

Flood Risk Assessment and Drainage Strategy Addendum Report

Project name **Land West of Turners Hill Road and South of Huntsland, Crawley Down**
Project no. **1620011691 - 014**
Client **Wates Developments Ltd**
Version **1.0**

Prepared by **AP**
Checked by **CL**
Approved by **TS**

1 Introduction

The following information is provided to supplement that already detailed in the following reports:

- Flood Risk Assessment by Ramboll, 17/01/2025, Version 5.0 (FRA); and
- Drainage Strategy by Ramboll, 17/01/2025, Version 6.0 (Drainage Strategy).
- Flood Risk Assessment and Drainage Strategy Addendum Report, 24/03/2025, Version 1.0.

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This Addendum Report is in response to additional comments from the Lead Local Flood Authority (LLFA) dated 30 April 2025, regarding applications DM/25/0014 and DM/25/0015, and the requested further information:

2 Required Further Information

The following sections present the LLFA requirements as detailed in the comments dated 30 April 2025, and the requested further information:

LLFA Comment/Request

1. *Cv value 0.75 is still being used in calculations. This underestimates the volume of water entering the drainage system therefore could increase flood risk elsewhere so has to be addressed as part of outline to ensure there is enough storage provided in masterplan.*

Response

The volumetric runoff coefficient (Cv value), has been checked with a worst-case scenario by using a value of 1. The storage requirement range has slightly

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increased as shown below. Storage provision on site remains within estimated range as shown on updated drainage layout plans within Appendix A.

Catchment 3:

Quick Storage Estimate

Input

Input Type: User Input

Area (ha): 6.036

Volumetric Runoff Coefficient: 1.000

Discharge Rate (L/s): 56.0

Infiltration Rate (m/hr): 0.0

Safety Factor: 2.0

Quick

Calculate

Create New From Library

All

FEH

Method: FEH

Number of Storms: 24

Max. Run Time (mins): 2880

Input

Results

2D Graph

OK

Cancel

Create New

Help

Quick Storage Estimate

Results

Quick Storage Estimate variables require approximate storage of between 5108m³ - 7624m³.

These values are estimates only and should not be used for final design purposes.

Input

Results

2D Graph

OK

Cancel

Create New

Help

Catchment 4:

Quick Storage Estimate

Input

Input Type: User Input

Area (ha): 1.382

Volumetric Runoff Coefficient: 1.000

Discharge Rate (L/s): 56.0

Infiltration Rate (m/hr): 0.0

Safety Factor: 2.0

Quick

Calculate

Create New From Library

All

FEH

Method: FEH

Number of Storms: 24

Max. Run Time (mins): 2880

Input

Results

2D Graph

OK

Cancel

Create New

Help

Quick Storage Estimate

Results

Quick Storage Estimate variables require approximate storage of between 712m³ - 1069m³.

These values are estimates only and should not be used for final design purposes.

Input

Results

2D Graph

OK

Cancel

Create New

Help

3 Appendices

3.1 Appendix A – Updated Drainage Plans



SUBSOIL WATER ATTENUATION PROVISIONS:
 1. 750m³ STORAGE WITHIN 2000m² PERMEABLE PAVING
 2. 400m³ STORAGE IN SWALES
 3. 200m³ STORAGE IN ATTENUATION BASINS (1.5m DEEP)
 TOTAL PROVISION APPROXIMATELY 6250m³

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- Notes
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 - ALL LEVELS ARE IN METRES ABOVE ORDNANCE DATUM UNLESS SHOWN OTHERWISE.
 - THE CONTRACTOR IS TO ENSURE THAT ALL BURIED SERVICES ARE LOCATED PRIOR TO CARRYING OUT ANY EXCAVATION.
 - FOR DETAILS OF DRAINAGE STRUCTURES REFER TO RELEVANT STRUCTURE GENERAL ARRANGEMENT DRAWINGS.
 - DRAINS TO BE LAID CURVED ON PLAN WHERE SHOWN ON DRAWINGS.
 - EXISTING DRAINAGE INFORMATION SHOWN ON THESE DRAWINGS ARE NOT EXHAUSTIVE. EXISTING DRAINS TO BE RETAINED ARE SHOWN. DRAINAGE TO BE ABANDONED NOT SHOWN. EXISTING DRAINAGE ENCOUNTERED NOT SHOWN ON THESE DRAWINGS SHALL BE TREATED AS DIRECTED BY THE ENGINEER.
 - WHERE SHOWN TO BE RETAINED, THE LOCATION OF EXISTING DRAINAGE SHALL BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION. THE CONDITION OF THIS EXISTING DRAINAGE SHALL ALSO BE VERIFIED, AS PART OF THE WORKS, IN ACCORDANCE WITH THE SPECIFICATION. EXISTING DRAINAGE FOUND TO BE DEFECTIVE IN ANY WAY SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE ENGINEER.
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KEY:

- ExFW — EXISTING FOUL WATER DRAINAGE
- FW — PROPOSED FOUL WATER DRAINAGE
- PROPOSED FOUL WATER RISING MAIN
- PUBLIC SEWER FOUL WATER DRAINAGE
- PROPOSED FOUL WATER MANHOLE/INSPECTION CHAMBER
- PROPOSED SURFACE WATER MANHOLE/INSPECTION CHAMBER
- FLOW CONTROL CHAMBER
- PROPOSED SURFACE WATER DRAINAGE
- EXISTING DITCH RETAINED
- EXISTING CULVERT
- HEADWALL (EXISTING & PROPOSED)
- PERMAVOID STORAGE CRATES
- PERMEABLE PAVING
- SWALE / ATTENUATION BASIN
- FOUL PUMPING STATION
- SITE BOUNDARY

P02	PRELIMINARY ISSUE	AP	CL	CL	02.05.2025
P01	PRELIMINARY ISSUE	NJ	DF	CL	24.03.2025
Rev	Description	Drawn	Checked	Approved	Date

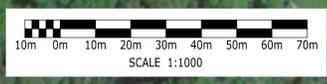
Purpose of Issue: **FOR INFORMATION**
 Status: **S1**

LAND WEST OF CRAWLEY DOWN

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DRAINAGE LAYOUT SHEET 2

Project No:	1620011691	Scale (BA1):	1:1000	Date:	FEB 25
Drawn:	NJ	Designed by:	DF		
Drawing No:	RAM-HDG-XX-DR-C-00002	Rev:	P02		



KEY:

	EXISTING FOUL WATER DRAINAGE
	PROPOSED FOUL WATER DRAINAGE
	PROPOSED FOUL WATER RISING MAIN
	PUBLIC SEWER FOUL WATER DRAINAGE
	PROPOSED FOUL WATER MANHOLE/INSPECTION CHAMBER
	PROPOSED SURFACE WATER MANHOLE/INSPECTION CHAMBER
	FLOW CONTROL CHAMBER
	PROPOSED SURFACE WATER DRAINAGE
	EXISTING DITCH RETAINED
	EXISTING CULVERT
	HEADWALL (EXISTING & PROPOSED)
	PERMAVOID STORAGE CRATES
	PERMEABLE PAVING
	SWALE / ATTENUATION BASIN
	FOUL PUMPING STATION
	SITE BOUNDARY



TERMINAL FWMH04
CL: 124.280
IL: 122.930

PEAK FOUL FLOW RATE:
0.265l/s
CAPACITY CONFIRMED
WITH THAMES WATER

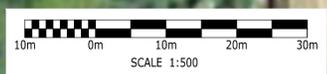
NEW OVER FLOW PROVIDED
TO RELIEVE LOCAL FLOODING

NEW SWALE LOCATION TO BE WITHIN
THE ROOT PROTECTION ZONE AS
AGREED WITH ARBORICULTURALIST

SURFACE WATER REQUIREMENTS:
CATCHMENT 4: 2.423ha
FEH QBAR RURAL: 16.5l/s
CONTRIBUTING AREA: 1.382ha
STORAGE REQUIRED: ~850m³

SURFACE WATER ATTENUATION PROVISION:
1. 156m³ STORAGE WITHIN 250mm PERMEABLE PAVING
2. 445m³ STORAGE IN SWALES
3. 287m³ STORAGE IN ATTENUATION BASINS (1.5m DEEP)
TOTAL PROVISION APPROXIMATELY 888m³

NEW FOUL PUMPING STATION.
PUMP RATE: 1.0l/s
(AS AGREED WITH THAMES WATER)



REFER TO SHEET 2

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P02	PRELIMINARY ISSUE	AP	CL	CL	02.06.25
P01	PRELIMINARY ISSUE	NJ	DF	CL	24.03.2025
Rev	Description	Drawn	Checked	Approved	Date

Purpose of Issue: **PURPOSE OF ISSUE**

Status: **SUITABILITY**

LAND WEST OF CRAWLEY DOWN



DRAINAGE LAYOUT SHEET 3

Project No:	Scale (BA1):	Date:
1620011691	1:500	FEB 25
Drawn:	Designed by:	
NJ	DF	
Drawing No:	Rev:	
RAM-HDG-XX-DR-C-00003	P02	