SURREY COUNTY COUNCIL

Tongham Section 19 Investigation Report- Flood Event 4th January 2024

This report summarises and examines the flooding events caused by Storm Henk in January 2024 in the Tongham area. The investigation complies with the requirements of Section 19 of the Flood and Water Management Act 2010. A detailed investigation report for each catchment has been sent to the relevant landowners and Risk Management Authorities. The report also includes any relevant updates as of 25th January 2025.

Contents

Overview

Introduction

On the evening of the 4th of January 2024 intense rainfall fell over much of Surrey. This heavy rainfall fell over Tongham in multiple bursts of up to 30minutes between approximately 5:30pm and 8:00pm. This led to a total of 39 properties being affected by floodwater, with 6 of these properties being flooded internally (within living spaces).

Aim

This report will broadly describe the flooding within Tongham including its causes, effects and people/organisations that have the power or responsibility to mitigate the risk of it occurring again in future. There shall be a section including general recommendations of measures which could be taken to reduce the risk of flooding to properties in the future.

Method

This investigation used reports, photos and videos from residents who experienced flooding. Desk studies were also undertaken to bring together the reports and any relevant information SCC already held about the area.

Following this, multiple visits were made to Tongham to talk to residents and inspect affected areas, including the drainage systems where possible. Findings from these visits were recorded and mapped.

Desk study information and site findings were then combined to gain an understanding of the causes of the flooding and identify relevant risk management authorities (RMAs) for each issue found.

Catchment Description

Tongham sits within the borough of Guildford, on the northern western end of the Hog's Back, a long east-west chalk ridge forming part of the North Downs.

Map 1 in Annex A shows the area of investigation which includes most of Tongham. For ease of description, it has been broken into 4 drainage catchments, though these are not distinct, and both drainage systems and surface water flows cross between these catchments in certain places, as shown on Map 2 in Annex A.

The Hogs Back is the dominant topographical feature in the Tongham catchment. The catchment's highest point (the top of the Hogs back), in its southeast corner, reaches 130m AOD with a slope of varying gradient running north-westward down to approximately 75m AOD along the line of the disused Guildford to Farnham Railway. North/West of the disused railway the catchment is generally flat falling to 70m AOD at the banks of the River Blackwater where it ultimately drains.

The A331 runs north to south along an embankment to the west of Tongham, separating it from the Blackwater River. All drainage from the catchment must pass through 2 pipes beneath the A331, south of "The Moors" subway, before discharging into the River Blackwater.

Tongham sits on a geological boundary. The Hogs Back is a chalk ridge where drainage by infiltration into the ground is possible, however further north, down the slope of the Hogs Back, the bedrock changes to sand and then clay. The sand layer acts as a spring line and many spring fed watercourses run through the fields east of The Street, northwards into Tongham and its drainage systems. Annex B shows the geology of Tongham and the watercourses and the general drainage layout.

The 4 sub catchments in Map 1 Annex A are described in more detail below:

1 – The Street

A wedge-shaped catchment draining north-westwards off the Hogs Back. This catchment contains many spring fed watercourses running north-westwards off agricultural land towards The Street. The Street itself runs along the western edge of this catchment. Beneath it a culverted watercourse collects both highway drainage and all the watercourses from elsewhere in the catchment. Surface Water flowing through this catchment will run by gravity onto The Street then to Grange Road in Catchment 3, however the piped watercourse under The Street runs northwards into Catchment 4.

2 – Poyle Road/Tongham Rec

A largely rural catchment, this is mostly made up of agricultural fields and a recreation ground on the northern slopes of the Hogs back. These drain via watercourses and surface water runoff northwards onto Poyle Road, or into the watercourse adjacent to it.

The aforementioned watercourse, which also drains the surface of Poyle Road, then runs northwards along ‘North Side’ into Catchment 4. However, excess surface water on Poyle Road runs both northwards onto North Side, into Catchment 4, and westwards into Catchment 3 on Grange Road, combining with surface water from Catchment 1.

3 – West Tongham

This catchment is largely flat and urbanised with no significant green spaces. A particular low spot here includes Grange Road, Maitlands Close and Garbetts Way. These are noted as being at high risk of flooding from surface water and, in times of intense rainfall, collect surface water flows from Catchment 1 & 2. This low spot has no natural drainage route by which water can leave it by gravity, so relies on surface water sewers to be drained.

Two Thames Water owned surface water sewers drain this area. They coalesce at the end of Grieve Close and discharge to the Blackwater.

This catchment includes two recently constructed housing developments. One, mainly centred around Tichbourne Way, is in a natural depression and relies upon pumps to raise surface water and foul sewage into the Thames Water sewage systems. The second is centred around Blackburne Way. This was designed to be drained by soakaways. However, residents stated that once constructed the soakaways were not as effective as intended and additional soakaways had to be installed. There have been no reports received regarding flooding in these developments on the 4th of January except at the entrance to Blackburne Way off Grange Road.

4 – North/East Tongham

This receives surface water flows from Catchment 2 via North Side and contains the trunk surface water sewer draining all of catchments 1, 2 & 4. This catchment is largely urbanised and, north of the disused railway line and almost completely flat.

The drainage systems in this area are only partially recorded, therefore the routes shown in Annex A are assumptions based on evidence obtained through inspection of drainage assets and details of how flooding occurred.

Weather

The flooding that occurred in Tongham came at the tail end of Storm Henk. A storm which affected most of the UK between the 1st and 4th of January. Met office analysis showed that in

this period 50-75mm of rainfall fell in this area, most of which fell in the last two days. (Met Office records state that Surrey's monthly average rainfall in January is 65.29mm.) See Annex C showing rainfall data across the UK with Tongham's approximate position indicated.

Based on this information it can be assumed that by the evening of the 4th of January the ground around Tongham was saturated and drainage systems were likely already under strain.

Results/Findings

In total this investigation has identified that 32 properties were flooded externally, and 6 properties were flooded internally. This is the number that has been identified through customer reports and investigation. Its possible more properties were flooded but that this information has not been communicated to SCC or partner authorities.

Different areas flooded for different reasons, but certain issues identified can be widely attributed as at least a partial cause of much of the flooding. Table 2 details each identified issue within the investigation area. These have been numbered for ease of reference.

Table 1 below outlines the specific areas flooded and property numbers affected in each area.

Flooded Areas

Table 1 - Table of number of property floods per catchment.

Location	Internal Property Floods	External Property Floods
Catchment 1	3	0
Catchment 2	0	3
Catchment 3	1	23
Catchment 4	2	6

Table of Issues

Please note that any house numbers or specific locations have been removed from the table as they contain property sensitive information. This is to comply with General Data Protection Regulation (GDPR).

Table 2 - Table of issues identified.

Issue	Impacts to wider area	Relevant RMA	Recommendations	Actions as of 24th January 2025
1. X14 Soakaways at southern end of The Street are unrecorded and unmaintained. (Clearance and recording is in progress)	Increased surface water flow on The Street	Surrey County Council Highways	Surrey Highways map, clear and continue to maintain the 14 soakaways	SCC Highways have found, cleared and recorded 14 previously unrecorded soakaways and connected drainage. These will be maintained as part of their routine maintenance schedules going forward.
2. Private sump pump draining water from a property on The Street onto The Street's pavement.	Increased surface water flow on The Street	Surrey County Council Highways	Surrey Highways enforce cessation of discharge of water onto footway.	Enforcement action in progress by SCC Highways to enforce cessation of pumping onto the highway.
3. Water seeping to surface through pavement of The Street. Likely due to break in piped watercourse beneath pavement.	Increased surface water flow on The Street	Surrey County Council Highways	Surrey Highways survey, clean and repair piped watercourse under the pavement of The Street.	SCC Highways surveyed pipework and a ball of roots was found obstructing flow. This has been removed.
4. Nonfunctioning gullies downstream of new speed table on The Street.	Increased surface water flow on The Street	Surrey County Council Highways	Surrey Highways survey, clean and repair gully lateral connections and piped watercourse under the pavement of The Street.	SCC Highways cleaned these gullies and found that they are functioning. Failure to drain during rainfall was likely due to a backup of water from downstream obstructions/limited capacity downstream. Not that the gullies themselves were blocked.

5. Obstruction in piped watercourse under The Street.	Increased surface water flow on The Street and overflow of watercourses connected to this one upstream.	Surrey County Council Highways	Surrey Highways survey, clean and repair piped watercourse under the pavement of The Street.	SCC Highways surveyed and cleared this pipework. No damage identified but approximately 15% of pipe capacity was taken up by deposited silt (now removed).
Issues 3-5 increase flood risk to Grange Road and other areas downstream as water which ends up flowing over the surface along The Street is then directed westward into Grange Road, rather than continuing northwards in the piped watercourse (Surrey Highways are arranging clearance of the whole of the piped watercourse under The Street).				
6. New speed table on The Street.	Increases the risk of surface water on The Street affecting adjacent properties.	Surrey County Council – Placemaking Team.	Surrey Placemaking Team consider measures to prevent surface water flowing off The Street towards neighbouring properties by the new speed table.	SCC Highways Design Team are preparing a minor scheme of work to reduce the risk of water from the carriageway entering the affected property by the new speed table.
7. Culverted watercourse passing under Poyle Road partially obstructed by silt. (Clearance being arranged)	Increased surface water flow on Poyle Road.	Surrey County Council Highways.	Surrey Highways survey and clean piped watercourse under Poyle Road.	SCC Highways have surveyed this section of pipework and determined it's not significantly obstructed. No further action planned here at this time.
8. Obstructed trash screen at watercourse pipe inlet west of Church Close.	Increased surface water flow on Poyle Road.	Landowner/Surrey County Council Flooding & Climate Resilience Team.	Landowners remove obstructions to flow at watercourse pipe inlet. SCC to consider enforcement action requiring landowner to do this.	SCC FCR Team will conduct review of the obstructed watercourse and contact relevant landowners to advise them of their riparian responsibilities to keep the watercourse free from obstructions. This work has been delayed due to higher priority work. Enforcement action to be considered if significant obstructions are still present.

9. Obstructed watercourse (ditch) along northern edge of recreation ground (Now cleared).	Increased surface water flow on Poyle Road.	Landowner (Guildford Borough Council/Parish Council)	N/A issue resolved	Issue resolved before report completed. Obstruction cleared by local resident.
Issues 7-9 increase flood risk to Grange Road and other areas downstream as water which ends up flowing over the surface along Poyle Road is then directed westward into Grange Road, rather than northwards in the piped watercourse.				
10. Unrecorded, presumed obstructed watercourse draining Poyle Road and North Side through "The Gardens" towards the surface water sewers on Oxenden Road. (Clearance identified blocked gully connections, issue now resolved.)	Surface Water pooling in the lowest part of North Side across full width of road.	Surrey County Council Highways/Thames Water/Landowners	N/A issue resolved	SCC Highways surveyed and cleared obstructions in highway drainage at junction of Northside and Westring. Drainage of this low point has reportedly improved since this work. Downstream system heading towards "The Gardens" was dye and flow tested and proven to work well but not fully surveyed. No further action planned at this time.
11. Unrecorded, presumed obstructed foul drainage draining multiple properties on North Side.	Surcharge of foul water around affecting multiple properties including 1 internally. (Properties affected include social housing for vulnerable people)	Thames Water	Thames Water survey/clean/repair unmapped foul sewer serving these properties.	Thames Water will investigate system ownership, including visiting residents. They will also review if residents in the affected area may need to added to Thames Water's Priority Services Register.
12. Obstructed section of ditch at The Street (now cleared).	Overflow from ditch flooded multiple properties, including 1 internally.	Surrey Highways/ Landowners	N/A issue resolved	Issue resolved before report complete. SCC Highways cleared ditch.
13. Large obstruction made of rubbish in surface	Surcharge from surface water sewers on Oxenden Road leading to multiple external	Thames Water	Thames Water clear obstruction from surface water sewer.	Thames water will undertake a review of their ownership of this drainage system.

water sewer under Oxenden Road. (Thames Water are aware of the issue)	property floods. Potentially backup of surface water sewers and connected watercourses upstream causing/exacerbating flooding in multiple locations.			Thames Water do not plan to resolve this issue. If Thames Water determine this system is not a surface water sewer, responsibility for keeping it free from obstructions falls to the relevant landowners (in this case SCC Highways).
14. Surface water system syphon (where system rises approx. 1.5m)	Reduced hydraulic efficiency of drainage system leading to decreased flow and increased accumulation of debris, so increased risk of obstruction such as issue 13 above.	Thames Water	Thames Water consider whether syphon system can be redesigned to improve flow through this surface water sewer.	Thames water will undertake a review of their ownership of this drainage system. Thames Water do not plan to resolve this issue. If Thames Water determine this system is not a surface water sewer, SCC Highways to consider whether syphon system redesign could reduce flood risk here.
15. Obstructed ditch west of A331 draining approximately 75% of Tongham (clearance complete).	Limiting flow through all surface water sewers and watercourses upstream, exacerbating risk of surface water flooding in (mainly) catchment 4.	Landowner (Surrey County Council)	N/A issue resolved	Issue resolved before report complete. SCC Countryside Estate Team cleared ditch allowing it to drain freely.
16. Partial obstruction in the Blackwater River at outlet to surface water sewer from catchment 3.	Slow flow in the Blackwater River, raising water levels and reducing discharge efficiency of drainage from Tongham.	Landowners (Surrey County Council/Private) /Environment Agency	Landowners (SCC & private) to arrange removal of obstructions to flow in the Blackwater River – Environment Agency to consider	EA sent advisory letters to landowners requesting clearance. SCC countryside estates team are planning clearance of obstruction in the Blackwater.

			enforcement of the above.	
Issues 12-16 all obstruct/limit the flow of surface water through/away from catchment 4. Therefore, they reduce the capacity of all drainage systems upstream and would increase the flood risk to areas drained by them.				
17. Converging surface water sewers without downstream capacity increase.	A 700mm diameter and 675mm diameter surface water sewer converge in a 700mm diameter surface water sewer before passing under the A331. This is not hydraulically efficient and will lead to the backup of water upstream when the inflow from the two inlets exceeds the capacity of the outlet.	Thames Water	Thames Water consider whether system can be redesigned to improve flow through these surface water sewers.	Thames Water will undertake an in-depth review of the surface water sewer system capacity here and whether this confluence could restrict flow and increase flood risk in the local area. Thames water to also review ownership of this system.
18. Presumed obstruction in surface water sewer through woodland between Tongham and A331. This is assumed based on details of the way flooding occurred in the area.	Increased flood risk to areas drained by this system; Grange Road, Maitlands Close, Garbetts Way & Lambourne Way.	Thames Water	Thames Water to survey, clean and repair surface water sewer through woodland.	Thames Water to undertake a “lift and look” survey of manholes on this system to identify any obvious problems i.e. standing water, settled debris, etc. Results of this will confirm whether further internal surveys and/or maintenance is required.
19. Housing development at Tichbourne Way. Thames Water report pre-development indicated their systems do not have capacity for additional	Connections were installed and there is no evidence of an upgrade to foul or surface water sewer systems so flood risk here may be increased by the new development.	Thames Water	Thames Water to review if upgrades to system were made and if not consider making them.	Thames Water confirmed that this development’s surface water system has a low volume discharge rate thanks to on site drainage systems so will not significantly change surface water flood risk elsewhere. Thames Water to consider foul water system capacity in the area and look to better understand general flood risk in this locality,

connections without an upgrade.				specifically the low spot on Grange Road that is repeatedly flooding, including with sewage.
20. Possible overwhelming of the foul sewer in Grange Road/Garbetts Way/Maitlands Close.	Increased risk of flooding from foul/surface water sewers.	Thames Water	Thames Water to consider upgrading capacity of foul sewer.	Thames Water to address issues 17, 18 & 19 first to see if improvements are needed and review ownership.

Analysis of findings

The findings of this investigation indicate widespread drainage maintenance issues throughout the area of investigation. Some of the issues noted have been observed to cause some amount of flooding even in minor rainfall events since January the 4th. SCC have since received reports of property flooding in Tongham on 26th September 2024 and 27th November 2024 and 17th December 2024.

It should be noted that due to the ground and weather conditions, leading up to and on the 4th of January, some flooding would likely have occurred regardless of the condition of the local drainage systems. Particularly in areas identified as being at high risk of flooding from surface water such as Grange Road, Maitlands Close and Poyle Road. However, had there been no drainage maintenance issues then this flooding would likely have been to a lesser extent.

Who has roles/duties/tasks related to managing the risk of flooding?

Landowners (including public authorities):

- Have the responsibility to protect their property from flooding.
- Have a responsibility under The Land Drainage Act 1991, Section 25 to keep watercourses on or under their property free from obstructions to flow.

Surrey County Council (including Surrey Highways):

- Have powers under The Land Drainage Act 1991, Section 25 to require landowners to clear obstructed Ordinary Watercourses.
- Take responsibility for the maintenance and clearance of watercourses directly beneath public highways.

Thames Water:

- Have duties under The Water Industries Act 1991, Section 94 “to provide, improve and extend such a system of public sewers and so to cleanse and maintain those sewers as to ensure that that area is and continues to be effectually drained, and to make provision for the emptying of those sewers”.

Environment Agency:

- Have powers under The Land Drainage Act 1991, Section 25 to require landowners to clear obstructed Main Rivers.
- Create and update maps indicating the risk of flooding from Surface Water. These can be influenced when more accurate mapping is produced by another body.

General Recommendations

See Table 2, column 4, for recommendations related to specific individual issues.

The following options should be examined by risk management authorities and residents to be assessed for their feasibility and financial viability. These should be considered as adaptations rather than specific interventions which will remove a particular surface water flow route. Recommendations are not instructions and need to be examined by the relevant Risk Management Authority or individual.

Where Surrey County Council does not have relevant powers to enforce an action be carried out, progress towards its completion will not be tracked. However, it will be noted below whether the relevant party has indicated they intend to carry out the action or not (at time of publishing the report).

Landowners:

- It is recommended that the owners of properties in Tongham that are recorded at risk of flooding from surface water consider the installation of property level resilience measures that would reduce the likelihood of flood water entering their property, and also reduce the potential damages caused if it should. – *Some property owners have stated they intend to do this.*

Surrey County Council:

- It is recommended that Surrey County Council consider Tongham as an area for potential capital works to reduce the risk of flooding to properties. – *This will be considered against other areas for potential inclusion in future flood alleviation programmes.*
- It is recommended that any future works to be carried out that may alter the layout or height of road's in Tongham include consideration for the impacts this might have on drainage. – *A scheme in the design phase by SCC's placemaking team in Tongham centre is now receiving extra scrutiny to ensure it doesn't have a detrimental impact on drainage.*

Thames Water:

- It is recommended that Thames Water consider whether both the foul and surface water drainage systems in Tongham have capacity to effectively drain the area.

Actions Taken

Please refer to Table 2, column 5, for the updated actions taken by RMAs as of 24th January 2025.

Conclusions

In conclusion the flooding that affected Tongham on the 4th of January was in part due to the ground and weather conditions leading up to the flood event. In these conditions further heavy rainfall would likely have led to some degree of flooding regardless of any of the other factors identified in this report.

However, this investigation has found many drainage issues that would have restricted the ability for large parts of Tongham to be drained of surface water. This exacerbated surface

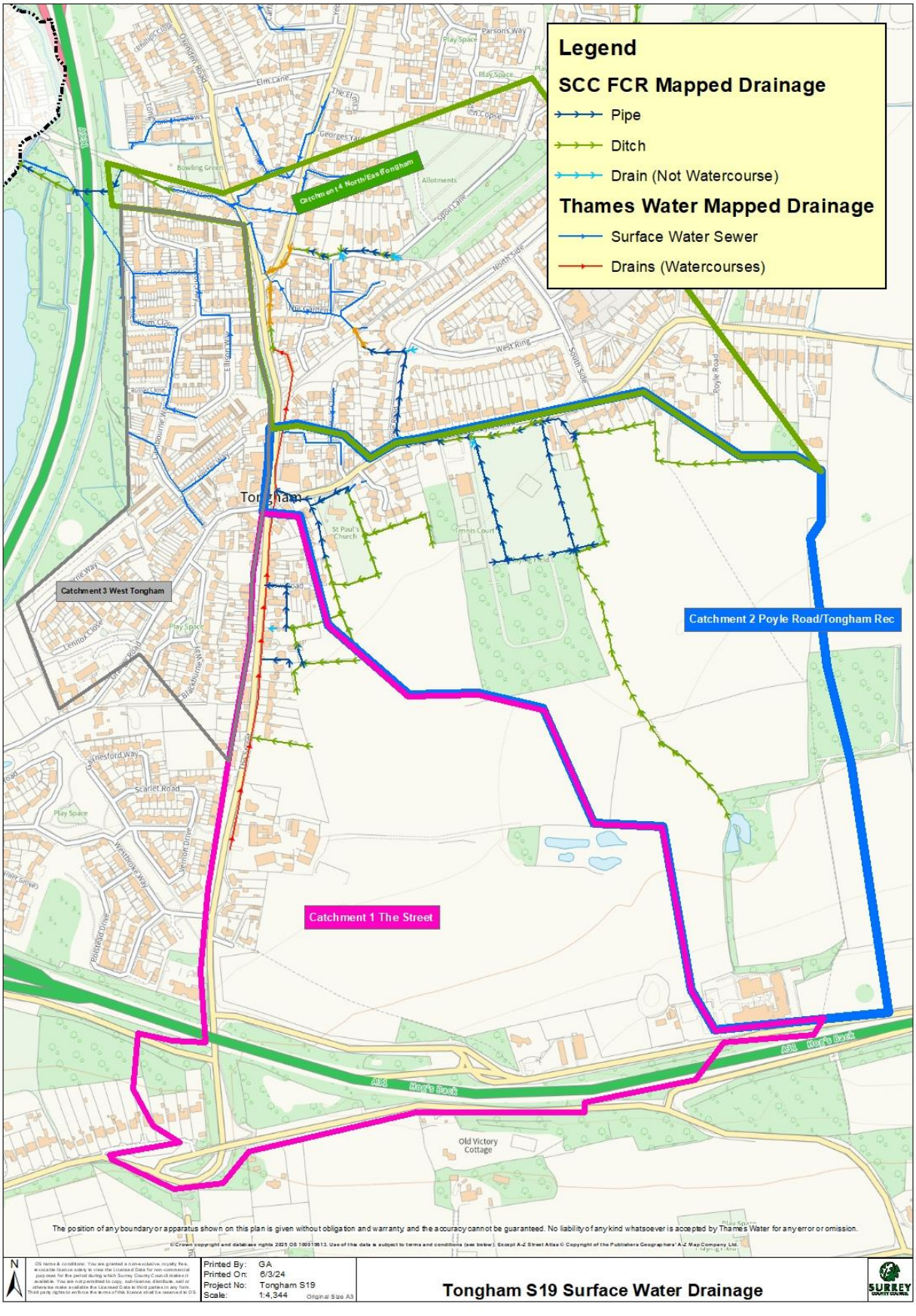
water flooding, as water which may otherwise have been contained in/removed by surface water sewers, highway drainage and piped watercourses was forced aboveground instead.

If the issues identified are resolved this will reduce the risk of flooding. However, if the same conditions reoccur areas identified as being at high risk of flooding from surface water will likely still flood to some extent.

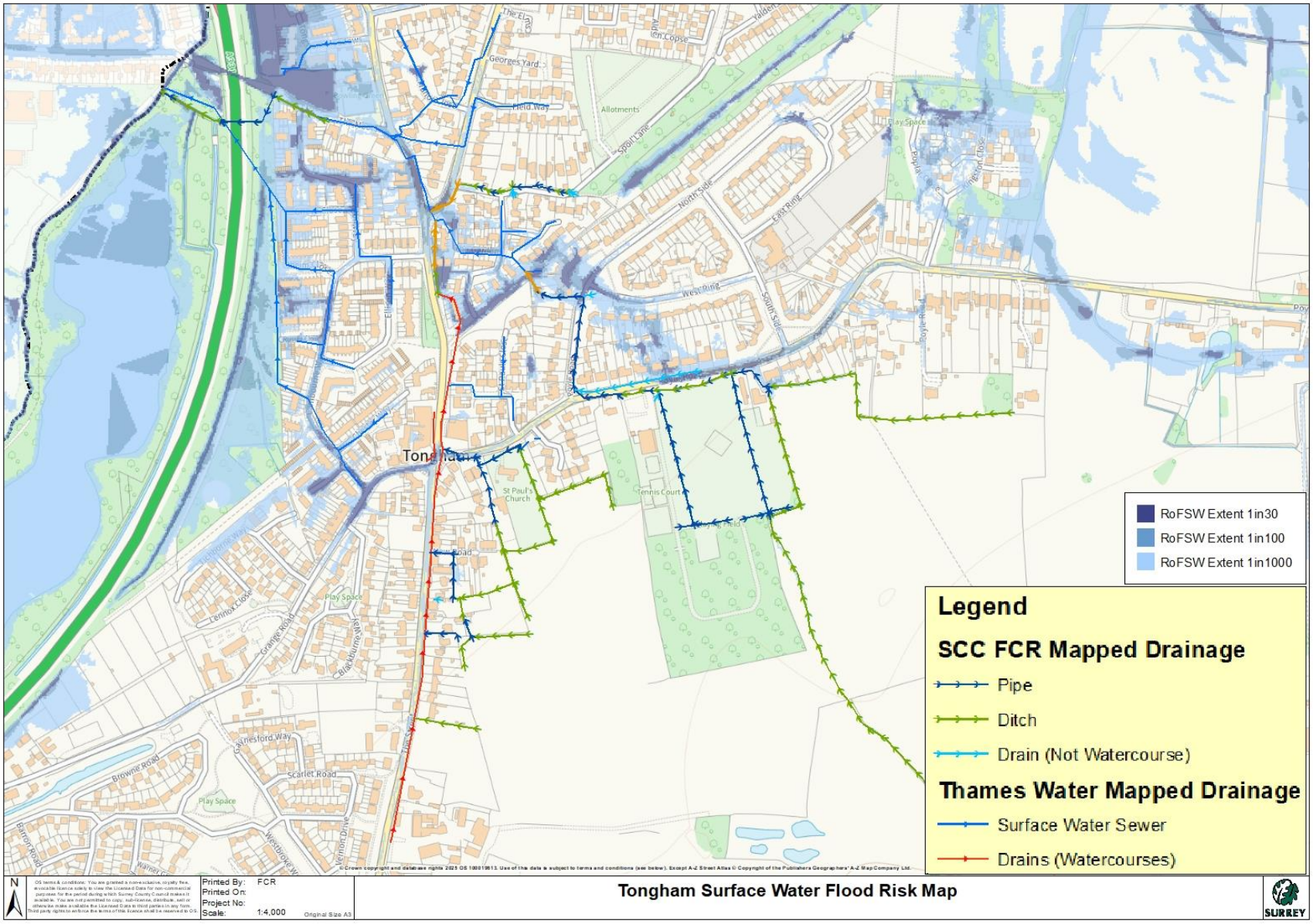
Therefore, future investment in property resilience measures, sewer upgrades and Flood Alleviation Projects will be required if the risk of flooding to all properties is to be significantly reduced.

Annex A: Maps

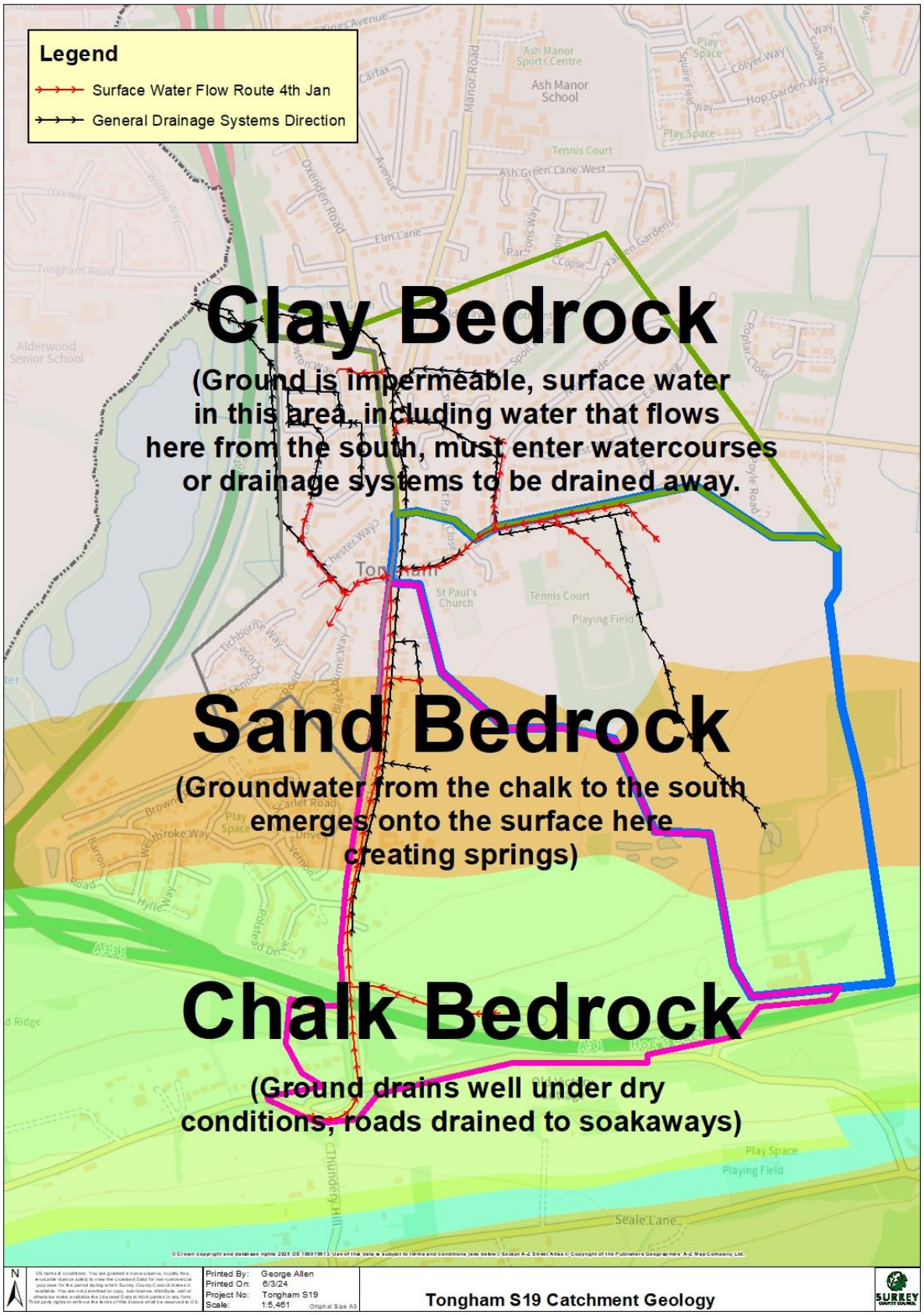
Map 1: Catchment Map



Map 2: Surface Water Flood Risk Map



Annex B: Geology of Tongham



Annex C: Storm Henk Met Office Rainfall Data