Arboricultural Consultancy for Lloyds Bank

Note: This report is intended for use between the client, Environmental Services and any parties detailed within the report. It is based on the understanding at the time of visiting the property that Engineers are satisfied that damage is attributable to clay shrinkage subsidence exacerbated by vegetation.

1. Case Details

Insured	Mr and Mrs Chris and Grace Brown	Address	12 Cape Copse, Rudgwick, Horsham, RH12 3HG		
Client	Subsidence Management Services	Contact	Masie Azizi	Claim No.	IFS-LBG-SUB-21-0094330
ES Ref	SA-248805	Consultant	Lewis Fraser	Contact No.	0330 380 1036
Report Date	29/07/2021				

Scope of Report: To survey the property and determine significant vegetation contributing to subsidence damage, make recommendation for remedial action and assess initial mitigation and recovery prospects. The survey does not make an assessment for decay or hazard evaluation.

2. Property and Damage Description

The insured structure is a 2 storey detached house. It has been extended with a conservatory addition to the rear and benefits from integral garage. The property occupies a level site with no adverse topographical features.

We have been advised that damage relates to the integral garage and rear conservatory where cracking indicates downward movement.

3. Technical Reports

In preparing our report we have had the benefit of the following technical investigations:

Soil Analysis ☑ Foundation Detail ☑ Root Analysis ☑
Borehole Log ☑

4. Action Plan

Mitigation	
Insured involved?	Yes
Local Authority involved?	No
Other third party Mitigation involved?	Yes
Recovery	
Is there a potential recovery action?	Yes

Treeworks	
Local Authority	Horsham District Council
TPO / Conservation Area / Planning Protection Searches	Awaiting Searches from LA
Additional Comments	
Awaiting Further Instructions. A potential recovery action has been identified. Engineers should consider focusing investigations to strengthen factual evidence for disclosure to third party tree owners.	

5. Technical Synopsis

This report is based upon our understanding at the time of visiting the property that Subsidence Management Services are satisfied that damage is due to clay shrinkage subsidence exacerbated by vegetation.

The conditions necessary for clay shrinkage subsidence to manifest have been established by site investigations, whilst roots have been recovered below the property (TP/BH1 & TP/BH2).

Samples of these roots were recovered from underside of foundations and throughout the boreholes, these roots were identified (using anatomical analysis) as having emanated from either the genera Quercus spp. (Oak) or Castanea spp. (Sweet Chestnut) and a broadleaved species, too decayed for positive identification (also absent of starch).

Our survey of the site identified the Oaks (T1, T2 & T3), given their position relative to the areas of damage, and in the absence of any Sweet Chestnut specimens on/near site, it is our opinion that the roots identified will emanate from this vegetation.

Given the above, vegetation is deemed to retain the capacity to be causal to the current movement/damage.

We have therefore been instructed to advise on the causal vegetation and to deliver management proposals which will provide on-going and long-term stability allowing repairs to be undertaken.

In assessing the potential drying influence of the vegetation on site, we have considered species profile, normally accepted influencing distance and the position of vegetation relative to the observed damage.

From our observations on site, the footings of the subject property fall within the anticipated rooting range of a quantity of vegetation located on/near the site, thereby indicating the potential for the observed damage to be the result of clay shrinkage subsidence exacerbated by the influence of vegetation.

Based on our site investigations, and taking account of vegetation location, relative to the focal area of movement/damage, it is our opinion that T1, T2 & T3 are considered the dominant features, and accordingly we have identified their collective/cohesive influence as the primary cause of the subsidence damage.

Considering engineers conclusions, results of site investigations and our observations on site, vegetation management is considered appropriate with a view to restoring stability.

Please refer to Section 6 for management prescriptions.

Vegetation management in the form of removal and appropriate stump treatment will help to promote the restoration of long-term stability to the insured property.

Whilst we have given consideration to pruning as a means of mitigating the vegetative influence of the above, this has been discounted; pruning is generally ineffective and in the context of the current claim we consider the above vegetation is simply too large and/or close for pruning to be effective.

Consequently, removal of T1, T2 & T3 will offer the most certain and reliable Arboricultural solution likely to restore long-term stability.

The extent of vegetation management required to restore and maintain long-term stability at this property is high and its impact acknowledged. However, we consider the impact on the wider public amenity from the proposed tree works is mitigated by the presence of further trees locally, and the scope for replacement planting.

Replacement planting is considered appropriate however due consideration must be given to the ultimate size of the replacement and future management requirements; species selection should be appropriate for the chosen site and ultimate tree height should not exceed 75% of the available distance to built structures.

We recommend the efficacy of the management recommendations be qualified by means of further monitoring to confirm stability.

Please note that the footing of the insured property fall within the anticipated rooting distance of additional vegetation which we believe presents a foreseeable risk of future damage and accordingly we have made recommendations in respect of this.

Is vegetation likely to be a contributory factor in the current damage?	Yes
Is vegetation management likely to contribute to the future stability of the property?	Yes
Is replacement planting considered appropriate?	Yes
Would DNA profiling be of assistance in this case?	No

6.0 Recommendations

6.1 Current Claim Requirements

These recommendations may be subject to review following additional site investigations.

Tree No.	Species	Age Cat	Approx. Height (m)	Distance to Building (m) *	Ownership	Action	Requirement
T1	Oak	3	14	6.5	C - Insured	Remove	Note: Recently reduced. Remove close to ground level; do not treat stump due to translocation risk. Where such a risk exists, we advise that any emergent regrowth is removed annually.
T2	Oak	3	18	16.2	C - Insured	Remove	Note: Recently reduced. Remove close to ground level; do not treat stump due to translocation risk. Where such a risk exists, we advise that any emergent regrowth is removed annually.
T3	Oak	3	17.5	15	A - Third Party	Remove	Remove close to ground level; do not treat stump due to translocation risk. Where such a risk exists, we advise that any emergent regrowth is removed annually.
Age Cat: 1 = Younger than property; 2 = Similar age to the property; 3 = Significantly older than property							

* Estimated

6.2 Future Risk Recommendations

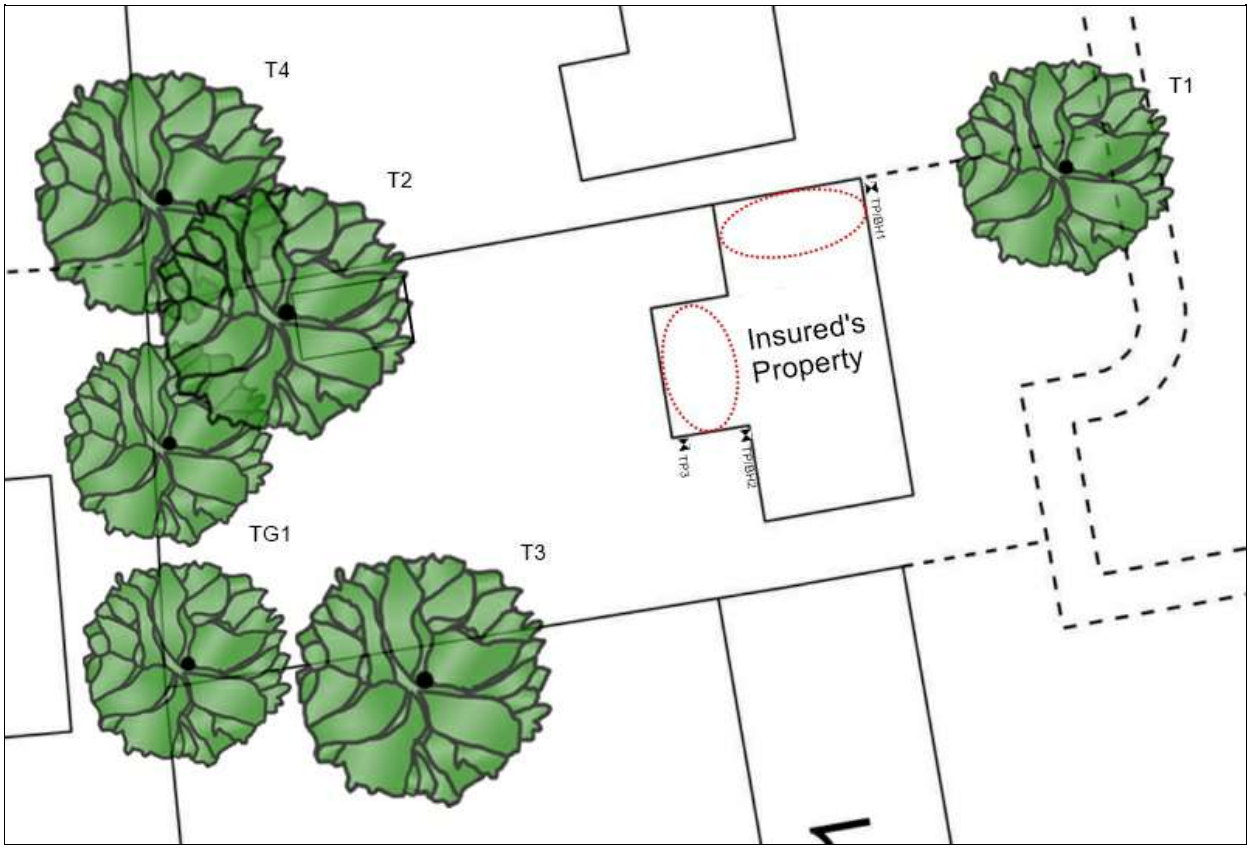
These recommendations may be subject to review following additional site investigations.

Tree No.	Species	Age Cat	Approx. Height (m)	Distance to Building (m) *	Ownership	Action	Requirement
T4	Oak	3	16.5	18.5*	A - Third Party	Action to avoid future risk	Do not allow to exceed current dimensions by way of regular pruning.
TG1	Oak	3	16.5	18	C - Insured	Action to avoid future risk	Recently reduced; maintain at reduced dimensions by re-pruning on a 3-year (max) regime.
Age Cat: 1 = Younger than property; 2 = Similar age to the property; 3 = Significantly older than property							

* Estimated

Third party property addresses should be treated as indicative only, should precise detail be required then Environmental Services can undertake Land Registry Searches

7. Site Plan



Please note that this plan is not to scale. OS Licence No. 100043218

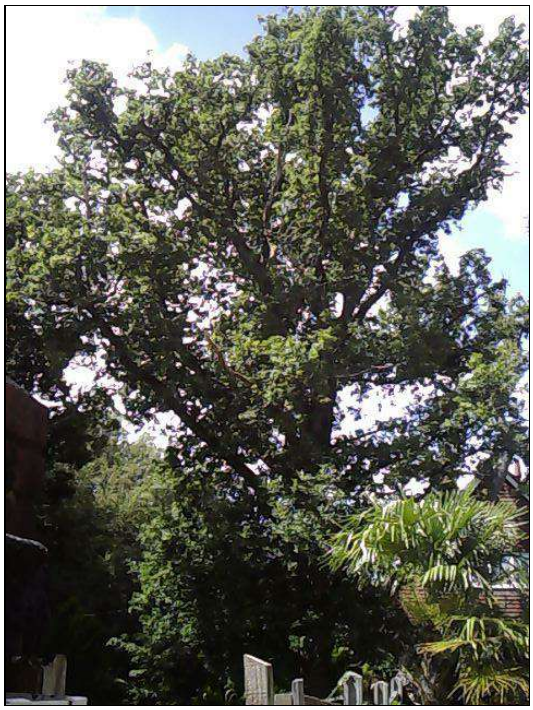
8. Photographs



T1 - Oak



T2 - Oak

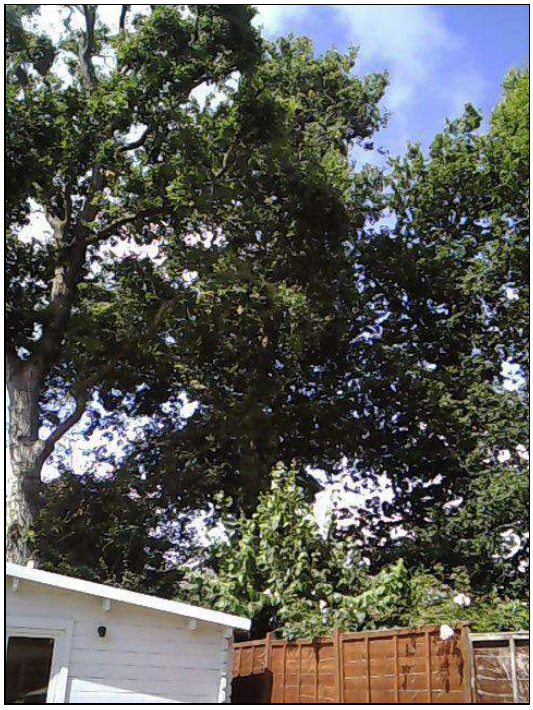


T3 - Oak



TG1 - Oak

Arboricultural Consultancy for Lloyds Bank



T4 - Oak



General Site - Front of Property

Date: 29/07/2021 Property: 12 Cape Copse, Rudgwick, Horsham, RH12 3HG

9. Tree Works Reserve - Does not include recommendations for future risk.

Insured Property Tree Works	£3900.00
Third Party Tree Works	£2160.00
Provisional Sum	£0.00

- The above prices are based on works being performed as separate operations.
- The above is a reserve estimate only.
- Ownerships are assumed to be correct and as per Section 6.
- A fixed charge is made for Tree Preservation Order/Conservation Area searches unless charged by the Local Authority in which case it is cost plus 25%.
- Should tree works be prevented due to statutory protection then we will automatically proceed to seek consent for the works and Appeal to the Secretary of State if appropriate.
- All prices will be subject to V.A.T., which will be charged at the rate applying when the invoice is raised.
- Trees are removed as near as possible to ground level, stump and associated roots are not removed or included in the price.
- Where chemical application is made to stumps it cannot always be guaranteed that this will prevent future regrowth. Should this occur we would be pleased to provide advice to the insured on the best course of action available to them at that time. Where there is a risk to other trees of the same species due to root fusion, chemical control may not be appropriate.

10. Limitations

This report is an appraisal of vegetation influence on the property and is made on the understanding that that engineers suspect or have confirmed that vegetation is contributing to clay shrinkage subsidence, which is impacting upon the building. Recommendations for remedial tree works and future management are made to meet the primary objective of assisting in the restoration of stability to the property. In achieving this, it should be appreciated that recommendations may in some cases be contrary to best Arboricultural practice for tree pruning/management and is a necessary compromise between competing objectives.

Following tree surgery we recommended that the building be monitored to establish the effectiveness of the works in restoring stability.

The influence of trees on soils and building is dynamic and vegetation in close proximity to vulnerable structure should be inspected annually.

The statutory tree protection status as notified by the Local Authority was correct at the time of reporting. It should be noted however that this may be subject to change and we therefore advise that further checks with the Local Authority MUST be carried out prior to implementation of any tree works. Failure to do so can result in fines in excess of £20,000.

Our flagging of a possible recovery action is based on a broad approach that assume all third parties with vegetation contributing to the current claim have the potential for a recovery action (including domestic third parties). This way opportunities do not “fall through the net”; it is understood that domestic third parties with no prior knowledge may be difficult to recover against but that decision will be fully determined by the client.

A legal Duty of Care requires that all works specified in this report should be performed by qualified, arboricultural contractors who have been competency tested to determine their suitability for such works in line with Health & Safety Executive Guidelines. Additionally all works should be carried out according to British Standard 3998:2010 *“Tree Work. Recommendations”*.

SubsNetUK

Drainage Investigation Report

For Subsidence Management Services

Client Mr and Mrs Chris and Grace Brown

Risk Address: 12 Cape Copse, Horsham, RH12 3HG

Visit Date: 23rd July 2021

Client Reference: IFS-LBG-SUB-21-0094330

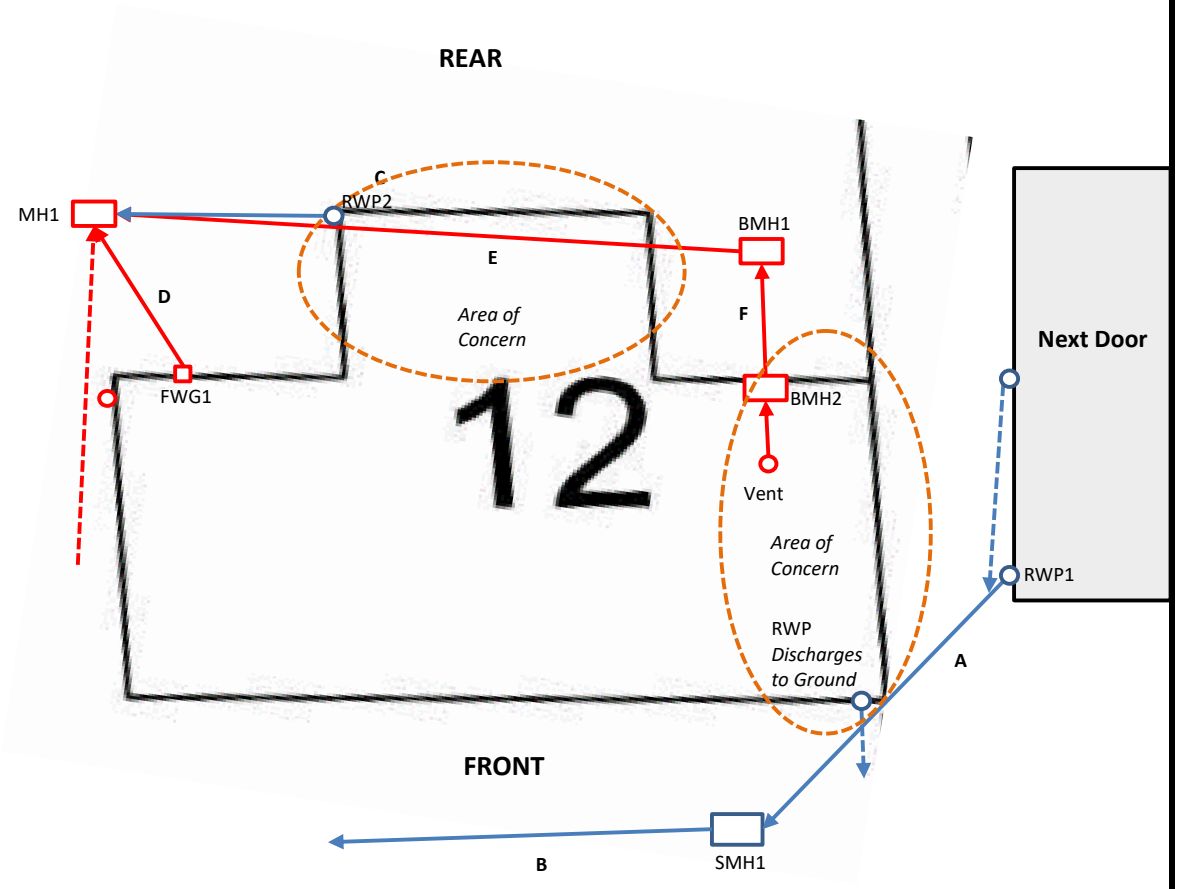
Our Reference:

Report Date: 26th July 2021

Report Content:
Front Page
Site Plan
CCTV Coding
Drain Overview
Photographs
Quote

Classification: General

Site Plan



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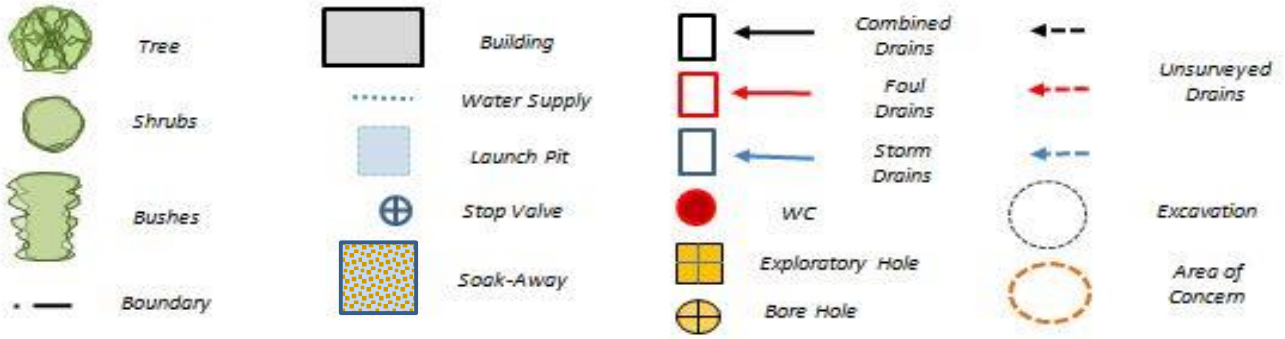

Notes:	
Address:	12 Cape Copse, Horsham, RH12 3HG

SubsNetUK

CCTV Survey

SubsNetUK

RUN	Start From :	SMH1	Finish at :	RWP1	Pipe Ø:	100mm
A	Invert Level (m):	N/A	Invert Level (m):	N/A	Material:	Clay
STORM	Condition grade:	B	Direction:	Downstream	Responsibility:	3rd Party
Distance	*Code*	*Hydraulic Test - Not Tested*				
0.00	SN	Start Node from SMH1				
0.00	WL	Water Level 0%				
0.34	CC	Crack Circumferential				
1.14	R	Roots				
2.85	JDM	Joint Displaced (Medium)				
3.00	CC	Crack Circumferential				
3.00	R	Roots				
3.42	CC	Crack Circumferential				
3.73	CC	Crack Circumferential				
4.29	CN	Connection				
4.41	CC	Crack Circumferential				
4.41	OJM	Open Joint (medium)				
4.67	LD	Line of drain deviates down °				
4.83	FN	Finish Node at RWP1 (No13)				

RUN	Start From :	SMH1	Finish at :	BEYOND AOC	Pipe Ø:	100mm
B	Invert Level (m):	0.7	Invert Level (m):	N/A	Material:	Clay
STORM	Condition grade:	B	Direction:	Downstream	Responsibility:	Local Authority
Distance	*Code*	*Hydraulic Test - Not Tested*				
0.00	SN	Start Node from SMH1				
0.00	WL	Water Level 0%				
0.61	R	Roots				
1.29	CC	Crack Circumferential				
2.17	R	Roots				
2.81	CC	Crack Circumferential				
4.07	CC	Crack Circumferential				
4.45	CC	Crack Circumferential				
6.16	CC	Crack Circumferential				
6.73	FN	Finish Node - Beyond Area of Concern				

RUN	Start From :	MH1	Finish at :	RWP2	Pipe Ø:	68mm
C	Invert Level (m):	1.3	Invert Level (m):	N/A	Material:	Plastic
STORM	Condition grade:	A	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic Test - Not Tested*				
0.00	SN	Start Node from MH1				
0.00	WL	Water Level 0%				
3.97	LU	Line of drain deviates up 90°				
4.03	FN	Finish Node at RWP2				

Address: 12 Cape Copse, Horsham, RH12 3HG

Classification: General

SubsNetUK

CCTV Survey

SubsNetUK

RUN	Start From :	MH1	Finish at :	FWG1	Pipe Ø:	100mm
D	Invert Level (m):	1.3	Invert Level (m):	N/A	Material:	Clay
FOUL	Condition grade:	B	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic Test - Not Tested*				
0.00	SN	Start Node from MH1				
0.00	WL	Water Level 0%				
0.84	CC	Crack Circumferential				
2.70	FN	Finish Node at FWG1 - Broken				

RUN	Start From :	MH1	Finish at :	BMH1	Pipe Ø:	100mm
E	Invert Level (m):	1.3	Invert Level (m):	N/A	Material:	Clay
COMBINED	Condition grade:	B	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic Test - Not Tested*				
0.00	SN	Start Node from MH1				
0.00	WL	Water Level 0%				
7.75	CC	Crack Circumferential				
8.06	CC	Crack Circumferential				
10.34	FN	Finish Node at BMH1 (BURIED)				

RUN	Start From :	BMH1	Finish at :	VENT	Pipe Ø:	100mm
F	Invert Level (m):	1.3	Invert Level (m):	N/A	Material:	Clay
COMBINED	Condition grade:	B	Direction:	Upstream	Responsibility:	Home Owner
Distance	*Code*	*Hydraulic Test - Not Tested*				
0.00	SN	Start Node from BMH1				
0.00	WL	Water Level 0%				
0.08	LR	Line of drain deviates right °				
0.30	CC	Crack Circumferential				
0.95	CC	Crack Circumferential				
1.86	CC	Crack Circumferential				
2.47	CC	Crack Circumferential				
3.65	REM	Remark - Line enters BMH2 (Buried)				
4.90	JDM	Joint Displaced (Medium)				
5.17	LU	Line of drain deviates up 90°				
5.47	FN	Finish Node at Vent pipe?				

Address: 12 Cape Copse, Horsham, RH12 3HG

Classification: General

SubsNetUK

Drainage Overview

SubsNetUK

Following the receipt of your instruction, we attended site to carry out a CCTV survey.

The CCTV survey was undertaken in general accordance with the Manual of Sewer Classification and the WRc Drain Repair Book.

All runs were cleaned by high pressure water jetting prior to the CCTV survey.

The following presents a summary of the findings with recommendations to repair and/ or return the drains to a serviceable state, where necessary.

Drain Run A: SMH1 U/S TO RWP1
Pipe Diameter: 100mm
Responsibility: 3rd Party
Hydraulic Pressure Test: Not Tested
CCTV Survey Result: Structural damage
Recommended Repair:
No repairs have been recommended as they are the responsibility of the 3rd party owner

Drain Run B: SMH1 D/S TO BEYOND AREA OF CONCERN
Pipe Diameter: 100mm
Responsibility: Local Water Authority
Hydraulic Pressure Test: Not Tested
CCTV Survey Result: Structural damage
Recommended Repair:
No repairs have been recommended as the drain line is shared and is therefore a transferred asset. The responsibility and maintenance of this drain falls with the Local Water Authority.

Drain Run C: MH1 U/S TO RWP2
Pipe Diameter: 68mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not Tested
CCTV Survey Result: No structural damage
Recommended Repair:
No repairs have been recommended as the drain line was found to be free from defects.

Drain Run D: MH1 U/S TO FWG1
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not Tested
CCTV Survey Result: Structural damage
Recommended Repair:
- Cover area in protective sheeting
- To excavate and replace existing gully including 1m of adjacent pipework
- To prepare the drain line and insert 1x resin patch liner to cover defects at 0.84m
- Bed new pipe, compact, back fill and reinstate flag paVING

Classification: General

Drain Run E: MH1 U/S TO BMH1
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not Tested
CCTV Survey Result: Structural damage
Recommended Repair:
- Cover area in protective sheeting
- To prepare the drain line and insert 1x resin patch liner to cover defects
- Trace and locate BMH1 to access
- To carry out a further look-see CCTV survey and report findings

Drain Run F: BMH1 U/S TO VENT
Pipe Diameter: 100mm
Responsibility: Home Owner
Hydraulic Pressure Test: Not Tested
CCTV Survey Result: Structural damage
Recommended Repair:
- Trace and locate BMH2 to access
- To carry out a further look-see CCTV survey and report findings
- To prepare the drain line and insert 3m of structural liner to cover defects between BMH1 & BMH2
- To prepare the drain line and insert 1x resin patch liner to cover defects upstream to vent at 4.90m

Water Main Test	Result	Acoustic Test
	PASS	No noise could be heard which indicates that there is no leak

Address: 12 Cape Copse, Horsham, RH12 3HG

Classification: General

SubsNetUK

Photographs

SubsNetUK













Address: 12 Cape Copse, Horsham, RH12 3HG

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Quote

SubsNetUK

RUN / LOCATION: SET-UP FEE

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK1133	Van pack HPWJ & CCTV in preparation of lining	nr	£148.44	1.00	£148.44
				Total (Excl VAT)	£148.44

RUN / LOCATION: RUN D

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK1120155	32/40mm waste pipes. Remove existing and replace	m	£9.60	1.00	£9.60
UK1120165	32/40mm waste pipes. Shoes / bends.	nr	£10.81	2.00	£21.61
UK0595	Gully, 225mm x 225mm. Remove existing and	nr	£146.43	1.00	£146.43
UK0605	Excavate & remove isolated length. Replace in new	nr	£131.47	1.00	£131.47
UK0880	Short Radius Bend. Remove existing item and replace	nr	£14.89	2.00	£29.78
UK1060	Extra over pipework for surrounding drain run in	m	£14.40	1.00	£14.40
UK0025	Protection Temporary works to floors, 1000 gauge	m2	£1.79	2.00	£3.59
UK8120300	Hardcore Filling to excavations over 250 mm average	m	£35.35	1.00	£35.35
UK2050005	Disposal by hand excavated contaminated/saturated	m3	£45.30	1.00	£45.30
UK1045	Removal, set aside and reinstatement of concrete	m2	£24.61	1.00	£24.61
UK1180	Patch Lining. Up to 0.6m x 100mm	nr	£290.94	1.00	£290.94
				Total (Excl VAT)	£753.08

RUN / LOCATION: RUN E

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK1180	Patch Lining. Up to 0.6m x 100mm	nr	£290.94	1.00	£290.94
UK0025	Protection Temporary works to floors, 1000 gauge	m2	£1.79	2.00	£3.59
UK10051	Drain Tracing - Electronic, with report plotting	nr	£90.02	1.00	£90.02
*	CCTV survey of underground drainage & report	nr	£165.00	1.00	£165.00
				Total (Excl VAT)	£549.55

RUN / LOCATION: RUN F

Repair Item	Description	Unit	Rate (£)	Quantity	Amount (£)
UK1135	Drain Lining - Initial Set-Up Fee (0-3.0m)	nr	£332.64	1.00	£332.64
UK0025	Protection Temporary works to floors, 1000 gauge	m2	£1.79	2.00	£3.59
UK1180	Patch Lining. Up to 0.6m x 100mm	nr	£290.94	1.00	£290.94
				Total (Excl VAT)	£627.17

REPAIR ESTIMATE TOTALS:

Run / Location		Amount (£)
Set Up Fee		£148.44
RUN D		£753.08
RUN E		£549.55
RUN F		£627.17
	Total (Excl VAT)	**£2,078.24**

Address: 12 Cape Copse, Horsham, RH12 3HG

Classification: General