



**INVESTIGATE**



**REMEDiate**



**REGENERATE**



## **GROUND INVESTIGATION REPORT**

**FOR  
CRAVENWOOD PRIMARY ACADEMY,  
CRAVENWOOD ROAD,  
CRUMPSALL,  
GREATER MANCHESTER,**

**PREPARED FOR  
CRAVENWOOD PRIMARY ACADEMY**

**REPORT NO. 7077A  
MARCH 2021**

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**GROUND INVESTIGATION FOR CRAVENWOOD PRIMARY ACADEMY,  
CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER, M8 5AE**

**CLIENT: CRAVENWOOD PRIMARY ACADEMY**

**ENGINEER: SHARP & SCARFFE LTD**

**ARCHITECT: ADP ARCHITECTURE LTD**

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## **1. INTRODUCTION**

The initial report was prepared in accordance with an email instruction dated 21<sup>st</sup> September 2020, from the Engineer on behalf of the Client.

The brief was set out in our estimate, ref. E4346 and dated 20<sup>th</sup> August 2020, with amendments as the investigation proceeded and includes:

- 2 No. mini boreholes
- 4 No. hand dug trial pits
- Insitu testing
- Geotechnical laboratory testing
- Contamination analysis
- Provision of an interpretative report on the above.

A supplementary ground investigation report has been prepared in accordance with email instructions dated 4<sup>th</sup> and 16<sup>th</sup> December 2020 and 4<sup>th</sup> February 2021, from the Architect on behalf of the Client.

The brief was set out in our estimates, ref. E4562 dated 23<sup>rd</sup> November 2020, E4619 dated 16<sup>th</sup> December 2020, and E4562C dated 27<sup>th</sup> January 2021, with amendments as the investigation proceeded and includes:

- 1 No. cable percussive borehole (restricted headroom)
- 2 No. machine excavated trial pits
- Insitu testing
- Geotechnical laboratory testing
- Provision of an interpretative report on the above.

This Ground Investigation Report is to supersede ref. 7077 and dated December 2020.

### **1.1 Site Location and Description**

The site is located at Cravenwood Primary Academy, Cravenwood Road, Crumpsall, Greater Manchester, M8 5AE, as indicated on Figure 1. The approximate National Grid Reference of the centre of the site is 384070E, 402061N.

As shown on Figure 2, the rectangular shaped site is located in the north east of Cravenwood Primary Academy. The site is bound to the north by a retaining wall down to soft landscaping, a footpath and 14 Lowther Road, to the west by the same retaining wall and a soft play area, and to the south and west by school buildings. The site comprises of a children's play area under a steel framed canopy with metal shuttering adjoining the single storey school building.

The site is accessed up a ramp from the east of the site. In the centre of the site is a brick built storeroom. The surface under the canopy is concrete paving slabs in the east and astro turf in the west. To the north of the site is a 1m high brick built wall with wooden fencing on top. The wall also partly acts as a small retaining wall dropping down by approximately 1.0m centrally and to the east, and 0.2m in the west.

## **1.2 Proposed Development and Purpose of the Ground Investigation**

We understand that it is proposed to replace the canopy with a single storey two classroom extension with a pitched roof. Following the initial ground investigation, we understand pile foundations are now to be used with anticipated pile loads of approximately 125kN.

The purpose of the investigation was to determine the ground conditions at the positions of the exploratory holes, to assess the likelihood of a general pattern of strata being present below the site and to establish the load bearing characteristics of the strata deriving if possible an assessment of the suitability of appropriate founding techniques.

In addition, contamination analysis and assessment was required in order to determine necessary precautions and/or remedial measures required for the proposed development and to ascertain the need for any further sampling and analysis.

## **2. INVESTIGATION**

### **2.1 Investigation Details**

Two mini boreholes were put down to depths of 6.45 metres using a Dart Mini Sampling Rig fitted with windowless sample tubes of 84 to 54mm diameter at the positions determined by the Clients Engineer and set out by Sub Surface North West Ltd, as shown on Figure 3. The samples were subsequently logged in accordance with BS EN ISO 14688-1: 2018 and the resulting Mini Borehole Records are appended.

Four hand dug trial pits were taken out at the positions determined by the Clients Engineer and set out by Sub Surface North West Ltd, as shown on Figure 3. The hand dug trial pits were excavated to depths of between 0.38 and 1.20 metres, representative samples were taken and the materials were logged in accordance with BS EN ISO 14688-1: 2018. Dimensions of the foundations and services, where found, were recorded and the resulting Hand Dug Trial Pit Records are appended.

A third borehole and a hand dug trial pit were proposed in the west of the site. However, the area was covered by one single piece of astroturf and under the instruction of the Clients Engineer, these holes were not carried out due to reinstatement concerns.

In the supplementary ground investigation, two 150mm diameter boreholes were put down by cable percussive boring techniques using a cut down cable percussive rig at the positions determined and set out by Sub Surface North West, as shown on Figure 3. The first borehole refused on a cobble/boulder at 4.14m and therefore, a second borehole was drilled in the location of M1 to a depth of 12.45 metres. Due to time and school restrictions this borehole was started in December 2020 and completed on a second visit in February 2021. Samples taken were logged in accordance with BS EN ISO 14688-1: 2018 and the resulting Borehole Records are appended.

Two trial pits were taken out by a mechanical excavator in the location of HD2 and HD2A to investigate voids recorded in the first investigation, as shown on Figure 3.

The trial pits were excavated to depths of between 0.70 and 0.80 metres, representative samples were taken and the materials were logged in accordance with BS EN ISO 14688-1: 2018. The resulting Trial Pit Records are appended.

On completion, the boreholes were backfilled with arisings as no installations were required and the hand dug trial pits and trial pits were backfilled with arisings and it is likely that loose or soft pockets will still remain.

Ground levels at the exploratory hole positions have been interpolated from spot heights and contours given on topographical survey.

## 2.2 Sub Surface Detail

Details of the strata encountered in the ground investigation are given on the appended Mini Borehole and Hand Dug Trial Pit Records. The boreholes generally found Made Ground to depths of between 2.45m and >4.14m, overlying interbedded bands of soft low strength brown mottled grey clay and loose orangish brown and grey silt. In M2, the clay became firm high strength from 4.45m, overlying dense brown slightly silty fine to medium sand. In BH1A from 7.40m, was medium dense brown slightly sandy silt, overlying medium dense brown sand from 8.50m, overlying stiff very high strength clay from 11.00m. The depths of strata found were as follows:

TABLE 1 STRATA

| Expl. Hole No. | Ground Level (mOD) | Depth of Made Ground (m) | Depth of Cohesive Deposits (m)                                   | Depth of Granular Deposits (m)                                    | Depth of Hole (m) |
|----------------|--------------------|--------------------------|------------------------------------------------------------------|-------------------------------------------------------------------|-------------------|
| M1 / BH1A      | 82.00              | 2.95                     | -<br>3.20 – 3.90<br>4.40 – 4.80<br>6.00 – 7.40<br>11.00 – >12.45 | 2.95 – 3.20,<br>3.90 – 4.40,<br>4.80 – 6.00<br>7.40 – 11.00,<br>- | 12.45             |
| M2             | 82.00              | 2.45                     | 2.45 – 3.50,<br>3.65 – 5.50,<br>5.90 – 6.00,                     | 3.50 – 3.65,<br>5.50 – 5.90,<br>6.00 – 6.45.                      | 6.45              |
| BH1            | 82.00              | >4.14                    | -                                                                | -                                                                 | 4.14              |
| HD1            | 82.00              | >0.38                    | -                                                                | -                                                                 | 0.38              |
| HD2            | 81.25              | >0.80*                   | -                                                                | -                                                                 | 0.80              |
| HD2A           | 81.10              | >1.20**                  | -                                                                | -                                                                 | 1.20              |
| HD3            | 81.90              | >0.92                    | -                                                                | -                                                                 | 0.92              |
| TP2            | 81.25              | >0.80                    | -                                                                | -                                                                 | 0.80              |
| TP2A           | 81.10              | >0.70                    | -                                                                | -                                                                 | 0.70              |

\* Void from 0.45m to 0.80m

\*\* Void from 0.70m to 1.20m

M = Mini Borehole, BH = Borehole, HD = Hand Dug Trial Pit, TP = Trial Pit

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A general summary of the strata found is as follows:

#### 2.2.1 Made Ground

The boreholes recorded Made Ground to depths of between 2.45m and >4.14m, initially with a concrete paving slab over a sand subbase. The Made Ground varied between the boreholes with bands of dark grey sandy fine to coarse gravel sized fragments of stone, brick and concrete, dark grey gravelly slightly sandy silty clay and dark brown gravelly slightly silty sand. Up to medium content of cobble sized fragments of concrete, brick and stone were recorded in the Made Ground with BH1 refusing on a cobble/boulder at 4.14m.

#### 2.2.2 Drift Deposits

The boreholes recorded interbedded bands of soft low strength brown mottled grey slightly gravelly slightly sandy silty clay and loose orangish brown and grey slightly sandy silt. In M2, the clay became firm high strength from 4.45m, overlying dense brown slightly silty fine to medium sand.

In BH1A from 7.40m, the dark greyish brown slightly sandy silt was of medium dense becoming medium dense brown silty fine to medium sand from 8.50m, with a band of silt at 9.50m. From 11.00m to the base of the borehole was a stiff very high strength brown slightly gravelly slightly sandy silty clay.

#### 2.2.3 Foundations of Existing School Building

A hand dug trial pit was excavated with the purpose of exposing the foundations of the existing school building. HD1 recorded concrete from ground level to 0.20m, projecting 0.30m out from the wall, overlying a second layer of concrete 0.07m thick, projecting out a further 0.05m. The ground conditions recorded a concrete paving slab to 0.05m, overlying light brown gravelly slightly silty medium to coarse sand with high cobble sized fragments of stone (Made Ground). In our opinion, it is likely that the school building is built on piles which are set further into the building and not accessible/visible from hand digging or possibly a raft foundation. Details of HD1 are appended on the Hand Dug Trial Pit Record and Photograph sheets.

#### 2.2.4 Foundations of Retaining Wall

The foundations of the retaining wall were exposed in HD2, TP2, HD2A, TP2A and HD3 which recorded a brick footing at depths of 0.40m, 0.35m, 0.55m, 0.50m and 0.78m, with a thickness of 0.05m, 0.35m, 0.10m, 0.10m and 0.10m and a projection of 0.40m, 0.35m, 0.35m, 0.30m and 0.36m out from the retaining wall respectively. In HD3, the retaining wall was approximately 0.80m higher than HD2A/TP2A and was founded on a Made Ground stratum of reddish brown slightly clayey silty slightly sandy fine to coarse gravel sized fragments of stone and brick with medium cobble sized fragments of brick. In HD2 and HD2A, voids were recorded from 0.45m to 0.80m and 0.65m to 1.20m respectively which raised concerns over the overall stability of the retaining wall.

Further investigation was carried out at the locations of HD2 and HD2A with machine excavated trial pits TP2 and TP2A. The trial pits did not record any voids and therefore in our opinion, it is likely that the voids recorded in HD2 and HD2A are localised and due to the wall being founded on brick fill. In addition, the further investigation found the brick footing at HD2/TP2 to be 0.35m thick rather than 0.05m as initially recorded in HD2.

Details of HD2, HD2A, HD3, TP2 and TP2A are appended on the Hand Dug Trial Pit Record, Trial Pit Record and Photograph sheets.

### 2.2.5 Groundwater

A medium groundwater inflow was recorded in BH1A at 8.50m, rising to 7.00m after 20minutes. In addition, there was a possibly a water inflow in M1 at 5.00m, as the stratum was wet. No groundwater was recorded in the remainder of the exploratory holes, although it should be noted that they were only left open for a short period of time and groundwater levels and rates of inflow may be subject to seasonal and/ or climatic variations.

## 3. SAMPLING AND TESTING

### 3.1 Sampling

Continuous core, small disturbed and bulk disturbed samples were obtained for the strata encountered and were subjected to careful examination and hand shear vane tests, where appropriate.

The samples will be retained for a period of one month after the issue of this report, for reference purposes, and then disposed of unless otherwise instructed.

### 3.2 Field Testing

Sixteen Standard Penetration Tests (SPTs) and five Cone Penetration Tests (DPTs) were performed in mini boreholes, the results of which are recorded on the appended Standard Penetration Test Results Sheet with 'N' values and indicative relative density and shear strength, where appropriate, given on the Mini Borehole Records.

### 3.3 Laboratory Testing

The following laboratory tests were carried out in accordance with BS.1377: 1990, where applicable, and the results are appended.

- Moisture content, plastic limit and liquid limit tests
- Particle size distribution by wet sieve analysis
- Soluble sulphate content and pH value tests

Contamination analyses have been performed on two soil samples to determine: pH and concentrations of sulphate, sulphide, cyanide, arsenic, boron (soluble), cadmium, chromium, hexavalent chromium, copper, lead, mercury, molybdenum, nickel, selenium, zinc, speciated total petroleum hydrocarbons (TPHs), the speciated polynuclear aromatic hydrocarbons (PAHs) suite, the benzene/ ethylbenzene/ toluene/ xylene (BTEX) suite and phenols. In addition, two soil samples were subjected to an asbestos screen.

The results of the above analyses are appended.

## 4. APPRAISAL AND RECOMMENDATIONS

### 4.1 Comments on the Profile

At the outset it should be appreciated that only a small proportion of the area to be developed has been investigated and consequently the recommendations made and opinions expressed in this report can only be applied to such conditions as were encountered in the exploratory holes.

The exploratory holes indicate a nature and degree of similarity to the extent that we consider them likely to be representative of the natural ground conditions. However, whilst the exploratory holes indicate a degree of similarity they should not be interpolated or extrapolated to represent the ground conditions in adjacent areas.

Due to the site having been previously developed, and the nature of Made Ground, localised variations in thickness and composition should be anticipated and hence interpolation or extrapolation from the exploratory holes to adjoining areas should not be undertaken.

Hand dug and machine excavated trial pits were carried out to expose the foundations of the existing retaining wall of which details are recorded in Section 2.2.4, along with the Hand Dug Trial Pit Record, Trial Pit Record and Photograph sheets appended. The footings appear to be variable in size and depth, but would be considered of poor quality and unsatisfactory by current standards, being too shallow such that they could be affected by seasonal moisture variation. In addition, they are too thin and with insufficient projection (width), such that they could be affected by overturning, sliding and settlement. They are also founded on loose Mad Ground with localised voids. Consequently, we would recommend removing the retaining wall prior to development. If a retaining wall is required, we would recommend that the retaining wall is suitably designed and re-built.

Details of the findings of the investigation are given on the appended Mini Borehole, Borehole, Hand Dug Trial Pit and Trial Pit Records and a summary of the ground conditions is given in Section 2.2.

### 4.2 Foundations

The site is located within a coal mining reporting area and the appended Coal Authority Mining Report indicates that the site is not at risk of shallow coal mining and therefore no further consideration is required.

We understand that it is proposed to replace the canopy with a single storey two classroom extension with a pitched roof. Following the findings of the initial ground investigation, we understand that the development is to be built using pile foundations, where pile loads are anticipated to be approximately 125kN.

The ground investigation generally found Made Ground to depths of between 2.45m and >4.14m, overlying interbedded bands of soft low strength brown mottled grey clay and loose orangish brown and grey silt. In M2, the clay became firm high strength from 4.45m, overlying dense brown slightly silty fine to medium sand. In BH1A from 7.40m, was medium dense brown slightly sandy silt, overlying medium dense brown sand from 8.50m, overlying stiff very high strength clay from 11.00m.

We would not recommend founding in the Made Ground in its present condition because of its inherent variability in consistency and compaction, and in parts the nature of its constituents.

Atterberg limit tests on the cohesive strata indicate clays of low plasticity which are considered to have a low susceptibility to shrinkage and swelling with varying moisture content. Given the above foundations should be taken down to a minimum 0.75 metres below finished ground level to avoid the zone which is subject to seasonal moisture content variation and frost action. If buildings are to be constructed adjacent to existing trees, trees are to be removed and/or trees are to be planted then the guidelines given in the National House Building Council (NHBC) Standards Chapter 4.2, 'Building Near Trees', should be followed for clays of low shrinkage and swelling potential.

It should be noted that the natural strata is at a depth of in excess of 0.75 metres and foundations should be taken down to a minimum 0.10 metres below the base of the Made Ground unless the NHBC guidelines indicate a greater depth.

Taking the results of the field tests, we have determined the safe bearing capacity of the natural strata, as follows:

TABLE 2 SAFE BEARING CAPACITY

| Expl Hole No. | Depth (m) | SPT 'N' Value | Shear Strength (kN/m <sup>2</sup> ) | Safe Bearing Pressure (kN/m <sup>2</sup> ) |            | Recommended Minimum Foundation Depth (m) |
|---------------|-----------|---------------|-------------------------------------|--------------------------------------------|------------|------------------------------------------|
|               |           |               |                                     | Strip Footing                              | Square Pad |                                          |
| M1 / BH1A     | 3.15      | 5             | 20                                  | 35                                         | 45         | X                                        |
|               | 3.70      | -             | 30#                                 | 55*                                        | 65*        |                                          |
|               | 4.15      | 6             | -                                   | 50***                                      | 50***      |                                          |
|               | 5.15      | 4             | -                                   | 30**                                       | 30**       |                                          |
|               | 6.15      | 6             | 24                                  | 45                                         | 55         |                                          |
| M2            | 2.80      | -             | 40#                                 | 75*                                        | 90*        | 2.60                                     |
|               | 3.15      | 9             | 36                                  | 65                                         | 80         |                                          |
|               | 3.80      | -             | 42#                                 | 80*                                        | 95*        |                                          |
|               | 4.15      | 6             | 24                                  | 45                                         | 55         |                                          |
|               | 5.15      | 23            | 92                                  | 175                                        | 210        |                                          |
|               | 6.15      | 37            | -                                   | 440**                                      | 440**      |                                          |
| BH1A          | -         | -             | -                                   | -                                          | -          | X                                        |

\* Consideration must be given to weaker underlying strata which might be overstressed if loading is not reduced.

\*\* For footings on granular strata, the safe bearing capacity given is based upon a footing width of less than 1.50 metres. For wider footings a reduction would be necessary.

# Shear strength determined by hand shear vane test.

In view of the relatively low safe bearing pressures determined above and depth of Made Ground, shallow foundations in natural ground are unlikely to be feasible and we would recommend a pile foundation.

With regard to the choice of pile type, we would not recommend using driven piles as the vibrations set up during the driving process would likely be transmitted to the adjacent/ nearby buildings, underlying services and the retaining wall, where they may be detrimentally affected. Therefore, we would recommend using continuous flight auger (CFA) piles or cast in-situ bored piles. When considering the type of pile to use it should be noted that cobbles/boulders were recorded in BH1 from 3.50m, where the borehole was unable to progress below 4.14m.

If a retaining wall is to be present adjacent to the site, we would recommend that the piles are slip coated to ensure no additional loads are applied to the retaining wall.

Care must be taken to space the piles in any group to ensure the adequate utilisation of skin friction where this has been assumed in the calculation of the load bearing capacity of an individual pile. Checks must also be undertaken to confirm that the underlying ground supporting the pile group is not overstressed.

In determining the final pile design, it should be noted that up to and possibly deeper than 4.14 metre of the piles will be in Made Ground and due regard should be paid to the lack of lateral restraint over this length in cases where significant lateral forces are to be catered for.

To provide assistance for estimating purposes only, we have undertaken a preliminary pile design calculation for a 12.45 metre long pile taking into consideration the ground conditions at BH1A, as follows:

Preliminary Pile Design based on strata in BH1A (water at 7.00 m)

Bored Cast In-situ or CFA Pile                      Factor of Safety: 2.5 (shaft), 3.0 (end)  
Dia. = 0.30m, Perimeter = 0.94m, Cross Section Area = 0.07m<sup>2</sup>, Length = 12.45m

|                 |                                                         |                              |
|-----------------|---------------------------------------------------------|------------------------------|
| 0.00 to 7.40m   | Made Ground, Low Strength CLAY and SILT, and Loose SILT | ignore                       |
| 7.40 to 8.50m   | Medium dense dark slightly sandy SILT                   | (N = 16)                     |
|                 | Allowable Shaft Friction                                | = 17.4 kN/m <sup>2</sup>     |
|                 | Allowable Shaft Friction Load                           | = <u>18 kN</u>               |
| 8.50 to 11.00m  | Medium dense silty fine to medium SAND                  | (N = 21)                     |
|                 | Allowable Shaft Friction                                | = 24.2 kN/m <sup>2</sup>     |
|                 | Allowable Shaft Friction Load                           | = <u>56 kN</u>               |
| 11.00 to 12.45m | Stiff very high strength CLAY                           | (c = 184 kN/m <sup>2</sup> ) |
|                 | Allowable Shaft Friction                                | = 28.0 kN/m <sup>2</sup>     |
|                 | Allowable Shaft Friction Load                           | = <u>38 kN</u>               |
| 12.45m          | Stiff very high strength CLAY                           | (c = 188 kN/m <sup>2</sup> ) |
|                 | Allowable End Bearing                                   | = 564 kN/m <sup>2</sup>      |
|                 | Allowable End Bearing Load                              | = <u>39 kN</u>               |

Total Allowable Working Load = 18 + 56 + 38 + 39 = 151 kN

In order to use the load carrying capacity attributable to both shaft friction and end bearing, the final design figures should be checked to ensure that the ultimate shaft friction is greater than or equal to the allowable working load, otherwise end bearing only should be used.

There is a possibility that for piles installed through a significant thickness of Made Ground some continuing self-weight and consolidation settlement might take place and exert negative skin friction. Due allowance should be made for this in any pile design.

To formulate the most satisfactory and economic scheme we suggest that competitive tenders and designs from Specialist Piling Contractors should be sought using the borehole information obtained.

We recommend that a flexible joint is provided between the existing and proposed buildings to allow for differential movement.

### **4.3 Floor Slab Construction**

With regard to the design and construction of normal ground bearing floor slabs, it should be noted that due to the thickness of Made Ground there will be a risk of significant total and differential settlements, the extent of which will be a matter of chance rather than being assessable by calculation.

To obviate any significant damaging settlements we would recommend using a suspended floor slab with intermediate support designed on the same basis as the main foundations where the spans are too large for economical single suspended slab design.

### **4.4 Excavations and Groundwater**

There should be no particular difficulties in excavating the strata indicated in the exploratory holes utilising an appropriate and suitably sized mechanical excavator.

It is recommended that all excavations to greater than 1.20 metres depth, or for shallower excavations where groundwater is encountered above this level, are closely supported, especially where man entry is required. Alternatively, where space permits, the excavations might be battered back to an appropriate angle.

A medium groundwater inflow was recorded in BH1A at 8.50m, rising to 7.00m after 20minutes. In addition, there was a possibly a water inflow in M1 at 5.00m, as the stratum was wet. No groundwater was recorded in the remainder of the exploratory holes, although it should be noted that they were only left open for a short period of time and groundwater levels and rates of inflow may be subject to seasonal and/ or climatic variations.

Given the limited information, groundwater seepages or inflows are not anticipated in shallow excavations. However, should groundwater seepages occur and water accumulate in the excavation, it should be able to be removed by pumping from a filtered sump.

## 4.5 Buried Concrete

For the design of buried concrete the recommendations given in Building Research Establishment (BRE) Special Digest 1 (February 2017 revision), “Concrete in Aggressive Ground”, should be followed.

Determination of pH on the soil samples gave values in the range of 5.5 (acidic) to 9.0 (alkaline).

Soluble sulphate concentrations were also determined for the soil samples and the results ranged from <0.01 to 0.05 g/l. The results indicate that the Design Sulphate Class for the site should be DS-1.

Our knowledge of the site and ground conditions indicates that the site is “brownfield” and acidic with potentially mobile groundwater. Consequently, in accordance with the Design Sulphate Class for the site together with the site and groundwater conditions an Aggressive Chemical Environment for Concrete (ACEC) classification of AC-3z should be used as detailed on the appended extract.

## 4.6 Contamination Considerations

At the outset it should be noted that this contamination investigation is a baseline survey in order to provide a contamination risk assessment. Based upon the findings additional sampling, analysis and assessment may be required.

Analysis of a suite of common determinants has been undertaken in the absence of historical evidence of the source of the Made Ground. However, the absence of other specific contaminants cannot be guaranteed.

### 4.6.1 Assessment (Soil)

In order to provide an assessment of the presence of contamination two soil samples have been analysed for a suite of determinants and the results are appended.

Levels of the determinants have been compared against the most recently published guideline values. Contaminated Land: Applications in Real Environments (CL:AIRE) published guideline values in December 2009 to supplement previous guideline values. The Department for Environment, Food and Rural Affairs (DEFRA) published in March 2014 Category 4 Screening Levels (C4SLs) for arsenic, cadmium, lead, hexavalent chromium, benzo(a)pyrene and benzene. Land Quality Management Limited (LQM)/ Chartered Institute of Environmental Health (CIEH) then published Suitable for Use Levels (S4ULs) in November 2014, which largely superseded the previous guideline values. Updated S4ULs values for cadmium and phenols were published in July 2015 and for nickel in August 2015. The guideline values (S4ULs and occasionally C4SLs and CL:AIRE) are derived using the Environment Agency’s CLEA Model and vary dependent upon the land use; allotment and residential use being the most sensitive and commercial/ industrial use being the least sensitive.

For the purposes of assessment, as the proposed development is classrooms, contamination analyses have been compared with the guideline values for a standard land use of residential without plant uptake (without homegrown produce).

When compared with published guideline values for a standard land use of residential without plant uptake the contamination analysis determined elevated levels of a number of Polynuclear Aromatic Hydrocarbons (PAHs), as tabulated below:

TABLE 3 ASSESSMENT OF SOIL CONTAMINATION

| Determinant           | Exp. Hole No. | Depth (m)   | Determined Level (mg/kg) | S4UL (mg/kg) |
|-----------------------|---------------|-------------|--------------------------|--------------|
| benzo(b)fluoranthene  | M1            | 0.50 – 1.20 | 7.1                      | 4.0          |
| benzo(a)pyrene        | M1            | 0.50 – 1.20 | 5.7                      | 3.2          |
| dibenzo(ah)anthracene | M1            | 0.50 – 1.20 | 1.2                      | 0.32         |

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As shown in Table 3, elevated levels of benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(ah)anthracene have been detected in the Made Ground of M1. The pathway from the source to site operatives during earthworks, the end users of the development and any proposed planting (receptors) will need to be removed by precautions and/ or remedial measures.

An asbestos screen was undertaken on two soil samples and no asbestos was detected.

#### 4.6.2 Conclusions and Recommendations

Section 78a(2) of the Environmental Protection Act: 1990 as amended by the Contaminated Land (England) (Amendment) regulations 2012, and Section 86 of the Water Act 2003, defines CONTAMINATED LAND for the purposes of Part IIA as:

“any land which appears to the LOCAL AUTHORITY in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that:

- (a) SIGNIFICANT HARM is being caused or there is a SIGNIFICANT POSSIBILITY of such harm being caused; or
- (b) SIGNIFICANT POLLUTION OF CONTROLLED WATERS is being, or is likely to be, caused”

Before a LOCAL AUTHORITY can make the judgement that land appears to be CONTAMINATED LAND on the basis that SIGNIFICANT HARM is being caused, or that there is a SIGNIFICANT POSSIBILITY of such harm being caused, the LOCAL AUTHORITY must identify a SIGNIFICANT POLLUTANT LINKAGE. This means that each of the following has to be identified:

- (a) a CONTAMINANT;
- (b) a relevant RECEPTOR (defined as living organisms, ecological systems, controlled waters or property); and
- (c) a PATHWAY by means of which either:
  - (i) the CONTAMINANT is causing SIGNIFICANT HARM to that RECEPTOR, or
  - (ii) there is a SIGNIFICANT POSSIBILITY of such harm being caused by that CONTAMINANT to that RECEPTOR

*It should be noted that the words in capitals have a legal definition within the legislation.*

Without a clear identification of all three elements of the pollutant linkage, land cannot be identified as contaminated under the regime.

The National Planning Policy Framework states that, “after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990”. Therefore, the general principles detailed above apply to this assessment.

Our assessment, based on two soil samples, indicates elevated levels of benzo(b)fluoranthene, benzo(a)pyrene and dibenzo(ah)anthracene are present in the near surface Made Ground/ soils (source). The pathway from the source to site operatives during earthworks the end users of the development and any proposed planting (receptors) will need to be removed by precautions and/ or remedial measures.

As the contaminated ground will be covered by buildings or hardstandings for the proposed development, we consider that no other surface protection will be necessary as the pathway from the source to receptor will be broken.

Contaminated materials should, where possible, be retained on site. However, it should be appreciated that contaminated material left on site is the legal responsibility of the landowner, unless the person who created the contamination can be identified.

If waste materials are to be removed from the site, classification of the waste should be undertaken to determine the most appropriate tip to use and the associated costs. It should be noted that significant cost savings can sometimes be made on waste disposal by correct classification of the waste, a service that we can provide.

It should be noted that all vehicles carrying contaminated material should be securely sheeted and the wheels and undercarriages cleaned before leaving site to ensure that hazardous materials are not dropped onto public roads.

S4ULs, C4SLs and CL:AIRE assume long term contact with contamination and assess chronic health risk. The risk of short term acute exposure to site personnel is dealt with in the remit of the Health and Safety Executive under the Health and Safety at Work Act: 1974 and Regulations made under the Act, including the Control of Substances Hazardous to Health (COSHH) Regulations. The levels of contamination and risk to site personnel should be considered under the Construction Design and Management (CDM) Regulations at the planning stage and in the development of the designers and contractors Health and Safety Plans and Method Statements. The risk of contact with on-site soils should be minimised and the following precautions should be taken as a minimum requirement.

Site personnel involved in earthworks and excavations should wear gloves, overalls, and boots and smoking should be prohibited.

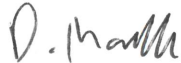
#### 4.7 General

In the preparation of this report no consideration has been given to the historical, geological, mining and/ or environmental setting of the site, the possible presence of ground gas and the long-term stability of the existing retaining structures and the short and long term stability of any proposed retaining structures required for the proposed development, as this was outside our brief.

We recommend that consultation should be undertaken with the Local Authority Environmental Health Officer, the Local Authority Building Control Officer and the Coal Authority prior to development.

We trust that this report fulfils your present requirements but if you have any queries or we can be of further assistance please contact the undersigned or Miss Anna Marsden at our Preston office.

SUB SURFACE CONSULTANTS LIMITED  
REPORT No. 7077A  
MARCH 2021



D. C. Marsden M.Eng.(Hons.), C.Eng., M.I.C.E.  
Senior Geotechnical Engineer  
For and on behalf of  
Sub Surface Consultants Limited



C. A. Marsden B.Sc.(Hons.), C.Eng., M.I.C.E.  
Director  
For and on behalf of  
Sub Surface Consultants Limited.

## **INSITU TEST RESULTS**

| <div><div><div>S</div><div>S</div></div><div><div>SUB SURFACE</div><div>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL &amp; ENVIRONMENTAL CONSULTANTS</div><div>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907</div></div></div> |                      |                          |                       |           |                        |   | Standard Penetration Test Results |   |   |    |        |                    |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------|-----------------------|-----------|------------------------|---|-----------------------------------|---|---|----|--------|--------------------|--|
| Site : CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER.                                                                                                                                                                                    |                      |                          |                       |           |                        |   |                                   |   |   |    |        | Job Number<br>7077 |  |
| Client : CRAVENWOOD PRIMARY ACADEMY.                                                                                                                                                                                                                                  |                      |                          |                       |           |                        |   |                                   |   |   |    |        | Sheet<br>1 / 1     |  |
| Engineer: SHARP & SCARFFE LIMITED.                                                                                                                                                                                                                                    |                      |                          |                       |           |                        |   |                                   |   |   |    |        |                    |  |
| Borehole Number                                                                                                                                                                                                                                                       | Base of Borehole (m) | End of Seating Drive (m) | End of Test Drive (m) | Test Type | Seating Blows per 75mm |   | Blows for each 75mm penetration   |   |   |    | Result | Comments           |  |
|                                                                                                                                                                                                                                                                       |                      |                          |                       |           | 1                      | 2 | 1                                 | 2 | 3 | 4  |        |                    |  |
| M1                                                                                                                                                                                                                                                                    | 1.20                 | 1.35                     | 1.65                  | SPT       | 3                      | 4 | 3                                 | 3 | 3 | 3  | N=12   | No Recovery        |  |
| M1                                                                                                                                                                                                                                                                    | 2.00                 | 2.15                     | 2.45                  | SPT       | 2                      | 3 | 3                                 | 2 | 2 | 3  | N=10   |                    |  |
| M1                                                                                                                                                                                                                                                                    | 3.00                 | 3.15                     | 3.45                  | SPT       | 2                      | 2 | 1                                 | 1 | 2 | 1  | N=5    |                    |  |
| M1                                                                                                                                                                                                                                                                    | 4.00                 | 4.15                     | 4.45                  | SPT       | 1                      | 2 | 1                                 | 2 | 1 | 2  | N=6    |                    |  |
| M1                                                                                                                                                                                                                                                                    | 5.00                 | 5.15                     | 5.45                  | SPT       | 1                      | 0 | 1                                 | 1 | 1 | 1  | N=4    |                    |  |
| M1                                                                                                                                                                                                                                                                    | 6.00                 | 6.15                     | 6.45                  | SPT       | 1                      | 2 | 1                                 | 1 | 2 | 2  | N=6    |                    |  |
| M2                                                                                                                                                                                                                                                                    | 1.20                 | 1.35                     | 1.65                  | SPT       | 6                      | 4 | 4                                 | 3 | 2 | 2  | N=11   | No Recovery        |  |
| M2                                                                                                                                                                                                                                                                    | 2.00                 | 2.15                     | 2.45                  | SPT       | 3                      | 2 | 1                                 | 1 | 1 | 2  | N=5    |                    |  |
| M2                                                                                                                                                                                                                                                                    | 3.00                 | 3.15                     | 3.45                  | SPT       | 2                      | 2 | 2                                 | 2 | 2 | 3  | N=9    |                    |  |
| M2                                                                                                                                                                                                                                                                    | 4.00                 | 4.15                     | 4.45                  | SPT       | 1                      | 1 | 2                                 | 1 | 1 | 2  | N=6    |                    |  |
| M2                                                                                                                                                                                                                                                                    | 5.00                 | 5.15                     | 5.45                  | SPT       | 6                      | 7 | 5                                 | 4 | 4 | 10 | N=23   |                    |  |
| M2                                                                                                                                                                                                                                                                    | 6.00                 | 6.15                     | 6.45                  | SPT       | 6                      | 8 | 8                                 | 9 | 9 | 11 | N=37   |                    |  |

| <div><div><div>S</div><div>S</div></div><div><div>SUB SURFACE</div><div>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL &amp; ENVIRONMENTAL CONSULTANTS</div><div>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907</div></div></div> |                      |                          |                       |           |                        |   | Standard Penetration Test Results |    |    |    |                     |                                                  |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------------|-----------------------|-----------|------------------------|---|-----------------------------------|----|----|----|---------------------|--------------------------------------------------|--|
| <div><div>Site</div><div>:</div><div>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, MANCHESTER</div></div>                                                                                                                                                   |                      |                          |                       |           |                        |   |                                   |    |    |    |                     | <div><div>Job Number</div><div>7077A</div></div> |  |
| <div><div>Client</div><div>:</div><div>CRAVENWOOD PRIMARY ACADEMY</div></div>                                                                                                                                                                                         |                      |                          |                       |           |                        |   |                                   |    |    |    |                     | <div><div>Sheet</div><div>1 / 1</div></div>      |  |
| <div><div>Engineer:</div><div>SHARPE &amp; SCARFFE LTD</div></div>                                                                                                                                                                                                    |                      |                          |                       |           |                        |   |                                   |    |    |    |                     |                                                  |  |
| Borehole Number                                                                                                                                                                                                                                                       | Base of Borehole (m) | End of Seating Drive (m) | End of Test Drive (m) | Test Type | Seating Blows per 75mm |   | Blows for each 75mm penetration   |    |    |    | Result              | Comments                                         |  |
|                                                                                                                                                                                                                                                                       |                      |                          |                       |           | 1                      | 2 | 1                                 | 2  | 3  | 4  |                     |                                                  |  |
| BH1                                                                                                                                                                                                                                                                   | 1.20                 | 1.35                     | 1.65                  | CPT       | 4                      | 4 | 4                                 | 4  | 4  | 5  | N=17                |                                                  |  |
| BH1                                                                                                                                                                                                                                                                   | 2.00                 | 2.15                     | 2.45                  | CPT       | 2                      | 2 | 4                                 | 3  | 4  | 4  | N=15                |                                                  |  |
| BH1                                                                                                                                                                                                                                                                   | 3.00                 | 3.15                     | 3.25                  | CPT       | 1                      | 4 | 30                                | 20 |    |    | 50/100mm            |                                                  |  |
| BH1                                                                                                                                                                                                                                                                   | 4.00                 | 4.07                     | 4.14                  | CPT       | 25                     |   | 50                                |    |    |    | 25*/70mm<br>50/70mm |                                                  |  |
| BH1A                                                                                                                                                                                                                                                                  | 1.20                 | 1.35                     | 1.65                  | SPT       | 3                      | 4 | 3                                 | 3  | 3  | 3  | N=12                | No Recovery                                      |  |
| BH1A                                                                                                                                                                                                                                                                  | 2.00                 | 2.15                     | 2.45                  | SPT       | 2                      | 3 | 3                                 | 2  | 2  | 3  | N=10                |                                                  |  |
| BH1A                                                                                                                                                                                                                                                                  | 3.00                 | 3.15                     | 3.45                  | SPT       | 2                      | 2 | 1                                 | 1  | 2  | 1  | N=5                 |                                                  |  |
| BH1A                                                                                                                                                                                                                                                                  | 4.00                 | 4.15                     | 4.45                  | SPT       | 1                      | 2 | 1                                 | 2  | 1  | 2  | N=6                 |                                                  |  |
| BH1A                                                                                                                                                                                                                                                                  | 5.00                 | 5.15                     | 5.45                  | SPT       | 1                      | 0 | 1                                 | 1  | 1  | 1  | N=4                 |                                                  |  |
| BH1A                                                                                                                                                                                                                                                                  | 6.00                 | 6.15                     | 6.45                  | SPT       | 1                      | 2 | 1                                 | 1  | 2  | 2  | N=6                 |                                                  |  |
| BH1A                                                                                                                                                                                                                                                                  | 7.50                 | 7.65                     | 7.95                  | SPT       | 2                      | 2 | 3                                 | 4  | 5  | 4  | N=16                |                                                  |  |
| BH1A                                                                                                                                                                                                                                                                  | 8.50                 | 8.65                     | 8.95                  | CPT       | 3                      | 4 | 4                                 | 4  | 4  | 6  | N=18                |                                                  |  |
| BH1A                                                                                                                                                                                                                                                                  | 10.00                | 10.15                    | 10.45                 | SPT       | 4                      | 4 | 5                                 | 5  | 6  | 8  | N=24                |                                                  |  |
| BH1A                                                                                                                                                                                                                                                                  | 11.50                | 11.65                    | 11.95                 | SPT       | 5                      | 7 | 9                                 | 10 | 12 | 14 | N=45                |                                                  |  |
| BH1A                                                                                                                                                                                                                                                                  | 12.00                | 12.15                    | 12.45                 | SPT       | 5                      | 6 | 8                                 | 11 | 12 | 16 | N=47                |                                                  |  |

## **LABORATORY TEST RESULTS**



**Site** : CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER.

7077

**Client** : CRAVENWOOD PRIMARY ACADEMY.

Sheet

**Engineer:** SHARP & SCARFFE LIMITED.

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| Borehole/<br>Trial Pit | Depth<br>(m) | Sample | Natural<br>Moisture<br>Content<br>% | Sample Passing<br>425µm Sieve |                          | Liquid<br>Limit<br>% | Plastic<br>Limit<br>% | Plasticity<br>Index<br>% | Liquidity<br>Index | Group<br>Symbol | Laboratory Description                                 |
|------------------------|--------------|--------|-------------------------------------|-------------------------------|--------------------------|----------------------|-----------------------|--------------------------|--------------------|-----------------|--------------------------------------------------------|
|                        |              |        |                                     | Percentage<br>%               | Moisture<br>Content<br>% |                      |                       |                          |                    |                 |                                                        |
| M1                     | 3.00         | D      | 23                                  | 96                            | 24                       |                      |                       |                          |                    | NP              | Light grey mottled orange slightly sandy SILT.         |
| M2                     | 3.00         | D      | 20                                  | 99                            | 20                       | 32                   | 20                    | 12                       | 0.00               | CL              | Orangish brown mottled grey slightly sandy silty CLAY. |

**Method of Preparation :** BS 1377:PART 1:1990:7.4 Preparation of samples for classification tests BS 1377:PART 2:1990:4.2 & 5.2 Sample preparations

**Method of Test** : BS 1377:PART 2:1990:3 Determination of moisture content 1990:4 Determination of the liquid limit BS 1377:PART 2:1990:5 Determination of the plastic limit and plasticity index

Remarks :



|                                                                                                                                                                                 |                            |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|
| <b>Site</b> : CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, MANCHESTER<br><br><b>Client</b> : CRAVENWOOD PRIMARY ACADEMY<br><br><b>Engineer:</b> SHARPE & SCARFFE LTD | <b>Job Number</b><br>7077A |
|                                                                                                                                                                                 | <b>Sheet</b><br>1 / 1      |

| Borehole/<br>Trial Pit | Depth<br>(m) | Sample | Natural<br>Moisture<br>Content<br>% | Sample Passing<br>425µm Sieve |                          | Liquid<br>Limit<br>% | Plastic<br>Limit<br>% | Plasticity<br>Index<br>% | Liquidity<br>Index | Group<br>Symbol | Laboratory Description                                                                                                  |
|------------------------|--------------|--------|-------------------------------------|-------------------------------|--------------------------|----------------------|-----------------------|--------------------------|--------------------|-----------------|-------------------------------------------------------------------------------------------------------------------------|
|                        |              |        |                                     | Percentage<br>%               | Moisture<br>Content<br>% |                      |                       |                          |                    |                 |                                                                                                                         |
| BH1A                   | 8.50         | D      | 29                                  | 67                            | 43                       | 23                   |                       |                          |                    | NP              | Brown silty fine to medium SAND.                                                                                        |
| BH1A                   | 11.50        | D      | 17                                  | 92                            | 18                       | 24                   | 14                    | 10                       | 0.40               | CL              | Brown slightly gravelly slightly sandy silty CLAY. Gravel is subrounded fine to coarse siltstone, sandstone and quartz. |

Remarks : NP = Non Plastic



# SUB SURFACE

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3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907

## Laboratory Test Results

**Site** : CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER.

**Client** : CRAVENWOOD PRIMARY ACADEMY.

**Engineer** : SHARP & SCARFFE LIMITED.

**Job Number**

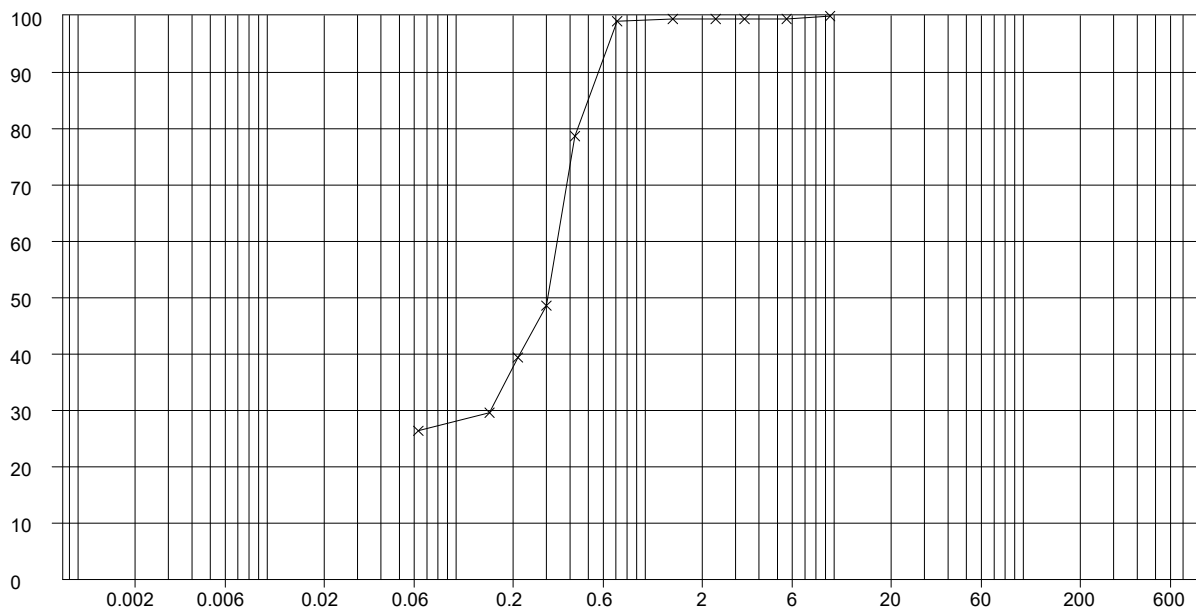
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**Sheet**

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### DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole /<br>Trial Pit | Depth<br>(m)   | Sample | Laboratory Description                                     |
|-------------------------|----------------|--------|------------------------------------------------------------|
| M2                      | 5.80<br>- 5.90 | C      | Orangish brown and brown clayey silty fine to medium SAND. |



| Sieve /<br>Particle<br>Size | %<br>Passing |
|-----------------------------|--------------|
| 9.5 mm                      | 100.0        |
| 5.6 mm                      | 99.5         |
| 3.35 mm                     | 99.5         |
| 2.36 mm                     | 99.5         |
| 1.4 mm                      | 99.5         |
| 710 µm                      | 99.1         |
| 425 µm                      | 78.7         |
| 300 µm                      | 48.6         |
| 212 µm                      | 39.4         |
| 150 µm                      | 29.6         |
| 63 µm                       | 26.4         |

|      |      |        |        |      |        |        |        |        |        |         |          |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine   | Medium | Coarse | COBBLES | BOULDERS |
|      | SILT |        |        | SAND |        |        | GRAVEL |        |        |         |          |

| Grading Analysis       |          |
|------------------------|----------|
| D85                    | 513.0 µm |
| D60                    | 347.3 µm |
| D10                    | <63.0 µm |
| Uniformity Coefficient | -        |

| Particle Proportions |       |
|----------------------|-------|
| Cobbles + Boulders   | -     |
| Gravel               | 0.5%  |
| Sand                 | 73.1% |
| Silt                 | -     |
| Clay                 | -     |

**Method of Preparation** : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

**Method of Test** : BS 1377:PART 2:1990:9 Determination of particle size distribution

**Remarks** :



# SUB SURFACE

SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS  
3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907

## Laboratory Test Results

**Site** : CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, MANCHESTER

**Client** : CRAVENWOOD PRIMARY ACADEMY

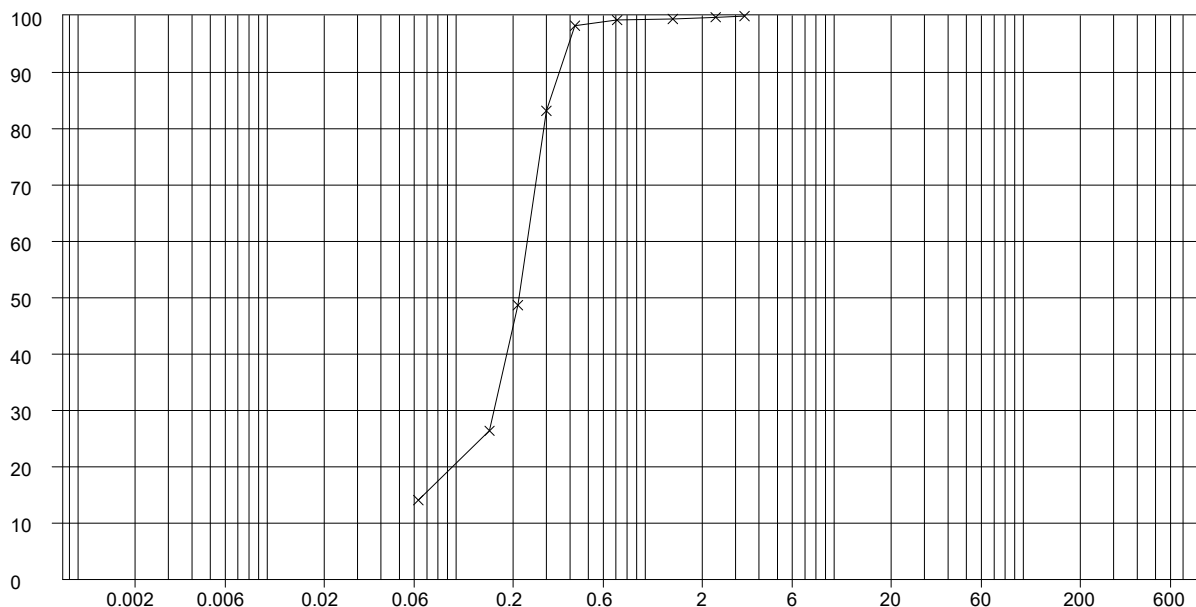
**Engineer** : SHARPE & SCARFFE LTD

**Job Number**  
7077A

**Sheet**  
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### DETERMINATION OF PARTICLE SIZE DISTRIBUTION

| Borehole / Trial Pit | Depth (m)     | Sample | Laboratory Description                |
|----------------------|---------------|--------|---------------------------------------|
| BH1A                 | 10.00 - 10.45 | D      | Brown silty fine fine to medium SAND. |



| Sieve / Particle Size | % Passing |
|-----------------------|-----------|
| 3.35 mm               | 100.0     |
| 2.36 mm               | 99.8      |
| 1.4 mm                | 99.5      |
| 710 µm                | 99.3      |
| 425 µm                | 98.3      |
| 300 µm                | 83.2      |
| 212 µm                | 48.7      |
| 150 µm                | 26.4      |
| 63 µm                 | 14.1      |

|      |      |        |        |      |        |        |        |        |        |         |          |
|------|------|--------|--------|------|--------|--------|--------|--------|--------|---------|----------|
| CLAY | Fine | Medium | Coarse | Fine | Medium | Coarse | Fine   | Medium | Coarse | COBBLES | BOULDERS |
|      | SILT |        |        | SAND |        |        | GRAVEL |        |        |         |          |

| Grading Analysis       |          |
|------------------------|----------|
| D85                    | 314.9 µm |
| D60                    | 240.8 µm |
| D10                    | <63.0 µm |
| Uniformity Coefficient | -        |

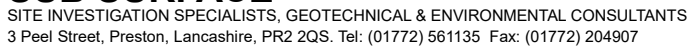
| Particle Proportions |       |
|----------------------|-------|
| Cobbles + Boulders   | -     |
| Gravel               | 0.3%  |
| Sand                 | 85.6% |
| Silt                 | -     |
| Clay                 | -     |

**Method of Preparation** : BS 1377:PART 1:1990:7.3 Initial preparation 1990:7.4.5 Particle size tests

**Method of Test** : BS 1377:PART 2:1990:9 Determination of particle size distribution

**Remarks** :

|                                                                                                                                                                                                                                                                       |              |        |                           |                                  |                         |                       |                         |                         |                                      |                                     |     |                 |                                                                                                                                                    |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------|---------------------------|----------------------------------|-------------------------|-----------------------|-------------------------|-------------------------|--------------------------------------|-------------------------------------|-----|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------|--|
| <div><div><div>S</div><div>S</div></div><div><div>SUB SURFACE</div><div>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL &amp; ENVIRONMENTAL CONSULTANTS</div><div>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907</div></div></div> |              |        |                           |                                  |                         |                       | Laboratory Test Results |                         |                                      |                                     |     |                 |                                                                                                                                                    |  |
| Site : CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER.                                                                                                                                                                                    |              |        |                           |                                  |                         |                       |                         |                         |                                      |                                     |     |                 | Job Number<br>7077                                                                                                                                 |  |
| Client : CRAVENWOOD PRIMARY ACADEMY.                                                                                                                                                                                                                                  |              |        |                           |                                  |                         |                       |                         |                         |                                      |                                     |     |                 | Sheet<br>1 / 1                                                                                                                                     |  |
| Engineer: SHARP & SCARFFE LIMITED.                                                                                                                                                                                                                                    |              |        |                           |                                  |                         |                       |                         |                         |                                      |                                     |     |                 |                                                                                                                                                    |  |
| DETERMINATION OF pH, SULPHATE CONTENT AND TOTAL SULPHUR OF SOIL AND GROUNDWATER AND MAGNESIUM, CHLORIDE, AMMONIA AND NITRATE CONTENT                                                                                                                                  |              |        |                           |                                  |                         |                       |                         |                         |                                      |                                     |     |                 |                                                                                                                                                    |  |
| Borehole/<br>Trial Pit                                                                                                                                                                                                                                                | Depth<br>(m) | Sample | Concentration of Sulphate |                                  |                         | Total<br>Sulphur<br>% | Magnesium<br>mg/l       | Ammonium<br>NH4<br>mg/l | Water<br>Soluble<br>Chloride<br>mg/l | Water<br>Soluble<br>Nitrate<br>mg/l | pH  | Design<br>Class | Laboratory Description                                                                                                                             |  |
|                                                                                                                                                                                                                                                                       |              |        | Soil                      |                                  | Ground<br>Water<br>g /l |                       |                         |                         |                                      |                                     |     |                 |                                                                                                                                                    |  |
|                                                                                                                                                                                                                                                                       |              |        | Total S03<br>%            | S04 in 2:1<br>water:soil<br>g /l |                         |                       |                         |                         |                                      |                                     |     |                 |                                                                                                                                                    |  |
| M1                                                                                                                                                                                                                                                                    | 0.50         | B      |                           | <0.01                            |                         |                       |                         |                         |                                      |                                     | 8.7 | DS-1            | MADE GROUND: dark grey gravelly slightly sandy silty clay. Gravel sized fragments are fine to coarse concrete, sandstone, limestone and slag.      |  |
| M1                                                                                                                                                                                                                                                                    | 2.00         | D      |                           | 0.05                             |                         |                       |                         |                         |                                      |                                     | 8.7 | DS-1            | MADE GROUND: light grey and orange sandy fine to coarse gravel sized fragments of brick, slag and concrete.                                        |  |
| M1                                                                                                                                                                                                                                                                    | 6.00         | D      |                           | 0.02                             |                         |                       |                         |                         |                                      |                                     | 7.6 | DS-1            | Brown mottled grey slightly sandy silty CLAY with occasional pockets of sandy silt.                                                                |  |
| M2                                                                                                                                                                                                                                                                    | 0.20         | B      |                           | <0.01                            |                         |                       |                         |                         |                                      |                                     | 9.0 | DS-1            | MADE GROUND: dark grey sandy fine to coarse gravel sized fragments of limestone, concrete and sandstone with occasional pockets of dark grey clay. |  |
| M2                                                                                                                                                                                                                                                                    | 3.00         | D      |                           | 0.02                             |                         |                       |                         |                         |                                      |                                     | 5.5 | DS-1            | Orangish brown mottled grey slightly sandy silty CLAY.                                                                                             |  |
| M2                                                                                                                                                                                                                                                                    | 6.00         | D      |                           | <0.01                            |                         |                       |                         |                         |                                      |                                     | 6.1 | DS-1            | Brown slightly silty fine to medium SAND.                                                                                                          |  |
| Method of Preparation : BS 1377:PART 1:1990:7.5 Preparation of soil for chemical tests BS 1377:PART 3:1990:5.2, 5.3, 5.4 & 9.4                                                                                                                                        |              |        |                           |                                  |                         |                       |                         |                         |                                      |                                     |     |                 |                                                                                                                                                    |  |
| Method of Test : Lab in-house methods based on BS1377: Part 3 for contents of water sol sulphate, pH, chloride and magnesium. Lab in-house method based on MEWAM (EA, 2006) for total sulphur                                                                         |              |        |                           |                                  |                         |                       |                         |                         |                                      |                                     |     |                 |                                                                                                                                                    |  |
| Remarks : Classification relates to Design Sulphate Class of BRE Special Digest 1 (2005)                                                                                                                                                                              |              |        |                           |                                  |                         |                       |                         |                         |                                      |                                     |     |                 |                                                                                                                                                    |  |



**Job Number**  
7077A

**Sheet**  
1 / 1

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# SUB SURFACE

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS  
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

BRE Special Digest 1

## AGGRESSIVE CHEMICAL ENVIRONMENT FOR CONCRETE (ACEC) SITE CLASSIFICATION

**Table C1 Aggressive Chemical Environment for Concrete (ACEC) classification for natural ground locations<sup>a</sup>**

| Sulfate<br>Design Sulfate<br>Class for<br>Location | 2:1 water/soil<br>extract <sup>b</sup> | Groundwater                 | Total potential<br>sulfate <sup>c</sup> | Groundwater           |                       | ACEC Class for<br>location      |
|----------------------------------------------------|----------------------------------------|-----------------------------|-----------------------------------------|-----------------------|-----------------------|---------------------------------|
|                                                    |                                        |                             |                                         | Static water          | Mobile water          |                                 |
| 1                                                  | 2<br>(SO <sub>4</sub> mg/l)            | 3<br>(SO <sub>4</sub> mg/l) | 4<br>(SO <sub>4</sub> %)                | 5<br>(pH)             | 6<br>(pH)             | 7                               |
| DS-1                                               | <500                                   | <400                        | <0.24                                   | ≥2.5                  | >5.5d<br>2.5 - 5.5    | AC-1s<br>AC-1d<br>AC-2z         |
| DS-2                                               | 500 - 1500                             | 400 - 1400                  | 0.24 - 0.6                              | >3.5<br><br>2.5-3.5   | >5.5<br><br>2.5 - 5.5 | AC-1s<br>AC-2<br>AC-2s<br>AC-3z |
| DS-3                                               | 1600-3000                              | 1500-3000                   | 0.7 - 1.2                               | >3.5<br><br>2.5 - 3.5 | >5.5<br><br>2.5 - 5.5 | AC-2s<br>AC-3<br>AC-3s<br>AC-4  |
| DS-4                                               | 3100 - 6000                            | 3100 - 6000                 | 1.3 - 2.4                               | >3.5<br><br>2.5 - 3.5 | >5.5<br><br>2.5 - 5.5 | AC-3s<br>AC-4<br>AC-4s<br>AC-5  |
| DS-5                                               | >6000                                  | >6000                       | >2.4                                    | >3.5<br>2.5 - 3.5     | ≥2.5                  | AC-4s<br>AC-5                   |

### Notes

- a Applies to locations on sites that comprise either undisturbed ground that is in its natural state (ie not brownfield - Table C2) or clean fill derived from such ground
- b The limits of Design Sulfate Classes based on 2:1 water/soil extracts have been lowered relative to previous Digests (Box C7).
- c Applies only to locations where concrete will be exposed to sulfate ions (SO<sub>4</sub>) which may result from the oxidation of sulfides (eg pyrite) following ground disturbance (Appendix A1 and Box C8).
- d For flowing water that is potentially aggressive to concrete owing to high purity or an aggressive carbon dioxide level greater than 15mg/l (Section C2.2.3), increase the ACEC Class to AC-2z.

### Explanation of suffix symbols to ACEC Class

- Suffix 's' indicates that the water has been classified as static
- Concrete placed in ACEC Classes that included the suffix 'z' primarily have to resist acid conditions and may be made with any of the cements or combinations listed in Table D2 on page 42.

**Table C2 Aggressive Chemical Environment for Concrete (ACEC) classification for brownfield locations<sup>a</sup>**

| Sulfate                           |                                     |                    |                             |                    |                                      | Groundwater            |                                                          |                                                   |
|-----------------------------------|-------------------------------------|--------------------|-----------------------------|--------------------|--------------------------------------|------------------------|----------------------------------------------------------|---------------------------------------------------|
| Design Sulfate Class for Location | 2:1 water/soil extract <sup>b</sup> |                    | Groundwater                 |                    | Total potential sulfate <sup>c</sup> | Static water           | Mobile water                                             | ACEC Class for location                           |
| 1                                 | 2<br>(SO <sub>4</sub> mg/l)         | 3<br>(Mg mg/l)     | 4<br>(SO <sub>4</sub> mg/l) | 5<br>(Mg mg/l)     | 6<br>(SO <sub>4</sub> %)             | 7<br>(pH) <sup>d</sup> | 8<br>(pH) <sup>d</sup>                                   | 9                                                 |
| DS-1                              | <500                                |                    | <400                        |                    | <0.24                                | ≥2.5                   | >6.5 <sup>d</sup><br>5.5 - 6.5<br>4.5 - 5.5<br>2.5 - 4.5 | AC-1s<br>AC-1<br>AC-2z<br>AC-3z<br>AC-4z          |
| DS-2                              | 500 - 1500                          |                    | 400 - 1400                  |                    | 0.24 - 0.6                           | >5.5<br><br>2.5 - 5.5  | >6.5<br><br>5.5 - 6.5<br>4.5 - 5.5<br>2.5 - 5.5          | AC-1s<br>AC-2<br>AC-2s<br>AC-3z<br>AC-4z<br>AC-5z |
| DS-3                              | 1600 - 3000                         |                    | 1500 - 3000                 |                    | 0.7 - 1.2                            | >5.5<br><br>2.5 - 5.5  | >6.5<br><br>5.5 - 6.5<br>2.5 - 5.5                       | AC-2s<br>AC-3<br>AC-3s<br>AC-4<br>AC-5            |
| DS-4                              | 3100 - 6000                         | ≤1200              | 3100 - 6000                 | ≤1000              | 1.3 - 2.4                            | >5.5<br><br>2.5 - 5.5  | >6.5<br><br>2.5 - 6.5                                    | AC-3s<br>AC-4<br>AC-4s<br>AC-5                    |
| DS-4m                             | 3100 - 6000                         | >1200 <sup>e</sup> | 3100 - 6000                 | >1000 <sup>e</sup> | 1.3 - 2.4                            | >5.5<br><br>2.5 - 5.5  | >6.5<br><br>2.5 - 6.5                                    | AC-3s<br>AC-4m<br>AC-4ms<br>AC-5m                 |
| DS-5                              | >6000                               | ≤1200              | >6000                       | ≤1000              | >2.4                                 | >5.5<br>2.5 - 5.5      | ≥2.5                                                     | AC-4s<br>AC-5                                     |
| DS-5m                             | >6000                               | >1200 <sup>e</sup> | >6000                       | >1000 <sup>e</sup> | >2.4                                 | >5.5<br>2.5 - 5.5      | ≥2.5                                                     | AC-4ms<br>AC-5m                                   |

### Notes

- a Brownfield sites are those sites, or parts of sites, that might contain chemical residues produced by or associated with industrial production (Section C5.1.3).
- b The limits of Design Sulfate Classes based on 2:1 water/soil extracts have been lowered relative to previous Digests (Box C7).
- c Applies only to locations where concrete will be exposed to sulfate ions (SO<sub>4</sub>) which may result from the oxidation of sulfides (eg pyrite) following ground disturbance (Appendix A1 and Box C8).
- d An additional account is taken of hydrochloric and nitric acids by adjustment to sulfate content (Section C5.1.3).
- e The limit on water-soluble magnesium does not apply to brackish groundwater (chloride content between 12 000 mg/l and 17 000 mg/l). This allows 'm' to be omitted from the relevant ACEC Classification. Seawater (chloride content about 18 000 mg/l) and stronger brines are not covered by this table.

### Explanation of suffix symbols to ACEC Class

- Suffix 's' indicates that the water has been classified as static.
- Concrete placed in ACEC Classes that included the suffix 'z' primarily have to resist acid conditions and may be made with any of the cements or combinations listed in Table D2 on page 42.
- Suffix 'm' relates to the higher levels of magnesium in Design Sulfate Classes 4 and 5.

## **CONTAMINATION ANALYSIS RESULTS**



2183

# Final Report

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**Report No.:** 20-29502-1  
**Initial Date of Issue:** 10-Nov-2020  
**Client** Sub Surface  
**Client Address:** 3 Peel Street  
Preston  
Lancashire  
PR2 2QS  
**Contact(s):** Simon Gabbatt  
**Project** 7077 Cravenwood Primary School,  
Crumpsall

**Quotation No.:** **Date Received:** 02-Nov-2020

**Order No.:** **Date Instructed:** 02-Nov-2020

**No. of Samples:** 6

**Turnaround (Wkdays):** 7 **Results Due:** 10-Nov-2020

**Date Approved:** 10-Nov-2020

**Approved By:**



**Details:** Glynn Harvey, Technical Manager

---

## Results - Soil

**Project: 7077 Cravenwood Primary School, Crumpsall**

|                                     |                             |            |              |            |                      |             |             |                      |             |             |
|-------------------------------------|-----------------------------|------------|--------------|------------|----------------------|-------------|-------------|----------------------|-------------|-------------|
| <b>Client: Sub Surface</b>          | <b>Chemtest Job No.:</b>    |            |              |            | 20-29502             | 20-29502    | 20-29502    | 20-29502             | 20-29502    | 20-29502    |
| <b>Quotation No.:</b>               | <b>Chemtest Sample ID.:</b> |            |              |            | 1089565              | 1089566     | 1089567     | 1089568              | 1089569     | 1089570     |
|                                     | Client Sample ID.:          |            |              |            | 741                  | 738         | 744         | 756                  | 751         | 745         |
|                                     | Sample Location:            |            |              |            | M1                   | M1          | M1          | M2                   | M2          | M2          |
|                                     | Sample Type:                |            |              |            | SOIL                 | SOIL        | SOIL        | SOIL                 | SOIL        | SOIL        |
|                                     | Top Depth (m):              |            |              |            | 0.50                 | 2.00        | 6.00        | 0.20                 | 3.00        | 6.00        |
|                                     | Bottom Depth (m):           |            |              |            | 1.20                 | 2.45        | 6.45        | 1.20                 | 3.45        | 6.45        |
|                                     | Date Sampled:               |            |              |            | 26-Oct-2020          | 26-Oct-2020 | 26-Oct-2020 | 26-Oct-2020          | 26-Oct-2020 | 26-Oct-2020 |
|                                     | Asbestos Lab:               |            |              |            | LIVERPOOL            |             |             | LIVERPOOL            |             |             |
| <b>Determinand</b>                  | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b> |                      |             |             |                      |             |             |
| ACM Type                            | U                           | 2192       |              | N/A        | -                    |             |             | -                    |             |             |
| Asbestos Identification             | U                           | 2192       |              | N/A        | No Asbestos Detected |             |             | No Asbestos Detected |             |             |
| ACM Detection Stage                 | U                           | 2192       |              | N/A        | -                    |             |             | -                    |             |             |
| Moisture                            | N                           | 2030       | %            | 0.020      | 14                   | 13          | 18          | 6.7                  | 16          | 8.2         |
| pH                                  | U                           | 2010       |              | 4.0        | 8.7                  | 8.7         | 7.6         | 9.0                  | 5.5         | 6.1         |
| Boron (Hot Water Soluble)           | U                           | 2120       | mg/kg        | 0.40       | < 0.40               |             |             | < 0.40               |             |             |
| Sulphate (2:1 Water Soluble) as SO4 | U                           | 2120       | g/l          | 0.010      | < 0.010              | 0.047       | 0.021       | < 0.010              | 0.015       | < 0.010     |
| Cyanide (Total)                     | U                           | 2300       | mg/kg        | 0.50       | < 0.50               |             |             | < 0.50               |             |             |
| Sulphide (Easily Liberatable)       | N                           | 2325       | mg/kg        | 0.50       | 4.0                  |             |             | 2.6                  |             |             |
| Sulphate (Total)                    | U                           | 2430       | %            | 0.010      | 0.052                |             |             | 0.025                |             |             |
| Arsenic                             | U                           | 2450       | mg/kg        | 1.0        | 9.5                  |             |             | 5.2                  |             |             |
| Cadmium                             | U                           | 2450       | mg/kg        | 0.10       | 0.20                 |             |             | < 0.10               |             |             |
| Chromium                            | U                           | 2450       | mg/kg        | 1.0        | 32                   |             |             | 23                   |             |             |
| Molybdenum                          | U                           | 2450       | mg/kg        | 2.0        | < 2.0                |             |             | < 2.0                |             |             |
| Copper                              | U                           | 2450       | mg/kg        | 0.50       | 34                   |             |             | 16                   |             |             |
| Mercury                             | U                           | 2450       | mg/kg        | 0.10       | 0.19                 |             |             | < 0.10               |             |             |
| Nickel                              | U                           | 2450       | mg/kg        | 0.50       | 31                   |             |             | 31                   |             |             |
| Lead                                | U                           | 2450       | mg/kg        | 0.50       | 76                   |             |             | 20                   |             |             |
| Selenium                            | U                           | 2450       | mg/kg        | 0.20       | < 0.20               |             |             | < 0.20               |             |             |
| Zinc                                | U                           | 2450       | mg/kg        | 0.50       | 79                   |             |             | 58                   |             |             |
| Chromium (Hexavalent)               | N                           | 2490       | mg/kg        | 0.50       | < 0.50               |             |             | < 0.50               |             |             |
| TPH >C6-C10                         | N                           | 2670       | mg/kg        | 1.0        | < 1.0                |             |             | < 1.0                |             |             |
| TPH >C10-C21                        | N                           | 2670       | mg/kg        | 1.0        | 21                   |             |             | 37                   |             |             |
| TPH >C21-C40                        | N                           | 2670       | mg/kg        | 1.0        | 12                   |             |             | 200                  |             |             |
| Total TPH >C6-C40                   | U                           | 2670       | mg/kg        | 10         | 32                   |             |             | 230                  |             |             |
| Naphthalene                         | U                           | 2700       | mg/kg        | 0.10       | 0.35                 |             |             | < 0.10               |             |             |
| Acenaphthylene                      | U                           | 2700       | mg/kg        | 0.10       | 0.22                 |             |             | < 0.10               |             |             |
| Acenaphthene                        | U                           | 2700       | mg/kg        | 0.10       | 2.5                  |             |             | < 0.10               |             |             |
| Fluorene                            | U                           | 2700       | mg/kg        | 0.10       | 2.2                  |             |             | < 0.10               |             |             |
| Phenanthrene                        | U                           | 2700       | mg/kg        | 0.10       | 11                   |             |             | < 0.10               |             |             |
| Anthracene                          | U                           | 2700       | mg/kg        | 0.10       | 2.6                  |             |             | < 0.10               |             |             |
| Fluoranthene                        | U                           | 2700       | mg/kg        | 0.10       | 14                   |             |             | < 0.10               |             |             |
| Pyrene                              | U                           | 2700       | mg/kg        | 0.10       | 14                   |             |             | < 0.10               |             |             |
| Benzo[a]anthracene                  | U                           | 2700       | mg/kg        | 0.10       | 6.4                  |             |             | < 0.10               |             |             |
| Chrysene                            | U                           | 2700       | mg/kg        | 0.10       | 6.5                  |             |             | < 0.10               |             |             |
| Benzo[b]fluoranthene                | U                           | 2700       | mg/kg        | 0.10       | 7.1                  |             |             | < 0.10               |             |             |

## Results - Soil

**Project: 7077 Cravenwood Primary School, Crumpsall**

|                            |                             |            |              |             |             |             |             |             |
|----------------------------|-----------------------------|------------|--------------|-------------|-------------|-------------|-------------|-------------|
| <b>Client: Sub Surface</b> | <b>Chemtest Job No.:</b>    |            | 20-29502     | 20-29502    | 20-29502    | 20-29502    | 20-29502    | 20-29502    |
| Quotation No.:             | <b>Chemtest Sample ID.:</b> |            | 1089565      | 1089566     | 1089567     | 1089568     | 1089569     | 1089570     |
|                            | Client Sample ID.:          |            | 741          | 738         | 744         | 756         | 751         | 745         |
|                            | Sample Location:            |            | M1           | M1          | M1          | M2          | M2          | M2          |
|                            | Sample Type:                |            | SOIL         | SOIL        | SOIL        | SOIL        | SOIL        | SOIL        |
|                            | Top Depth (m):              |            | 0.50         | 2.00        | 6.00        | 0.20        | 3.00        | 6.00        |
|                            | Bottom Depth (m):           |            | 1.20         | 2.45        | 6.45        | 1.20        | 3.45        | 6.45        |
|                            | Date Sampled:               |            | 26-Oct-2020  | 26-Oct-2020 | 26-Oct-2020 | 26-Oct-2020 | 26-Oct-2020 | 26-Oct-2020 |
|                            | Asbestos Lab:               |            | LIVERPOOL    |             |             | LIVERPOOL   |             |             |
| <b>Determinand</b>         | <b>Accred.</b>              | <b>SOP</b> | <b>Units</b> | <b>LOD</b>  |             |             |             |             |
| Benzo[k]fluoranthene       | U                           | 2700       | mg/kg        | 0.10        | 3.0         |             | < 0.10      |             |
| Benzo[a]pyrene             | U                           | 2700       | mg/kg        | 0.10        | 5.7         |             | < 0.10      |             |
| Indeno(1,2,3-c,d)Pyrene    | U                           | 2700       | mg/kg        | 0.10        | 3.1         |             | < 0.10      |             |
| Dibenz(a,h)Anthracene      | U                           | 2700       | mg/kg        | 0.10        | 1.2         |             | < 0.10      |             |
| Benzo[g,h,i]perylene       | U                           | 2700       | mg/kg        | 0.10        | 3.4         |             | < 0.10      |             |
| Total Of 16 PAH's          | U                           | 2700       | mg/kg        | 2.0         | 83          |             | < 2.0       |             |
| Benzene                    | U                           | 2760       | µg/kg        | 1.0         | < 1.0       |             | < 1.0       |             |
| Toluene                    | U                           | 2760       | µg/kg        | 1.0         | < 1.0       |             | < 1.0       |             |
| Ethylbenzene               | U                           | 2760       | µg/kg        | 1.0         | < 1.0       |             | < 1.0       |             |
| m & p-Xylene               | U                           | 2760       | µg/kg        | 1.0         | < 1.0       |             | < 1.0       |             |
| o-Xylene                   | U                           | 2760       | µg/kg        | 1.0         | < 1.0       |             | < 1.0       |             |
| Methyl Tert-Butyl Ether    | U                           | 2760       | µg/kg        | 1.0         | < 1.0       |             | < 1.0       |             |
| Total Phenols              | U                           | 2920       | mg/kg        | 0.30        | < 0.30      |             | < 0.30      |             |

## **Report Information**

---

### **Key**

|     |                                                                                                               |
|-----|---------------------------------------------------------------------------------------------------------------|
| U   | UKAS accredited                                                                                               |
| M   | MCERTS and UKAS accredited                                                                                    |
| N   | Unaccredited                                                                                                  |
| S   | This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis     |
| SN  | This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis |
| T   | This analysis has been subcontracted to an unaccredited laboratory                                            |
| I/S | Insufficient Sample                                                                                           |
| U/S | Unsuitable Sample                                                                                             |
| N/E | not evaluated                                                                                                 |
| <   | "less than"                                                                                                   |
| >   | "greater than"                                                                                                |

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

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### **Sample Deviation Codes**

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

---

### **Sample Retention and Disposal**

All soil samples will be retained for a period of 45 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:  
[customerservices@chemtest.com](mailto:customerservices@chemtest.com)

## COAL AUTHORITY MINING REPORT



The Coal  
Authority

# CON29M

## coal mining report

CRAVENWOOD PRIMARY SCHOOL, CRAVENWOOD ROAD, MANCHESTER  
M8 5AE



### Known or potential coal mining risks

|                                |        |
|--------------------------------|--------|
| Future underground coal mining | Page 3 |
| Withdrawal of support          | Page 5 |



### Further action

No further reports from the Coal Authority are required. Further information on any next steps can be found in our Professional opinion.

For more information on our reports please visit  
[www.groundstability.com](http://www.groundstability.com)



### Professional opinion

According to the official mining information records held by the Coal Authority at the time of this search, evidence of, or the potential for, coal mining related features have been identified. It is unlikely that these features will impact on the stability of the enquiry boundary.

Your reference: **7077A**  
Our reference: **51002362954001**  
Date: **12 February 2021**

Client name:  
**SUB SURFACE LIMITED**

If you require any further assistance please  
contact our experts on:  
**0345 762 6848**  
[groundstability@coal.gov.uk](mailto:groundstability@coal.gov.uk)



The Law  
Society

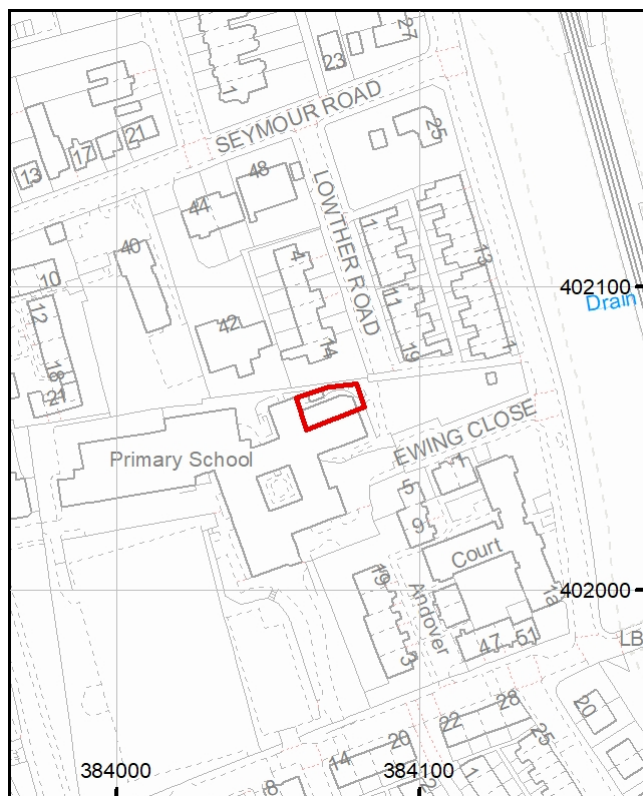
# Enquiry boundary

## Key

Approximate position of enquiry boundary shown



We can confirm that the location is  
**on the coalfield**



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This report is prepared in accordance with the latest Law Society's Guidance Notes 2018, the User Guide 2018 and the Coal Authority's Terms and Conditions applicable at the time the report was produced.



## Accessibility

If you would like this information in an alternative format, please contact our communications team on 0345 762 6848 or email [communications@coal.gov.uk](mailto:communications@coal.gov.uk).

# Detailed findings

Information provided by the Coal Authority in this report is compiled in response to the Law Society's CON29M Coal Mining enquiries. The said enquiries are protected by copyright owned by the Law Society of 113 Chancery Lane, London WC2A 1PL.

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## 1 Past underground coal mining

The property is not within a surface area that could be affected by any past recorded underground coal mining.

## 2 Present underground coal mining

The property is not within a surface area that could be affected by present underground mining.

## 3 Future underground coal mining

The property is not in an area where the Coal Authority has received an application for, and is currently considering whether to grant a licence to remove or work coal by underground methods.

The property is not in an area where a licence has been granted to remove or otherwise work coal using underground methods.

The property is not in an area likely to be affected from any planned future underground coal mining.

However, reserves of coal exist in the local area which could be worked at some time in the future.

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

## 4 Mine entries

There are no recorded coal mine entries known to the Coal Authority within, or within 20 metres, of the boundary of the property.

## 5 Coal mining geology

The Coal Authority is not aware of any damage due to geological faults or other lines of weakness that have been affected by coal mining.

## 6 Past opencast coal mining

The property is not within the boundary of an opencast site from which coal has been removed by opencast methods.

## 7 Present opencast coal mining

The property does not lie within 200 metres of the boundary of an opencast site from which coal is being removed by opencast methods.

## 8 Future opencast coal mining

There are no licence requests outstanding to remove coal by opencast methods within 800 metres of the boundary.

The property is not within 800 metres of the boundary of an opencast site for which a licence to remove coal by opencast methods has been granted.

## 9 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.

## 10 Mine gas

The Coal Authority has no record of a mine gas emission requiring action.

## 11 Hazards related to coal mining

The property has not been subject to remedial works, by or on behalf of the Coal Authority, under its Emergency Surface Hazard Call Out procedures.

## 12 Withdrawal of support

The property is in an area where a notice to withdraw support was given in 1959.

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.

## 13 Working facilities order

The property is not in an area where an order has been made, under the provisions of the Mines (Working Facilities and Support) Acts 1923 and 1966 or any statutory modification or amendment thereof.

## 14 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.

# Statutory cover



## Coal mining subsidence

In the unlikely event of any coal mining related subsidence damage, the Coal Authority or the mine operator has a duty to take remedial action in respect of subsidence caused by the withdrawal of support from land or property in connection with lawful coal mining operations.

When the works are the responsibility of the Coal Authority, our dedicated public safety and subsidence team will manage the claim. The house or land owner ("the owner") is covered for these works under the terms of the Coal Mining Subsidence Act 1991 (as amended by the Coal Industry Act 1994). Please note, this Act does not apply where coal was worked or gotten by virtue of the grant of a gale in the Forest of Dean, or any other part of the Hundred of St. Briavels in the county of Gloucester.

If you believe your land or property is suffering from coal mining subsidence damage and you need more information on what to do next, please use the following link to our website which sets out what your rights are and what you need to consider before making a claim.

[www.gov.uk/government/publications/coal-mining-subsidence-damage-notice-form](http://www.gov.uk/government/publications/coal-mining-subsidence-damage-notice-form)



## Coal mining hazards

Our public safety and subsidence team provide a 24 hour a day, 7 days a week hazard reporting service, to help protect the public from hazards caused by past coal workings, such as a mine shaft or shallow working collapse. To report any hazards please call **01623 646 333**. Further information can be found on our website: [www.gov.uk/coalauthority](http://www.gov.uk/coalauthority).

# Glossary



## Key terms

**adit** - horizontal or sloped entrance to a mine

**coal mining subsidence** - ground movement caused by the removal of coal by underground mining

**Coal Mining Subsidence Act 1991** - the Act setting out the duties of the Coal Authority to repair damage caused by coal mining subsidence

**coal mining subsidence damage** - damage to land, buildings or structures caused by the removal of coal by underground mining

**coal seams** - bed of coal of varying thickness

**future opencast coal mining** - a licence granted, or licence application received, by the Coal Authority to excavate coal from the surface

**future underground coal mining** - a licence granted, or licence application received, by the Coal Authority to excavate coal underground. Although it is unlikely, remaining coal reserves could create a possibility for future mining, which would be licensed by the Coal Authority

**mine entries** - collective name for shafts and adits

**payments to owners of former copyhold land** - historically, copyhold land gave rights to coal to the copyholder. Legislation was set up to allow others to work this coal, but they had to issue a notice and pay compensation if a copyholder came forward

**shaft** - vertical entry into a mine

**site investigation** - investigations of coal mining risks carried out with the Coal Authority's permission

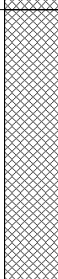
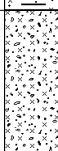
**stop notice** - a delay to repairs because further coal mining subsidence damage may occur and it would be unwise to carry out permanent repairs

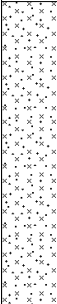
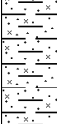
**subsidence claim** - a formal notice of subsidence damage to the Coal Authority since it was established on 31 October 1994

**withdrawal of support** - a historic notice informing landowners that the coal beneath their property was going to be worked

**working facilities orders** - a court order which gave permission, restricted or prevented coal mine workings

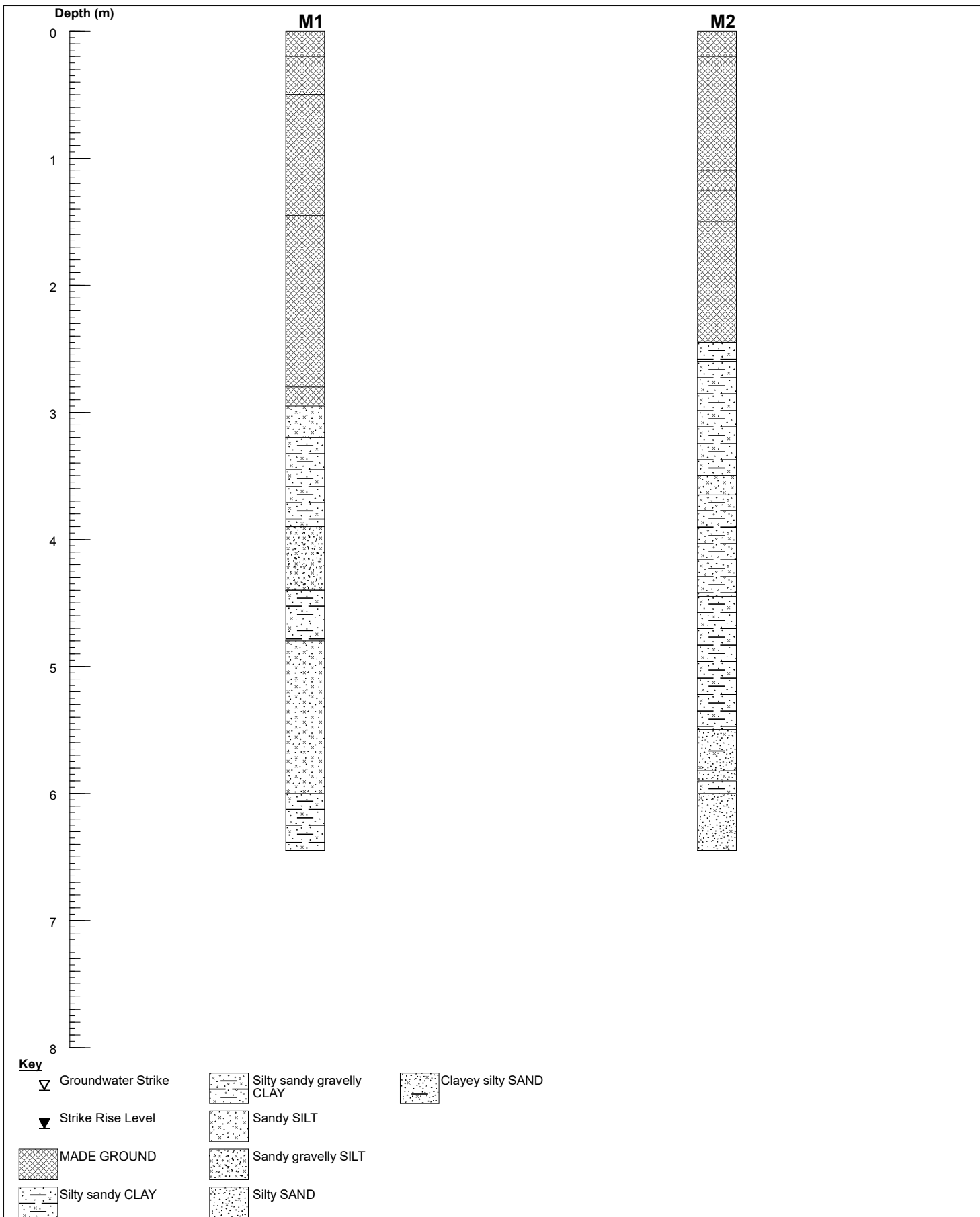
## **MINI BOREHOLE RECORD SHEETS**

| SUB SURFACE<br>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907                                                                                                                                                                    |                    |                     |                 |                                                                       |                     | Site<br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER. |                                                                                                                                                                                                                                                                                          | Borehole Number<br>M1                                                                                                                                                                                                                                                   |                      |  |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------|-----------------|-----------------------------------------------------------------------|---------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|--|
| Boring Method<br>MINI PERCUSSIVE                                                                                                                                                                                                                                                                                                                   |                    | Casing Diameter     |                 |                                                                       | Ground Level (mOD)  |                                                                                     | Client<br>CRAVENWOOD PRIMARY ACADEMY.                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                         | Job Number<br>7077   |  |
|                                                                                                                                                                                                                                                                                                                                                    |                    | Location<br>AS PLAN |                 |                                                                       | Dates<br>26/10/2020 |                                                                                     | Engineer<br>SHARP & SCARFFE LIMITED.                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                                                         | Sheet<br>1/2         |  |
| Depth (m)                                                                                                                                                                                                                                                                                                                                          | Sample / Tests     | Casing Depth (m)    | Water Depth (m) | Field Records                                                         | Level (mOD)         | Depth (m) (Thickness)                                                               | Description                                                                                                                                                                                                                                                                              | Legend                                                                                                                                                                                                                                                                  | Water                |  |
| 0.20-0.50                                                                                                                                                                                                                                                                                                                                          | B                  |                     |                 |                                                                       |                     | (0.20)<br>0.20                                                                      | MADE GROUND: paving slab over sand sub base (driller's description).                                                                                                                                                                                                                     |                                                                                                                                                                                      |                      |  |
| 0.50-1.20                                                                                                                                                                                                                                                                                                                                          | B                  |                     |                 |                                                                       |                     | (0.30)<br>0.50                                                                      | MADE GROUND: dark grey slightly clayey sandy fine to coarse gravel sized fragments of limestone and sandstone with medium cobble sized fragments of sandstone and limestone.                                                                                                             |                                                                                                                                                                                      |                      |  |
| 1.20-1.65<br>1.20-2.00<br>1.20-1.65                                                                                                                                                                                                                                                                                                                | D<br>C<br>SPT N=12 |                     |                 | 1.20m to 2.00m - 75% Recovery.<br>3,4/3,3,3,3                         |                     | (0.95)<br>1.45                                                                      | MADE GROUND: soft dark grey gravelly slightly sandy silty clay with low cobble sized fragments of concrete and sandstone. Gravel sized fragments are fine to coarse concrete, sandstone, limestone and slag.                                                                             |                                                                                                                                                                                      |                      |  |
| 2.00-2.45<br>2.00-3.00<br>2.00-2.45                                                                                                                                                                                                                                                                                                                | D<br>C<br>SPT N=10 |                     |                 | 2.00m to 3.00m - 50% Recovery.<br>2,3/3,2,2,3                         |                     | (1.35)<br>2.80<br>(0.15)<br>2.95                                                    | MADE GROUND: light grey and orange sandy fine to coarse gravel sized fragments of brick, slag and concrete with medium cobble sized fragments of brick.                                                                                                                                  |                                                                                                                                                                                     |                      |  |
| 3.00-3.45<br>3.00-4.00<br>3.00-3.45                                                                                                                                                                                                                                                                                                                | D<br>C<br>SPT N=5  |                     |                 | 3.00m to 4.00m - 100% Recovery.<br>2,2/1,1,2,1                        |                     | (0.25)<br>3.20                                                                      | MADE GROUND: soft dark grey slightly gravelly slightly sandy silty clay. Gravel sized fragments are fine to coarse brick and slag.<br>Light grey mottled orange slightly sandy SILT, sand is fine.<br>Soft low strength brown mottled grey and orangish brown slightly sandy silty CLAY. | <br><br> |                      |  |
| 4.00-4.45<br>4.00-5.00<br>4.00-4.45                                                                                                                                                                                                                                                                                                                | D<br>C<br>SPT N=6  |                     |                 | HV @ 3.70m, c=30kPa.<br>4.00m to 5.00m - 70% Recovery.<br>1,2/1,2,1,2 |                     | (0.70)<br>3.90<br>(0.50)<br>4.40<br>(0.40)<br>4.80                                  | Loose orangish brown and grey slightly gravelly slightly sandy SILT. Gravel is subrounded to rounded fine to medium siltstone.<br>Soft dark grey sandy silty CLAY, sand is fine to medium.<br>Loose dark grey slightly sandy SILT, sand is fine to medium.                               | <br><br> |                      |  |
| <b>Remarks</b><br>No groundwater entries recorded but possible water inflow at 5.00m.<br>Hand dug inspection pit from GL to 1.20m to check for services.<br>C = Plastic lined core sample    HV = Hand Shear Vane test<br>Core diameter: 84mm to 3.00m, 76mm to 4.00m, 64mm to 5.00m and 54mm to 6.00m.<br>On completion backfilled with arisings. |                    |                     |                 |                                                                       |                     |                                                                                     |                                                                                                                                                                                                                                                                                          | Scale (approx)<br>1:25                                                                                                                                                                                                                                                  | Logged By<br>TDC/MJE |  |
|                                                                                                                                                                                                                                                                                                                                                    |                    |                     |                 |                                                                       |                     |                                                                                     |                                                                                                                                                                                                                                                                                          | Figure No.<br>7077.M1                                                                                                                                                                                                                                                   |                      |  |

|                                                                                                                                                                                                                                                                        |                       |                                                          |                        |                                                             |                    |                                                                                    |                                                                                                       |                                                                                     |                                     |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|----------------------------------------------------------|------------------------|-------------------------------------------------------------|--------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------|--|
|  <b>SUB SURFACE</b><br>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 |                       |                                                          |                        |                                                             |                    |                                                                                    | <b>Site</b><br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER.            |                                                                                     | <b>Borehole Number</b><br><b>M1</b> |  |
| <b>Boring Method</b><br>MINI PERCUSSIVE                                                                                                                                                                                                                                |                       | <b>Casing Diameter</b><br><br><b>Location</b><br>AS PLAN |                        | <b>Ground Level (mOD)</b><br><br><b>Dates</b><br>26/10/2020 |                    | <b>Client</b><br>CRAVENWOOD PRIMARY ACADEMY.                                       |                                                                                                       | <b>Job Number</b><br>7077                                                           |                                     |  |
|                                                                                                                                                                                                                                                                        |                       |                                                          |                        |                                                             |                    | <b>Engineer</b><br>SHARP & SCARFFE LIMITED.                                        |                                                                                                       | <b>Sheet</b><br>2/2                                                                 |                                     |  |
| <b>Depth (m)</b>                                                                                                                                                                                                                                                       | <b>Sample / Tests</b> | <b>Casing Depth (m)</b>                                  | <b>Water Depth (m)</b> | <b>Field Records</b>                                        | <b>Level (mOD)</b> | <b>Depth (m) (Thickness)</b>                                                       | <b>Description</b>                                                                                    | <b>Legend</b>                                                                       | <b>Water</b>                        |  |
| 5.00-5.45<br>5.00-5.45<br>5.00-6.00                                                                                                                                                                                                                                    | SPT N=4<br>D<br>C     |                                                          |                        | 1,0/1,1,1,1                                                 |                    |  | Loose dark slightly sandy slightly clayey SILT, sand is fine to medium.                               |  |                                     |  |
| 6.00-6.45<br>6.00-6.45                                                                                                                                                                                                                                                 | SPT N=6<br>D          |                                                          |                        | 1,2/1,1,2,2<br><br>26/10/2020:                              |                    | 6.00<br><br>(0.45)<br><br>6.45                                                     | Soft low strength brown mottled grey slightly sandy silty CLAY with occasional pockets of sandy silt. |  |                                     |  |
|                                                                                                                                                                                                                                                                        |                       |                                                          |                        |                                                             |                    |                                                                                    | Complete at 6.45m                                                                                     |                                                                                     |                                     |  |
| <b>Remarks</b>                                                                                                                                                                                                                                                         |                       |                                                          |                        |                                                             |                    |                                                                                    |                                                                                                       | <b>Scale (approx)</b><br>1:25                                                       | <b>Logged By</b><br>TDC/MJE         |  |
|                                                                                                                                                                                                                                                                        |                       |                                                          |                        |                                                             |                    |                                                                                    |                                                                                                       | <b>Figure No.</b><br>7077.M1                                                        |                                     |  |

| SUB SURFACE<br>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907                                                                                                                                 |                    |                     |                 |                                                |                     |                       | Site<br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER.                                                                                                          |  | Borehole Number<br>M2         |                                                                                       |       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------|-----------------|------------------------------------------------|---------------------|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|-------------------------------|---------------------------------------------------------------------------------------|-------|
| Boring Method<br>MINI PERCUSSIVE                                                                                                                                                                                                                                                                                |                    | Casing Diameter     |                 |                                                | Ground Level (mOD)  |                       | Client<br>CRAVENWOOD PRIMARY ACADEMY.                                                                                                                                                        |  |                               | Job Number<br>7077                                                                    |       |
|                                                                                                                                                                                                                                                                                                                 |                    | Location<br>AS PLAN |                 |                                                | Dates<br>26/10/2020 |                       | Engineer<br>SHARP & SCARFFE LIMITED.                                                                                                                                                         |  |                               | Sheet<br>1/2                                                                          |       |
| Depth (m)                                                                                                                                                                                                                                                                                                       | Sample / Tests     | Casing Depth (m)    | Water Depth (m) | Field Records                                  | Level (mOD)         | Depth (m) (Thickness) | Description                                                                                                                                                                                  |  |                               | Legend                                                                                | Water |
| 0.20-1.20                                                                                                                                                                                                                                                                                                       | B                  |                     |                 |                                                |                     | (0.20)                | MADE GROUND: paving slab over sand sub base (driller's description).                                                                                                                         |  |                               |    |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | 0.20                  | MADE GROUND: dark grey sandy fine to coarse gravel sized fragments of limestone, concrete and sandstone with occasional pockets of very soft dark grey clay.                                 |  |                               |                                                                                       |       |
| 1.20-1.65<br>1.20-2.00<br>1.20-1.65                                                                                                                                                                                                                                                                             | D<br>C<br>SPT N=11 |                     |                 | 1.20m to 2.00m - 100% Recovery.<br>6,4/4,3,2,2 |                     | (0.90)                |                                                                                                                                                                                              |  |                               |    |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | 1.10                  |                                                                                                                                                                                              |  |                               |                                                                                       |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | (0.15)                | MADE GROUND: soft dark grey gravelly slightly sandy silty clay. Gravel sized fragments are fine to coarse concrete, sandstone and limestone.                                                 |  |                               |                                                                                       |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | 1.25                  |                                                                                                                                                                                              |  |                               |                                                                                       |       |
| 2.00-3.00<br>2.00-2.45                                                                                                                                                                                                                                                                                          | C<br>SPT N=5       |                     |                 | 2.00m to 3.00m - 70% Recovery.<br>3,2/1,1,1,2  |                     | (0.25)                | MADE GROUND: dark brown gravelly slightly silty fine to coarse sand with low cobble sized fragments of brick. Gravel sized fragments are fine to coarse brick, concrete and slag.            |  |                               |    |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | 1.50                  |                                                                                                                                                                                              |  |                               |                                                                                       |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | (0.95)                | MADE GROUND: soft, friable dark greyish brown, mottled yellow and black slightly gravelly slightly sandy silty clay. Gravel sized fragments are fine to medium siltstone and brick.          |  |                               |                                                                                       |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | 2.45                  |                                                                                                                                                                                              |  |                               |                                                                                       |       |
| 3.00-3.45<br>3.00-4.00<br>3.00-3.45                                                                                                                                                                                                                                                                             | D<br>C<br>SPT N=9  |                     |                 | 3.00m to 4.00m - 100% Recovery.<br>2,2/2,2,2,3 |                     | (0.15)                | Soft light brown mottled grey sandy silty CLAY sand is fine to medium.                                                                                                                       |  |                               |    |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | 2.60                  |                                                                                                                                                                                              |  |                               |                                                                                       |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | (0.90)                | Soft low strength orangish brown mottled grey slightly sandy silty CLAY.                                                                                                                     |  |                               |                                                                                       |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | 3.50                  |                                                                                                                                                                                              |  |                               |                                                                                       |       |
| 4.00-4.45<br>4.00-5.00<br>4.00-4.45                                                                                                                                                                                                                                                                             | D<br>C<br>SPT N=6  |                     |                 | 4.00m to 5.00m - 35% Recovery.<br>1,1/2,1,1,2  |                     | (0.15)                | Brown and grey slightly sandy SILT, sand is fine.                                                                                                                                            |  |                               |    |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | 3.65                  |                                                                                                                                                                                              |  |                               |                                                                                       |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | (0.80)                | Firm medium strength becoming soft low strength brown mottled light grey slightly gravelly slightly sandy silty CLAY. Gravel is subangular to subrounded fine coal, sandstone and siltstone. |  |                               |                                                                                       |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     | 4.45                  |                                                                                                                                                                                              |  |                               |                                                                                       |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 | 5.00m to 6.00m - 100% Recovery.                |                     |                       | .... below 4.00m: soft low strength.                                                                                                                                                         |  |                               |    |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       | .... below 4.35m: no gravel.                                                                                                                                                                 |  |                               |                                                                                       |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       | Firm high strength, dark grey, sandy silty CLAY, sand is fine to medium.                                                                                                                     |  |                               |    |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |    |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |    |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |   |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  |                               |  |       |
| <b>Remarks</b><br>No groundwater entries recorded.<br>Hand dug inspection pit from GL to 1.20m to check for services.<br>C = Plastic lined core sample    HV = Hand Shear Vane test<br>Core diameter: 84mm to 3.00m, 72mm to 4.00m, 64mm to 5.00m and 60mm to 6.00m.<br>On completion backfilled with arisings. |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  | <b>Scale (approx)</b><br>1:25 | <b>Logged By</b><br>TDC/MJE                                                           |       |
|                                                                                                                                                                                                                                                                                                                 |                    |                     |                 |                                                |                     |                       |                                                                                                                                                                                              |  | <b>Figure No.</b><br>7077.M2  |                                                                                       |       |

|                                                                                                                                                                                                                                                                       |                    |                     |                 |                     |             |                                                                                     |                                                                          |                                                                                     |                      |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|---------------------|-----------------|---------------------|-------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------|
| <div><div><div>S</div><div>S</div></div><div><div>SUB SURFACE</div><div>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL &amp; ENVIRONMENTAL CONSULTANTS</div><div>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907</div></div></div> |                    |                     |                 |                     |             | Site<br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER. |                                                                          | Borehole Number<br>M2                                                               |                      |
| Boring Method<br>MINI PERCUSSIVE                                                                                                                                                                                                                                      |                    | Casing Diameter     |                 | Ground Level (mOD)  |             | Client<br>CRAVENWOOD PRIMARY ACADEMY.                                               |                                                                          | Job Number<br>7077                                                                  |                      |
|                                                                                                                                                                                                                                                                       |                    | Location<br>AS PLAN |                 | Dates<br>26/10/2020 |             | Engineer<br>SHARP & SCARFFE LIMITED.                                                |                                                                          | Sheet<br>2/2                                                                        |                      |
| Depth (m)                                                                                                                                                                                                                                                             | Sample / Tests     | Casing Depth (m)    | Water Depth (m) | Field Records       | Level (mOD) | Depth (m) (Thickness)                                                               | Description                                                              | Legend                                                                              | Water                |
| 5.00-5.45<br>5.00-5.45<br>5.00-6.00                                                                                                                                                                                                                                   | SPT N=23<br>D<br>C |                     |                 | 6,7/5,4,4,10        |             | (1.05)                                                                              | Firm high strength, dark grey, sandy silty CLAY, sand is fine to medium. |  |                      |
|                                                                                                                                                                                                                                                                       |                    |                     |                 |                     |             | 5.50<br>(0.40)                                                                      | Orangish brown and brown clayey silty fine to medium SAND.               |  |                      |
|                                                                                                                                                                                                                                                                       |                    |                     |                 |                     |             | 5.90<br>(0.10)                                                                      | Firm brown slightly sandy silty CLAY.                                    |  |                      |
| 6.00-6.45<br>6.00-6.45                                                                                                                                                                                                                                                | SPT N=37<br>D      |                     |                 | 6,8/8,9,9,11        |             | 6.00<br>(0.45)                                                                      | Dense brown slightly silty fine to medium SAND.                          |  |                      |
|                                                                                                                                                                                                                                                                       |                    |                     |                 | 26/10/2020:DRY      |             | 6.45                                                                                | Complete at 6.45m                                                        |                                                                                     |                      |
| Remarks                                                                                                                                                                                                                                                               |                    |                     |                 |                     |             |                                                                                     |                                                                          | Scale (approx)<br>1:25                                                              | Logged By<br>TDC/MJE |
|                                                                                                                                                                                                                                                                       |                    |                     |                 |                     |             |                                                                                     |                                                                          | Figure No.<br>7077.M2                                                               |                      |
|                                                                                                                                                                                                                                                                       |                    |                     |                 |                     |             |                                                                                     |                                                                          |                                                                                     |                      |

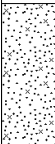


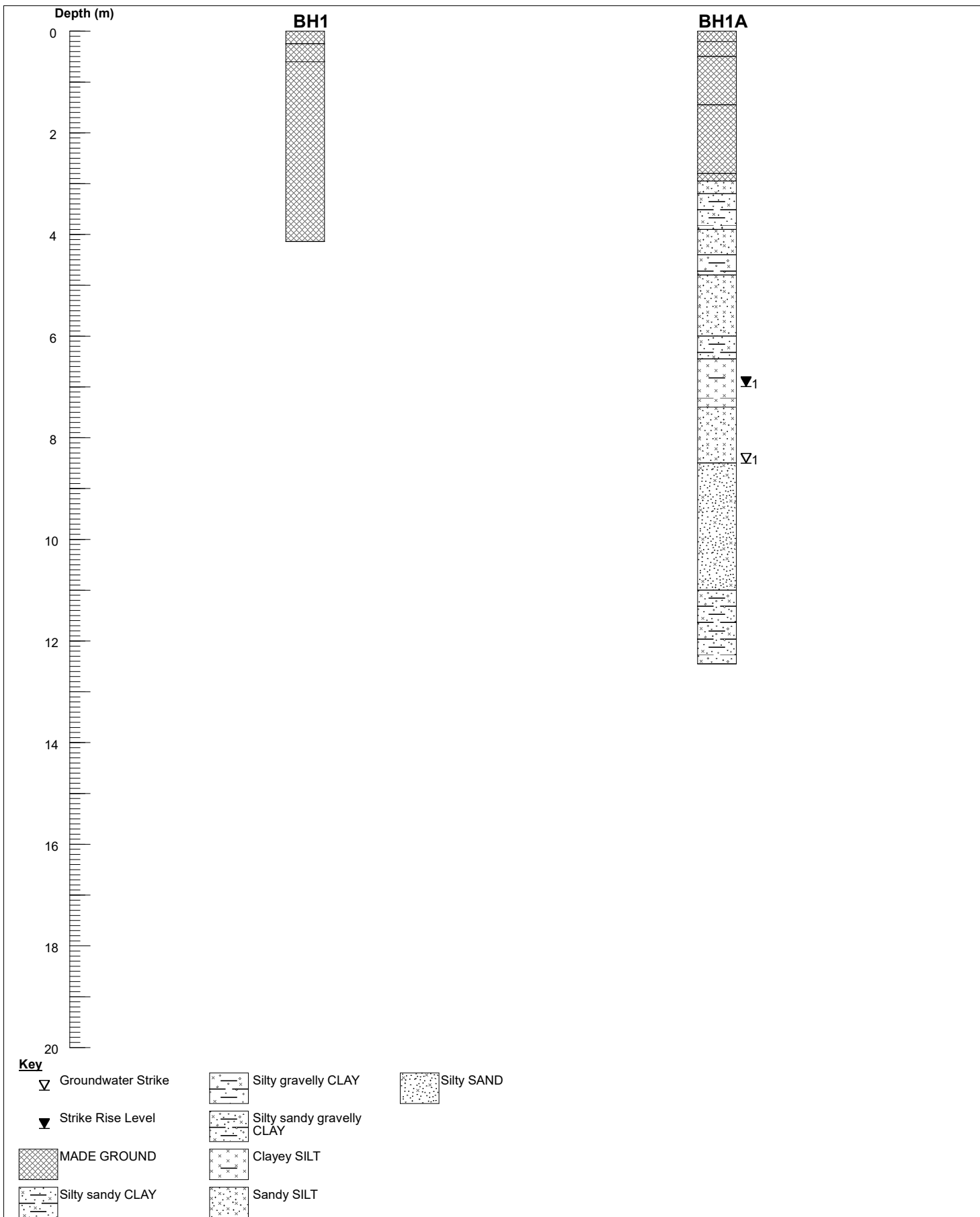
|                                                                                                                                                                                           |  |                                 |                         |                             |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------|-------------------------|-----------------------------|
| <b>SS SUB SURFACE</b><br>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 |  | <b>Nominal Section</b>          |                         |                             |
| <b>Site</b><br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER.                                                                                                |  | <b>Date Drawn</b><br>23/03/2021 | <b>Date Checked</b>     | <b>Sheet</b><br>1/1         |
| <b>Client</b><br>CRAVENWOOD PRIMARY ACADEMY.                                                                                                                                              |  | <b>Drawn By</b>                 | <b>Checked By</b>       | <b>Job Number</b><br>7077   |
|                                                                                                                                                                                           |  |                                 | <b>Scale</b><br>1:40[V] | <b>Figure No.</b><br>7077.1 |

## **BOREHOLE RECORD SHEETS**

|                                                                                                                                                                                                                                                                       |                        |                                   |                 |                         |                     |                                                                            |                                                                                                                       |                         |                     |  |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----------------------------------|-----------------|-------------------------|---------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------|-------------------------|---------------------|--|
| <div><div><div>S</div><div>S</div></div><div><div>SUB SURFACE</div><div>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL &amp; ENVIRONMENTAL CONSULTANTS</div><div>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907</div></div></div> |                        |                                   |                 |                         |                     | Site<br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, MANCHESTER |                                                                                                                       | Borehole Number<br>BH1  |                     |  |
| Boring Method<br>LIGHT CABLE PERCUSSIVE                                                                                                                                                                                                                               |                        | Casing Diameter<br>150mm to 3.50m |                 |                         | Ground Level (mOD)  |                                                                            | Client<br>CRAVENWOOD PRIMARY ACADEMY                                                                                  |                         | Job Number<br>7077A |  |
|                                                                                                                                                                                                                                                                       |                        | Location<br>AS PLAN               |                 |                         | Dates<br>21/12/2020 |                                                                            | Engineer<br>SHARPE & SCARFFE LTD                                                                                      |                         | Sheet<br>1/1        |  |
| Depth (m)                                                                                                                                                                                                                                                             | Sample / Tests         | Casing Depth (m)                  | Water Depth (m) | Field Records           | Level (mOD)         | Depth (m) (Thickness)                                                      | Description                                                                                                           | Legend                  | Water               |  |
| 1.20-1.65                                                                                                                                                                                                                                                             | SPT(C) N=17            |                                   |                 | 4,4/4,4,4,5             |                     | (0.25)                                                                     | MADE GROUND: paving slab over sand sub-base (drillers description).                                                   |                         |                     |  |
|                                                                                                                                                                                                                                                                       |                        |                                   |                 |                         |                     | 0.25                                                                       |                                                                                                                       |                         |                     |  |
|                                                                                                                                                                                                                                                                       |                        |                                   |                 |                         |                     | (0.35)                                                                     | MADE GROUND: hardcore (drillers description).                                                                         |                         |                     |  |
| 2.00-2.45                                                                                                                                                                                                                                                             | SPT(C) N=15            |                                   |                 | 2,2/4,3,4,4             |                     | 0.60                                                                       | MADE GROUND: brown fine to coarse gravel sized fragments of concrete, brick, ceramic and slag (drillers description). |                         |                     |  |
|                                                                                                                                                                                                                                                                       |                        |                                   |                 |                         |                     |                                                                            |                                                                                                                       |                         |                     |  |
|                                                                                                                                                                                                                                                                       |                        |                                   |                 |                         |                     |                                                                            |                                                                                                                       |                         |                     |  |
| 3.00-3.25                                                                                                                                                                                                                                                             | SPT(C) 50/100          |                                   |                 | 1,4/30,20               |                     |                                                                            |                                                                                                                       |                         |                     |  |
|                                                                                                                                                                                                                                                                       |                        |                                   |                 |                         |                     |                                                                            |                                                                                                                       |                         |                     |  |
|                                                                                                                                                                                                                                                                       |                        |                                   |                 |                         |                     |                                                                            |                                                                                                                       |                         |                     |  |
| 4.00-4.14                                                                                                                                                                                                                                                             | SPT(C) 25*/70<br>50/70 |                                   |                 | 25/50<br>21/12/2020:DRY |                     |                                                                            | ..... below 3.50m : medium cobble sized fragments of concrete and brick                                               |                         |                     |  |
|                                                                                                                                                                                                                                                                       |                        |                                   |                 |                         |                     |                                                                            | ..... at 4.14m : cobble/boulder obstruction, unable to progress                                                       |                         |                     |  |
|                                                                                                                                                                                                                                                                       |                        |                                   |                 |                         |                     |                                                                            | Complete at 4.14m                                                                                                     |                         |                     |  |
| <div>Remarks<br/>Hand dug inspection pit from GL to 1.20m to check for services.<br/>Chiselling from 3.50m to 4.00m - 1hr<br/>On completion backfilled with arisings.</div>                                                                                           |                        |                                   |                 |                         |                     |                                                                            |                                                                                                                       | Scale (approx)<br>1:50  | Logged By<br>SCB/SJ |  |
|                                                                                                                                                                                                                                                                       |                        |                                   |                 |                         |                     |                                                                            |                                                                                                                       | Figure No.<br>7077A.BH1 |                     |  |

| SUB SURFACE<br>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 |                    |                                    |                 |                                                                    |                                |                       | Site<br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, MANCHESTER                                                                                                                                    |                                                                                       | Borehole Number<br>BH1A    |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------|-----------------|--------------------------------------------------------------------|--------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------|--|
| Boring Method<br>LIGHT CABLE PERCUSSIVE                                                                                                                                         |                    | Casing Diameter<br>150mm to 11.20m |                 |                                                                    | Ground Level (mOD)             |                       | Client<br>CRAVENWOOD PRIMARY ACADEMY                                                                                                                                                                          |                                                                                       | Job Number<br>7077A        |  |
|                                                                                                                                                                                 |                    | Location<br>AS PLAN                |                 |                                                                    | Dates<br>22/12/2020-16/02/2021 |                       | Engineer<br>SHARPE & SCARFFE LTD                                                                                                                                                                              |                                                                                       | Sheet<br>1/2               |  |
| Depth (m)                                                                                                                                                                       | Sample / Tests     | Casing Depth (m)                   | Water Depth (m) | Field Records                                                      | Level (mOD)                    | Depth (m) (Thickness) | Description                                                                                                                                                                                                   | Legend                                                                                | Water                      |  |
| 1.20-1.65                                                                                                                                                                       | SPT N=12           |                                    |                 | 3,4/3,3,3,3                                                        |                                | (0.20)                | MADE GROUND: paving slab over sand sub-base (driller's description).                                                                                                                                          |    |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                | 0.20                  |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                | (0.30)                |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                | 0.50                  |                                                                                                                                                                                                               |                                                                                       |                            |  |
| 2.00-2.45                                                                                                                                                                       | SPT N=10           |                                    |                 | 2,3/3,2,2,3                                                        |                                | (0.95)                | MADE GROUND: dark grey slightly clayey sandy fine to coarse gravel sized fragments of limestone and sandstone with medium cobble sized fragments of sandstone and limestone.                                  |    |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                | 1.45                  |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
| 3.00-3.45                                                                                                                                                                       | SPT N=5            |                                    |                 | 2,2/1,1,2,1                                                        |                                | (1.35)                | MADE GROUND: soft, dark grey gravelly slightly sandy silty clay with low cobble sized fragments of concrete and sandstone. Gravel sized fragments are fine to coarse concrete, sandstone, limestone and slag. |    |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
| 4.00-4.45                                                                                                                                                                       | SPT N=6            |                                    |                 | 1,2/1,2,1,2                                                        |                                | (1.35)                | MADE GROUND: light grey and orange sandy fine to coarse gravel sized fragments of brick, slag and concrete with medium cobble sized fragments of brick.                                                       |    |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
| 5.00-5.45                                                                                                                                                                       | SPT N=4            |                                    |                 | 1,0/1,1,1,1                                                        |                                | (1.35)                | MADE GROUND: soft, dark grey slightly gravelly slightly sandy silty clay. Gravel sized fragments are fine to coarse brick and slag.                                                                           |    |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
| 6.00-6.45                                                                                                                                                                       | SPT N=6            |                                    |                 | 1,2/1,1,2,2                                                        |                                | (1.35)                | Light grey mottled orange slightly sandy SILT. Sand is fine.                                                                                                                                                  |    |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
| 6.50-7.00                                                                                                                                                                       | B                  |                                    |                 |                                                                    |                                | (1.35)                | Soft low strength brown mottled grey and orangish brown slightly sandy silty CLAY.                                                                                                                            |   |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
| 7.50-7.95<br>7.50-7.95<br>7.50-7.95                                                                                                                                             | SPT N=16<br>D<br>D |                                    |                 | 2,2/3,4,5,4                                                        |                                | (1.35)                | Loose orangish brown and grey slightly gravelly slightly sandy SILT. Gravel is subrounded fine to medium siltstone.                                                                                           |  |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
| 8.50-8.95                                                                                                                                                                       | SPT(C) N=18        |                                    |                 | Water Inflow(1) at 8.50m, rose to 7.00m in 20 mins.<br>3,4/4,4,4,6 |                                | (1.35)                | Soft, dark grey sandy silty CLAY. Sand is fine to medium.                                                                                                                                                     |  |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
| 9.50-9.60                                                                                                                                                                       | D                  |                                    |                 |                                                                    |                                | (1.35)                | Loose dark grey slightly sandy SILT. Sand is fine to medium.<br>.... below 5.00m : slightly clayey                                                                                                            |  |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
| 10.00-10.45                                                                                                                                                                     | SPT N=24           |                                    |                 | 4,4/5,5,6,8                                                        |                                | (1.35)                | Soft low strength brown mottled grey slightly sandy silty CLAY with occasional pockets of sandy silt.                                                                                                         |  |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                | (1.35)                | Dark greyish brown clayey SILT.                                                                                                                                                                               |  |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                | (1.35)                | Medium dense dark greyish brown slightly sandy SILT.                                                                                                                                                          |  |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                | (1.35)                | Medium dense brown silty fine to medium SAND.                                                                                                                                                                 |  |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                | (1.35)                | .... at 9.50m: band of dark brown slightly gravelly slightly sandy clayey SILT. Gravel is subangular to subrounded fine to medium siltstone and sandstone.                                                    |  |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               |                                                                                       |                            |  |
| <b>Remarks</b><br>Hand dug inspection pit from GL to 1.20m to check for services.<br>On completion backfilled with arisings.<br>BH1A followed by M1                             |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               | <b>Scale (approx)</b><br>1:50                                                         | <b>Logged By</b><br>SCB/SJ |  |
|                                                                                                                                                                                 |                    |                                    |                 |                                                                    |                                |                       |                                                                                                                                                                                                               | <b>Figure No.</b><br>7077A.BH1A                                                       |                            |  |

| SUB SURFACE<br>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 |                |                                    |                 |                  |                                | Site<br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, MANCHESTER |                                                                                                                                                   | Borehole Number<br>BH1A                                                             |                     |  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|------------------------------------|-----------------|------------------|--------------------------------|----------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------|--|
| Boring Method<br>LIGHT CABLE PERCUSSIVE                                                                                                                                         |                | Casing Diameter<br>150mm to 11.20m |                 |                  | Ground Level (mOD)             |                                                                            | Client<br>CRAVENWOOD PRIMARY ACADEMY                                                                                                              |                                                                                     | Job Number<br>7077A |  |
|                                                                                                                                                                                 |                | Location<br>AS PLAN                |                 |                  | Dates<br>22/12/2020-16/02/2021 |                                                                            | Engineer<br>SHARPE & SCARFFE LTD                                                                                                                  |                                                                                     | Sheet<br>2/2        |  |
| Depth (m)                                                                                                                                                                       | Sample / Tests | Casing Depth (m)                   | Water Depth (m) | Field Records    | Level (mOD)                    | Depth (m) (Thickness)                                                      | Description                                                                                                                                       | Legend                                                                              | Water               |  |
| 10.00-10.45                                                                                                                                                                     | D              |                                    |                 |                  |                                |                                                                            | Medium dense brown silty fine to medium SAND.                                                                                                     |  |                     |  |
| 11.50-11.95                                                                                                                                                                     | SPT N=45       |                                    |                 | 5,7/9,10,12,14   |                                | 11.00                                                                      | Stiff, very high strength brown slightly gravelly slightly sandy silty CLAY. Gravel is subrounded fine to coarse siltstone, sandstone and quartz. |  |                     |  |
| 11.50-11.95                                                                                                                                                                     | D              |                                    |                 |                  |                                | (1.45)                                                                     |                                                                                                                                                   |  |                     |  |
| 12.00-12.45                                                                                                                                                                     | SPT N=47       |                                    |                 | 5,6/8,11,12,16   |                                |                                                                            | .... at 12.45m : unable to progress deeper due to reduced power at lowhead room drilling rig                                                      |  |                     |  |
| 12.00-12.45                                                                                                                                                                     | D              |                                    |                 | 16/02/2021:7.00m |                                | 12.45                                                                      | Complete at 12.45m                                                                                                                                |  |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
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|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |
|                                                                                                                                                                                 |                |                                    |                 |                  |                                |                                                                            |                                                                                                                                                   |                                                                                     |                     |  |



|                                                                                                                                                                                           |  |                                 |                          |                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------------------|--------------------------|------------------------------|
| <b>SS SUB SURFACE</b><br>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 |  | <b>Nominal Section</b>          |                          |                              |
| <b>Site</b><br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, MANCHESTER                                                                                                         |  | <b>Date Drawn</b><br>23/03/2021 | <b>Date Checked</b>      | <b>Sheet</b><br>1/1          |
| <b>Client</b><br>CRAVENWOOD PRIMARY ACADEMY                                                                                                                                               |  | <b>Drawn By</b>                 | <b>Checked By</b>        | <b>Job Number</b><br>7077A   |
|                                                                                                                                                                                           |  |                                 | <b>Scale</b><br>1:100[V] | <b>Figure No.</b><br>7077A.1 |

## **HAND DUG TRIAL PIT RECORD SHEETS**



# SUB SURFACE

SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS  
3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907

## Site

CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD  
ROAD, CRUMPSALL, GREATER MANCHESTER.

Trial Pit  
Number  
**HD1**

## Excavation Method

HAND DUG

## Dimensions

0.42m x 0.60m

## Ground Level (mOD)

## Client

CRAVENWOOD PRIMARY ACADEMY.

Job  
Number  
7077

## Location

AS PLAN

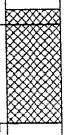
## Dates

26/10/2020

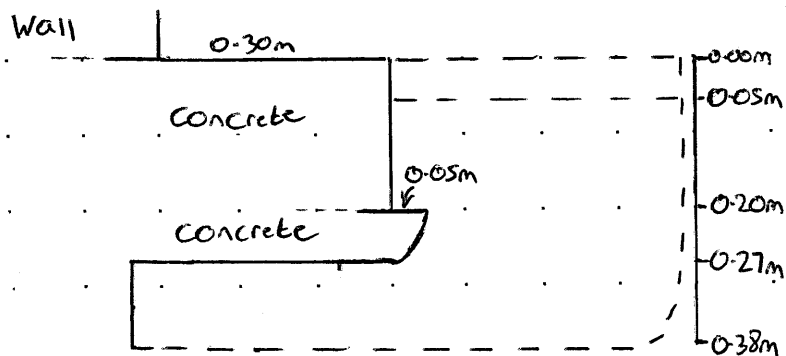
## Engineer

SHARP & SCARFFE LIMITED.

Sheet  
1/1

| Depth<br>(m) | Sample / Tests | Water<br>Depth<br>(m) | Field Records   | Level<br>(mOD) | Depth<br>(m)<br>(Thickness) | Description                                                                                                                                                                                                                                                      | Legend                                                                              | Water |
|--------------|----------------|-----------------------|-----------------|----------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------|
| 0.10-0.30    | D              |                       | 26/10/2020: DRY |                | 0.05<br>(0.33)<br>0.38      | MADE GROUND: concrete paving slab.<br><br>MADE GROUND: light brown gravelly slightly silty medium to coarse sand with high cobble sized fragments of stone. Gravel sized fragments are fine to coarse stone, brick, concrete and metal.<br><br>Complete at 0.38m |  |       |

## Plan



## Remarks

No groundwater entries recorded.  
Pit sides remained vertical and stable.  
On completion backfilled with arisings.

Scale (approx)

1:25

Logged By

TM/MJE

Figure No.

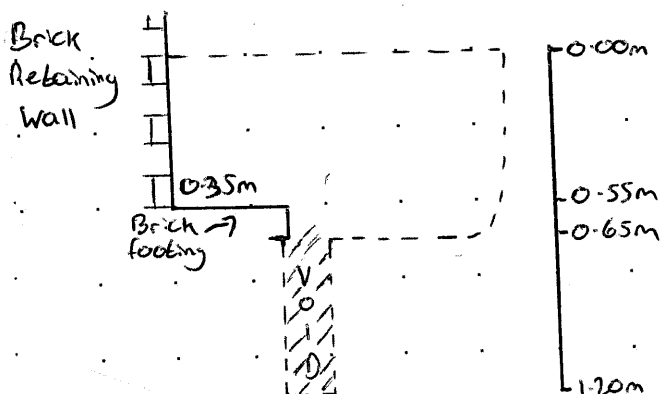
7077.HD1

| <b>S SUB SURFACE</b><br>SITE INVESTIGATION SPECIALISTS. GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 |                |                             |                 |                     | Site<br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER.                                               |                                                                                                                                                         | Trial Pit Number<br><b>HD2</b>       |                    |  |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|-----------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|--------------------|--|
| Excavation Method<br>HAND DUG                                                                                                                                                            |                | Dimensions<br>0.35m x 0.80m |                 | Ground Level (mOD)  |                                                                                                                                   | Client<br>CRAVENWOOD PRIMARY ACADEMY.                                                                                                                   |                                      | Job Number<br>7077 |  |
|                                                                                                                                                                                          |                | Location<br>AS PLAN         |                 | Dates<br>26/10/2020 |                                                                                                                                   | Engineer<br>SHARP & SCARFFE LIMITED.                                                                                                                    |                                      | Sheet<br>1/1       |  |
| Depth (m)                                                                                                                                                                                | Sample / Tests | Water Depth (m)             | Field Records   | Level (mOD)         | Depth (m) (Thickness)                                                                                                             | Description                                                                                                                                             | Legend                               | Water              |  |
| 0.10-0.30                                                                                                                                                                                | D              |                             |                 |                     | (0.30)                                                                                                                            | MADE GROUND: brown slightly gravelly slightly sandy silty clay with many roots and rootlets. Gravel sized fragments are fine to coarse stone and brick. |                                      |                    |  |
| 0.35-0.45                                                                                                                                                                                | D              |                             |                 |                     | 0.30<br>(0.15)<br>0.45                                                                                                            | MADE GROUND: light brown slightly silty slightly sandy fine to coarse gravel sized fragments of stone.                                                  |                                      |                    |  |
|                                                                                                                                                                                          |                |                             |                 |                     | (0.35)                                                                                                                            | VOID                                                                                                                                                    | VOID<br>VOID<br>VOID<br>VOID<br>VOID |                    |  |
|                                                                                                                                                                                          |                |                             | 26/10/2020: DRY |                     | 0.80                                                                                                                              | Complete at 0.80m                                                                                                                                       |                                      |                    |  |
| Plan<br>                                                                                                                                                                                 |                |                             |                 |                     | Remarks<br>No groundwater entries recorded.<br>Pit sides remained vertical and stable.<br>On completion backfilled with arisings. |                                                                                                                                                         |                                      |                    |  |
| Scale (approx)<br>1:25                                                                                                                                                                   |                |                             |                 |                     | Logged By<br>TM/MJE                                                                                                               |                                                                                                                                                         | Figure No.<br>7077.HD2               |                    |  |

|                                      |                                    |                            |                                              |                           |
|--------------------------------------|------------------------------------|----------------------------|----------------------------------------------|---------------------------|
| <b>Excavation Method</b><br>HAND DUG | <b>Dimensions</b><br>0.30m x 0.70m | <b>Ground Level (mOD)</b>  | <b>Client</b><br>CRAVENWOOD PRIMARY ACADEMY. | <b>Job Number</b><br>7077 |
|                                      | <b>Location</b><br>AS PLAN         | <b>Dates</b><br>26/10/2020 | <b>Engineer</b><br>SHARP & SCARFFE LIMITED.  | <b>Sheet</b><br>1/1       |

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records   | Level (mOD) | Depth (m) (Thickness) | Description                                                                                                                                                        | Legend                                               | Water |
|-----------|----------------|-----------------|-----------------|-------------|-----------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-------|
| 0.10-0.30 | D              |                 |                 |             | (0.30)                | MADE GROUND: brown slightly gravelly slightly sandy silty clay with many roots and rootlets. Gravel sized fragments are fine to coarse stone and brick.            |                                                      |       |
| 0.40-0.60 | D              |                 |                 |             | 0.30<br>(0.40)        | MADE GROUND: light brown silty clayey slightly sandy fine to coarse gravel sized fragments of stone and brick with high cobble sized fragments of stone and brick. |                                                      |       |
|           |                |                 |                 |             | 0.70<br>(0.50)        | VOID                                                                                                                                                               | VOID<br>VOID<br>VOID<br>VOID<br>VOID<br>VOID<br>VOID |       |
|           |                |                 | 26/10/2020: DRY |             | 1.20                  | Complete at 1.20m                                                                                                                                                  |                                                      |       |

Plan



Remarks

No groundwater entries recorded.  
 Pit sides remained vertical and stable.  
 On completion backfilled with arisings.

Scale (approx)

1:25

Logged By

TM/MJE

Figure No.

7077.HD2A



# SUB SURFACE

SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS  
3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907

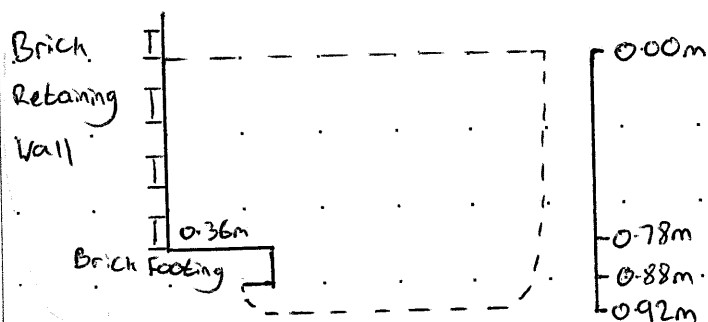
## Site

Cravenwood Primary Academy, Cravenwood Road, Crumpsall, Greater Manchester.

Trial Pit Number  
**HD3**

| Excavation Method<br>HAND DUG |                | Dimensions<br>0.40m x 0.70m |                 | Ground Level (mOD)  |                        | Client<br>Cravenwood Primary Academy.                                                                                                                                                          |        | Job Number<br>7077 |  |
|-------------------------------|----------------|-----------------------------|-----------------|---------------------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------------------|--|
|                               |                | Location<br>AS PLAN         |                 | Dates<br>26/10/2020 |                        | Engineer<br>SHARP & SCARFFE LIMITED.                                                                                                                                                           |        | Sheet<br>1/1       |  |
| Depth (m)                     | Sample / Tests | Water Depth (m)             | Field Records   | Level (mOD)         | Depth (m) (Thickness)  | Description                                                                                                                                                                                    | Legend | Water              |  |
| 0.10-0.30                     | D              |                             |                 |                     | (0.50)                 | MADE GROUND: brown slightly gravelly slightly sandy silty clay with many roots and rootlets. Gravel sized fragments are fine to coarse stone and brick.                                        |        |                    |  |
| 0.60-0.80                     | D              |                             | 26/10/2020: DRY |                     | 0.50<br>(0.35)         | MADE GROUND: light brown slightly silty sandy fine to coarse gravel sized fragments of stone and brick with high cobble sized fragments of stone and brick.                                    |        |                    |  |
| 0.85-0.90                     | D              |                             |                 |                     | 0.85<br>(0.07)<br>0.92 | MADE GROUND: reddish brown slightly clayey silty slightly sandy fine to coarse gravel sized fragments of stone and brick with medium cobble sized fragments of brick.<br><br>Complete at 0.92m |        |                    |  |

## Plan



## Remarks

Ground level of HD3 is approximately 0.90m above HD2 and HD2A.  
No groundwater entries recorded.  
Pit sides remained vertical and stable.  
On completion backfilled with arisings.

Scale (approx)

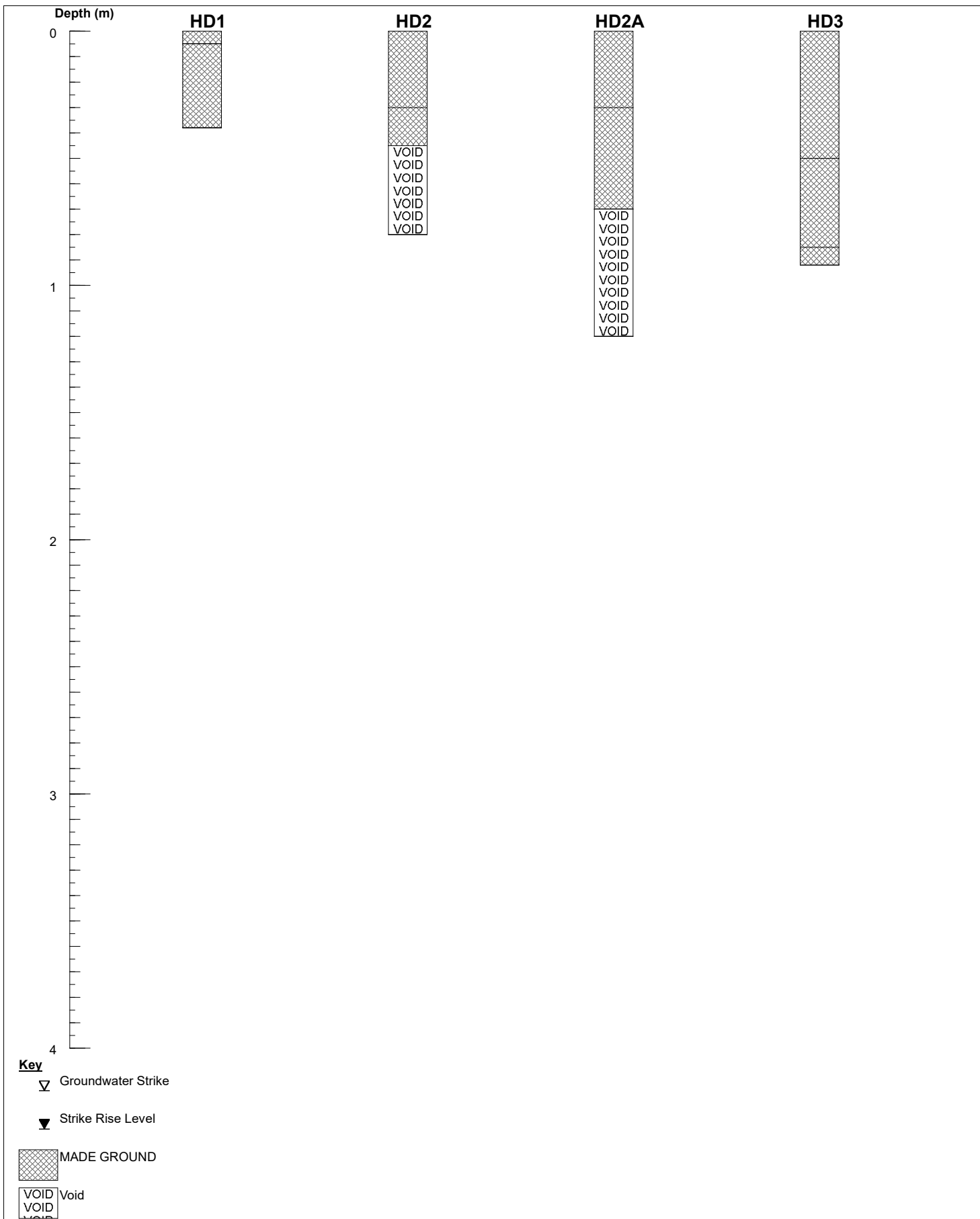
1:25

Logged By

TM/MJE

Figure No.

7077.HD3



|                                                                                                                                                                                                  |                                 |                     |                         |                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------|-------------------------|-----------------------------|
| <b>SS</b> <b>SUB SURFACE</b><br>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 | <b>Nominal Section</b>          |                     |                         |                             |
| <b>Site</b><br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL,<br>GREATER MANCHESTER.                                                                                                    | <b>Date Drawn</b><br>10/12/2020 | <b>Date Checked</b> | <b>Sheet</b><br>1/1     | <b>Job Number</b><br>7077   |
| <b>Client</b><br>CRAVENWOOD PRIMARY ACADEMY.                                                                                                                                                     | <b>Drawn By</b>                 | <b>Checked By</b>   | <b>Scale</b><br>1:20[V] | <b>Figure No.</b><br>7077.1 |

## **TRIAL PIT RECORD SHEETS**

**Excavation Method**  
 MECHANICAL EXCAVATOR

**Dimensions**  
 1.10m x 0.40m

**Ground Level (mOD)**

**Client**  
 CRAVENWOOD PRIMARY ACADEMY

**Job Number**  
 7077A

**Location**  
 AS PLAN

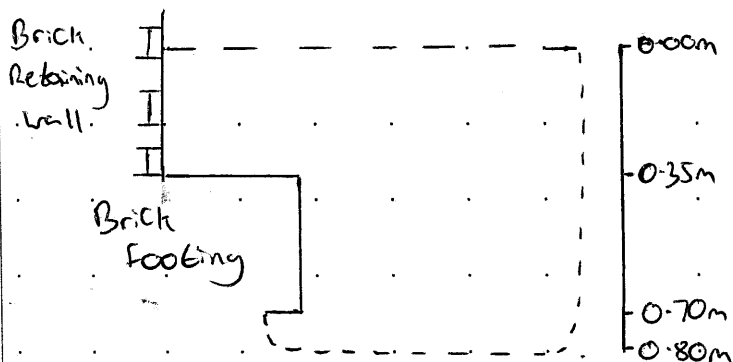
**Dates**  
 23/12/2020

**Engineer**  
 SHARPE & SCARFFE LTD

**Sheet**  
 1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records   | Level (mOD) | Depth (m) (Thickness) | Description                                                                                                                                                             | Legend | Water |
|-----------|----------------|-----------------|-----------------|-------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|
| 0.10-0.30 | B              |                 |                 |             | (0.35)                | MADE GROUND: dark grey slightly gravelly slightly sandy silty clay with many roots and rootlets. Gravel sized fragments are fine to coarse stone and brick.             |        |       |
| 0.40-0.60 | B              |                 |                 |             | 0.35<br>(0.45)        | MADE GROUND: brown gravelly slightly sandy silty clay with medium cobble sized fragments to brick. Gravel sized fragments are fine to coarse stone, brick and concrete. |        |       |
|           |                |                 | 23/12/2021: DRY |             | 0.80                  | Complete at 0.80m                                                                                                                                                       |        |       |

**Plan**



**Remarks**

Pit sides remained vertical and stable.  
 No groundwater encountered.  
 On completion backfilled with arisings.

**Scale (approx)**

1:25

**Logged By**

**Figure No.**

7077A.TP2



# SUB SURFACE

SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS  
3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907

## Site

CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD  
ROAD, CRUMPSALL, MANCHESTER

Trial Pit  
Number  
**TP2A**

## Excavation Method

MECHANICAL EXCAVATOR

## Dimensions

0.80m x 0.30m

## Ground Level (mOD)

## Client

CRAVENWOOD PRIMARY ACADEMY

Job  
Number  
7077A

## Location

AS PLAN

## Dates

23/12/2020

## Engineer

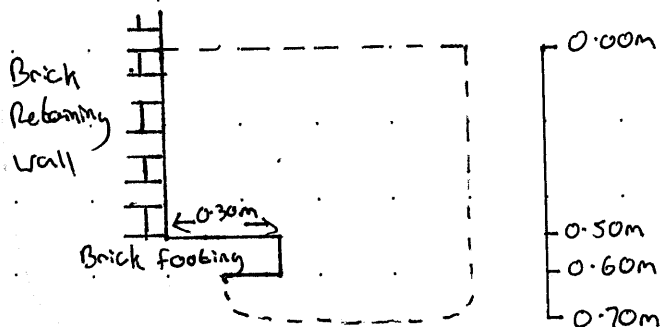
SHARPE & SCARFFE LTD

## Sheet

1/1

| Depth (m) | Sample / Tests | Water Depth (m) | Field Records   | Level (mOD) | Depth (m) (Thickness) | Description                                                                                                                                                             | Legend | Water |
|-----------|----------------|-----------------|-----------------|-------------|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|-------|
| 0.10-0.30 | B              |                 |                 |             | (0.35)                | MADE GROUND: dark grey slightly gravelly slightly sandy silty clay with many roots and rootlets. Gravel sized fragments are fine to coarse stone and brick.             |        |       |
| 0.40-0.60 | B              |                 |                 |             | 0.35<br>(0.35)        | MADE GROUND: brown gravelly slightly sandy silty clay with medium cobble sized fragments of brick. Gravel sized fragments are fine to coarse stone, brick and concrete. |        |       |
|           |                |                 | 23/12/2020: DRY |             | 0.70                  | Complete at 0.70m                                                                                                                                                       |        |       |

## Plan



## Remarks

Pit sides remained vertical and stable.  
No groundwater encountered.  
On completion backfilled with arisings.

## Scale (approx)

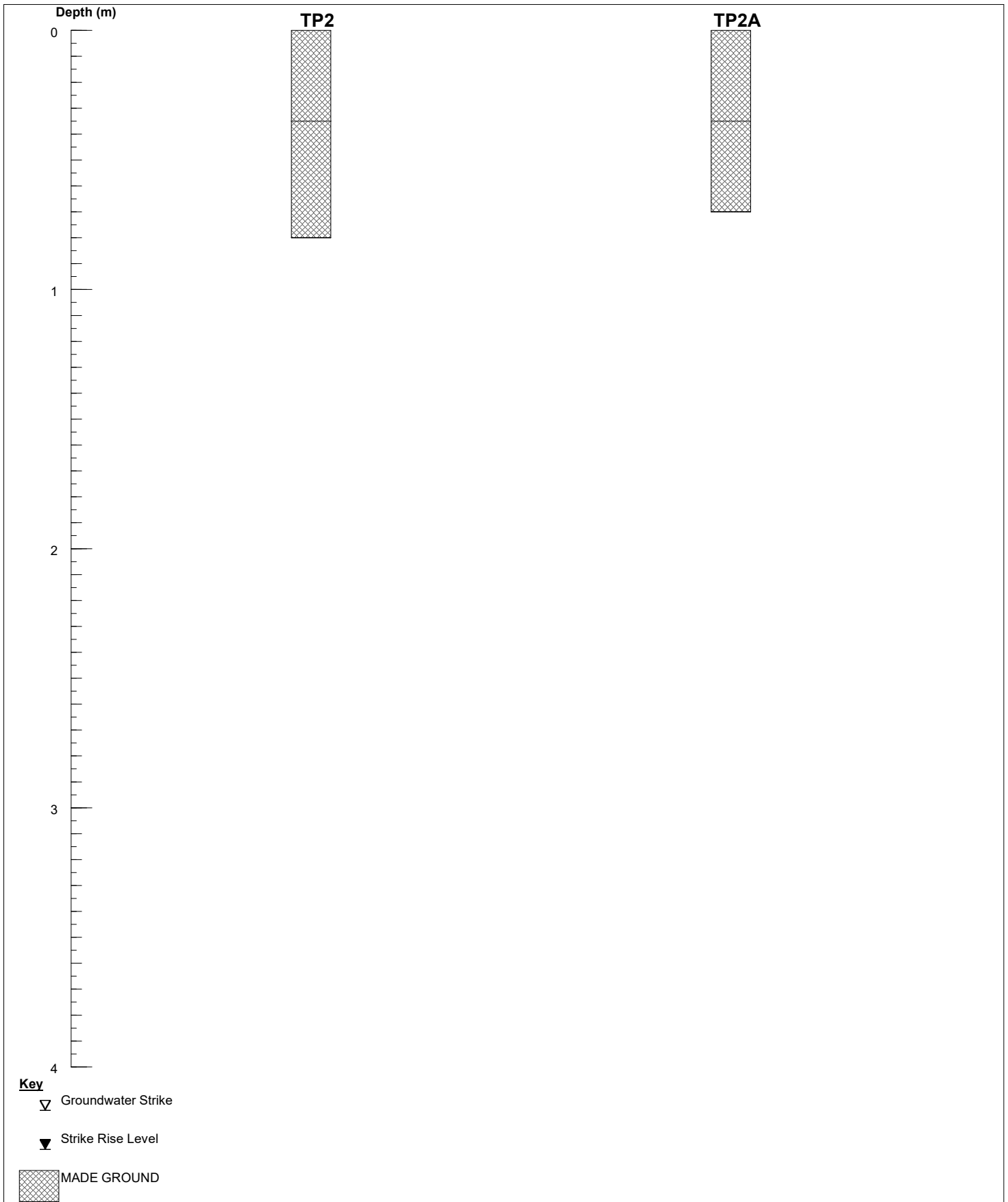
1:25

## Logged By

TM/SJ

## Figure No.

7077A.TP2A



|                                                                                                                                                                                           |                                 |                     |                         |                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|---------------------|-------------------------|------------------------------|
| <b>SS SUB SURFACE</b><br>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 | <b>Nominal Section</b>          |                     |                         |                              |
| <b>Site</b><br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, MANCHESTER                                                                                                         | <b>Date Drawn</b><br>23/03/2021 | <b>Date Checked</b> | <b>Sheet</b><br>1/1     | <b>Job Number</b><br>7077A   |
| <b>Client</b><br>CRAVENWOOD PRIMARY ACADEMY                                                                                                                                               | <b>Drawn By</b>                 | <b>Checked By</b>   | <b>Scale</b><br>1:20[V] | <b>Figure No.</b><br>7077A.1 |

## PHOTOGRAPHS



# SUB SURFACE

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS  
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

## Photographs

Site: CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GT MANC  
Client: CRAVENWOOD PRIMARY ACADEMY  
Engineer: SHARPE & SCARFFE LIMITED

Job No. 7077  
Sheet 1 / 4  
Date 26/10/20

### PHOTOGRAPHS - HD1





## SUB SURFACE

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS  
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

## Photographs

Site: CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GT MANC  
Client: CRAVENWOOD PRIMARY ACADEMY  
Engineer: SHARPE & SCARFFE LIMITED

Job No.  
7077  
Sheet  
2 / 4  
Date  
26/10/20

### PHOTOGRAPHS - HD2





## SUB SURFACE

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS  
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

## Photographs

Site: CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GT MANC  
Client: CRAVENWOOD PRIMARY ACADEMY  
Engineer: SHARPE & SCARFFE LIMITED

Job No. 7077  
Sheet 3 / 4  
Date 26/10/20

### PHOTOGRAPHS - HD2A





# SUB SURFACE

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS  
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

## Photographs

Site: CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GT MANC  
Client: CRAVENWOOD PRIMARY ACADEMY  
Engineer: SHARPE & SCARFFE LIMITED

Job No.  
7077  
Sheet  
4 / 4  
Date  
26/10/20

### PHOTOGRAPHS - HD3





## SUB SURFACE

SITE INVESTIGATION AND SPECIALIST GEOTECHNICAL CONSULTANTS  
3 Peel Street, Preston, PR2 2QS. Tel. (01772) 561135 Fax (01772) 204907

## Photographs

Site: CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GT MANC  
Client: CRAVENWOOD PRIMARY ACADEMY  
Engineer: SHARPE & SCARFFE LIMITED

Job No.

7077A

Sheet

1 / 1

Date

23/12/20

## PHOTOGRAPHS



TP2



TP2-1

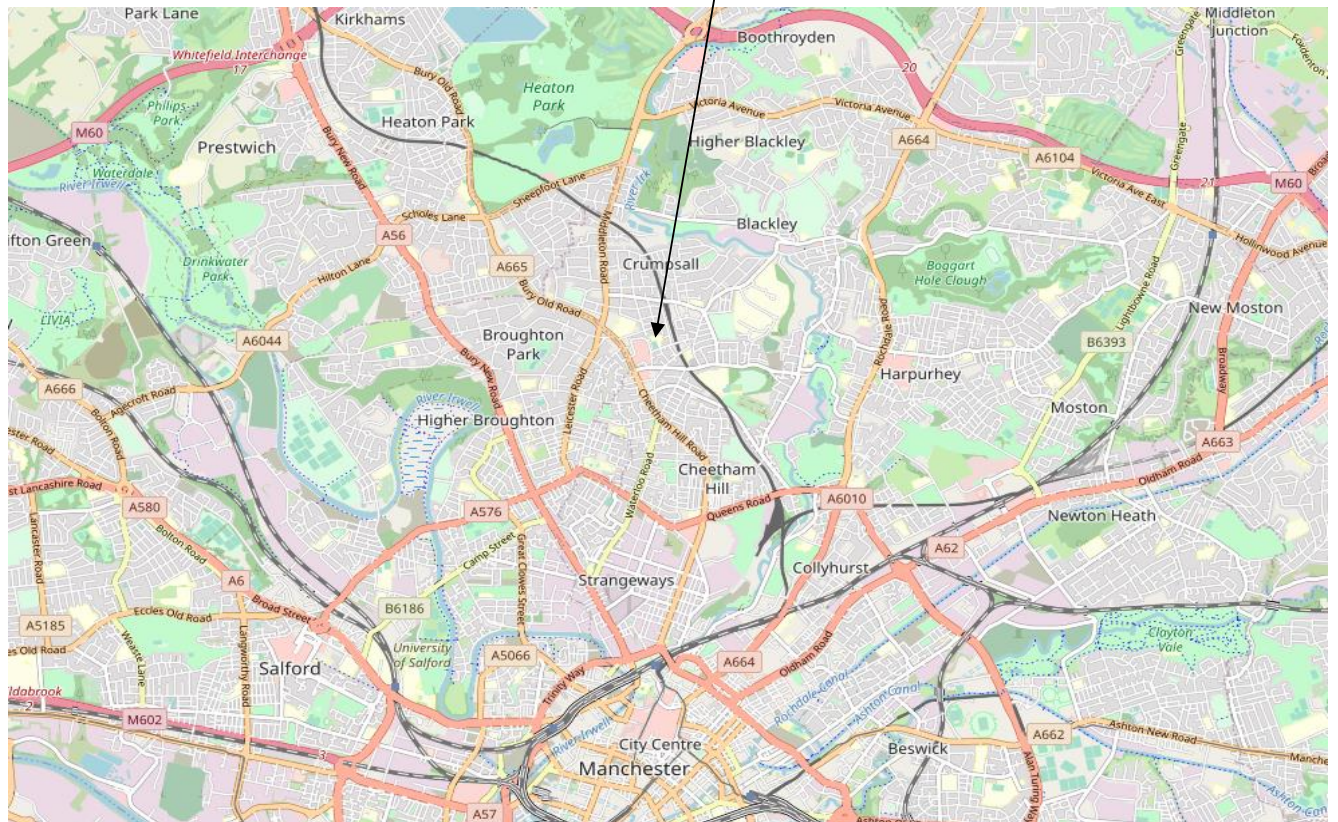
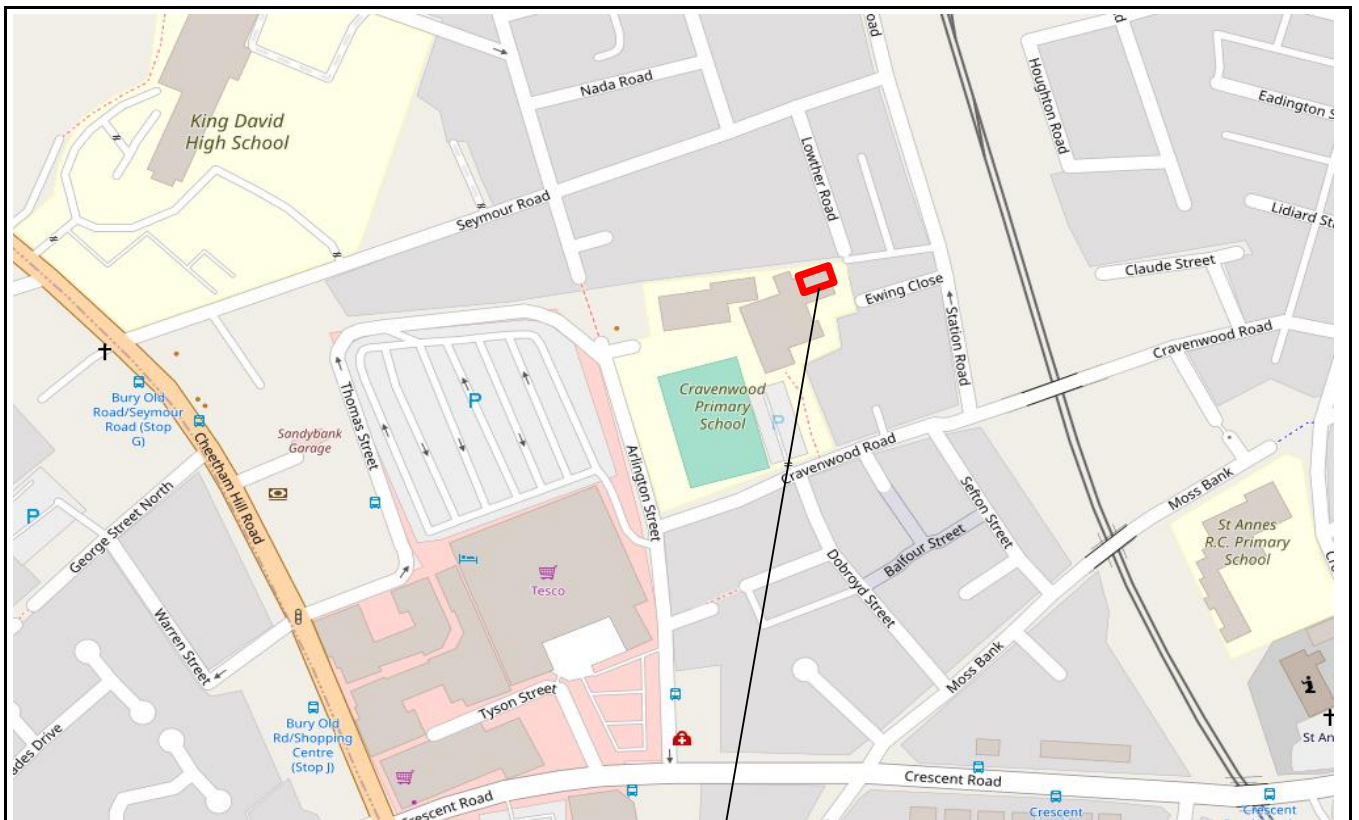


TP2A



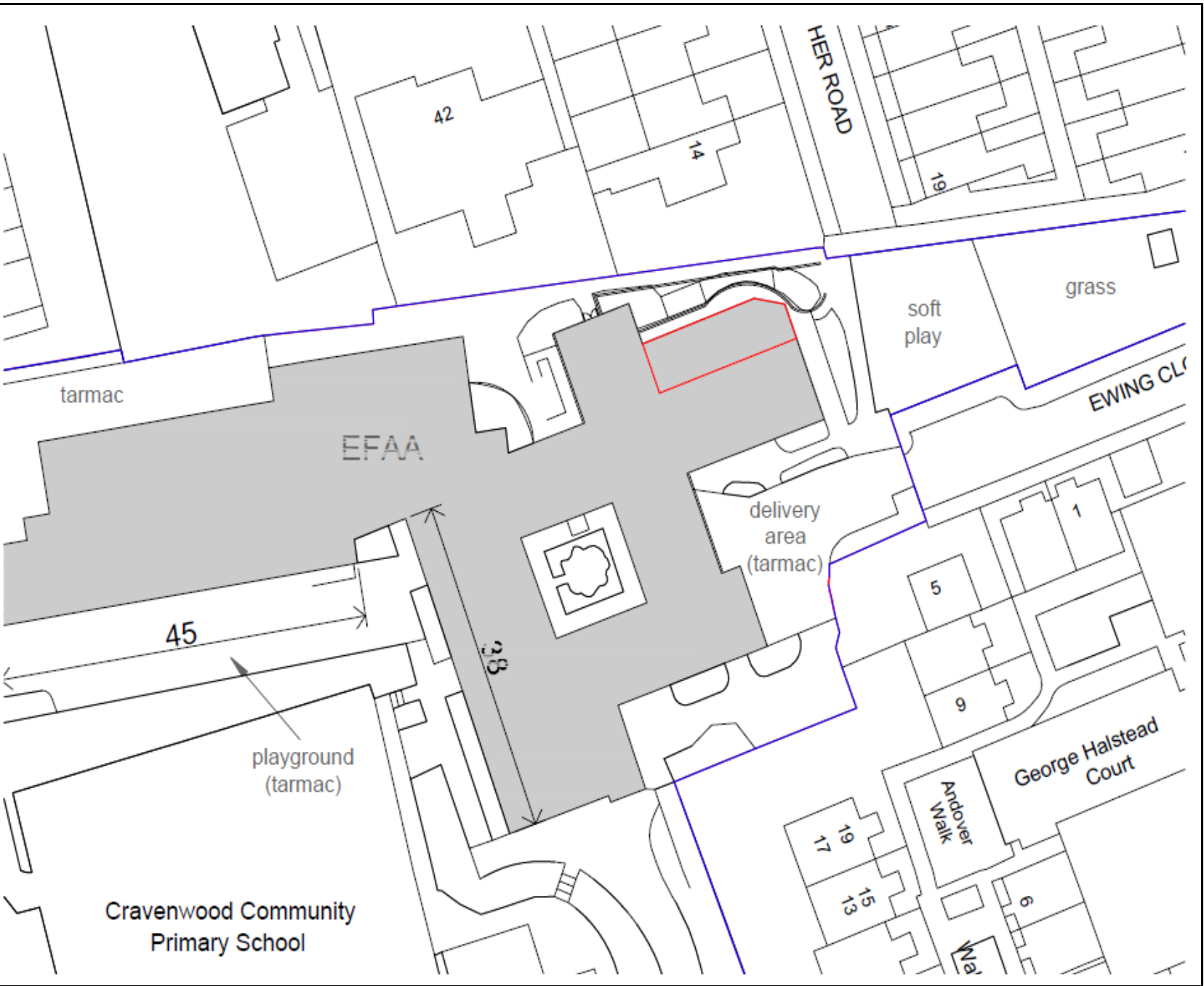
TP2A-1

## FIGURES



© OpenStreetMap contributors

|                                                                                                                                                                                                  |                                           |                   |                                                                                                      |                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------|-------------------------|
| <b>SUB SURFACE</b><br><b>SS</b> SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 | General Site Location<br>384070E, 402061N |                   |                                                                                                      |                         |
| Site<br><b>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD, CRUMPSALL, GREATER MANCHESTER</b>                                                                                                        | Date Drawn<br><b>05-Mar-21</b>            | Date Checked<br>- | Orientation<br> | Job No.<br><b>7077A</b> |
| Client<br><b>CRAVENWOOD PRIMARY ACADEMY</b>                                                                                                                                                      | Drawn By<br><b>DM</b>                     | Checked By<br>-   | Scale<br>-                                                                                           | Figure No.<br><b>1</b>  |



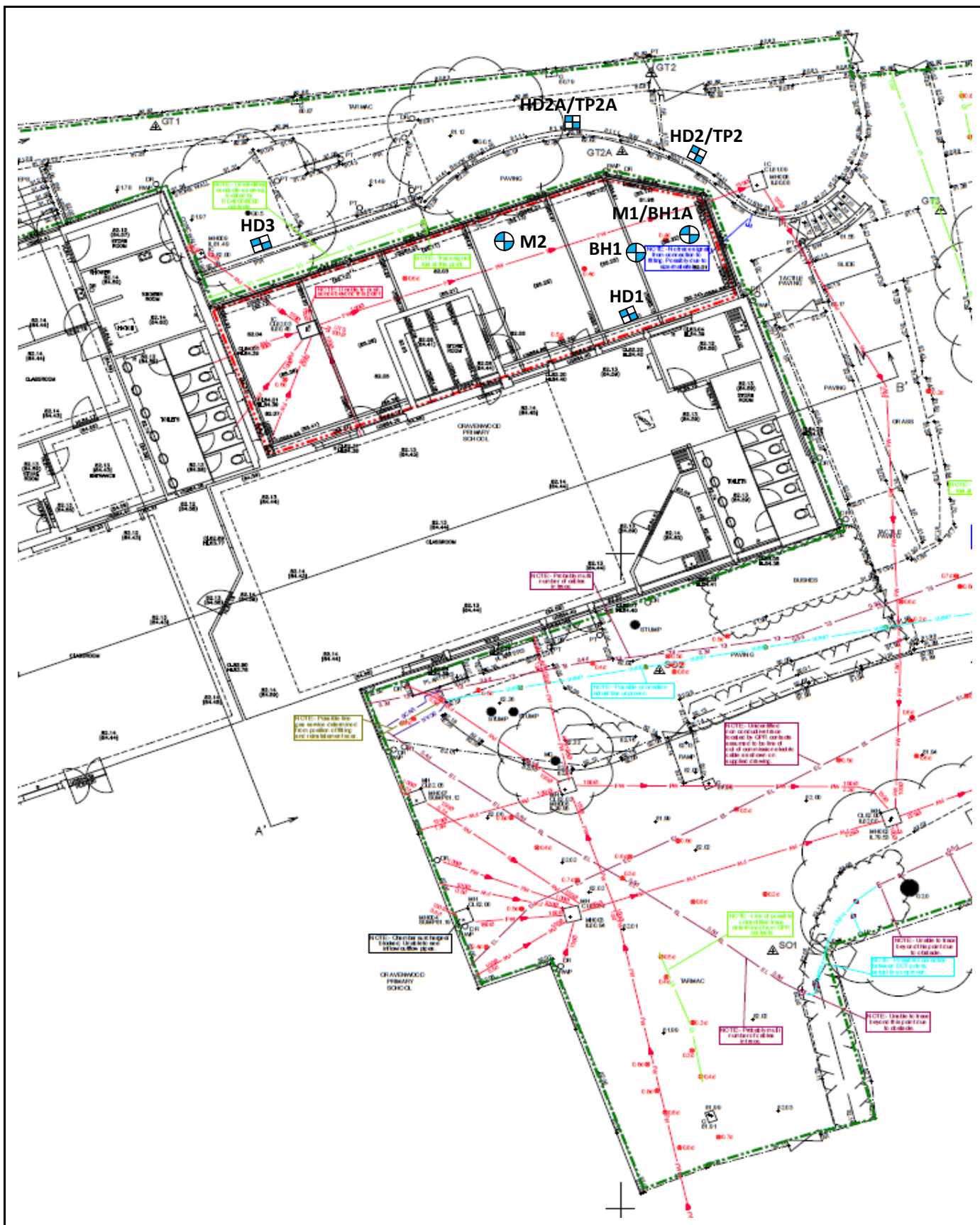
**S SUB SURFACE**  
 SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS  
 3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907

**Site Location Plan**  
 Date Drawn 05-Mar-21  
 Date Checked -  
 Orientation   
 Job No. 7077A

Site  
 CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD,  
 CRUMPSALL, GREATER MANCHESTER

Client  
 CRAVENWOOD PRIMARY ACADEMY

Drawn By DM  
 Checked By -  
 Scale -  
 Figure No. 2



|                                                                                                                                                                                           |                                                  |                   |                                                                                                      |                  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------|-------------------|------------------------------------------------------------------------------------------------------|------------------|
| <b>SS SUB SURFACE</b><br>SITE INVESTIGATION SPECIALISTS, GEOTECHNICAL & ENVIRONMENTAL CONSULTANTS<br>3 Peel Street, Preston, Lancashire, PR2 2QS. Tel: (01772) 561135 Fax: (01772) 204907 | Existing Site and Exploratory Hole Location Plan |                   |                                                                                                      |                  |
| Site<br>CRAVENWOOD PRIMARY ACADEMY, CRAVENWOOD ROAD,<br>CRUMPSALL, GREATER MANCHESTER<br>Client<br>CRAVENWOOD PRIMARY ACADEMY                                                             | Date Drawn<br>05-Mar-21                          | Date Checked<br>- | Orientation<br> | Job No.<br>7077A |
|                                                                                                                                                                                           | Drawn By<br>DM                                   | Checked By<br>-   | Scale<br>-                                                                                           | Figure No.<br>3  |