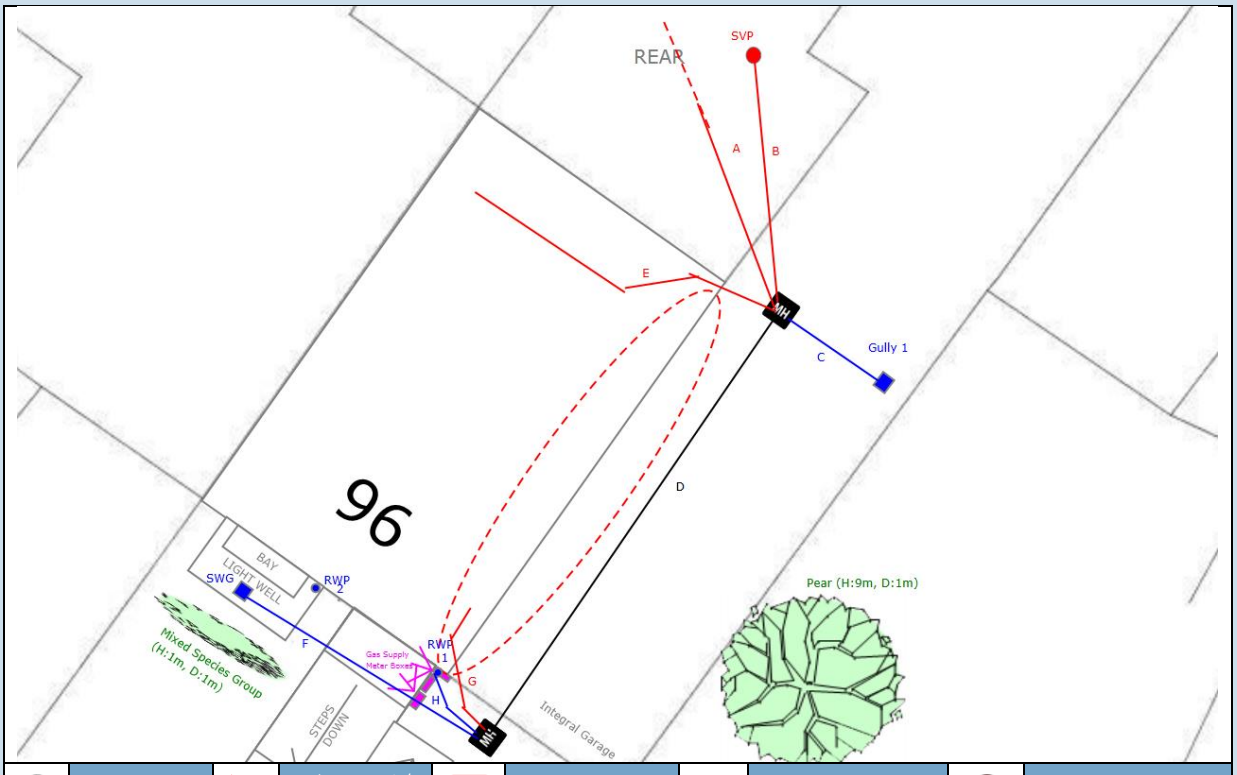
Drains

for Subsidence Management Services

96 Haverstock Hill, London, NW3 2BD

Client:	Subsidence management Services
Client Contact:	Raymond Borrow
Client Ref:	IFS-AVI-SUB-14-0052426
Policy Holder:	Haverstock Hill Limited
Report Date:	30 June 2015
Our Ref:	C18151D7398 Rev1

Site Plan



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DRAINAGE INVESTIGATION

Inspection Report

RUN:	A	**Dia mm:**	100	**Duty:**	Foul Water	**Material:**	Clay	**Responsibility:**	Insured
FROM:	MH1	**Depth mm:**	830	**TO:**	Beyond Area of Concern	**Depth mm:**	N/A	**Direction:**	U/Stream

Meterage	Code	Defect	Clock ref S	Clock ref F	Continuous defect	%	Comments
0.00	MH	Start of survey, Manhole					MH1
0.00	WL	Water level				0	
6.00	BACF	Section Complete, Beyond area of concern					Beyond Area of Concern

TOTAL LENGTH STRUCTURAL CONDITION GRADE:-	**A**

A = Structurally sound with no leakage evident. Slight cracks/ defect permitted
B = Cracks and/ or fractures observed but pipe provides sufficient arching support (e.g. plastics or pitch-fibre provide insufficient arching support when deformation is >20% of the diameter and >10% for clay/ concrete pipes.)
C = Structurally unsound with insufficient arching support, or large holes. Total collapse/ blockage likely.

DRAIN SERVICABILITY:	
Is the drain failing to discharge normal household flows to the sewer system, i.e. recurrence of blockages?	No
Is there evidence of leakage occurring (infiltration or exfiltration)?	No
Is there intermittent storm water flooding?	No
Are existing roots or future root growth likely to lead to continuing blockages?	No
Has a leakage test failed?	N/A
Do defects make the drain unserviceable?	**NO**

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DRAINAGE INVESTIGATION

RUN:	B	**Dia mm:**	100	**Duty:**	Foul Water	**Material:**	Clay	**Responsibility:**	Insured
FROM:	MH1	**Depth mm:**	830	**TO:**	SVP	**Depth mm:**	N/A	**Direction:**	U/Stream

Meterage	Code	Defect	Clock ref		Continuous defect	%	Comments
			S	F			
0.00	MH	Start of survey, Manhole					MH1
0.00	WL	Water level				0	
1.42	LR	Line of drain/sewer deviates right					45º
2.07	LU	Line of drain/sewer deviates up					90º
2.07	SVPF	Section complete, Soil and Vent Pipe					Enters SVP

TOTAL LENGTH STRUCTURAL CONDITION GRADE:-	**A**

A = Structurally sound with no leakage evident. Slight cracks/ defect permitted
B = Cracks and/ or fractures observed but pipe provides sufficient arching support (e.g. plastics or pitch-fibre provide insufficient arching support when deformation is >20% of the diameter and >10% for clay/ concrete pipes.)
C = Structurally unsound with insufficient arching support, or large holes. Total collapse/ blockage likely.

DRAIN SERVICABILITY:

Is the drain failing to discharge normal household flows to the sewer system, i.e. recurrence of blockages?	No
Is there evidence of leakage occurring (infiltration or exfiltration)?	No
Is there intermittent storm water flooding?	No
Are existing roots or future root growth likely to lead to continuing blockages?	No
Has a leakage test failed?	N/A
Do defects make the drain unserviceable?	**NO**

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DRAINAGE INVESTIGATION

RUN:	C	**Dia mm:**	100	**Duty:**	Foul Water	**Material:**	Clay	**Responsibility:**	Insured
FROM:	MH1	**Depth mm:**	830	**TO:**	Gully 1	**Depth mm:**	N/A	**Direction:**	U/Stream

Meterage	Code	Defect	Clock ref		Continuous defect	%	Comments
			S	F			
0.00	MH	Start of survey, Manhole					MH1
0.00	WL	Water level				0	
1.78	JDM	Joint displaced, Medium					
2.42	GYF	Section complete, Gully					Enters Gully 1

TOTAL LENGTH STRUCTURAL CONDITION GRADE:-	**A**

A = Structurally sound with no leakage evident. Slight cracks/ defect permitted
B = Cracks and/ or fractures observed but pipe provides sufficient arching support (e.g. plastics or pitch-fibre provide insufficient arching support when deformation is >20% of the diameter and >10% for clay/ concrete pipes.)
C = Structurally unsound with insufficient arching support, or large holes. Total collapse/ blockage likely.

DRAIN SERVICABILITY:

Is the drain failing to discharge normal household flows to the sewer system, i.e. recurrence of blockages?	No
Is there evidence of leakage occurring (infiltration or exfiltration)?	No
Is there intermittent storm water flooding?	No
Are existing roots or future root growth likely to lead to continuing blockages?	No
Has a leakage test failed?	N/A
Do defects make the drain unserviceable?	**NO**

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DRAINAGE INVESTIGATION

RUN:	D	**Dia mm:**	100	**Duty:**	Foul Water	**Material:**	Clay	**Responsibility:**	Insured
FROM:	MH1	**Depth mm:**	830	**TO:**	MH2	**Depth mm:**	N/A	**Direction:**	U/Stream

Meterage	Code	Defect	Clock ref		Continuous defect	%	Comments
			S	F			
0.00	MH	Start of survey, Manhole					MH1
0.00	WL	Water level				0	
3.18	RF	Roots, Fine					
6.86	WL	Water level				10	
6.86	MHF	Section complete, Manhole					Enters MH2

TOTAL LENGTH STRUCTURAL CONDITION GRADE:- **A**

A = Structurally sound with no leakage evident. Slight cracks/ defect permitted
B = Cracks and/ or fractures observed but pipe provides sufficient arching support (e.g. plastics or pitch-fibre provide insufficient arching support when deformation is >20% of the diameter and >10% for clay/ concrete pipes.)
C = Structurally unsound with insufficient arching support, or large holes. Total collapse/ blockage likely.

DRAIN SERVICABILITY:

Is the drain failing to discharge normal household flows to the sewer system, i.e. recurrence of blockages?	No
Is there evidence of leakage occurring (infiltration or exfiltration)?	No
Is there intermittent storm water flooding?	No
Are existing roots or future root growth likely to lead to continuing blockages?	No
Has a leakage test failed?	N/A
Do defects make the drain unserviceable?	**NO**

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DRAINAGE INVESTIGATION

RUN: E	Dia mm: 100	Duty: Foul Water	Material: Plastic	Responsibility: Insured
FROM: MH2	Depth mm: N/A	TO: Beyond Area of Concern	Depth mm:	Direction: --

Meterage	Code	Defect	Clock ref S	Clock ref F	Continuous defect	%	Comments
0.00	MH	Start of survey, Manhole					MH1
0.00	WL	Water level				0	
2.59	LL	Line of drain/sewer deviates left					90o
4.35	LR	Line of drain/sewer deviates right					45º
4.55	JN	Junction	9				Unknown Connection
5.33	JN	Junction	9				Unknown Connection
6.00	BACF	Section Complete, Beyond area of concern					Beyond Area of Concern

TOTAL LENGTH STRUCTURAL CONDITION GRADE:-	A

A = Structurally sound with no leakage evident. Slight cracks/ defect permitted
B = Cracks and/ or fractures observed but pipe provides sufficient arching support (e.g. plastics or pitch-fibre provide insufficient arching support when deformation is >20% of the diameter and >10% for clay/ concrete pipes.)
C = Structurally unsound with insufficient arching support, or large holes. Total collapse/ blockage likely.

DRAIN SERVICABILITY:

Is the drain failing to discharge normal household flows to the sewer system, i.e. recurrence of blockages?	No
Is there evidence of leakage occurring (infiltration or exfiltration)?	No
Is there intermittent storm water flooding?	No
Are existing roots or future root growth likely to lead to continuing blockages?	No
Has a leakage test failed?	N/A
Do defects make the drain unserviceable?	**NO**

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DRAINAGE INVESTIGATION

RUN:	F	**Dia mm:**	100	**Duty:**	Surface Water	**Material:**	Clay	**Responsibility:**	Insured
FROM:	MH2	**Depth mm:**	1250	**TO:**	SWG	**Depth mm:**	N/A	**Direction:**	U/Stream

Meterage	Code	Defect	Clock ref		Continuous defect	%	Comments
			S	F			
0.00	MH	Start of survey, Manhole					MH2
0.00	WL	Water level				0	
1.27	RF	Roots, Fine					
5.64	OJM	Open joint, Medium					
6.33	MC	Material of drain/sewer changes					Material changes from Clay to PVC
6.68	GYF	Section complete, Gully					Enters SWG

TOTAL LENGTH STRUCTURAL CONDITION GRADE:-	**A**

A = Structurally sound with no leakage evident. Slight cracks/ defect permitted
B = Cracks and/ or fractures observed but pipe provides sufficient arching support (e.g. plastics or pitch-fibre provide insufficient arching support when deformation is >20% of the diameter and >10% for clay/ concrete pipes.)
C = Structurally unsound with insufficient arching support, or large holes. Total collapse/ blockage likely.

DRAIN SERVICABILITY:

Is the drain failing to discharge normal household flows to the sewer system, i.e. recurrence of blockages?	No
Is there evidence of leakage occurring (infiltration or exfiltration)?	No
Is there intermittent storm water flooding?	No
Are existing roots or future root growth likely to lead to continuing blockages?	No
Has a leakage test failed?	N/A
Do defects make the drain unserviceable?	**NO**

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DRAINAGE INVESTIGATION

RUN:	G	**Dia mm:**	100	**Duty:**	Foul Water	**Material:**	Clay
Responsibility:	Insured						
FROM:	MH2	**Depth mm:**	1250	**TO:**	SA	**Depth mm:**	N/A
Direction:	U/Stream						

Meterage	Code	Defect	Clock ref		Continuous defect	%	Comments
			S	F			
0.00	MH	Start of survey, Manhole					MH2
0.00	WL	Water level				0	
0.02	LR	Line of drain/sewer deviates right					30°
1.52	LR	Line of drain/sewer deviates right					45°
2.07	LU	Line of drain/sewer deviates up					90°
2.07	SA	Survey abandoned					Survey abandoned due to deviations in the line

TOTAL LENGTH STRUCTURAL CONDITION GRADE:-	**A**

A = Structurally sound with no leakage evident. Slight cracks/ defect permitted
B = Cracks and/ or fractures observed but pipe provides sufficient arching support (e.g. plastics or pitch-fibre provide insufficient arching support when deformation is >20% of the diameter and >10% for clay/ concrete pipes.)
C = Structurally unsound with insufficient arching support, or large holes. Total collapse/ blockage likely.

DRAIN SERVICABILITY:

Is the drain failing to discharge normal household flows to the sewer system, i.e. recurrence of blockages?	No
Is there evidence of leakage occurring (infiltration or exfiltration)?	No
Is there intermittent storm water flooding?	No
Are existing roots or future root growth likely to lead to continuing blockages?	No
Has a leakage test failed?	N/A
Do defects make the drain unserviceable?	**NO**

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DRAINAGE INVESTIGATION

RUN:	H	**Dia mm:**	100	**Duty:**	Surface Water	**Material:**	Clay	**Responsibility:**	Insured
FROM:	MH2	**Depth mm:**	1250	**TO:**	RWP	**Depth mm:**	N/A	**Direction:**	U/Stream

Meterage	Code	Defect	Clock ref S	Clock ref F	Continuous defect	%	Comments
0.00	MH	Start of survey, Manhole					MH2
0.00	WL	Water level				0	
1.14	JDM	Joint displaced, Medium					
1.26	LR	Line of drain/sewer deviates right					90º
1.26	RWPF	Section complete, Rain water down pipe					Enters RWP

TOTAL LENGTH STRUCTURAL CONDITION GRADE:-	**A**

A = Structurally sound with no leakage evident. Slight cracks/ defect permitted
B = Cracks and/ or fractures observed but pipe provides sufficient arching support (e.g. plastics or pitch-fibre provide insufficient arching support when deformation is >20% of the diameter and >10% for clay/ concrete pipes.)
C = Structurally unsound with insufficient arching support, or large holes. Total collapse/ blockage likely.

DRAIN SERVICABILITY:

Is the drain failing to discharge normal household flows to the sewer system, i.e. recurrence of blockages?	No
Is there evidence of leakage occurring (infiltration or exfiltration)?	No
Is there intermittent storm water flooding?	No
Are existing roots or future root growth likely to lead to continuing blockages?	No
Has a leakage test failed?	N/A
Do defects make the drain unserviceable?	**NO**

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DRAINAGE INVESTIGATION

GULLY INSPECTIONS							
ID	**Duty**	**Material**	**Cover**			**Structural Condition Grade**	**Comments**
			Shape	**Size (mm)**	**Type**		
Gully 1	Surface Water	Clay	Rectangular	170	Metal	**A**	**No defects detected**
SWG	Surface Water	Clay	Rectangular	170	Metal	**A**	**No defects detected**

MANHOLE INSPECTIONS:							
ID	**Duty**	**Material**	**Cover**			**Invert (mm)**	**Comments**
			Type		**Size (mm)**		
MH1	Combined	Brick	Recessed	Heavy Duty	650 x 450	830	**No defects detected.**
MH2	Combined	Brick	Metal	Heavy Duty	650 x 450	1250	**No defects detected**

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Conclusions/ Recommendations

Following an instruction from Subsidence Management Services we have carried out a subsidence site investigation CCTV survey of the drainage system as per the previous GEO Technical report.

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.

RUN/LOCATION	CONCLUSIONS/RECOMMENDATIONS	GRADE
RUN A (*MH1 U/S Beyond Area of Concern)*	Structural damage was observed within this drainage run and it was assessed to be serviceable. This drainage run is a private drain and therefore the property owner has responsibility for its maintenance and repair. No repairs required as line is in a serviceable condition at this time	**A**
RUN B (*MH1 U/S SVP)*	Structural damage was observed within this drainage run and it was assessed to be serviceable. This drainage run is a private drain and therefore the property owner has responsibility for its maintenance and repair. No repairs required as line is in a serviceable condition at this time	**A**
RUN C (*MH1 U/S Gully 1)*	Structural damage was observed within this drainage run and it was assessed to be serviceable. This drainage run is a private drain and therefore the property owner has responsibility for its maintenance and repair. No repairs required as line is in a serviceable condition at this time	**A**
RUN D (*MH1 U/S MH2)*	Structural damage was observed within this drainage run and it was assessed to be serviceable. This drainage run is a private drain and therefore the property owner has responsibility for its maintenance and repair. No repairs required as line is in a serviceable condition at this time	**A**
RUN E (*MH2 U/S Beyond Area of Concern)*	Structural damage was observed within this drainage run and it was assessed to be serviceable. This drainage run is a private drain and therefore the property owner has responsibility for its maintenance and repair. No repairs required as line is in a serviceable condition at this time	**A**
RUN F (*MH2 U/S SWG)*	Structural damage was observed within this drainage run and it was assessed to be serviceable. This drainage run is a private drain and therefore the property owner has responsibility for its maintenance and repair. No repairs required as line is in a serviceable condition at this time	**A**

RUN G (*MH2 U/S SA)*	Structural damage was observed within this drainage run and it was assessed to be serviceable. This drainage run is a private drain and therefore the property owner has responsibility for its maintenance and repair. No repairs required as line is in a serviceable condition at this time	**A**
RUN H (*MH2 U/S RWP)*	Structural damage was observed within this drainage run and it was assessed to be serviceable. This drainage run is a private drain and therefore the property owner has responsibility for its maintenance and repair. No repairs required as line is in a serviceable condition at this time	**A**

DRAINAGE INVESTIGATION

Updated report 30th June 2015

Further to updated instructions we re-attended to site to investigate the drainage in the area of damage again. The question related to Run D, which had been previously investigated at the last visit. Please see below second investigation on this line:

RUN:	D	**Dia mm:**	100	**Duty:**	Foul Water	**Material:**	Clay	**Responsibility:**	Insured
FROM:	MH1	**Depth mm:**	830	**TO:**	MH2	**Depth mm:**	N/A	**Direction:**	U/Stream

Meterage	Code	Defect	Clock ref S	Clock ref F	Continuous defect	%	Comments
0.00	MH	Start of survey, Manhole					MH1
0.00	WL	Water level				0	
3.10	RF	Roots, Fine				10	
6.80	WL	Water level				10	
6.80	MHF	Section complete, Manhole					Enters MH2

TOTAL LENGTH STRUCTURAL CONDITION GRADE:-	**B**

A = Structurally sound with no leakage evident. Slight cracks/ defect permitted
B = Cracks and/ or fractures observed but pipe provides sufficient arching support (e.g. plastics or pitch-fibre provide insufficient arching support when deformation is >20% of the diameter and >10% for clay/ concrete pipes.)
C = Structurally unsound with insufficient arching support, or large holes. Total collapse/ blockage likely.

DRAIN SERVICABILITY:

Is the drain failing to discharge normal household flows to the sewer system, i.e. recurrence of blockages?	No
Is there evidence of leakage occurring (infiltration or exfiltration)?	No
Is there intermittent storm water flooding?	No
Are existing roots or future root growth likely to lead to continuing blockages?	No
Has a leakage test failed?	N/A
Do defects make the drain unserviceable?	**YES**

RUN D *(MH1 U/S MH2)*	Structural damage was observed within this drainage run and it was assessed to be serviceable. This drainage run is a private drain and therefore the property owner has responsibility for its maintenance and repair. A1. Carry out specialist root cutting. A2. Install 1 no. (one) Cured-In-Place Repair (CIPR) upstream from the manhole (MH 1) at 3.10m to seal.	**A**

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RUN/ LOCATION: RUN D					
Repair item	**Description**	**Unit**	**Rate (£)**	**Quantity**	**Amount (£)**
UK0561	Mechanical Root Cutting	m	£4.35	4.00	£17.39
UK0025	Protection Temporary works to floors, 1000 gauge polythene.	m2	£1.79	1.00	£1.79
UK1133	Van pack HPWJ & CCTV in preparation of lining	nr	£148.44	1.00	£148.44
UK1180	Patch Lining. Up to 2 m x 100mm diameter	nr	£290.94	1.00	£290.94
				TOTAL (Excl VAT)	£458.56

REPAIR ESTIMATE TOTALS:	
Run/ Location	**Amount (£)**
Run D	£458.56
TOTAL (EXCL VAT)	£458.56

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