessment is required to address the potential hazards created by the coal mining legacy.

The purpose of this risk assessment is to:

- Present a desk-based review of information on the coal mining issues which are relevant to the proposed development across the site;
- Use that information to identify and assess potential hazards arising from coal mining legacy issues, including the cumulative impact of issues;
- Set out appropriate mitigation measures to address any revealed hazards, including the need for physical site investigations and remedial works; and,
- Demonstrate to the Local Planning Authority that the site is, or can be made, safe for the intended development.

1.5 SOURCES OF INFORMATION

The sources of information detailed below have been used to inform this risk assessment. The redline boundary is as detailed by the Drawing B029681-TTE-00-XX-DR-U-0005-01 (Coal Mining Features Plan) as the data sources refer to a wider redline boundary.

- Envirocheck™ Report (report ref: 273420366_1_1 dated February 2021) incorporating historical OS mapping;
- A Coal Authority Consultants Mining Report (report ref: 51002383175001, dated February 16th 2021);
- British Geological Survey (BGS) Sheet No. 97 (Runcorn) Solid and Drift Edition 1:50 000.
- BGS website (British Geological Survey, 2021), accessed 15/02/2021.

- Coal Authority Interactive Mapper (The Coal Authority, 2021), accessed 15/02/2021.
- Coal Mining Consultants Report (Reference MR-51002383175001) enclosed as Appendix D.

1.6 LIMITATIONS

The recommendations and opinions expressed in this report are based on information obtained as part of the desk study, ground investigation 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 Network Space Developments Huyton Limited 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

Key details for the site are provided in Table 2.1 below and a full summary of the site is provided within the Tetra Tech Sovereign Distillery Geo-Environmental Desk Top Study B024793, dated February 2021 and is located as per on Drawing B029129-TTE-00-XX-DR-U-0001 (Site Location Plan).

Table 2-1 – Site Address and Size

Item	Detail
Address	Sovereign Distillery, Huyton Business Park, Liverpool L36 6AD
National Grid Reference	SJ458896.
Area of Proposed Development	Approximately 4.2Ha

2.2 SITE DESCRIPTION

A site walkover was undertaken as part of the ground investigation dated 17th February 2022 and the photos are presented in the Photo Plates.

The site comprises multiple steel and brick-built warehouse structures with concrete and asphalt hardstanding across the site which was noted as being in predominantly good condition. The west of the site contains an undeveloped grassed area separated by a palisade fence. Two electrical substations are located onsite with one located to the east and one located to the west. A large proportion of the site has been decommissioned however some warehouse units are being rented for storage purposes by a third party. The site neighbours and is attached to the current operational distillery to the south.

The site gently slopes to the south toward the M62 from approximately 27m Above Ordnance Datum (m AOD) in the north to 23m AOD in the south. It was noted that areas of cut and fill have taken place to allow the placement of the existing structures.

There was no obvious evidence of coal mining features such as areas of surface depressions, stockpiled material, or discoloured vegetation associated with possible mine entries onsite.

2.3 SITE HISTORY

The table below provides a detailed account of the review of available OS mapping coverage and historical aerial imagery for the site dating back to 1849.

Table 2-2 – Summary of Site Historical Data

Feature	Map Years	Notes
Fields	1849 – 1975	Site Wide
Building later Priory Farm and Orchard	Pre 1850 – pre 1975	South-western corner and includes a pond. Not present by 1975
Residential Properties and Church	1894 – pre 1975	Along the southern boundary. Not present by 1975
Recreation Ground	1968 – present	Still shown as open space on mapping on the north-western portion of the site.

Works	1975 – present	By 1977 the works is now a warehouse. The original building has been extended through out time. By 2006 this had been combined with the depot in the south of the site to form one large building.
Works and car park	1977 – present	North of the site. Not on the map of 1982.
Depot	1977 - present	South of the site. By 2006 this had been combined with the warehouse in the centre of the site to form one large building.

3.0 PRELIMINARY COAL MINING RISK ASSESSMENT

3.1 INTRODUCTION

Parts of site fall within a Development High Risk Area with respect to shallow coal and potential underlying mine workings. In line with the requirements of the Coal Authority (a statutory consultee under the planning regime), and to assess the risk to development from in-ground abnormals, a Coal Mining Risk Assessment is required to address the potential hazards created by the coal mining undertaken in accordance with CIRIA C758D, Abandoned Mine Workings Manual dated 2019.

The sources of information reviewed as part of the Coal Mining Risk Assessment refer to the redline boundary as detailed by the Drawing B029681-TTE-00-XX-DR-U-0005-01 (Coal Mining Features Plan) as the data sources refer to a wider redline boundary.

3.2 PUBLISHED INFORMATION

Details of the geology underlying the site have been obtained from the following sources:

- British Geological Survey (BGS) Sheet No. 97 (Runcorn) Solid 1958 and 1969 Editions 1:63 360.
- British Geological Survey (BGS) Sheet No. 97 (Runcorn) Solid 1980 Edition 1:50 000.
- BGS website (British Geological Survey, 2021), accessed May 2022.
- Environmental database (Envirocheck™) presented in B024793_Huyton_DTS_Rpt_V1 by Tetra Tech dated February 2021.
- Coal Authority Interactive Mapper (The Coal Authority, 2021), accessed May 2022.
- Coal Mining Consultants Report (Reference MR-51002383175001) enclosed as Appendix D.

3.3 GEOLOGY

3.3.1 Made Ground

The published data suggests that Made Ground is not present onsite however, Made Ground is considered as being present given the current landuse.

3.3.2 Superficial Geology

The geological mapping indicates that superficial deposits of Glacial Till underlies the site.

3.3.3 Solid Geology

The site is indicated to be underlain by bedrock strata of the Pennine Middle Coal Measures (PMCM) comprising mudstone, siltstone and sandstone described by the BGS as “Interbedded grey mudstone, siltstone, pale grey sandstone and commonly coal seams, with a bed of mudstone containing marine fossils at the base, and several such marine fossil-bearing mudstones in the upper half of the unit.” The BGS sheet indicates that there are three coal seams which sub crop beneath the wider site and generally dip in a south to south-easterly direction. The recorded seams as anticipated are described by Table 3.1.

Table 3-1 – Summary of Outcropping Seams

Seam Name	Mineral	Workable Seam	Bearing of Outcrop (°)
Higher Pigeon House (Pigeon House)	Coal	Yes	81

Tenlands	Coal	Yes	-
Rushy Park	Coal	Yes	60

3.4 HISTORICAL BOREHOLE LOGS

British Geological Survey (BGS) logs have been referred to for information only. There are no logs available within the general vicinity of the site.

3.5 HISTORICAL SITE INVESTIGATIONS

No historical ground investigations have been provided to Tetra Tech.

3.6 HISTORIC MINING

Table 3.1 describes collieries and mining areas in relation to coal on and adjacent to site as described by the historical OS maps in Appendix C and the Consultants Mining report Appendix D. This data has been supplemented by a review of online sources.

Table 3-2 – Summary of Past Underground Mining

Colliery	Year Last Mined	Location	Seams Worked (m) beneath property	Notes
Unnamed	1876	Likely to have been Onsite	Wigan Four Feet (1.60m thick)	The Seam was recorded as being at 65m bgl dipping 11.2 degrees to the southwest

3.7 BGS SHEET 97 – RUNCORN DRIFT AND SOLID EDITIONS

The BGS sheets describe:

- The site is underlain by Glacial Till.
- The bedrock beneath the site comprises the Pennine Lower and Middle Coal Measures
- Three Coal Seams recorded as outcropping as site as described by Table 3.1.

The coal seams get older toward the north of site and therefore it is anticipated that the seams dip toward the south beneath site. There are no local dips within the fault block shown on BGS sheet 97.

There are two geological faults recorded as being onsite with one crosscutting the centre of site which downthrows strata to the east running northeast to southwest and one from east to west which downthrows strata to the north.

3.8 GROUNDSURE DATA REVIEW

The Groundsure report detailed in the B024793_Huyton_DTS_Rpt_V1 by Tetra Tech dated February 2021, included within the historical OS map editions.

No evidence of coal mining within the site was detailed by the historical maps. The closest reference to old shafts are located approximately 480m west of site. The highest recorded colliery concentration within the area is approximately 520m to 750m northeast of the site. It is considered that these are unlikely to be representative of coal workings beneath site as they form part of a separate fault block.

3.9 ABANDONMENT PLANS

The Coal Authority was contacted regarding abandonment plans for the site. However, no abandonment plans were available for the site for seams within 70m bgl.

4.0 IDENTIFICATION AND ASSESSMENT OF SPECIFIC COAL MINING RISKS

A coal mining consultant's report obtained for the site indicates the following pertinent points, the Coal Mining Features detailed by the Consultants Map have been overlaid onto the exploratory hole location plan as drawing B029681-TTE-00-XX-DR-U-0005-01 (Coal Mining Features Plan):

- Three coal seams underlie the site and seven outcrop to the south onsite which may potentially influence land stability. The Coal Authority identifies a probable risk of unrecorded shallow workings associated with these.
- There is one known worked seam at 65m depth worked to the east of the site which is the Wigan Four Foot (extraction thickness 160cm) last mined in 1876.

Table 4.1 below presents a risk assessment for the principal coal mining issues identified.

Table 4-1 – Potential Coal Mining Legacy Risk Assessment

Coal Mining Issue	Yes	No	Preliminary Risk Assessment
Underground Coal Mining		N	Table 3.1 describes the mining of coal seams at shallow depth beneath the site described the Wigan Four Feet is recorded as being worked at 65m below ground level (m bgl) with an extraction thickness of 1.60m in 1876. Based on CIRIA C758D and adopting the 10x seam thickness rule, it is anticipated that there is more than 16m of competent bedrock overlies the seam and is to be confirmed by Ground Investigation.
Mine Entries (Shafts or Adits)	Y		There is one shaft recorded as being onsite: • 345389-023 – This shaft was found during development and capped at rock head with a 3.00m square reinforced raft. There are 7no. shafts recorded within 100m of site: • 345389-007 – The shaft was capped to national coal board specifications in 1969. The cap measuring 7.30m² by 600mm thick. • 345389-008 – (closest 60m), this shaft was looked for in 1969 but no evidence was identified. • 345389-017 – This shaft was located in 1976, excavated to rockhead where it was reported to terminate. • 345389-018 – This shaft was located in 1976 and capped with a 4.00m square reinforced cap. • 345389-019– This shaft was located in 1976 and capped with a 7.00m square reinforced cap. • 345389-020 – This shaft was located in 1976, grouted and capped with a 6.00m square reinforced cap. • 345389-021 – This shaft was located in 1976, grouted and capped with a 6.00m square reinforced cap. However, the risk of unrecorded mine entries should not be completely ruled out as a potential risk.
Coal mining geology (fissures)	Y		Both BGS Sheet 97 and the Coal Authority Consultants Mining report describe a northeast- southwest trending fault, down throwing strata to the east. A second east to west trending fault appears to run along the northern part of the site down throwing strata to the north. Faults can act as pathways for mine gas.

Record of past mine gas emissions	Y		The Coal Authority has no record of mine gas emissions requiring action. The local Higher and Lower Florida, Trencherbone coal seams and where roof coal has been left are considered to be Combustible Coal Seam. Two recorded faults onsite as well as a mine shaft can act as potential pathways for mine gas.
Recorded coal mining surface hazard		N	No records of Coal Mining subsidence within 50m of the boundary.
Surface mining (opencast workings)		N	No opencast workings recorded within 500m of the site.

4.1 SUMMARY OF RISK ASSESSMENT

Based on the information reviewed, the current risk to the development site from the coal mining legacy is assessed as being **High**, with the possibility that:

- Underground mining did take place beneath site as part of the Wigan Four Feet Seam approximately (1.60m thick) recorded at a depth of 65m below the site, as referenced in the Coal Authority Consultants Mining Report. However, in accordance with CIRIA C758D and adopting 10x seam thickness rule, it is deemed that there is sufficient bedrock cover above this seam and therefore is not anticipated to impact the site.
- Three coal seams are recorded as sub-cropping onsite, the Rushy Park, Higher Pigeon House and the Tenlands coal seams and are recorded as been historically worked in the area.
- One mine entry recorded as being onsite 345389-023 and is described as being capped with a 3m raft, the entry is recorded as being located beneath Unit F. There are seven mine entries are recorded to be within 100m, with six recorded as being capped or grouted but there is still a possibility that unrecorded shafts are present.
- Two recorded faults onsite, which could act as a potential pathway for mine gas and as such needs to be investigated.
- No records of mine gas emissions within 500m however, combustible coal seams are present beneath site.

4.2 HAZARD MITIGATION STRATEGY

In view of the above, the potential hazards presented by the coal mining legacy to the site of the intended development should be further investigated as part of a hazard mitigation strategy with possible mitigation strategies. The strategy should consist of the following elements:

- Ground investigation to determine the presence, depth and condition of potentially worked coal seams beneath the northern section of the site (area not previously investigated);
- Gas monitoring within installation wells to determine mine gas emissions through the ground associated with coal measures and/or old workings;
- Refinement of the risks posed to the development; and,
- If necessary, remedial works and foundation designs to facilitate development and to reduce the development ground risk to an acceptable level. Such works will involve detailed geotechnical assessment and design.

All future intrusive investigations and remedial works that will disturb Coal Authority mining interests must only be implemented after permission has been obtained from the Coal Authority. The works must be conducted in accordance with the terms of the permission granted. Following the above strategy, the information will be used

to refine the current risk at the site. Remedial works in the northern section of the site may need to be implemented following the intrusive investigation to ensure that the site can be safely developed upon.

5.0 TETRA TECH COAL MINING INVESTIGATION 2022

Tetra Tech undertook a coal mining investigation as part of a ground investigation to identify potential geo-environmental constraints and coal mining risk onsite at Sovereign Distillery. The works were undertaken between 17th February and 18th March 2022. Following the Ground Investigation works, ground gas monitoring began on the 10th March with three visits undertaken to date with the latest being the 22nd April and the three remaining visits are scheduled to be completed on the 30th May 2022.

5.1 SCOPE

The works were undertaken in general accordance with BS 10175: Code of Practice for Site Investigations of Potentially Contaminative Sites, BS 5930, BS EN1997-2, BS EN ISO 14688/9, BS 8576 and CIRIA C758D.

The scope of the completed Ground Investigation works were as follows:

- Ten window sample boreholes to a maximum depth of 5.45m bgl with insitu testing;
- Two foundation pits to assess the existing foundations under Unit C;
- Six rotary boreholes comprising openhole and coring techniques to a maximum depth of 35.90m below ground level (m bgl);
- Installation of seven 50mm dia. ground gas and groundwater monitoring wells;
- On-site inspection and logging of recovered samples;
- Representative soil sampling for geotechnical laboratory classification testing;
- Representative soil sampling for chemical laboratory analyses; and
- Six return visits to monitor ground gas composition and groundwater levels (three visits completed to date).

The rotary boreholes were utilised for both determining the presence of underlying coal workings and to inform foundation design. The ground investigation is reported under a separate cover B029681.R.0 dated May 2022.

Drawing No. B029681-TTE-00-XX-DR-U-0002-02 (Exploratory Hole Location Plan) shows the layout of the exploratory holes advanced during the site investigation in relation to the existing known services

6.0 ENCOUNTERED GROUND CONDITIONS

6.1 STRATA ENCOUNTERED

The Ground Investigation findings are described in detail by the factual and interpretative report B029681.R.0 dated May 2022 and are summarized below:

- Hardstanding;
- Made Ground;
- Glacial Deposits; and
- Pennine Lower and Middle Coal Measures

A summary of each strata is detailed in the subsequent sections. Exploratory hole logs are described in Appendix B with photographic plates available in Appendix C.

6.2 MADE GROUND

Hard standing comprised asphalt and concrete encountered across the majority of the site, ranging in thickness of between 0.10m – 0.30m.

Hard standing was underlain by granular fill of locally sub base and demolition fill to a maximum depth of 0.60m bgl. This in turn was underlain by reworked cohesive or granular natural soils to a maximum depth of 3.10m bgl (DS103).

Topsoil was encountered in the grassed western area and in soft landscaped areas to the east and was underlain locally reworked natural cohesive strata to a depth of 0.80m bgl.

6.3 SUPERFICIAL DEPOSITS

Superficial strata was encountered across site and comprised of cohesive strata underlain by granular strata comprising orange brown sand to a maximum depth of 6.50m bgl (RC102).

6.4 BEDROCK

Weathered bedrock strata was recovered in eight of the window samples boreholes from 2.10m (DS101) and was recovered as both cohesive (sandy gravelly clay) and granular strata (sandy gravel).

Solid bedrock was encountered within all of the rotary boreholes (RC101 to RC106). Bedrock was encountered from between 2.10m (DS101) and 6.50m bgl (RC102). The bedrock was predominantly recovered as a grey mudstone which was highly weathered and fractured at shallow depth, up to 11.20m in RC101 and 8.90m bgl in RC102 where the mudstone was predominantly non intact recovered as a gravelly clay. Mudstone was proven to a maximum depth of 35.90m bgl.

It is considered that the fractured nature of the mudstone in RC101 and RC102 was related to a fault recorded as depicted by British Geological Survey (BGS) Sheet No. 97 (Runcorn) Solid Edition 1:50,000 dated 1980.

The mudstone was generally weak in strength but increased with depth and the rock quality improved with depth. Core recovery was good from the cored holes between 87% and 100%.

A medium strong to strong reddish grey sandstone was encountered throughout RC106 from 4.40m bgl. The sandstone became stronger with depth and recorded 100% recovery throughout the borehole.

6.5 COAL SEAMS

Coal was encountered within five exploratory holes at variable depths and is summarised in Table 6.1 below.

Table 6-1 – Encountered Coal Seams

Exploratory Hole	Depth (m)		Anticipated Coal Seam	Location with respect to Fault
	From	To		
RC102	23.10	23.15	Rushy Park	West
	23.90	24.00		
	25.20	25.40		
RC103	5.20	5.30	Pigeon House	East
RC105	6.80	6.90	Tenlands	East
	7.20	7.55		
	8.00	8.20		
	8.80	9.50		
	9.90	10.75		
DS104	2.50	3.80	Tenlands	East
DS105	3.20	3.60	Tenlands	East
	4.00	4.20		

No evidence of backfilled or open workings were noted throughout the drilling of the boreholes.

6.6 FAULTS

BGS mapping indicates that there are two faults crossing the site, one east-west trending fault is located to the north onsite and recorded as downthrowing strata to the north. The second is a northeast/southwest trending fault running through the centre of site, which is recorded as downthrowing strata to the east. The northern fault is recorded as terminating at the central fault to the east.

It is anticipated that only the central fault is present onsite based on the encountered strata within the boreholes. In the exploratory holes located to the west of the central fault are considered to be RC101, RC102, RC106 and DS102, DS103 and DS108. The exploratory holes located to the east of the central fault are considered to be DS104, DS105, DS106, DS107 and RC103, RC104 and RC105.

The Superficial strata found to the west on site was noted as being considerably deeper, between 4.80m and 6.50m bgl in RC102 comprising of predominantly sandy strata. Whereas the strata to the east was predominantly weathered cohesive bedrock strata from 1.40m (DS110) to 4.80m (RC104).

In RC101 and RC102 subvertical fractures (45-55°) were noted from 6.10m to 11.20m and gradually became more horizontal with depth as well as the highly weathered mudstone strata encountered maybe considered as evidence for the central fault.

Based on the core from RC106, which describes a coarse sandstone to 15.30m bgl, which isn't found anywhere else onsite, it is considered likely to be associated with the east west trending northern fault.

7.0 REFINED ASSESSMENT OF SPECIFIC COAL MINING RISKS

The table below summarises the refined risk assessment for the principal coal mining issues identified in the preliminary risk assessment. Information to support the refining of the previously completed risk assessment, as provided by the sources consulted, is discussed below.

Table 7-1 – Refined Coal Mining Legacy Risk Assessment

Coal Mining Issue	Yes	No	Refined Risk Assessment
Underground Coal Mining		N	The ground investigation recorded intact rock with no broken ground or voiding identified to a maximum depth of 35.90m bgl. Based on CIRIA C758D, and adopting the 10x seam thickness rule, there is more than 16m of competent bedrock overlaying the worked Wigan Four Feet seam. Therefore, the worked underlying seam is unlikely to present a risk to the proposed development.
Mine Entries (Shafts or Adits)	Y		The risk of unrecorded mine entries should not be completely ruled out as a potential risk and should be investigated as part of the site strip for proposed developments.
Coal mining geology (fissures)		N	The presence of the faults is described by the variable depth to bedrock strata to the east and west onsite, as well as variable encountered geology to the northwest and remainder of the site. No evidence of broken ground or voiding was identified as part of the works.
Record of past mine gas emissions		N	No mine gas was identified as part of the ground investigation works. The preliminary gas monitoring results describe the site as CS2 in accordance with CIRIA C665. The CL:AIRE Coal Mine guidance suggests there is a minimal risk associated with the mine shaft as its located more than 50m from the proposed developments and has been capped.

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 CONCLUSIONS

Based on the information consulted, it is considered that, currently, there is:

- A **low** risk relating to shallow mine workings presenting a land stability hazard beneath the site.
- A **low to moderate** risk relating to mine gas (subject to completion of the ongoing gas monitoring) generation and migration associated with faulted ground and presence of a mine shaft.
- A **low to moderate** risk relating to potential unrecorded mine entries.

8.2 RECOMMENDATIONS

- The site strip should be undertaken in the presence of a Geo-environmental specialist to check for the presence of mine entries as part of a watching brief.
- Building foundations should not be constructed directly within the coal subcrop. Where coal is located above / close to the founding level of new structures some localised removal of coal may be required during future construction.
- Mine gas risk should be confirmed through the completion of gas and groundwater monitoring, (three remaining visits).

THIRD PARTY DRAWINGS

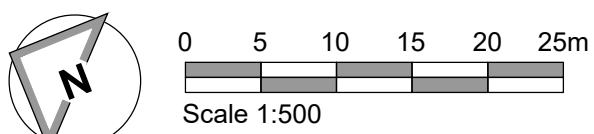
- All dimensions and levels are to be checked on site.
- Any discrepancies are to be reported to the architect before any work commences.
- This drawing shall not be scaled to ascertain any dimensions. Work to figure dimensions only.
- This drawing shall not be reproduced without express written permission from AEW.
- Title overlay drawings and ownership boundaries are produced using all reasonable endeavours. AEW cannot be responsible for the accuracy or scale discrepancy of base plans supplied to them.
- All works are to be undertaken in accordance with Building Regulations and the latest British Standards.
- All proprietary materials and products are to be used strictly in accordance with the manufacturers recommendations.

CDM 2015

Client notified of duties: 12/10/21

Principal Designer: Network Space

Unless noted below, all known hazards have been highlighted on the drawing:



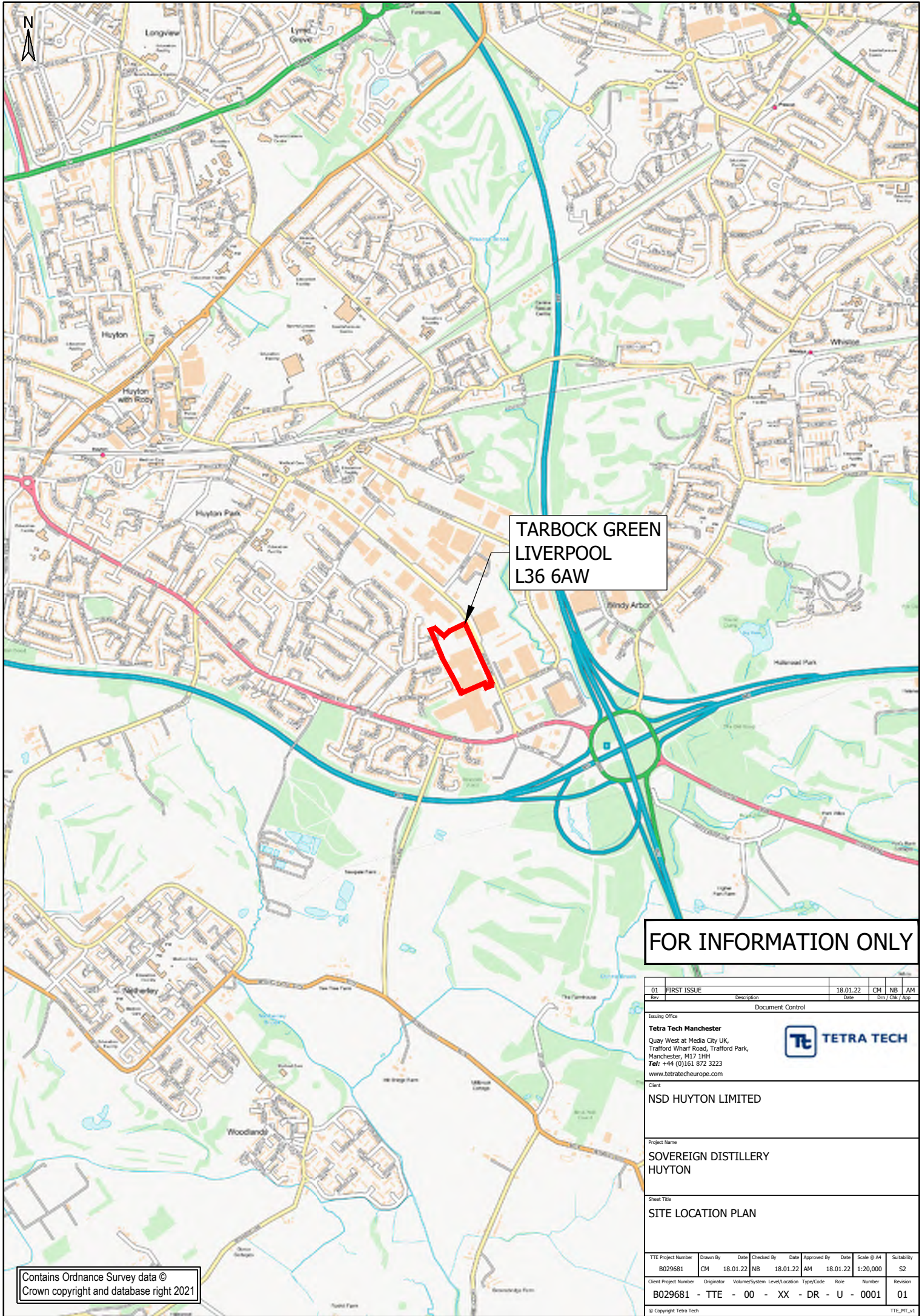
Red line site boundary (TBC)
10.75 acres / 4.35 ha

* Location for office / welfare block

Schedule of Accommodation					
Unit	Ground Floor GIA	First Floor / Office GIA	TOTAL UNIT GIA	Car Parking (Accessible)	
Unit C	7,565 m² / 81,429 ft²	557 m² / 6,000 ft²	8,122 m² / 87,429 ft²	90 (4)	
Unit F1	716 m² / 7,729 ft²	219 m² / 2,357 ft²	937 m² / 10,086 ft²	14 (1)	
Unit F2	716 m² / 7,707 ft²	-	716 m² / 7,707 ft²	14 (1)	
Unit F3	716 m² / 7,707 ft²	-	716 m² / 7,707 ft²	14 (1)	
Unit F4	716 m² / 7,707 ft²	-	716 m² / 7,707 ft²	14 (1)	
Unit F5	716 m² / 7,707 ft²	-	716 m² / 7,707 ft²	14 (1)	
Unit F6	724 m² / 7,793 ft²	-	724 m² / 7,793 ft²	14 (1)	
G1	2,752 m² / 29,622 ft²	344 m² / 3,703 ft²	3,096 m² / 33,325 ft²	40 (3)	
G2	2,080 m² / 22,389 ft²	260 m² / 2,799 ft²	2,340 m² / 25,188 ft²	42 (3)	
TOTAL SITE GIA			18,083 m² / 194,640 ft²	256 (16)	

Plot	11/02/22	DJS	DRS
Planning Issue			
R01	20/01/22	DJS	DRS
Initial Issue			
REV	Date	Drawn by	Checked by
S2			
Status	For Information		
drawing stage	Planning		
client	Network Space Land Limited		
project	Sovereign Business Park Huyton		
drawing title	Proposed Masterplan		
date	Jan 22	drawn	DJS
checked	1:500	checked	DRS

DRAWINGS



TARBOCK GREEN
LIVERPOOL
L36 6AW

FOR INFORMATION ONLY

01	FIRST ISSUE	18.01.22	CM	NB	AM
Rev	Description	Date	CM	DR	App

Document Control

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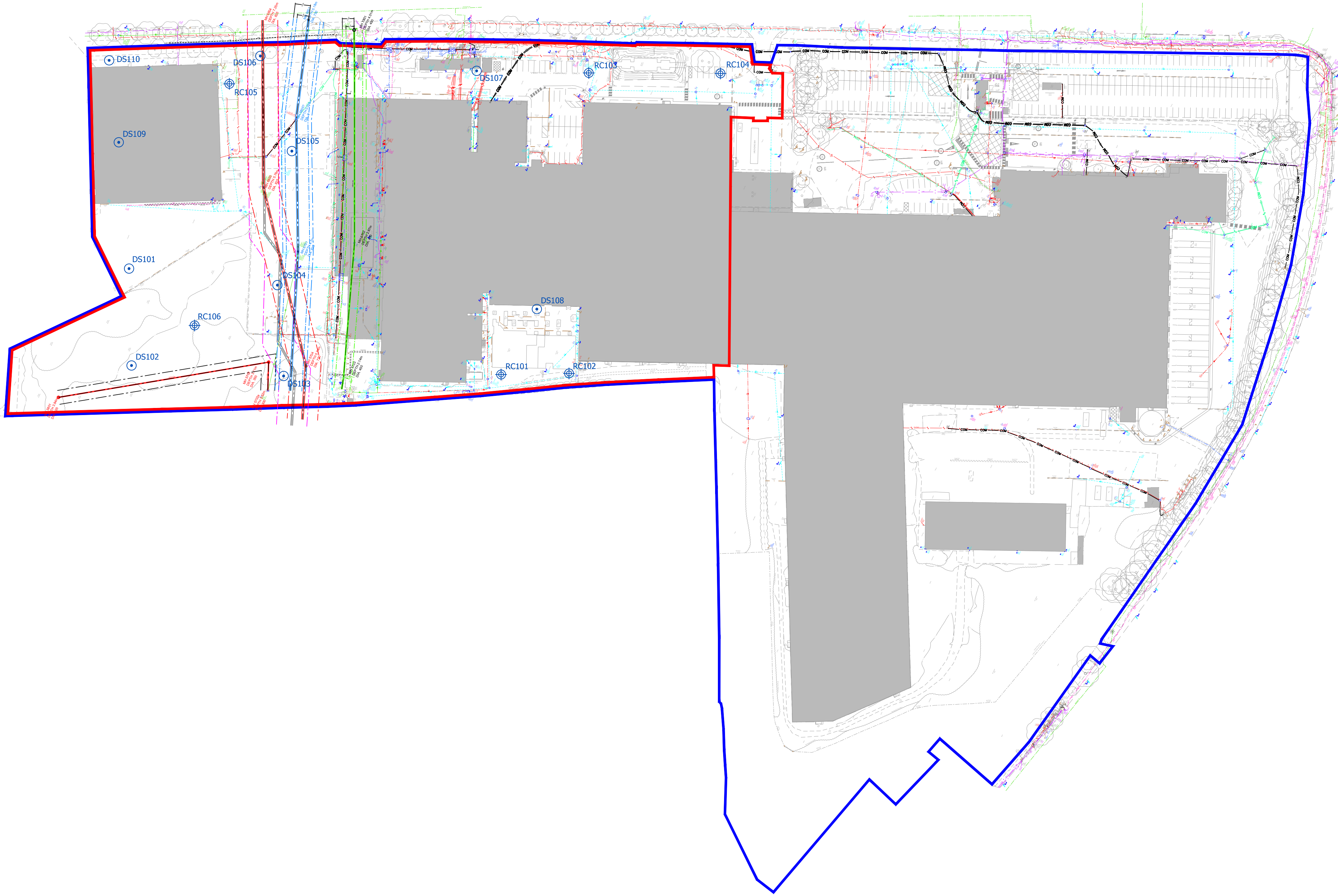
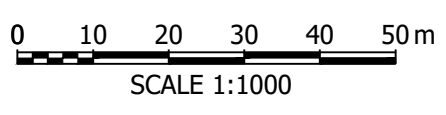


Client
NSD HUYTON LIMITED

Project Name
**SOVEREIGN DISTILLERY
HUYTON**

Sheet Title
SITE LOCATION PLAN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A4	Suitability
B029681	CM	18.01.22	NB	18.01.22	AM	18.01.22	1:20,000	S2
Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision	
B029681	- TTE	- 00	- XX	- DR	- U	- 0001	01	



TETRA TECH GROUND INVESTIGATION JANUARY 2022

ROTARY CORE

DYNAMIC SAMPLE

UTILITIES (TAKEN FROM GREENHATCH GROUP DRAWING 40493_UG_1 REV 0 DATED 14-25/06/21)

ELECTRIC CABLE

ELECTRIC & COMS CABLE

TRAFFIC SIGNALS

TELECOMS CABLE

CABLE TELEVISION

COMMUNICATION CABLE

WATER PIPE

GAS PIPE

FOUL DRAINAGE

SURFACE DRAINAGE

COMBINED DRAINAGE

FUEL PIPE

VENT PIPE

OFFSET FILL PIPE

GAUGE LINE

VAPOUR RECOVERY

SERVICE DUCTS

UNIDENTIFIED

END OF TRACE

DRAINAGE AND EASEMENTS

UU 750 / 825 DIA. COMBINED SEWER AND EASEMENT

UU 750 / 825 DIA. COMBINED SEWER AND EASEMENT (BASED ON UU SEWER RECORD ALIGNMENT BUT NOT CONFIRMED ON SITE)

UU 750 / 825 DIA. SURFACE WATER SEWER AND EASEMENT

UU 450 DIA. COMBINED SEWER AND EASEMENT

UU 300 DIA. COMBINED SEWER AND EASEMENT

PRELIMINARY ISSUE

02

TOPOGRAPHICAL SURVEY & UTILITY SURVEY ADDED.

18.02.22

CM

NB

AM

01

GROUND INVESTIGATION LOCATIONS UPDATED

18.01.22

CM

NB

AM

01

FIRST ISSUE

18.01.22

CM

NB

AM

Rev

Description

Date

Drawn

Checked

Appr

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TETRA TECH

Client

NSD HUYTON LIMITED

Project Name

SOVEREIGN DISTILLERY
HUYTON

Sheet Title

EXPLORATORY HOLE LOCATION PLAN

TTE Project Number

Drawn By

Date

Checked By

Date

Approved By

Date

Scale @ A1

Suitability

B029681

CM

17.01.22

NB

18.01.22

AM

18.01.22

1:1,000

S2

Client Project Number

Originator

Volume/System

Level/Location

Type/Code

Role

Number

Revision

B029681

- TTE

- 00

- XX

- DR

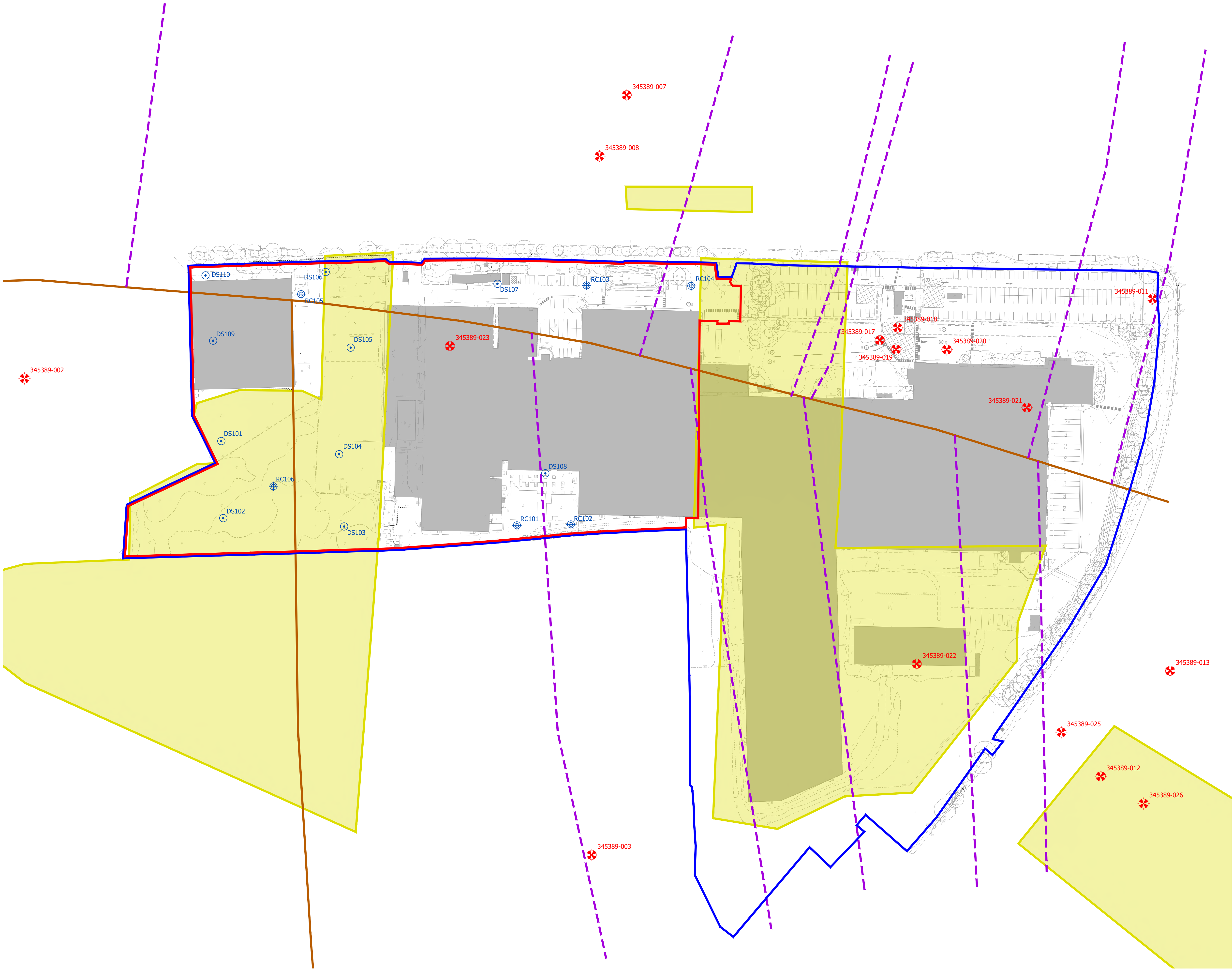
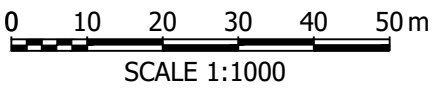
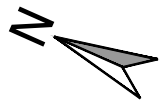
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02

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TTE_MT_v1



- KEY
- OWNERSHIP BOUNDARY
 - SITE BOUNDARY
 - TETRA TECH GROUND INVESTIGATION JANUARY 2022
 - ROTARY CORE
 - DYNAMIC SAMPLE
 - COAL MINING FEATURES
 - GEOLOGICAL FAULTS
 - OUTCROP (CONJECTURED)
 - SITE INVESTIGATIONS
 - DISUSED MINE SHAFTS

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Rev	Description	Date	CM	NB	AM
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Client
NSD HUYTON LIMITED

Project Name
**SOVEREIGN DISTILLERY
HUYTON**

Sheet Title
COAL MINING FEATURES PLAN

TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
B029681	CM	09.05.22	NB	09.05.22	PG	09.05.22	1:1,000	S2

Client Project Number	Originator	Volume/System	Level/Location	Type/Code	Role	Number	Revision
B029681	- TTE	- 00	- XX	- DR	- U	- 0005	01

APPENDICES

APPENDIX A – REPORT CONDITIONS

APPENDIX A - REPORT CONDITIONS

GEO-ENVIRONMENTAL COAL MINING RISK ASSESSMENT

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

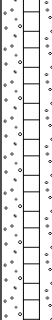
This report refers, within the limitations stated, to the condition of the site at the time of the inspections. No warranty is given as to the possibility of future changes in the condition of the site.

This report is based on a study of readily accessible referenced historical records. Some of the opinions are based on unconfirmed data and information and are presented in good faith without exhaustive clarification. Where ground conditions are discussed 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 detailed activities related to the site. Where test results undertaken by others have been made available these can only be regarded as a limited sample.

Whilst confident in the findings detailed within this report because there are no exact UK definitions of these matters, we are unable to give categorical assurances that they will be accepted by Authorities or Funds etc. without question, as such bodies may have unpublished, often 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 guidance may necessitate a re-assessment. The opinions expressed cannot be absolute due to the limitations of time and resources within the context of 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.

APPENDIX B – EXPLORATORY HOLE LOGS

[illegible]

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details		Status		Borehole Number										
		Easting: 345533.86 Level: 26.92mAOD Logger: SG	Northing: 389833.80 Depth: 4.80m Type: WLS Inclination: 90°	DRAFT	DS102											
						Sheet 1 of 1										
Method, Plant and Crew				Diameter		Casing		Groundwater				Scale: 1:25				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB	
0.00 1.20	1.20 4.80	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Tracked Windowless Sampler	Tetra Tech Earth Engineering	1.20 4.80	300 77			1.05	-	-	1.05	20		Approved By: SB	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing			Start Date: 01/03/2022	Finish Date: 01/03/2022
												Depth (m)	Ref	Tests / Results		
MADE GROUND: Grass over soft dark grey slightly sandy gravelly CLAY. Sand is fine. Gravel is angular to rounded fine to coarse sandstone and coal (TOPSOIL).								0.30	26.62				0.20	ES1	PID 0.20m, 0.0ppm	1
													0.50	ES2	PID 0.50m, 0.0ppm	
MADE GROUND: Soft brown black slightly gravelly sandy CLAY. Sand is fine including ash. Gravel is sub-angular to rounded fine to coarse sandstone.								0.60	26.32				1.00	ES3	PID 1.00m, 0.0ppm	2
													1.20 - 2.00	B4	SPT(C) 1.20m, N=32 (3,7/9,8,8,7)	
Orangish brown slightly gravelly silty fine to medium SAND. Gravel is angular fine to coarse sandstone.													2.00 - 3.00	B5	SPT(C) 2.00m, N=5 (1,1/1,1,1,2)	3
																4
																5
Stiff grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular medium mudstone.								4.60	22.32							
EOH at 4.80m - Target Depth Achieved.								4.80	22.12				4.80	D7	SPT(C) 4.80m, 50 (25 for 65mm/50 for 60mm)	
Observations / Remarks										Sampling Runs					Hammer Information	
1: Groundwater was encountered @1.05m bgl. 2: Upon completion 50mm diameter gas/groundwater monitoring standpipe installed to 3.00m bgl.										From (m)	To (m)	Diam (mm)	Recovery %	Remarks	Serial No.	Energy Ratio %
										1.20	2.20	77	60		RP04	74
										2.20	3.20	77	50			
										4.20	4.80	67	70			
															Project Number	
															B029861	

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status		Borehole Number									
		Easting: 345559.88 Northing: 389781.18 Level: 26.52mAOD Depth: 5.45m Logger: SG Type: WLS Inclination: 90°				DRAFT		DS103									
								Sheet 1 of 2									
Method, Plant and Crew					Diameter		Casing			Groundwater			Scale: 1:25				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB		
0.00 1.20	1.20 5.45	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Tracked Windowless Sampler	Tetra Tech Earth Engineering	1.20 5.45	300 77			0.17	-	-	0.17	20		Approved By: SB		
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing			Tests / Results		
												Depth (m)	Ref				
MADE GROUND: Grass over medium brown slightly sandy gravelly CLAY with rootlets. Sand is fine to medium. Gravel is sub-angular to sub-rounded medium to coarse sandstone including fragments of brick. (TOPSOIL) <i>Perched groundwater @ 0.17m bgl.</i>								0.40	26.12			0.20	ES1	PID 0.20m, 0.0ppm			
												0.80	ES2	PID 0.80m, 0.0ppm			
												1.50	ES3	PID 1.50m, 0.2ppm			
MADE GROUND: Soft brown black slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is sub-angular to sub-rounded fine to coarse sandstone, brick and concrete.								1.90	24.62			2.50	ES4	PID 2.50m, 0.1ppm			
												3.10	ES5	PID 3.10m, 0.0ppm			
MADE GROUND: Orangish brown slightly gravelly clayey fine to medium SAND. Gravel is sub-angular to sub-rounded fine to coarse sandstone.								3.10	23.42			3.60	D6				
												4.60	D7				
												Stiff orangish brown slightly gravelly silty CLAY. Gravel is sub-angular to sub-rounded fine to coarse sandstone.					
Observations / Remarks											Sampling Runs			Hammer Information			
1: Perched groundwater was encountered @ 0.17m bgl. 2: Upon completion exploratory hole backfilled with arisings.											From (m)	To (m)	Diam (mm)	Recovery %	Remarks	Serial No.	Energy Ratio %
											1.20	2.20	77	95			
											2.20	3.20	77	75			
											3.20	4.20	77	60			
											4.20	5.45	67	60			
											Project Number						
											B029861						

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited						Location Details						Status		Borehole Number				
						Easting: 345559.88 Northing: 389781.18 Level: 26.52mAOD Depth: 5.45m Logger: SG Type: WLS Inclination: 90°						DRAFT		DS103				
																Sheet 2 of 2		
Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB			
0.00 1.20	1.20 5.45	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Tracked Windowless Sampler	Tetra Tech Earth Engineering	1.20 5.45	300 77			0.17	-	-	0.17	20		Approved By: SB			
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing						
												Depth (m)	Ref	Tests / Results				
Stiff orangish brown slightly gravelly silty CLAY. Gravel is sub-angular to sub-rounded fine to coarse sandstone.								5.45	21.07			5.45	D8					
From 5.30m bgl coarse sand band.																		
EOH at 5.45m - Target Depth Achieved.																		
Observations / Remarks												Sampling Runs			Hammer Information			
												From (m)	To (m)	Diam (mm)	Recovery %	Remarks	Serial No.	Energy Ratio %
																	Project Number	
																	B029861	

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited						Location Details						Status		Borehole Number									
						Easting: 345590.59 Level: 26.78mAOD Logger: SG						Northing: 389790.89 Depth: 5.45m Type: WLS		DRAFT		DS104							
												Inclination: 90°				Sheet 1 of 2							
Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25								
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB	Approved By: SB							
0.00 1.20	1.20 5.45	Dynamic Windowless Sampling	Hand Excavated Tracked Windowless Sampler	Earth Engineering Earth Engineering	1.20 5.45	300 77									Start Date: 01/03/2022	Finish Date: 01/03/2022							
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing											
												Depth (m)	Ref	Tests / Results									
MADE GROUND: Light grey matrix-dominated CONCRETE.								0.30	26.48					0.50	ES1	PID 0.50m, 0.0ppm							
MADE GROUND: Brown black sandy sub-angular to sub-rounded fine to coarse GRAVEL of sandstone, limestone and brick fragments. Sand is fine to coarse.																0.60	26.18			0.80	ES2	PID 0.80m, 0.0ppm	
MADE GROUND: Orangish brown slightly gravelly slightly clayey medium to coarse SAND. Gravel is sub-angular to sub-rounded fine to medium sandstone and limestone. From 1.00m to 1.10m bgl band of firm black sandy clay. Sand is fine to coarse.																						1.10	D3
Orangish brown slightly gravelly fine to coarse SAND. Gravel is sub-angular to sub-rounded fine to coarse sandstone.								1.50	25.28			1.50 - 2.50	B4	SPT(C) 2.00m, N=5 (1,2/1,2,1,1)									
Black vitreous sub-angular fine to coarse GRAVEL of coal.														2.50	24.28			2.80	D5	SPT(C) 3.00m, N=12 (2,1/2,3,3,4)			
																				3.30 3.30 - 3.80	D6 B7		
Firm to stiff orangish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse of sandstone. 4.00-4.60m: Gravel of coal assumed to be collapsed from above.							3.80	22.98			4.00	D8	SPT(C) 4.00m, N=27 (5,6/6,7,7,7)										
Stiff grey slightly sandy slightly gravelly CLAY. Sand is fine to medium.													4.80	21.98			5.00	D9	SPT(C) 4.90m, N=45 (5,6/5,6,8,26)				
Observations / Remarks												Sampling Runs			Hammer Information								
1: Groundwater was not encountered. 2: Upon completion 50mm diameter gas/groundwater monitoring standpipe installed to 3.75m bgl.												From (m)	To (m)	Diam (mm)	Recovery %	Remarks	Serial No.	Energy Ratio %					
												1.20	2.20	77	90		RP04	74					
												2.20	3.20	77	90								
												3.20	4.20	67	85								
												4.20	5.45	67	75								
												Project Number											
												B029861											

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited						Location Details						Status DRAFT		Borehole Number DS105			
						Easting: 345645.44 Northing: 389808.43 Level: 27.14mAOD Depth: 4.20m Logger: SG Type: WLS Inclination: 90°											
						Method, Plant and Crew						Diameter		Casing		Groundwater	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks			Checked By: NB
0.00	1.20	Inspection Pit	Hand Excavated	Tetra Tech	1.20	300											Approved By: SB
1.20	4.20	Dynamic Windowless Sampling	Tracked Windowless Sampler	Earth Engineering	4.20	77											Start Date: 01/03/2022
																	Finish Date: 01/03/2022
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing					
												Depth (m)	Ref	Tests / Results			
MADE GROUND: Light grey matrix-dominated CONCRETE.																	
MADE GROUND: Yellowish grey sandy silty angular to sub-angular medium to coarse GRAVEL of limestone. Sand is medium to coarse. (MOT TYPE II SUBBASE)								0.12	27.02								
MADE GROUND: Yellowish grey gravelly fine to coarse SAND with low cobble content. Gravel is sub-angular to sub-rounded fine to coarse limestone and sandstone. Cobbles are sub-angular medium limestone.								0.17	26.97					0.20	ES1	PID 0.20m, 0.0ppm	
MADE GROUND: Firm brownish black slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is sub-angular medium to coarse limestone and fragments of brick.								0.27	26.87					0.30	ES2	PID 0.30m, 0.0ppm	
Very firm black mottled red gravelly CLAY. Gravel is sub-angular to sub-rounded fine to medium COAL.								0.40	26.74					0.50	ES3	PID 0.50m, 0.0ppm	
From 2.00m bgl coal content increases with depth.														2.00	ES4	SPT(C) 2.00m, N=2 (0,0/0,1,1,0) PID 2.00m, 0.0ppm	
Weak to medium black vitreous COAL. From 3.30m to 3.60m bgl Non-intact. Medium coal gravel.								3.20	23.94					3.50	D5	SPT(C) 3.00m, N=12 (0,0/3,3,3,3)	
Very firm black gravelly CLAY. Gravel is sub-angular to sub-rounded fine to medium coal.								3.60	23.54							SPT(C) 3.79m, 50 (26 for 40mm/50 for 55mm)	
Non-intact: Sub-rounded fine to medium GRAVEL of coal.								4.00	23.14								
EOH at 4.20m - Terminated due to refusal.								4.20	22.94								
Observations / Remarks							Sampling Runs						Hammer Information				
1: Groundwater was not encountered.							From (m)	To (m)	Diam (mm)	Recovery %	Remarks			Serial No.	Energy Ratio %		
2: Upon completion exploratory hole backfilled with arisings.							1.20	2.20	77	100				RP04	74		
							2.20	3.20	77	75				Project Number B029861			
							3.20	4.20	67	50							

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status		Borehole Number								
		Easting: 345675.53 Northing: 389840.37 Level: 27.52mAOD Depth: 3.70m Logger: SG Type: WLS Inclination: 90°				DRAFT		DS106								
								Sheet 1 of 1								
Method, Plant and Crew					Diameter		Casing		Groundwater				Scale: 1:25			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB	
0.00 1.20	1.20 3.70	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Tracked Windowless Sampler	Tetra Tech Earth Engineering	1.20 3.70	300 77									Approved By: SB	
															Start Date: 01/03/2022	
															Finish Date: 01/03/2022	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing				
												Depth (m)	Ref	Tests / Results		
MADE GROUND: Moss over soft brown black slightly sandy silty CLAY. Sand is fine to medium.								0.15	27.37				0.10	ES1	PID 0.10m, 0.0ppm	
													0.30	ES2	PID 0.30m, 0.0ppm	
MADE GROUND: Red gravelly clayey fine to coarse SAND. Gravel is angular to sub-angular medium to coarse of mixed lithologies including sandstone. Acidic odour.								0.45	27.07				0.50	ES3	PID 0.50m, 0.0ppm	
MADE GROUND: Firm yellowish grey slightly sandy slightly gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is sub-angular to sub-rounded medium limestone and brick fragments. Cobble is sub-rounded limestone.								0.80	26.72				1.00	ES4	PID 1.00m, 0.0ppm	
MADE GROUND: Red slightly gravelly silty fine to medium SAND. Gravel is sub-angular to rounded fine to medium.								1.30	26.22				1.30	ES5	PID 1.30m, 0.0ppm	
Soft to firm brown slightly gravelly silty CLAY. Gravel is sub-angular to sub-rounded fine to coarse limestone.								1.60	25.92							
Firm reddish brown slightly gravelly sandy CLAY. Sand is fine to coarse. Gravel is sub-angular to sub-rounded medium sandstone. From 1.80m bgl band of orangish brown coarse sand.								2.00	25.52				2.10	ES6	SPT(C) 2.00m, N=10 (1,1/1,1,1,2) PID 2.10m, 0.3ppm	
Stiff grey mottled orange slightly sandy silty gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular fine to coarse mudstone and sandstone. From 3.00m bgl band of brown ironstone.								3.10	24.42					D7		
Stiff grey locally brown slightly sandy gravelly CLAY. Sand is fine to medium. Gravel is sub-angular fine to coarse sandstone and mudstone.								3.70	23.82					D8	SPT(C) 3.00m, N=32 (3,6/7,6,8,11)	
EOH at 3.70m - Terminated due to refusal.															SPT(C) 3.70m, 50 (25 for 55mm/50 for 45mm)	

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited						Location Details						Status		Borehole Number		
						Easting: 345708.76 Northing: 389750.48 Level: 25.24mAOD Depth: 2.20m Logger: SG Type: WLS Inclination: 90°						DRAFT		DS107		
																Sheet 1 of 1
Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB	
0.00 1.20	1.20 2.20	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Tracked Windowless Sampler	Earth Engineering Earth Engineering	1.20 2.20	300 77									Approved By: SB	
															Start Date: 01/03/2022	
															Finish Date: 01/03/2022	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing				
												Depth (m)	Ref	Tests / Results		
MADE GROUND: Reinforced light grey matrix dominated CONCRETE.																
MADE GROUND: Red gravelly silty medium to coarse SAND. Gravel is sub-angular to rounded fine to coarse sandstone.								0.25	24.99			0.30	ES1	PID 0.30m, 0.0ppm		
MADE GROUND: Soft mottled orangish grey slightly sandy gravelly CLAY with low cobble content. Sand is fine to coarse. Gravel is sub-angular to sub-rounded fine to coarse sandstone. Cobbles are sub-angular brick.								0.40	24.84			0.50	ES2	PID 0.50m, 0.1ppm		
MADE GROUND: Soft grey slightly sandy gravelly CLAY. Sand is fine to coarse. Gravel is sub-angular to rounded fine to coarse mudstone. (REWORKED NATURAL)								1.85	23.39			1.90	ES3	PID 1.90m, 0.0ppm		
Grey mottled orange slightly gravelly CLAY. Gravel is sub-angular medium mudstone.								2.00	23.24			2.10	ES4	SPT(C) 2.00m, N=50 (1,2/6,12,24,8) PID 2.10m, 0.1ppm		
EOH at 2.20m - Terminated due to refusal.								2.20	23.04							

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status		Borehole Number								
		Easting: 345630.09 Northing: 389685.65 Level: 24.16mAOD Depth: 5.45m Logger: SG Type: WLS Inclination: 90°				DRAFT		DS108								
		Sheet 1 of 2														
Method, Plant and Crew					Diameter		Casing		Groundwater				Scale: 1:25			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB	
0.00 1.20	1.20 5.45	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Tracked Windowless Sampler	Tetra Tech Earth Engineering	1.20 5.45	300 77									Approved By: SB	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing			Start Date: 01/03/2022	Finish Date: 01/03/2022
												Depth (m)	Ref	Tests / Results		
MADE GROUND: Light grey matrix-dominated CONCRETE.								0.20	23.96			0.50	ES1	PID 0.50m, 0.0ppm		1
MADE GROUND: Reddish brown gravelly silty SAND with low cobble content. Sand is fine to medium. Gravel is angular to sub-angular medium to coarse sandstone. Cobbles are sub-angular sandstone. <i>From 0.20m bgl blue plastic membrane.</i>														SPT(C) 1.20m, N=13 (2,3/3,3,3,4)		
MADE GROUND: Greyish brown slightly gravelly fine to medium SAND. Gravel is sub-angular to sub-rounded medium sandstone. Organic odour. <i>From 0.80m bgl black geotechnical membrane.</i>														SPT(C) 2.00m, N=9 (2,2/2,2,2,3)		
Light grey slightly silty fine to coarse SAND.								1.50	22.66			1.60 1.60 - 2.10	ES3 B4	PID 1.60m, 0.0ppm		2
Orangish brown slightly clayey fine to coarse SAND.														SPT(C) 3.00m, N=21 (3,4/5,4,5,7)		
<i>From 2.90m to 2.93m bgl band of firm grey clay.</i> <i>From 3.50m to 3.70m bgl band of firm grey clay.</i>								2.10	22.06			2.10 - 3.00	B5	SPT(C) 3.80m, N=9 (2,1/2,2,2,3)		3
														SPT(C) 5.00m, N=11 (3,3/2,2,2,5)		
														SPT(C) 5.00m, N=11 (3,3/2,2,2,5)		
Observations / Remarks							Sampling Runs							Hammer Information		
1. Groundwater was not encountered. 2. Upon completion 50mm diameter gas/groundwater monitoring standpipe installed to 2.70m bgl.							From (m)	To (m)	Diam (mm)	Recovery %	Remarks	Serial No.	Energy Ratio %			
							1.20	2.00	77	70		RP04	74			
							2.00	3.00	77	70						
3.00	4.00	67	70													
4.00	5.00	67	90	Project Number												
							B029861									

[illegible]

TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited						Location Details						Status		Borehole Number		
						Easting: 345613.47 Northing: 389875.45 Level: 27.58mAOD Depth: 3.20m Logger: SG Type: WLS Inclination: 90°						DRAFT		DS109		
						Sheet 1 of 1										
Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB	
0.00 1.20	1.20 3.20	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Tracked Windowless Sampler	Earth Engineering Earth Engineering	1.20 3.20	300 77									Approved By: SB	
															Start Date: 02/03/2022	
															Finish Date: 02/03/2022	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing				
												Depth (m)	Ref	Tests / Results		
MADE GROUND: Light grey matrix-dominated CONCRETE.								0.30	27.28							
MADE GROUND: Orange brownish sandy silty sub-angular to sub-rounded fine to medium GRAVEL of sandstone and fragments of brick. Sand is fine to coarse.								0.70	26.88				0.50	ES1	PID 0.50m, 0.0ppm	
MADE GROUND: Soft brown slightly gravelly clayey silty fine to medium SAND. Gravel is sub-angular to sub-rounded fine to medium sandstone and mudstone.								1.30	26.28				1.00	ES2	PID 1.00m, 0.0ppm	
Brownish orange clayey fine to medium SAND.								1.60	25.98				1.60 - 2.30	B4	SPT(C) 1.20m, N=10 (2,2/3,2,3,2)	
Orange mottled grey clayey fine to medium SAND.								2.60	24.98				2.00	ES3	SPT(C) 2.00m, N=14 (2,3/3,4,3,4) PID 2.00m, 0.0ppm	
From 2.30m to 2.60m bgl fallen orangish brown clayey fine to coarse sand from 1.20m.								3.20	24.38				2.60 - 3.20	B5		
Greyish red sandy clayey angular to sub-angular medium to coarse GRAVEL of mudstone. Sand is fine to coarse. From 2.60m bgl clay content increases towards base.													3.00	D6		
EOH at 3.20m - Terminated due to refusal.															SPT(C) 3.30m, N=85 (5,9/15,20,15,35)	

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited						Location Details						Status		Borehole Number				
						Easting: 345649.52 Northing: 389893.30 Level: 27.17mAOD Depth: 2.20m Logger: SG Type: WLS Inclination: 90°						DRAFT		DS110				
																Sheet 1 of 1		
Method, Plant and Crew					Diameter		Casing		Groundwater						Scale: 1:25			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Strike (m)	Casing (m)	Sealed (m)	Rose To (m)	Time (mins)	Remarks	Checked By: NB			
0.00 1.20	1.20 2.20	Inspection Pit Dynamic Windowless Sampling	Hand Excavated Tracked Windowless Sampler	Earth Engineering Earth Engineering	1.20 2.20	300 77									Approved By: SB			
																	Start Date: 02/03/2022	
																	Finish Date: 02/03/2022	
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples and Testing						
												Depth (m)	Ref	Tests / Results				
MADE GROUND: Grass over very soft brown slightly sandy gravelly CLAY. Sand is fine to medium. Gavel is sub-angular to sub-rounded fine to medium sandstone including fragments of rootlets (TOPSOIL).								0.30	26.87			0.20	ES1	PID 0.20m, 0.0ppm				
MADE GROUND: Firm light brown mottled orange slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is sub-rounded to rounded fine to medium sandstone.												1.00	ES2	PID 1.00m, 0.0ppm				
Reddish orange sandy sub-angular to sub-rounded medium to coarse GRAVEL of sandstone. Sand is medium to coarse.								1.40	25.77			1.50 1.55 1.60 - 2.10	ES3 D4 B5	PID 1.50m, 0.0ppm				
Reddish orange clayey silty fine to coarse SAND.								1.60	25.57					SPT(C) 1.20m, N=8 (2,3/2,2,2,2)				
Yellowish grey sub-angular coarse GRAVEL of sandstone.								2.10	25.07					SPT(C) 2.00m, N=50 (6,5/5,8,25,12)				
EOH at 2.20m - Terminated due to refusal.								2.20	24.97									

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status		Borehole Number										
		Easting: 345603.14 Northing: 389700.86 Level: 24.25mAOD Depth: 35.90m Logger: SG Type: RO+RC Inclination: 90°				DRAFT		RC101										
								Sheet 1 of 4										
Method, Plant and Crew						Diameter		Casing				Drilling Progress by Time				Scale: 1:50		
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	NB	Approved By:	SB	
0.00 1.20	1.20 35.90	Inspection Pit Rotary Core	Hand Excavated Dando 250	Ace Drilling Ace Drilling	1.20 35.90	300 125	6.00	125								Start Date:	21/02/2022	
																Finish Date:	04/03/2022	
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
MADE GROUND: Reddish brown gravelly silty fine to medium SAND. Gravel is angular to sub-rounded medium sandstone and limestone.							0.60	23.65			0.50	ES1					PID 0.50m, 0.0ppm	
MADE GROUND: Brown gravelly locally clayey fine to coarse SAND. Gravel is sub-rounded and medium sandstone.							1.00	23.25			0.80	ES2					PID 0.80m, 0.0ppm	
MADE GROUND: Yellowish brown silty fine to coarse SAND.							1.50	22.75			1.00	ES3					PID 1.00m, 0.6ppm	
MADE GROUND: Reddish brown CLAY (Boulder Clay). (Drillers description)																		
Brown SAND. (Drillers Description)							3.50	20.75										
Grey SANDSTONE. (Drillers Description)							5.70	18.55										
Extremely weak grey laminated MUDSTONE with black silty laminations and locally clayey infilled fractures. Discontinuities are sub-vertical (45-55°), very closely spaced, planar and smooth. 6.10-6.20m: AZCL. 6.20-6.30m: Non-intact medium mudstone gravel. 6.67-6.70m: Non-intact fine mudstone gravel. 6.80-7.10m: Secondary fracture, sub-vertical stepped rough.							6.10	18.15	6.10 - 35.90	C1	6.10 7.10	40	90	77	73			
Extremely weak grey MUDSTONE. Recovered as clayey angular fine to medium gravel. 7.26-7.40m: Fine gravelly clay. 7.81-7.95: Fine gravelly clay. 8.10m-8.60m: Non-intact medium mudstone gravel.							7.10	17.15			7.10 8.10		100	0	0			
Medium dark grey MUDSTONE with locally clayey gravel. Discontinuities are sub-vertical (45-55°), very closely spaced, planar and smooth. 8.90-9.30m: Secondary fracture, sub-vertical stepped smooth. 9.10-9.18m: Non-intact fine mudstone gravelly clay. 9.25-9.32m: Non-intact fine mudstone gravelly clay.							8.90	15.35			8.10 9.60		100	57	9			
Very weak dark grey MUDSTONE. Recovered as clayey angular fine to medium gravel.							9.60	14.65										
Observations / Remarks										Drilling Fluid					Hammer Information			
1: 30m of core retrieved. 2: Groundwater was encountered at 1.25m bgl. 3: Upon completion exploratory hole backfilled with grout.										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %		
										1.20	35.90	100	Light grey	Water				
										Groundwater					Project Number			
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	B029861		
										1.25	-	-	20	1.25				

TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status DRAFT		Borehole Number RC101									
								Sheet 2 of 4									
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50	
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	NB		
0.00	1.20	Inspection Pit Rotary Core	Hand Excavated Dando 250	Ace Drilling Ace Drilling	1.20	300	6.00	125						Approved By:	SB		
1.20	35.90				35.90	125								Start Date:	21/02/2022		
														Finish Date:	04/03/2022		
Strata Description						Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring						
											Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD
Very weak dark grey MUDSTONE. Recovered as clayey angular fine to medium gravel.																	
10.70-11.10m: Colour change from dark grey to brown-black.																	
11.10-11.30m: AZCL.																	
Weak dark grey MUDSTONE with locally clayey gravel. Discontinuities are sub-horizontal (35-40°), very closely spaced, undulating and smooth.																	
11.40-11.55m: Non-intact fine to medium mudstone gravel.																	
11.65-11.90m: Non-intact medium mudstone gravel.																	
11.80-12.60m: Secondary fracture, sub-vertical stepped smooth.																	
12.10-12.18m: Non-intact medium gravel.																	
12.26-12.30m: Gravelly clay infilled fracture.																	
12.40-12.60m: Non-intact fine mudstone gravel.																	
Firm to stiff light grey slightly gravelly silty CLAY. Gravel is sub-angular to sub-rounded fine mudstone.																	
13.10-13.15m: Non-intact fine mudstone gravel.																	
13.50-13.60m: Non-intact fine mudstone gravel.																	
13.80-13.89m: Band of fine gravelly COAL.																	
14.10-14.20m: Band of fine gravelly COAL.																	
Very weak light grey MUDSTONE. Discontinuities are sub-horizontal (20-35°), very closely spaced, smooth and planar.																	
14.80-14.85m: fine mudstone clayey gravel.																	
14.91-14.95m: fine mudstone clayey gravel.																	
14.96-14.99m: fine mudstone clayey gravel.																	
Weak medium dark grey laminated MUDSTONE. locally clayey and gravelly. Discontinuities are sub-horizontal (25-35°), closely spaced smooth and planar.																	
15.50-15.56m: Non-intact fine mudstone clayey gravel.																	
15.70-15.75m: Non-intact fine mudstone clayey gravel.																	
16.10-16.15m: firm CLAY.																	
16.21-16.38: Non-intact clayey fine mudstone gravel.																	
16.43-16.47m: firm CLAY.																	
16.50-16.63m: Non-intact fine clayey mudstone gravel.																	
Weak to medium dark grey MUDSTONE with locally clayey gravel. Discontinuities are sub-horizontal (10-20°), closely spaced, smooth and planar.																	
17.00-17.10m: Non-intact medium mudstone gravel.																	
17.21-17.25m: Non-intact coarse mudstone clayey gravel.																	
17.40-17.90m: Non-intact coarse mudstone clayey gravel.																	
Weak to medium laminated MUDSTONE with black silty bands. Locally clayey and gravelly. Discontinuity set 1 is sub-horizontal (10°), closely spaced, smooth and planar. Discontinuity set 2 is sub-vertical (70°), closely spaced, stepped planar and rough.																	
18.55-18.59: Non-intact medium mudstone gravel.																	
18.75-18.85m: Non-intact fine mudstone gravel.																	
18.90-18.98m: Firm CLAY.																	
19.01-19.05m: Firm CLAY.																	
19.40-19.60m: fine clayey mudstone gravel.																	
Medium light grey laminated MUDSTONE. Discontinuity set 1 is sub-horizontal (10°), medium spaced. smooth and planar. Discontinuity set 2 is sub-vertical (70°), medium spaced, stepped and rough.																	
19.70-19.78m: Fine clayey mudstone gravel.																	
Observations / Remarks										Drilling Fluid				Hammer Information			
1: 30m of core retrieved.										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %	
2: Groundwater was encountered at 1.25m bgl.										1.20	35.90	100	Light grey	Water			
3: Upon completion exploratory hole backfilled with grout.										Groundwater				Project Number			
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	B029861	

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status DRAFT		Borehole Number RC101																
		Easting: 345603.14 Northing: 389700.86 Level: 24.25mAOD Depth: 35.90m Logger: SG Type: RO+RC Inclination: 90°						Sheet 3 of 4																
Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time						Scale: 1:50								
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	NB									
0.00 1.20	1.20 35.90	Inspection Pit Rotary Core	Hand Excavated Dando 250	Ace Drilling Ace Drilling	1.20 35.90	300 125	6.00	125						Approved By:	SB									
														Start Date:	21/02/2022									
														Finish Date:	04/03/2022									
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring												
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results					
Medium light grey laminated MUDSTONE. Discontinuity set 1 is sub-horizontal (10°), medium spaced. smooth and planar. Discontinuity set 2 is sub-vertical (70°), medium spaced, stepped and rough. <i>20.20-20.24m: firm CLAY.</i>																								
<i>21.80-21.85m: Non-intact fine mudstone clayey-gravel.</i>																								
<i>21.90-21.95m: Non-intact fine mudstone clayey-gravel.</i>																								
<i>22.65-22.70m: Non-intact medium mudstone gravel.</i>																								
<i>23.81-23.88m: Non-intact fine mudstone clayey gravel.</i> <i>24.00-24.05m: Non-intact fine mudstone clayey-gravel.</i> <i>24.14-24.20m: Non-intact mudstone gravelly clay.</i> <i>24.30-24.35m: Non-intact mudstone gravelly clay.</i>																								
<i>24.70-24.90m: Non-intact mudstone gravelly clay.</i>																								
<i>25.30-25.40m: Non-intact fine mudstone clayey gravel.</i>																								
<i>26.40-26.50m: Non-intact fine mudstone clayey-gravel.</i>																								
<i>26.80-26.90m: Non-intact medium mudstone gravel.</i> <i>26.9-26.96m: Non-intact medium mudstone gravel.</i>																								
<i>27.40-27.45m: Non-intact medium mudstone clayey-gravel.</i>																								
<i>27.80-27.85m: clayey infilled fracture.</i>																								
<i>28.13-28.20m: Non-intact clayey mudstone gravel.</i>																								
Weak to medium dark grey MUDSTONE. Discontinues are sub-horizontal (10-20°), closely spaced, planar and smooth. <i>28.40-28.50m: Non-intact mudstone gravel.</i> <i>28.69-28.75m: Non-intact mudstone gravel.</i> <i>29.00-29.05m: Non-Intact fine mudstone clayey gravel.</i> <i>21.21-29.22m: Gravelly clay infilled fracture.</i> <i>29.40-29.90m: Secondary fracture: Sub-vertical (70°) stepped and rough.</i> <i>29.90-29.95m: Non-intact gravelly clay.</i>																								
Observations / Remarks 1: 30m of core retrieved. 2: Groundwater was encountered at 1.25m bgl. 3: Upon completion exploratory hole backfilled with grout.							Drilling Fluid							Hammer Information										
							From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %											
							1.20	35.90	100	Light grey	Water													
							Groundwater					Project Number												
							Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	B029861											

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Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status		Borehole Number																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
		Easting: 345614.11 Northing: 389664.21 Level: 24.19mAOD Depth: 30.00m Logger: SG Type: RO+RC Inclination: 90°				DRAFT		RC102																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	NB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
0.00 1.20	1.20 30.00	Inspection Pit Rotary Core	Hand Excavated Dando 250	Ace Drilling Ace Drilling	1.20 30.00	300 116	6.75	125						Approved By:	SB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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MADE GROUND: Light grey matrix-dominated CONCRETE.								0.20	23.99																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									

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TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status DRAFT		Borehole Number RC102																																																																																																																																																																																																																																																																																																																																																																																																																																																												
		Easting: 345614.11 Northing: 389664.21 Level: 24.19mAOD Depth: 30.00m Logger: SG Type: RO+RC Inclination: 90°																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
		Method, Plant and Crew						Diameter		Casing		Drilling Progress by Time					Scale: 1:50																																																																																																																																																																																																																																																																																																																																																																																																																																																			
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	NB																																																																																																																																																																																																																																																																																																																																																																																																																																																					
0.00 1.20	1.20 30.00	Inspection Pit Rotary Core	Hand Excavated Dando 250	Ace Drilling Ace Drilling	1.20 30.00	300 116	6.75	125						Approved By:	SB																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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Weak light grey MUDSTONE with ironstone bands. Discontinuities are sub-horizontal (10°), closely spaced, smooth and planar. <i>20.10-20.40m: Increase of black silty lenses.</i> <i>20.30m: Soft sediment deformation (load casts).</i> <i>20.50-20.55m: Non-intact clayey mudstone gravel.</i> <i>21.10-21.20m: Non-intact coarse mudstone gravel.</i> <i>21.40-21.42m: Brown IRONSTONE.</i> <i>21.70-21.80m: Brown IRONSTONE.</i>								22.50	1.69																																																																																																																																																																																																																																																																																																																																																																																																																																																											

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status		Borehole Number													
		Easting: 345729.46 Northing: 389701.48 Level: 25.00mAOD Depth: 30.00m Logger: SG Type: RC+RO Inclination: 90°				DRAFT		RC103													
								Sheet 1 of 3													
Method, Plant and Crew					Diameter		Casing			Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	NB						
0.00 1.20 10.50	1.20 10.50 30.00	Inspection Pit Rotary Core Rotary Open Hole	Hand Excavated Dando 250 Dando 250	Ace Drilling Ace Drilling Ace Drilling	1.20 30.00	300 125	4.50	125						Approved By:	SB						
Strata Description MADE GROUND: Light grey matrix-dominated reinforced CONCRETE. MADE GROUND: Yellowish grey sandy silty sub-angular to sub-rounded fine to coarse GRAVEL of limestone. Sand is fine to coarse. (TYPE II MOT SUBBASE) MADE GROUND: Grey gravelly clayey fine to medium SAND with high cobble content. Sand is fine to medium. Gravel is sub-angular to rounded fine to coarse of mixed lithology including brick and plastic fragments. Cobbles sub-rounded limestone. MADE GROUND: Red slightly clayey medium SAND with low cobble content. Cobbles are sub-angular sandstone. Firm dark grey slightly gravelly sandy CLAY. Sand is fine to medium. Gravel is sub-rounded medium coal. Soft grey MUDSTONE. (Drillers Description) Soft light grey gravelly CLAY. Gravel is angular to sub-angular fine to coarse mudstone. 4.50-4.65m: Non-intact medium mudstone gravel. 4.70-4.75m: fine clayey mudstone gravel. 4.95-5.00m: Non-intact fine mudstone gravel. Pyritised COAL and gravels of coal. 5.20-5.30m: Non-intact fine gravelly coal. Soft light grey gravelly CLAY. Gravel is angular to sub-angular fine to coarse of mudstone. 6.10-6.20m: Non-intact fine mudstone clayey gravel. 6.50-6.60m: Non-intact fine mudstone gravel. 6.70-7.00m: Non-intact gravelly clay. 7.05m: Calcite vein. Weak to medium light grey laminated MUDSTONE with locally non-intact clayey gravel. Discontinuities are horizontal, very closely to closely spaced, planar and rough. 7.10-7.20m: Non-intact coarse mudstone gravel. 7.70-7.75m: Non-intact fine mudstone gravel. 7.70-7.80m: Secondary fracture: Stepped and undulating. Strong very fine grained light grey silty SANDSTONE. Weak to medium light grey laminated MUDSTONE. Discontinuities are horizontal, very closely spaced, planar and rough with locally clayey gravel infilled fractures. 8.50-8.55m: Non-intact fine mudstone gravel. 8.80-8.86m: Non-intact gravelly clay. 9.30-9.70m: Soft sediment deformation including flame structures and ripples. 9.70-10.50m: Secondary fracture: sub-vertical stepped and smooth. 9.90-10.10m: Non-intact medium mudstone gravel.							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
								0.20	24.80												
								0.60	24.40												
								0.90	24.10			0.80	ES1							PID 0.80m, 0.0ppm	
								1.00	24.00			1.00	ES2							PID 1.00m, 0.0ppm	
												1.10	ES3							PID 1.10m, 0.0ppm	

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Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status		Borehole Number													
		Easting: 345751.40 Northing: 389652.31 Level: 24.12mAOD Depth: 30.00m Logger: SG Type: RC+RO Inclination: 90°				DRAFT		RC104													
		Sheet 1 of 3																			
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50							
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By: NB	Approved By: SB						
0.00 1.20 10.50	1.20 10.50 30.00	Inspection Pit Rotary Core Rotary Open Hole	Hand Excavated Dando 250 Dando 250	Tetra Tech Ace Drilling Ace Drilling	1.20 30.00	300 125	5.50	125						Start Date: 16/03/2022	Finish Date: 18/03/2022						
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring									
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results		
MADE GROUND: Light grey clast-dominated CONCRETE.								0.10	24.02												
MADE GROUND: Yellowish grey slightly sandy silty angular to sub-angular fine to coarse GRAVEL of . Sand is fine to coarse. (MOT TYPE II SUBBASE)								0.30	23.82												
MADE GROUND: Red slightly gravelly medium to coarse SAND. Gravel is angular to sub-angular fine to coarse sandstone and mudstone.								0.60	23.52			0.50	ES1			PID 0.50m, 0.0ppm					
MADE GROUND: Reddish brown slightly clayey fine to coarse SAND.								0.70	23.42			0.65	ES2			PID 0.65m, 0.0ppm					
Soft to firm brown mottled grey slightly sandy slightly gravelly CLAY. Sand is fine to medium. Gravel is sub-angular to sub-rounded fine to coarse of mudstone and sandstone.												0.80	ES3			PID 0.80m, 0.0ppm					
Grey MUDSTONE. (Drillers Description)																					
Light grey MUDSTONE. Non-intact. Recovered as clayey sub-angular to sub-rounded fine to medium gravel.								4.80	19.32												
5.55-5.65m: Soft light grey mudstone gravelly clay.																					
5.65-5.80m: Medium to coarse mudstone gravel.																					
Weak light grey MUDSTONE with locally gravelly clay of mudstone. Discontinuity set 1 is sub-horizontal, very closely spaced, stepped and rough. Discontinuity set 2 is sub-horizontal, closely spaced, planar and rough.								5.50	18.62			5.50 - 10.50	C1								
6.00-6.20m: Non-intact coarse mudstone gravel.																					
6.70-6.75m: Non-intact fine to medium clayey mudstone gravel.																					
7.10-7.25m: Non-intact fine to coarse clayey mudstone gravel.																					
7.50-7.60m: AZCL.																					
7.65-70m: Non-intact coarse mudstone gravel.																					
7.90-8.00m: Non-intact coarse mudstone gravel.																					
8.20-8.30m: Non-intact coarse mudstone gravel.																					
8.55-8.60m: Band of ironstone.																					
8.80-8.87m: Non-intact clayey mudstone gravel.																					
9.20-9.25m: Non-intact clayey mudstone gravel.																					
9.70-9.90m: Soft clay.																					
9.9-10.00m: Non-intact medium mudstone gravel.																					
Observations / Remarks							Drilling Fluid							Hammer Information							
							From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %								
							1.20	30.00	100	Light grey	Water										
1: 5m of core was retrieved from 5.50m to 10.50m bgl. 2: Open-hole rotary coring from 10.50m to 30.00m bgl. 3: Groundwater was encountered at 0.20m bgl. 4: Upon completion exploratory hole backfilled with grout.							Groundwater							Project Number							
							Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks									
							0.20	-	-	20	0.20		B029861								

		Project: Sovereign Distillery Phase 1				Location Details				Status		Borehole Number													
		Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW				Easting: 345751.40 Northing: 389652.31				DRAFT		RC104													
		Client: Network Space Developments Huyton Limited				Level: 24.12mAOD Depth: 30.00m																			
				Logger: SG Type: RC+RO				Inclination: 90°		Sheet 3 of 3															
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50											
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	NB										
0.00	1.20	Inspection Pit Rotary Core Rotary Open Hole	Hand Excavated Dando 250	Tetra Tech Ace Drilling Ace Drilling	1.20	300	5.50	125						Approved By:	SB										
1.20	10.50				30.00	125									Start Date:	16/03/2022									
10.50	30.00													Finish Date:	18/03/2022										
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring													
Grey MUDSTONE with siltstone bands. (Drillers Description)												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results						
EOH at 30.00m - Target Depth Achieved.																									
								30.00	-5.88																
Observations / Remarks							Drilling Fluid					Hammer Information													
1: 5m of core was retrieved from 5.50m to 10.50m bgl. 2: Open-hole rotary coring from 10.50m to 30.00m bgl. 3: Groundwater was encountered at 0.20m bgl. 4: Upon completion exploratory hole backfilled with grout.							From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %												
							1.20	30.00	100	Light grey	Water														
							Groundwater					Project Number													
							Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	B029861												

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status		Borehole Number												
		Easting: 345642.31 Northing: 389864.18 Level: 27.39mAOD Depth: 15.00m Logger: SG Type: RO+RC Inclination: 90°				DRAFT		RC105												
								Sheet 1 of 2												
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50						
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	NB					
0.00 1.20	1.20 15.00	Inspection Pit Rotary Core	Hand Excavated Dando 250	Tetra Tech Ace Drilling	1.20 15.00	300 125	6.80	125				8.30		Approved By:	SB					
														Start Date:	09/03/2022					
														Finish Date:	11/03/2022					
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring								
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results	
MADE GROUND: Light grey clast-dominated reinforced CONCRETE.								0.15	27.24			0.50	ES1					PID 0.50m, 0.0ppm	1	
MADE GROUND: Firm brownish black slightly sandy slightly gravelly CLAY with low cobble content. Sand is medium to coarse. Gravel is angular to sub-angular fine to coarse of sandstone, limestone and fragments of metal. Cobble is sub-angular coarse brick.								0.80	26.59			1.00	ES2					PID 1.00m, 0.0ppm		
Brown gravelly slightly clayey fine to medium SAND. Gravel is angular to sub-angular medium sandstone.																			2	
Grey boulder CLAY. (Drillers description)								3.00	24.39											3
																			4	
																				5
Soft grey gravelly CLAY. Gravel is angular to sub-angular fine to coarse mudstone. <i>5.50-5.70m: Weak grey mudstone.</i>								5.30	22.09			5.30 - 15.00	C1	5.30 6.00		100	29	29	6	
<i>6.40-6.45m: Non-intact fine mudstone gravel.</i> <i>6.50-6.55m: Band of fine clayey gravel.</i> <i>6.70-6.80m: Non-intact coarse mudstone gravel.</i> <i>6.80-6.90m: Vitreous COAL.</i>														6.00 7.50		100	73	9	7	
Weak black COAL with local pyritisation. <i>7.30m: Pyrite.</i> <i>7.40-7.50m: Non-intact medium coal gravel.</i>								7.20	20.19										8	
Soft grey very gravelly CLAY. Gravel is sub-angular medium to coarse coal. <i>7.90-8.00m: Non-intact coarse mudstone gravel.</i> <i>8.00-8.20m: Non-intact medium coal gravel.</i>								7.55	19.84			7.50 8.30		100	0	0	9			
8.30-8.40m: Non-intact coarse coal gravel. 8.40-8.55m: Non-intact medium gravel of coal with pyrite.												8.30 9.00		100	50	15		9		
Weak black COAL with local pyritisation. <i>9.30-9.50m: Non-intact fine coal gravel.</i>								8.80	18.59			9.00 10.50		100	60	14				
Medium grey gravelly CLAY. Gravel is sub-angular fine to medium coal. <i>9.60-9.65m: Non-intact fine coal gravel.</i> <i>9.80-9.85m: Non-intact fine coal gravel.</i>								9.50	17.89										10	
Weak black COAL. Discontinuities are sub-horizontal, very closely spaced, planar and smooth.								9.90	17.49											
Observations / Remarks										Drilling Fluid					Hammer Information					
1: 9.70m of core was retrieved. 2: Groundwater was encountered at 1.75mbgl. 3: Upon completion 50mm diameter gas/groundwater monitoring standpipe installed to 10.50m bgl.										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %				
										7.50 8.30 13.50	5.30 7.50 8.30	80 50 0	Grey Grey N/A	Water Water Water						
										Groundwater					Project Number					
										Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks	B029861				
										1.75	-	-	20	1.75						

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status DRAFT		Borehole Number RC106											
		Easting: 345560.50 Northing: 389815.94 Level: 26.95mAOD Depth: 15.30m Logger: SG Type: RO+RC Inclination: 90°																	
								Sheet 1 of 2											
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	NB				
0.00 1.20	1.20 15.30	Inspection Pit Rotary Core	Hand Excavated Dando 250	Tetra Tech Ace Drilling	1.20 15.30	300 125	4.80	125						Approved By:	SB				
														Start Date:	07/03/2022				
														Finish Date:	10/03/2022				
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
MADE GROUND: Grass over soft dark brown slightly sandy slightly gravelly silty CLAY. Sand is fine to medium. Gravel is sub-rounded fine to medium sandstone with fragments of glass. (TOPSOIL)								0.40	26.55			0.20	ES1					PID 0.20m, 0.0ppm	1
MADE GROUND: Orangish brown mottled grey gravelly locally clayey fine to medium SAND. Gravel is sub-rounded to rounded fine to medium sandstone.								0.70	26.25			0.50	ES2					PID 0.50m, 0.0ppm	
Light brown slightly gravelly locally clayey fine to coarse SAND with low cobble content. Gravel is sub-angular to rounded fine to coarse sandstone. Cobbles are sub-rounded sandstone.								1.20	25.75			1.00	ES3					PID 1.00m, 0.0ppm	
Boulder CLAY with sand bands. (Drillers Description)																			2
																		3	
																		4	
Reddish grey SANDSTONE. (Drillers Description)																		5	
Weak to medium grey (orange and red stained) medium to coarse grained SANDSTONE. Locally gravelly with metallic odour. Discontinuities are horizontal, very closely spaced, planar and rough. 4.80-4.90m: Non-intact coarse sandstone gravel. 5.00-5.05m: Reddish purple stained band. 5.20-5.40m: Orange stained band. 5.20-6.00m: Secondary fracture: Sub-vertical stepped and rough. 5.50-5.70m: Non-intact medium to coarse sandstone gravel. 5.70-5.80m: Orangish purple stained band. 6-6.10m: Orange stained band. 6.10-6.30m: Purple staining.																			6
Weak dark purplish grey medium grained SANDSTONE. Discontinuities are sub-horizontal, very closely spaced, planar and rough. 6.90-7.00m: Non-intact medium sandstone gravel. 7.30m: Grey and dark purple staining. 7.60-7.90m: Purple staining.																			7
Medium to hard light grey coarse grained SANDSTONE with red iron spotting. Discontinuities set 1 is sub-horizontal, very closely spaced, planar and rough. Discontinuity set 2 is sub-vertical, closely spaced, planar and rough. 8.00m: Red iron spotting. 8.40m: Red iron spotting. 8.90-9.00m: Fracture infilled with red fine sand. 9.40m: Red iron spotting.																			8
Medium light grey fine to medium grained SANDSTONE with ironing spotting and staining. Discontinuities are sub-horizontal, closely to medium spaced, planar and rough. 9.75-9.80m: Dark red stained band. 9.93-9.97m: Stiff clay infilled fracture.																		9	
																		10	
Observations / Remarks										Drilling Fluid				Hammer Information					
1: 10.50m of core was retrieved. 2: Groundwater was encountered at 1.00mbgl. 3: Upon completion exploratory hole backfilled with grout.										From (m)	To (m)	Return Min %	Colour	Type	Serial No.	Energy Ratio %			
										6.30	15.30	80	Light grey-brown	Water					
										Groundwater				Project Number					
Strike (m)	Casing (m)	Sealed (m)	Time (min)	Rose To (m)	Remarks						B029861								
1.00	-	-	20	1.00															

Tt TETRA TECH Project: Sovereign Distillery Phase 1 Location: Sovereign Distillery, Huyton, Liverpool, L36 6AW Client: Network Space Developments Huyton Limited		Location Details				Status DRAFT		Borehole Number											
		Easting: 345560.50 Northing: 389815.94 Level: 26.95mAOD Depth: 15.30m Logger: SG Type: RO+RC Inclination: 90°						RC106											
												Sheet 2 of 2							
Method, Plant and Crew					Diameter		Casing		Drilling Progress by Time					Scale: 1:50					
From (m)	To (m)	Type	Plant Used	Crew	Depth (m)	Diam (mm)	Depth(m)	Diam (mm)	Date	Time	Depth (m)	Casing (m)	Water (m)	Checked By:	NB				
0.00 1.20	1.20 15.30	Inspection Pit Rotary Core	Hand Excavated Dando 250	Tetra Tech Ace Drilling	1.20 15.30	300 125	4.80	125						Approved By:	SB				
Strata Description							Legend	Depth (m)	Reduced Level (mAOD)	Water Level (m)	Inst / Backfill	Samples, Tests and Rotary Coring							
												Depth (m)	Ref	Core Run	FI	TCR	SCR	RQD	Tests / Results
Medium light grey fine to medium grained SANDSTONE with ironing spotting and staining. Discontinuities are sub-horizontal, closely to medium spaced, planar and rough. <i>10.20m: Red iron spotting.</i> <i>11.10-11.20m: Purple staining.</i> <i>11.70-12.00m: Red staining.</i> <i>12.10-12.30m: Purple staining.</i> <i>12.60m: Calcite vein.</i> <i>13.80-13.85m: Non-intact medium sandstone gravel.</i> <i>14-14.20m: Non-intact medium sandstone gravel.</i> <i>14.60-14.70m: Purple staining.</i> <i>14.70-14.75m: Purple staining.</i> <i>14.80-15.30m: Colour lightens towards base of core.</i>								15.30	11.65				9.30 10.80		100	96	86	11	
EOH at 15.30m - Target Depth Achieved.								15.30	11.65									12	
								15.30	11.65									13	
								15.30	11.65									14	
								15.30	11.65									15	
								15.30	11.65									16	
								15.30	11.65									17	
								15.30	11.65									18	
								15.30	11.65									19	
								15.30	11.65									20	
Observations / Remarks								15.30	11.65										
1: 10.50m of core was retrieved. 2: Groundwater was encountered at 1.00mbgl. 3: Upon completion exploratory hole backfilled with grout.								15.30	11.65										
								15.30	11.65										
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APPENDIX C – PHOTO PLATES



Photo Plate No. 01: RC101 6.10-11.10m

Quay West at MediaCityUK,
Trafford Wharf Road,
Trafford Park,
Manchester M17 1HH

Tel: 0161 872 3223
Fax: 0161 872 3192
E-mail enquiries @wyg.com

Environmental Consultancy
Ground Technologies & Investigation



Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC101

Project No.: B029681

Date: March 2022



Photo Plate No. 02: RC101 11.10-17.00m

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Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC101

Project No.: B029681

Date: March 2022



Photo Plate No. 03: RC101 17.00- 22.40m

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Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC101

Project No.: B029681

Date: March 2022



Photo Plate No. 04: RC101 22.40-28.40m

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Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC101

Project No.: B029681

Date: March 2022



Photo Plate No. 05: RC101 28.40-34.90m

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Environmental Consultancy
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Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC101

Project No.: B029681

Date: March 2022



Photo Plate No. 06: RC102 6.70-13.20m

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Environmental Consultancy
Ground Technologies & Investigation



Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC102

Project No.: B029681

Date: March 2022



Photo Plate No. 07: RC102 13.20-19.35m

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Environmental Consultancy
Ground Technologies & Investigation



Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC102

Project No.: B029681

Date: March 2022



Photo Plate No. 08: RC102 19.35-25.25m

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Environmental Consultancy
Ground Technologies & Investigation



Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC102

Project No.: B029681

Date: March 2022



Photo Plate No. 09: RC102 25.25-30.00 m

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Environmental Consultancy
Ground Technologies & Investigation



Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC102

Project No.: B029681

Date: March 2022



Photo Plate No. 10: RC103 4.50-10.50m

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Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC103

Project No.: B029681

Date: March 2022



Photo Plate No. 11: RC103 Detail- fine to coarse coal gravel 5.20-5.50m

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Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC103

Project No.: B029681

Date: March 2022



Photo Plate No. 12: RC104 5.50-10.50m

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Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC104

Project No.: B029681

Date: March 2022



Photo Plate No. 13: RC105 5.30-10.30m

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Environmental Consultancy
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Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC105

Project No.: B029681

Date: March 2022



Photo Plate No. 14: RC105: Coal at 9.90 to 10.75m bgl.

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Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC105

Project No.: B029681

Date: March 2022



Photo Plate No. 15: RC106 4.80-10.80m

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Environmental Consultancy
Ground Technologies & Investigation



Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC106

Project No.: B029681

Date: March 2022



Photo Plate No. 16: RC106 10.80-15.30m

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Environmental Consultancy
Ground Technologies & Investigation



Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Core Photographs: RC106

Project No.: B029681

Date: March 2022



Photo Plate No. 17: DS101 (1.20-2.20m bgl) and DS106 (1.20-4.40m bgl)

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**Environmental Consultancy
Ground Technologies & Investigation**



Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Dynamic Sampling photographs

Project No.: B029681

Date: March 2022



Photo Plate No. 18: Foundation pit 02 showing tapering strip footing foundation.

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**Environmental Consultancy
Ground Technologies & Investigation**



Project: Sovereign Distillery, Huyton

Client: Network Space Developments Huyton Ltd

Foundation Pit Photographs

Project No.: B029681

Date: March 2022

APPENDIX D – COAL AUTHORITY CONSULTANTS REPORT



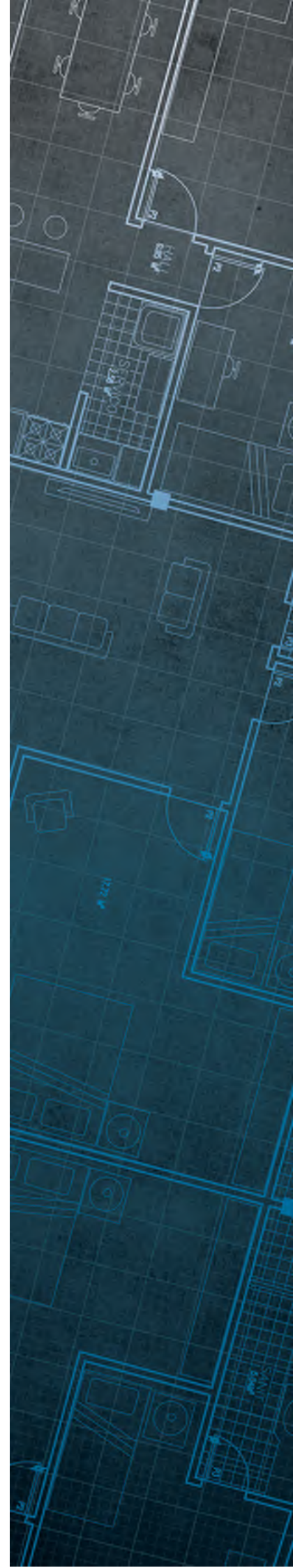
The Coal
Authority

Consultants Coal Mining Report

The Sovereign Distillery
Wilson Road
Huyton
Liverpool
Merseyside
L36 6AD

Date of enquiry:	16 February 2021
Date enquiry received:	16 February 2021
Issue date:	16 February 2021

Our reference:	51002383175001
Your reference:	784-B024793



Consultants

Coal Mining Report

This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

WYG

Enquiry address

The Sovereign Distillery
Wilson Road
Huyton
Liverpool
Merseyside
L36 6AD

How to contact us

0345 762 6848 (UK)
+44 (0)1623 637 000 (International)

200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

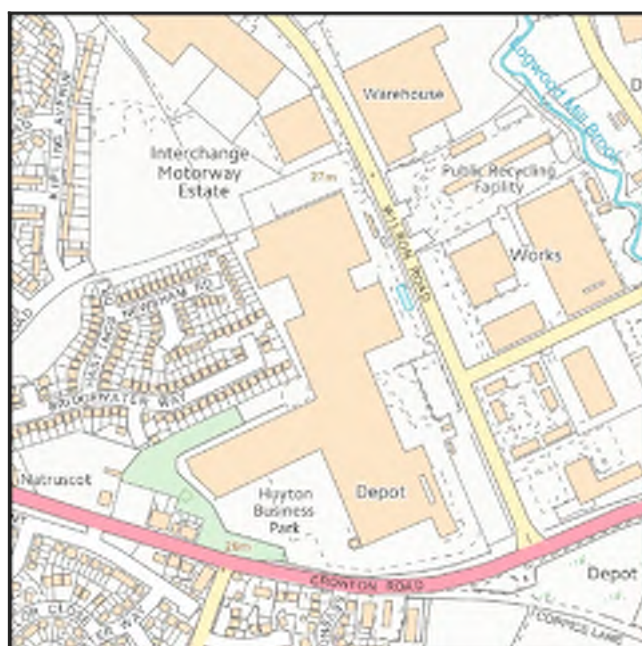
www.groundstability.com

 @coalauthority

 /company/the-coal-authority

 /thecoalauthority

 /thecoalauthority



Approximate position of property



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Section 1 – Mining activity and geology

Past underground mining

Colliery	Seam	Mineral	Coal Authority reference	Depth (m)	Direction to working	Dipping rate of seam worked (degrees)	Dipped direction of seam worked	Extraction thickness (cm)	Year last mined
unnamed	WIGAN FOUR FEET	Coal	303X	65	East	11.2	South-West	160	1876

Probable unrecorded shallow workings

Yes.

Spine roadways at shallow depth

No spine roadway recorded at shallow depth.

Mine entries

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	345389-002	345559 389962		Coal	
Shaft	345389-003	345449 389579	This shaft was located during development and was grouted and capped in 1994 by C.H. Stevenson.	Coal	
Shaft	345389-007	345830 389728	This shaft was capped to NCB specifications in 1969. The cap measuring 7.3 metres square by 600mm thick.	Coal	Kestrel Properties Ltd. 10/01/1974
Shaft	345389-008	345794 389728	This shaft was searched for in 1969 but no evidence of it was found	Coal	
Shaft	345389-011	345845 389425		Coal	
Shaft	345389-012	345599 389346		Coal	
Shaft	345389-013	345666 389335	A search was carried out for this shaft during site investigations in 2004. An area measuring 5 metres square around the plotted position of the shaft was excavated down to natural ground and no evidence of the feature was found. It was concluded that the shaft was not located within the area of search. Additionally each proposed plot adjacent to the shaft was probe drilled by Strata Grout Ltd and again no evidence of the shaft was found. This information was taken from a report compiled by Robert E Fry & Associates on behalf of the site developers Jensen Developments Ltd	Coal	
Shaft	345389-017	345765 389550	This shaft was located during a site investigation in 1976 The shaft was then excavated to rockhead where it was reported to terminate.	Coal	
Shaft	345389-018	345775 389544	This shaft was located during a site investigation in 1976 the shaft was then capped with a 4m square RC cap.	Coal	
Shaft	345389-019	345764 389540	This shaft was located during a site investigation in 1976 the shaft was then capped with a 7m square RC cap.	Coal	
Shaft	345389-020	345775 389515	This shaft was located during a site investigation in 1976 the shaft was grouted and capped with a 6m square RC cap.	Coal	
Shaft	345389-021	345764 389463	This shaft was located during a site investigation in 1976. The shaft was then grouted and capped with a 6m square RC cap.	Coal	
Shaft	345389-022	345614 389461	This shaft was located due to a collapse in Feb 1987. The shaft was grouted and capped with a 4.4m square RC cap 2.6m below ground level.	Coal	

Entry type	Reference	Grid reference	Treatment description	Mineral	Conveyancing details
Shaft	345389-023	345668 389760	This shaft was found during development was capped with a 3m square RC raft at rockhead. It is thought that the shaft was then conveyed to Capital @ Counties Ltd. In 1973 but we have no confirmation that this is so	Coal	
Shaft	345389-025	345612 389375	This shaft was located during an investigation carried out by R E Fry @ Associates It was found to be filled. The shaft was subsequently capped with a 5.0m x 5.0m x 450mm reinforced concrete cap 6.0m below ground level.	Coal	
Shaft	345389-026	345595 389319	This shaft was located during an investigation carried out by R E Fry @ Associates. It was found to have been filled. The shaft was then capped with a 8.0m x 8.0m x 600mm reinforced concrete cap 2.5m below ground level.	Coal	

Abandoned mine plan catalogue numbers

The following abandoned mine plan catalogue numbers intersect with some, or all, of the enquiry boundary:

16820	570	PO0
-------	-----	-----

Please contact us on 0345 762 6848 to determine the exact abandoned mine plans you require based on your needs.

Outcrops

Seam name	Mineral	Seam workable	Distance to outcrop (m)	Direction to outcrop	Bearing of outcrop
HAIGH YARD	Coal	Yes	Within	N/A	58
HIGHER FLORIDA	Coal	Yes	Within	N/A	261
HIGHER PIGEON HOUSE (PIGEON HOUSE)	Coal	Yes	Within	N/A	81
LOWER FLORIDA	Coal	Yes	Within	N/A	81
PLODDER	Coal	Yes	Within	N/A	59
RAMS	Coal	Yes	Within	N/A	81
RUSHY PARK	Coal	Yes	Within	N/A	60
ST. HELENS YARD	Coal	Yes	Within	N/A	79
TRENCHERBONE	Coal	Yes	Within	N/A	64
WIGAN FOUR FEET	Coal	Yes	Within	N/A	62
WIGAN FOUR FEET	Coal	Yes	33.5	North	74

Geological faults, fissures and breaklines

Please refer to the 'Summary of findings' map (on separate sheet) for details of any geological faults, fissures or breaklines either within or intersecting the enquiry boundary.

Faults under or close to the property recorded.

Opencast mines

None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips

None recorded within 500 metres of the enquiry boundary.

Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

Distance to site investigation (m)	Direction
3.7	South-West
Within	N/A
5.4	South-West
Within	N/A
49.4	South
Within	N/A
Within	N/A
Within	N/A
Within	N/A
23.9	North-East

See Section 4 for further information.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

The Coal Authority has not received a damage notice or claim for the subject property, or any property within 50 metres of the enquiry boundary, since 31 October 1994.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

Section 3 – Licensing and future mining activity

Future underground mining

None recorded.

Coal mining licensing

None recorded within 200 metres of the enquiry boundary.

Court orders

None recorded.

Section 46 notices

No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices

The property is not in an area where a notice to withdraw support has been given.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land

The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Development advice

The site is within an area of historical coal mining activity. Should you require advice and/or support on understanding the mining legacy, its risks to your development or what next steps you need to take, please contact us.

Site investigations

The site is within an area of previous interest. It is close to where the Coal Authority has received information relating to past site investigations.

The site requires further investigation and may influence how you approach your risk assessment.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk**.

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

Opencast mines

Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips

Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations

Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites

Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence

Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas

Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission.

Mine water treatment schemes

Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining

Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing

Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders

Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices

Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices

Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land

Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

- Approximate position of the enquiry boundary shown 
- Disused mine shaft 
- Outcrop (Conjectured) 
- Geological faults 
- Site investigations 

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