

Surface Water Drainage Verification Report

for

Horsemere Green Lane,
Climping



ARCH ASSOCIATES
CONSULTING CIVIL AND STRUCTURAL ENGINEERS

SURFACE WATER DRAINAGE VERIFICATION REPORT

for

Horsemere Green Lane
Climping

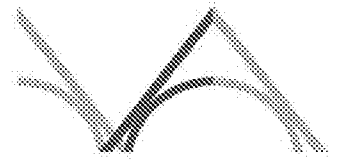
Client:

MJH Executive Homes Ltd.
Cypress Place
Waterford House
Long Furlong
Clapham BN13 3UT

ISSUE		A	B	C
Issued By	C Hendry			
Date	Jan 2022			
Purpose	Planning			
Approved By	CH			

Project No. AAL176

The Town House, St George's Square, Bishops Waltham, Southampton, Hampshire, SO32 1AF



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- 2.0 Drainage Verification
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1.0 Introduction

Arch Associates Limited has been commissioned by MJH Executive Homes Ltd. to prepare a Surface Water Drainage Verification Report for the development of 9 dwellings at Horsemere Green Lane in Climping, West Sussex. Planning reference CM/64/19/PL.

A pre-occupation planning condition has been applied, which is worded as follows:

Condition 8

Immediately following implementation of the approved surface water drainage system and prior to occupation of any part of the development, the developer/applicant shall provide the local planning authority with as-built drawings of the implemented scheme together with a completion report prepared by an independent engineer that confirms that the scheme was built in accordance with the approved drawing/s and is fit for purpose. The scheme shall thereafter be maintained in perpetuity.

Reason : To ensure that the proposed development is satisfactorily drained in accordance with policies W SP1, W DM1, W DM2 and W DM3 of the Arun Local Plan.

This report has been prepared in consideration of the wording of planning condition 8 as noted above.

2.0 As-Built Drainage

- 1.1 The surface water drainage on site was designed by Kazys Narbutas Consulting and the construction issue drawings can be found in Appendix 1.
- 1.2 Roof rainwater run-off is directed via a piped network into a swale that runs down the western flank of the site. The roads and parking feature permeable block paving and porous subbase, which conveys the water to the swale.
- 1.3 Flow control manholes are in place to limit the off-site flows as per the agreed strategy, and the swale and porous subbase provide the attenuation volumes required for the design storm periods including an allowance for climate change.
- 1.4 Arch Associates Limited have inspected the installed drainage arrangement.



- 1.5 Arch Associates have completed a review of the materials orders, which have been supplied by the Client.
- 1.6 An As-Built survey has been provided by TruEye Land Surveyors, which can be found in Appendix 2. This provides an accurate measured record of the as-built drainage and has been used for comparison with the design intent.
- 1.7 The Minor Works Completion Certificate from WSCC has been provided, which relates to acceptance of the as-built highways arrangement. Refer to Appendix 5.
- 1.8 The NHBC inspection logs have been provided by the Client, which confirms their inspection dates and confirmation of acceptance of the installed drainage. Refer to Appendix 4.

3.0 Conclusion/Validation

- 1.9 Arch Associates Limited have reviewed the as-built survey and compared it to the design intent, which has been added to the survey for ease of comparison.
- 1.10 The As-Built survey confirms that the drainage on site has generally been installed in accordance with the drainage design and therefore accords with the hydraulic design intent.
- 1.11 Minor discrepancies between design invert and cover levels and the as-built arrangement have been identified, but these are well within tolerance, and we do not anticipate them having an adverse impact on the effectiveness of the system.
- 1.12 The system has been functioning effectively over winter since completion of the works, with homes being occupied.
- 1.13 No trees appear to have been placed in positions that would be detrimental to the drainage arrangement
- 1.14 There has been no unauthorised raising or watercourse infilling, culverting or alterations.
- 1.15 Based on the record information provided, as well as the as-built survey and our own inspections on site, we are satisfied that the drainage has been installed in accordance with the design and therefore should function as intended.
- 1.16 As a general note, the quality of workmanship on site was of a high standard.



APPENDIX 1

Drainage Design Drawings



FOUL DRAINAGE MANHOLE SCHEDULE					
REFERENCE	Cover Level (m)	Invert Level (m)	Depth to Silt (m)	Size (mm)	Cover Code
F1	5.60	3.470	1.880	1200 diameter	2
F2	5.36	4.270	1.440	400 diameter	3
F3	6.07	4.450	1.461	400 diameter	3
F4	6.22	4.660	1.421	400 diameter	3
F5	6.45	4.900	1.400	400 diameter	3
F6	6.70	5.376/5.325	1.225	400 diameter	3
F7	6.60	5.45	1.050	400 diameter	3
F8	6.60	5.70	0.800	400 diameter	3
F9	6.35	5.70	0.950	400 diameter	3
F10	6.35	5.50	0.700	400 diameter	3
F11	6.80	5.50	1.250	400 diameter	3
F12	6.75	5.40	1.200	400 diameter	3
F13	6.60	5.40	1.000	400 diameter	3
F14	6.60	5.50	1.100	400 diameter	3
F15	6.55	5.75	0.500	250 diameter	4
F16	6.35	5.75	0.500	250 diameter	4
F17	6.35	5.75	0.500	250 diameter	4
F18	6.40	5.80	0.500	250 diameter	4
F19	6.40	5.80	0.500	250 diameter	4
F20	6.40	5.80	0.500	250 diameter	4
F21	6.40	5.80	0.500	250 diameter	4
F22	6.35	5.75	0.500	250 diameter	4
F23	6.35	5.75	0.500	250 diameter	4
F24	6.35	5.75	0.500	250 diameter	4
F25	6.40	5.80	0.500	250 diameter	4
F26	6.40	5.80	0.500	250 diameter	4
F27	6.40	5.80	0.500	250 diameter	4
F28	6.40	5.80	0.500	250 diameter	4
F29	6.40	5.80	0.500	250 diameter	4
F30	6.40	5.80	0.500	250 diameter	4
F31	6.40	5.80	0.500	250 diameter	4
F32	6.40	5.80	0.500	250 diameter	4
F33	6.40	5.80	0.500	250 diameter	4
F34	6.40	5.80	0.500	250 diameter	4
F35	6.40	5.80	0.500	250 diameter	4
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F40	6.40	5.80	0.500	250 diameter	4
F41	6.40	5.80	0.500	250 diameter	4
F42	6.40	5.80	0.500	250 diameter	4
F43	6.40	5.80	0.500	250 diameter	4
F44	6.40	5.80	0.500	250 diameter	4
F45	6.40	5.80	0.500	250 diameter	4
F46	6.40	5.80	0.500	250 diameter	4
F47	6.40	5.80	0.500	250 diameter	4
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F61	6.40	5.80	0.500	250 diameter	4
F62	6.40	5.80	0.500	250 diameter	4
F63	6.40	5.80	0.500	250 diameter	4
F64	6.40	5.80	0.500	250 diameter	4
F65	6.40	5.80	0.500	250 diameter	4
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F81	6.40	5.80	0.500	250 diameter	4
F82	6.40	5.80	0.500	250 diameter	4
F83	6.40	5.80	0.500	250 diameter	4
F84	6.40	5.80	0.500	250 diameter	4
F85	6.40	5.80	0.500	250 diameter	4
F86	6.40	5.80	0.500	250 diameter	4
F87	6.40	5.80	0.500	250 diameter	4
F88	6.40	5.80	0.500	250 diameter	4
F89	6.40	5.80	0.500	250 diameter	4
F90	6.40	5.80	0.500	250 diameter	4
F91	6.40	5.80	0.500	250 diameter	4
F92	6.40	5.80	0.500	250 diameter	4
F93	6.40	5.80	0.500	250 diameter	4
F94	6.40	5.80	0.500	250 diameter	4
F95	6.40	5.80	0.500	250 diameter	4
F96	6.40	5.80	0.500	250 diameter	4
F97	6.40	5.80	0.500	250 diameter	4
F98	6.40	5.80	0.500	250 diameter	4
F99	6.40	5.80	0.500	250 diameter	4
F100	6.40	5.80	0.500	250 diameter	4

SURFACE WATER DRAINAGE MANHOLE SCHEDULE					
REFERENCE	Cover Level (m)	Invert Level (m)	Depth to Silt (m)	Size (mm)	Cover Code
S1	6.40	5.970	0.230	400 diameter	3
S2	6.40	5.770	0.430	400 diameter	3
S3	6.25	5.670	0.430	400 diameter	3
S4	6.60	5.605	0.685	400 diameter	3
S5	6.60	5.605	0.685	400 diameter	3
S6	6.60	5.600	0.600	400 diameter	3
S7	6.60	5.600	0.600	400 diameter	3
S8	6.60	5.600	0.600	400 diameter	3
S9	6.60	5.600	0.600	400 diameter	3
S10	6.60	5.600	0.600	400 diameter	3
S11	6.60	5.600	0.600	400 diameter	3
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S99	6.60	5.600	0.600	400 diameter	3
S100	6.60	5.600	0.600	400 diameter	3

Notes:

1. All works are to be done in accordance with the current standards and specifications.
2. The contractor is to ensure that all works are completed in accordance with the current standards and specifications.
3. The contractor is to ensure that all works are completed in accordance with the current standards and specifications.
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20. The contractor is to ensure that all works are completed in accordance with the current standards and specifications.
21. The contractor is to ensure that all works are completed in accordance with the current standards and specifications.
22. The contractor is to ensure that all works are completed in accordance with the current standards and specifications.

Legend:

- Existing foul water sewer
- Type 2 manhole - 1200mm Ø
- Domestic surface water drain
- Domestic foul water drainage
- Type 3 manhole - 4500
- Type 4 shallow PRC inspection chamber - 2500
- Silt trap inspection chamber - 4500
- Corrugated 300 series flow control limiting discharge to 0.1 litres/sec
- Unadopted highway gully
- Polypropylene High Performance Permeated Diffuser
- Unadopted highway gully with Polypropylene Permeated Diffuser to discharge surface water into the sub-grade
- Paved ditch headwall
- Acc drainage channel with collection gully and silt trap (to be installed in accordance with the current standards and specifications)
- Discharge headwall structure with silt trap (to be installed in accordance with the current standards and specifications)
- 2.0litre/sec (equipped to agreement with ADIC)
- Formstone finish
- Sub surface barrier under carriageway surfacing
- Proposed levels
- Proposed finished floor level
- Carriageway crossfall

FOR CONSTRUCTION

Project: LANGFORD HORSEWOMEN GREEN LANE CLIPPING

Client: MICHAEL HARTNETT EXECUTIVE HOMES

Designing: KAZYS NARBUTAS CONSULTING

Engineering Details: Drainage Layout

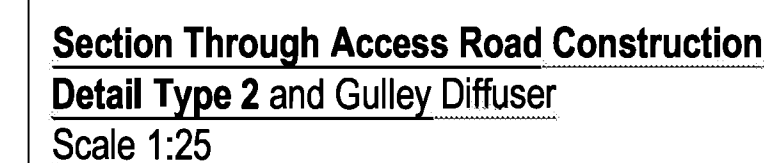
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Page No: 502/01

Date: 04/20

Revision: N

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F	08.09.20	Countflow discharge pipe size and top of bank level added	KN
E	28.08.20	Countflow detail added, issued for construction	KN
D	04.08.20	Amendments to sections and additional details added	KN
C	08.06.20	Additional details added	KN
B	30.04.20	Porosity value added	KN
A	16.04.20	First Issue	KN
Rev.	Date	Details	Initials

Drawing Status
FOR CONSTRUCTION

Project
LANGFORD
HORSEMERE GREEN LANE, CLIMPING

Client 

KAZYS NARBUTAS
CONSULTING
Civil Engineering Consultant
Unit 5B, Tanners Court, Tanners Lane, East Wellow, Royston, Hants. SG8 5SE
Telephone: 01793 322005 Email: kazy@nccmail

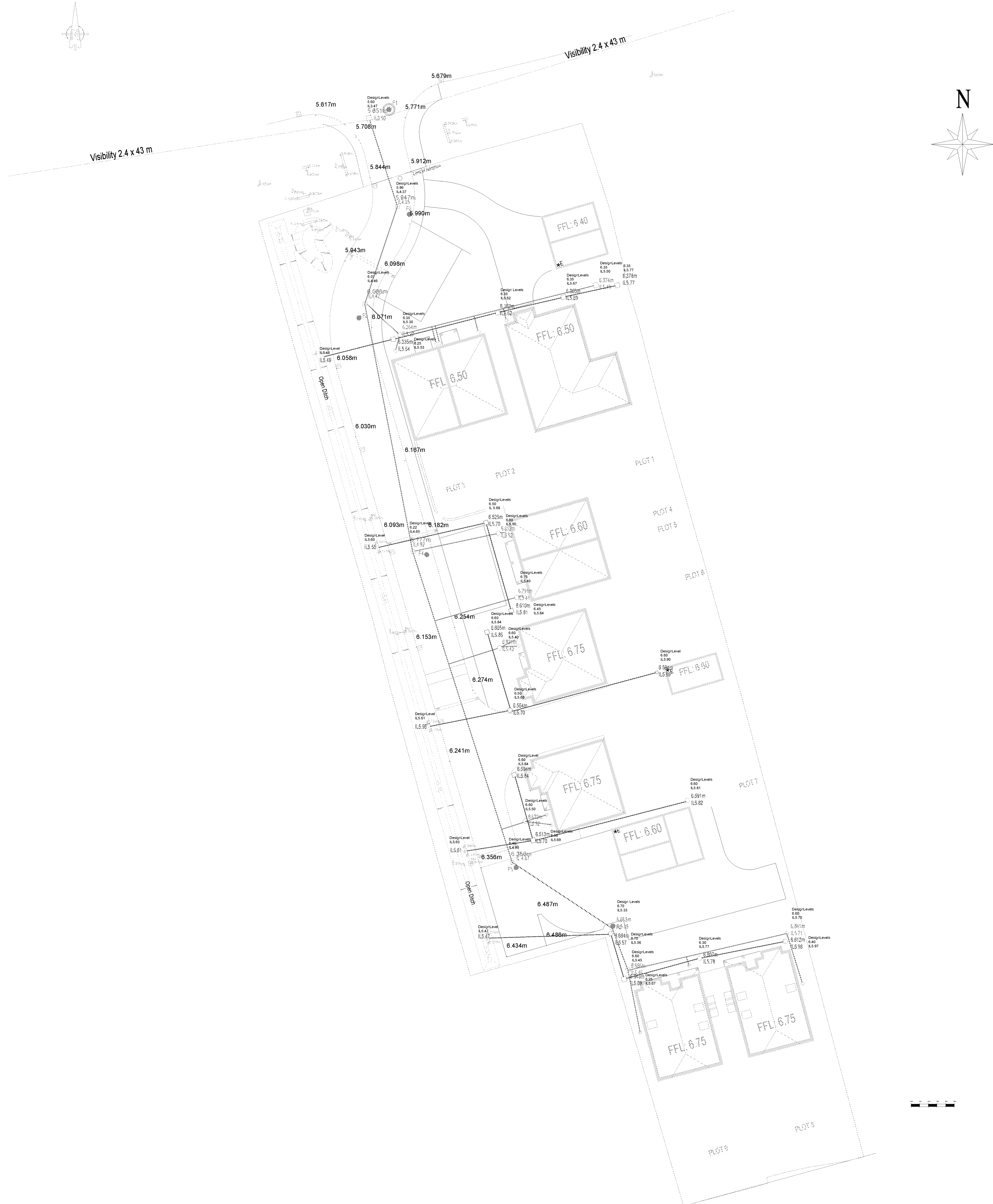
Drawing Title
Engineering Details
Construction Details

Drawn	Checked	Scales	Paper Size	Date
KN		1:25	A1	04.20
Job No.	Drawing No.			Revision
KNC1933	501-01			F



APPENDIX 2

As-built Survey



- DO NOT SCALE OFF THIS DRAWING EXCEPT FOR PLANNING PURPOSES

- CHECK ALL DIMENSIONS ON SITE BEFORE ANY WORK IS COMMENCED

- ALL GOODS MATERIALS AND WORKMANSHIP MUST CONFORM WITH CURRENT BUILDING REGULATIONS, BRITISH STANDARDS AND CODES OF PRACTICE

- COPYRIGHT OF THIS DRAWING IS RETAINED BY THE SURVEYOR AND IT MUST NOT BE REPRODUCED WITHOUT WRITTEN CONSENT

[illegible]

REV	DATE	BY	AMENDMENT
 TruEye			
1. 01/02/2022 2. 06/03/2022 (J. GARDNER) 3. 06/03/2022 (J. GARDNER)		1. 01/02/2022 2. 06/03/2022 3. 06/03/2022 4. 06/03/2022	
CLIENT			
MJH			
JOB TITLE			
Horsmere Green Lane Climping			
DRAWING TITLE			
As Built Survey			
DATE	SCALE	DRAWN BY	
Jan 2022	1:250@A1	ZS	
		CHECKED BY	DT
JOB NO.	DRAWING NO.	REVISION	



APPENDIX 3

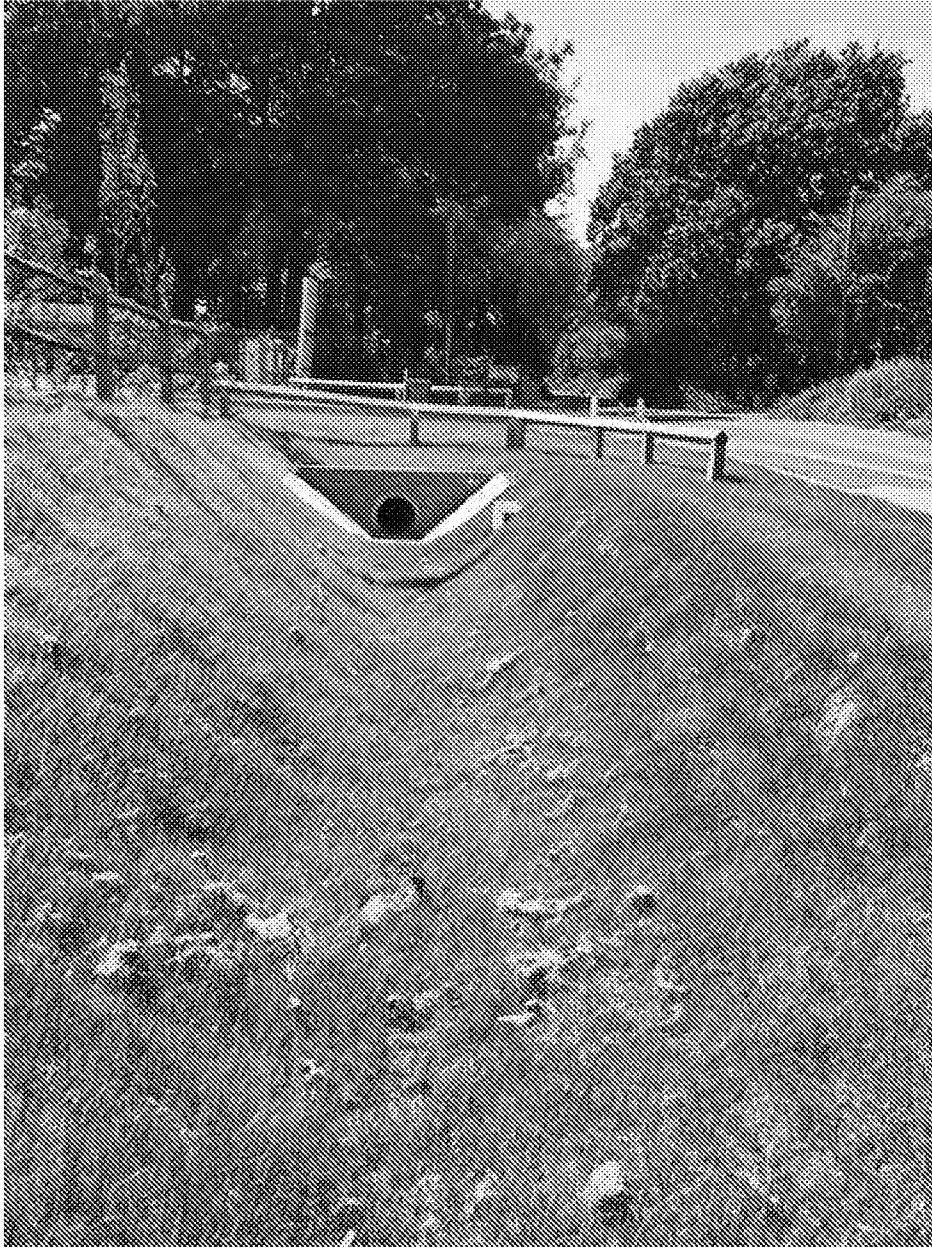
Site Photographs



























APPENDIX 4

NHBC Inspection Logs

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Plot	Foundations			Drainage			Superstructure			Pre-plaster			Pre-handover		
	Date		NHBC	Date		NHBC	Date		NHBC	Date		NHBC	Date		NHBC
	Inspected	Accepted		Inspected	Accepted		Inspected	Accepted		Inspected	Accepted		Inspected	Accepted	
01	4/1/20	4/5/20		4/1/20	9/11/20		4/1/21	11/1/21		12/4/21	12/2/21		20/7/21	24/7/21	
02	16/11/20	16/11/20		11/1/20	24/4/20		4/1/21	11/1/21		9/3/21	9/3/21		1/7/21	26/3/21	
03	16/11/20	16/11/20		11/1/20	24/11/20		4/1/21	11/1/21					29/5/21	26/7/21	
04	3/9/20	3/9/20		11/1/20	11/1/20		29/1/21	9/3/21		10/3/21	10/3/21		30/6/21	30/6/21	
05	3/9/20	3/9/20		11/1/20	11/11/20		20/1/21	9/3/21		30/3/21	29/3/21		31/6/21	11/6/21	
06	1/9/20	1/9/20		11/1/20	5/11/20		11/3/21	11/3/21		4/6/21	16/6/21		31/7/21	13/8/21	
07	28/8/20	28/8/20		11/1/20	4/11/20		3/3/21	5/3/21		9/7/21	9/7/21		1/9/21	29/9/21	
08	21/1/20	21/1/20		11/1/20	28/4/20		4/4/21	20/4/21		9/8/21	9/8/21		1/11/21	11/11/21	
09	21/8/20	21/8/20		11/1/20	4/11/20		1/4/21	24/4/21		9/7/21	9/7/21		1/10/21	3/10/21	
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Raising Standards. Protecting Homeowners

If key stage NOT inspected one of the following will appear under 'Date inspected':

☐ B Indicates builder has not notified NHBC ☐ N Indicates NHBC has not carried out inspection



Stage inspections

Key stage inspection records



Raising Standards. Protecting Homeowners



APPENDIX 5

WSCC Minor Works Completion Certificate

Mark Penny
Administrator
Planned Delivery – Highway Agreements

Ground Floor
Northleigh
County Hall
Chichester
West Sussex
PO19 1RH



18 October 2021

MJH Executive Homes Limited
Cypress Place
Waterfield House
Long Furlong
Clapham
Worthing
BN13 3UT

Our reference: PSI/3556 (L347)

Dear Sir/Madam

Development: Langford, Horsemere Green Lane, Climping
Parish: Climping
MWL Agreement dated 17 November 2020
MINOR WORKS AGREEMENT COMPLETION CERTIFICATE

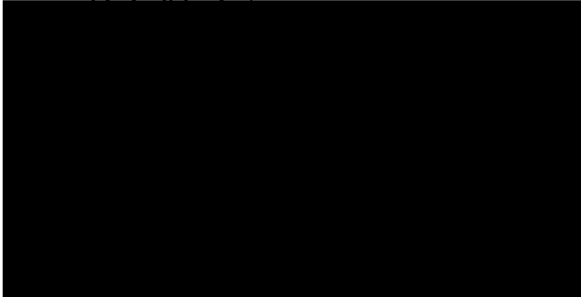
In accordance with the above Agreement, it is certified that the date of completion of the works is **06/ 10/ 2021**.

The maintenance period will therefore run from **06/ 10/ 2021** to and including **06/ 10/ 2022**.

You are reminded of your obligations during the maintenance period under the terms of the Agreement.

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If you contact an engineer no later than **06/ 09/ 2022** they will be pleased to arrange for a final inspection to be made with a view to completing the adoption procedure.

Yours faithfully



Mark Penny
Administrator, Planning Services