

BISHOPSTOKE MEMORIAL HALL

17 RIVERSIDE, BISHOPSTOKE

EASTLEIGH

HAMPSHIRE SO50 6LQ

STRUCTURAL SURVEY & APPRAISAL

OF

EXISTING COMMUNITY HALL

CONTENTS

1. Introduction	3
2. Description of the Survey	4
3. Description of the Property	5
4. Condition	10
5. Conclusions and Recommendations	13

Appendix A Smith Foster Reference Drawing & Trial Pit Logs

Appendix B Photographs

Appendix C Geotechnical Investigation

Appendix D Drainage Survey

1. INTRODUCTION

This survey was commissioned by Kendall Kingscott on behalf of Eastleigh Borough Council. The brief being to undertake a structural investigation of the existing community hall and prepare a report of our findings. This report is to be used in support of any future considerations over the refurbishment or redevelopment of the building.

A visual inspection was carried out on the 16th January 2019.

A return visit to undertake trial pitting and more intrusive investigations was carried out on the 13th March 2019.

This report has been prepared upon Client instructions and is based on a visual inspection of the premises. The comments, opinions and recommendations in this report are based on information obtained during the investigation. We have not inspected areas that are unexposed or inaccessible and therefore it is not possible to report on potential problems or whether they are free from defect. No investigations were undertaken in relation to the presence or otherwise of asbestos and no responsibility can be accepted should this be discovered at a later date. No responsibility will be accepted for any use of this report by a third party.

2. DESCRIPTION OF THE SURVEY

A visual survey of the building was made to establish the general layout and to identify areas of further investigation. Since no measured survey of the building had been undertaken at the time of our investigation we have produced our own basic layout plan for reference. A copy of which is contained under Appendix A.

Record photographs were taken and are appended to this report.

A separate geotechnical investigation was arranged and undertaken by Redrock Geoscience Limited. A copy of their report is contained under Appendix C.

A separate survey of the below ground drainage was undertaken by S&D Services. A copy of their report is contained under Appendix D.

3. DESCRIPTION OF THE BUILDING

The building is located at 17 Riverside in the Bishopstoke area of Eastleigh. The building is orientated in a north easterly direction with the entrance facing south west onto Riverside and the river Itchen.

The date of construction is believed to be in the period of the late 1920's to early 1930's.

The building is raised above road level by approximately 2m.

The building is constructed as a single storey timber portal framed structure.

The building measures approximately 11m x 32m on plan and is divided into 10 equal bays by a series of portal frames.

The span of each portal is approximately 10.5m and they are spaced at approximately 3.25m along the building.

Each portal is made up from a framework of solid timbers which have a 6mm thick ply skin glued and nailed to the outer faces. The framework consists of 170mm x 30mm solid timber top and bottom rails with solid cross members spaced at approximately 550mm centres.

The portal frames are formed to a tapering profile with the column leg varying from 260mm x 180mm at the base to 450mm x 180mm at the haunch, which is approximately 3m above the finished ground floor level. The haunch is formed to a radius on the inner face with the rafter then tapering back down of a cross section of approximately 260mm x 180mm at the ridge, which is approximately 7.25m above finished ground floor level.

The roof is formed as a duo pitch and is covered with a corrugated asbestos cement sheet. The sheet is fixed to 150 x 50 timber purlins which are spaced at approximately 1150mm centres from eaves to ridge. The purlins span between the portal frames and are supported via steel hangers.

The ceiling board is fixed directly to the underside of the purlins.

No evidence of any bracing or insulation was found in the roof space.

The external side walls are formed in timber framing with the following build up:

- Vertically fixed 12mm thick tongue and groove weather board.
- Bituminous felt membrane.
- Timber rails spanning between the portal frames which vary in size from 80mm x 45mm to 80mm x 27mm and which are spaced at approximately 375mm centres from eaves to ground floor level.
- A fibreboard lining is fixed to the inner face of the timber rails.

The front gable wall is constructed in timber framing over its full height.

From ground floor to eaves the build-up is generally as described for the side walls, although the principal timber studs are arranged to span vertically from ground floor to first floor mezzanine to roof verge.

Above eaves the gable is externally clad with a corrugated asbestos cement sheet. There is no bituminous membrane or inner lining board.

The rear gable is constructed in cavity masonry from ground floor to window sill level. The construction being 102mm thick brick outer leaf and a fletton brick and concrete block inner leaf.

The remainder of the wall is formed in timber frame similar to the front gable the exception being the external cladding to the face of the wall between the brickwork and eaves level, which appears to be a zinc sheet.

No evidence of any insulation was found within any of the external walls.

There is a first floor mezzanine to the front of the property which extends over the first two bays of the building. This is accessed via timber steps and a trap door hatch.

The construction of the mezzanine floor appears to consist of 175mm x 50mm timber joists at centres that vary between 400mm and 525mm and span in a front to back direction. The joists are supported on the ground floor partitions that form the toilet and kitchen areas at the front of the building.

The joists support a 20mm thick tongue and groove boarding and are lined on the underside with a ceiling board.

There is an internal wall that separates the mezzanine area from the balcony area that overlooks the main hall and is used as part of the lighting and sound control for the main stage. This wall is formed in timber stud with a lining board on the hall side only.

The ground floor partitions that form the toilet and kitchen areas beneath the mezzanine are constructed in timber studwork.

The main hall extends from bay 3 to bay 7.

The rear three bays of the building, bays 8 – 10, form the main stage and changing rooms.

The floor of the stage and changing rooms is raised above the main hall level by approximately 925mm.

This raised floor is constructed in timber with the following build up:

- Tongue and groove floorboards
- 100mm x 50mm floor joists at 375mm centres spanning across the building, supported by
- 150mm x 50mm primary timber beams at 1.3m centres, spanning front to back over a series of 215 x 215 brick piers, which are in turn spaced at 2.5m crs.

The brick piers are built directly off the concrete ground floor slab.

There is a perimeter wall beneath this raised area which is also constructed in brickwork.

The changing rooms are situated behind the main stage and are sited within bay 10. There is a storage space above the changing rooms which is accessed via a ladder from the back of the stage through a door opening at high level in the timber stud partition that separates the stage from the changing rooms.

The ground floor appears to be constructed as a 150mm thick concrete slab with unknown reinforcement.

The level of the slab beneath the stage and changing room areas is approximately 130mm higher than that in the main hall.

The slab beneath the stage area has a tamped surface which is considered to be the structural slab.

The base fixing of the timber portals can be clearly seen beneath the stage area. These consist of a 'U' shaped steel shoe which is fixed to the surface of the concrete slab and into which the base of the portal leg is seated and fixed through with a single bolt.

The floor of the main hall has a raised timber finish consisting of tongue and grooved boards which are supported on timber battens, laid directly on top of the concrete slab.

The timber portals appear to be fixed to concrete plinths so that the level of base of the portals is consistent with those beneath the stage.

Three external trial pits were dug around the perimeter of the building. The location of these is indicated on the Smith Foster reference plan.

Trial Pit 1

This revealed what appears to be two levels of concrete slab. The upper one approximately 150mm in thickness laid directly on a lower slab which measured about 100mm in thickness. Both slabs had a shuttered finish to the edge.

Beneath the slab was a rough cast concrete face which extended to a depth of approximately 450mm below ground level.

Ground conditions at this level were found to be a light brown sandy clay.

The soil was damp and could be easily moulded between the fingers.

There were numerous roots in the excavation at the underside level of the foundation.

Trial Pit 2

This trial pit also revealed what appears to be two levels separate concrete pours with shuttered faces. The upper pour was consistent with the 150mm thick slab noted in trial pit 1. However, the lower concrete pour is much thicker at around 450mm, extending to a depth of 465mm below existing ground level.

Beneath this was a rough cast concrete face which projected 70mm from the shuttered face and extended to a depth of approximately 770mm below ground level.

Ground conditions at this level were found to be a dark brown clay.

There were numerous roots in the excavation at the underside level of the foundation.

Trial Pit 3

This trial pit also revealed a 135mm thick slab with a shuttered face

Beneath this was a rough cast concrete face which projected 90mm from the shuttered face and extended to a depth of approximately 365mm below ground level.

Ground conditions at this level were found to be a dark brown clay.

4. BUILDING CONDITION

The building is showing signs of its age and a lack of maintenance. There is evidence of water ingress through the roof in a number of areas with staining and cracking of the ceiling board finishes being evident. Similar damage to the external wall panels is evident in the stage area and there is an area of rot / damage to the timber raised floor in the hall which has been repaired by taping a tea tray over the affected area.

The method of construction and in particular the fabrication of the timber portal frames is unusual. However, this may relate to the inter-war period of construction, with structural steelwork being in short supply but with a local aeronautical industry skilled in the building of composite timber components being readily available.

This form of construction has resulted in a very lightweight and flexible structure.

No evidence of any structural bracing has been found. It is therefore considered most likely that the structure relies upon the external wall and roof cladding in conjunction with the internal boarded finishes to provide some diaphragm action and hence develop its out of plane stability.

The in plane stability is derived from the stiffness of the portal frames and the racking resistance of the two gable ends, which again rely on the effectiveness of the cladding and its fixings.

The strength of the cladding materials and the size and arrangement of the fixings will limit the effectiveness of any diaphragm action.

Furthermore, the lightweight construction of the portal frames would make justifying them to modern codes impossible. This in conjunction with their nominal base fixing makes for a structure that is likely to exhibit high degrees of lateral movement under wind loading.

The flexible nature of the existing finishes are able to accommodate this movement without exhibiting undue distress however the same may not be said of replacement cladding materials.

Rot affected timber roof purlins were noted at eaves level.

The external side wall panels are constructed from small timber rails of varying section size and centres, which span between the portal frames. It would not be possible to justify these timbers to meet modern codes of practice. Similarly the size and arrangement of the timber framing to the gable ends would not be justifiable to modern codes of practice.

The timbers that form the raised floor of the stage and changing rooms appear from a limited inspection to be in sound condition. However, due to the amount of stored material beneath the stage a full inspection was not possible.

A preliminary design check of the timber sections used indicates that they would not be justifiable to support a basic imposed load of 1.5kN/m² let alone the 5.0kN/m² recommended for a stage loading.

No obvious structural defects with the first floor mezzanine joists have been identified and the size and spacing appears to be appropriate for the spans and a limited access / storage imposed loading of 1.5kN/m².

The joists span front to back and consequently it is assumed that there are trimmer joists spanning across the central entrance corridor which provide intermediate support to them, as the full front to back span to the internal hall wall of 6.5m approximately would be too great. The size and arrangement of any such trimmers could not be verified.

The foundations of the building appear to consist of a nominal strip foundation to the perimeter with a series of concrete ground bearing slabs cast at different levels.

The depth of the foundation below ground level was found to vary between 365mm and 770mm at the three trial pit locations. In all cases the founding strata was Clay.

There is a dense row of trees and shrubs screening the west side of the building from the adjacent playing fields and these trees are approximately 1.5m from the building. The trial pits adjacent to the trees indicated roots at and below foundation level.

The ground floor slabs are thought to be approximately 150mm thick but the presence of any reinforcement or its condition is not known. Where the slab could be inspected it appeared to be dry with no significant cracking noted. However the existence of an effective D.P.M. is considered unlikely nor is the floor insulated.

A full inspection of the slab could be undertaken beneath the stage but the area would need to be cleared of the stored materials first.

The scope and findings of the geotechnical investigation undertaken by Redrock Geoscience Ltd is contained in their report dated May 2019, a copy of which is included under Appendix C.

Three window sample boreholes were drilled in the recreational ground to the north and east sides of the building. At each location a nominal 0.3m to 0.5m covering of topsoil / made ground was encountered. Beneath this a silty / sandy layer of Clay Alluvium was found to extend to 2.6m to 2.7m below ground level. The Clay Alluvium was found to be underlain by Sand and Gravel Alluvium, which was proven to a depth of 4.6m B.G.L.

The Clay Alluvium was found to vary in strength and to account for the areas of lower strength a safe bearing pressure of 60kN/m² is recommended.

This strata is also classified as highly shrinkable.

The Sand and Gravel Alluvium has a higher safe bearing capacity of 125kN/m².

The scope and findings of the below ground drainage investigation undertaken by S&D services is contained in their report dated April 2019, a copy of which is included under Appendix D.

The investigations have identified the building to have separate foul and surface water drainage systems.

The foul drainage discharges to a sewer in Riverside.

The surface water is thought to discharge to soakaways within the soft landscaping at the front of the building, the suggestion being that these soakaways may then drain onto the footpath via holes in the boundary wall.

5. CONCLUSIONS AND RECOMMENDATIONS

The construction of the existing portal frames would not be justifiable to modern design codes.

The replacement of the roof cladding and internal ceiling finishes and the introduction of insulation would need to be limited so as not to exceed the weights of the current materials. Even-so the existing timber purlins are unlikely to be adequate and would require upgrading and any timbers affected by moisture ingress would need to be replaced.

Similar problems would exist with the replacement external wall cladding and internal finishes. The existing timber structure would not be adequate to support new claddings or be justifiable to modern codes. Therefore the entire external wall construction would need to be replaced.

An analysis of the portal frames is likely to indicate deflections which are likely to be unacceptable in terms of movement accommodation at joints etc. Consequently some enhancement of the stability of the building is likely to prove necessary with the introduction of a full bracing system. This is likely to involve the introduction of a considerable amount of steelwork into the existing structure and strengthening of the existing portals which may prove very costly.

The entire structure is at considerable risk in the event of a fire. The portal frames in particular are thought to be particularly vulnerable to the spread of fire and a rapid failure due to their lightweight construction.

The construction of the raised floor that forms the stage and changing room areas does not meet current design loading requirements. Strengthening works would be required to meet these requirements.

The shrinkable nature of the soil on which the building is founded, the proximity of the trees along the northern side of the building and the extensive roots identified at and below foundation level will be causing foundation movement to the existing building. It is considered that the lightweight and flexible nature of the structure is able to accommodate this seasonal movement without undue distress being exhibited in the structure. However, replacing existing cladding materials or rebuilding walls and partitions would be problematic movement is highly likely to result in cracking of more brittle finishes etc.

The foundations of any replacement building would need to take into consideration the influence of trees on the clay strata and hence it may prove necessary to adopt short bored piled foundations to found in the more stable sands and gravels. The ground floor slab of any new building would also need to be constructed as a suspended slab to accommodate ground heave.

The clay strata is not considered a suitable material for the effective design and construction of soakaways that could be used for the disposal of surface water. However, preliminary tests indicate that the underlying sands and gravels will drain effectively. Hence any new soakaways would need to be constructed at a depth sufficient to reach the sands and gravels.

Both drainage systems were found to be in a poor condition with numerous instances of the following defects identified:

- Fractures in the pipe.
- Displaced joints
- Root ingress at joints.
- Debris in the lines.
- Bellying of the line and standing water.
- Poorly undertaken repairs

Extensive repair or replacement of both the foul and surface water drainage will be required.

The overall condition and lightweight construction of the building would make refurbishment a complex and costly process as a considerable amount of upgrading and strengthening of the structure would be required.

Extensive foundation works, probably involving deep underpinning, would be required to provide stable foundations and to allow the strengthening and upgrading of the superstructure to be undertaken.

The work involved in strengthening the existing portal frames alone is more likely to be more costly than replacing them with a new steel frame.

Large elements of the roof and wall structures would inevitably need to be entirely replaced and careful consideration to the effect of the introduction D.P.M's and insulation to the ground floor on levels etc.

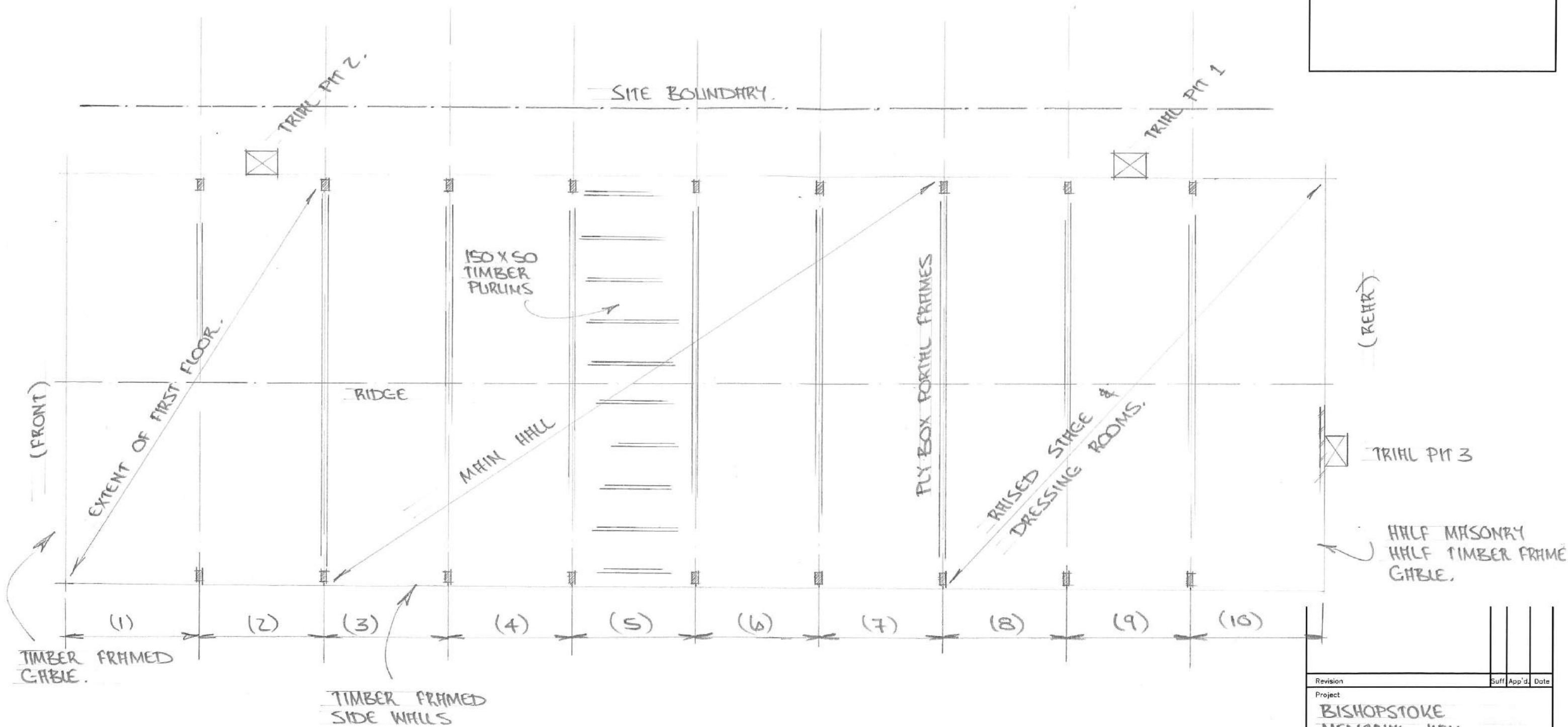
Fraser Boyce – C.Eng M.I.Struct.E
Senior Project Engineer
Smith Foster Limited

APPENDIX A

SKETCHES & DRAWINGS

- Smith Foster Reference Plan – 25126 – SK2
- Trial Pit logs

HEALTH & SAFETY:



Revision	Suff	App'd	Date
Project BISHOPSTOKE MEMORIAL HALL EASTLEIGH.			
Drawing Title REFERENCE PLAN.			
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Drawn FB	Date 11/11/19	Checked	Date
Scale			
Drawing Number 25126-SK2			

SKETCH SHEET

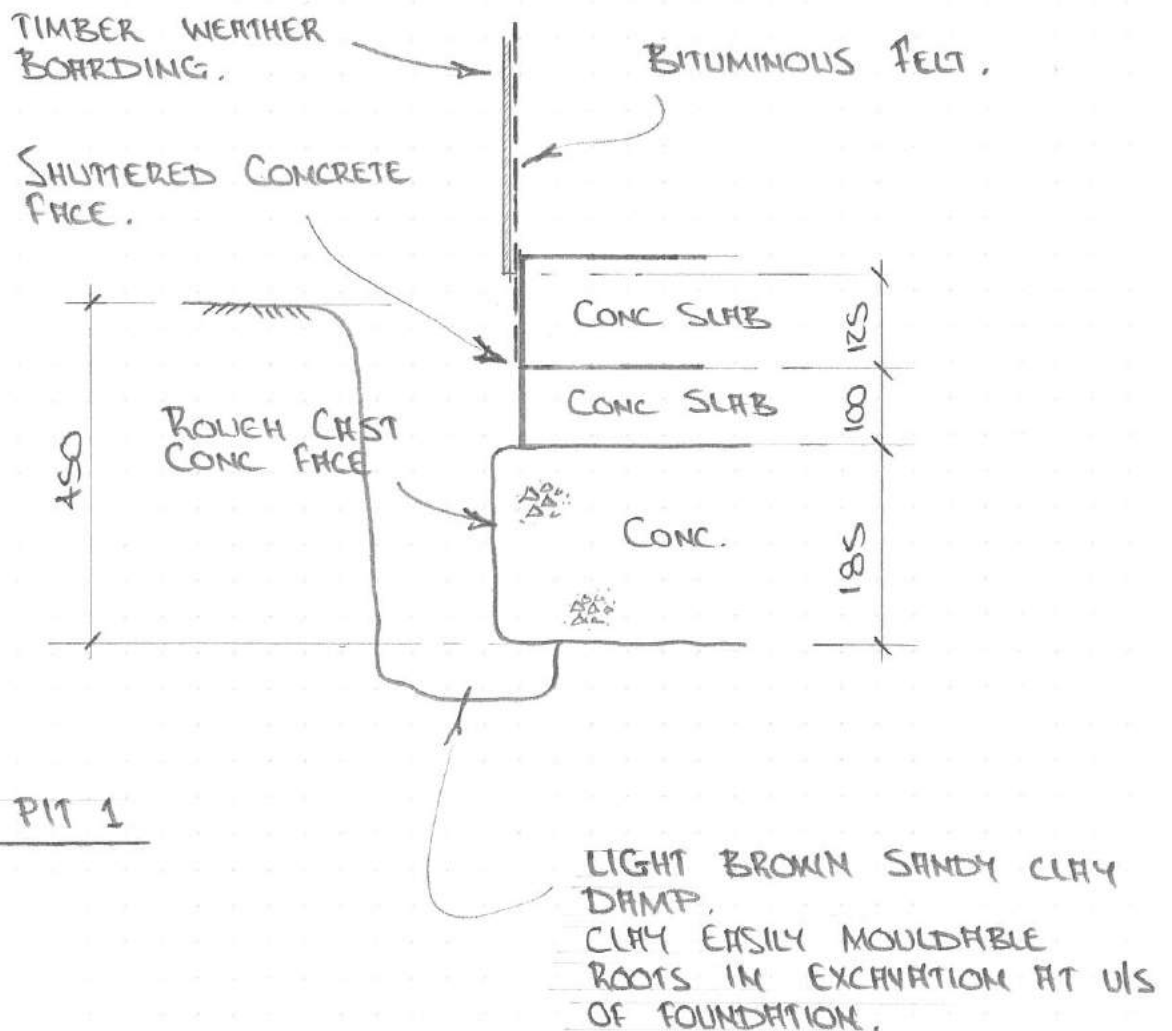


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Project Title BISHOPSTOKE MEMORIAL HALL	Sketch No. 25/26 - SK3 /	
Sketch Title TRIAL PIT LOG	By FB	Date
	Checked	Date
	Scale	



TRIAL PIT 1

SKETCH SHEET

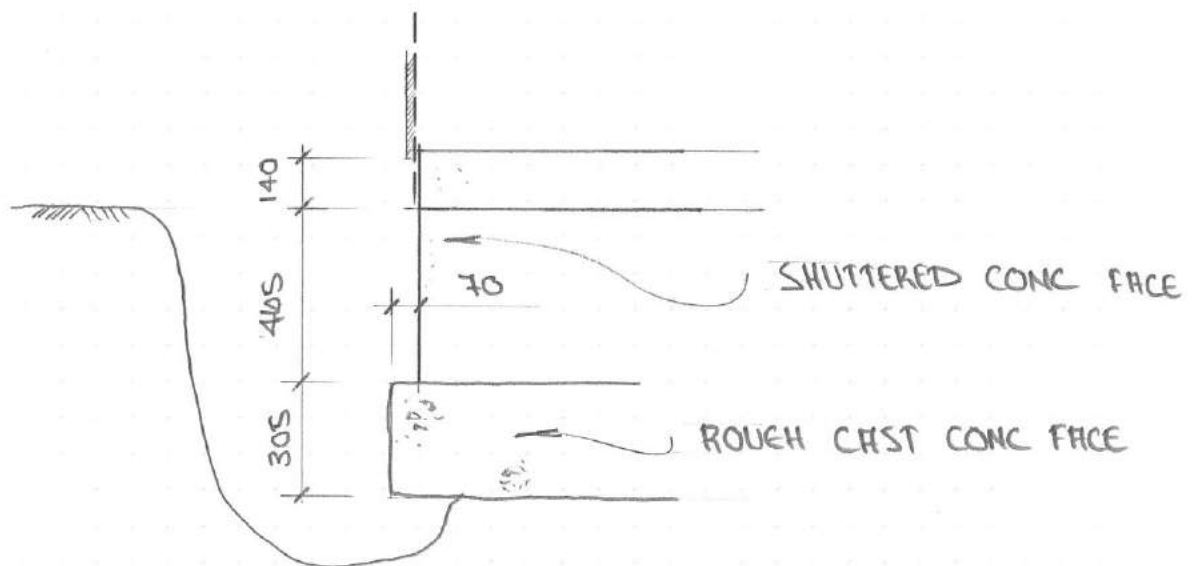


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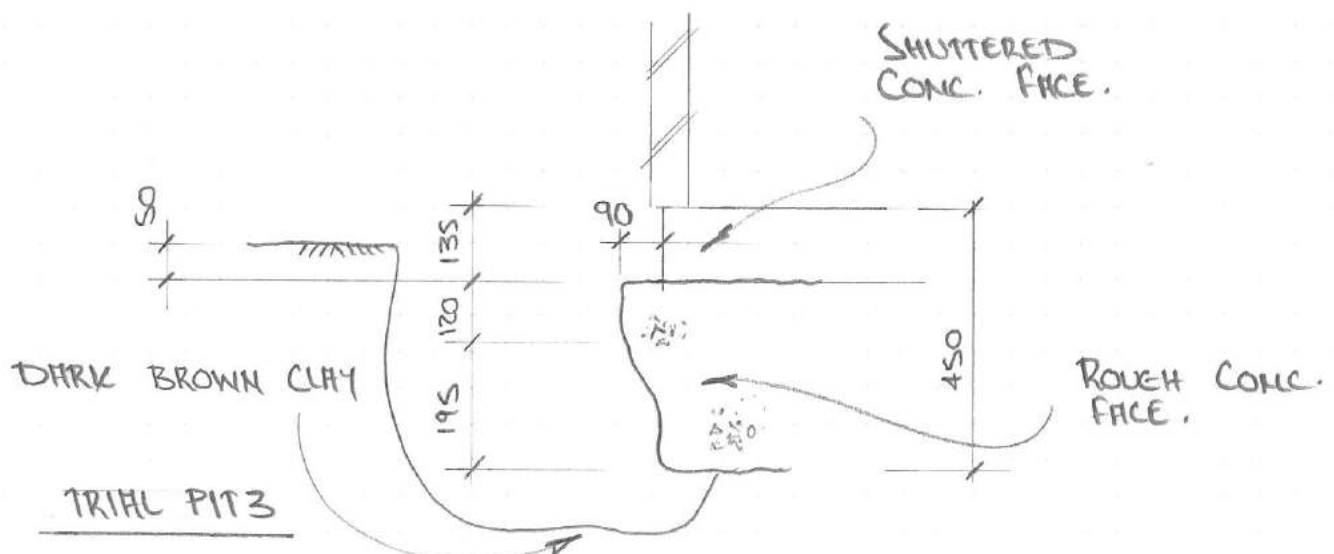
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Bourne Valley Road
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Project Title BISHOPSTOKE MEMORIAL HALL	Sketch No. 251216-SK4 /	
	By PB.	Date
Sketch Title TRIAL PIT LOG	Checked	Date
	Scale	



TRIAL PIT 2

DARK BROWN PLASTIC CLAY
MANY ROOTS AT U/S OF FDN.



TRIAL PIT 3

APPENDIX B
PHOTOGRAPHS



Photograph 1:- Front - Southern Elevation



Photograph 2:- Rear - Northern Elevation



Photograph 3:- Mature trees close to western side of building



Photograph 4:- Western elevation



Photograph 5:- Eastern Elevation



Photograph 6:- Hall viewed towards entrance



Photograph 7:- Hall viewed towards stage



Photograph 8:- Typical cleat fixing at base of portal



Photograph 9:- Below stage void and stage structure.
Note portal leg and cleat fixing to LHS.



Photograph 10:- Front gable framing



Photograph 11:- Internal wall to balcony and roof purlin / covering



Photograph 12:- Typical purlin to portal rafter connection



Photograph 13:- Extg hole cut in ply side wall of portal rafter



Photograph 14:- Internal view of portal construction



Photograph 15:- Rot affected purlin at back of stage



Photograph 16:- External wall construction at eaves level



Photograph 17:- Trial Pit 1



Photograph 18:- Trial Pit 2



Photograph 19:- Trial Pit 3

APPENDIX C

REDROCK - Geotechnical Investigation Report



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PROJECT NAME
BISHOPSTOKE MEMORIAL HALL, EASTLEIGH

REPORT
GEOTECHNICAL DESIGN REPORT (GDR)

CLIENT
EASTLEIGH BOUROUGH COUNCIL

REFERENCE NO
RP7032

May 2019

REVISION RECORD

Revision	Reference	Date	Author(s)	Checked
00	RP7032	May 2019	RT	APC



Red Rock Geoscience Ltd
Registered in England No. 07503027
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EXECUTIVE SUMMARY

Commission & Objectives	Red Rock Geoscience Ltd ('Red Rock') was commissioned by Eastleigh Borough Council to undertake an intrusive ground investigation for the extension and redevelopment of Bishopstoke Memorial Hall, Eastleigh. The development proposals comprise extension and redevelopment of Bishopstoke Memorial Hall. The geotechnical objectives of this investigation were to determine the distribution, nature and engineering properties of the soils underlying the site to assist with the design of foundations to the proposed building extension. It should be noted that this investigation is focused towards the proposed developments at the site and may need to be re-assessed should the development proposals be revised.
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Geotechnical Findings & Recommendations

Ground Conditions Encountered	Near surface ground conditions generally comprise localised Made Ground and Topsoil, Clay Alluvium, Sand Alluvium and Gravel Alluvium.
Foundation Design	Depending on the imposed loading from the proposed structure, the cohesive Alluvium encountered below the Made Ground and Topsoil may be suitable for the construction of traditional strip or shallow trench fill foundations for the proposed development. To have a consistent design, such foundations should be designed on the basis of a net safe bearing capacity of 60kN/m² to cater for the variability in the shear strength of the underlying soils. Should a higher net safe bearing capacity be required, then trench fill foundation that extend down to medium dense granular Alluvium would provide a net safe bearing capacity of 125kN/m². Plasticity Index testing has shown that the clay soils have a high volume change potential in accordance with the appropriate guidance (e.g. NHBC Chapter 4.2). Therefore, outside the zone of influence of existing, proposed or recently removed trees, foundations in the cohesive Alluvium should be placed a depth of at least 1.0m to prevent problems associated with shrinkage and swelling.
Floor Design	As a result of the near-surface cohesive soils with a high volume change potential, it is recommended that a fully suspended floor construction be used, with the minimum sub-floor void dimension in accordance with the appropriate guidance.
Buried Concrete Design Sulphate Class	Laboratory sulphate analyses undertaken on soil samples indicate that buried concrete should be design in accordance with design sulphate class DS-1 ACEC class of AC-1 of BRE Special Digest 1 (2005).

TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	Commission	1
1.2	Development Proposals	1
1.3	Objectives	1
1.4	Site Description	1
1.5	Geology	1
2	FIELDWORK	2
2.1	Methodology	2
2.2	Window Sample Boreholes	2
2.3	In-situ Falling Head Testing	3
3	LABORATORY TESTING	4
3.1	Geotechnical Laboratory Testing	4
4	GROUND CONDITIONS ENCOUNTERED	5
4.1	Strata Encountered	5
	Topsoil	5
	Made Ground	5
	Clay Alluvium	5
	Sand Alluvium	5
	Gravel Alluvium	6
4.2	Signs of Contamination	6
4.3	Groundwater	6
5	GEOTECHNICAL ASSESSMENT	7
5.1	Ground Conditions Summary	7
5.2	Foundation Design	7
5.3	Floor Design	7
5.4	Foundation Excavation Considerations	7
5.5	Buried Concrete Design Sulphate Class	8
5.6	Soakaway Drainage Potential	8

APPENDICES

- Appendix A. Development Proposals
- Appendix B. Exploratory Hole Location Plan
- Appendix C. Window Sampling Records
- Appendix D. Geotechnical Laboratory Test Results
- Appendix E. General Notes and Limitations

LIST OF TABLES

Table 3.1: Geotechnical Laboratory Testing	4
Table 4.1: Summary Table of Strata Encountered	5
Table 4.2: Summary of Groundwater Strikes in Exploratory Holes	6

1 INTRODUCTION

1.1 Commission

Red Rock Geoscience Ltd ('Red Rock') was commissioned by Eastleigh Borough Council to undertake an intrusive ground investigation for the extension and redevelopment of Bishopstoke Memorial Hall, Eastleigh.

A factual and interpretative report was required on the investigation.

1.2 Development Proposals

The development proposals comprise extension and redevelopment of Bishopstoke Memorial Hall.

Outlines of the potential options for the proposal are enclosed in Appendix A.

1.3 Objectives

The geotechnical objectives of this investigation were to determine the distribution, nature and engineering properties of the soils underlying the site to assist with the design of foundations to the proposed building extension.

It should be noted that this investigation is focused towards the proposed developments at the site and may need to be re-assessed should the development proposals be revised.

Reference should be made to the 'General Notes and Limitations' included in Appendix E at the end of this report, which provide information on the procedures followed in the investigation and data assessment, and explains the context within which this report should be read.

1.4 Site Description

The site is located at the Bishopstoke Memorial Hall, and is centred on National Grid Reference 446584, 119365.

The site area is approximately 0.1 Ha in size, which is situated within the south-east of Glebe Meadow and Skate Park.

The site area is bounded by trees, bushes and a small path leading to the entrance of the existing Memorial Hall along the eastern side. The River Itchen and Riverside Road are situated along the southern border. Church Road bounds the west along with Glebe Meadow; comprising of large trees, Skate Park, basketball hoops, swings, children's play park and open grassy areas. The site is bordered by residential housing and gardens to the east, to the south by open fields and industrial estates, railways lines associated with Eastleigh Railway Station to the west, and open fields and green space to the north.

No visual or olfactory evidence of significant contamination were noted during the walkover survey.

1.5 Geology

Published geological information shows the site to be underlain by strata of the London Clay Formation, overlain by superficial River Terrace Deposits. Alluvium is proximal to the south of the site area, associated with the River Itchen.

2 FIELDWORK

2.1 Methodology

The investigation comprised:

- 3 no. Window Sample Boreholes (BH01 – BH03).
- 1 no. Falling Head test, to determine the permeability of the underlying strata.

The ground investigation fieldwork was undertaken in general accordance with BS 5930 (2015)¹. Samples collected were typically classed a Category 'C' in accordance with BSI (2007)², and assessment of strength and consistency were undertaken using traditional field techniques as described in BSI (2002)³. Soils have been logged, generally in accordance with BSI (2004)⁴. Where relevant, the bedrock was logged in accordance with BSI (2003)⁵.

The locations of the exploratory holes are shown on the Exploratory Hole Location Plan, enclosed as Appendix B.

The fieldwork was undertaken on the 3rd April 2019 and was supervised full-time by an engineering geologist.

2.2 Window Sample Boreholes

3 no. window sample boreholes were undertaken to depths of between 4.0 and 5.0m below existing ground level to provide information on the geotechnical conditions.

The window sample boreholes were constructed by initially driving 80mm diameter metal window sample tubes into the ground using an Archway Competitor drilling rig. The diameter of the window sample tubes was then reduced with depth as drilling progressed. In-situ Standard Penetration Tests (SPTs) were undertaken at nominal 1.0m intervals during window sampling to obtain a measure of the in-situ relative density and/or strength of the strata penetrated.

The window sample boreholes were undertaken in Glebe Meadow park, in order to get an understanding of the ground conditions within the site area. This was due to the lack of space and access around the current memorial hall building.

The window sample boreholes were logged on site by an experienced engineering geologist, and the window sample borehole records are enclosed in Appendix C. In addition to detailed strata descriptions, these give information on groundwater, progress, the results of in-situ tests and samples recovered.

On completion, all of the window sample borehole was backfilled and reinstated at surface. 1 no. had a monitoring well installed.

¹ British Standards Institute. (2015). BS 5930 with Addendum 2: Code of practice for site investigations. London: BSI.

² British Standards Institute. (2007). BS EN 1997-2: Eurocode 7 – Geotechnical design. Part 2 Ground investigation and testing. London: BSI.

³ British Standards Institute. (2002). BS EN ISO 14688-1:2002. Geotechnical investigation and testing – Identification and classification of soil – Part 1: Identification and description. London: BSI

⁴ British Standards Institute (2004). BS EN ISO14688-2:2004. Geotechnical investigation and testing – Identification and classification of soil – Part 2: Principles for a classification. London: BSI

⁵ British Standards Institute. (2003). BS EN ISO 14689-1: Geotechnical investigation and testing – Identification and classification of rock – Part 1: Identification and description. London: BSI

2.3 In-situ Falling Head Testing

1 no. in-situ falling head test was undertaken to provide an in-situ permeability measurement of the proposed formation. The tests were conducted in accordance with the procedures in BS 1377.

3 LABORATORY TESTING

3.1 Geotechnical Laboratory Testing

The following geotechnical laboratory tests were undertaken on selected samples obtained during the site investigation:

Table 3.1: Geotechnical Laboratory Testing	
Test	Number of Samples
Moisture Content	6
Liquid and Plastic (Atterberg) Limits	6
Particle Size Distribution (sieve analysis)	1
pH, total sulphate, soluble sulphate and total sulphur (BRE SD1 Suite) - Soils	2

Laboratory testing was undertaken, where appropriate, in accordance with BS1377 (1990)⁶ and test results are enclosed as Appendix D. All testing was undertaken in UKAS accredited laboratories.

⁶ British Standards Institute (1990). BS1377:1990. Methods of test for soils for Civil Engineering Purposes. London: BSI

4 GROUND CONDITIONS ENCOUNTERED

4.1 Strata Encountered

The strata sequence encountered in the exploratory holes were in general agreement with that expected based on the published information, and are summarised in the table below:

Table 4.1: Summary Table of Strata Encountered			
Stratum	BH01	BH02	BH03
Topsoil	–	0.0 – 0.5	–
Made Ground	0.0 – 0.4	–	0.0 – 0.3
Clay Alluvium	0.4 – 2.6	0.5 – 2.7	0.3 – 2.7
Sand Alluvium	2.6 – 3.2	2.7 – 3.3	–
Gravel Alluvium	3.2 – 4.6	3.3 – 4.0	2.7 – 4.0

Topsoil

Material interpreted as Topsoil was encountered in BH02, to depths of 0.5m. This stratum typically comprised soft brown slightly sandy SILT, with occasional roots and rootlets.

Made Ground

Material interpreted as Made Ground was encountered in BH01 and BH03, to depths of between 0.3 and 0.4m. These materials typically comprised soft dark brown slightly sandy SILT, with occasional fragments of green glass. Glass is medium to coarse sized and angular.

Clay Alluvium

Material interpreted as Clay Alluvium was encountered in all borehole locations, to depths of between 2.6 and 2.7m. This stratum typically comprised soft to firm light brown silty CLAY and sandy CLAY; with orange-brown mottling and extremely close fissures. Sand is fine to medium grained.

SPT 'N' values recorded within the Residual Soil range from 6 to 11 (average value 8). These values are indicative of cohesive soils with approximate undrained shear strength of between 30kN/m² and 55kN/m² (average 50kN/m²).

The index property test results obtained on samples of this sub-stratum gave Plasticity Index values of between 26% and 43%, and classify the soils as intermediate to very high plasticity clay on the Casagrande classification system. After correcting the Plasticity Index values for the 'stone' content (material >0.425mm), the samples tested have modified plasticity index values of between 26% and 43% indicating them to have a medium to high volume change potential in accordance with the criterion NHBC Chapter 4.2⁷.

Sand Alluvium

Material interpreted as Sand Alluvium was encountered in BH01 and BH02, to depths of between 3.2 and 3.3m. This stratum typically comprised medium-dense light brown very clayey SAND, with orange-brown mottling. Sand is fine to medium.

⁷ NHBC. (2019). Standards. Amersham: NHBC

SPT 'N' values recorded within the Whitecliff Sand Member range from 20 to 22 (average value 21). These values are indicative of cohesive soils with approximate undrained shear strength of between 125kN/m² and 137.5kN/m² (average 131.25kN/m²). These values are indicative of granular soils that are medium dense.

Gravel Alluvium

Material interpreted as Gravel Alluvium was encountered in all the borehole locations, to depths of between 4.0 and 4.6m. This stratum typically comprised medium-dense (locally loose) light brown/grey slightly clayey sandy GRAVEL. Gravel is fine to coarse, sub-angular to angular flint.

SPT 'N' values recorded within the Gravel range from 6 to 17 (average value 13.3). These values are indicative of granular soils that are between loose and medium-dense (average medium-dense).

4.2 Signs of Contamination

Although Made Ground was encountered in BH01 and BH03, there was no visual or olfactory evidence of contamination noted.

4.3 Groundwater

Groundwater was encountered in the exploratory holes as summarised below:

Table 4.2: Summary of Groundwater Strikes in Exploratory Holes		
Exploratory Hole	Depth Water Encountered (mbgl)	Comment(s)
BH03	3.8	Seepage

Monitoring of groundwater installations are summarised below:

Table 4.3: Summary of Groundwater Monitoring	
Exploratory Hole	01/05/2019
BH01	DRY

5 GEOTECHNICAL ASSESSMENT

5.1 Ground Conditions Summary

Near surface ground conditions generally comprise localised Made Ground and Topsoil, Clay Alluvium, Sand Alluvium and Gravel Alluvium.

5.2 Foundation Design

Depending on the imposed loading from the proposed structure, the cohesive Alluvium encountered below the Made Ground and Topsoil may be suitable for the construction of traditional strip or shallow trench fill foundations for the proposed development. To have a consistent design, such foundations should be designed on the basis of a net safe bearing capacity of 60kN/m^2 to cater for the variability in the shear strength of the underlying soils.

Should a higher net safe bearing capacity be required, then trench fill foundation that extend down to medium dense granular Alluvium would provide a net safe bearing capacity of 125kN/m^2 .

Plasticity Index testing has shown that the clay soils have a high volume change potential in accordance with the appropriate guidance (e.g. NHBC Chapter 4.2⁸). Therefore, outside the zone of influence of existing, proposed or recently removed trees, foundations in the cohesive Alluvium should be placed a depth of at least 1.0m to prevent problems associated with shrinkage and swelling.

Foundations within the zone of influence of such trees should be locally deepened in accordance with the requirements the appropriate guidance for a high shrinkage potential clay soil, or until granular (non-shrinkable) soil is encountered.

Any foundations for external walls that are sufficiently close to existing trees (that are to remain or be removed) such that the foundation depth indicated by the guidance is greater than 1.5m, should incorporate precautions against potential heave in accordance with the guidance.

To allow for the variability in the nature and/or stiffness of the soils at and directly below proposed strip foundation level, it is recommended that they be appropriately reinforced to accommodate potential differential settlement.

5.3 Floor Design

As a result of the near-surface cohesive soils with a high volume change potential, it is recommended that a fully suspended floor construction be used, with the minimum sub-floor void dimension in accordance with the appropriate guidance.

5.4 Foundation Excavation Considerations

Groundwater was encountered in the exploratory holes at depths of 3.80m. Based on these observations, groundwater is unlikely to be encountered in excavations until a depth of 3.80m at which point dewatering would be required. Based on the nature of the materials present, should groundwater be encountered it is anticipated that simple sump pumping will be sufficient to deal with any ground water ingress into trenches and other small excavations.

⁸ NHBC. (2019). Standards. Amersham: NHBC

The depth to groundwater (and presence of perched groundwater) can vary both spatially across the site and in response to seasonal fluctuations, and it is recommended that groundwater control be undertaken in accordance with the guidance given in CIRIA Report C515 (2000)⁹.

Excavation to appropriate foundation depths is not likely to be problematical for normal excavation plant.

5.5 Buried Concrete Design Sulphate Class

Laboratory sulphate analyses undertaken on soil samples indicate that buried concrete should be design in accordance with design sulphate class DS-1 ACEC class of AC-1 of BRE Special Digest 1 (2005)¹⁰.

5.6 Soakaway Drainage Potential

In-situ soakaway tests were not included within the scope of works for the ground investigation at this stage due to location and access constraints. However, it is considered that the non-fissured relatively impermeable cohesive nature of the near surface soils encountered beneath this site is unlikely to provide sufficient percolation to make soakaway drainage of surface water runoff a feasible option.

However, falling head tests took place on the 3rd of April 2019 within BH01, to obtain permeability values for the underlying strata. The tests performed in the borehole largely penetrated granular soils which drained so rapidly that no values were able to be obtained. Based on this, it is assumed that the granular stratum represents reasonably good drainage characteristics.

Although the falling head permeability test indicated a high permeability of the underlying soil, it is assumed that this water drained within the gravel situated between 2.7 and 3.3m bgl. Therefore if soakaway tests were undertaken, the pit would need to penetrate the gravel stratum and accord with the full-scale percolation trials with the procedures detailed in BRE 365¹¹.

⁹ Preene, M., Roberts, T.O.L., Powrie, W. and Dyer, M.R., (2000). Groundwater Control: Design and Practice. C515. London: CIRIA.

¹⁰ Building Research Establishment, Construction Division (2005). Special Digest 1: Concrete in aggressive ground. London: Building Research Establishment.

¹¹ Building Research Establishment. (2007). Digest 365: Soakaway design. London: Building Research Establishment.

Appendix A. DEVELOPMENT PROPOSALS

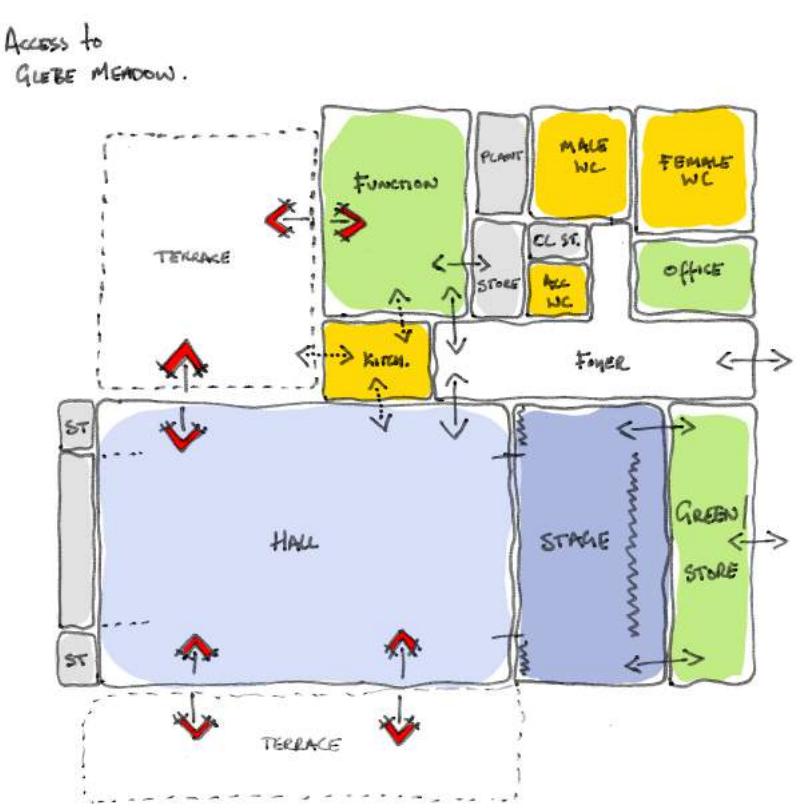
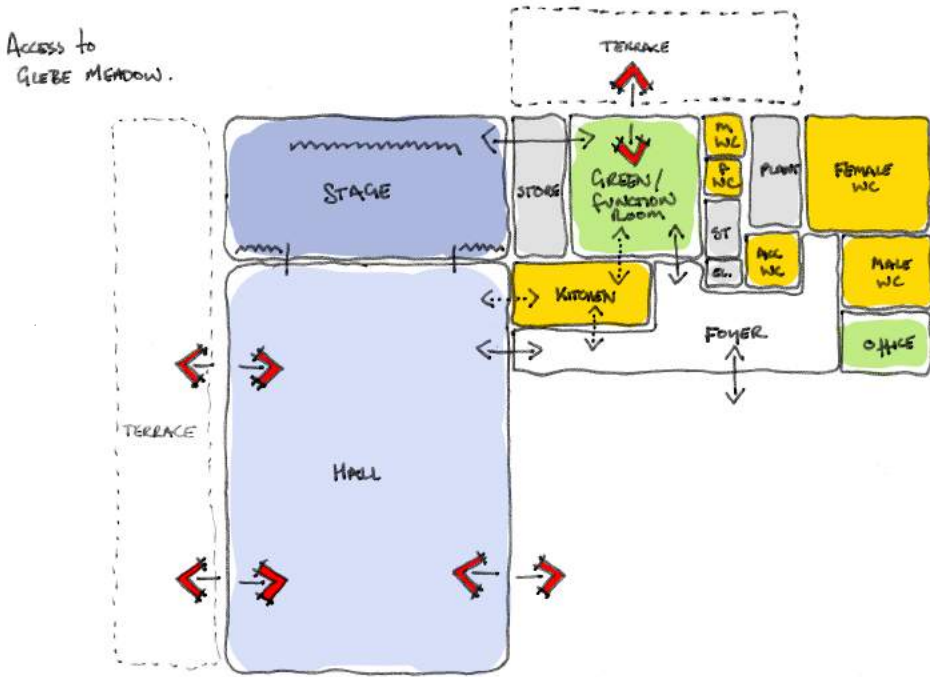
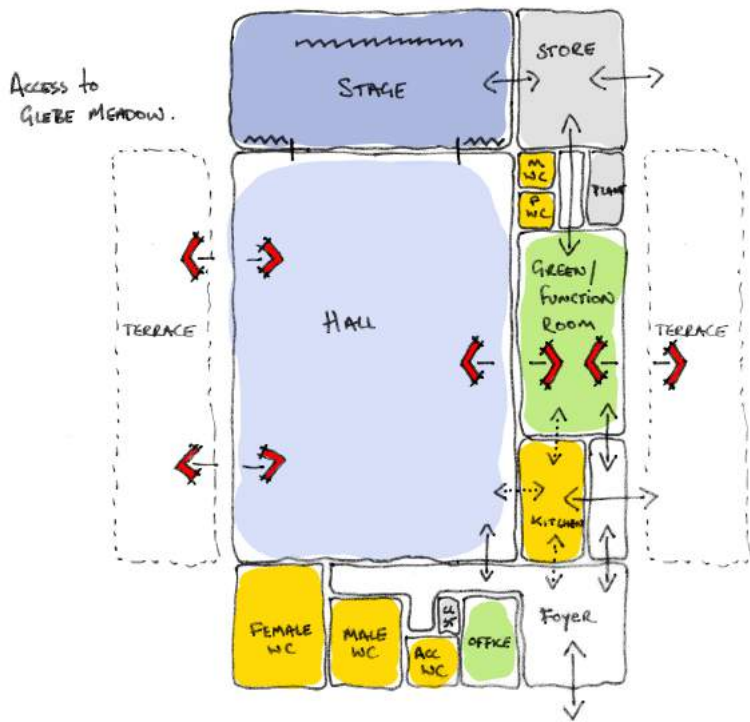
Bishopstoke Memorial Hall



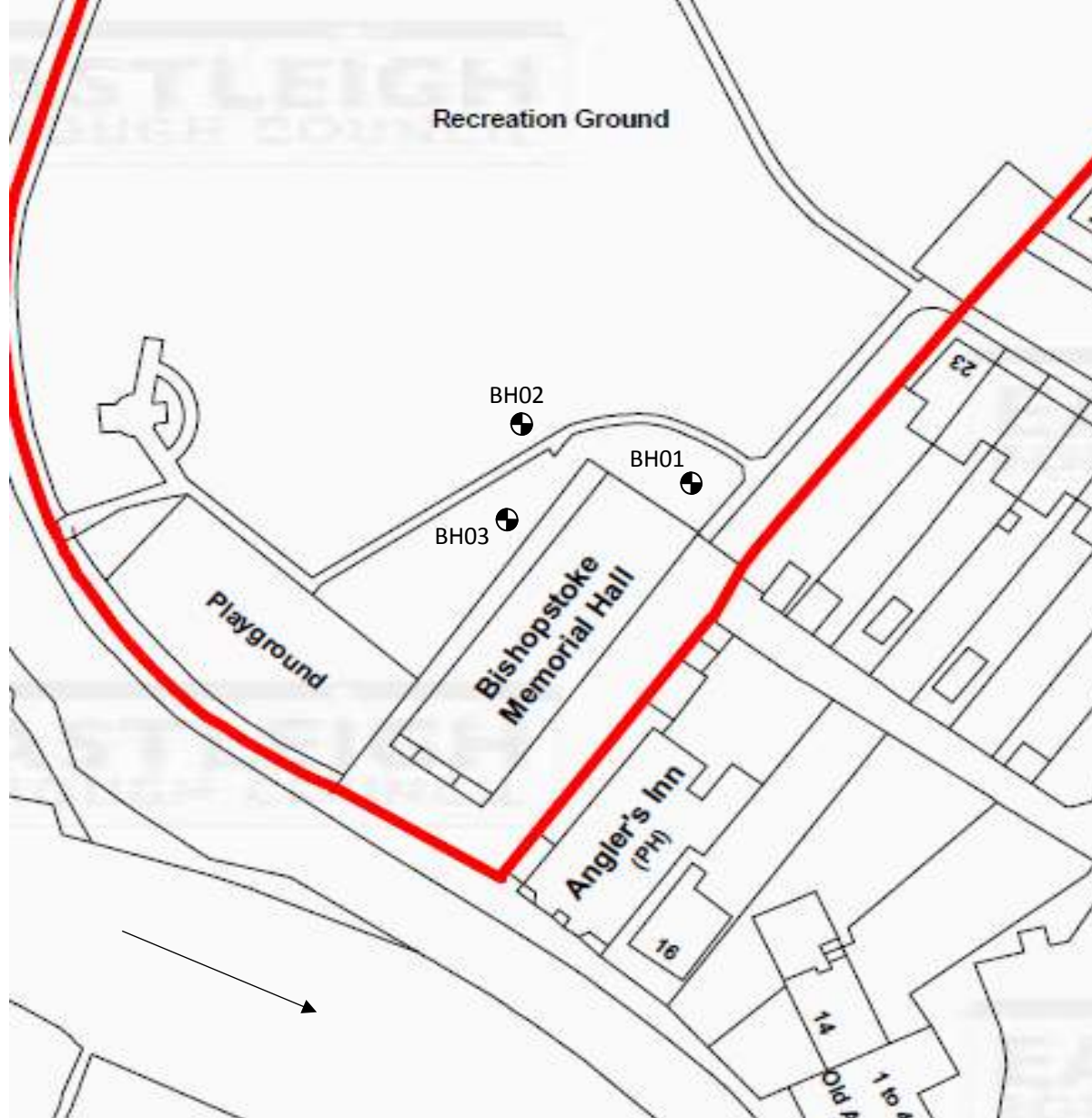
New Build - Opt A

New Build - Opt B

New Build - Opt C



Appendix B. EXPLORATORY HOLE LOCATION PLAN



DRAWING TITLE EXPLORATORY HOLE LOCATION PLAN		PROJECT BISHOPSTOKE MEMORIAL HALL, EASTLEIGH	 RED ROCK GEO East Wing, Station House, Broadclyst Station, EX5 3AS www.redrockgeo.co.uk Email: office@redrockgeo.co.uk Tel: 01392 460800
DRAWING NO. RP7032-D01-R01	SCALE NOT TO SCALE	CLIENT EASTLEIGH BOROUGH COUNCIL	

Appendix C. WINDOW SAMPLING RECORDS



Borehole Log

Borehole No.

BH01

Sheet 1 of 1

Project Name: Bishopstoke Memorial Hall

Project No.
RP7032

Co-ords:

Hole Type
WS

Location: Eastleigh

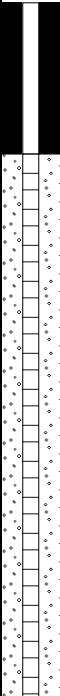
Level:

Scale
1:50

Client: Eastleigh Borough Council

Dates: 03/04/2019

Logged By
RT

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.40			Soft dark brown slightly sandy SILT with occasional fragments of green glass. Glass is coarse sized, angular (MADE GROUND).	
		0.80	B					Firm light brown slightly sandy CLAY, with orange-brown mottling and extremely close fissures (CLAY ALLUVIUM).	1
		1.00	SPT (S)	N=8 (0,1/1,2,2,3)	1.00				
		1.50	B					Firm light brown slightly sandy CLAY, with orange-brown mottling. Sand is fine to medium (CLAY ALLUVIUM).	2
		2.00	SPT (S)	N=8 (2,1/2,2,2,2)					
		2.10	B						
		2.70	B		2.60			Medium dense light brown very clayey SAND. Sand is fine to medium (SAND ALLUVIUM).	3
		3.00	SPT (S)	N=20 (2,3/3,5,6,6)				Medium dense light yellowish brown slightly clayey sandy GRAVEL. Gravel is fine to coarse, sub-angular to angular flint (GRAVEL ALLUVIUM).	4
		3.40 - 4.00	B		3.20				
		4.00	SPT (S)	N=17 (4,5/4,4,4,5)					
					4.60			End of Borehole at 4.60m	5
									6
									7
									8
									9
									10

Remarks

CAT scanned prior to excavation. No groundwater encountered. Drilled using a Dando Terrier 2002. Groundwater monitoring well installed to 4.6m. Borehole terminated due to hard strata. Borehole backfilled upon completion.





Borehole Log

Borehole No.

BH02

Sheet 1 of 1

Project Name: Bishopstoke Memorial Hall

Project No.
RP7032

Co-ords:

Hole Type
WS

Location: Eastleigh

Level:

Scale
1:50

Client: Eastleigh Borough Council

Dates: 03/04/2019

Logged By
RT

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
		0.40	D		0.50			Soft brown slightly sandy SILT, with occasional roots and rootlets (TOPSOIL).	
		0.90	D					Soft to firm light brown silty CLAY, with orange-brown mottling and extremely close fissures (CLAY ALLUVIUM).	1
		1.00	SPT (S)	N=11 (1,2/2,3,3,3)					
		1.20	D						
		2.00	SPT (S)	N=6 (1,2/1,2,1,2)					2
		2.50			2.50				
		2.80	D		2.70			Firm light brown sandy CLAY, with orange-brown mottling. Sand is fine to medium (CLAY ALLUVIUM).	
		3.00	SPT (S)	N=22 (1,1/4,5,6,7)				Medium dense light brown very clayey SAND. Sand is fine to medium (SAND ALLUVIUM).	3
		3.30			3.30				
		4.00	SPT (S)	N=6 (2,3/2,2,1,1)	4.00			Medium dense (locally loose) light brown/grey slightly clayey sandy GRAVEL. Gravel is fine to medium, sub-angular to angular flint (GRAVEL ALLUVIUM).	4
								End of Borehole at 4.00m	
									5
									6
									7
									8
									9
									10

Remarks

CAT scanned prior to excavation. No groundwater encountered. Drilled using a Dando Terrier 2002. Borehole terminated due to hard strata. Borehole backfilled upon completion.





Borehole Log

Borehole No.

BH03

Sheet 1 of 1

Project Name: Bishopstoke Memorial Hall

Project No.
RP7032

Co-ords:

Hole Type
WS

Location: Eastleigh

Level:

Scale
1:50

Client: Eastleigh Borough Council

Dates: 03/04/2019

Logged By
RT

Well	Water Strikes	Sample and In Situ Testing			Depth (m)	Level (m)	Legend	Stratum Description	
		Depth (m)	Type	Results					
					0.30			Soft dark brown slightly sandy SILT with occasional fragments of green glass. Glass is medium sized, angular (MADE GROUND).	
		0.70	D					Soft to firm light brown slightly sandy CLAY, with orange-brown mottling and extremely close fissures (CLAY ALLUVIUM).	1
		1.00	SPT (S)	N=8 (1,2/2,2,2,2)					
		1.90	D					Firm light brown sandy CLAY, with orange-brown mottling. Sand is fine to medium (CLAY ALLUVIUM).	2
		2.00	SPT (S)	N=7 (0,1/2,1,2,2)	2.20				
		2.40	D						
					2.70			Medium dense light brown/grey slightly clayey sandy GRAVEL. Gravel is fine to medium, sub-angular to angular flint (GRAVEL ALLUVIUM).	3
		3.00	SPT (S)	N=17 (3,4/6,4,3,4)					
					4.00			End of Borehole at 4.00m	4
									5
									6
									7
									8
									9
									10

Remarks

CAT scanned prior to excavation. Groundwater encountered at 3.8m. Drilled using a Dando Terrier 2002. Borehole terminated due to hard strata. Borehole backfilled upon completion.



Appendix D. GEOTECHNICAL LABORATORY TEST RESULTS

**Rebecca Thorne**

Red Rock Geoscience Ltd
East Wing
Station House
Broadclyst
Exeter
Devon
EX5 3AS

t: 01392 460800

e: r.thorne@redrockgeo.co.uk

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

t: 01923 225404

f: 01923 237404

e: reception@i2analytical.com

Analytical Report Number : 19-36400

Project / Site name: Eastleigh

Samples received on: 08/04/2019

Your job number: RP7032

Samples instructed on: 08/04/2019

Your order number: RP7032

Analysis completed by: 18/04/2019

Report Issue Number: 1

Report issued on: 18/04/2019

Samples Analysed: 2 soil samples

Signed:



Dr Claire Stone
Quality Manager

For & on behalf of i2 Analytical Ltd.

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

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

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

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

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

Analytical Report Number: 19-36400

Project / Site name: Eastleigh

Your Order No: RP7032

Lab Sample Number				1195360	1195361			
Sample Reference				BH01	BH02			
Sample Number				None Supplied	None Supplied			
Depth (m)				0.80	1.20			
Date Sampled				03/04/2019	03/04/2019			
Time Taken				None Supplied	None Supplied			
Analytical Parameter (Soil Analysis)				Units	Limit of detection	Accreditation Status		
Stone Content				%	0.1	NONE	< 0.1	< 0.1
Moisture Content				%	N/A	NONE	15	18
Total mass of sample received				kg	0.001	NONE	0.41	0.37

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.9	6.9			
Total Sulphate as SO ₄	mg/kg	50	MCERTS	130	150			
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.016	0.016			
Total Sulphur	mg/kg	50	MCERTS	73	62			



Analytical Report Number : 19-36400

Project / Site name: Eastleigh

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1195360	BH01	None Supplied	0.80	Brown clay with vegetation.
1195361	BH02	None Supplied	1.20	Brown clay and sand.

Analytical Report Number : 19-36400

Project / Site name: Eastleigh

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

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS

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

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

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



TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Red Rock Geoscience Ltd
Client Address: East Wing, Station House,
Broadclyst, Exeter,
Devon, EX5 3AS
Contact: Rebecca Thorne
Site Name: Eastleigh
Site Address: Not Given

Client Reference: RP7032
Job Number: 19-36395
Date Sampled: 03/04/2019
Date Received: 08/04/2019
Date Tested: 11/04/2019
Sampled By: Red Rock

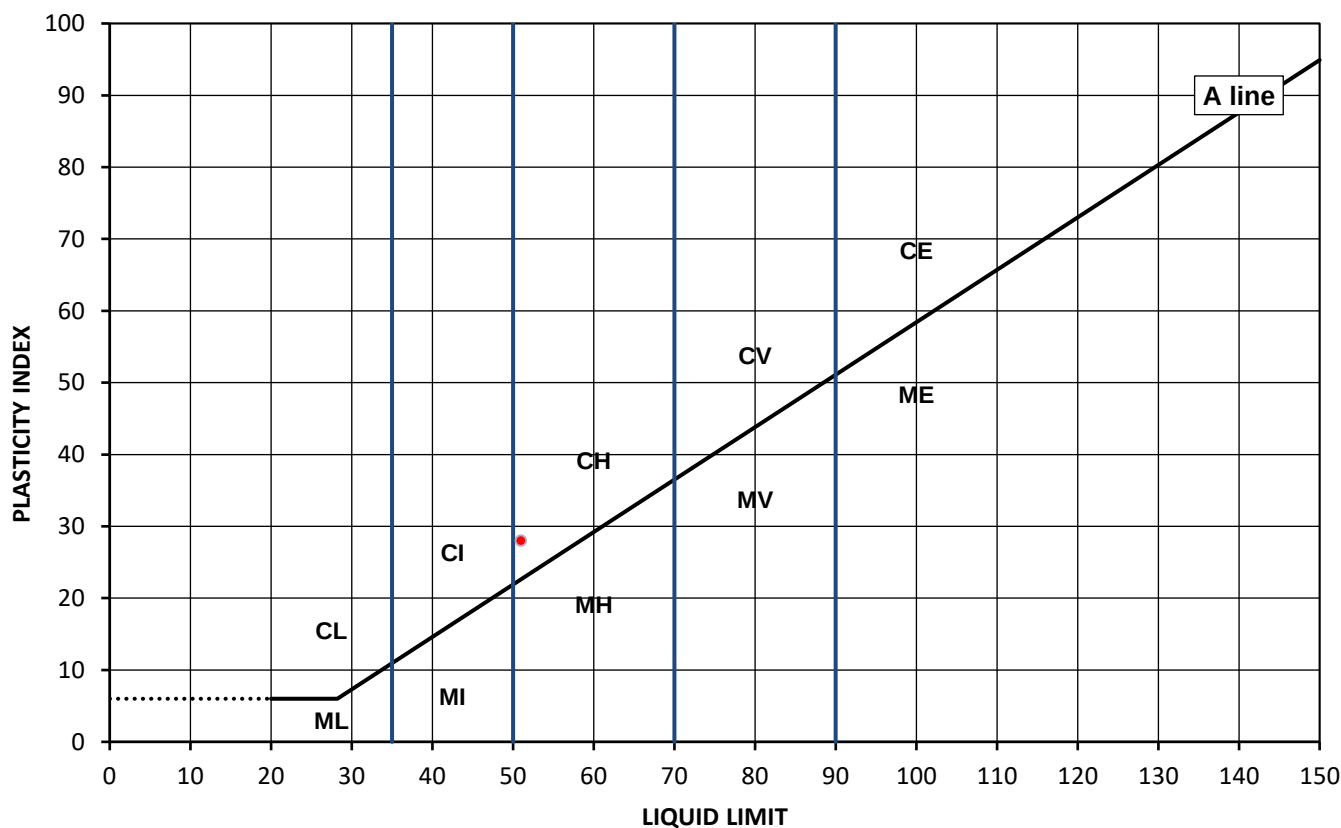
Test Results:

Laboratory Reference: 1195310
Hole No.: BH01
Sample Reference: Not Given
Soil Description: Brown slightly sandy CLAY

Depth Top [m]: 0.80
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	51	23	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	below 35
		I	35 to 50
		H	50 to 70
		V	70 to 90
		E	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Caluse 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 23/04/2019

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd GF 236.5

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The results included within the report are representative of the samples submitted for analysis.
The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland.*



TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Red Rock Geoscience Ltd
Client Address: East Wing, Station House,
Broadclyst, Exeter,
Devon, EX5 3AS
Contact: Rebecca Thorne
Site Name: Eastleigh
Site Address: Not Given

Client Reference: RP7032
Job Number: 19-36395
Date Sampled: 03/04/2019
Date Received: 08/04/2019
Date Tested: 11/04/2019
Sampled By: Red Rock

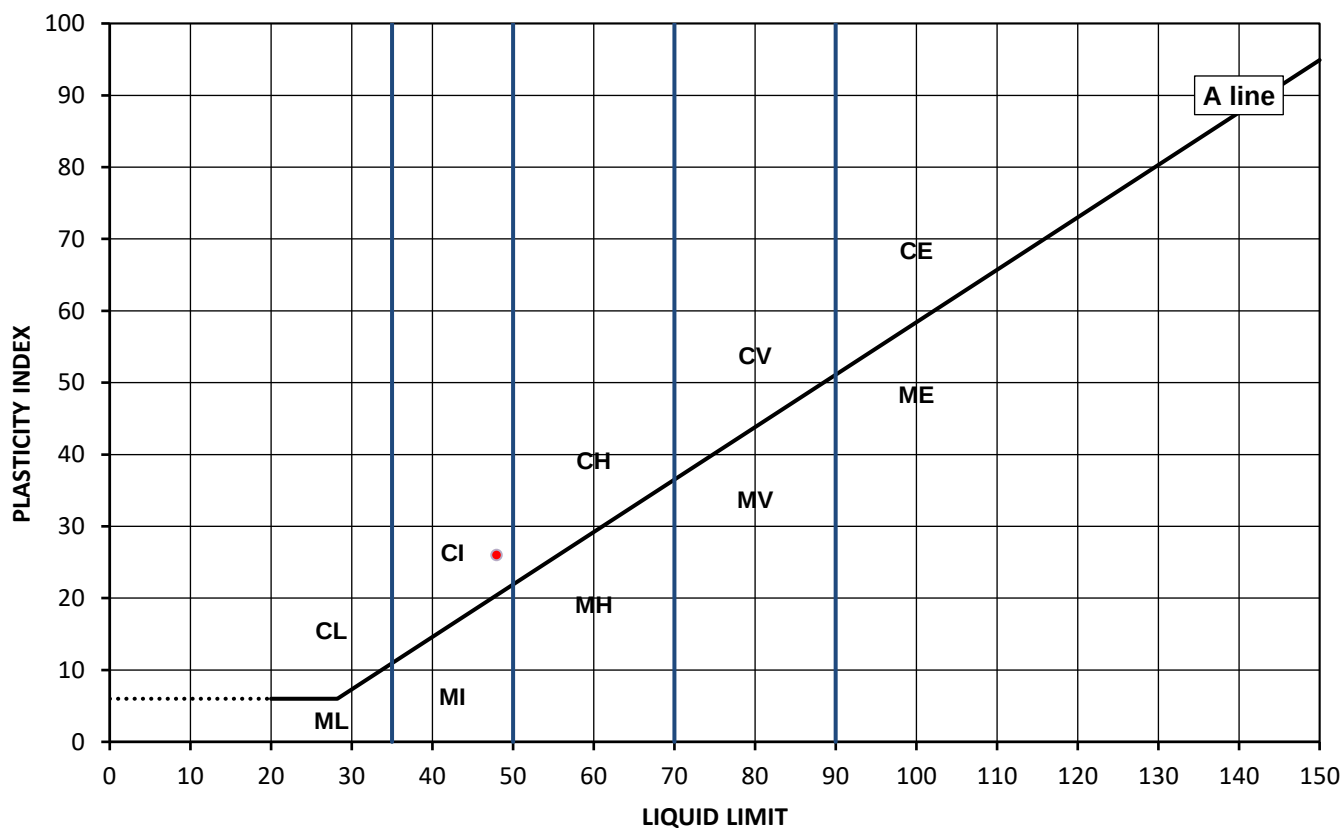
Test Results:

Laboratory Reference: 1195311
Hole No.: BH01
Sample Reference: Not Given
Soil Description: Brown slightly sandy CLAY

Depth Top [m]: 1.50
Depth Base [m]: Not Given
Sample Type: B

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
26	48	22	26	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	Low
		I	Medium
		H	High
		V	Very high
		E	Extremely high
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 23/04/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Red Rock Geoscience Ltd
Client Address: East Wing, Station House,
Broadclyst, Exeter,
Devon, EX5 3AS
Contact: Rebecca Thorne
Site Name: Eastleigh
Site Address: Not Given

Client Reference: RP7032
Job Number: 19-36395
Date Sampled: 03/04/2019
Date Received: 08/04/2019
Date Tested: 11/04/2019
Sampled By: Red Rock

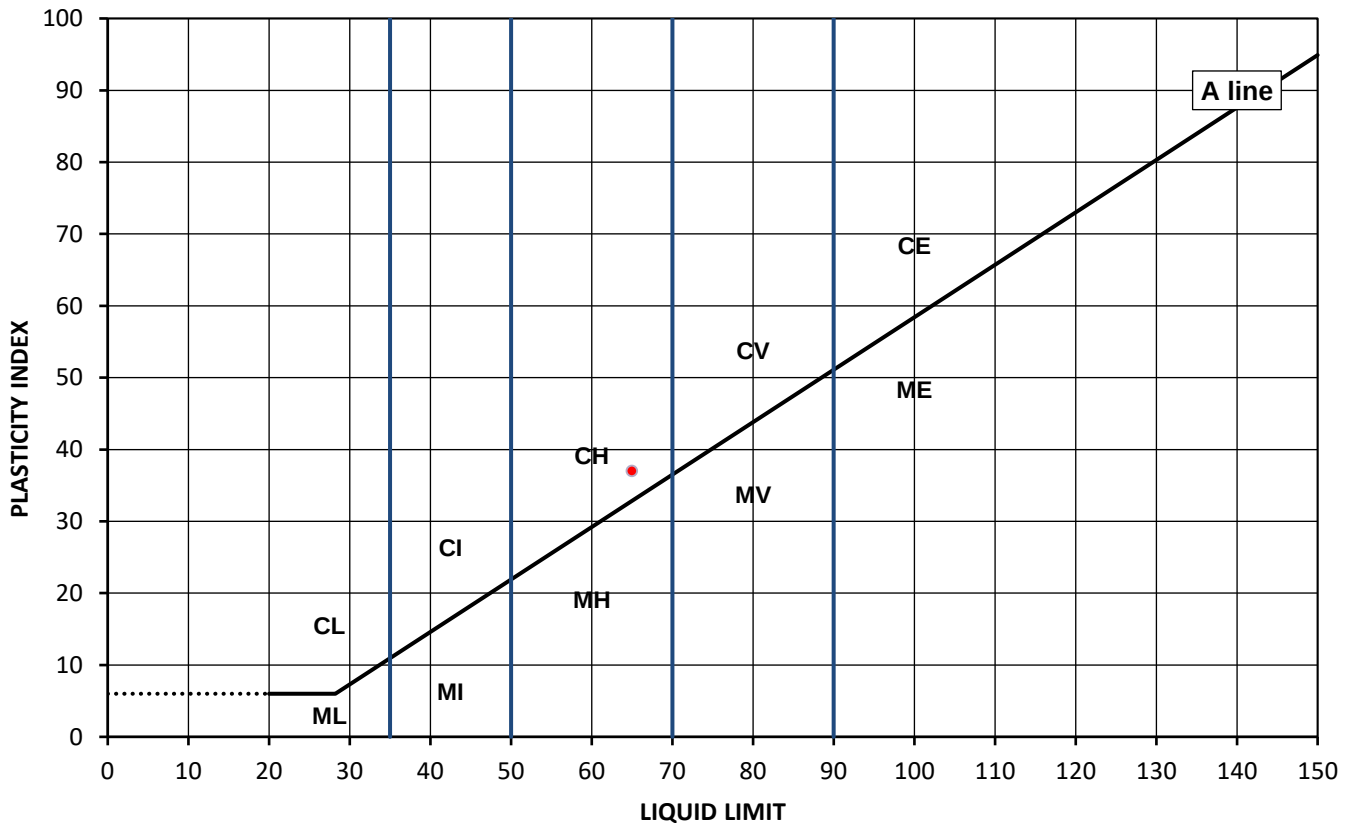
Test Results:

Laboratory Reference: 1195313
Hole No.: BH02
Sample Reference: Not Given
Soil Description: Brownish grey CLAY

Depth Top [m]: 0.90
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
25	65	28	37	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	below 35
		I	35 to 50
		H	50 to 70
		V	70 to 90
		E	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 23/04/2019

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd GF 236.5

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The analysis was carried out at i2 Analytical Limited, ul. Pionierow 39, 41-711 Ruda Slaska, Poland."

"Any assessment of compliance with specifications based on the analytical results in a report take in to account no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request."



TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Red Rock Geoscience Ltd
Client Address: East Wing, Station House,
Broadclyst, Exeter,
Devon, EX5 3AS
Contact: Rebecca Thorne
Site Name: Eastleigh
Site Address: Not Given

Client Reference: RP7032
Job Number: 19-36395
Date Sampled: 03/04/2019
Date Received: 08/04/2019
Date Tested: 11/04/2019
Sampled By: Red Rock

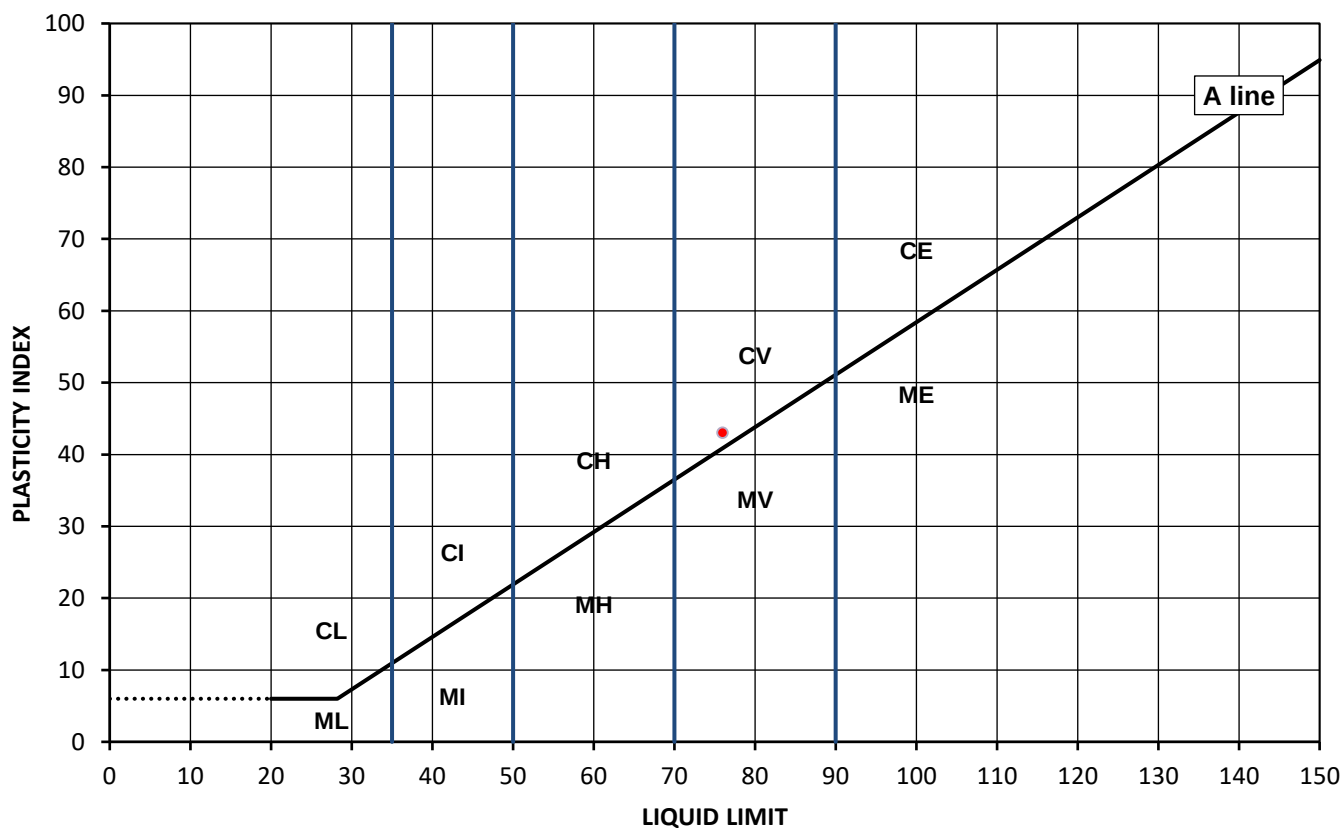
Test Results:

Laboratory Reference: 1195314
Hole No.: BH02
Sample Reference: Not Given
Soil Description: Brown CLAY

Depth Top [m]: 1.20
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
27	76	33	43	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	below 35
		I	35 to 50
		H	50 to 70
		V	70 to 90
		E	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 23/04/2019

Darren Berrill
Geotechnical General Manager

for and on behalf of i2 Analytical Ltd GF 236.5

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TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Red Rock Geoscience Ltd
Client Address: East Wing, Station House,
Broadclyst, Exeter,
Devon, EX5 3AS
Contact: Rebecca Thorne
Site Name: Eastleigh
Site Address: Not Given

Client Reference: RP7032
Job Number: 19-36395
Date Sampled: 03/04/2019
Date Received: 08/04/2019
Date Tested: 11/04/2019
Sampled By: Red Rock

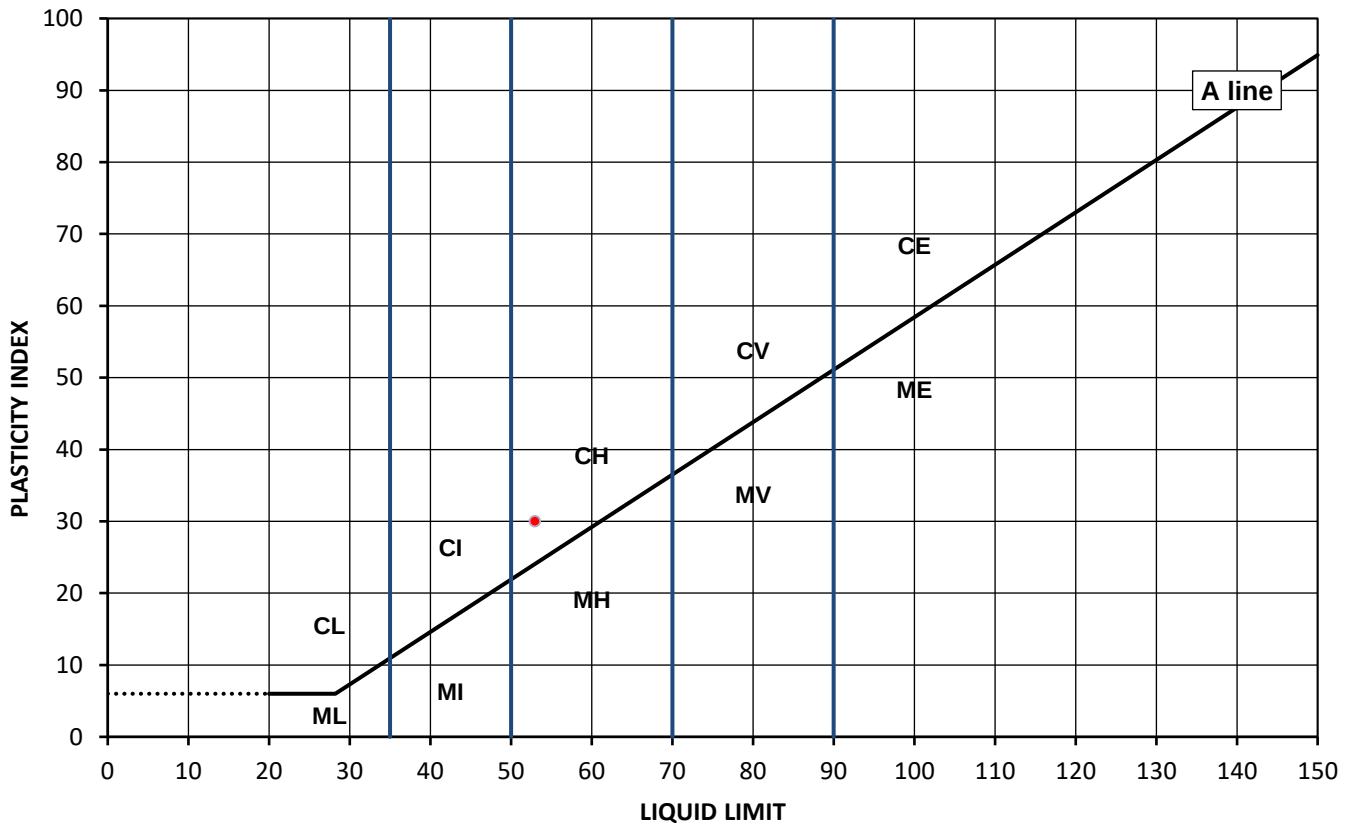
Test Results:

Laboratory Reference: 1195315
Hole No.: BH03
Sample Reference: Not Given
Soil Description: Brown slightly sandy CLAY

Depth Top [m]: 0.70
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
29	53	23	30	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	below 35
		I	35 to 50
		H	50 to 70
		V	70 to 90
		E	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 23/04/2019

Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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TEST CERTIFICATE

Liquid and Plastic Limits

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



Environmental Science

4041

Tested in Accordance with: BS 1377-2: 1990: Clause 4.3 and 5

Client: Red Rock Geoscience Ltd
Client Address: East Wing, Station House,
Broadclyst, Exeter,
Devon, EX5 3AS
Contact: Rebecca Thorne
Site Name: Eastleigh
Site Address: Not Given

Client Reference: RP7032
Job Number: 19-36395
Date Sampled: 03/04/2019
Date Received: 08/04/2019
Date Tested: 11/04/2019
Sampled By: Red Rock

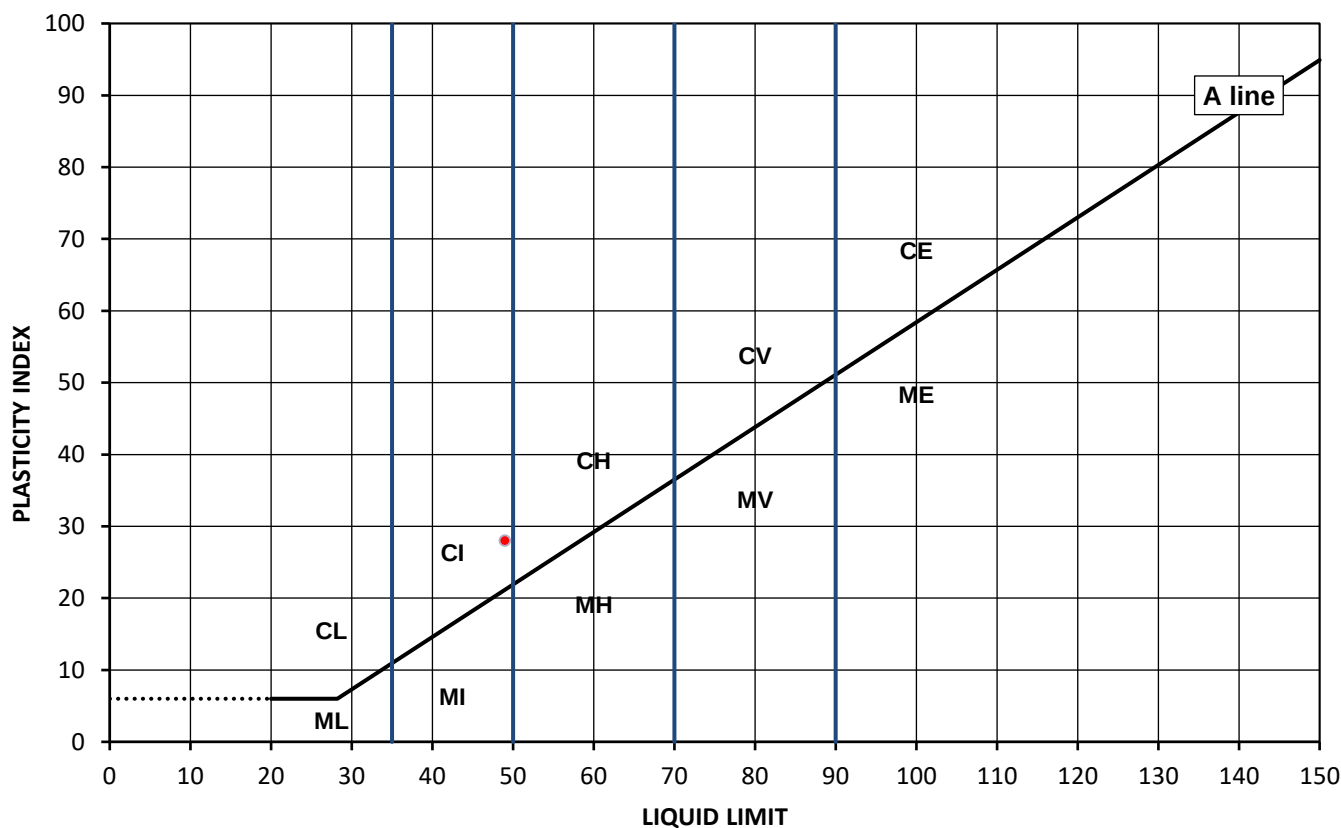
Test Results:

Laboratory Reference: 1195316
Hole No.: BH03
Sample Reference: Not Given
Soil Description: Brown slightly sandy CLAY

Depth Top [m]: 1.90
Depth Base [m]: Not Given
Sample Type: D

Sample Preparation: Tested in natural condition

As Received Moisture Content [%]	Liquid Limit [%]	Plastic Limit [%]	Plasticity Index [%]	% Passing 425µm BS Test Sieve
28	49	21	28	100



Legend, based on BS 5930:2015 Code of practice for site investigations

C	Clay	Plasticity	Liquid Limit
M	Silt	L	below 35
		I	35 to 50
		H	50 to 70
		V	70 to 90
		E	exceeding 90
	Organic	O	append to classification for organic material (eg CHO)

Note: Moisture Content by BS 1377-2: 1990: Clause 3.2

Remarks:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 23/04/2019

Signed: Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 236.5

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SUMMARY REPORT

Summary of Classification Test Results

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



Tested in Accordance with:

MC by BS 1377-2: 1990: Clause 3.2; WC by BS EN 17892-1: 2014; Atterberg
by BS 1377-2: 1990: Clause 4.3, Clause 4.4 and 5; PD by BS 1377-2: 1990:
Clause 8.2

Client Reference: RP7032

Job Number: 19-36395

Date Sampled: 03/04/2019

Date Received: 04/08/2019

Date Tested: 11/04/2019

Sampled By: Red Rock

Client: Red Rock Geoscience Ltd
Client Address: East Wing, Station House,
Broadclyst, Exeter,
Devon, EX5 3AS
Contact: Rebecca Thorne
Site Name: Eastleigh
Site Address: Not Given

Test results

Laboratory Reference	Hole No.	Sample				Description	Remarks	MC	WC	Atterberg				Density			Total Porosity#		
		Reference	Depth Top m	Depth Base m	Type					% Passing 425um	LL	PL	PI	bulk Mg/m3	dry Mg/m3	PD Mg/m3			
1195310	BH01	Not Given	0.80	Not Given	B	Brown slightly sandy CLAY	Atterberg 4 Point	26		100	51	23	28						
1195311	BH01	Not Given	1.50	Not Given	B	Brown slightly sandy CLAY	Atterberg 4 Point	26		100	48	22	26						
1195313	BH02	Not Given	0.90	Not Given	D	Brownish grey CLAY	Atterberg 4 Point	25		100	65	28	37						
1195314	BH02	Not Given	1.20	Not Given	D	Brown CLAY	Atterberg 4 Point	27		100	76	33	43						
1195315	BH03	Not Given	0.70	Not Given	D	Brown slightly sandy CLAY	Atterberg 4 Point	29		100	53	23	30						
1195316	BH03	Not Given	1.90	Not Given	D	Brown slightly sandy CLAY	Atterberg 4 Point	28		100	49	21	28						

Note: # Non accredited; NP - Non plastic

Comments:

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 23/04/2019

Darren Berrill
Geotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 238.7

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TEST CERTIFICATE

Particle Size Distribution

Tested in Accordance with: BS 1377-2: 1990

i2 Analytical Ltd
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Croxley Green Business Park
Watford Herts WD18 8YS



Environmental Science

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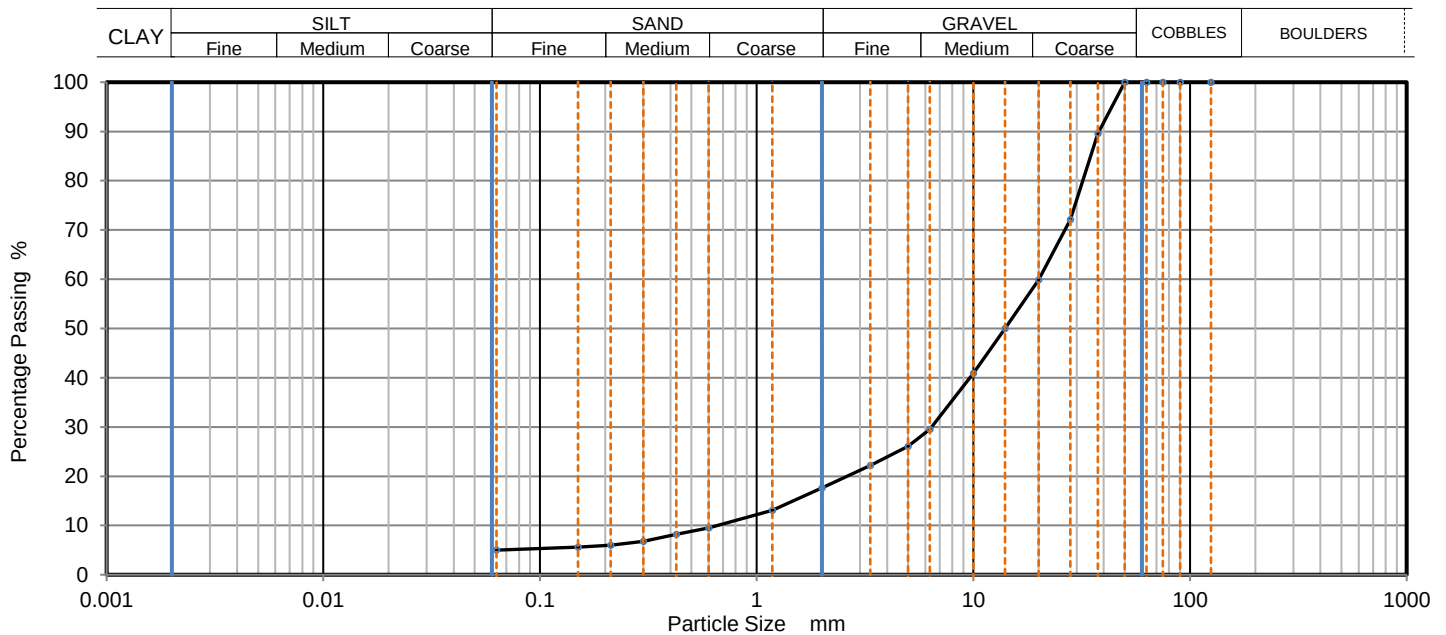
Client: Red Rock Geoscience Ltd
Client Address: East Wing, Station House,
Broadclyst, Exeter,
Devon, EX5 3AS
Contact: Rebecca Thorne
Site Name: Eastleigh
Site Address: Not Given

Client Reference: RP7032
Job Number: 19-36395
Date Sampled: 03/04/2019
Date Received: 08/04/2019
Date Tested: 11/04/2019
Sampled By: Red Rock

Test Results:

Laboratory Reference: 1195312
Hole No.: BH01
Sample Reference: Not Given
Sample Description: Yellowish brown slightly clayey sandy GRAVEL

Depth Top [m]: 3.40
Depth Base [m]: Not Given
Sample Type: B



Sieving		Sedimentation	
Particle Size mm	% Passing	Particle Size mm	% Passing
125	100		
90	100		
75	100		
63	100		
50	100		
37.5	90		
28	72		
20	60		
14	50		
10	41		
6.3	30		
5	26		
3.35	22		
2	18		
1.18	13		
0.6	10		
0.425	8		
0.3	7		
0.212	6		
0.15	6		
0.063	5		

Dry Mass of sample [g]: 2445

Sample Proportions	% dry mass
Very coarse	0.00
Gravel	82.40
Sand	12.30
Fines <0.063mm	5.30

Grading Analysis		
D100	mm	50
D60	mm	20
D30	mm	6.44
D10	mm	0.655
Uniformity Coefficient		31
Curvature Coefficient		3.2

Note: Tested in Accordance with BS1377:Part 2:1990, clause 9.2

Remarks: The material submitted - fails to meet the minimum mass requirements as stated in BS1377 Part 2 Table 3

Approved: Dariusz Piotrowski
PL Geotechnical Laboratory Manager
Date Reported: 23/04/2019

Signed: Darren Berrill
eotechnical General Manager
for and on behalf of i2 Analytical Ltd GF 100.11

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Appendix E. GENERAL NOTES AND LIMITATIONS

General Notes

The report has been prepared for the exclusive use of the Client named in the document and copyright remains with Red Rock Geoscience Ltd (RRG). Prior written permission must be obtained to reproduce all or part of the report. It has been prepared on the understanding that you will only disclose its contents to parties directly involved in the current investigation, preparation, and development of the site. Further copies may be obtained with the Client's written permission, from RRG who retains the master copy of the report.

Reports are prepared for the specific purpose stated in the document and in relation to the nature and extent of proposals made available to RRG. The recommendations should not be used for other schemes on or adjacent to the site. The assessment of the factual data, where called for, is provided to assist the Client and his Engineer and/or Advisers in the preparation of the designs.

All assessments and recommendations should be forwarded to the relevant planning authorities for comment and approval prior to implementation.

Phase I Assessments

Phase I desk study reports are largely based on data supplied by third parties and is therefore interpreted in accordance with the guidance notes and limitations provided by the data supplier.

Site walkover comments are based on simple observation by the Engineer and do not include extensive environmental, geotechnical, or structural surveys.

Phase II Assessments

Phase II site investigation reports are based on the ground and groundwater conditions encountered in the exploratory holes, together with the results of field and laboratory testing in the context of the proposed development. There may be special conditions appertaining to the site, which have not been revealed by the investigation and which may not have been taken into account in the report. RRG cannot be responsible for any changes in ground conditions following completion of fieldwork (e.g. subsequent spillages, leakages, excavations, etc. on or adjacent to the site).

Positioning of exploratory holes depends on the existence of utility services, existing structures, and / or access restrictions.

Methods of design and/or construction other than those proposed or referred to in the report may require consideration during the evolution of the proposals and if this is the case further assessment of the geotechnical data appropriate to these methods would be required.

The accuracy of results reported depends upon the technique of measurement, investigation, and test used and these values should not be regarded necessarily as characteristics of the strata as a whole.

The evaluation and conclusions do not preclude the variation in ground conditions between the test holes. Hence this report should be used in this context and not be construed necessarily as a comprehensive characterisation of the entire site conditions.

The samples selected for environmental and geotechnical laboratory testing are prepared and tested by an UKAS accredited and when possible or necessary MCERTS accredited external laboratory.

Any unavoidable variations from specified procedures are identified in the report.

Whilst reports may have expressed an opinion on possible configurations of strata between or beyond exploratory holes, or on the possible presence of features based on visual, verbal, written, cartographical, photographic, or published evidence, this is for guidance only and no liability can be accepted for its accuracy.

Ground conditions should be monitored during the construction of the works by ground-workers and the recommendations of the report re-evaluated as necessary.

Any comments on groundwater conditions have been based on observations made at the time of the investigation, unless specifically stated otherwise. It should be noted, however, that the observations are subject to the method and speed of boring, drilling, or excavation and that groundwater levels will vary due to seasonal effects and rainfall.

Where the investigation has taken account of possible effects of gases from fill or natural sources within, below, or outside the site, assessment has been based on current guidance provided by the CIRIA 665 Publication.

Unless specifically stated, the investigation has not taken account of any environmental soil or water guideline values other than the current and approved guideline values for the United Kingdom. Where these are not available, others such as the Canadian Environmental Guidelines, the US EPA guidelines and/or European Union Drinking Water Standards may be used as indicative only.

Site-specific assessment criteria values have been calculated using the current CLEA UK model V1.07, published by the Environment Agency in 2015.

APPENDIX D

S&D SERVICES – Below Ground Drainage Survey



COMPLETE DRAIN CARE AND REPAIR

CCTV SURVEY & REPORT

Client	Eastleigh Borough Council, Eastleigh House, Upper Market Street, Eastleigh, Hampshire, SO50 9YN
Site	Bishopstoke Memorial Hall, 17 Riverside, Eastleigh, Hampshire, SO50 6LQ
Task	CCTV of Site Drainage
Date	11 th April 2019



www.sanddservices.co.uk
Tel – 01460 221442





S&D Services
Unit 1, Westford
Chard Junction
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Email: info@sanddservices.co.uk

Table of contents

Project Name:	Project Number:	Date:	Contact:	
Bishopstoke Memorial Hall		11/04/2019	Pearl Tee	

Inspection: 1

Project Information	1
Section: 1, F--2 --- Submain	2
Section: 2, Submain --- F--2	6
Section: 3, Submain --- F--3	8
Section: 4, Lateral 1 --- F--3	10
Section: 5, Lateral 2 --- F--3	12
Section: 6, Lateral 3 --- F--3	13
Section: 7, Lateral 4 --- F--3	14
Section: 8, F--1 --- Submain	16
Section: 9, Lateral 2 --- F--1	18
Section: 10, F-1A --- F--1	19
Section: 11, Submain --- F-1A	21
Section: 12, Submain --- F-1B	23
Section: 13, Submain --- F-1C	25
Section: 14, Lateral 1 --- F-1C	27
Section: 15, Lateral 2 --- F-1C	28
Section: 16, F-1C --- Submain	29
Section: 17, S--1 --- Submain	31
Section: 18, Submain --- S--1	33
Section: 19, S--2 --- Submain	35
Section: 20, Submain --- S--2	36



Project-information

Project name : Bishopstoke Memorial Hall 17 Rivers	Contract Number :	Contact : Pearl Tee	Date : 11/04/2019
--	-------------------	-------------------------------	-----------------------------

Client: Eastleigh Borough Council
Contact Name: Pearl Tee
Department: Eastleigh House
Road: Upper Market Street
Town: Eastleigh
County: Hampshire SO50 9YN
Telephone: 02380 683831
Fax:
Mobile:
E-mail: sabrina.fernandez@kendallkingscott.co.uk

Site: Eastleigh Borough Council
Contact Name: Pearl Tee
Department: Bishopstoke Memorial Hall
Road: 17 Riverside
Town: Easleigh
County: Hampshire SO50 6LQ
Telephone:
Fax:
Mobile:
E-mail: sabrina.fernandez@kendallkingscott.co.uk

Contractor S&D Services
Contact Name: Steve Sampson
Department:
Road: Unit 1, Westford
Town: Chard Junction
County: Somerset TA20 4QT
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Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 1	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F--2 (D/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	F--2 0.85 Submain
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 14.40 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay Soft inversion type liner	

Comment : **Start Cctv of Foul Drains**

1:90	Position	Code	Observation	VCR	Photo	Grade
Depth: 0.85						
	0.00	ST	Start of survey			0
	0.00	WL	Water level, 0% of sewer height			0
	0.50	GO	General observation Remarks: Liner Stops			0
	0.90	RFJ	Roots, fine at joint			2
	2.10	S1 FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock, Start		1_1_7_A.JPG	4
	3.80	WL	Water level, 10% of sewer height Remarks: Standing			0
	4.10	BJ	Broken sewer at joint, from 12 to 12 o'clock		1_1_10_A.JPG G	4
	4.70	WL	Water level, 0% of sewer height			0
	4.70	BJ	Broken sewer at joint, from 12 to 12 o'clock		1_1_11_A.JPG G	4
	8.70	JDM	Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step down in flow		1_1_12_A.JPG G	2
	8.80	F1 FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock, End			4
	9.80	S2 FM	Fractures, multipe, from 12 to 12 o'clock, Start		1_1_14_A.JPG G	4
	10.70	F2 FM	Fractures, multipe, from 12 to 12 o'clock, End			4
	10.70	JDM	Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step down in flow			2
	10.70	MC	Sewer material changes Remarks: Polyvinyl chloride		1_1_17_A.JPG G	0



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Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 1	PLR suffix: X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator: Norman

1:90	Position	Code	Observation	VCR	Photo	Grade
	11.90	MC	Sewer material changes Remarks: Vitrified clay			0
	12.70	JX	Junction, defective, at 9 o'clock, 100mm diameter Remarks: Fractured		1_1_20_A.JPG	0
	13.00	FM	Fractures, multi, from 12 to 12 o'clock		1_1_21_A.JPG	4
	13.00	WL	Water level, 10% of sewer height Remarks: Flowing Slow			0
	13.70	MC	Sewer material changes Remarks: Glass reinforced plastic Sort Inversion liner			0
	14.30	MH	Manhole Remarks: M/H(F)No 1			0
	14.40	FH	Finish survey			0



Submain



Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 1	PLR suffix : X
---------------------------------------	--	-----------------------------	------------------------------	--------------------------



Photo: 1_1_7_A.JPG
2.1m, Fracture, circumferential at joint, from 12 to 12 o'clock, Start



Photo: 1_1_10_A.JPG
4.1m, Broken sewer at joint, from 12 to 12 o'clock



Photo: 1_1_11_A.JPG
4.7m, Broken sewer at joint, from 12 to 12 o'clock



Photo: 1_1_12_A.JPG
8.7m, Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness)



Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 1	PLR suffix : X
---------------------------------------	--	-----------------------------	------------------------------	--------------------------



Photo: 1_1_14_A.JPG
9.8m, Fractures, multiple, from 12 to 12 o'clock, Start



Photo: 1_1_17_A.JPG
10.7m, Sewer material changes



Photo: 1_1_20_A.JPG
12.7m, Junction, defective, at 9 o'clock, 100mm diameter



Photo: 1_1_21_A.JPG
13m, Fractures, multiple, from 12 to 12 o'clock



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Chard Junction
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Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 2	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F--2 (U/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Submain F--2 0.85
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 2.90 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50	Position	Code	Observation	VCR	Photo	Grade
Depth: 0.85						
	0.00	ST	Start of survey			0
	0.00	WL	Water level, 5% of sewer height	Remarks: Standing		0
	0.20	S1	FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock, Start	3_3_28_A.JPG	4
	1.00	WL	Water level, 0% of sewer height			0
	1.30	JN	Junction, at 3 o'clock, 100mm diameter			0
	2.20	F1	FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock, End		4
	2.50	MH	Manhole	Remarks: M/H(F)No 3	3_3_32_A.JPG	0
	2.90	FH	Finish survey			0



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Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 2	PLR suffix : X
---------------------------------------	--	-----------------------------	------------------------------	--------------------------



Photo: 3_3_28_A.JPG
0.2m, Fracture, circumferential at joint, from 12 to 12 o'clock,
Start



Photo: 3_3_32_A.JPG
2.5m, Manhole



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Inspection report

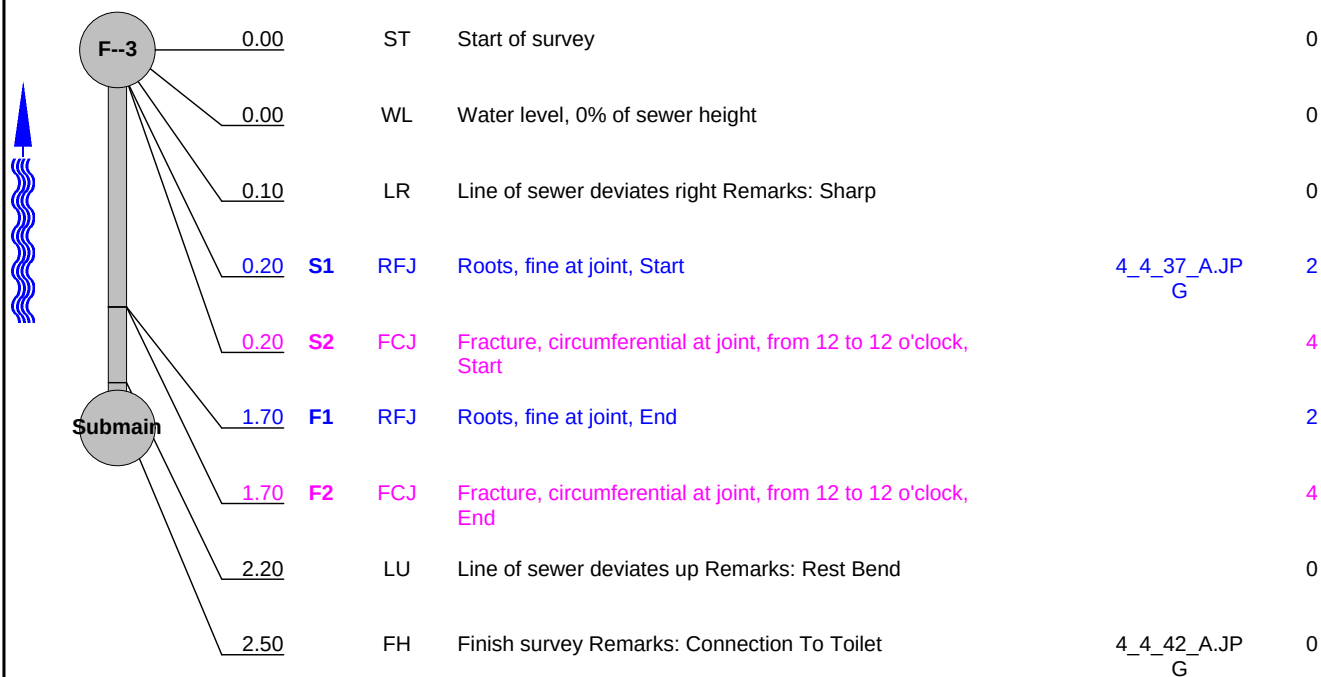
Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 3	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F--3 (U/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Submain F--3 0.8
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 2.50 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50 **Position** **Code** **Observation** **VCR** **Photo** **Grade**

Depth: 0.8



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



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Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 3	PLR suffix : X
---------------------------------------	--	-----------------------------	------------------------------	--------------------------



Photo: 4_4_37_A.JPG
0.2m, Roots, fine at joint, Start



Photo: 4_4_42_A.JPG
2.5m, Finish survey



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Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 4	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F--3 (U/S) Lateral 1	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 1 F--3 0.8
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 0.60 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50	Position	Code	Observation	VCR	Photo	Grade
Depth: 0.8						
	0.00	ST	Start of survey			0
	0.00	WL	Water level, 0% of sewer height			0
	0.10	S1	DES Debris silt, 10% cross-sectional area loss, Start		5_5_45_A.JPG	3
	0.50	F1	DES Debris silt, 10% cross-sectional area loss, End			3
	0.50	LU	Line of sewer deviates up Remarks: Rest Bend			0
	0.60	FH	Finish survey			0

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	1	0.8	1.33	0.8	3



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Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 4	PLR suffix : X
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Photo: 5_5_45_A.JPG

0.1m, Debris silt, 10% cross-sectional area loss, Start



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Inspection report

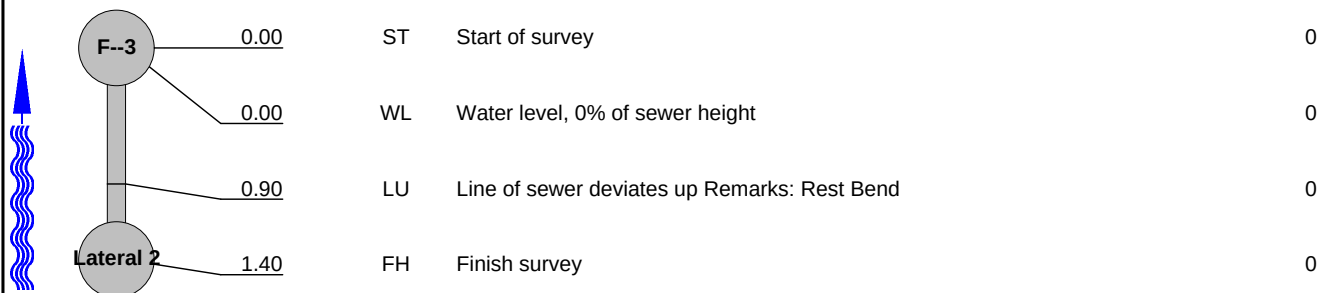
Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 5	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F--3 (U/S) Lateral 2	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 2 F--3 0.8
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 1.40 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50 **Position** **Code** **Observation** **VCR** **Photo** **Grade**

Depth: 0.8



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



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Inspection report

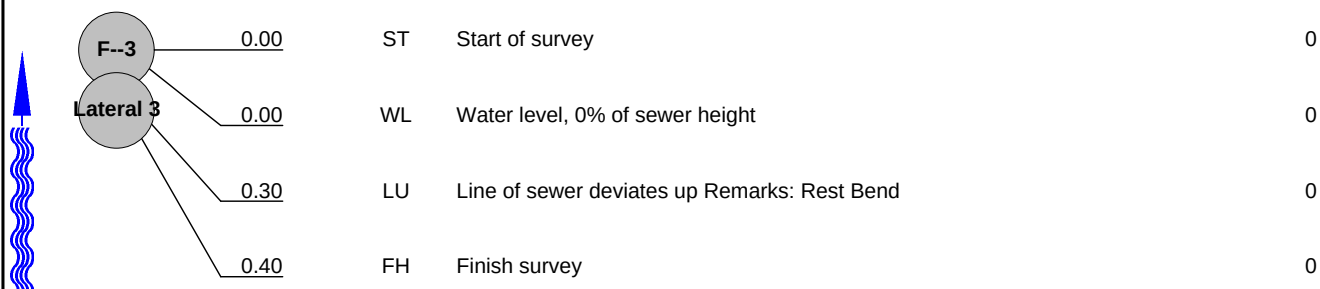
Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 6	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F--3 (U/S) Lateral 3	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 3 F--3 0.8
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 0.40 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50 **Position** **Code** **Observation** **VCR** **Photo** **Grade**

Depth: 0.8



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



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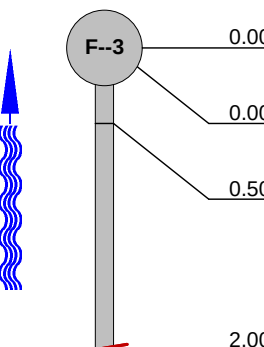
Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 7	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F--3 (U/S) Lateral 4	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 4 F--3 0.8
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 2.00 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50 **Position** **Code** **Observation** **VCR** **Photo** **Grade**

Depth: 0.8

	0.00	ST	Start of survey Remarks: Headers On Video Wrong			0
	0.00	WL	Water level, 0% of sewer height			0
	0.50	S1 DE	Debris, 10% cross-sectional area loss, Start Remarks: Pushed Up In Front Camera		8_8_59_A.JPG G	
	2.00	SA	Survey abandoned Remarks: Line Needs Cleaning			0

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



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Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 7	PLR suffix : X
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Photo: 8_8_59_A.JPG

0.5m, Debris, 10% cross-sectional area loss, Start



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Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 8	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F--1 (D/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	F--1 0.84 Submain
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 8.80 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:75	Position	Code	Observation	VCR	Photo	Grade			
Depth: 0.84									
	0.00	ST	Start of survey			0			
	0.00	WL	Water level, 10% of sewer height Remarks: Flowing			0			
	0.20	S1	FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock, Start		9_9_63_A.JPG G	4		
	0.20	S2	JDM	Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step up in flow			2		
	2.00	C2	JDM	Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step down in flow		9_9_65_A.JPG G	2		
	3.20	BJ		Broken sewer at joint, from 12 to 12 o'clock		9_9_66_A.JPG G	4		
	8.40	MC		Sewer material changes Remarks: Cast iron			0		
	8.60	F2	JDM	Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step down in flow			2		
	8.70	F1	FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock, End			4		
	8.80	MH		Manhole Remarks: M/H(F)No Reverse Interceptor Trap		9_9_69_A.JPG G	0		
8.80	FH		Finish survey			0			
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 8	PLR suffix : X
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Photo: 9_9_63_A.JPG
0.2m, Fracture, circumferential at joint, from 12 to 12 o'clock, Start



Photo: 9_9_65_A.JPG
2m, Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness)



Photo: 9_9_66_A.JPG
3.2m, Broken sewer at joint, from 12 to 12 o'clock



Photo: 9_9_69_A.JPG
8.8m, Manhole



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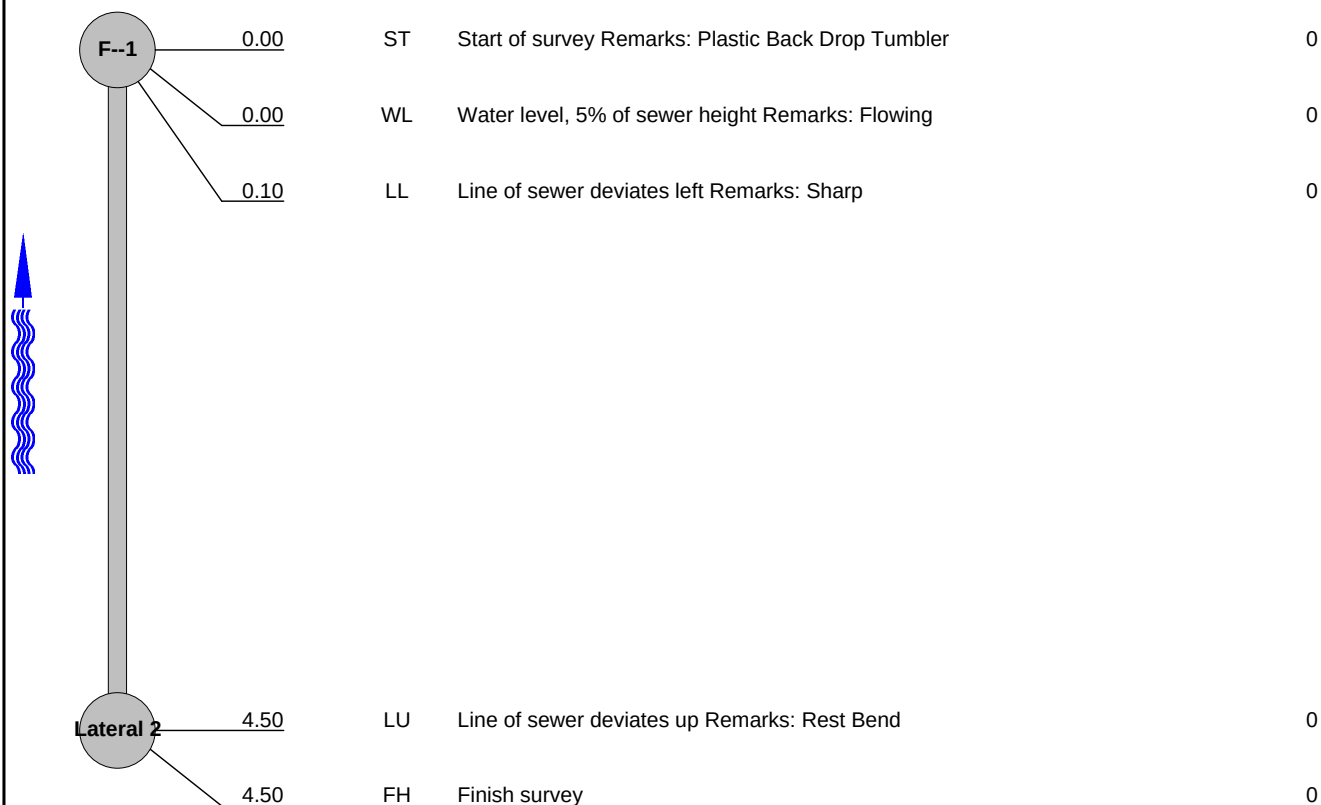
Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 9	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F--1 (U/S) Lateral 2	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 2 F--1 0.84
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 4.50 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Polyvinyl chloride (PVC)	

Comment :

1:50 **Position** **Code** **Observation** **VCR** **Photo** **Grade**

Depth: 0.84



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



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Inspection report

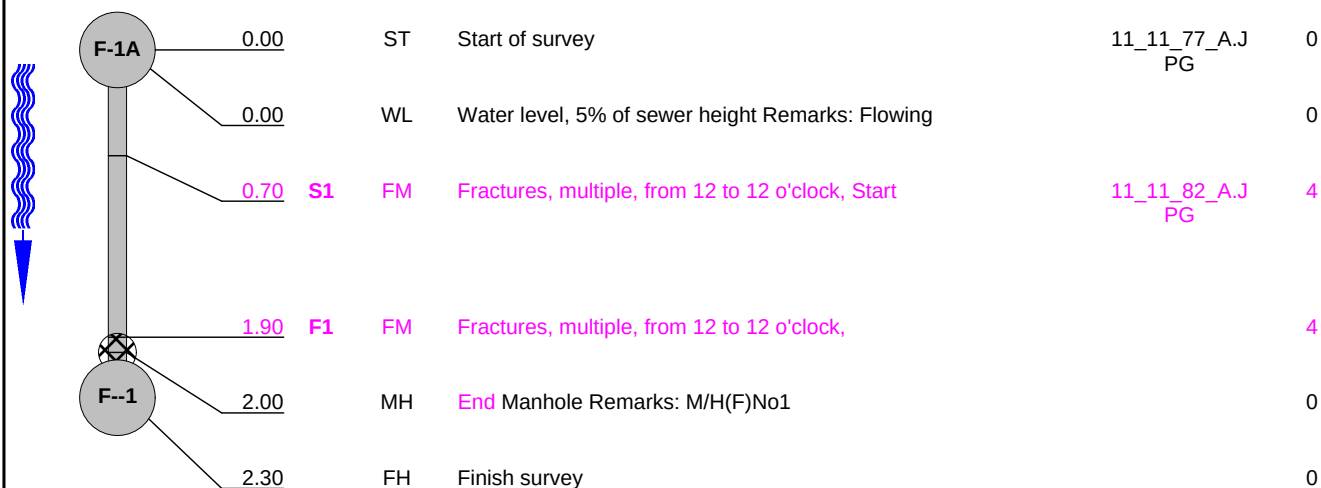
Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 10	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F-1A (D/S) F--1	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	F-1A 0.80 F--1 0.84
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 2.30 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50 **Position** **Code** **Observation** **VCR** **Photo** **Grade**

Depth: 0.80



Depth: 0.84

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	80	41.74	96	4	0	0	0	0	1



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Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 10	PLR suffix : X
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Photo: 11_11_77_A.JPG
0m, Start of survey



Photo: 11_11_82_A.JPG
0.7m, Fractures, multiple, from 12 to 12 o'clock, Start



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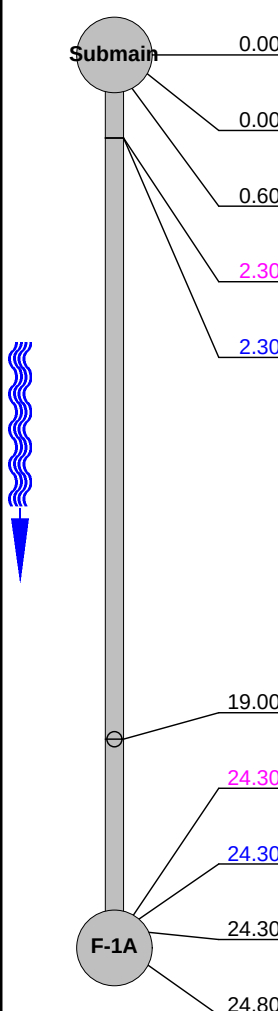
Email: info@sanddservices.co.uk

Inspection report

Date : 30/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 11	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : yes	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Submain F-1A 0.8
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 24.80 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:210	Position	Code	Observation	VCR	Photo	Grade			
	0.00	ST	Start of survey			0			
	0.00	WL	Water level, 5% of sewer height Remarks: Flowing			0			
	0.60	CXI	Connection defective, at 12 o'clock, 100mm diameter, 10mm intruding		12_12_87_A.J PG	0			
	2.30	S1	FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock, Start		12_12_88_A.J PG	4		
	2.30	S2	JDM	Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step up in flow			2		
	19.00	CX	Connection defective, at 12 o'clock, 100mm diameter		12_12_90_A.J PG	0			
	24.30	F1	FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock, End			4		
	24.30	F2	JDM	Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step up in flow			2		
	24.30	MH	Manhole Remarks: M/H(F)No 1B			0			
	24.80	FH	Finish survey			0			
Depth: 0.8									
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



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Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 11	PLR suffix : X
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Photo: 12_12_87_A.JPG
0.6m, Connection defective, at 12 o'clock, 100mm diameter, 10mm intruding



Photo: 12_12_88_A.JPG
2.3m, Fracture, circumferential at joint, from 12 to 12 o'clock, Start



Photo: 12_12_90_A.JPG
19m, Connection defective, at 12 o'clock, 100mm diameter



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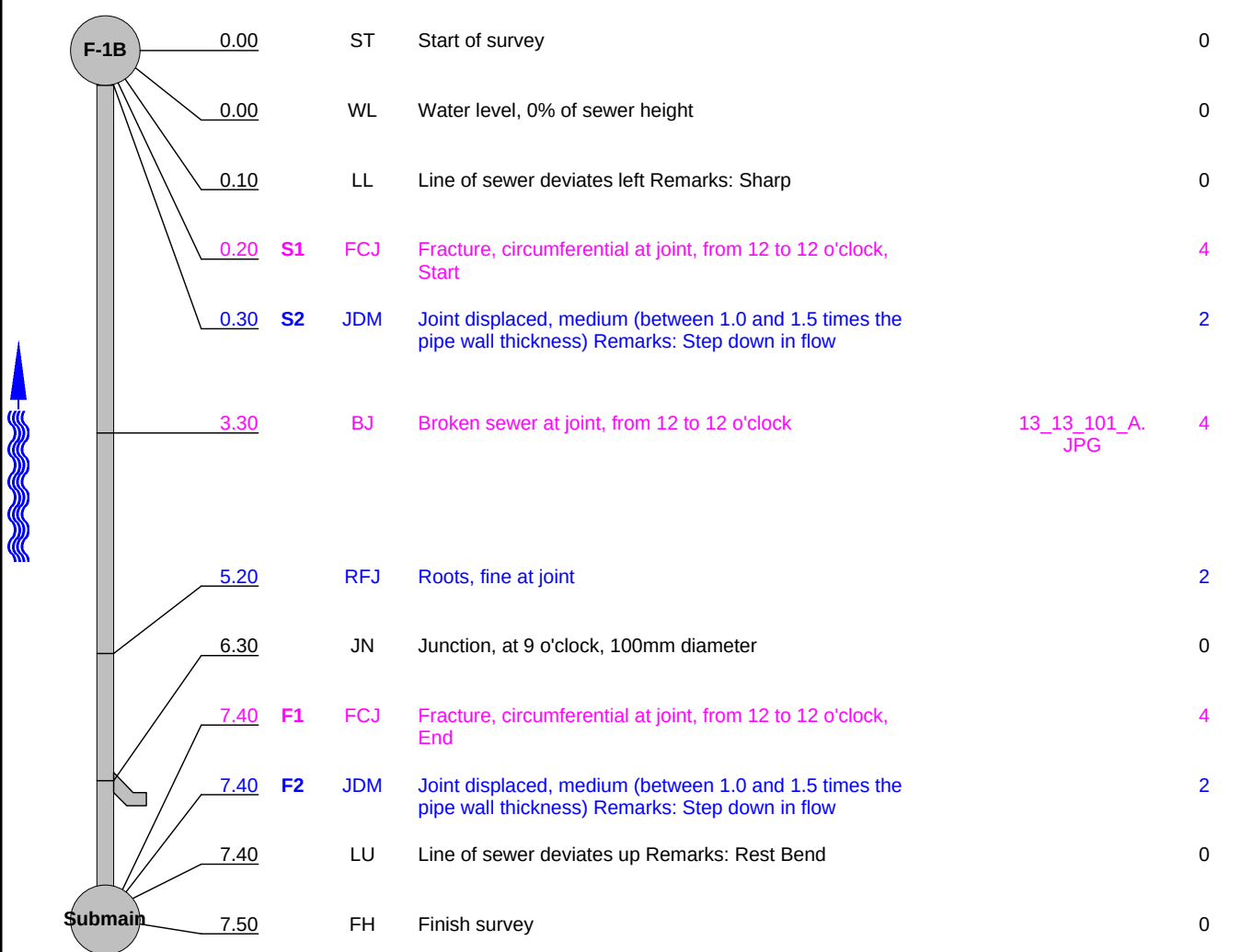
Email: info@sanddservices.co.uk

Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 12	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : yes	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F-1B (U/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Submain F-1B
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 7.50 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:60	Position	Code	Observation	VCR	Photo	Grade			
	0.00	ST	Start of survey			0			
	0.00	WL	Water level, 0% of sewer height			0			
	0.10	LL	Line of sewer deviates left Remarks: Sharp			0			
	0.20	S1	FCJ Fracture, circumferential at joint, from 12 to 12 o'clock, Start			4			
	0.30	S2	JDM Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step down in flow			2			
	3.30	BJ	Broken sewer at joint, from 12 to 12 o'clock		13_13_101_A.JPG	4			
	5.20	RFJ	Roots, fine at joint			2			
	6.30	JN	Junction, at 9 o'clock, 100mm diameter			0			
	7.40	F1	FCJ Fracture, circumferential at joint, from 12 to 12 o'clock, End			4			
	7.40	F2	JDM Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step down in flow			2			
	7.40	LU	Line of sewer deviates up Remarks: Rest Bend			0			
	7.50	FH	Finish survey			0			
	STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total
0	0	0	0	1	0	0	0	0	1



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Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 12	PLR suffix : X
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Photo: 13_13_101_A.JPG
 3.3m, Broken sewer at joint, from 12 to 12 o'clock



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Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 13	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F-1C (U/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Submain F-1C 0.6
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 0.30 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50	Position	Code	Observation	VCR	Photo	Grade
Depth: 0.6						
	0.00	ST	Start of survey		14_14_108_A.JPG	0
	0.00	WL	Water level, 0% of sewer height			0
	0.09	LR	Line of sewer deviates right Remarks: Sharp			0
	0.10	S1 DES	Debris silt, 5% cross-sectional area loss, Start Remarks: Pushed Up In Front Camera Line Needs Cleaning			
	0.30	SA	Survey abandoned Remarks: Unable to pass			0

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



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Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 13	PLR suffix : X
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Photo: 14_14_108_A.JPG
 0m, Start of survey



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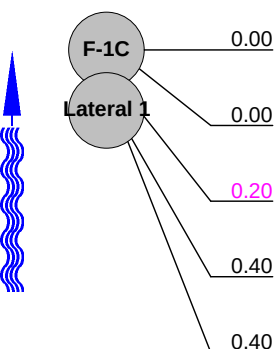
Email: info@sanddservices.co.uk

Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 14	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F-1C (U/S) Lateral 1	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 1 F-1C 0.6
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 0.40 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50	Position	Code	Observation	VCR	Photo	Grade
Depth: 0.6						
	F-1C	0.00	ST	Start of survey		0
	Lateral 1	0.00	WL	Water level, 0% of sewer height		0
		0.20	FM	Fractures, multiple, from 12 to 12 o'clock		4
		0.40	LU	Line of sewer deviates up Remarks: Rest Bend		0
		0.40	FH	Finish survey		0



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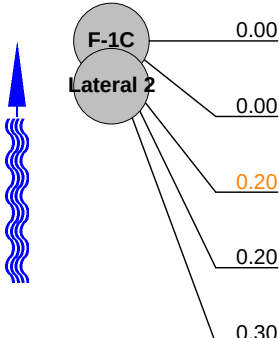
Email: info@sanddservices.co.uk

Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 15	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F-1C (U/S) Lateral 2	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Lateral 2 F-1C 0.6
Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 0.30 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50	Position	Code	Observation	VCR	Photo	Grade
Depth: 0.6						
	0.00	ST	Start of survey			0
	0.00	WL	Water level, 0% of sewer height			0
	0.20	FC	Fracture, circumferential, from 12 to 12 o'clock			3
	0.20	LU	Line of sewer deviates up Remarks: Rest Bend			0
	0.30	FH	Finish survey Remarks: Connection To Gully			0

STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
1	40	133.33	40	3	0	0	0	0	1



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Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 16	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall F-1C (D/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	F-1C 0.60 Submain
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Use: Year laid : Purpose : Total length :	Foul Future capital inc Drainage Area Planning 16.10 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
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Comment :	Finish Cctv of Foul Drains
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1:135	Position	Code	Observation	VCR	Photo	Grade			
Depth: 0.60									
	0.00	ST	Start of survey			0			
	0.00	WL	Water level, 0% of sewer height			0			
	0.10	LL	Line of sewer deviates left Remarks: Sharp			0			
	0.20	S1	FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock, Start	17_17_128_A.JPG	4			
	15.90	F1	FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock, End		4			
	15.90	MH	Manhole Remarks: M/H(F)No 1B			0			
	16.10	FH	Finish survey			0			
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



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 Unit 1, Westford
 Chard Junction
 Tel: 01460 221442
 Fax:

Email: info@sanddservices.co.uk

Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 16	PLR suffix : X
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Photo: 17_17_128_A.JPG
 0.2m, Fracture, circumferential at joint, from 12 to 12 o'clock,
 Start



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Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 17	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall S--1 (D/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	S--1 0.60 Submain
---	---	---	--	--

Use: Year laid : Purpose : Total length :	Surface water Future capital inc Drainage Area Planning 18.90 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay
--	--	--	---

Comment :	Start Cctv of Storm Drains
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1:150	Position	Code	Observation	VCR	Photo	Grade
Depth: 0.60						
		ST	Start of survey			0
		WL	Water level, 0% of sewer height			0
		S2	FCJ Fracture, circumferential at joint, from 12 to 12 o'clock, Start			
		S1	DES Debris silt, 10% cross-sectional area loss, Start			3
		JN	Junction, at 9 o'clock, 100mm diameter			0
		F1	DES Debris silt, 10% cross-sectional area loss, End			3
		JN	Junction, at 9 o'clock, 100mm diameter			0
		S3	LD Line of sewer deviates down, Start Remarks: Sharp		18_18_144_A.JPG	0
		JDM	Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step down in flow			3
		F3	LD Line of sewer deviates down, End Remarks: Sharp		18_18_146_A.JPG	0
		JDL	Joint displaced, large (over 1.5 times the pipe wall thickness) Remarks: Step up in flow		18_18_147_A.JPG	3
		SA	Survey abandoned Remarks: Unable to Pass pipe reduces in size			0



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Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 17	PLR suffix : X
---------------------------------------	--	-----------------------------	-------------------------------	--------------------------



Photo: 18_18_144_A.JPG
15.7m, Line of sewer deviates down, Start



Photo: 18_18_146_A.JPG
18.3m, Line of sewer deviates down, End



Photo: 18_18_147_A.JPG
18.8m, Joint displaced, large (over 1.5 times the pipe wall thickness)



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Inspection report

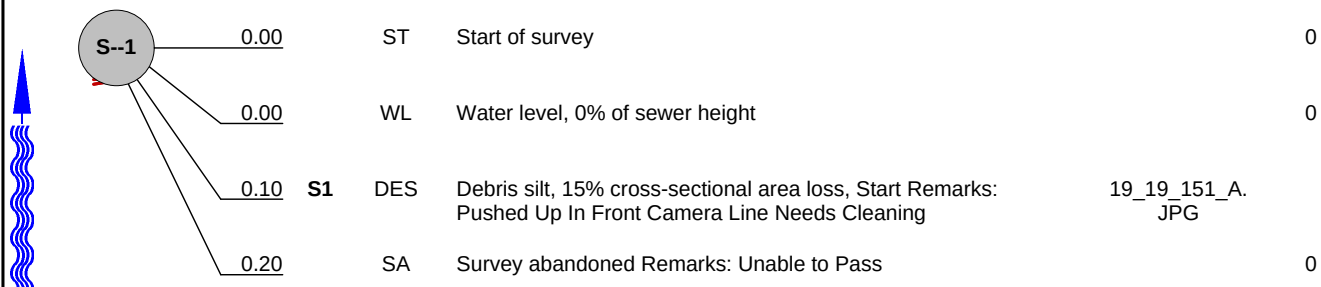
Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 18	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : no	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall S--1 (U/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Submain S--1 0.61
Use: Year laid : Purpose : Total length :	Surface water Future capital inc Drainage Area Planning 0.20 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:50 **Position** **Code** **Observation** **VCR** **Photo** **Grade**

Depth: 0.61



STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



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Inspection pictures

Place : Eastleigh Hampshire	Road : Bishopstoke Memorial Hall	Date : 11/04/2019	Section number : 18	PLR suffix : X
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Photo: 19_19_151_A.JPG

0.1m, Debris silt, 15% cross-sectional area loss, Start



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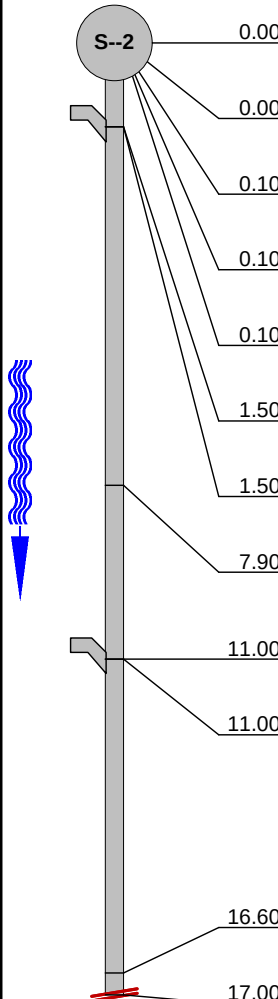
Email: info@sanddservices.co.uk

Inspection report

Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 19	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : yes	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall S--2 (D/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	S--2 0.60 Submain
Use: Year laid : Purpose : Total length :	Surface water Future capital inc Drainage Area Planning 17.00 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:135	Position	Code	Observation	VCR	Photo	Grade			
Depth: 0.60									
	0.00	ST	Start of survey			0			
	0.00	WL	Water level, 0% of sewer height			0			
	0.10	S1	DES Debris silt, 10% cross-sectional area loss, Start Remarks: Pushed Up In Front Camera						
	0.10	S2	GO General observation, Start Remarks: Lens Steaming Up						
	0.10	S3	FCJ Fracture, circumferential at joint, from 12 to 12 o'clock, Start						
	1.50	JN	Junction, at 3 o'clock, 100mm diameter			0			
	1.50	WL	Water level, 10% of sewer height Remarks: Standing			0			
	7.90	WL	Water level, 0% of sewer height			0			
	11.00	JN	Junction, at 3 o'clock, 100mm diameter			0			
	11.00	S4	JDM Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step up in flow						
	16.60	WL	Water level, 95% of sewer height Remarks: Unable to See			0			
17.00	SA	Survey abandoned Remarks: Unable to Pass			0				
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1



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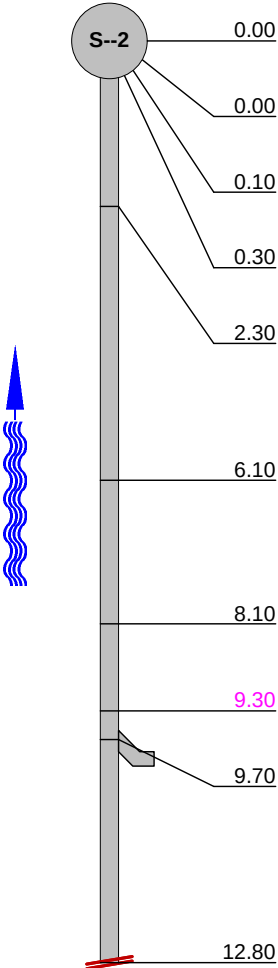
Email: info@sanddservices.co.uk

Inspection report

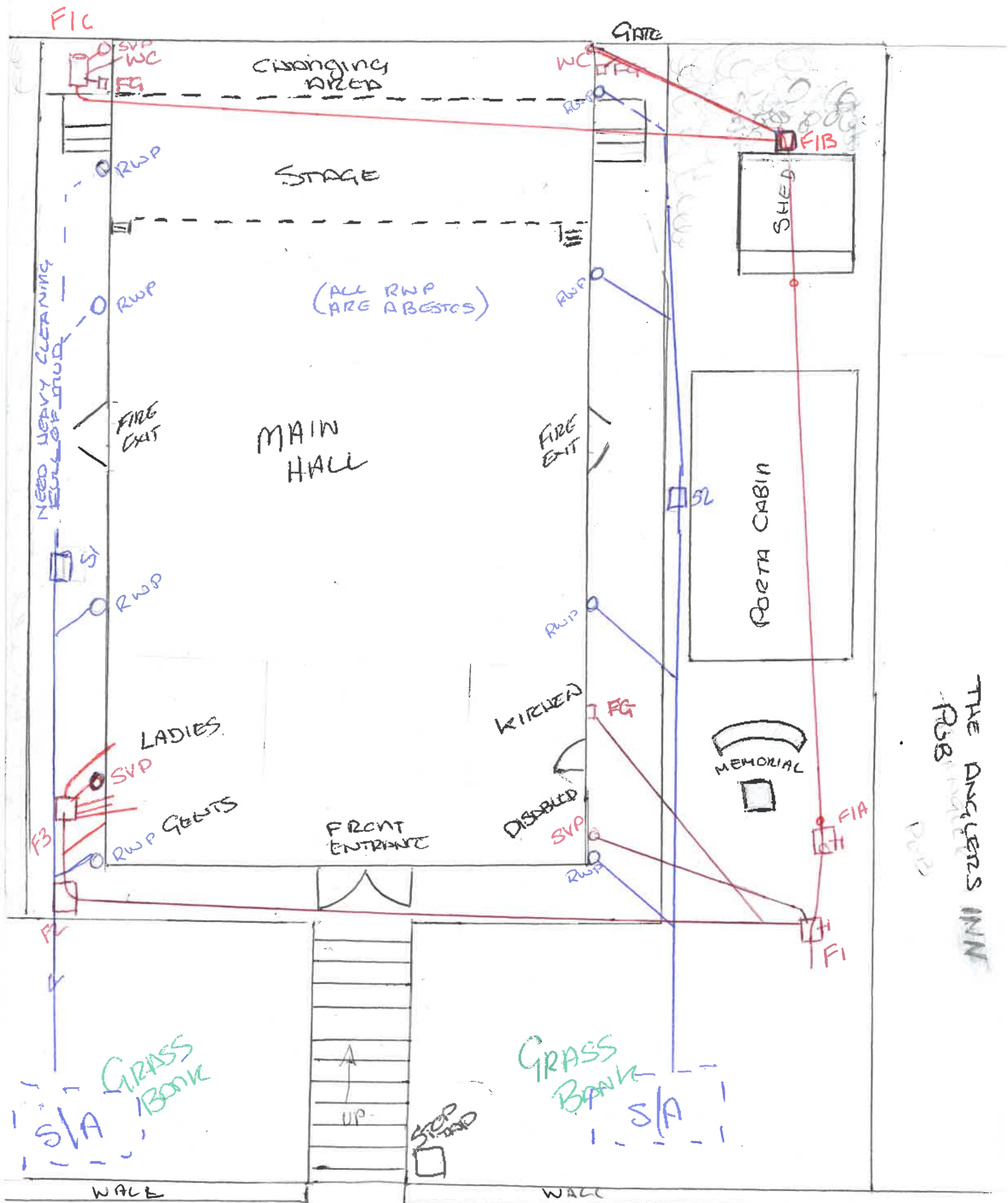
Date : 11/04/2019	Job number : 17951	Weather : Dry	Sewer category:	Section number : 20	PLR suffix : X
Present : USB Foul & Storm 1	Vehicle : HN 67 YWH (NC)	Camera : P/Rod 1 (NC)	Preset :	Cleaned : yes	Operator : Norman

Place : Road : Location Inspection	Eastleigh Hampshire Bishopstoke Memorial Hall S--2 (U/S) Submain	Location details: Catchment: Tape number : Pipe length :	U/S MH : U/S Depth : D/S MH : D/S Depth :	Submain S--2 0.6
Use: Year laid : Purpose : Total length :	Surface water Future capital inc Drainage Area Planning 12.80 m	Pipe shape : Pipe size : Pipe material : Lining :	Circular 100 mm Vitrified clay	

Comment :

1:105	Position	Code	Observation	VCR	Photo	Grade			
Depth: 0.6									
	0.00	ST	Start of survey			0			
	0.00	WL	Water level, 0% of sewer height			0			
	0.10	S1	JDM Joint displaced, medium (between 1.0 and 1.5 times the pipe wall thickness) Remarks: Step up in flow						
	0.30	WL	Water level, 10% of sewer height Remarks: Standing			0			
	2.30	WL	Water level, 0% of sewer height			0			
	6.10	WL	Water level, 5% of sewer height Remarks: Standing			0			
	8.10	S2	DES Debris silt, 5% cross-sectional area loss, Start Remarks: Pushed Up In Front Camera						
	9.30	FCJ	Fracture, circumferential at joint, from 12 to 12 o'clock			4			
	9.70	JN	Junction, at 9 o'clock, 100mm diameter			0			
	12.80	SA	Survey abandoned Remarks: Unable to Pass Silt Need Cleaning			0			
STR no def	STR peak	STR mean	STR total	STR grade	SER no def	SER peak	SER mean	SER total	SER grade
0	0	0	0	1	0	0	0	0	1

PAVILION AREA



THE ANCIENTS INN
R38

SOAKAWAYS HAVE
DRAIN OFF THROUGH
PERFORATION HOLES IN WALL
ON TO FOOTPATH

NOTE! STORM DRAIN EITHER SIDE
OF BUILDING APPEAR TO
DISCHARGE TO SOAK AWAY



**COMPLETE
DRAIN CARE
AND REPAIR**



CCTV Survey Summary & Recommendations

Unit 1, Westford, Chard Junction, Somerset. TA20 4QT.

Tel 01460 221442 www.sanddservices.co.uk Email info@sanddservices.co.uk

Client:	Eastleigh Borough Council, Eastleigh House, Upper Market Street, Eastleigh, Hampshire, SO50 9YN		
Site:	Bishopstoke Memorial Hall, 17 Riverside, Eastleigh, Hampshire, SO50 6LQ		
Task:	CCTV of Site Drainage		
Ref:	SS/N/17951	Date	11042019

We carried out a CCTV Survey to visually evaluate the structural condition of the accessible site drainage. We did not undertake any other method of testing to determine the condition. Do not use this report for design or costing purposes without confirming measurement on site.

The survey revealed the following. Next to each, where required, we have highlighted our preferred method of renovation/repair designed to not only be cost effective, but to also cause the least disturbance and upheaval to both the property and the environment.

1. F2 downstream to F1. Substantial damage requires attention. The drain is fractured though out and has previously been poorly repaired. There is a junction at 12.7 metres from the kitchen gully. This junction is fractured so it is likely that this drain also has further damage. Replace the kitchen gully then renovate both drains with CIPP liner.
2. F2 to F3 fractures. Install a CIPP liner. The junction in the middle appears sound, no allowance made.
3. F3 upstream fractures. Install CIPP liner
4. F3 lateral 1 no work required
5. F3 lateral 2 no work required
6. F3 lateral 3 no work required
7. F3 lateral 4 it appears no work required
8. F1 downstream fractures throughout. Install CIPP liner at least to boundary
9. F1 lateral 2 no work required
10. F1a to F1 fractures install a CIPP liner
11. F1A upstream to F1B has many cracks and fractures but none to serious so no work required immediately
12. F1B upstream fractured and broken significant damage install a CIPP liner and replace the gully.
13. F1C upstream no work required
14. F1C lateral 1 fractured install a CIPP liner
15. F1C lateral 2 fractured replace
16. F1c downstream to F1B (lateral) under building cracks and fractures install a CIPP liner

This is the end of the foul drainage system. The cost for the repair recommended as required at this time £8,951 + vat.

Please note: There are many types of CIPP liners and resins, all of which offer different properties and the correct one for the task would be chosen depending on the requirements of the site and specification as no two jobs are the same.

All CIPP liners use the existing pipe or drain as the host and the internal wall of it as a former or mould. This means that irregularities and anomalies in the wall of the host pipe will show in the liner therefore the completion recording may show a fully functioning system, but not necessarily a perfectly smooth surface.

The type of high-performance heat cure Epoxy and Polyurethane resin CIPP liners we use are, due to their inherent strengths, chemical resistance and minimal environmental impact etc. approved for use by water companies for use in main sewers. Because of this and the accelerated long-term testing data available from the manufactures, we are happy to offer a fifteen (15) year guarantee (in normal use) on all liners installed by our crews in storm & waste water drains and sewers.

The following is the storm system we were able to survey. You can see from this that the drains are not in good condition but unfortunately as these we believe go to soakaway in the front of the property we are not able to clean properly without having a suction tanker on site to uplift the large amounts of silt as to wash it through would cause further damage to the soakaway.

- 17. S1 downstream badly fractured and a very poorly botched repair at 18.3 metres prevents going further
- 18. S1 upstream very heavy silt prevents inspection
- 19. S2 downstream unable to survey
- 20. S2 upstream unable to survey

To have a suction tanker/jetter and CCTV on site together would cost £880 + vat plus allow a maximum of £180 for any waste disposal.

With this cleaning completed we would be able to survey the storm properly and price remedials from that.

I trust all is clear and meets with your approval but if you have any questions please call.

Assuring you of our closest attention.



teve Sampson MD

HIGH RENOVATION NEEDS – THERE IS MUCH TO DO

In most countries the total length of the private and industrial drainage system is much greater than the public sewage system. According to investigations in various regions most of the domestic drainages are old and many pipes are damaged.



THE PROBLEMS

Exfiltration:

Through defective pipes wastewater can enter into the ground. The discharge of pollutants into the ground is illegal and contermination of soil and groundwater must be avoided.

Infiltration:

If clean groundwater and rainwater enters faulty sewage pipes, it must be cleaned at the

treatment plant as well and thus leads to the significant increase in sewage charges.

MAINTAINING THE VALUE OF YOUR PROPERTY

Leaking pipes may cause backwater during rain events, wet basements, blockage or even a collapse of the pipes. If the

damages are recognized in time, they can be removed easily in order to prevent costly consequential damages.

With the proven BRAWOLINER®-system, the rehabilitation can be carried out quickly, permanently and inexpensively.

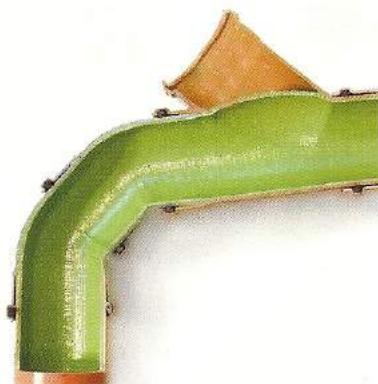
BRAWOLINER®-REHABILITATION

The BRAWOLINER®-process was developed specifically for the rehabilitation of sewage pipes in diameters from 2' to 9' and offers many advantages compared to traditional remediation:



- ➔ Rapid rehabilitation without excavation, dirt and noise
- ➔ Up to 50% cheaper than open construction
- ➔ Suitable for almost all damages and all pipe materials
- ➔ Durability of over 50 years

All these advantages established BRAWOLINER® as an ideal solution for residential and industrial pipes.



Multiple bends of up to 90° and two changes in pipe diameter possible



Fast, easy and affordable renovation of pipe unions!

BRAWOLINER®-INSTALLATION PROCESS

Easy, fast and reliable.

The BRAWOLINER®-process is a no dig rehabilitation solution. Excavation work or uncovering the faulty pipes is not necessary. This saves not only time but money.

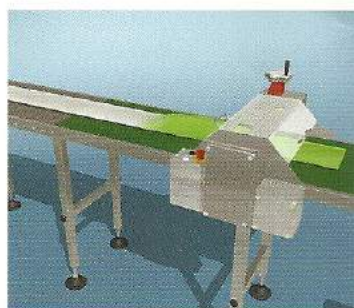
Before the installation, the flexible BRAWOLINER® will be impregnated with epoxy resin and then inserted in the defective pipe by using air or water pressure.

BRAWOLINER® lines the pipe completely and eliminates all existing and potential damages.

The result is a completely new and dense tube in the old pipe with significantly better static properties.



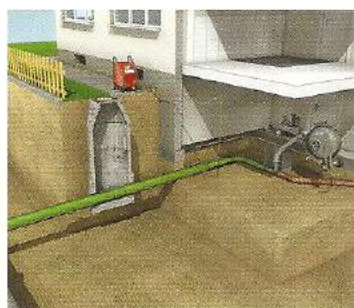
Mixing of resin and hardener



Impregnation of the liner



Inversion with a pressure drum



Result after curing: a new pipe in the old pipe



BRAWOLINER® IS QUALITY

2 x IKT Test winner

Exactly like our proven BRAWOLINER® the new XT liner also won the IKT product test in standard and in extreme situations.

During the extensive functional check BRAWOLINER®XT received the best results in all assessment criterias (effectiveness, density and load-carrying capacity of the structure).

DIBt and Thames Water approved

BRAWOLINER® is approved by the DIBt (German Institute of Civil Engineering) and other relevant international organisations. As the first liner system BRAWOLINER® received the DIBt approval for the rehabilitation of small dimension sewerage systems in 2004. The certification demonstrates the suitability for rehabilitation and regular checks ensure consistently high quality. Furthermore it passed the Thames Water Infiltration Test.

PIPE REHABILITATION IS A MATTER OF TRUST!

The quality of a rehabilitation measure depends on the material and the servicing rehabilitation company. Regular training, appropriate installation equipment and motivated people characterize a good service company.

S&D SERVICES

COMPLETE DRAIN CARE AND REPAIR

SWD Ltd trading as S & D Services, Unit 1, Westford, Chard (Junction)
Somerset. TA20 4QT, Tel: 0800 02 86 041, Fax: 01460 221447,
E-mail: info@sanddservices.co.uk, www.sanddservices.co.uk