Flood Risk

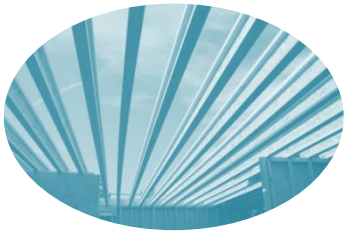
Report Rev F

Highmoor Farm, Clitheroe

V H Land Partnerships

18522

Jan 2021



Tel: (01423) 522293
info@topping-engineers.com
Aire House, 12 Victoria Avenue
Harrogate HG1 1ED
www.topping-engineers.com

CONTENTS PAGE

TABLES

FIGURES

APPENDICES

1.0 INTRODUCTION

1.1 This Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. The FRA has been produced on behalf of V H Land Partnerships, in respect of a planning application for the proposed residential development at Highmoor Farm, Clitheroe.

Table 1.1 - Site Summary

Site Name	Highmoor Farm
Location	Land forming part of Highmoor Park, Clitheroe, BB7 1JB
NGR (approx.)	375176, 441565
Application Site Area (ha)	5.361ha (Assumed 50% developable area)
Development Type	Residential
NPPF Vulnerability	Low
EA Flood Zone	Flood Zone 1&2
EA Office	Lancashire
Local Planning Authority	Ribble Valley Borough Council

Sources of Data

1.2 The report is based on the following information:

(i) Site Location Plan by Vernon & Co **(Appendix A)**
(ii) Environment Agency information
(iii) Lancashire Strategic Flood Risk Assessment

Existing Site

1.3 The site in question is located near the Lancashire town of Clitheroe. The site lies to the east of the town and is approximately 5.361ha in size. The developable area lies 0.855km away from Clitheroe town centre. The west of the site is bounded by residential areas, whereas the other boundaries of the site are agricultural land.

1.4 Upon inspection it can be seen that the high point of the site is where the farm is. The site falls away to the north and south of the farm.

1.5 There are two watercourses which run along the north and south boundaries of the site. The watercourse at the south of the site flows towards Shaw Brook. The watercourse at the north of the site flows towards Mearley Brook.

Figure 1.1 - Site Location

Proposed Development

1.6 The proposed development is set to consist of a new residential scheme designed with access roads, driveways and landscaped areas. The development will also comprise of relevant infrastructure to help drain the site.

Flood Risk Planning Policy

National Planning Policy Framework

1.7 The NPPF[1] sets out the Government's national policies on different aspects of land use planning in England in relation to flood risk. Planning Practice Guidance is also available online[2].

1.8 The Planning Practice Guidance sets out the vulnerability to flooding of different land uses. It encourages development to be located in areas of lower flood risk where possible and stresses the importance of preventing increases in flood risk off site to the wider catchment area.

1.9 The Planning Practice Guidance also states that alternative sources of flooding, other than fluvial (river flooding), should also be considered when preparing a Flood Risk Assessment.

[1] National Planning Policy Framework, CLG, July 2018
[2] Planning Practice Guidance. http://planningguidance.planningportal.gov.uk/.

1.10 This Flood Risk Assessment is written in accordance with the NPPF and the Planning Practice Guidance.

Flood Zones

1.11 The Flood Zone Map for Planning has been prepared by the Environment Agency. This identifies areas potentially at risk of flooding from fluvial or tidal sources. An extract from the mapping is included as **Figure 1.2**.

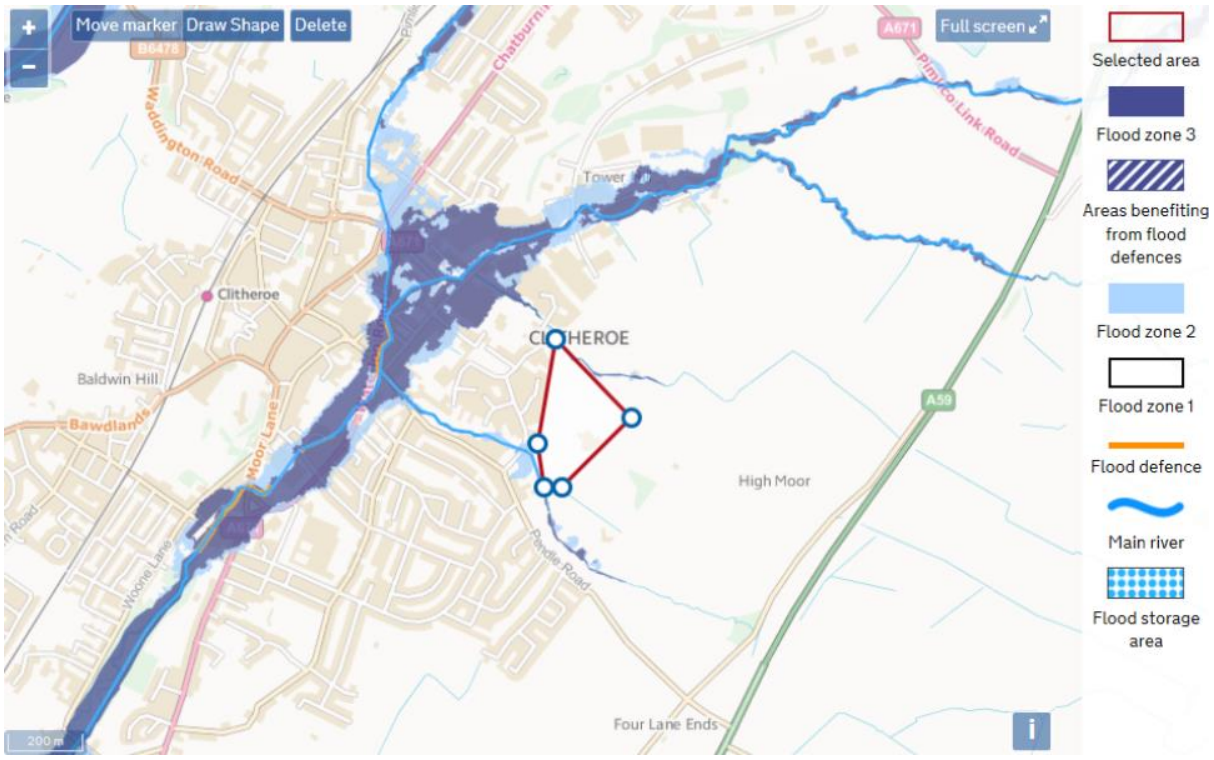


Figure 1.2 - Environment Agency Flood Zone Mapping

1.12 The site is shown to be located mainly within Flood Zone 1 (Low Probability) therefore the site is considered to be at low risk of flooding. Flood Zone 1 is defined as land assessed as having less than a 0.1% annual probability of flooding from fluvial and tidal sources. However, a small area of the site is within Flood Zone 2 (Medium Probability) this is defined as land assessed as having 0.1% to 1.0% of flooding annually from fluvial and tidal sources.

1.13 Table 2 of the Planning Practice Guidance classifies land use. Under these classifications the proposed residential development is considered to be 'More Vulnerable' to the potential impacts of flooding.

1.14 Table 3 of the Planning Practice Guidance identifies that any development is considered appropriate within Flood Zone 1.

Flood Risk Vulnerability Classification	Essential Infrastructure	Water Compatible	Highly Vulnerable	More Vulnerable	Less Vulnerable
Flood Zone 1	✓	✓	✓	✓	✓
Flood Zone 2	✓	✓	Exception test required	✓	✓
Flood Zone 3a	Exception test required	✓	**x**	Exception test required	✓
Flood Zone 3b	Exception test required	✓	**x**	**x**	**x**

Other Relevant Policy and Guidance

Strategic Flood Risk Assessment

1.15 The Lancashire Strategic Flood Risk Assessment[3] (SFRA) was prepared to review flood risks on a much wider scale to assess the potential for new development within the study area. The SFRA was used as an evidence base for Local Development Frameworks for each Local Planning Authority.

1.16 The SFRA therefore aims to bring together all available flood risk information for a variety of sources to provide a robust assessment. The SFRA therefore is useful for this site-specific FRA by highlighting available data and instances of known flooding in the area. Although written under the guidance of Planning Policy Statement 25, the SFRA is still considered to include relevant information.

2.0 POTENTIAL SOURCES OF FLOOD RISK

2.1 The table below identifies the potential sources of flood risk to the site, and the impacts which the development could have in the wider catchment prior to mitigation. These are discussed in greater detail in the forthcoming section. The mitigation measures proposed to address flood risk issues and ensure the development is appropriate for its location are discussed within **Section 3.0**.

Table 2.1 - Pre-Mitigation Sources of Flood Risk

Flood Source	Potential Risk				Description
	High	Medium	Low	None	
Fluvial		X			The site is located in flood zone 2.
Tidal				X	There are no tidal influences effecting the site.
Canals				X	None present.
Groundwater			X		Ground conditions are not conducive to fluctuating groundwater levels.
Reservoirs and waterbodies				X	The site is shown to fall outside of the catchment for reservoir and waterbodies flooding.
Sewers			X		The site in question is higher than the surrounding sewers therefore there is a very low risk.
Pluvial runoff		X			An area of the site is within a high-risk area of surface water flooding.
Effect of Development on Wider Catchment			X		The impermeable area of the site is being increased however the surface water will be attenuated at greenfield run-off rates.

Fluvial Flood Risk

2.2 As previously mentioned, the site is shown to be within Flood Zone 1&2 and therefore poses a medium risk of flooding to the development.

2.3 The risk of flooding posed to the proposed development is low. This is because there are only two watercourses near the site that can pose a threat. However, the watercourses are at low points compared to the site and therefore pose a minimal risk. The small area of the site that is within flood zone 2 will not be developed on and therefore reduces the risk of this land of flooding.

2.4 Mitigation measures to address the residual risk posed by the watercourses surrounding the site are discussed within **Section 3.0** of this report.

Groundwater Flood Risk

2.5 Subject to completion of site investigation to confirm we would assume that natural ground water level is located well below the site surface and the nature of the strata means it is unlikely that there will be perched water above this level.

2.6 We therefore do not consider there is a risk of groundwater flooding affecting the development subject to final confirmation upon completion of suitable site investigation.

Flood Risk from Reservoirs & Large Waterbodies

2.7 Reservoir failure flood risk mapping has been prepared by the Environment Agency, this shows the largest area that might be flooded if a reservoir were to fail and release the water it holds. The map displays a worst-case scenario and is only intended as a guide. An extract from the mapping is included as **Figure 2.1**.

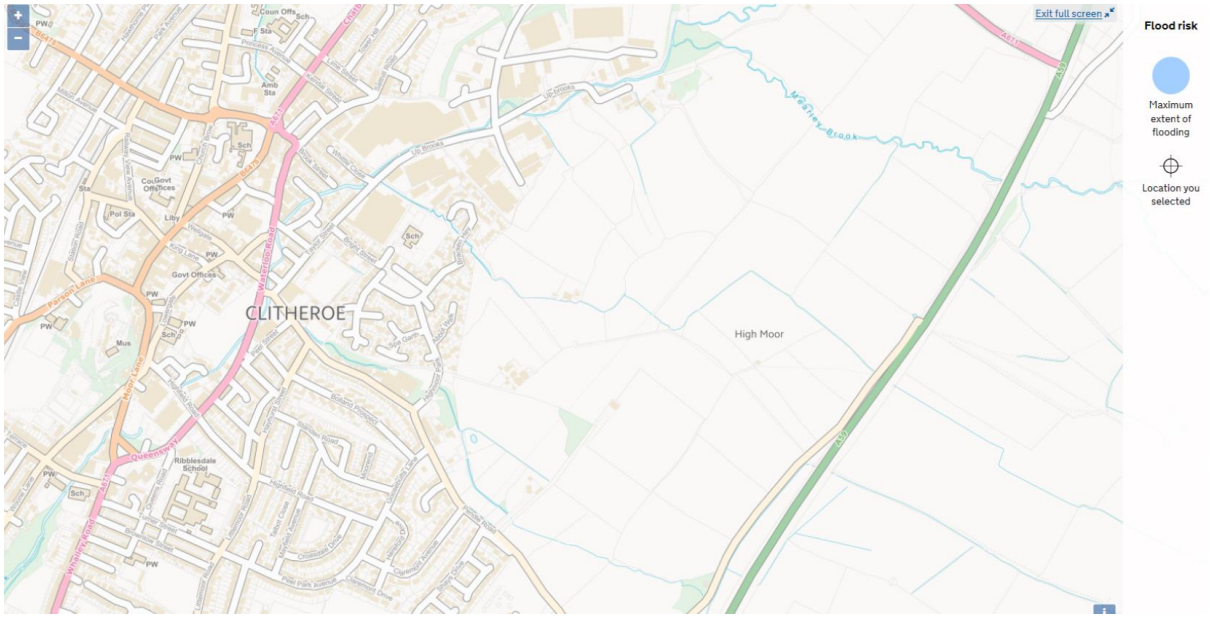


Figure 2.1 - Environment Agency Reservoir Failure Flood Risk Map

2.8 Mapping demonstrates the site and possible access routes are far removed from the flood extent associated with flooding from large reservoirs. A review of Ordnance Survey mapping shows that no areas or reservoir flooding encroach the site.

2.9 As such, there is considered to be no risk from reservoir flooding.

Flood Risk from Sewers

2.10 The site in question lies above any main roads which is potentially where any United Utilities sewers will lie.

2.11 As such, it is considered that there is no risk of flooding from sewers.

Pluvial Flood Risk

2.12 Risk of flooding from surface water mapping has been prepared by the Environment Agency, this shows the potential flooding which could occur when rainwater does not drain away through the normal drainage systems or soak into the ground but lies on or flows over the ground instead. An extract from the mapping is included as **Figure 2.2**

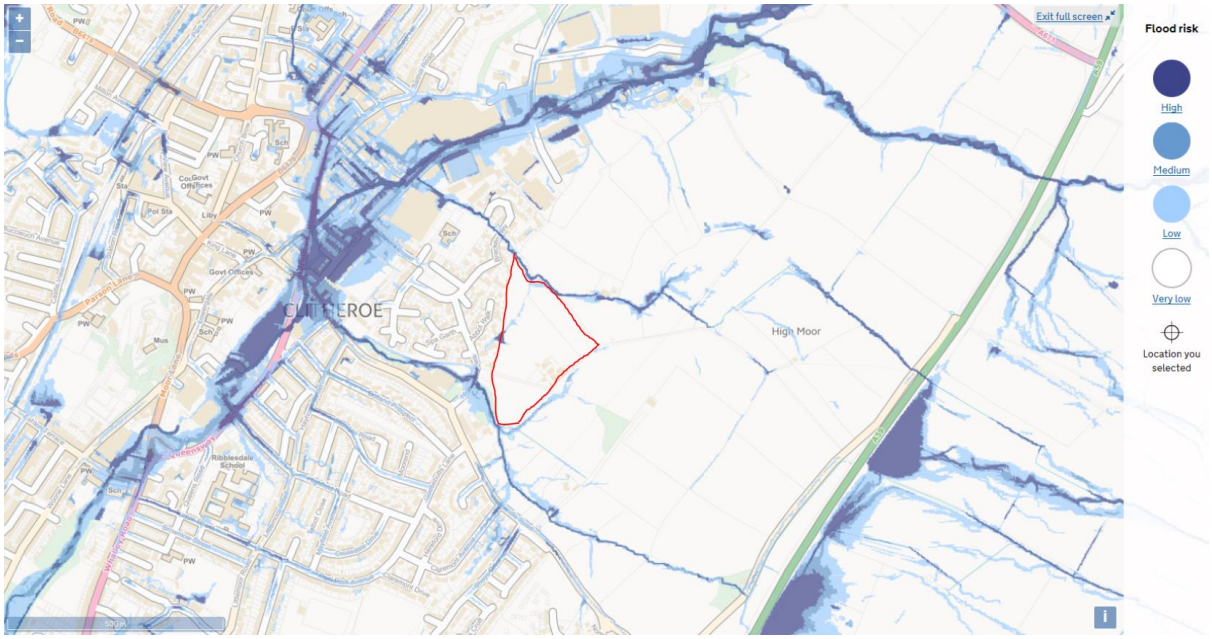


Figure 2.2 - Risk of Flooding from Surface Water Mapping

2.13 The mapping produced by the Environment Agency shows that there are several small areas of the site that are at risk of surface water flooding. These areas will be attenuated and therefore be drained correctly. It is also noted that the site boundary has been adjusted to be removed from any areas of surface water flooding from the north and south of the site.

2.14 Therefore, the risk posed by this threat is considered negligible.

Effect of Development on Wider Catchment

Development Drainage

2.15 The current site is considered to be greenfield. Therefore, the amount of impermeable area that is going to be introduced onto the site will cause a large-scale change. Furthermore, this will increase the amount of potential surface water run-off coming from the site. However, this increase will pose a minimal risk to the wider catchment as the surface water will be attenuated and all surface water will be drained into suitable systems at greenfield run off rates.

3.0 FLOOD RISK MITIGATION

3.1 **Section 2.0** has identified the sources of flooding which could potentially pose a risk to the site and the proposed development. This section of the FRA sets out the mitigation measures which are to be considered within the proposed development detail design to address and reduce the risk of flooding to within acceptable levels.

Site Arrangements

Sequential Arrangement

3.2 The Flood Zone mapping shows the site to be located within flood zone 1 & 2

Finished Levels

3.3 Given the site's location within Flood Zone 1, there are no specific requirements for finished floor levels with regard to flood risk. These levels may be set in accordance with wider design requirements.

3.4 As the areas of the site within Flood Zone 2 are not being developed on there is no requirement for the floor levels due to this flood zone.

3.5 Please see Appendix E with regards to the flow exceedance plan that is caused by the nearby beck.

3.6 It is requested that the 1in100 year storm + 35% climate change is assessed for this site and that safe access and egress to the site. Appendix E shows that there will be 80mm of flooding above a small section of the watercourse banks. The flow exceedance plan shows that this will fall away from the site entrance during this storm event.

3.7 When reviewing the flood volumes leaving the watercourse during this storm even it should be noted that the 80mm depth of flood water equates to a small volume of water and that the highway features and drainage will also aid with the removal of flood water.

Surface Water Drainage

3.8 The site is currently greenfield and the impermeable area on the site is being increased and therefore a suitable drainage strategy will be designed for the site.

- Usual drainage hierarchy applies. The method of infiltration must be assessed first however, Geological maps show that the site is based on mudstone which commonly has poor infiltration rates. Therefore, it is assumed that discharging surface water via infiltration is not viable for this site, subject to site testing.
- Secondly, there are two watercourses near the site. Due to the topography of the site the northern half of the site will discharge to the northern watercourse. Likewise, the southern half of the site will discharge to the southern watercourse.
- By using the IH124 method for 1.34ha (each half) of the site, which is being developed, the discharge rate has been calculated at 8.9l/s.
- By assuming 50% of the developable area will be impermeable the amount of storage required for the site is 855.8$m^{3.}$ This will cater for the 1 in 100-year storm + 30% climate change. There will need to be this value of storage for each half of the development.
- A suitable flow control device will be used to restrict the site to the previously mentioned discharge rate. Again, both parts of the site will require its own flow control device.

Foul Water Drainage

3.9 It is assumed that there is a United Utilities foul sewer in Highmoor road. Upon inspection it is believed that the southern area of the site will be able to discharge via a gravity connection into the Highmoor road foul sewer. After reviewing the site, it is likely that the northern area of the site will need pumping into the foul sewers in Bracken Hay where there is evidence of sewers. The pumping compound required would be 14m x 10m with a 15m no build zone around it. Following this, a third-party agreement would be required to make the connection. Both connections would be subject to S106 agreements with United Utilities.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 This Flood Risk Assessment (FRA) is compliant with the requirements set out in the National Planning Policy Framework (NPPF) and the associated Planning Practice Guidance. The FRA has been produced on behalf of V H Land Partnerships.

4.2 This report demonstrates that the proposed development is not at significant flood risk, and simple mitigation measures have been recommended to address any residual risks that may remain. The identified risks and mitigation measures are summarised within **Table 4.1**.

Table 4.1 - Summary of Flood Risk Assessment

Flood Source	Proposed Mitigation Measure
Fluvial	Site is shown to be in Flood Zone 1&2.
Impact of the Development	Strategic surface water drainage strategy prepared for wider development will ensure a sustainable approach to surface water management.

4.3 In compliance with the requirements of National Planning Policy Framework, and subject to the mitigation measures proposed, the development could proceed without being subject to significant flood risk. Moreover, the development will not increase flood risk to the wider catchment area as a result of suitable management of surface water runoff discharging from the site.

PREPARED BY

Tom Andrews

On Behalf of Topping Engineers

Appendix A

Site Location Plan

VERNON & Co.

HIGHMOOR PARK

KEY:

- PRIMARY VEHICLE ROUTES
- SECONDARY VEHICLE ROUTES
- PRIVATE DRIVES
- PROPOSED RESIDENTIAL DEVELOPMENT
- REAR BOUNDARIES TO DWELLINGS
- PROPOSED TREES & HEDGEROWS
- EXISTING HEDGEROWS / TREES TO BE RETAINED
- KEY NODAL SPACES WITHIN DEVELOPMENT
- KEY DWELLINGS IN PROMINENT POSITIONS
- PROPOSED PEDESTRIAN ROUTES
- EXISTING PUBLIC RIGHT OF WAY

1. PRIMARY VEHICLE ACCESS POINTS FROM HIGHMOOR PARK
2. RENOVATED COTTAGES
3. EXISTING ROADS / TRACK
4. AREA OF PUBLIC OPEN SPACE
5. PROPOSED ATTENUATION BASIN
6. FRONTAGE OVER RETAINED COTTAGES, RESPECTING THE SETTING
7. POTENTIAL CONNECTION TO FUTURE DEVELOPMENT

DEVELOPMENT SUMMARY:

GROSS SITE AREA: 12.34 AC / 5 HA

NETT DEVELOPABLE AREA: 8.97 AC / 3.63 HA

DWELLINGS ACHIEVABLE @ 30 - 35 DPH : 109 - 127

STEN ARCHITECTURE
STEN Architecture Ltd
Suite 4, Unit 1
Benton Office Park
Bennett Avenue
Horbury
WF4 5RA
Tel: 01924 669424
www.sten-architecture.co.uk

0 10 20 30 40 50

ILLUSTRATIVE MASTERPLAN | FEB 2020 | 1:1000 @ A2 HIGHMOOR FARM, CLITHEROE

Appendix B

IH124 and Storage Check

IH 124 Mean Annual Flood

Input

Return Period (years)	100	Soil	0.450
Area (ha)	50.000	Urban	0.000
SAAR (mm)	1000	Region Number	Region 10

Results	**l/s**
QBAR Rural	333.4
QBAR Urban	333.4
Q100 years	693.5
Q1 year	290.1
Q2 years	310.5
Q5 years	396.8
Q10 years	460.1
Q20 years	524.2
Q25 years	546.8
Q30 years	565.3
Q50 years	616.8
Q100 years	693.5
Q200 years	786.8
Q250 years	816.9
Q1000 years	1013.6

Summary of Results for 100 year Return Period (+30%)

Half Drain Time : 825 minutes.

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
15 min Summer	98.292	0.292	0.0	8.8	8.8	207.9	O K
30 min Summer	98.416	0.416	0.0	8.9	8.9	296.5	O K
60 min Summer	98.563	0.563	0.0	8.9	8.9	401.4	O K
120 min Summer	98.730	0.730	0.0	8.9	8.9	520.1	O K
180 min Summer	98.829	0.829	0.0	8.9	8.9	590.8	O K
240 min Summer	98.891	0.891	0.0	8.9	8.9	634.7	O K
360 min Summer	98.962	0.962	0.0	8.9	8.9	685.6	O K
480 min Summer	99.003	1.003	0.0	8.9	8.9	714.7	O K
600 min Summer	99.025	1.025	0.0	8.9	8.9	730.0	O K
720 min Summer	99.034	1.034	0.0	8.9	8.9	736.9	O K
960 min Summer	99.043	1.043	0.0	8.9	8.9	742.9	O K
1440 min Summer	99.035	1.035	0.0	8.9	8.9	737.6	O K
2160 min Summer	98.999	0.999	0.0	8.9	8.9	711.5	O K
2880 min Summer	98.950	0.950	0.0	8.9	8.9	676.8	O K
4320 min Summer	98.843	0.843	0.0	8.9	8.9	600.6	O K
5760 min Summer	98.713	0.713	0.0	8.9	8.9	508.3	O K
7200 min Summer	98.595	0.595	0.0	8.9	8.9	423.7	O K
8640 min Summer	98.497	0.497	0.0	8.9	8.9	354.5	O K
10080 min Summer	98.417	0.417	0.0	8.9	8.9	296.8	O K
15 min Winter	98.328	0.328	0.0	8.9	8.9	233.6	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	86.439	0.0	206.8	29
30 min Summer	61.922	0.0	299.1	44
60 min Summer	42.451	0.0	421.0	72
120 min Summer	28.192	0.0	560.2	132
180 min Summer	21.829	0.0	650.8	190
240 min Summer	18.035	0.0	717.0	248
360 min Summer	13.660	0.0	814.3	366
480 min Summer	11.213	0.0	890.8	484
600 min Summer	9.609	0.0	953.4	600
720 min Summer	8.464	0.0	1006.7	684
960 min Summer	6.918	0.0	1093.6	800
1440 min Summer	5.189	0.0	1211.6	1058
2160 min Summer	3.879	0.0	1398.6	1476
2880 min Summer	3.148	0.0	1512.8	1900
4320 min Summer	2.344	0.0	1686.9	2732
5760 min Summer	1.904	0.0	1834.9	3520
7200 min Summer	1.621	0.0	1952.5	4248
8640 min Summer	1.423	0.0	2054.8	4928
10080 min Summer	1.275	0.0	2144.9	5640
15 min Winter	86.439	0.0	232.5	29

Summary of Results for 100 year Return Period (+30%)

Storm Event	Max Level (m)	Max Depth (m)	Max Infiltration (l/s)	Max Control (l/s)	Max Σ Outflow (l/s)	Max Volume (m³)	Status
30 min Winter	98.468	0.468	0.0	8.9	8.9	333.6	O K
60 min Winter	98.635	0.635	0.0	8.9	8.9	452.4	O K
120 min Winter	98.826	0.826	0.0	8.9	8.9	588.7	O K
180 min Winter	98.937	0.937	0.0	8.9	8.9	668.0	O K
240 min Winter	99.009	1.009	0.0	8.9	8.9	718.8	O K
360 min Winter	99.095	1.095	0.0	8.9	8.9	779.9	O K
480 min Winter	99.147	1.147	0.0	8.9	8.9	816.9	O K
600 min Winter	99.177	1.177	0.0	8.9	8.9	838.6	O K
720 min Winter	99.194	1.194	0.0	8.9	8.9	850.4	O K
960 min Winter	99.201	1.201	0.0	8.9	8.9	855.8	O K
1440 min Winter	99.186	1.186	0.0	8.9	8.9	845.3	O K
2160 min Winter	99.128	1.128	0.0	8.9	8.9	804.0	O K
2880 min Winter	99.051	1.051	0.0	8.9	8.9	748.6	O K
4320 min Winter	98.879	0.879	0.0	8.9	8.9	626.2	O K
5760 min Winter	98.664	0.664	0.0	8.9	8.9	472.8	O K
7200 min Winter	98.488	0.488	0.0	8.9	8.9	347.7	O K
8640 min Winter	98.357	0.357	0.0	8.9	8.9	254.7	O K
10080 min Winter	98.267	0.267	0.0	8.7	8.7	190.4	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
30 min Winter	61.922	0.0	335.5	43
60 min Winter	42.451	0.0	471.9	72
120 min Winter	28.192	0.0	627.6	130
180 min Winter	21.829	0.0	729.0	186
240 min Winter	18.035	0.0	803.0	244
360 min Winter	13.660	0.0	911.7	358
480 min Winter	11.213	0.0	996.9	472
600 min Winter	9.609	0.0	1066.4	584
720 min Winter	8.464	0.0	1125.1	694
960 min Winter	6.918	0.0	1219.0	896
1440 min Winter	5.189	0.0	1311.1	1120
2160 min Winter	3.879	0.0	1566.5	1588
2880 min Winter	3.148	0.0	1694.3	2052
4320 min Winter	2.344	0.0	1888.5	2952
5760 min Winter	1.904	0.0	2055.4	3744
7200 min Winter	1.621	0.0	2187.2	4400
8640 min Winter	1.423	0.0	2302.0	5024
10080 min Winter	1.275	0.0	2403.6	5656

Model Details

Storage is Online Cover Level (m) 100.000

Cellular Storage Structure

Invert Level (m) 98.000 Safety Factor 2.0
Infiltration Coefficient Base (m/hr) 0.00000 Porosity 0.95
Infiltration Coefficient Side (m/hr) 0.00000

Depth (m)	Area (m²)	Inf. Area (m²)	Depth (m)	Area (m²)	Inf. Area (m²)
0.000	750.0	750.0	1.300	0.0	954.0
1.200	750.0	954.0			

Hydro-Brake® Optimum Outflow Control

Unit Reference	MD-SHE-0135-8900-1200-8900
Design Head (m)	1.200
Design Flow (l/s)	8.9
Flush-Flo™	Calculated
Objective	Minimise upstream storage
Application	Surface
Sump Available	Yes
Diameter (mm)	135
Invert Level (m)	98.000
Minimum Outlet Pipe Diameter (mm)	150
Suggested Manhole Diameter (mm)	1200

Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.200	8.9
Flush-Flo™	0.357	8.9
Kick-Flo®	0.771	7.2
Mean Flow over Head Range	-	7.7

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

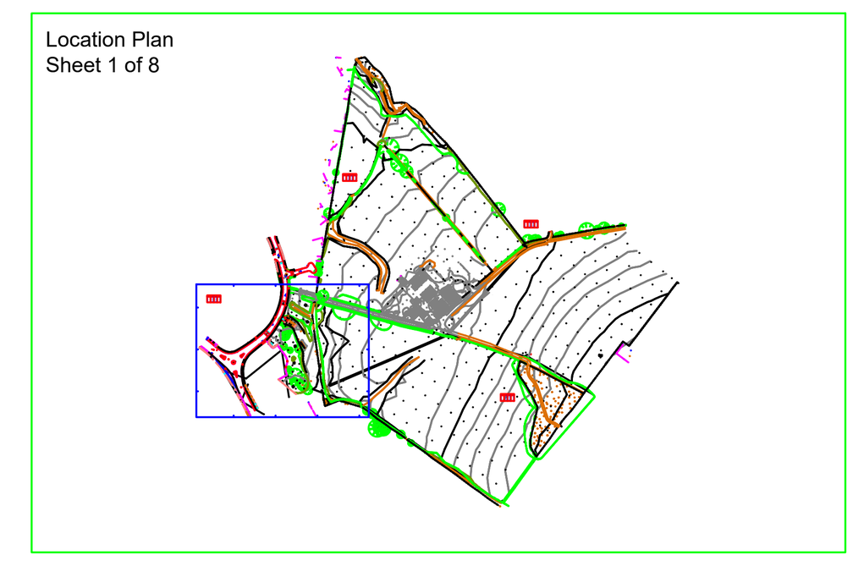
Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	4.9	1.200	8.9	3.000	13.7	7.000	20.6
0.200	8.4	1.400	9.6	3.500	14.8	7.500	21.2
0.300	8.8	1.600	10.2	4.000	15.7	8.000	21.9
0.400	8.8	1.800	10.8	4.500	16.6	8.500	22.6
0.500	8.7	2.000	11.3	5.000	17.5	9.000	23.2
0.600	8.4	2.200	11.8	5.500	18.3	9.500	23.8
0.800	7.4	2.400	12.3	6.000	19.1		
1.000	8.2	2.600	12.8	6.500	19.8		

Appendix C

Topographical Survey

SF- TO 1			
Code	Easting	Northing	Height
FM1	374940.036	441476.660	93.833
M2	374976.527	441514.125	93.279
M3	375011.525	441536.905	92.771
M4	375015.686	441572.951	92.870
M1A	374960.597	441482.045	93.585
M2A	375014.027	441485.897	93.477
M2B	375012.294	441478.798	93.440
M3A	374999.816	441538.226	92.832
EXIST1	375011.594	441552.557	92.680
M4A	375015.077	441585.462	93.087
M4B	375004.956	441587.432	93.317
EXIST2	375010.717	441598.861	93.500
N3L	375001.510	441605.755	93.793

Location Plan
Sheet 1 of 8



Site Surveying Services - A.M.I.C.E.S.
Suite 7
Grindleton Business Centre
Grindleton, Lancs
BB7 4DH
Tel: 01200 438320
Fax: 07092376338
www.sitesurvey.co.uk
Land / Engineering Surveyors

Setting Out & Control Surveys
Topographic/Volumetric Surveys
GPS Specialists using also
GPS Post Process to tie any site
to OS without trig point or BM
Construction Line Registered
TSA member

construction line

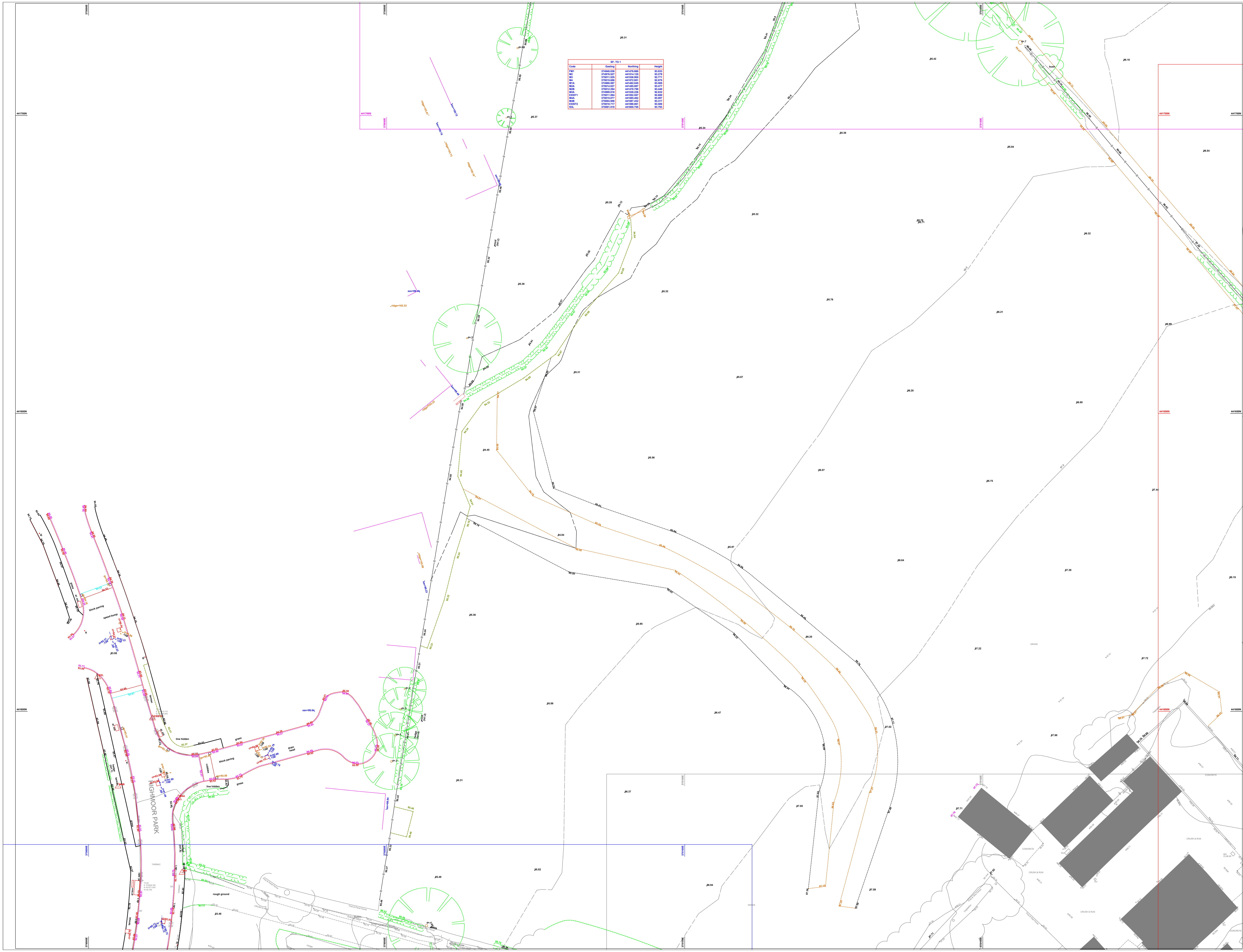
Client / Location: Vernon and Co
Land near Highmoor Farm, Highmoor, Clitheroe

All work to our standard terms
& conditions (see website)

THE SURVEY ASSOCIATION

Additional Comments:
To local grid based on ostn15/osgm15 all work to sss specification, some by gps, contact us regarding details

Drawing Number:	sss-8260	Revision: A	
Drawn By:	SS/MR	Checked By:	HW
Date:	18/09/2018	Scale:	1:200@ A0



SF- TO 1			
Code	Easting	Northing	Height
FM1	374940.036	441476.660	93.833
M2	374976.527	441514.125	93.279
M3	375011.525	441536.905	92.771
M4	375015.686	441572.951	92.870
M1A	374960.597	441482.045	93.585
M2A	375014.027	441485.897	93.477
M2B	375012.294	441478.798	93.440
M3A	374999.816	441538.226	92.832
EXIST1	375011.594	441552.557	92.680
M4A	375015.077	441585.462	93.087
M4B	375004.956	441587.432	93.317
EXIST2	375010.717	441598.861	93.500
N3L	375001.510	441605.755	93.793

deciduous tree
defined by one point at centre & one point on spread
d=.5
trunk radius as drawn
(girth size and position +/- 50mm)
station
trial pit
conifer tree (defined as above)
gate
bush
borehole
window sample

- note heights / points / lines all same colour
- e.g. for channel, all crosses / lines / heights are magenta

56.24
spot level

bottom of batter / wood / ridge / timber face / gutter
top of batter
break line / discontinuity
wall (see text nearby for height / width / type)
retaining wall (see text nearby for height / width / type)
channel (all levels at channel unless noted)
kerb levels (shown parallel to channel -)
railway
drain / river / canal
overhead lines / buildings (not surveyed unless specified)
concrete / ramp
building / stone
face of cladding / flower bed
canopy
verge
fence (see text nearby for height / width / type)
(panel / security / etc.)
columns / gridlines / conveyors / column face
brick
cycle lane / bus lane / white line (see text)
tanks / decking
hedge scaled to width
line may be as above, if just one edge
i.e. for level specific surveys both sides
measured not to show level change
(see text for type / height / width / etc)
path / window / door
track
contours
143
142.5
pipe line
bt cable
electric cable
E(R)
gas
tarmac
footpath

M
can't lift - can't lift
cl=65.23
il=59.78

- only manholes found on site during survey marked
- other manholes may be present but covered
- all invert levels taken where possible at main channel
- all surveys to our specification based on RICS (see website)
- some surveying done with GPS - please contact us regarding accuracy

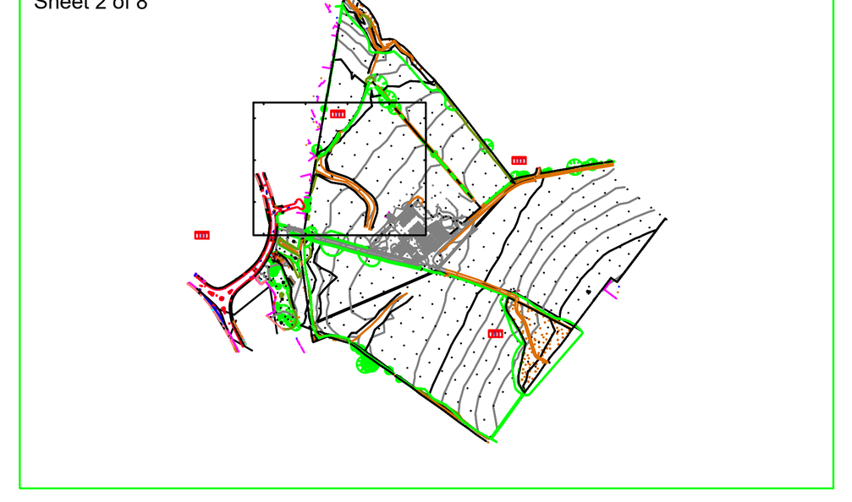
?	unknown cover
ac box	air conditioning box
av	air valve
bb	belisha beacon
bin	bin
bt	bt line
bt	bt manhole
bt	bt post
bt box	bt box
bm	OSBM
block	blocked manhole
bus shelter	bus shelter
cable	cable
can't lift	can't lift
ctv box	cable tv box
ctv	cable tv manhole
data mh	data manhole
dk	drop kerb
ds&g	down spout (with gulley)
dsr	recessed downspout
ds	building step back
	not surveyed
el. post	electric post
el.	electric
el. mh	electric manhole
el box	electric box
earth	earth strap/spike
f.hydr	fire hydrant
gas	gas
gas mh	gas man hole
gas box	gas box
gu=5.68	gulley top
guy	guy rope/stay
.5 dia	pipe diameter
light	light
lp	lamp post
lt	left turn arrow
peg	peg
phone box	phone box
post box	post box
pipe	pipe
planter	planter
post	post
rod. eye	rodding eye
rsj	steel rsj
rt	right turn
salt	salt box
security cam	security camera
seat	seat
si	sign - with indicative text
slab=3.19	slab (generally conc.)
st.tap	stop tap
str.	straight on
sv.	sluice valve
tactile paving	tactile paving
ts.	traffic signal
ts. mh	traffic signal manhole
ts.box	traffic signal box
trap	trap
utility	utility (unknown)
utility mh	utility manhole (unknown)
utility box	utility box (unknown)
water	water
water mh	water manhole
water box	water box
wo	wash out valve
tap	tap
parking meter	parking meter
cycle rack	cycle rack
cycle shelter	cycle shelter

STANDARD FENCE ABBREVIATIONS
b/w - barbed wire
c/l - chain link
cl/b - close boarded
c/i - corrugated iron
con/pan - concrete panel
cr/ba - crash barrier
h/r - hand rail
i/r - iron rail
pal - palisade
panel - panel
p/b - public barrier
pick - picket
p/r - post & rail
p/w - post & wire
sec. - security fence
wood - wooden fence

STANDARD ABBREVIATIONS
conc. - concrete
conc. boll. - concrete bollard
conc. wall - concrete wall
edg.cut grass - edge cut grass
el.sub st. - elec. substation
face conc. - face of concrete
face clad. - face of cladding
face tim. - face of timber
trel - trellis
hi pr. gas - high pressure gas
no ri. turn - no right turn
rough ground - rough ground
ret. wall - retaining wall
sur. drain - surface drain
ped. studs - pedestrian studs

cl=5.32 (manhole cover level)
dpc=56.45 (dpc level)
eav=34.29 (eaves level)
ffl=5.34 (finished floor level)
gu=34.29 (gulley level)
gutter=34.29 (gutter level)
hip=34.29 (hip level)
il=5.34 (invert level)
oh=5.34 (overhead level)
ramp=5.34 (ramp level)
rid=34.29 (ridge level)
silt l=5.34 (silt level)
sill=5.34 (sill level)
silt l=5.34 (silt level)
slab=5.34 (slab level)
top conc=5.34 (top of concrete)
tpi=60.67dia.15 (top of pipe)
t.st.=10.36 (top of step)
twl=56.72 (top of wall)
wal=56.19 (water level)
cfl=5.67 (cellar floor level)
.05level step (level step)
windowtop=13.59
windowbottom=14.41

Location Plan
Sheet 2 of 8



Site Surveying Services - A.M.I.C.E.S.
Suite 7
Grindleton Business Centre
Grindleton, Lancs
BB7 4DH
Tel: 01200 438320
Fax: 07092376338
www.sitesurvey.co.uk
Land / Engineering Surveyors

Setting Out & Control Surveys
Topographic/Volumetric Surveys
GPS Specialists using also
GPS Post Process to tie any site
to OS without trig point or BM
Construction Line Registered
TSA member

construction line

Client / Location: Vernon and Co
Land near Highmoor Farm, Highmoor, Clitheroe

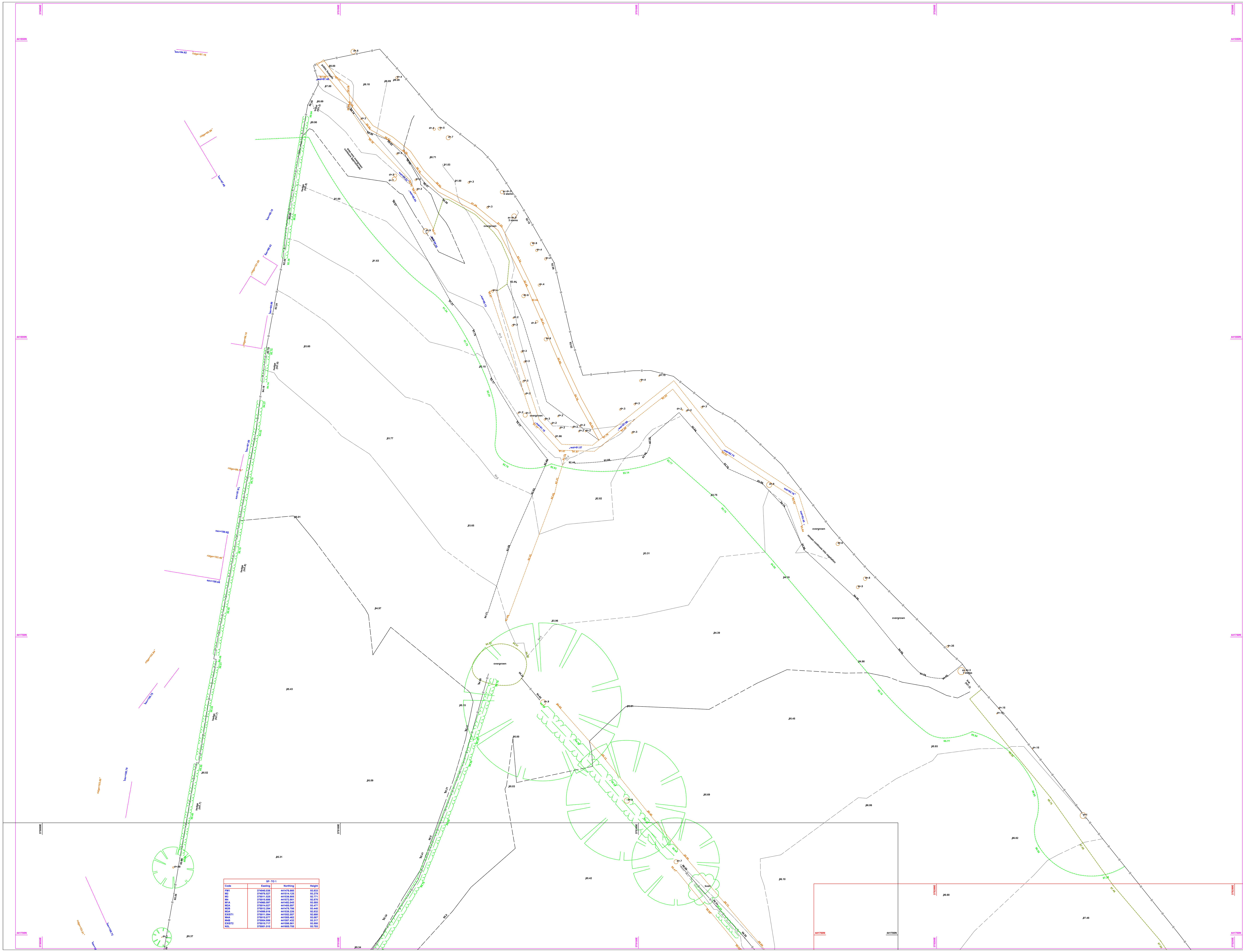
All work to our standard terms & conditions (see website)

N

THE SURVEY ASSOCIATION

Additional Comments:
To local grid based on ostn15/osgm15 all work to sss specification, some by gps, contact us regarding details

Drawing Number:	sss-8260	Revision: A	
Drawn By:	SS/MR	Checked By:	HW
Date:	18/09/2018	Scale:	1:200@ A0



SF- TO 1			
Code	Easting	Northing	Height
FM1	374940.036	441476.660	93.833
M2	374976.527	441514.125	93.279
M3	375011.525	441536.905	92.771
M4	375015.686	441572.951	92.870
M1A	374960.597	441482.045	93.585
M2A	375014.027	441485.897	93.477
M2B	375012.294	441478.798	93.440
M3A	374999.816	441538.226	92.832
EXIST1	375011.594	441552.557	92.680
M4A	375015.077	441585.462	93.087
M4B	375004.956	441587.432	93.317
EXIST2	375010.717	441598.861	93.500
N3L	375001.510	441605.755	93.793

deciduous tree
defined by one point at centre & one point on spread
d=.5
trunk radius as drawn
(girth size and position +/- 50mm)
station
trial pit
conifer tree (defined as above)
gate
bush
borehole
window sample

- note heights / points / lines all same colour
- e.g. for channel, all crosses / lines / heights are magenta

56.24
spot level

bottom of batter / wood / ridge / timber face / gutter
top of batter
break line / discontinuity
wall (see text nearby for height / width / type)
retaining wall (see text nearby for height / width / type)
channel (all levels at channel unless noted)
kerb levels (shown parallel to channel -)
railway
drain / river / canal
overhead lines / buildings (not surveyed unless specified)
concrete / ramp
building / stone
face of cladding / flower bed
canopy
verge
fence (see text nearby for height / width / type) (panel / security / etc.)
columns / gridlines / conveyors / column face
brick
cycle lane / bus lane / white line (see text)
tanks / decking
hedge scaled to width
line may be as above, if just one edge
i.e. for level specific surveys both sides
measured not to show level change
(see text for type / height / width / etc)
path / window / door
track
contours
143
142.5
pipe line
bt cable
electric cable
gas
tarmac
footpath

M can't lift - can't lift
cl=65.23
il=59.78

- only manholes found on site during survey marked
- other manholes may be present but covered
- all invert levels taken where possible at main channel
- all surveys to our specification based on RICS (see website)
- some surveying done with GPS - please contact us regarding accuracy

?	unknown cover
ac box	air conditioning box
av	air valve
bb	belisha beacon
bin	bin
bt	bt line
bt	bt manhole
bt	bt post
bt box	bt box
bm	OSBM
block	blocked manhole
bus shelter	bus shelter
cable	cable
can't lift	can't lift
ctv box	cable tv box
ctv	cable tv manhole
data mh	data manhole
dk	drop kerb
ds&g	down spout (with gulley)
dsr	recessed downspout
ds	building step back not surveyed
el. post	electric post
el.	electric
el. mh	electric manhole
el box	electric box
earth	earth strap/spike
f.hydr	fire hydrant
gas	gas
gas mh	gas man hole
gas box	gas box
gu=5.68	gulley top
guy	guy rope/stay
.5 dia	pipe diameter
light	light
lp	lamp post
lt	left turn arrow
peg	peg
phone box	phone box
post box	post box
pipe	pipe
planter	planter
post	post
rod. eye	rodding eye
rsj	steel rsj
rt	right turn
salt	salt box
security cam	security camera
seat	seat
si	sign - with indicative text
slab=3.19	slab (generally conc.)
st.tap	stop tap
str.	straight on
sv.	sluice valve
tactile paving	tactile paving
ts.	traffic signal
ts. mh	traffic signal manhole
ts.box	traffic signal box
trap	trap
utility	utility (unknown)
utility mh	utility manhole (unknown)
utility box	utility box (unknown)
water	water
water mh	water manhole
water box	water box
wo	wash out valve
tap	tap
parking meter	parking meter
cycle rack	cycle rack
cycle shelter	cycle shelter

STANDARD FENCE ABBREVIATIONS
b/w - barbed wire
c/l - chain link
cl/b - close boarded
c/i - corrugated iron
con/pan - concrete panel
cr/ba - crash barrier
h/r - hand rail
i/r - iron rail
pal - palisade
panel - panel
p/b - public barrier
pick - picket
p/r - post & rail
p/w - post & wire
sec. - security fence
wood - wooden fence

STANDARD ABBREVIATIONS
conc. - concrete
conc. boll. - concrete bollard
conc. wall - concrete wall
edg.cut grass - edge cut grass
el.sub st. - elec. substation
face conc. - face of concrete
face clad. - face of cladding
face tim. - face of timber
trel - trellis
hi pr. gas - high pressure gas
no ri. turn - no right turn
rough ground - rough ground
ret. wall - retaining wall
sur. drain - surface drain
ped. studs - pedestrian studs

cl=5.32 (manhole cover level)
dpc=56.45 (dpc level)
eav=34.29 (eaves level)
ffl=5.34 (finished floor level)
gu=34.29 (gulley level)
gutter=34.29 (gutter level)
hip=34.29 (hip level)
il=5.34 (invert level)
oh=5.34 (overhead level)
ramp=5.34 (ramp level)
rid=34.29 (ridge level)
silt l=5.34 (silt level)
sill=5.34 (sill level)
silt l=5.34 (silt level)
slab=5.34 (slab level)
top conc=5.34 (top of concrete)
tpi=60.67dia.15 (top of pipe)
t.st.=10.36 (top of step)
twl=56.72 (top of wall)
wal=56.19 (water level)
cfl=5.67 (cellar floor level)
.05level step (level step)
windowtop=13.59
windowbottom=14.41

Location Plan
Sheet 3 of 8

Site Surveying Services - A.M.I.C.E.S.
Suite 7
Grindleton Business Centre
Grindleton, Lancs
BB7 4DH
Tel: 01200 438320
Fax: 07092376338
www.sitesurvey.co.uk
Land / Engineering Surveyors

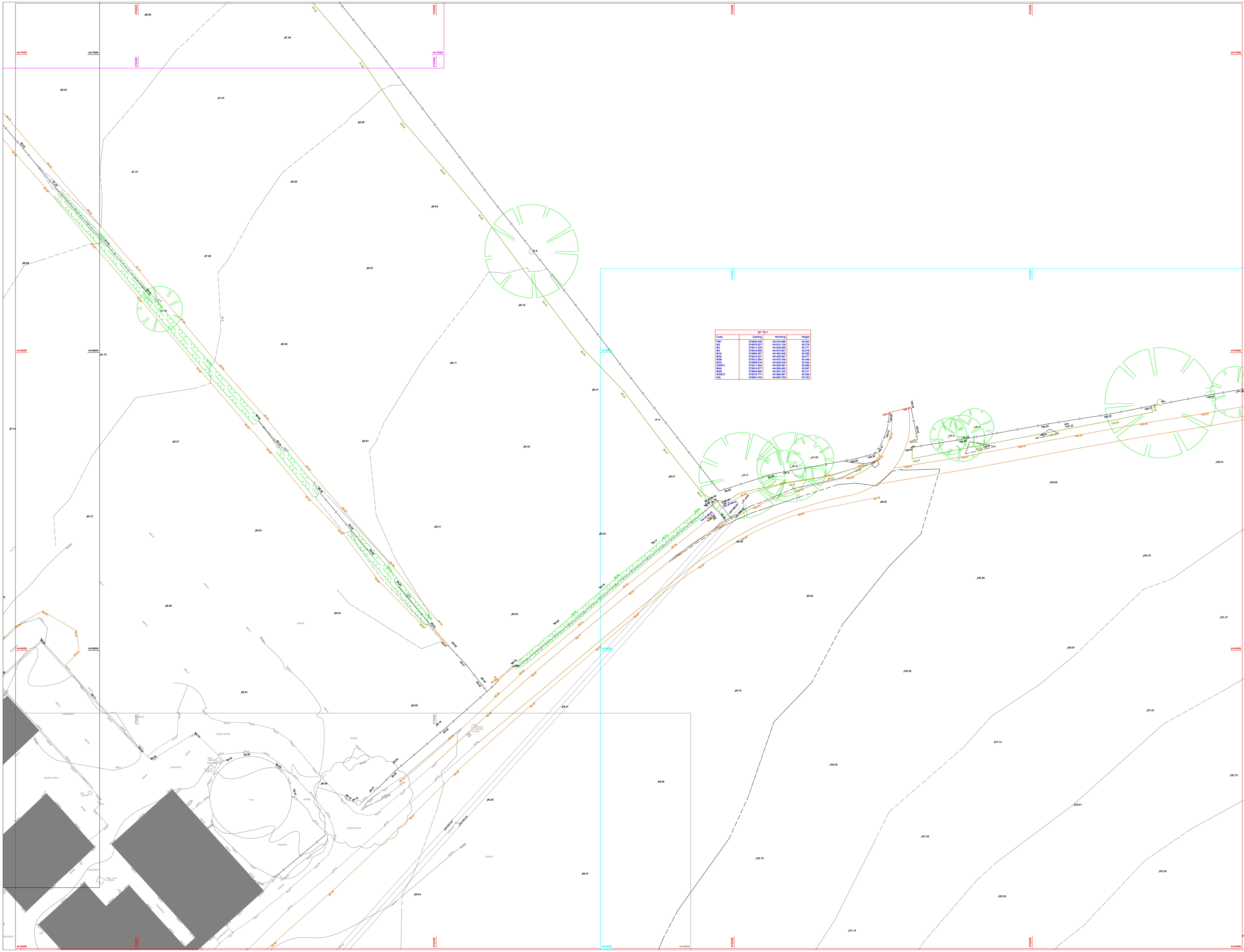
Setting Out & Control Surveys
Topographic/Volumetric Surveys
GPS Specialists using also
GPS Post Process to tie any site
to OS without trig point or BM
Construction Line Registered
TSA member

Client / Location: Vernon and Co
Land near Highmoor Farm, Highmoor, Clitheroe

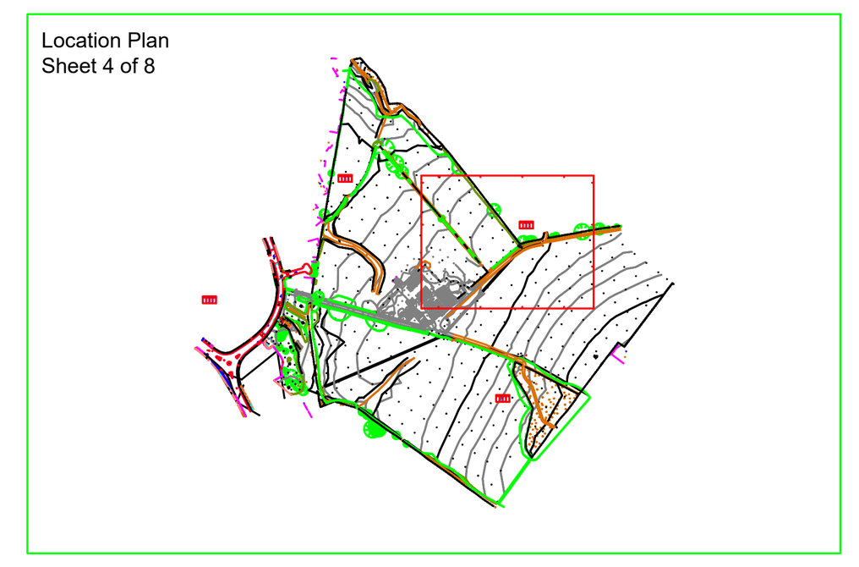
All work to our standard terms & conditions (see website)

Additional Comments:
To local grid based on ostn15/osgm15 all work to sss specification, some by gps, contact us regarding details

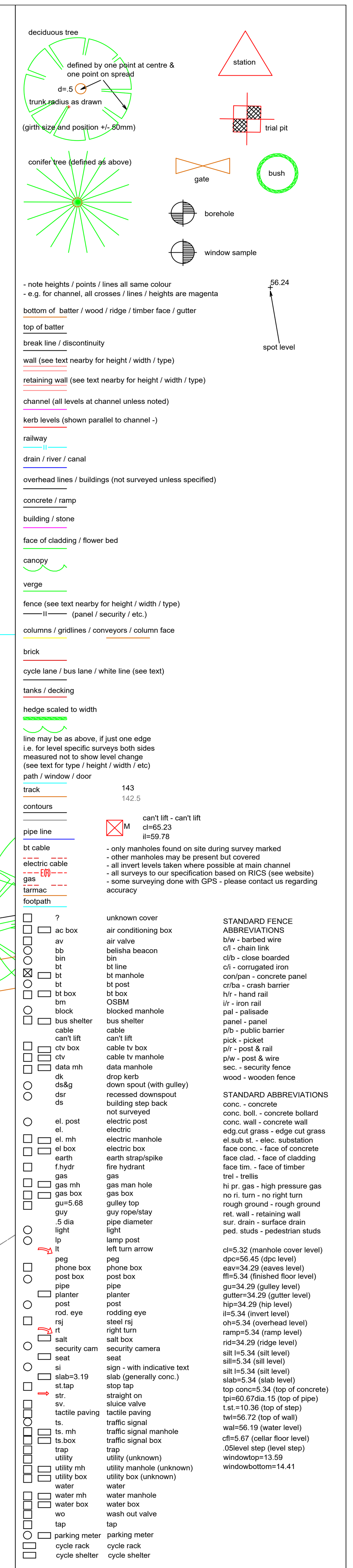
Drawing Number:	sss-8260	Revision: A	
Drawn By:	SS/MR	Checked By:	HW
Date:	18/09/2018	Scale:	1:200@ A0



SF- TO 1			
Code	Easting	Northing	Height
FM1	374940.036	441476.660	93.833
M2	374976.527	441514.125	93.279
M3	375011.525	441536.905	92.771
M4	375015.686	441572.951	92.870
M1A	374960.597	441482.045	93.585
M2A	375014.027	441485.897	93.477
M2B	375012.294	441478.798	93.440
M3A	374999.816	441538.226	92.832
EXIST1	375011.594	441552.557	92.680
M4A	375015.077	441585.462	93.087
M4B	375004.956	441587.432	93.317
EXIST2	375010.717	441598.861	93.500
N3L	375001.510	441605.755	93.793



Location Plan
Sheet 4 of 8



Site Surveying Services - A.M.I.C.E.S.
Suite 7
Grindleton Business Centre
Grindleton, Lancs
BB7 4DH
Tel: 01200 438320
Fax: 07092376338
www.sitesurvey.co.uk
Land / Engineering Surveyors

Setting Out & Control Surveys
Topographic/Volumetric Surveys
GPS Specialists using also
GPS Post Process to tie any site
to OS without trig point or BM
Construction Line Registered
TSA member

construction line

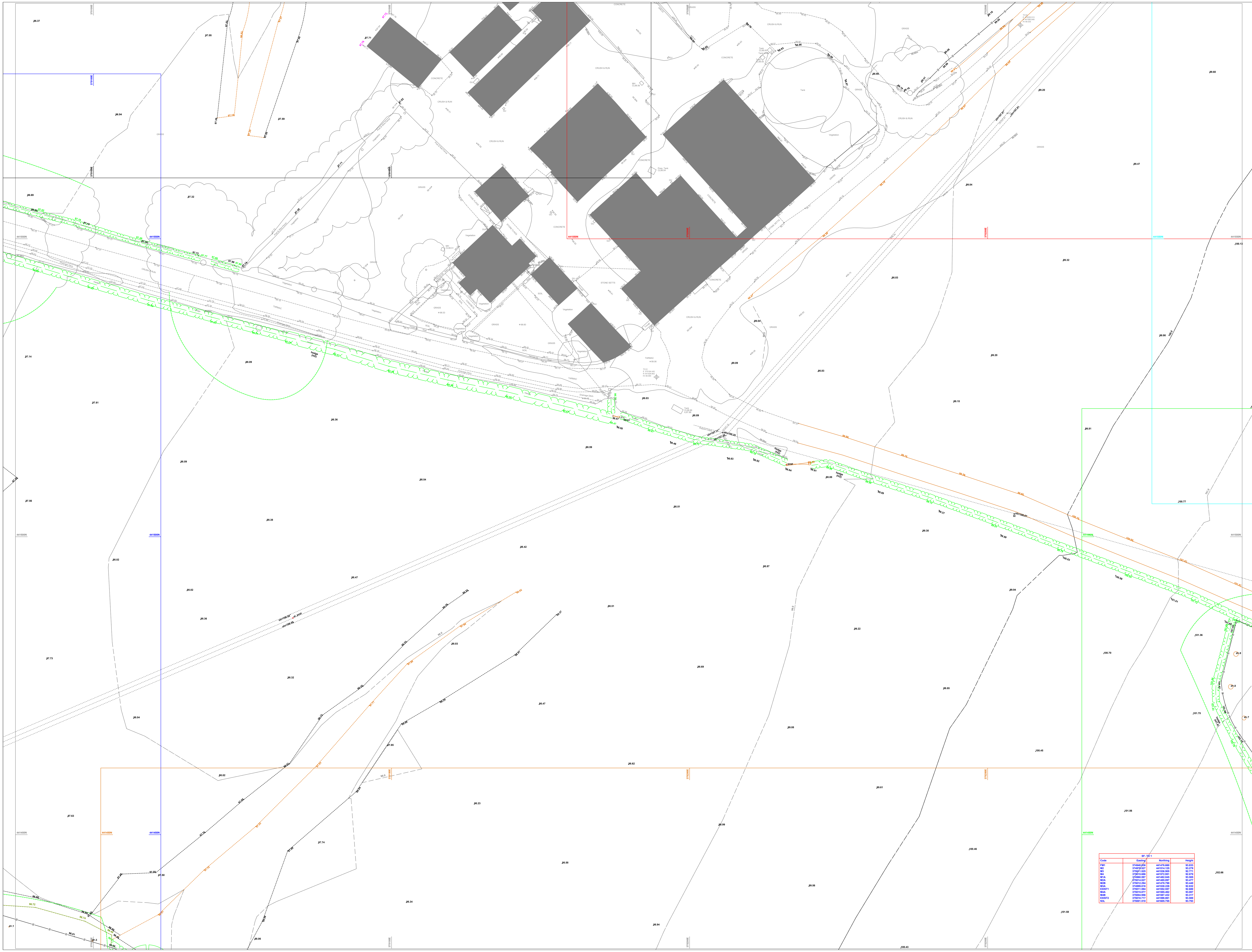
Client / Location: Vernon and Co
Land near Highmoor Farm, Highmoor, Clitheroe

All work to our standard terms
& conditions (see website)

THE SURVEY ASSOCIATION

Additional Comments:
To local grid based on ostn15/osgm15 all work to sss specification, some by gps, contact us regarding details

Drawing Number:	sss-8260	Revision: A	
Drawn By:	SS/MR	Checked By:	HW
Date:	18/09/2018	Scale:	1:200@ A0



SF- TO 1			
Code	Easting	Northing	Height
FM1	374940.036	441476.660	93.833
M2	374976.527	441514.125	93.279
M3	375011.525	441536.905	92.771
M4	375015.686	441572.951	92.870
M1A	374960.597	441482.045	93.585
M2A	375014.027	441485.897	93.477
M2B	375012.294	441478.798	93.440
M3A	374999.816	441538.226	92.832
EXIST1	375011.594	441552.557	92.680
M4A	375015.077	441585.462	93.087
M4B	375004.956	441587.432	93.317
EXIST2	375010.717	441598.861	93.500
N3L	375001.510	441605.755	93.793

deciduous tree
defined by one point at centre & one point on spread
d=.5
trunk radius as drawn
(girth size and position +/- 50mm)
station
trial pit
conifer tree (defined as above)
gate
bush
borehole
window sample

- note heights / points / lines all same colour
- e.g. for channel, all crosses / lines / heights are magenta

56.24
spot level

bottom of batter / wood / ridge / timber face / gutter
top of batter
break line / discontinuity
wall (see text nearby for height / width / type)
retaining wall (see text nearby for height / width / type)
channel (all levels at channel unless noted)
kerb levels (shown parallel to channel -)
railway
drain / river / canal
overhead lines / buildings (not surveyed unless specified)
concrete / ramp
building / stone
face of cladding / flower bed
canopy
verge
fence (see text nearby for height / width / type)
(panel / security / etc.)
columns / gridlines / conveyors / column face
brick
cycle lane / bus lane / white line (see text)
tanks / decking
hedge scaled to width
line may be as above, if just one edge
i.e. for level specific surveys both sides
measured not to show level change
(see text for type / height / width / etc)
path / window / door
track
contours
143
142.5
pipe line
bt cable
electric cable
gas
tarmac
footpath

M
can't lift - can't lift
cl=65.23
il=59.78

- only manholes found on site during survey marked
- other manholes may be present but covered
- all invert levels taken where possible at main channel
- all surveys to our specification based on RICS (see website)
- some surveying done with GPS - please contact us regarding accuracy

?	unknown cover
ac box	air conditioning box
av	air valve
bb	belisha beacon
bin	bin
bt	bt line
bt	bt manhole
bt	bt post
bt box	bt box
bm	OSBM
block	blocked manhole
bus shelter	bus shelter
cable	cable
can't lift	can't lift
ctv box	cable tv box
ctv	cable tv manhole
data mh	data manhole
dk	drop kerb
ds&g	down spout (with gulley)
dsr	recessed downspout
ds	building step back
	not surveyed
el. post	electric post
el.	electric
el. mh	electric manhole
el box	electric box
earth	earth strap/spike
f.hydr	fire hydrant
gas	gas
gas mh	gas man hole
gas box	gas box
gu=5.68	gulley top
guy	guy rope/stay
.5 dia	pipe diameter
light	light
lp	lamp post
lt	left turn arrow
peg	peg
phone box	phone box
post box	post box
pipe	pipe
planter	planter
post	post
rod. eye	rodding eye
rsj	steel rsj
rt	right turn
salt	salt box
security cam	security camera
seat	seat
si	sign - with indicative text
slab=3.19	slab (generally conc.)
st.tap	stop tap
str.	straight on
sv.	sluice valve
tactile paving	tactile paving
ts.	traffic signal
ts. mh	traffic signal manhole
ts.box	traffic signal box
trap	trap
utility	utility (unknown)
utility mh	utility manhole (unknown)
utility box	utility box (unknown)
water	water
water mh	water manhole
water box	water box
wo	wash out valve
tap	tap
parking meter	parking meter
cycle rack	cycle rack
cycle shelter	cycle shelter

STANDARD FENCE ABBREVIATIONS
b/w - barbed wire
c/l - chain link
cl/b - close boarded
c/i - corrugated iron
con/pan - concrete panel
cr/ba - crash barrier
h/r - hand rail
i/r - iron rail
pal - palisade
panel - panel
p/b - public barrier
pick - picket
p/r - post & rail
p/w - post & wire
sec. - security fence
wood - wooden fence

STANDARD ABBREVIATIONS
conc. - concrete
conc. boll. - concrete bollard
conc. wall - concrete wall
edg.cut grass - edge cut grass
el.sub st. - elec. substation
face conc. - face of concrete
face clad. - face of cladding
face tim. - face of timber
trel - trellis
hi pr. gas - high pressure gas
no ri. turn - no right turn
rough ground - rough ground
ret. wall - retaining wall
sur. drain - surface drain
ped. studs - pedestrian studs

cl=5.32 (manhole cover level)
dpc=56.45 (dpc level)
eav=34.29 (eaves level)
ffl=5.34 (finished floor level)
gu=34.29 (gulley level)
gutter=34.29 (gutter level)
hip=34.29 (hip level)
il=5.34 (invert level)
oh=5.34 (overhead level)
ramp=5.34 (ramp level)
rid=34.29 (ridge level)
silt l=5.34 (silt level)
sill=5.34 (sill level)
silt l=5.34 (silt level)
slab=5.34 (slab level)
top conc=5.34 (top of concrete)
tpi=60.67dia.15 (top of pipe)
t.st.=10.36 (top of step)
twl=56.72 (top of wall)
wal=56.19 (water level)
cfl=5.67 (cellar floor level)
.05level step (level step)
windowtop=13.59
windowbottom=14.41

Location Plan
Sheet 5 of 8

Site Surveying Services - A.M.I.C.E.S.
Suite 7
Grindleton Business Centre
Grindleton, Lancs
BB7 4DH
Tel: 01200 438320
Fax: 07092376338
www.sitesurvey.co.uk
Land / Engineering Surveyors

Setting Out & Control Surveys
Topographic/Volumetric Surveys
GPS Specialists using also
GPS Post Process to tie any site
to OS without trig point or BM
Construction Line Registered
TSA member

construction line

Client / Location: Vernon and Co
Land near Highmoor Farm, Highmoor, Clitheroe

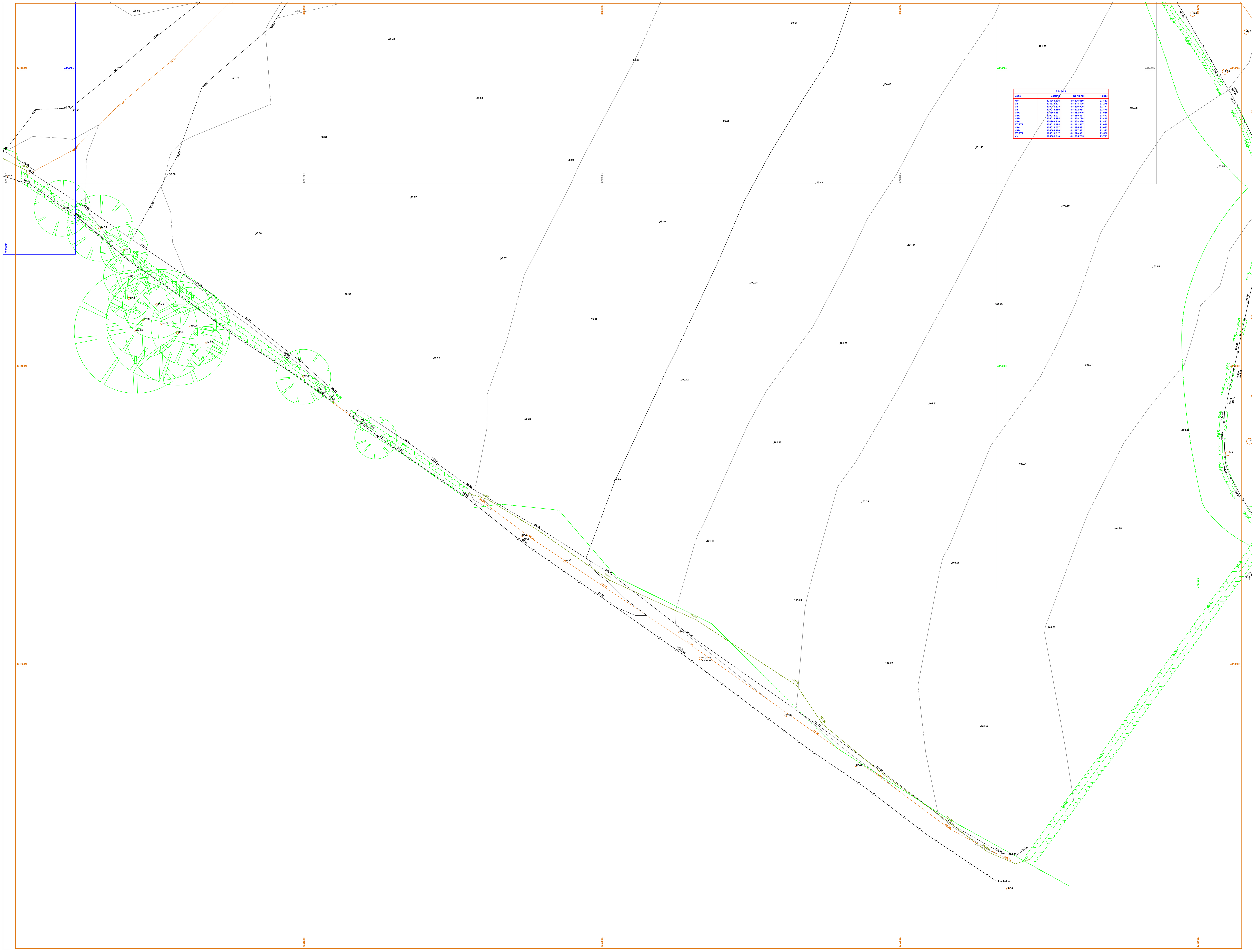
All work to our standard terms
& conditions (see website)

N

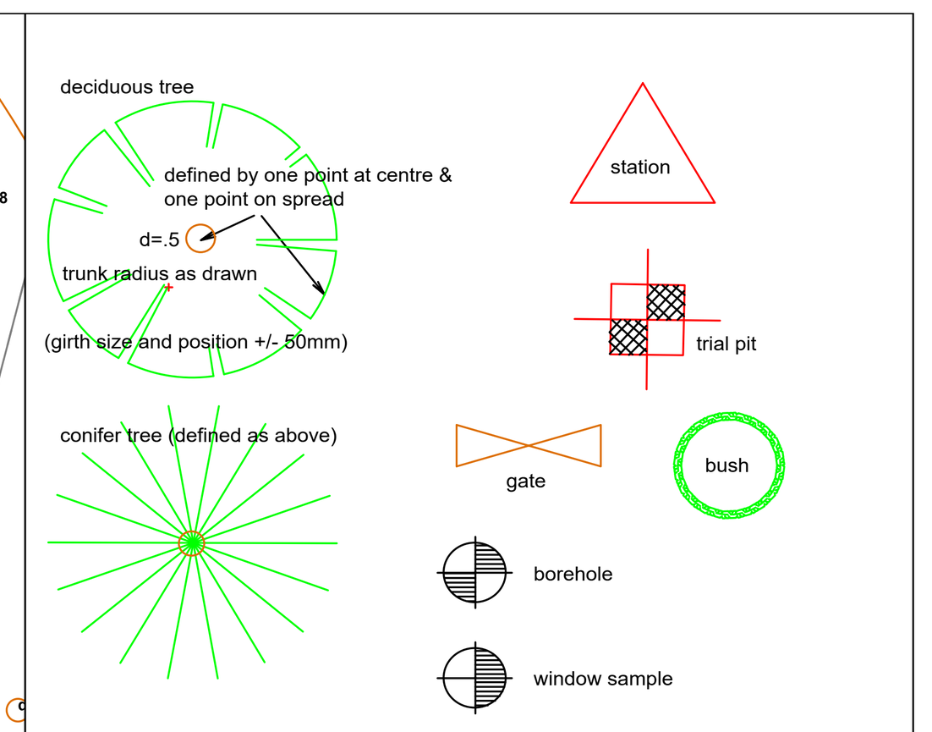
THE SURVEY ASSOCIATION

Additional Comments:
To local grid based on ostn15/osgm15 all work to sss specification, some by gps, contact us regarding details

Drawing Number:	sss-8260	Revision: A	
Drawn By:	SS/MR	Checked By:	HW
Date:	18/09/2018	Scale:	1:200@ A0



SF- TO 1			
Code	Easting	Northing	Height
FM1	374940.036	441476.660	93.833
M2	374976.527	441514.125	93.279
M3	375011.525	441536.905	92.771
M4	375015.686	441572.951	92.870
M1A	374960.597	441482.045	93.585
M2A	375014.027	441485.897	93.477
M2B	375012.294	441478.798	93.440
M3A	374999.816	441538.226	92.832
EXIST1	375011.594	441552.557	92.680
M4A	375015.077	441585.462	93.087
M4B	375004.956	441587.432	93.317
EXIST2	375010.717	441598.861	93.500
N3L	375001.510	441605.755	93.793



- note heights / points / lines all same colour
- e.g. for channel, all crosses / lines / heights are magenta

56.24 spot level

bottom of batter / wood / ridge / timber face / gutter
top of batter
break line / discontinuity
wall (see text nearby for height / width / type)
retaining wall (see text nearby for height / width / type)
channel (all levels at channel unless noted)
kerb levels (shown parallel to channel -)
railway
drain / river / canal
overhead lines / buildings (not surveyed unless specified)
concrete / ramp
building / stone
face of cladding / flower bed
canopy
verge
fence (see text nearby for height / width / type) (panel / security / etc.)
columns / gridlines / conveyors / column face
brick
cycle lane / bus lane / white line (see text)
tanks / decking
hedge scaled to width
line may be as above, if just one edge
i.e. for level specific surveys both sides
measured not to show level change
(see text for type / height / width / etc)
path / window / door
track
contours 143 142.5
pipe line
bt cable
electric cable
gas
tarmac
footpath

M can't lift - can't lift
cl=65.23
il=59.78

- only manholes found on site during survey marked
- other manholes may be present but covered
- all invert levels taken where possible at main channel
- all surveys to our specification based on RICS (see website)
- some surveying done with GPS - please contact us regarding accuracy

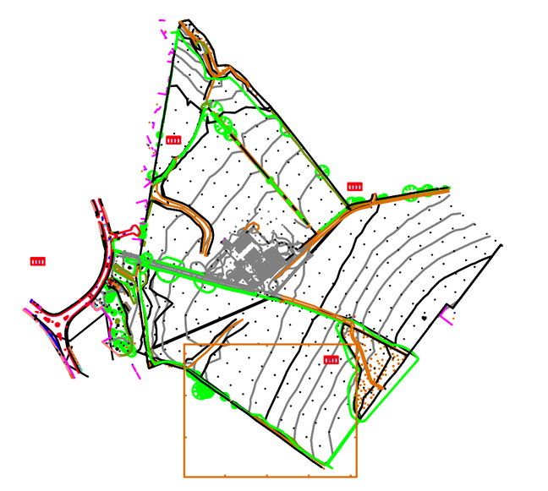
?	unknown cover
ac box	air conditioning box
av	air valve
bb	belisha beacon
bin	bin
bt	bt line
bt	bt manhole
bt	bt post
bt box	bt box
bm	OSBM
block	blocked manhole
bus shelter	bus shelter
cable	cable
can't lift	can't lift
ctv box	cable tv box
ctv	cable tv manhole
data mh	data manhole
dk	drop kerb
ds&g	down spout (with gulley)
dsr	recessed downspout
ds	building step back
	not surveyed
el. post	electric post
el.	electric
el. mh	electric manhole
el box	electric box
earth	earth strap/spike
f.hydr	fire hydrant
gas	gas
gas mh	gas man hole
gas box	gas box
gu=5.68	gulley top
guy	guy rope/stay
.5 dia	pipe diameter
light	light
lp	lamp post
lt	left turn arrow
peg	peg
phone box	phone box
post box	post box
pipe	pipe
planter	planter
post	post
rod. eye	rodding eye
rsj	steel rsj
rt	right turn
salt	salt box
security cam	security camera
seat	seat
si	sign - with indicative text
slab=3.19	slab (generally conc.)
st.tap	stop tap
str.	straight on
sv.	sluice valve
tactile paving	tactile paving
ts.	traffic signal
ts. mh	traffic signal manhole
ts.box	traffic signal box
trap	trap
utility	utility (unknown)
utility mh	utility manhole (unknown)
utility box	utility box (unknown)
water	water
water mh	water manhole
water box	water box
wo	wash out valve
tap	tap
parking meter	parking meter
cycle rack	cycle rack
cycle shelter	cycle shelter

STANDARD FENCE ABBREVIATIONS
b/w - barbed wire
c/l - chain link
cl/b - close boarded
c/i - corrugated iron
con/pan - concrete panel
cr/ba - crash barrier
h/r - hand rail
i/r - iron rail
pal - palisade
panel - panel
p/b - public barrier
pick - picket
p/r - post & rail
p/w - post & wire
sec. - security fence
wood - wooden fence

STANDARD ABBREVIATIONS
conc. - concrete
conc. boll. - concrete bollard
conc. wall - concrete wall
edg.cut grass - edge cut grass
el.sub st. - elec. substation
face conc. - face of concrete
face clad. - face of cladding
face tim. - face of timber
trel - trellis
hi pr. gas - high pressure gas
no ri. turn - no right turn
rough ground - rough ground
ret. wall - retaining wall
sur. drain - surface drain
ped. studs - pedestrian studs

cl=5.32 (manhole cover level)
dpc=56.45 (dpc level)
eav=34.29 (eaves level)
ffl=5.34 (finished floor level)
gu=34.29 (gulley level)
gutter=34.29 (gutter level)
hip=34.29 (hip level)
il=5.34 (invert level)
oh=5.34 (overhead level)
ramp=5.34 (ramp level)
rid=34.29 (ridge level)
silt l=5.34 (silt level)
sill=5.34 (sill level)
silt l=5.34 (silt level)
slab=5.34 (slab level)
top conc=5.34 (top of concrete)
tpi=60.67dia.15 (top of pipe)
t.st.=10.36 (top of step)
twl=56.72 (top of wall)
wal=56.19 (water level)
cfl=5.67 (cellar floor level)
.05level step (level step)
windowtop=13.59
windowbottom=14.41

Location Plan
Sheet 6 of 8



Site Surveying Services - A.M.I.C.E.S.
Suite 7
Grindleton Business Centre
Grindleton, Lancs
BB7 4DH
Tel: 01200 438320
Fax: 07092376338
www.sitesurvey.co.uk
Land / Engineering Surveyors

Setting Out & Control Surveys
Topographic/Volumetric Surveys
GPS Specialists using also
GPS Post Process to tie any site
to OS without trig point or BM
Construction Line Registered
TSA member

construction line

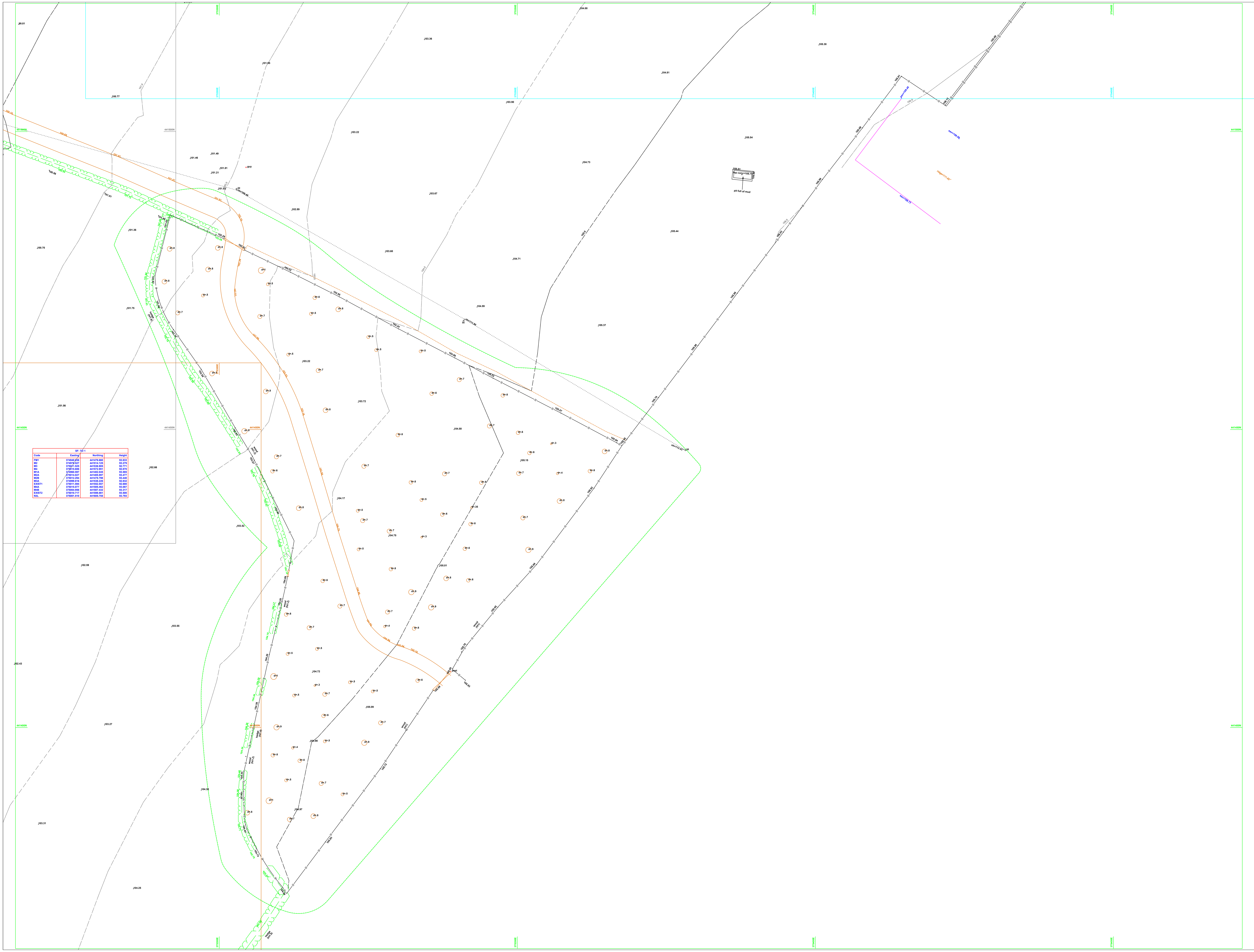
Client / Location: Vernon and Co
Land near Highmoor Farm, Highmoor, Clitheroe

All work to our standard terms
& conditions (see website)

THE SURVEY ASSOCIATION

Additional Comments:
To local grid based on ostn15/osgm15 all work to sss specification, some by gps, contact us regarding details

Drawing Number:	sss-8260	Revision: A	
Drawn By:	SS/MR	Checked By:	HW
Date:	18/09/2018	Scale:	1:200@ A0



SF- TO 1

Code	Easting	Northing	Height
FM1	374940.036	441476.660	93.833
M2	374976.527	441514.125	93.279
M3	375011.525	441536.905	92.771
M4	375015.686	441572.951	92.870
M1A	374960.597	441482.045	93.585
M2A	375014.027	441485.897	93.477
M2B	375012.294	441478.798	93.440
M3A	374999.816	441538.226	92.832
EXIST1	375011.594	441552.557	92.680
M4A	375015.077	441585.462	93.087
M4B	375004.956	441587.432	93.317
EXIST2	375010.717	441598.861	93.500
N3L	375001.510	441605.755	93.793

deciduous tree
defined by one point at centre & one point on spread
d=.5
trunk radius as drawn
(girth size and position +/- 50mm)
conifer tree (defined as above)
station
trial pit
gate
bush
borehole
window sample

- note heights / points / lines all same colour
- e.g. for channel, all crosses / lines / heights are magenta

56.24 spot level

bottom of batter / wood / ridge / timber face / gutter
top of batter
break line / discontinuity
wall (see text nearby for height / width / type)
retaining wall (see text nearby for height / width / type)
channel (all levels at channel unless noted)
kerb levels (shown parallel to channel -)
railway
drain / river / canal
overhead lines / buildings (not surveyed unless specified)
concrete / ramp
building / stone
face of cladding / flower bed
canopy
verge
fence (see text nearby for height / width / type) (panel / security / etc.)
columns / gridlines / conveyors / column face
brick
cycle lane / bus lane / white line (see text)
tanks / decking
hedge scaled to width
line may be as above, if just one edge i.e. for level specific surveys both sides measured not to show level change (see text for type / height / width / etc)
path / window / door
track
contours 143 142.5
pipe line
bt cable
electric cable
gas
tarmac
footpath

M can't lift - can't lift cl=65.23 il=59.78

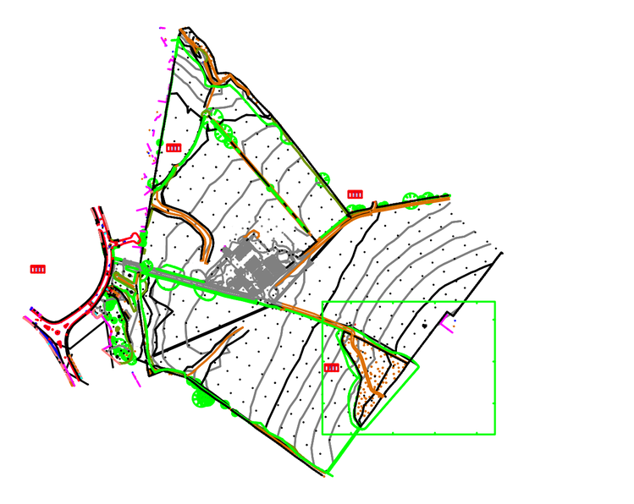
- only manholes found on site during survey marked
- other manholes may be present but covered
- all invert levels taken where possible at main channel
- all surveys to our specification based on RICS (see website)
- some surveying done with GPS - please contact us regarding accuracy

?	unknown cover
ac box	air conditioning box
av	air valve
bb	belisha beacon
bin	bin
bt	bt line
bt	bt manhole
bt	bt post
bt box	bt box
bm	OSBM
block	blocked manhole
bus shelter	bus shelter
cable	cable
can't lift	can't lift
ctv box	cable tv box
ctv	cable tv manhole
data mh	data manhole
dk	drop kerb
ds&g	down spout (with gulley)
dsr	recessed downspout
ds	building step back not surveyed
el. post	electric post
el.	electric
el. mh	electric manhole
el box	electric box
earth	earth strap/spike
f.hydr	fire hydrant
gas	gas
gas mh	gas man hole
gas box	gas box
gu=5.68	gulley top
guy	guy rope/stay
.5 dia	pipe diameter
light	light
lp	lamp post
lt	left turn arrow
peg	peg
phone box	phone box
post box	post box
pipe	pipe
planter	planter
post	post
rod. eye	rodding eye
rsj	steel rsj
rt	right turn
salt	salt box
security cam	security camera
seat	seat
si	sign - with indicative text
slab=3.19	slab (generally conc.)
st.tap	stop tap
str.	straight on
sv.	sluice valve
tactile paving	tactile paving
ts.	traffic signal
ts. mh	traffic signal manhole
ts.box	traffic signal box
trap	trap
utility	utility (unknown)
utility mh	utility manhole (unknown)
utility box	utility box (unknown)
water	water
water mh	water manhole
water box	water box
wo	wash out valve
tap	tap
parking meter	parking meter
cycle rack	cycle rack
cycle shelter	cycle shelter

STANDARD FENCE ABBREVIATIONS
b/w - barbed wire
c/l - chain link
cl/b - close boarded
c/i - corrugated iron
con/pan - concrete panel
cr/ba - crash barrier
h/r - hand rail
i/r - iron rail
pal - palisade
panel - panel
p/b - public barrier
pick - picket
p/r - post & rail
p/w - post & wire
sec. - security fence
wood - wooden fence

STANDARD ABBREVIATIONS
conc. - concrete
conc. boll. - concrete bollard
conc. wall - concrete wall
edg.cut grass - edge cut grass
el.sub st. - elec. substation
face conc. - face of concrete
face clad. - face of cladding
face tim. - face of timber
trel - trellis
hi pr. gas - high pressure gas
no ri. turn - no right turn
rough ground - rough ground
ret. wall - retaining wall
sur. drain - surface drain
ped. studs - pedestrian studs

cl=5.32 (manhole cover level)
dpc=56.45 (dpc level)
eav=34.29 (eaves level)
ffl=5.34 (finished floor level)
gu=34.29 (gulley level)
gutter=34.29 (gutter level)
hip=34.29 (hip level)
il=5.34 (invert level)
oh=5.34 (overhead level)
ramp=5.34 (ramp level)
rid=34.29 (ridge level)
silt l=5.34 (silt level)
sill=5.34 (sill level)
silt l=5.34 (silt level)
slab=5.34 (slab level)
top conc=5.34 (top of concrete)
tpi=60.67dia.15 (top of pipe)
t.st.=10.36 (top of step)
twl=56.72 (top of wall)
wal=56.19 (water level)
cfl=5.67 (cellar floor level)
.05level step (level step)
windowtop=13.59
windowbottom=14.41



Location Plan
Sheet 7 of 8

Site Surveying Services - A.M.I.C.E.S.
Suite 7
Grindleton Business Centre
Grindleton, Lancs
BB7 4DH
Tel: 01200 438320
Fax: 07092376338
www.sitesurvey.co.uk
Land / Engineering Surveyors

Setting Out & Control Surveys
Topographic/Volumetric Surveys
GPS Specialists using also
GPS Post Process to tie any site
to OS without trig point or BM
Construction Line Registered
TSA member

construction line

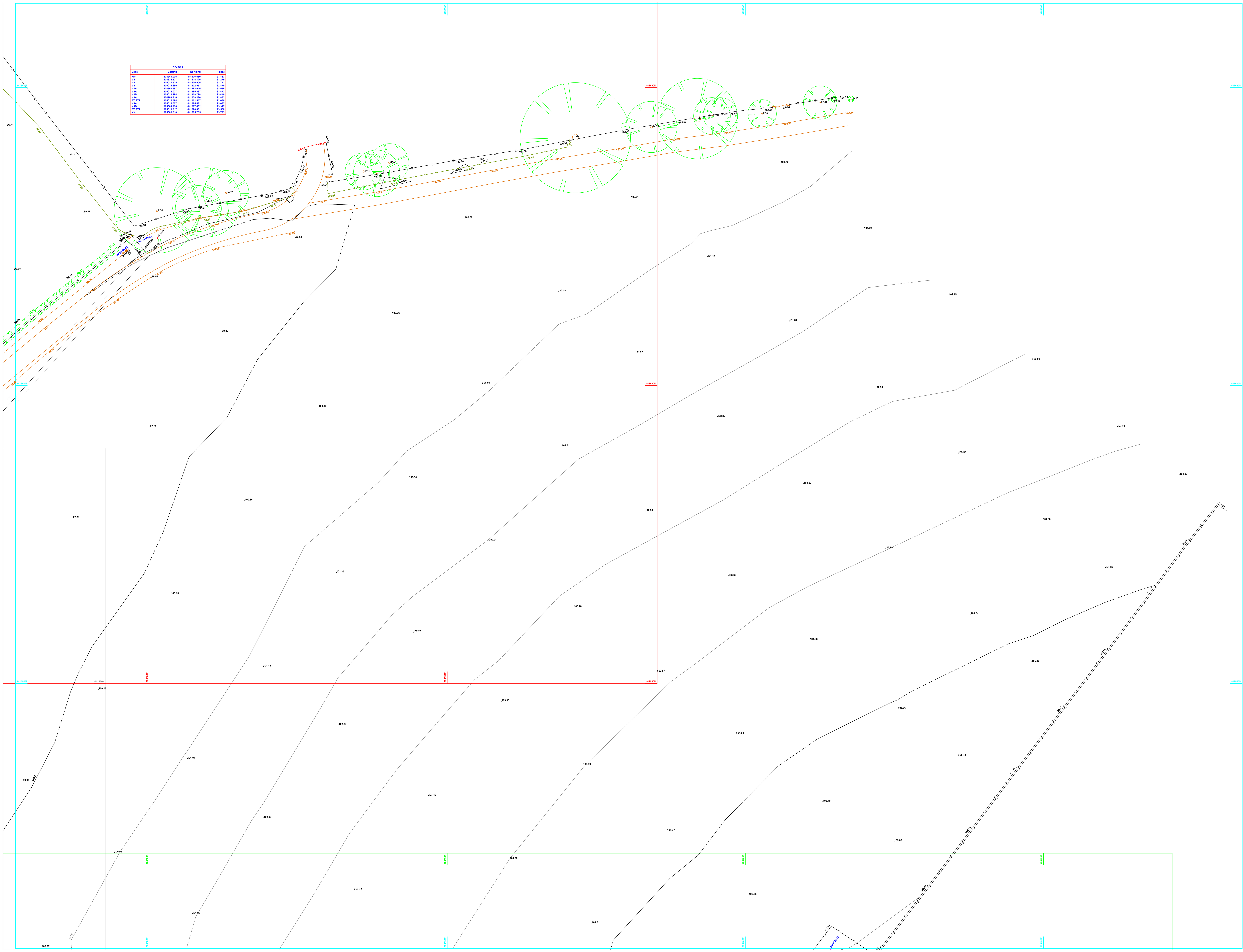
Client / Location: Vernon and Co
Land near Highmoor Farm, Highmoor, Clitheroe

All work to our standard terms & conditions (see website)

THE SURVEY ASSOCIATION

Additional Comments:
To local grid based on ostn15/osgm15 all work to sss specification, some by gps, contact us regarding details

Drawing Number:	sss-8260		Revision: A
Drawn By:	SS/MR	Checked By:	HW
Date:	18/09/2018	Scale:	1:200@ A0



SF- TO 1			
Code	Easting	Northing	Height
FM1	374940.036	441476.660	93.833
M2	374976.527	441514.125	93.279
M3	375011.525	441536.905	92.771
M4	375015.686	441572.951	92.870
M1A	374960.597	441482.045	93.585
M2A	375014.027	441485.897	93.477
M2B	375012.294	441478.798	93.440
M3A	374999.816	441538.226	92.832
EXIST1	375011.594	441552.557	92.680
M4A	375015.077	441585.462	93.087
M4B	375004.956	441587.432	93.317
EXIST2	375010.717	441598.861	93.500
N3L	375001.510	441605.755	93.793

deciduous tree
defined by one point at centre & one point on spread
d=.5
trunk radius as drawn
(girth size and position +/- 50mm)

station

trial pit

conifer tree (defined as above)

gate

bush

borehole

window sample

- note heights / points / lines all same colour
- e.g. for channel, all crosses / lines / heights are magenta

56.24
spot level

bottom of batter / wood / ridge / timber face / gutter
top of batter
break line / discontinuity
wall (see text nearby for height / width / type)
retaining wall (see text nearby for height / width / type)
channel (all levels at channel unless noted)
kerb levels (shown parallel to channel -)
railway
drain / river / canal
overhead lines / buildings (not surveyed unless specified)
concrete / ramp
building / stone
face of cladding / flower bed
canopy
verge
fence (see text nearby for height / width / type)
(panel / security / etc.)
columns / gridlines / conveyors / column face
brick
cycle lane / bus lane / white line (see text)
tanks / decking
hedge scaled to width
line may be as above, if just one edge
i.e. for level specific surveys both sides
measured not to show level change
(see text for type / height / width / etc)
path / window / door
track
contours
143
142.5
pipe line
bt cable
electric cable
gas
tarmac
footpath

M
can't lift - can't lift
cl=65.23
il=59.78

- only manholes found on site during survey marked
- other manholes may be present but covered
- all invert levels taken where possible at main channel
- all surveys to our specification based on RICS (see website)
- some surveying done with GPS - please contact us regarding accuracy

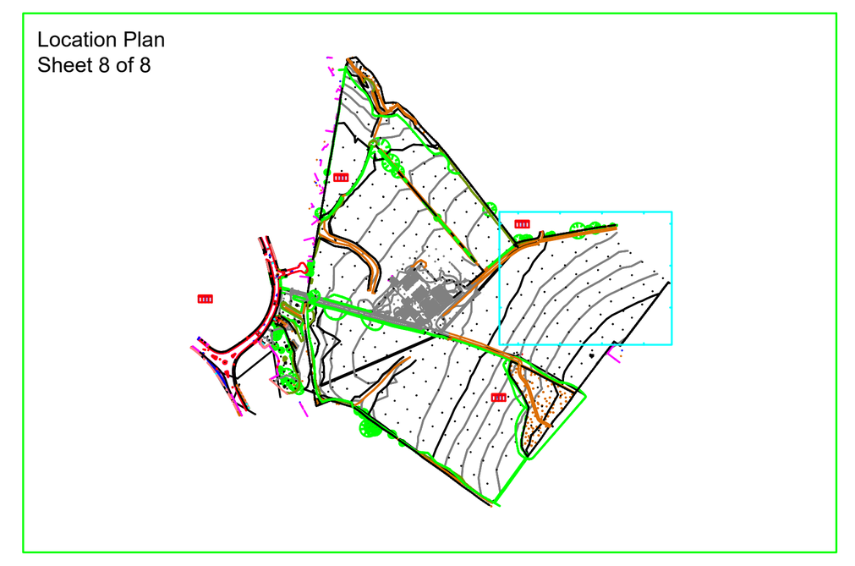
?	unknown cover
ac box	air conditioning box
av	air valve
bb	belisha beacon
bin	bin
bt	bt line
bt	bt manhole
bt	bt post
bt box	bt box
bm	OSBM
block	blocked manhole
bus shelter	bus shelter
cable	cable
can't lift	can't lift
ctv box	cable tv box
ctv	cable tv manhole
data mh	data manhole
dk	drop kerb
ds&g	down spout (with gulley)
dsr	recessed downspout
ds	building step back not surveyed
el. post	electric post
el.	electric
el. mh	electric manhole
el box	electric box
earth	earth strap/spike
f.hydr	fire hydrant
gas	gas
gas mh	gas man hole
gas box	gas box
gu=5.68	gulley top
guy	guy rope/stay
.5 dia	pipe diameter
light	light
lp	lamp post
lt	left turn arrow
peg	peg
phone box	phone box
post box	post box
pipe	pipe
planter	planter
post	post
rod. eye	rodding eye
rsj	steel rsj
rt	right turn
salt	salt box
security cam	security camera
seat	seat
si	sign - with indicative text
slab=3.19	slab (generally conc.)
st.tap	stop tap
str.	straight on
sv.	sluice valve
tactile paving	tactile paving
ts.	traffic signal
ts. mh	traffic signal manhole
ts.box	traffic signal box
trap	trap
utility	utility (unknown)
utility mh	utility manhole (unknown)
utility box	utility box (unknown)
water	water
water mh	water manhole
water box	water box
wo	wash out valve
tap	tap
parking meter	parking meter
cycle rack	cycle rack
cycle shelter	cycle shelter

STANDARD FENCE ABBREVIATIONS
b/w - barbed wire
c/l - chain link
cl/b - close boarded
c/i - corrugated iron
con/pan - concrete panel
cr/ba - crash barrier
h/r - hand rail
i/r - iron rail
pal - palisade
panel - panel
p/b - public barrier
pick - picket
p/r - post & rail
p/w - post & wire
sec. - security fence
wood - wooden fence

STANDARD ABBREVIATIONS
conc. - concrete
conc. boll. - concrete bollard
conc. wall - concrete wall
edg.cut grass - edge cut grass
el.sub st. - elec. substation
face conc. - face of concrete
face clad. - face of cladding
face tim. - face of timber
trel - trellis
hi pr. gas - high pressure gas
no ri. turn - no right turn
rough ground - rough ground
ret. wall - retaining wall
sur. drain - surface drain
ped. studs - pedestrian studs

cl=5.32 (manhole cover level)
dpc=56.45 (dpc level)
eav=34.29 (eaves level)
ffl=5.34 (finished floor level)
gu=34.29 (gulley level)
gutter=34.29 (gutter level)
hip=34.29 (hip level)
il=5.34 (invert level)
oh=5.34 (overhead level)
ramp=5.34 (ramp level)
rid=34.29 (ridge level)
silt l=5.34 (silt level)
sill=5.34 (sill level)
silt l=5.34 (silt level)
slab=5.34 (slab level)
top conc=5.34 (top of concrete)
tpi=60.67dia.15 (top of pipe)
t.st.=10.36 (top of step)
twl=56.72 (top of wall)
wal=56.19 (water level)
cfl=5.67 (cellar floor level)
.05level step (level step)
windowtop=13.59
windowbottom=14.41

Location Plan
Sheet 8 of 8



Site Surveying Services - A.M.I.C.E.S.
Suite 7
Grindleton Business Centre
Grindleton, Lancs
BB7 4DH
Tel: 01200 438320
Fax: 07092376338
www.sitesurvey.co.uk
Land / Engineering Surveyors

Setting Out & Control Surveys
Topographic/Volumetric Surveys
GPS Specialists using also
GPS Post Process to tie any site
to OS without trig point or BM
Construction Line Registered
TSA member

construction line

Client / Location: Vernon and Co
Land near Highmoor Farm, Highmoor, Clitheroe

All work to our standard terms
& conditions (see website)

N

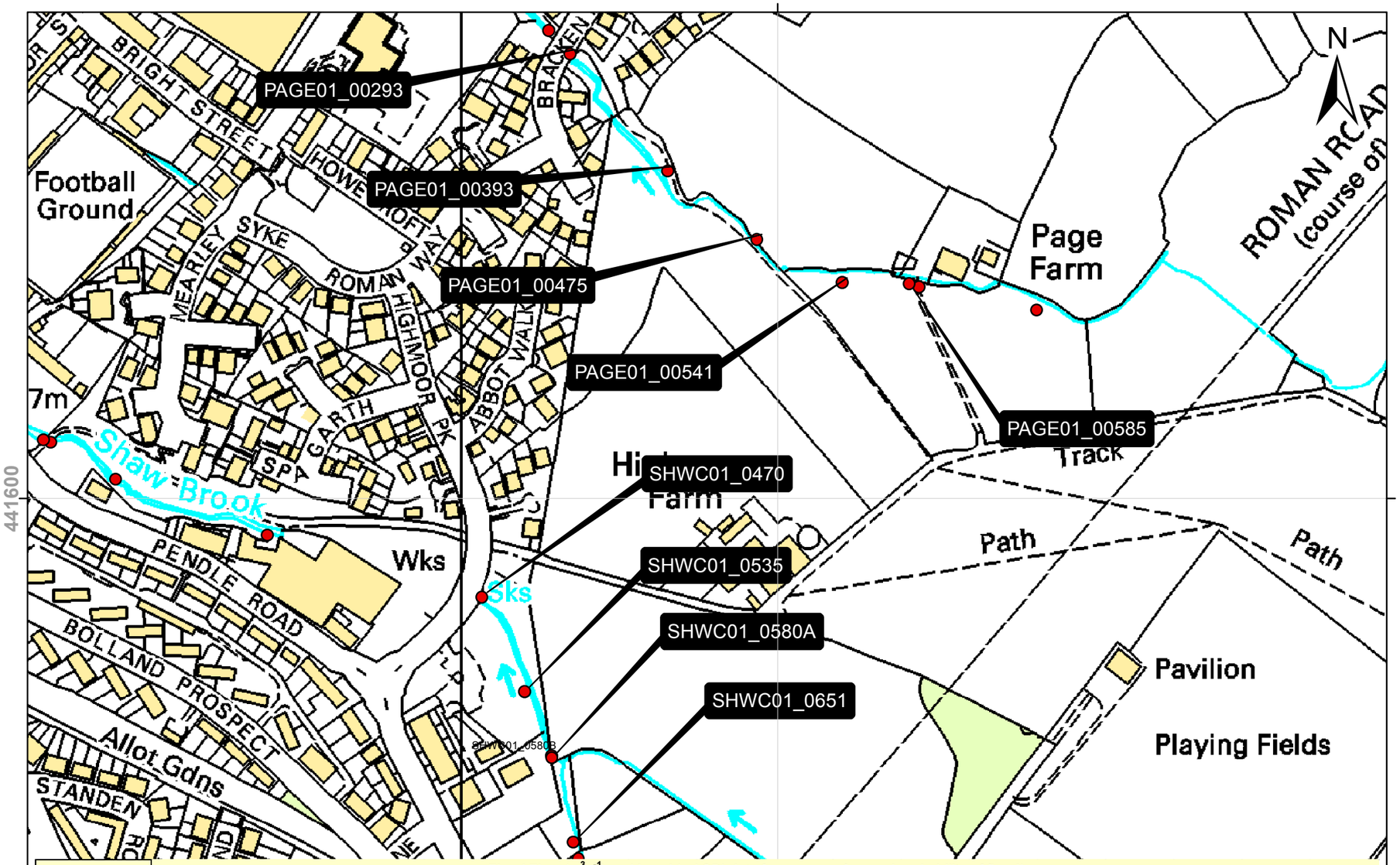
THE SURVEY ASSOCIATION

Additional Comments:
To local grid based on ostn15/osgm15 all work to sss specification, some by gps, contact us regarding details

Drawing Number:	sss-8260	Revision: A	
Drawn By:	SS/MR	Checked By:	HW
Date:	18/09/2018	Scale:	1:200@ A0

Appendix D

EA Information



Node Point	Flood Flow (m^3s^{-1}) and Level (mAOD) data for a range of annual probability of flooding																	
	0.1%				0.1% + Climate change (30%)		1.0%				1% + Climate change (30%)		1% + Climate change (35%)		1% + Climate change (70%)		4.0%	
	Defended		Undefended		Defended		Defended		Undefended		Defended		Defended		Defended		Defended	
Map ID	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow	Level	Flow
PAGE01_00585	97.24	3.86	97.24	3.86	97.34	5.01	97.02	2.06	97.02	2.06	97.10	2.68	97.12	2.78	97.20	3.50	96.91	1.48
PAGE01_00541	96.08	3.86	96.08	3.86	96.16	5.01	95.92	2.06	95.92	2.06	95.98	2.68	95.99	2.78	96.06	3.50	95.83	1.48
PAGE01_00475	94.21	4.08	94.21	4.08	94.32	5.30	94.02	2.18	94.02	2.18	94.10	2.83	94.11	2.94	94.18	3.70	93.93	1.57
PAGE01_00393	90.89	4.08	90.89	4.08	90.96	5.30	90.70	2.18	90.70	2.18	90.77	2.83	90.78	2.94	90.86	3.70	90.64	1.57
PAGE01_00293	85.10	4.31	85.10	4.31	86.06	5.60	84.14	2.30	84.14	2.30	84.38	2.99	84.43	3.10	84.85	3.91	83.88	1.66
SHWC01_0651	96.72	4.85	96.72	4.85	96.81	6.30	96.44	3.14	96.44	3.14	96.56	3.36	96.58	3.50	96.68	4.40	96.16	1.87
SHWC01_0580A	94.63	4.85	94.63	4.85	94.69	6.30	94.61	3.12	94.61	3.12	94.62	3.59	94.62	3.59	94.62	4.40	94.52	1.87
SHWC01_0535	93.88	4.85	93.88	4.85	93.94	6.30	93.61	2.97	93.61	2.97	93.68	3.36	93.71	3.50	93.85	4.40	93.41	1.87
SHWC01_0470	93.33	5.65	93.33	5.65	93.40	7.35	92.20	3.02	92.20	3.02	92.83	3.92	92.93	4.07	93.30	5.13	91.88	2.17

Level data in mAOD (metres above ordnance datum). Flow data in m^3 per second
Data taken from Mearley 2018 Study

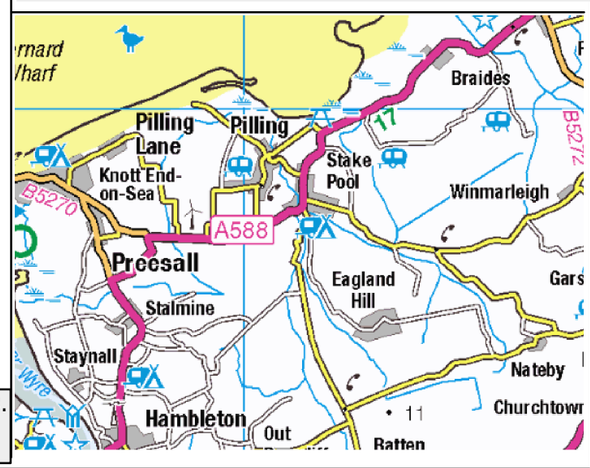
Environment Agency

Fluvial Levels Map:
Highmoor Farm, Clitheroe
Produced: 21 October 2020
Our Ref: CL186544
NGR: SD7511441612

Flood Zone 3 shows the area that could be affected by flooding:
- from the sea with a 0.5% or greater chance of happening each year
- or from a river with a 1.0% or greater chance of happening each year.

Flood Zone 2 shows the extent of an extreme flood from rivers or the sea with up to 0.1% chance of occurring each year.

ABDs (Areas Benefiting from Defences) show the area benefiting from defences during a 0.5% tidal, or 1.0% fluvial flood event.



Contact Us: National Customer Contact Centre, PO Box 544, Rotherham, S60 1BY. Tel: 03708 506 506 (Mon-Fri 8-6). Email: enquiries@environment-agency.gov.uk

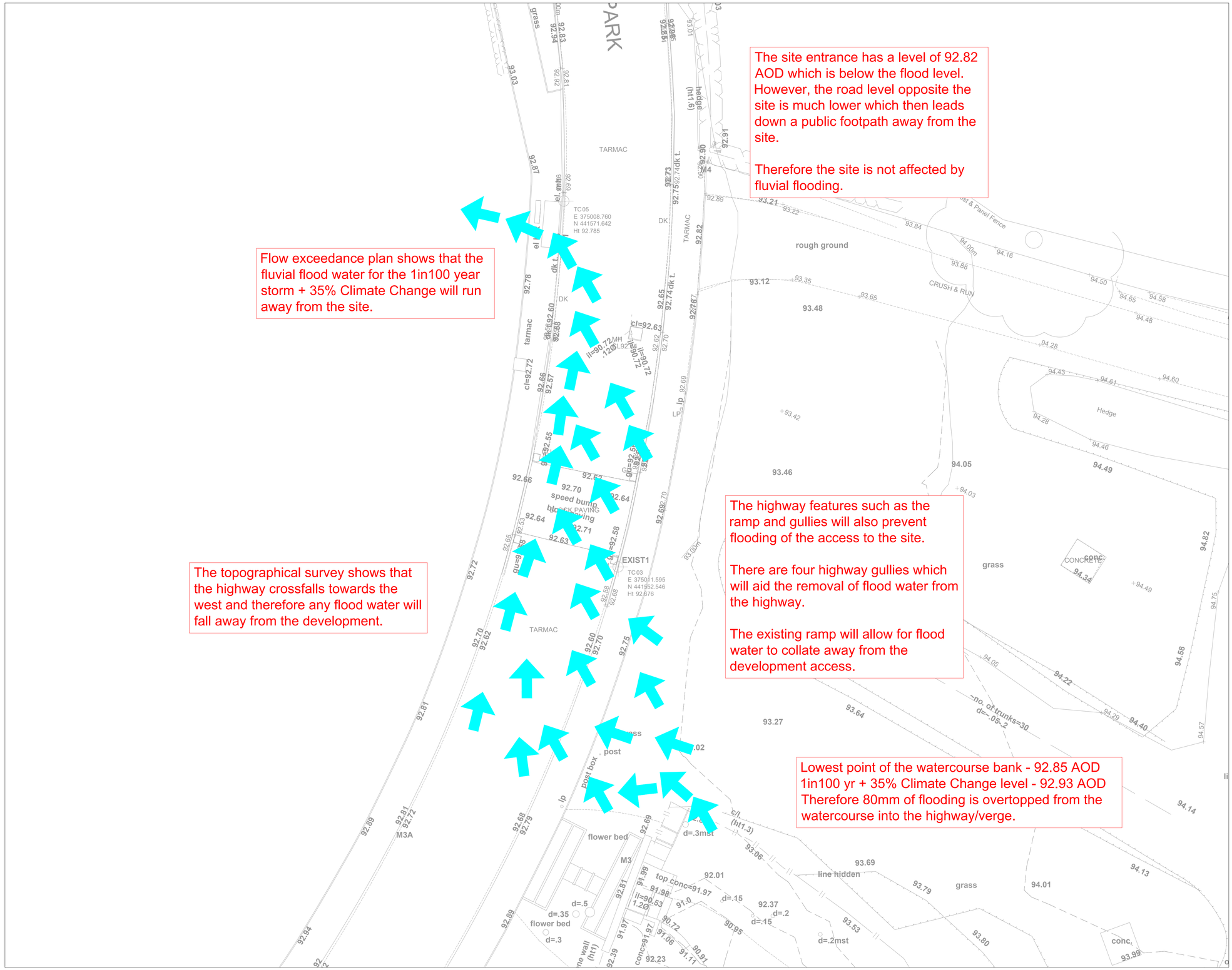
Appendix E

Flow Exceedance Plan

Notes:

1. This drawing is to be read in conjunction with all relevant architect's and engineer's drawings.

2. It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement.



P1	FIRST ISSUE	19.01.21	TA
No.	Revision	Date	Drwn

Status

TOPPING ENGINEERS
CONSULTING CIVIL & STRUCTURAL ENGINEERS
Aire House 12 Victoria Avenue Harrogate HG1 1ED
t: 01423 522 293
w: www.topping-engineers.com
e: info@topping-engineers.com

Client

V H Land Partnerships

Project

Highmoor Farm Clitheroe

Drawing title

Flow Exceedance Plan

Drawn	Chkd	Date	Scale
TA	AD	Jan 2021	As Shown @ A1

Contract No.	Drg No.	Revision
18522	DR-C-0101	P1