B.2 DA02 Gravesend

Thameside Stage 1 SWMP : Summary and Actions
Drainage Area 02

Area overview

Area (km^2)	22.5

Drainage assets/systems	Type	Known Issues/problems	Responsibility
Sewer Network	Sewer (combined, foul and surface water)	Known problems of surcharging and overloaded sewers at numerous locations across the drainage area	Southern Water
Dering Way	Main river	There are no known issues	Environment Agency

Flood risk

Receptor	Source	Pathway	Historic Evidence
A: West of Northfleet	Heavy rainfall resulting in surface water run off	Localised ponding in low lying areas	There is historic evidence of flooding from surface water run off affecting highways FMfSW 1 in 200 yr (deep)
B: Wombwell Park Area	Heavy rainfall resulting in surface water run off and overloaded sewers	Southern Water sewers Surface water flows in a north east direction along Waterdales Surface water flows along Thames Way in a south west direction Localised ponding in low lying areas	FMfSW 1 in 200 yr (deep) Historic evidence of run off affecting properties There are records of hydraulic overload from sewers causing flooding
C: Northfleet	Heavy rainfall resulting in surface water run off and overloaded sewers Blocked drains	Localised ponding along Beaumont Drive Surface water flow along Thames Way in a south west direction Gullies and drains	FMfSW 1 in 200 yr (deep) Historic evidence of blocked drains and excess surface water run off causing flooding.
D: Gravesend South	Heavy rainfall resulting in surface water run off and overloaded sewers and gullies	Surface water flowing in a north and north west direction along Meadow Road and through Woodlands Park Large areas of ponding in low lying areas Gullies and drains	FMfSW 1 in 200 yr (deep) Historic evidence of run off and overloaded sewers affecting properties
E: Gravesend North	Water overflowing from a burst water main Heavy rainfall resulting in run off overloaded sewers / blocked drains	Surface water flow along the rail track Localised ponding in the area of New Road, Spencer Street and Saddington Street Gullies and drains	FMfSW 1 in 200 yr (deep) Evidence of a burst pipe which caused flooding on the carriageway Historic evidence of blocked drains causing the carriageway to flood
F: Gravesend East	Heavy rainfall resulting in run off from overloaded / blocked drains, overloaded sewers or run off	Ponding along Milton Hall Road, Parrock Avenue and Pine Avenue Southern Water sewers Gullies and drains	Historic evidence of blocked drains causing a number of properties to flood FMfSW 1 in 200 yr (deep) There are records of hydraulic overload from sewers causing flooding

G: Milton	Heavy rainfall resulting in run off from overloaded / blocked drains, overloaded sewers or overland flow	Southern Water sewers Surface water flow along Norfolk Road and large areas of ponding in this location Surface water flow along Raphael Road in a north east direction Gullies and drains	FMfSW 1 in 200 yr (deep) Historic evidence of surface water run off flooding the carriageway. There is also evidence to support flooding as a result of overloaded sewers and blocked drains/ gullies.
H: Westcourt South	Heavy rainfall resulting in surface water run off and overloaded sewers	Southern Water sewers Localised areas of ponding at St Margret's Crescent and St Chad's Drive	There are records of hydraulic overload from sewers causing flooding
I: Denton	Heavy rainfall resulting in surface water run off and overloaded sewers	Southern Water sewers Surface water flows in a north east direction along Valley Drive, Abbey Close and Roehampton Close Large areas of ponding in low lying areas of Denton	There is historic evidence to support the pathways in this area, FMfSW 1 in 200 yr (deep)

Summary of Location-specific Actions

Area of benefit	Location of action	Action	Action owner	Priority
Northfleet (C)	Campbell Road	1. Investigate the method of surface water drainage on this road, i.e. check records to assess where the surface water is draining to. 2. Install green infrastructure or localised measures (reinstate high kerbs, minor bunding, signage etc) to improve management of surface water during intense rainfall.	KCC, GBC, SW	1. Short Term 2. Long Term
Gravesend South (D)	Orchard Avenue	A CCTV study to investigate the condition of drains and gullies.	KCC	Medium Term
Gravesend South (D)	Pinnocks Avenue	1. Investigate the current method of surface water drainage on this road, i.e. check records to assess whether the surface water is draining to foul or surface water sewer. 2. Consider implementing some form of SUDS such as retention, or storage to alleviate issues during heavy rainfall events	KCC, GBC, SW	1. Short Term 2. Long Term

Westcourt South (H)	Valley Drive	Install green infrastructure or localised measures (the kerbing, minor bunding, signage etc) to improve management of surface water during intense rainfall.	KCC, GBC, SW	Long Term

North

A

B

C

D

E

F

G

H

I

Text

Legend

- Main River (EA) - open channel
- Main River (EA) - culverted
- Ordinary Watercourse - open channel
- Ordinary Watercourse - culverted
- Combined Sewer
- Surface Water Sewer
- Foul Sewer

Receptors

- **A** West of Northfleet
- **B** Wombwell Park
- **C** Northfleet
- **D** Gravesend South
- **E** Gravesend North
- **F** Gravesend East
- **G** Milton
- **H** Westcourt South
- **I** Denton

Client:

Kent County Council

Consultant:

JBA consulting

Partners:

Southern Water

Thames Water

Environment Agency

DARTFORD BOROUGH COUNCIL

Gravesham Borough Council

Sevenoaks District Council

Scale 1:30,000

Thameside Stage 1 SWMP

Watercourses and Drainage Systems
DA02

North

A
B
C
D
E
F
G
H
I

Legend

- Main River (EA) - open channel
- Main River (EA) - culverted
- Ordinary Watercourse - open channel
- Ordinary Watercourse - culverted

A West of Northfleet
B Wombwell Park
C Northfleet
D Gravesend South
E Gravesend North
F Gravesend East
G Milton
H Westcourt South
I Denton

Historic flooding (other RMAs)*

- Other/Unknown
- Fluvial
- Groundwater
- Combined
- Surface Water
- Sewer
- Tidal

* Where an entire road has been highlighted in the historic layer; this does not mean that all the road has flooded in the past but rather no specific location was identified in the records received.

Sewer Flooding Incidents (Southern Water)**
Number of flood occurences per postcode area

- 1
- 2
- 3<

** Polygons only represent the postcode area and not the flood extent

Client: Kent County Council

Consultant: JBA consulting

Partners: Southern Water, Thames Water, Environment Agency, Dartford Borough Council, Gravesham Borough Council, Sevenoaks District Council

Scale 1:27,508

Thameside Stage 1 SWMP

Historical Flooding
DA02

North

A
B
C
D
E
F
G
H
I

Text

Legend

- Main River (EA) - open channel
- Main River (EA) - culverted
- Ordinary Watercourse - open channel
- Ordinary Watercourse - culverted
- Education
- Healthcare
- Emergency Services
- Nursing, Retirement Homes and Hospices
- Water Utilities
- Electricity, Gas and Communications

Receptors

- **A** West of Northfleet
- **B** Wombwell Park
- **C** Northfleet
- **D** Gravesend South
- **E** Gravesend North
- **F** Gravesend East
- **G** Milton
- **H** Westcourt South
- **I** Denton

FMfSW 1 in 30yr AEP

> 0.3m deep

FMfSW 1 in 200yr AEP

> 0.3m deep

Client: Kent County Council

Consultant: JBA consulting

Partners: Southern Water, Thames Water, Environment Agency, Dartford Borough Council, Gravesham Borough Council, Sevenoaks District Council

Scale 1:30,000

Thameside Stage 1 SWMP

Surface Water and Critical Infrastructure
DA02

Please NOTE: The Flood Map for Surface Water provides an indicative outline of areas that may be susceptible to surface water flood risk, it does not indicate actual risk