



**ARCH
ASSOCIATES**

SUDS VERIFICATION REPORT



LAND AT MOORGREEN,
HEDGE END



**ARCH
ASSOCIATES**

SUDS VERIFICATION REPORT

for

LAND AT MOORGREEN,
HEDGE END

Client:
Foreman Homes Ltd.
1300 Parkway
Solent Business Park
Whiteley
PO15 7AE

ISSUE		A	B	C
Issued By	C Hendry	C Hendry		
Date	August 2023	Sept. 202		
Purpose	Information	Information		
Approved By	CH	CH		

Project No. FHL006

CONTENTS

- 1.0 Introduction
- 2.0 Drainage Verification
- 3.0 Conclusion

APPENDIX 1 – Drainage Layout

APPENDIX 2– Site Photographs

1.0 Introduction

Arch Associates Limited has been commissioned by Foreman Homes Ltd. to prepare a Surface Water Drainage Verification Report for the development at Moorgreen, Hedge End. Planning reference CM/64/19/PL.

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

Condition 12

The Sustainable Drainage Scheme with landscaping shall be fully implemented and written verification by an appropriate drainage consultant of its implementation in accordance with the approved details shall be provided to the Local Planning Authority prior to the first occupation of the 50th dwelling unit. The sustainable drainage scheme shall thereafter be retained, maintained and managed to the satisfaction of the Local Planning Authority.

Reason: to prevent flooding and pollution

This report has been prepared in consideration of the wording of planning condition 12 as noted above.

2.0 Drainage Verification

- 2.1 The surface water drainage on site was designed by Reuby & Stagg Ltd. and the construction issue drawings can be found in Appendix 1.

- 2.2 Roof rainwater run-off is directed via a piped network by gravity, which runs into a central swale and then outfalls into an existing 1050mm diameter surface water culvert running under the motorway.
- 2.3 Roads and hard surfacing generally are drained via gullies, which connect into the on-site gravity piped network.
- 2.4 An existing 225mm diameter surface water sewer is diverted through the site via the central watercourse, which runs north through the site and is discharged into the existing 675mm diameter surface water drain running east along the northern boundary before ultimately connecting into the 1050mm culvert.
- 2.5 Flow control manholes are in place to limit the off-site flows as per the agreed strategy, and the attenuation volumes required for the design storm periods are catered for via crate attenuation tanks.
- 2.6 Treatment of the surface water is provided via Hydro-International proprietary Downstream Defender filter manholes.
- 2.7 Arch Associates Limited have inspected the drainage installations during the build process

3.0 Conclusion

- 3.1 Arch Associates Limited have reviewed the as-built drainage and compared it to the design intent.
- 3.2 The system has been functioning effectively over winter since completion of the works, with homes being occupied.
- 3.3 The ground worker has provided confirmation that the drainage installation is in accordance with the design drawings from Reuby and Stagg.
- 3.4 No trees appear to have been placed in positions that would be detrimental to the drainage arrangement



- 3.5 We have seen no evidence of unauthorised raising or watercourse infilling, culverting, or alterations.
- 3.6 Based on the record information provided, as well as our own inspections on site, we are satisfied that the drainage has been installed in accordance with the design.



Chris Hendry MSc CEng MStructE
Director
For and on behalf of Arch Associates Limited



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APPENDIX 1

Drainage Design Drawings

NOTES

- 1 THIS DRAWING IS COPYRIGHT.
- 2 THE CONTRACTOR AND HIS SUBCONTRACTOR ARE TO VERIFY ALL DIMENSIONS ON SITE PRIOR TO MAKING SHOP DRAWINGS OR COMMENCING MANUFACTURE.
- 3 DO NOT SCALE THIS DRAWING. THE CONTRACTOR IS TO BRING TO THE NOTICE OF THE ENGINEER ANY DISCREPANCIES CONTAINED IN THIS DRAWING PRIOR TO WORK COMMENCEMENT.
- 4 ALL 150mm AND 225mm DIAMETER PIPES TO BE EXTRA STRENGTH VITRIFIED CLAY PIPES (SEE NOTE 15).
- 5 ALL PIPES OF 300mm DIAMETER OR GREATER TO BE CLASS M CONCRETE.
- 6 UNADOPTABLE SURFACE WATER DRAINAGE 150mm DIA. OR GREATER CAN BE TWIN WALL PLASTIC. TO BE CONFIRMED.
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- 8 ALL WORK IS TO BE CARRIED OUT IN ACCORDANCE WITH SEWERS FOR ADOPTION 7TH EDITION, THE SPECIFICATION FOR HIGHWAY WORKS 1998 AND ALL SUBSEQUENT AMENDMENTS AND LOCAL AUTHORITIES DESIGN GUIDE. WHERE THERE IS CONFLICT BETWEEN THESE DOCUMENTS THE MATTER SHALL BE REFERRED TO THE ENGINEER.
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CONSTRUCTION
SUBJECT TO S185 & S104
TECHNICAL APPROVALS

C4	2021-03-03	SW DRAINS UPDATED AND INVERT LEVELS ADDED TO FLATS 92-100	PJ
C3	2020-04-02	STORAGE VOLUME FOR AQUACELL STORAGE ADJACENT S12 CORRECTED	PJ
C2	2020-03-06	MH S34 FLOW RATE CORRECTED. FOUL WATER DIVERSION AMENDED TO SUIT SURVEYED LEVELS AT OUTFALL. FW PIPE REFERENCE UPDATED SHOWN IN REV. CLOUD.	PJ
C1	2020-02-20	CONSTRUCTION ISSUE	RT
rev	date	description	initials

Project LAND AT MOORGREEN, HEDGE END

Client / Architect
FOREMAN HOMES LIMITED

Title
DRAINAGE LAYOUT
SHEET 4 OF 4



REUBY & STAGG LTD.
CONSULTING CIVIL & STRUCTURAL ENGINEERS

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date	01/2020	scale	1:250	size	A1	project no.	10496	drawing no.	3254	revision	C4
drawn	RT										
checked	PJ										

LEGEND

- X-X-X- DENOTES SEWER TO BE GRUBBED UP/GROUTED ON COMPLETION OF DIVERSION
- X-X-X-X- DENOTES EXISTING MANHOLE TO BE REMOVED ON COMPLETION OF DIVERSION
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NOTES

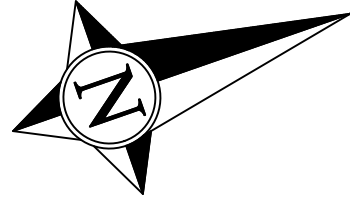
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LEGEND	
	- EXISTING MANHOLE
	- EXISTING GULLY
	- EXISTING SURFACE WATER SEWER
	- EXISTING FOUL SEWER
	- PROPOSED SURFACE WATER MANHOLE
	- PROPOSED FOUL WATER MANHOLE
	- PROPOSED SURFACE WATER SILT TRAP
	- PROPOSED GULLY CONNECTED TO SURFACE WATER SYSTEM
	- DENOTES BELOW GROUND SURFACE WATER DRAINAGE
	- DENOTES BELOW GROUND FOUL DRAINAGE
	- DENOTES SEWER TO BE GRUBBED UP/ROUTED UP ON COMPLETION OF DIVERSION
	- DENOTES EXISTING MANHOLE TO BE REMOVED ON COMPLETION OF DIVERSION
	- DENOTES WORKS BY OTHERS

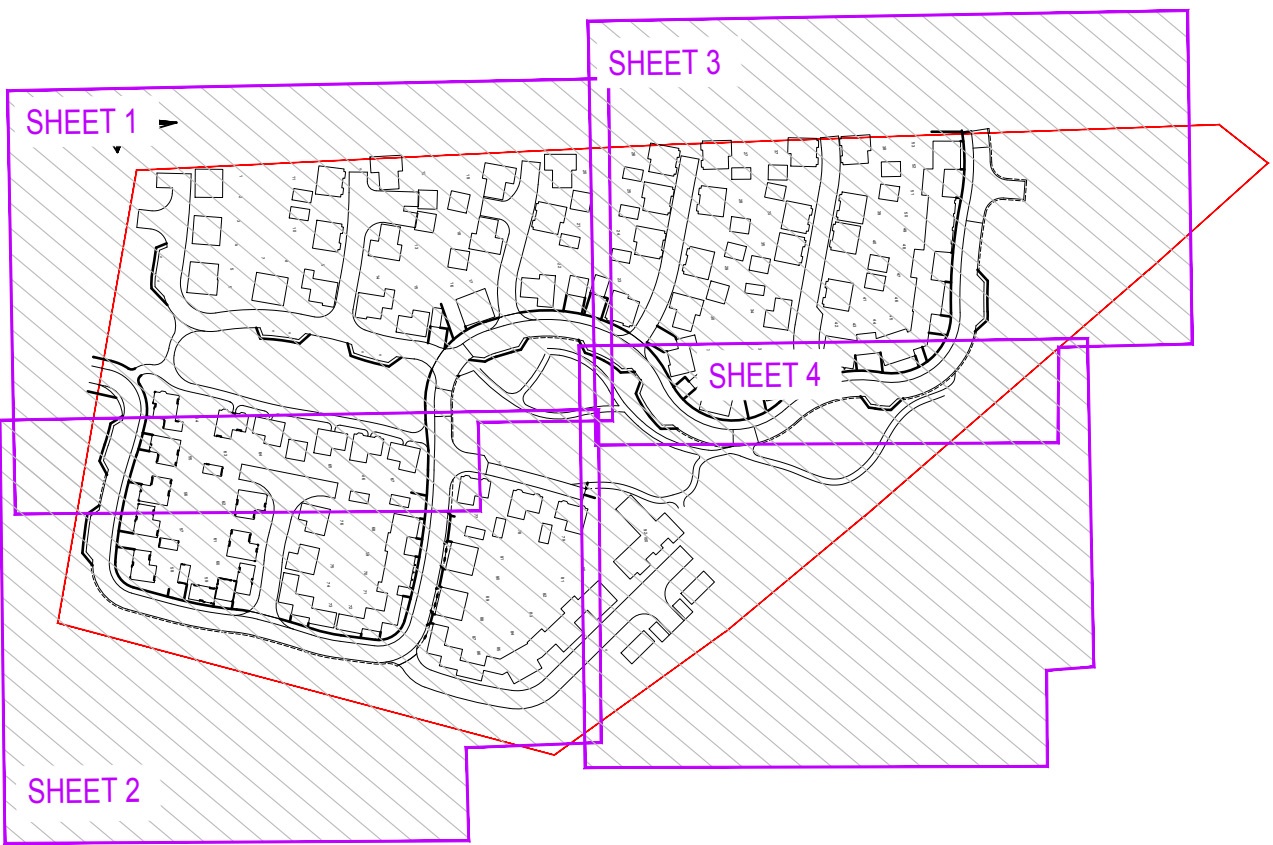
RISK SCHEDULE	
ITEM	DESCRIPTION OF RISK OF ACTION
	SPECIFIC HEALTH AND SAFETY RISKS ASSOCIATED WITH THESE WORKS ARE HIGHLIGHTED WITH THE CAUTION SYMBOL ADJACENT TO THE ITEM OF RISK. PLEASE REFER TO RISK SCHEDULE CONTAINED ON INDIVIDUAL DRAWINGS.
	UNLESS HIGHLIGHTED THERE ARE NO SPECIFIC HEALTH AND SAFETY RISKS ASSOCIATED WITH THESE WORKS, AS A DIRECT RESULT OF OUR DESIGN, APART FROM THE COMMON ISSUES ASSOCIATED WITH CONSTRUCTION THAT WILL NEED TO BE ASSESSED BY A COMPETENT CONTRACTOR PRIOR TO THE UNDERTAKING OF ANY WORKS.
	THE CONTRACTOR SHOULD BE AWARE OF THE EXISTING HIGHWAYS ADJACENT TO THE SITE
	THE CONTRACTOR SHOULD BE AWARE OF EXISTING SERVICES REMAIN LIVE DURING CONSTRUCTION
	THE CONTRACTOR SHOULD BE AWARE OF DEEP EXCAVATIONS FOR SEWERS
	THE CONTRACTOR SHOULD BE AWARE OF EXISTING WATER COURSE
	THE CONTRACTOR SHOULD BE AWARE OF EXISTING MANHOLE

HEALTH & SAFETY:

ALL WORKS TO BE CARRIED OUT BY A CONTRACTOR COMPETENT TO UNDERTAKE THE CONSTRUCTION OF WORKS AS INDICATED ON THIS DRAWING. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE JOB SPECIFIC RISK ASSESSMENT. THE HAZARDS NOTED ARE IN ADDITION TO THE NORMAL HAZARDS AND RISKS FACED BY A COMPETENT CONTRACTOR WHEN DEALING WITH THE TYPE OF WORKS DETAILED ON THIS DRAWING.



CONSTRUCTION
SUBJECT TO TECHNICAL APPROVALS



C5	2021-02-03	EXISTING DITCH INFORMATION AMENDED TO REFLECT ON-SITE	RB
C4	2020-10-06	DOWNSIDE DEFENDER ADDED PRIOR TO OUTFALL TO EXISTING CULVERT	RB
C3	2020-04-02	STORAGE VOLUME FOR AQUACELL STORAGE ADJACENT S12 CORRECTED	PJ
rev	date	description	initials

Project		LAND AT MOORGREEN, HEDGE END	
Client / Architect		Title	
FOREMAN HOMES LIMITED		OVERALL DRAINAGE LAYOUT	



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Telephone: 01425 484400
Facsimile: 01425 484409
Email: admin@reuby-stagg.co.uk

date	01/2020	scale	1:500	size	A1	project no.	10496	drawing no.	3250	revision	C5
drawn	RT	checked	RHB								

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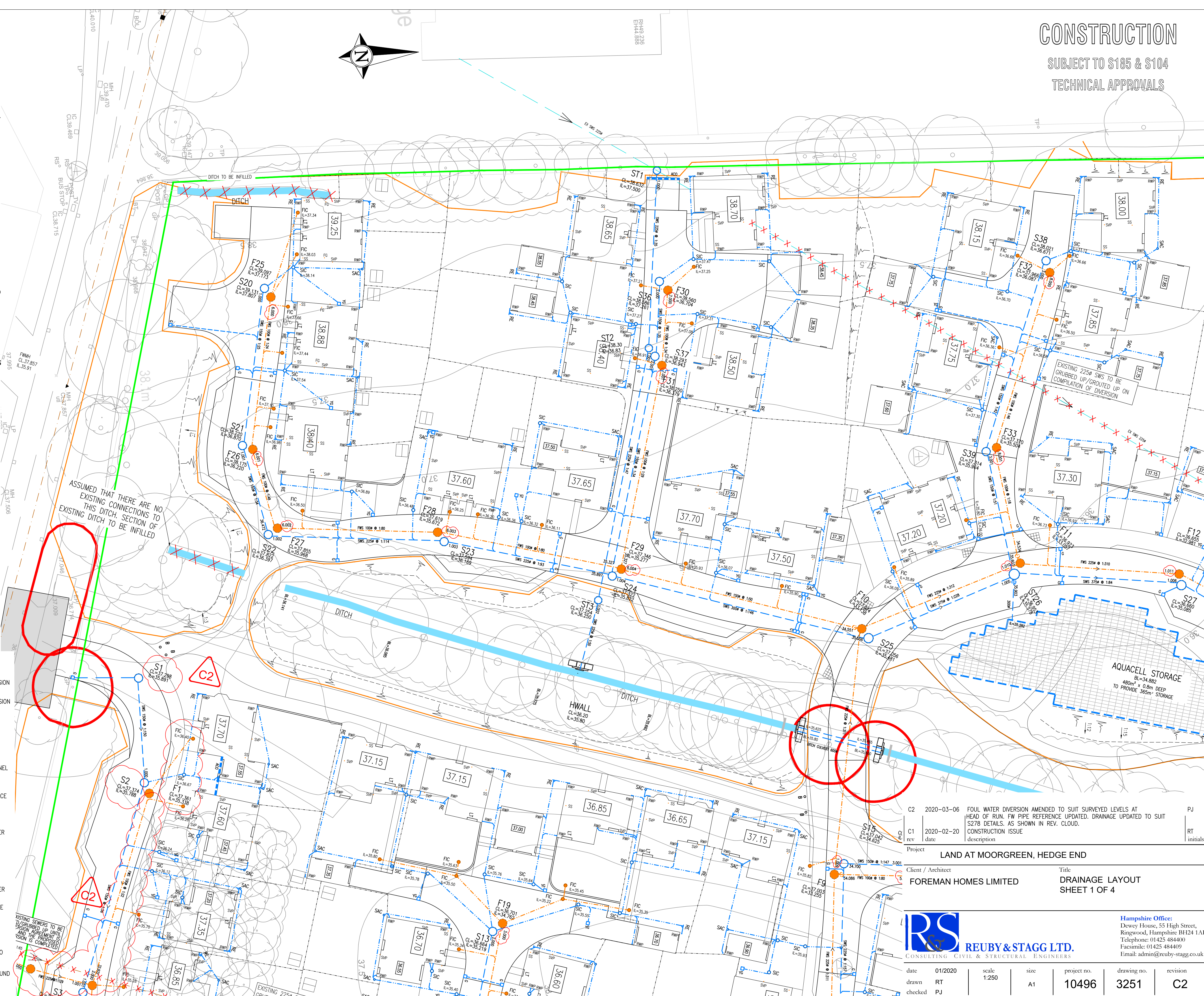
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RWP	- DENOTES VERTICAL RAIN WATER STACK TO GROUND
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TECHNICAL APPROVALS



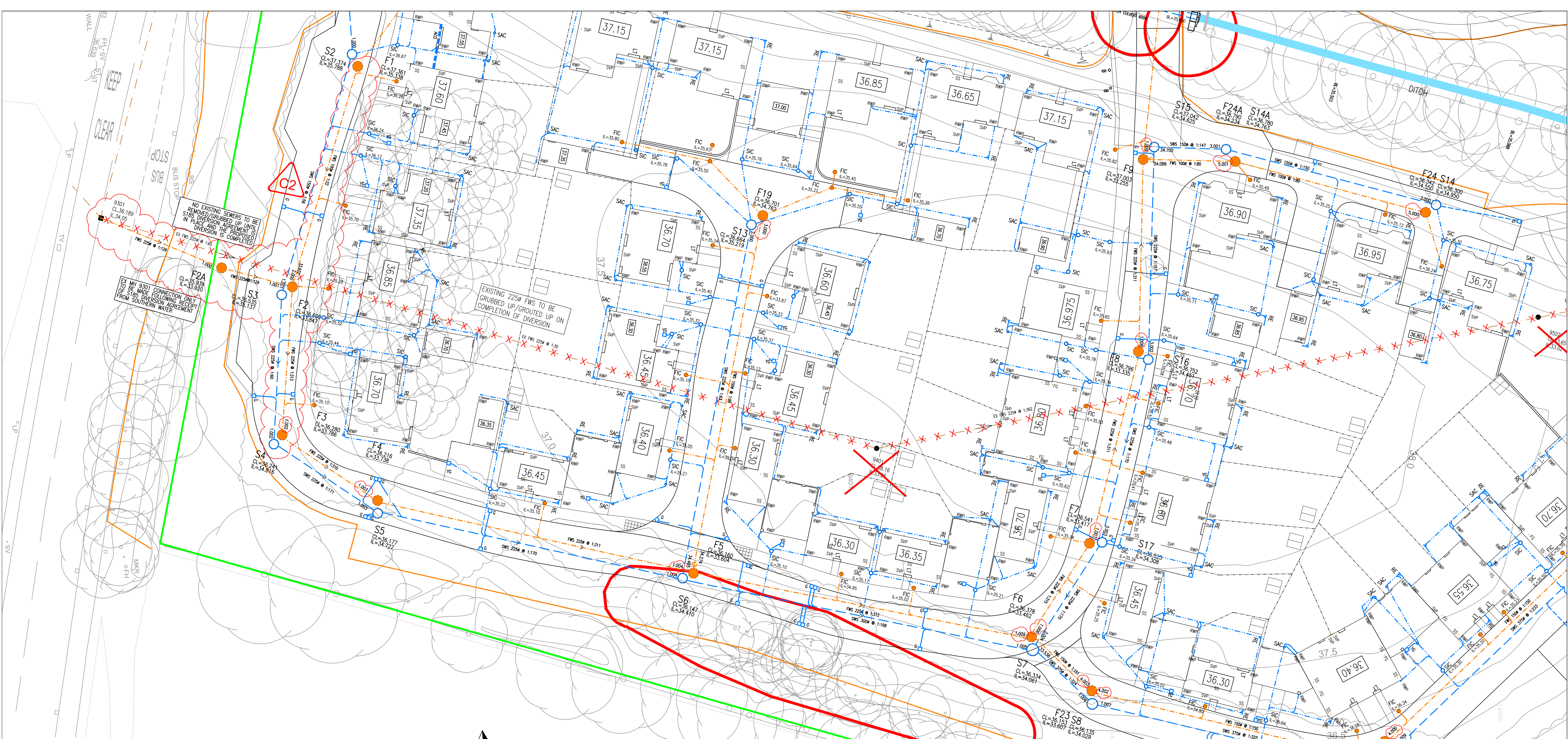
C2	2020-03-06	FOUL WATER DIVERSION AMENDED TO SUIT SURVEYED LEVELS AT HEAD OF RUN. FW PIPE REFERENCE UPDATED. DRAINAGE UPDATED TO SUIT S278 DETAILS. AS SHOWN IN REV. CLOUD.	PJ
C1	2020-02-20	CONSTRUCTION ISSUE	RT
	date	description	initials

Project		LAND AT MOORGREEN, HEDGE END	
001	Client / Architect	Title	
5	FOREMAN HOMES LIMITED	DRAINAGE LAYOUT SHEET 1 OF 4	

RS
REUBY & STAGG LTD.
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date	01/2020	scale		size		project no.	drawing no.	revision
drawn	RT	1:250		A1		10496	3251	C2
checked	PJ							



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C1	2020-02-20	CONSTRUCTION ISSUE	RT
rev	date	description	initials
Project			
LAND AT MOORGREEN, HEDGE END			
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FOREMAN HOMES LIMITED		DRAINAGE LAYOUT	
		SHEET 2 OF 4	
		Hampshire Office: Dewey House, 55 High Street, Ringwood, Hampshire BH24 1AE Telephone: 01425 484400 Facsimile: 01425 484409 Email: admin@reuby-stagg.co.uk	
REUBY & STAGG LTD. CONSULTING CIVIL & STRUCTURAL ENGINEERS			
date	01/2020	scale	1:250
drawn	RT	size	A1
		project no.	10496
		drawing no.	3252
		revision	C2



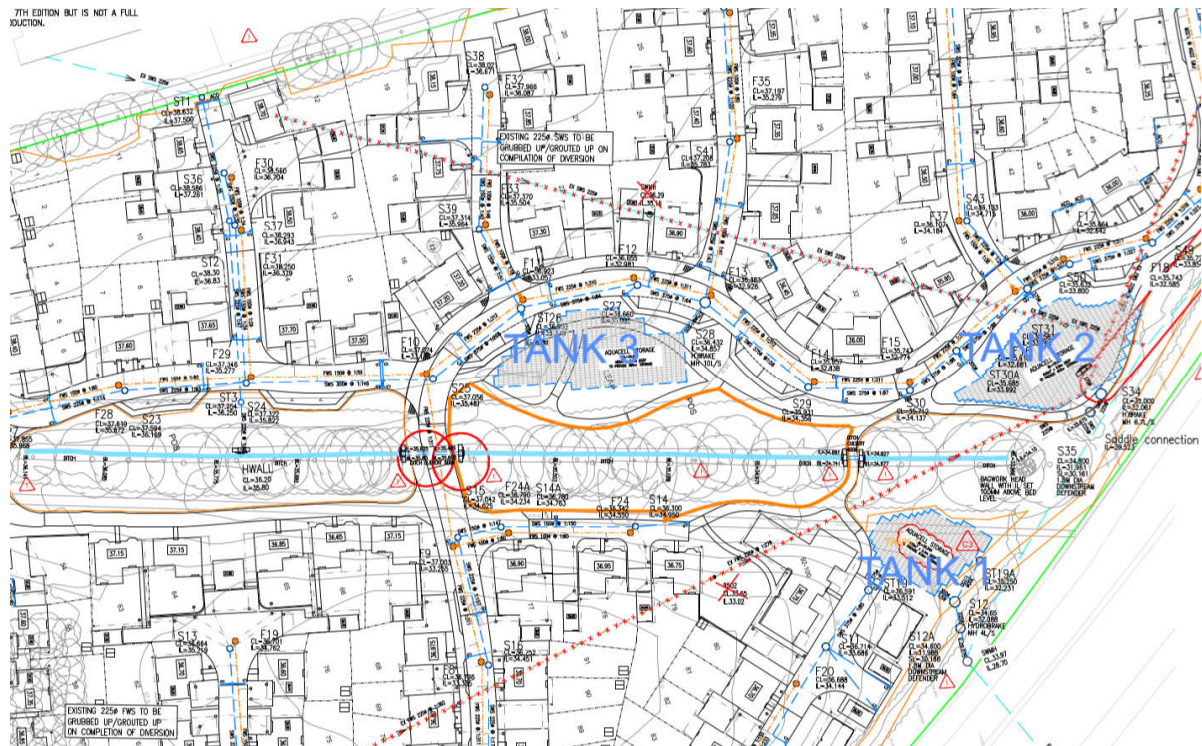
ARCH
ASSOCIATES

APPENDIX 2

Site Photographs



LOCATION PLAN FOR REFERENCE



TANK 1 INSTALLTION – 27 Nov 21



TANK 1 INSTALLTION – 27 Nov 21



TANK 1 INSTALLTION – 27 Nov



TANK 1 INSTALLTION – 7th Dec 21



TANK 2 INSTALLTION – 9th Dec 22



TANK 2 INSTALLTION – 12th Dec 22



TANK 2 INSTALLTION – 12th Dec 22



TANK 2 INSTALLTION – 6th Jan 2023



TANK 3 INSTALLTION – 27th Jun 2023



TANK 3 INSTALLTION – 27th Jun 2023

