

Customer and Community Scrutiny Committee Report

Report of Executive Head of Environment

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Surface Water Management Plan for the Borough of Guildford

Officer recommendation:

That the Committee supports the Surface Water Management Plan (SWMP), approves the findings and supports the proposed Action Plan, and that the committee recommends that the Executive:

- (1) Endorses the Surface Water Management Plan and Action Plan.
- (2) Agrees that the SWMP Project Board continues to oversee the management of the project with key partners.
- (3) Authorises the Executive Head of Environment, in consultation with the Lead Member for Transport, Infrastructure and Environment and the Executive Head of Governance, to enter such contracts as are necessary to progress the Action Plan within the capital resources available.

Reason(s) for Recommendation:

To manage flood risk effectively across the Borough.

1. Executive summary

The Flood and Water Management Act 2010 (FWMA) gave county councils and unitary authorities the new statutory role of Lead Local Flood Authorities, which have new responsibilities for leading in local flood risk management. At district and borough council level, Guildford Borough Council has a general duty under the Land Drainage Act 1991 (LDA), as well as the FWMA, to work in partnership with other risk management authorities, such as Surrey County Council (SCC) and the Environment Agency (EA). The production of a Surface Water Management Plan (SWMP) forms a key part of flood risk management in many locations.

A SWMP is a process by which organisations, can understand flooding from surface water (not river) better, and identify methods to manage flood risk. The outputs from a SWMP are long-term plans about how to manage surface water in areas at risk.

Following discussions between SCC's and the Borough Council's engineers, Halcrow Group Ltd. was engaged to develop a SWMP firstly for the eastern side of the borough and subsequently for Ash in the west, a different river catchment area. Together these plans are referred to as the SWMP.

Following the floods over the Christmas and New Year period 2013/14, officers embarked on a public feedback exercise, which has given us new information, or confirmed the findings of the SWMP. The SWMP Action Plan is included in Appendix 1 and an indicative initial programme of implementation included in Appendix 2.

The recommendations include proposals for future capital flood protection schemes, enhancements to current maintenance programmes, improvements to the collection and recording of flood incident data, further engagement with local residents, and developing flood risk management links with spatial planning. This report sets out the recommendations in more detail and gives commentary on the issues relating to "hotspot" locations identified in the Action Plan. The capital bid for funding is included in the General Fund capital programme (2015-16 to 2019-20) report, seen by Corporate Improvement Scrutiny Committee on 8 January 2014. This is attached in **Appendix 3**.

The report also discusses funding and ongoing management of this multi-agency project and describes the legal framework surrounding flood risk management initiatives.

The report recommends that the project board established at the start of the SWMP initiative should continue and provide ongoing management of the SWMP Action Plan.

The initial indicative programme shown in Appendix 2 will be developed by the project board as the work progresses.

2. Strategic Priorities

- 2.1 The management of flooding falls within the themes of "Economy", "Development", "Society", "Sustainability", "Infrastructure" and our "Council". Flooding when it occurs, such as during last winter, has a major and continuing impact on residents, businesses and visitors to our borough. The Council, together with all of our partners and the wider community, has a responsibility to work towards reducing the risk of flooding as much as possible. The Surface Water Management Plan will be the key to reducing the overall risk of surface water flooding within the borough.

3. Background

- 3.1 Following discussions between SCC and the Council's engineers, SCC asked us to manage the development of a SWMP for the borough. SCC funded the project as it fulfils one of its duties as Lead Local Flood Authority under the FWMA.

- 3.2 Guildford Borough Council is a flood risk authority under the Land Drainage Act 1991. Whilst being better placed to manage the project because of local knowledge within its engineering section, the Council also has a duty under the FWMA to cooperate with other flood risk authorities, including SCC, the Environment Agency (EA) and Thames Water (TW).
- 3.3 Following a competitive tender process, Halcrow Group Ltd (part of the CH2M Hill Group) was appointed to develop a SWMP for the borough. The project includes the flooding records of all the key partners listed in paragraph 3.2 and used hydrological modelling to identify “hotspots” which are particularly vulnerable to surface water flooding. The project recommends mitigation measures to reduce the risk of flooding in those areas.
- 3.4 Pirbright was excluded from the SWMP as the area had recently been the subject of detailed study by Hyder (Consulting) UK Ltd. following the flooding experienced in 2006. The recommendations of the Pirbright report are being acted upon with Hyder appointed to undertake the associated design work, which includes retention measures in MOD land and improved pipework around the Mill Lane/Guildford Road area.
- 3.5 Ash Green was also excluded because the area had been the subject of a detailed in-house study. Councillors will be aware of the Ash Green Flood Protection Bund project, which was recommended as part of the study which will protect Ash Green. It should be noted that the bund will have beneficial effects on some of the downstream “hotspots” identified in the SWMP, but will not remove the need for works downstream.

4. SWMP Findings

- 4.1 The SWMP is on the Council web site at <http://www.guildford.gov.uk/surfacewatermanagementplan> . The SWMP identified 15 “hotspots”, listed in the action plan. The flood risk mitigation measures proposed include:
- enhancements to current watercourse maintenance programmes
 - improvements to (highway) gully maintenance
 - recommendations for potential capital investment into flood protection schemes through the Council’s capital bid process
 - recommendations for further detailed investigations and modelling subject to obtaining funding
 - summary of costs and benefits of recommended measures
 - advice on applying for Flood Defence Grant in Aid (FDGiA) funding (from central government) as part of the overall funding strategy.

All these are discussed in more detail in the Action Plan in Appendix 1 as well as in the SWMP reports.

4.2 Other measures recommended by Halcrow include:

- enhancement of the collection and recording of flood incident data
- further engagement with local residents
- ongoing maintenance of structures and watercourses
- continue linking measures with spatial planning.

See section 5 for more detail.

5. The Action Plan

5.1 The recommended actions for the “hotspots” from the SWMP are included in Appendix 1. These are summarised below with updates on progress.

5.2 *Flexford:* Beech Lane is potentially vulnerable to flooding with issues in Orchard Road, Flexford Road, and Westwood Lane. Grant funding of £215,000 has been received from the Regional Flood and Coastal Committee to address these issues. CCTV work in Beech Lane, where flooding occurred has been carried out. Halcrow has been appointed to undertake a design for flood attenuation combined with lining the culvert under the railway to achieve improved hydraulic characteristics as well as improved structural integrity. Input is required from both Surrey County Council and Network Rail. Officers are also arranging for CCTV surveys of piped watercourses to investigate the issues in Orchard Road, Christmas Pie Avenue and Glaziers Lane. The replacement debris screen in Westwood Lane to the north of the railway line has yet to be actioned.

5.3 *Fairlands:* Although noted as a hotspot, there are no major actions proposed. No action has been taken on the recommendations to date other than our normal routine maintenance. Removal of bridges and other obstructions to the watercourse behind Gumbrell’s Close is an enforcement issue and therefore an action for Surrey County Council. Officers have received local objections to the proposed reinstatement of the historic ditch to the east of the cricket pitch. If this reinstatement is to be done, it will be in close liaison with the Worpleston Flood Forum.

5.4 *Applegarth:* Minor works are recommended in Hunts Close, Roman Farm Road and Hartshill. Many of the issues here appear to be related to highway drainage and surface water sewers and are therefore actions for our partners, Surrey County Council and Thames Water. No action has been taken on the recommendations to date, other than routine maintenance of the watercourse behind Applegarth Avenue. Halcrow has suggested that a flood embankment be considered along the western boundary of the Kings College playing field. This is not considered a priority at present but could be investigated in more detail if significant flooding issues emerge later in Pond Meadow.

5.5 *Ashenden Estate:* Identified as a hotspot in Halcrow’s report, this area suffered badly in 2000. The recommendations of the SWMP are that there should be a CCTV survey of the piped watercourse with detailed hydraulic modelling with a view to designing flood attenuation in Bannisters Field open space. Following a

- bid for FDGiA funding, the Regional Flood and Coastal Committee (RFCC) has awarded a grant of £60,000 to address the issues here. A CCTV survey of the piped watercourse near Bannisters Field and Tesco has been arranged. A brief is being prepared to invite consultants' proposals for the study and design.
- 5.6 *Rydeshill:* Routine maintenance has been carried out. The channel behind Brambles Close will be considered for the annual maintenance schedule.
- 5.7 *Bellfields:* Although identified as vulnerable there is limited historical evidence of flooding. The actions for SCC and Guildford Borough Council are on the SWMP programme.
- 5.8 *Jacobs Well:* Routine maintenance of the watercourses has been carried out. The gullies in Brookside need checking and emptying as necessary by SCC. The gap in the small bund at Oak Tree Close needs closing. This is being dealt with through the Worplesdon Flood Forum. The Council has an action to investigate the operation of the grille to the culvert under Jacobs Well Road. It is worth noting that the Council is currently working with Surrey Wildlife Trust, the Environment Agency and Guildford Angling Society to de-silt and improve Britten's Pond, which is just upstream of Jacobs Well and provides significant flood attenuation for the area.
- 5.9 *Send:* Most of the issues here appear to be highway related and are therefore actions for SCC. A potential ground water flooding issue became apparent last winter near Send Lakes and just outside the hotspot area. This is an issue for the landowners to resolve in consultation with the Environment Agency although officers hired in pumps in case properties were in danger of flooding. That did not occur.
- 5.10 *Ripley:* Many of the issues appear to be highway related, particularly gullies in Ripley High Street, and are therefore actions for SCC. Halcrow has suggested converting a naturally wet area behind properties on the south side of Ripley High Street to more formal flood attenuation. As this involves third party land, it is recommended that this proposal is put on hold for now and only pursued should further significant flooding issues arise.
- 5.11 *The Horsleys:* The Halcrow report recommends more detailed investigation, including CCTV survey and hydraulic modelling. Officers have submitted a bid with the EA for FDGiA funding. Routine maintenance has been carried out in the area. Feedback from local residents has indicated that the hot spot area should be extended to include areas of West Horsley. There is an action for Surrey County Council to attend to gullies in Kingston Avenue.
- 5.12 *Burpham:* The SWMP recommends that a detailed investigation with integrated hydraulic modelling of the catchment is carried out. Officers have submitted a bid for FDGiA funding for this work. The other recommendations are being pursued. The grille structure at Merrow Lane just to the east of Gosden Hill Road will shortly be reconstructed and will include other mitigation measures in Council owned woodland to improve protection of houses downstream. Additional flood attenuation proposed by Halcrow to the east of Merrow Lane is on private land. This will not be actioned at this stage but will be taken into consideration in any future development proposals. A CCTV survey has been organised for the piped

- watercourse downstream of New Inn Lane. Inspection of the watercourse downstream of London Road is required to ensure that it is operating correctly. Officers are talking to SCC and the EA about ongoing maintenance of the grille upstream of the culvert under London Road. The maintenance sits between SCC and the EA. Other routine maintenance in the area is continuing.
- 5.13 *York Road:* The drainage in this area is largely highway drainage and Thames Water surface water sewers. Officers will work with SCC and Thames Water to identify and rectify any issues.
- 5.14 *Tormead Road and Collingwood Crescent Area:* Although identified as a vulnerable area, there is no historical evidence of flooding. No further action is planned at present. There is a highway flooding issue nearby at the Clock House Roundabout. The Council has done some work in recent years to watercourses in Thorneycroft Woods just downstream to help rectify this.
- 5.15 *Effingham:* Routine maintenance has been carried out. The SWMP map shows a distinct overland surface water flow route through the King George V playing fields. Some Councillors may recall that there was a flooding incident in Lower Road outside the Howard of Effingham School last winter, which may be related. A bid has been submitted for FCGiA funding for an investigation. There is a nearby issue in Bookham just across the border in Mole Valley, which SCC is investigating. It is not known whether these issues are related at this stage.
- 5.16 *Ash Vale north (Avondale):* The Avondale estate suffered very badly during the floods of Christmas 2013. There was engagement after the flooding with local residents through the National Flood Forum trailer, which was located nearby for one day. There was a good response to the public consultation on the Halcrow report. A number of issues identified in the SWMP need to be addressed, these encompass local watercourses, sewers and railway drainage. Officers are working with the local councillor, SCC, Thames Water and Network Rail to understand the causes of the flooding, and more importantly to rectify any problems. Officers recommend that a detailed study should be carried out which should include hydraulic modelling and a CCTV survey of local sewers and culverts. The cost of this is likely to be in the region of £30,000. A bid for FDGiA grant funding will be made in the next round for 2015/16.
- 5.17 *Ash Vale south:* Although the flooding issues here are not as severe those in Avondale, local pipes and watercourses feed into culverts under the railway and into the Avondale system. This area will therefore be included in the detailed study mentioned in paragraph 5.16. There may also be an issue with gullies in Fir Acre Road for SCC to address.
- 5.18 *Ash Station area (Harpers Road):* Although a number of suggestions for mitigation were made, the key recommendation for this area is that there should be a more detailed investigation with hydraulic modelling, backed up with a CCTV survey of key sewers and culverts. The RFCC has awarded £20,000 grant towards an Ash Surface Water Scheme. Officers recommend that this money is used for that investigation, which will lead to firm proposals for mitigation measures. The recent public feedback highlighted a flooding issue in Shawfield Road, just beyond and downstream of the hotspot area. Both river flooding and surface water contribute to this issue and any attenuation measures upstream

will help the situation in Shawfield Road, but will not address the risk from fluvial flooding. Officers will include Shawfield Road in the study. Routine maintenance of local watercourses has been carried out. A balancing pond was constructed just to the south west of the railway line in 2008 near to Ewins Close and Murrell Road. This was overwhelmed during last winter's floods, this will also be included in the study.

- 5.19 *Ash Lodge Drive*: The SWMP highlights serious surface water flooding issues in this location. A number of suggestions for mitigation are made, including the upsizing of some sewers and the provision of flood attenuation. However, the key recommendation is for a more detailed investigation including hydraulic modelling and CCTV survey of the local sewers. Funding of £25,000 has been made available for a surface water study under Section 106 of the Town and Country Planning Act 1990 from a development just upstream in Foreman Road. Officers recommend that this funding is used to employ a consultant to undertake this detailed study and to design mitigation measures. The study will inform any future discussion on development of land to the south of Ash Lodge Drive. This needs to be a partnership project including all stakeholders. Sufficient information is given in the report to enable a bid to be made for FDGiA funding. This will be done for the 2015/16 period.
- 5.20 *Tongham*: Tongham has an active group of residents that lobby officers when issues arise. An effective maintenance regime is in place.
- 5.21 *Pirbright*: Pirbright was excluded from the SWMP because Hyder (Consulting) UK Ltd, is undertaking a detailed study of the area. The design to improve protection of those who suffered severe flooding in 2006, particularly in Mill Lane, is progressing. Officers will soon be in a position to apply for funding with a view to construction later in 2015. Pirbright Parish Council has a flood forum, which is attended by officers.
- 5.22 *Seale and Sands*: Seale and Sands has not been highlighted in the SWMP as there are no records of any property flooding. However some issues of flooding around Binton Lane prompted the parish council to set up a flood forum. Officers attended the recent inaugural meeting and are following up the issues raised.

Other actions, which are non-area, specific include:

- 5.23 *Improve collection of flood incident data*: The SWMP relied heavily on recorded data provided by both the Borough and County councils. However, whilst the data was useful as an indication of flooding, it tended to be incomplete. This is substantially due to the way incidents are recorded and how the information is collected and passed on. For example, during a flooding incident the Council will receive a number of requests for sand bags. These may be recorded in different formats depending on the individual who takes the call and the section/department they work in. In addition, the request for sandbags is only an indication of the possibility of flooding. The recipient might not flood and indeed, there may be others who have not requested sandbags but who have suffered flooding. The Surrey Flood Risk Partnership Board (SFRPB) has recognised this issue and the SFRPB Working Group is looking at proposals for a county-wide standard of flood reporting with the possibility of a single call handing centre to

take flood calls and direct them to the appropriate agency during a major incident. Officers are included both on the SFRPB board and the working group. Once the methodology has been finalised, the appropriate guidance and forms will be circulated to all staff likely to become involved in flooding incidents.

Officer comment: Our out of hours calls concerning flooding are currently dealt with by Forestcare. There is also a role for the Customer Service Centre during working hours.

- 5.24 *Engage with local residents:* We have consulted residents on the SWMP, see Consultation. The main partner agencies also attend meetings of local flood forums, currently Worplesdon, Pirbright, Normandy and Ash Vale. It is recommended that the partnership should continue to engage in this way and to encourage other community groups, through parish councils to take an interest in flood issues in their area. There has already been wider publicity in the Autumn edition of About Guildford. We will work with PR and Marketing to identify the best way to target further publicity as necessary.
- 5.25 *Maintenance of structures and watercourses:* As stated in the Halcrow report, “it is vital that structures (e.g. debris screens and culverts) and watercourses are well maintained to ensure that they convey run-off as designed during times of heavy rainfall.” The Council has a comprehensive maintenance schedule of watercourses, both open and piped, and associated structures. However, with increasing pressure on resources, it is important that land drainage maintenance is effectively targeted. Officers are currently reviewing the Council’s maintenance schedules to ensure that the Council’s maintenance programme is focussed both on watercourses that the Council owns (riparian responsibility) and on those where the risk and impact of flooding is greatest. The review is being informed by the SWMP, which can also be used by our partners when reviewing maintenance of their assets. Ultimately, responsibility for keeping watercourses and grilles clear lies with the riparian owners.
- 5.26 *Linkages with spatial planning:* The SWMP has been incorporated into the Local Plan evidence base and will consequently be used as a reference document for future development control work. The SWMP is also a reference document for the revised Strategic Flood Risk Assessment (SFRA) that is in course of preparation. Planning officers already consult with the Council’s Engineers on drainage issues in relation to planning conditions. This is however on a very ad hoc basis. The Engineering Manager is in discussion with the Interim Head of Planning to consider how this service can be improved. It is important that there is a strong and effective link as the Council needs to encourage local developers to take a sustainable approach, using Sustainable Urban Drainage Systems when dealing with drainage and flood risk management. It is also important that we can identify works needed if developments are proposed in “hotspot” areas.

6. SWMP Governance

- 6.1 The initial work on the SWMP was overseen by a project board chaired by the Executive Head of Environment and was attended by the Lead Councillor for Transport, Infrastructure and Environment. Surrey County Council, the Environment Agency, Thames Water and Network Rail were also represented.

- 6.2 Most of the initiatives recommended in the SWMP are multi agency projects. If they are to be effectively progressed, it is important that the programme of work is supported by all the key partners and included in their forward plans. It is recommended that the SWMP project board be continued as before with membership of the key partners and others as necessary. Its specific brief will be to ensure that the SWMP is effectively implemented and to ensure that the accepted flood risk management projects are brought through to satisfactory completion. The terms of reference will be updated to include the new brief. A memorandum of understanding to be agreed amongst the partner agencies will be drawn up to ensure clarity of contributions. This will allow the Board to continue to operate smoothly. Input will be provided from Governance and Legal.
- 6.3 A further responsibility of the project board will be to ensure that the SWMP fits in with the Surrey Local Flood Risk Strategy. SCC representation on the project board will achieve this. Similarly, officers of this Council are participating in the Surrey Flood Risk Partnership.

7. Financial implications

- 7.1 The revenue impacts of the SWMP will not be known until we have completed the watercourse maintenance review. It is unlikely to realise any savings and may even lead to increased revenue costs. For the purposes of this report, it is best to assume that the revenue impact will be neutral.
- 7.2 There are a number of recommendations within the SWMP for capital works ranging from small projects with a modest cost, to major schemes costing over £250,000. Implementing risk reduction measures to control flooding is essentially a multi-agency task, which could involve private and public watercourses, highway drainage and public surface water sewers. It is appropriate that other agencies should fund those elements of work that relate to their assets. The Council's responsibility stems from its powers under the Land Drainage Act 1991 and the Flood and Water Management Act 2010. The key partners are Surrey County Council, The Environment Agency and Thames Water. Other partners will be identified and become involved at appropriate stages as work continues.
- 7.3 There is a range of initiatives in the SWMP, which may require funding from the Council. These include:
- 7.3.1 Minor civil engineering works that are the Council's responsibility, either as riparian owner or by virtue of its powers under the Land Drainage Act 1991. Rebuilding the grille structure at Merrow Lane falls into this category. The cost of this can be covered by existing budgets.
 - 7.3.2 Investigation, modelling and design funded completely or in part by the Council. This is needed to define the nature and extent of the flood risk management schemes being proposed. Inclusion of accurate cost information will inform discussions with partners on the allocation of cost responsibility and will enable more accurate and targeted bids to be made for FDGiA funding from the EA.
 - 7.3.3 "Pump priming" contributions to multi agency projects will enable funding from other sources giving the schemes a much higher chance of success.

- 7.4 A capital bid has been submitted in the General Fund Capital Programme 2015-16 report for £200,000. This has been reported to Corporate Improvement Scrutiny Committee on 8 January 2015 and will be presented to the Executive on 20 January 2015. The bid is attached in **Appendix 3**.
- 7.5 Grant allocation has been received from the EA for the following schemes in addition to £20,000 grant for William Road:
- 7.5.1 Ash Surface Water Scheme £20,000 for further detailed study and recommendations for future work.
 - 7.5.2 Ashenden Road Surface Water Scheme £60,000 (not yet received). Detailed study, CCTV surveys of the system and remedial works as necessary.
 - 7.5.3 Flexford Flood Relief Scheme £215,000 (£15,000 received to date). Investigation, design and further works dependant on outcome of investigation.
 - 7.5.4 Mill Lane, Pirbright £25,000. Study and design of potential flood alleviation measures. (£19,000 was received and applied against expenditure in 2013-14.)

8. Legal implications

- 8.1 The Council has powers to undertake works to watercourses and land under the Land Drainage Act 1991 (LDA) for the purposes of improving drainage. A watercourse can be piped or culverted as well as being an open ditch or stream. A watercourse is defined in Section 72(1) of the LDA as including “all rivers and streams and all ditches, drains, cuts, culverts, dykes, sluices, sewers (other than sewers within the meaning of the Water Industry Act 1991) and passages through which water flows.” This is a complex issue and it should be noted that “main rivers” are the responsibility of the Environment Agency, public sewers are the responsibility of Thames Water, and highway drains are the responsibility of Surrey County Council as the highway authority; thus the importance of partnership working when addressing flooding issues.
- 8.2 Surrey County Council is also the Lead Local Flood Authority under the Flood and Water Management Act 2010. Certain of this Council’s powers under the LDA were transferred to Surrey County Council by virtue of Flood and Water Management Act 2010, in particular, consenting and enforcement powers. The Council has a duty under this Act to cooperate with other flood risk management authorities in the reduction of flood risk.

9. Key risks

- 9.1 A SWMP is a process by which surface water (not river) flooding can be better understood. Without a robust SWMP, methods to manage flood risk would not be identified and long-term plans about how to manage surface water in areas at risk could not be prepared. A SWMP provides an increased understanding of

where surface water flooding will occur which can be used to inform spatial and emergency planning functions.

10. Consultation

10.1 Feedback has been principally web-based, supplemented with press releases and direct contact with residents through the Flood Forums. Officers also attended 25 Swan Lane for a week publicising and explaining the SWMP. We have had over 50 direct responses from individuals and local groups. There were also approximately 1000 responses in the Local Plan consultation that referred to flooding issues. Halcrow have been through all these comment and have found that in general the comments confirm the initial findings. Where new issues have been raised, the SWMP has been revised accordingly.

11. Suggested issues for overview and scrutiny

The Committee is asked to:

11.1 Comment on the SWMP; is it thorough enough?

11.2 Endorse the action plan.

11.3 Comment on watercourse and grille clearance; should we only clear watercourses and grilles in Council owned land? We currently maintain about 33kms of open watercourse and 9kms of piped watercourses. We don't know at this stage how much of this is Council owned (this analysis is part of the maintenance review) but if for the sake of argument (i.e. without the figures to hand.) we suddenly stopped maintaining say two thirds of that, it is likely to have a severe impact on flood risk.

12. Conclusion

12.1 The Surface Water Management Plan sets out an Action Plan to reduce the risk of surface water flooding in "hotspots" that have been identified through a combination of hydrological modelling and examination of historical records. A number of measures are proposed including:

1. targeted maintenance
2. capital projects (including studies and investigations).
3. continued partnership working
4. continued engagement with residents and support for flood forums
5. improved collection and recording of flood incident data
6. develop and improve the processes and procedures linking development control and flood risk management
7. the Action Plan should be regularly reviewed.

13. Background papers

Guildford Surface Water Management Plan, November 2013, Halcrow Group Ltd., available at <http://www.guildford.gov.uk/surfacewatermanagementplan> .*

Ash Surface Water Study, June 2014, Halcrow Group Ltd, available at <http://www.guildford.gov.uk/surfacewatermanagementplan> .*

Customer and Community Scrutiny Committee Report 15 July 2014, item 5.

Land Drainage and Flood Defence Responsibilities, Fourth Edition, Institution of Civil Engineers, 2009.

Surface Water Management Plan Technical Guidance, March 2010, Department for Environment Food and Rural Affairs, available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69342/pb13546-swmp-guidance-100319.pdf

* Available in hard-copy form on request to Engineering Services.

14. Appendices

Appendix 1 – SWMP Action Plan

Appendix 2 – Indicative Programme

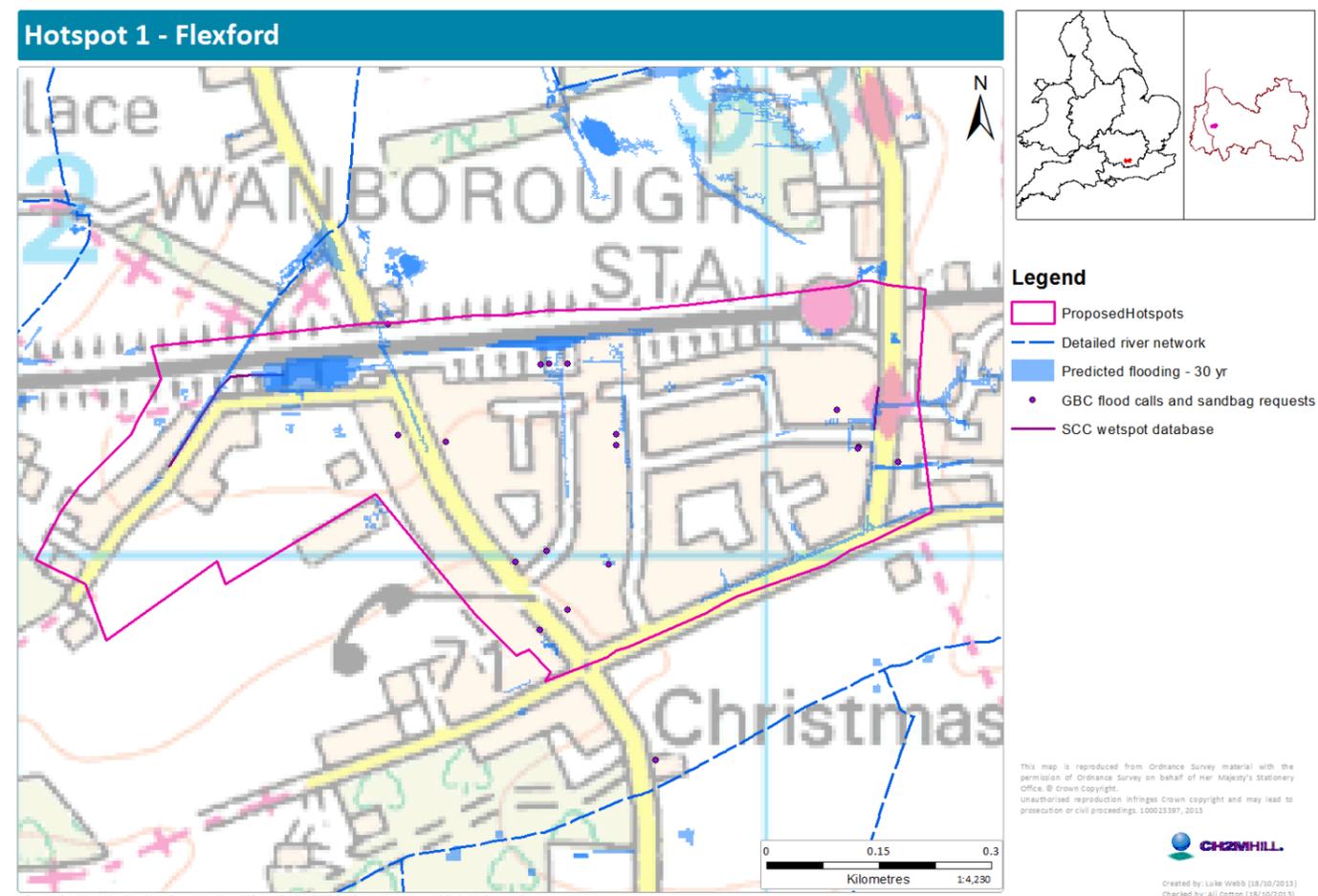
Appendix 2 – General Fund Capital Programme 2015-16 Bid

Appendix 1
Guildford & Ash Surface Water Management Plan
Action Plan

Action plans for hotspot locations: Eastern catchment

Flexford	
Actions	
1.	A partial CCTV survey was undertaken in November 2012 which indicated partial blockages of the culvert on Beech Lane. However the survey could not get beyond 4m which would suggest more significant blockage. A further CCTV survey should be undertaken to confirm the extent of blockages in the culvert.
2.	The current CCTV survey has indicated that the culverts under Beech Lane are in poor condition with notable blockages and cracks in the pipes. Structural maintenance of the culvert is needed to ensure the current culvert can convey flows up to its full capacity.
3.	It is estimated the culvert under Beech Lane can currently convey flows up to a 1 in 20 year rainfall probability event (based on a conservative estimate). To upsize the culvert to convey flows up to and including a 1 in 75 year rainfall probability event it is estimated the culvert would need to be upsized to a 600mm OR In combination (or instead of) improvements to the culvert under the railway it may be feasible to store additional flood water in storm cells under the highway. To enable this to work permeable asphalt would need to be installed on parts of Beech Lane as well as installing storm cells under the highway OR Should improvements to the culvert under the railway not be technically or economically feasible it is recommended that property level resistance and resilience measures are installed for 7 properties which experience internal flooding for a 1 in 30 year rainfall probability event
4.	Operation and maintenance of highway gullies on Orchard Close and Flexford Road seems to be the primary cause of flooding to properties. Additional maintenance and improvements to the highway drainage network are required in this location
5.	Flood water is predicted to pond at the low spot of Orchard Close due to backing up against the railway. Further investigation is required to establish whether there is existing drainage (culvert or ditch) to drain water away from this location, as it poses a flood risk to properties. This investigation should also consider drainage at the top of Orchard Close
6.	There is evidence of a 225mm culvert draining into a 150mm culvert which causes garden flooding to properties in the vicinity (Crossways). The entire length of the culvert needs upgrading to a 225mm culvert. In addition, it is reported that tree root ingress is affecting pipe capacity which needs to be resolved. Enforcement on the riparian owner may be required to mitigate flood risk.
7.	During the course of the SWMP it has been difficult to ascertain the mechanism of flooding to properties on Westwood Lane. Further discussion with local residents should be undertaken to confirm the numbers of properties affected and the flooding mechanism. There is also evidence of a ditch to the eastern edge of the meadow on Beech Lane which should be investigated and cleared where necessary.
8.	There is an informal debris screen (an iron gate) on the inlet to the culvert under Westwood Lane to the north of Flexford. A new debris screen should be designed and installed at this location.
9.	Work with local landowners to change farming practices to provide more natural

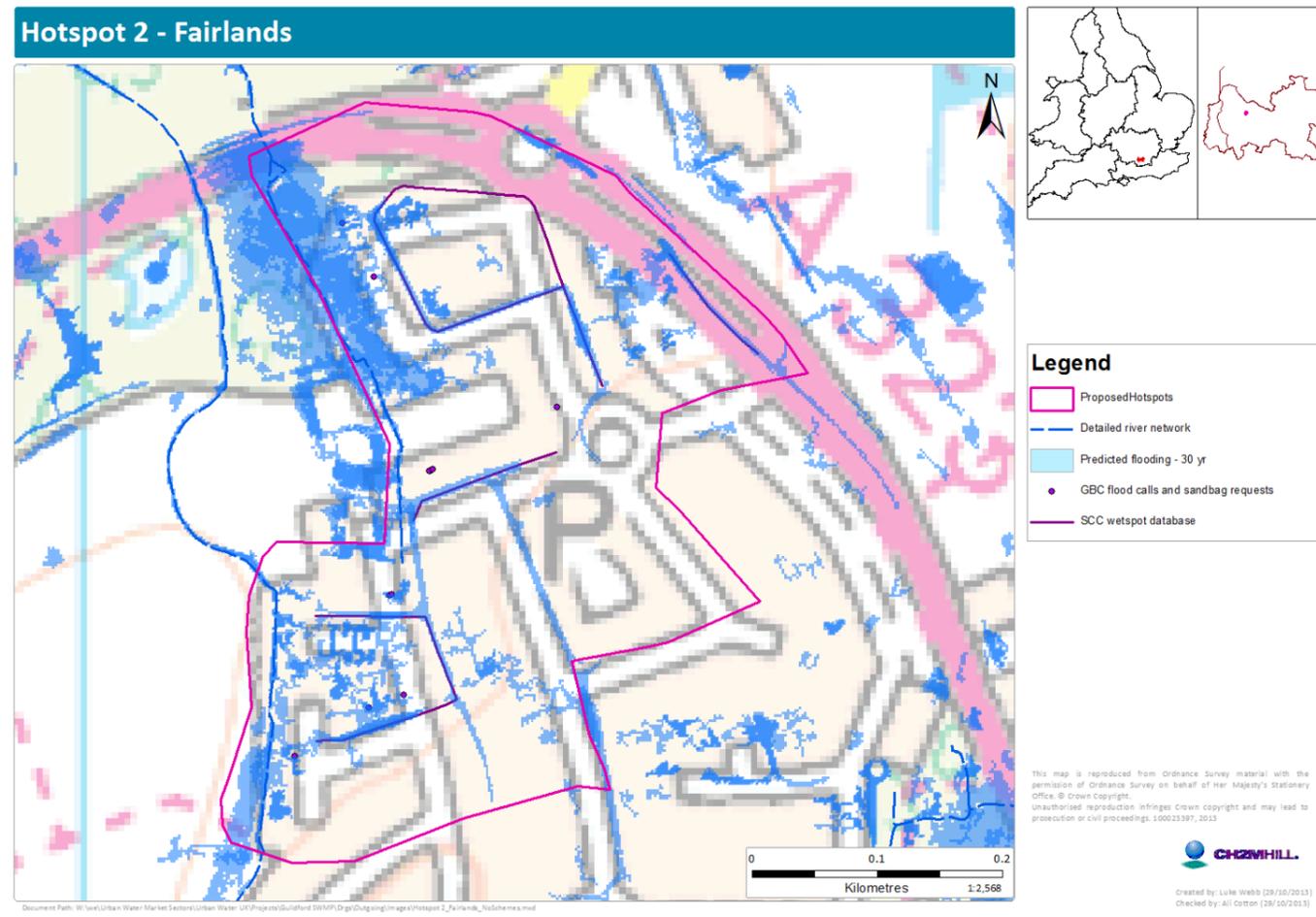
Map:



	attenuation of pluvial runoff. This would not prevent flooding but would mitigate the impacts by reducing the flow rate of pluvial runoff.
Responsibility	
Lead Organisation	Guildford Borough Council
Partners	Surrey County Council, Thames Water, Network Rail, BT, local residents and parish council
Summary of costs and benefits	
Total costs of proposed works are £180,000	
Estimated benefits = £460,000	
Partnership Funding Score (for FDGiA funding) = 46% (£96,000 required to secure FDGiA funding)	
Funding strategy	
Flood Defence Grant in Aid (FDGiA) funding has been secured to undertake further investigation and mitigation measures in Flexford. Whilst the SWMP has provided an enhanced understanding of flood risk in Flexford there remains uncertainty about some of the flooding mechanisms which should be further explored as part of the FDGiA funding available to confirm the exact scope and nature of mitigation measures. In particular further work is required to understand the location and condition of the highway drainage, which should be funded by Surrey County Council as the highways authority	

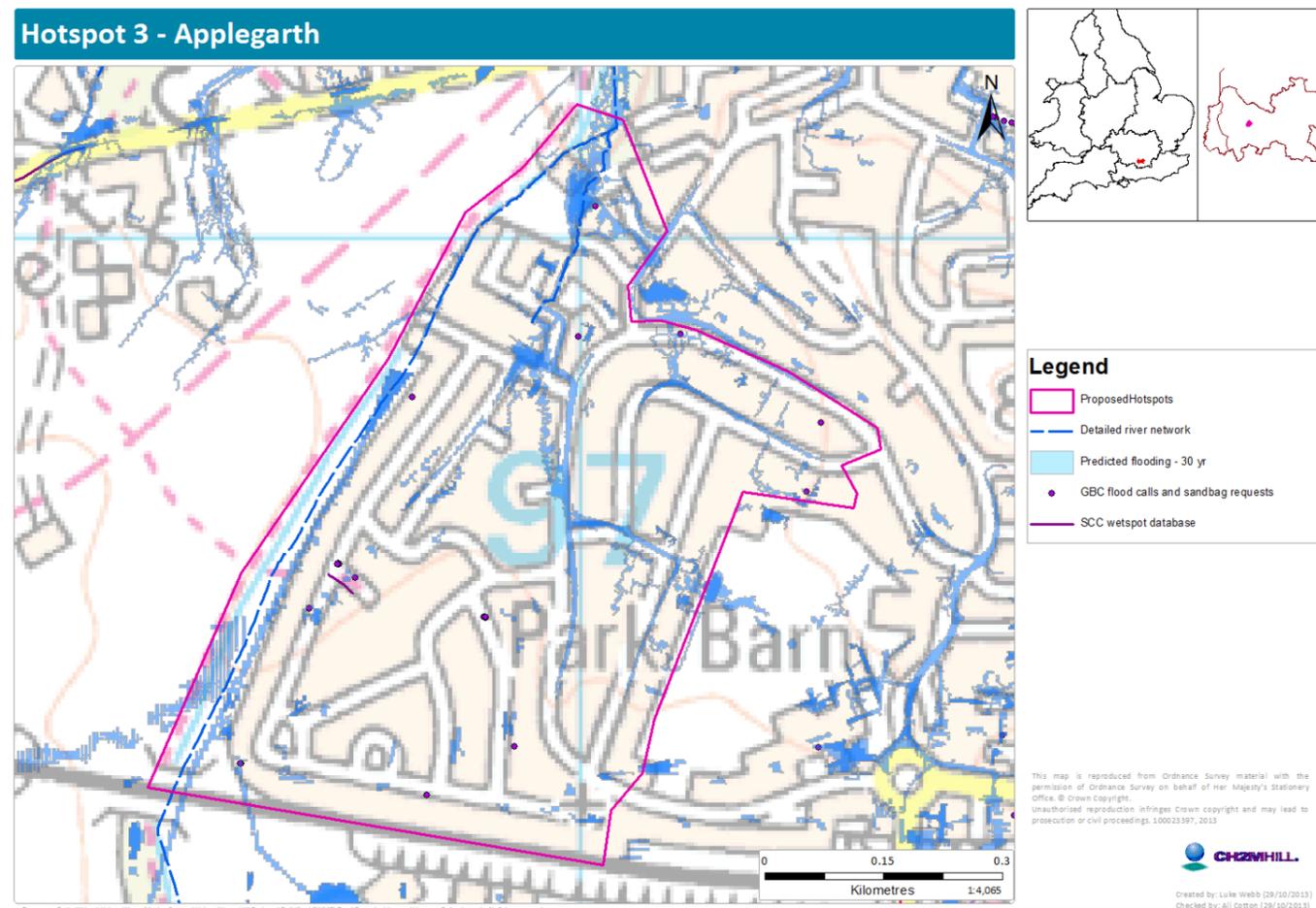
Fairlands	
Actions	
1.	Undertake CCTV survey of the manhole to the south-east of the village hall car park (in vegetated area) to establish incoming pipes.
2.	Reinstate historic ditch between watercourse that flows round the cricket pitch and the watercourse through the edge of the village (NB: some objections were raised by local residents during public consultation; these will be further considered as GBC investigate this further)
3.	Remove man-made obstruction (bridges over watercourse) in the rear gardens of properties on Gumbell's Close to prevent blockage of the watercourse. Evidence from historic records indicate previous flooding to these properties may have been due to small bridges/culverts built over the watercourse in back gardens. Most have been removed already, but some remain.
4.	Undertake an annual walkover of the watercourse required to check that homeowners have not put new culverts/bridges in without consent.
Responsibility	
Lead Organisation	Guildford Borough Council
Partners	Local residents and parish council
Summary of costs and benefits	
Estimated costs = £21,000	
Estimated benefits = £800,000 (although likely to be over-estimated due to uncertainties in hydraulic modelling)	
Funding strategy	
The mix of capital and operational measures proposed in the SWMP should be funded directly by Guildford Borough Council through procurement of survey contractors or officer time.	
Should further evidence emerge of flood risk in this location due to incapacity in the watercourses more significant capital works (e.g. flood defences or channel improvements) would be required. It would be likely that these would qualify for Flood Defence Grant in Aid funding.	

Map:



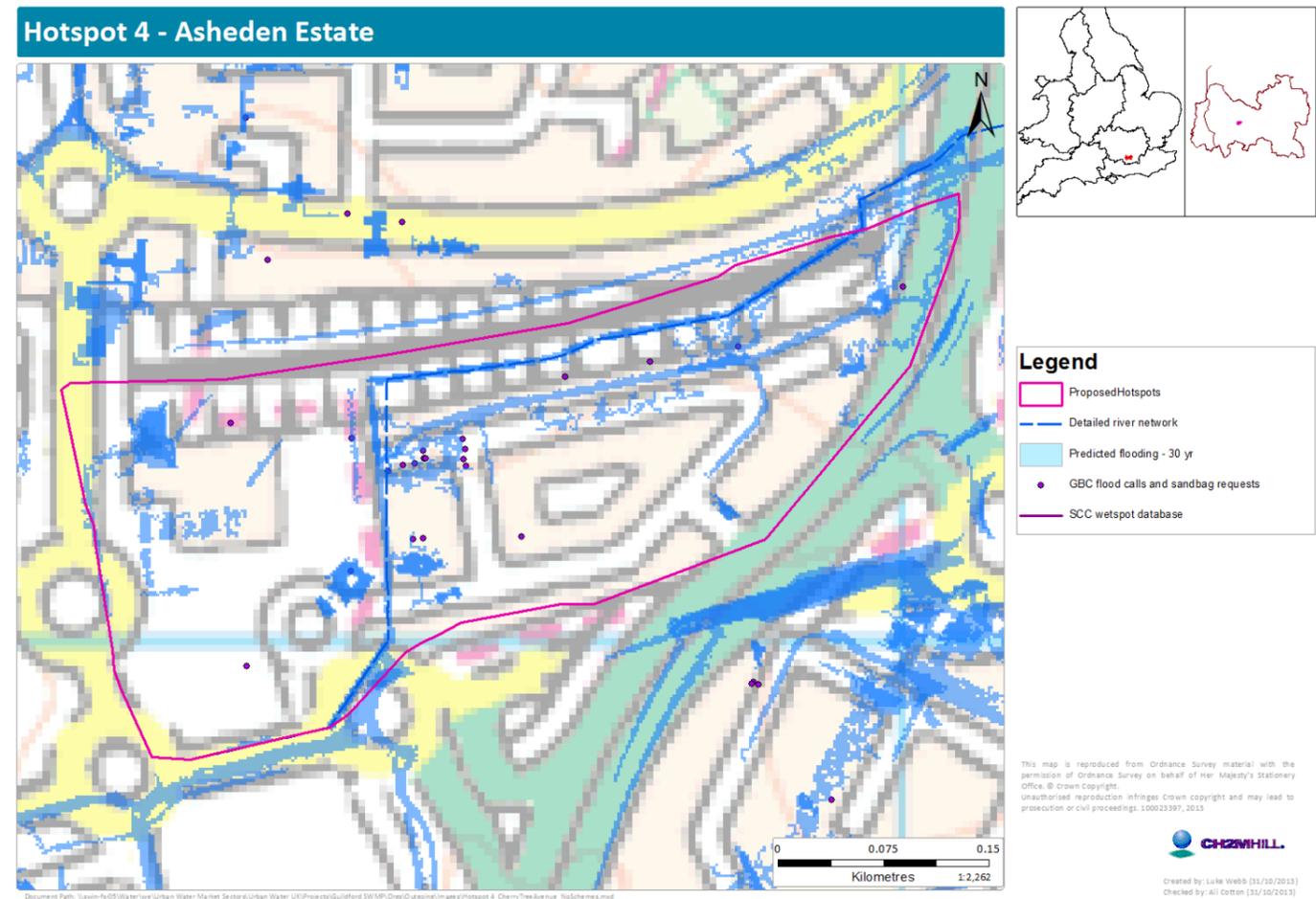
Applegarth	
Actions	
1.	There is historical flooding on Hunts Close which appears to be related to highway and sewer flooding. The existing condition of the drainage network in the area should be assessed and maintenance enhanced where required.
2.	There is significant evidence of debris and blockages in the watercourses to the west of Applegarth Avenue and north of Roman Farm Road. Annual clearance of these watercourses is required to reduce the risk of flooding.
3.	Evidence from the site visits indicated a lack of highway gullies on the low spot on Hunts Close. Additional gullies should be added to provide increased drainage of flood water.
4.	Evidence from the site visits indicate the culvert under Roman Farm Road was partially blocked. The blockages will need to be removed and a potential re-design of the culvert inlet is required to prevent future blockages.
5.	Add a table top road hump between 28 and 39 School Meadow to divert water towards the watercourse and away from properties.
6.	This involves constructing a flood embankment on the western edge of Kings College playing field to alleviate predicted flooding to 38-54 Pond Meadow. It would also help to alleviate potential flood risk to properties on Stoney Brook.
7.	There is no anecdotal evidence of flooding on Hartshill, but it is in a natural depression so adequate maintenance of the existing highway drainage network is critical to ensure future flooding does not occur.
Potential future action	
8.	Should there be a residual flood risk following improvements to the highway drainage network, property level protection would be suitable in Hunts Close.
Responsibility	
Lead Organisation	Guildford Borough Council and Surrey County Council
Partners	Environment Agency (to provide support for FDGiA funding)
Summary of costs and benefits	
Estimated costs = £335,000 (£318,000 associated with embankment to east of Pond Meadow)	
Estimated benefits = £1,500,000 (over £1,000,000 associated with embankment to east of Pond Meadow)	
Partnership Funding Score (for FDGiA funding for Pond Meadow) = 73% (£78,000 required to secure FDGiA funding)	
Funding strategy	
The proposed capital works on Hunts Close are related to highway drainage improvements and should be funded by Surrey County Council. In addition, the maintenance of highway gullies on Hartshill should be funded through Surrey County Council.	
Works on Roman Farm Road, School Meadow and the general maintenance of the watercourses in this catchment should be funded by Guildford Borough Council.	
It is recommended that a funding application for FDGiA be submitted for the flood embankment to the east of Pond Meadow, although some local contributions will be required.	

Map:



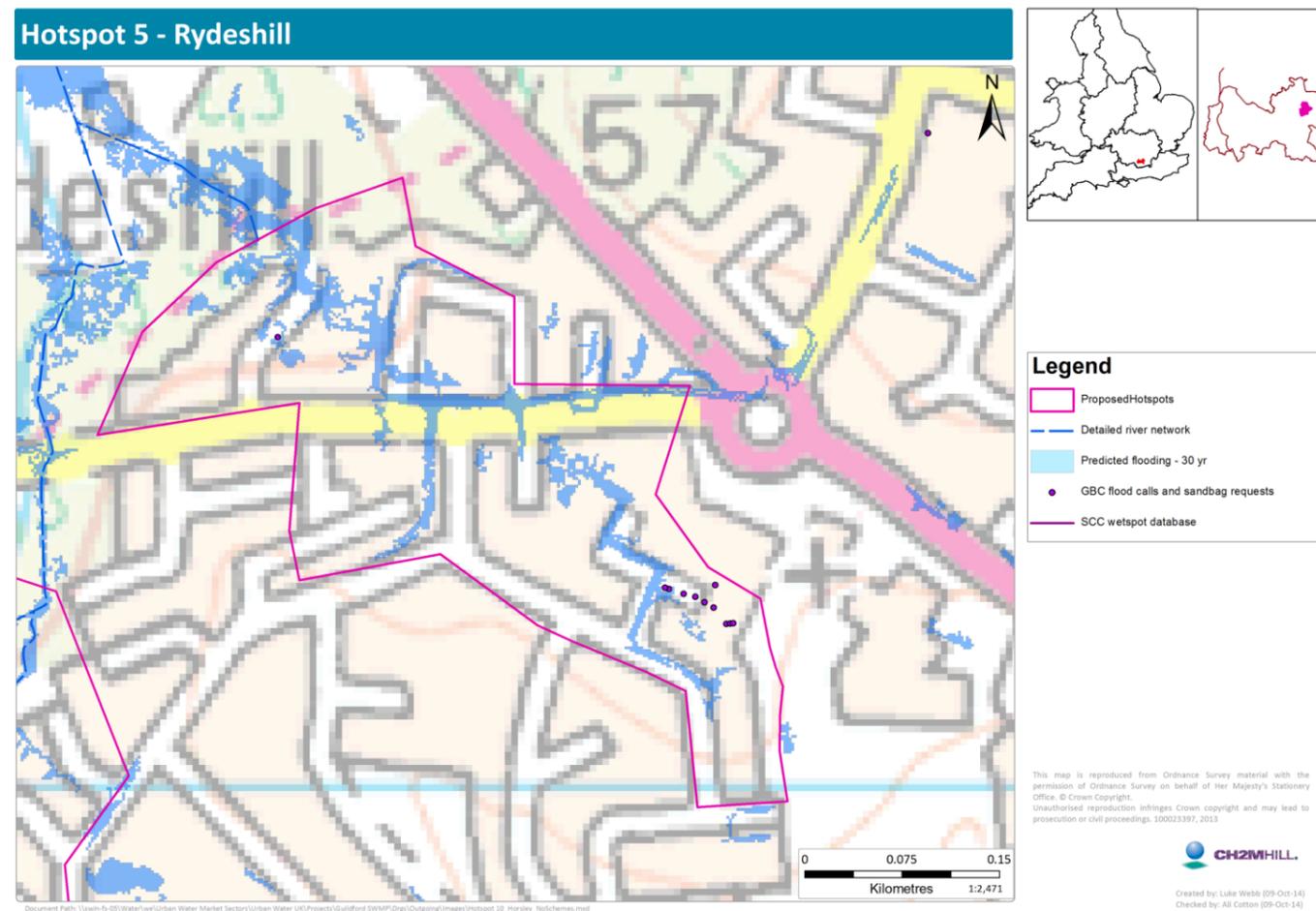
Asheden Estate	
Actions	
1.	The route, condition and capacity of the watercourse in this area is unknown. A CCTV survey of the entire culverted section should be undertaken as a high priority.
2.	To support the development of a business case for Central Government funding (FDGiA) it is recommended that detailed integrated modelling of the watercourse is undertaken. The modelling could be used to justify the current damages due to flooding and support the design of the mitigation measure (SC-6).
3.	The analysis undertaken for the SWMP has suggested that a storage area of approximately 3,200 m ³ is required to store runoff up to and including the 1 in 75 year rainfall probability event, assuming a raised embankment storage is provided.
4.	Should flood storage within the park area not be technically, socially or economically feasible, it is recommended that property-level protection be progressed.
Responsibility	
Lead Organisation	Guildford Borough Council
Partners	Environment Agency (to provide support for FDGiA funding), Tesco
Summary of costs and benefits	
Costs = £420,000	
Benefits = £1,370,000	
Partnership Funding Score (for FDGiA funding) = 87% (£50,000 required to secure FDGiA funding)	
Funding strategy	
It is understood that a funding application for FDGiA has already been submitted for this location. The evidence from the SWMP can be used to support enhancement of the funding bid. Given that there is historic evidence of flooding to the Tesco store and car park there is an opportunity to secure funding towards the scheme. This would significantly improve the potential to secure FDGiA funding.	

Map:



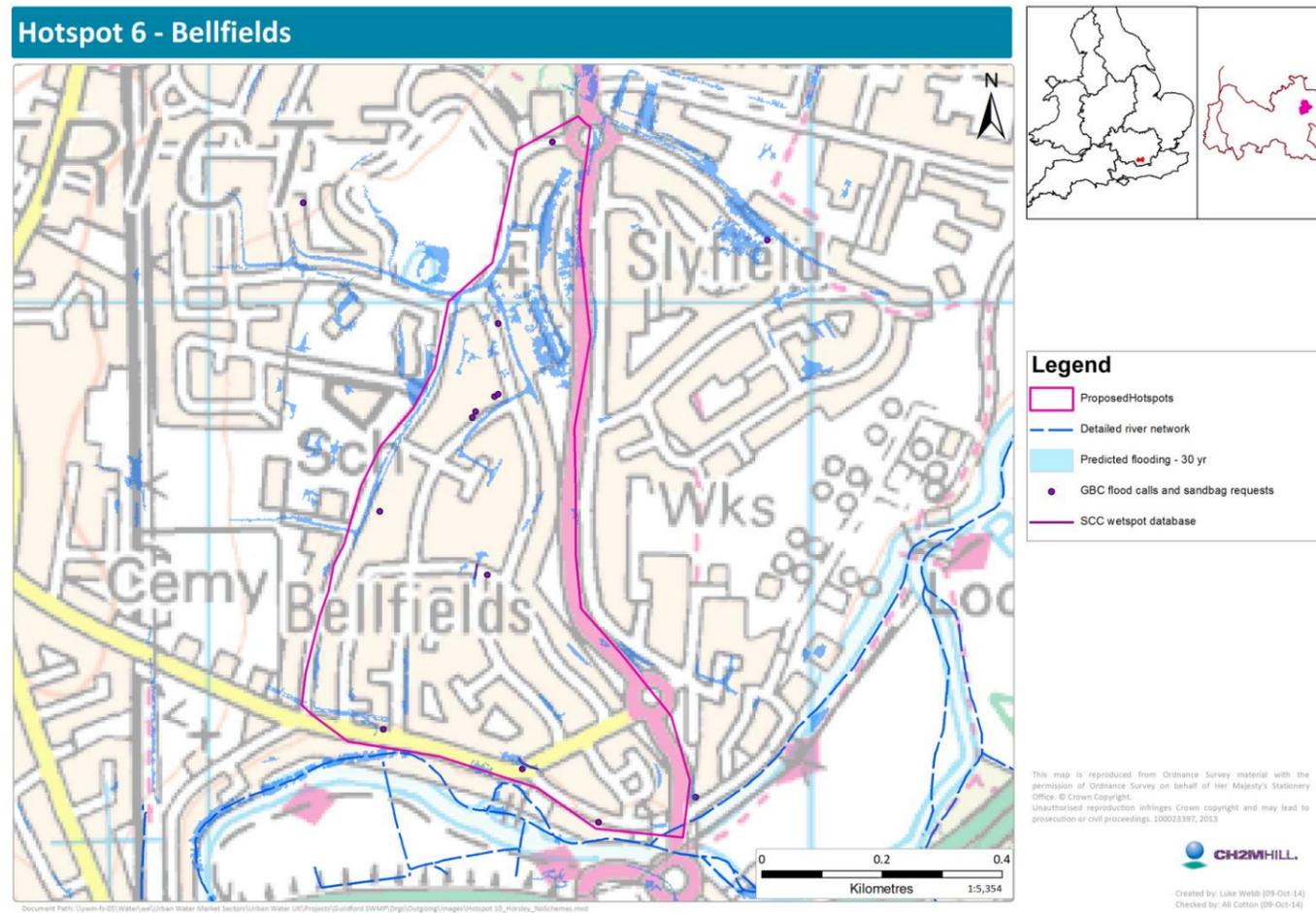
Rydeshill	
Actions	
1.	One off maintenance clearance at natural channel at downstream end of the network (behind Bramble Close)
2.	Future annual clearance at channel at downstream end of the network (behind Bramble Close)
Responsibility	
Lead Organisation	Guildford Borough Council
Partners	
Summary of costs and benefits	
Costs = £6,000 initial cost to clear watercourse, followed by £2,000 per annum	
Benefits = Not quantified as this is maintenance	
Funding strategy	
Measures should be funded by Guildford Borough Council or Surrey County Council	

Map:



Bellfields	
Actions	
1.	Clearance of highway gullies on Cypress Road to reduce risk of flooding to properties and infrastructure
2.	CCTV Survey on Cypress Road of drainage network
3.	Survey of pond/ thorough assessment of capacity of pond and detailed inflow/ outflow volumes to determine potential for overtopping
Responsibility	
Lead Organisation	Guildford Borough Council
Partners	Surrey County Council and Thames Water
Summary of costs and benefits	
Costs = £2,000 for CCTV survey, and £2,000 per day for highway gully clearance. Investigation of balancing pond estimated to cost £10,000	
Benefits = Up to £550,000 although modelling does seem to over-estimate flood risk based on limited historical evidence	
Funding strategy	
It is recommended that the works at Bellfields are funded by Guildford Borough Council and Surrey County Council, with the Borough focussing funding on the embankment on CCTV Survey on Cypress Road and the investigation of the balancing pond, and the County Council investigating highway maintenance issues on Cypress Road.	

Map:



Jacobswell

Actions

1.	The left bank of the watercourse contains a 900mm high embankment and appears to be designed to protect Oak Tree Close residences from high water levels; however a 10m long gap was found opposite 9 Oak Tree Close. This measure will re-instate the embankment.
2.	Check condition of gullies along roads on Brookside to ensure there are enough and that they are adequately maintained. Resolve any issues.
3.	The trash screen on the culvert inlet under Jacobswell road is cleaned up to 3 times a day by the parish council during heavy rainfall. To ease the burden on this culvert inlet an additional trash screen could be installed on the watercourse near Oak Tree Close to capture debris.
4.	Between the A320 and the Oak Tree Close there is a meadow area that could be used as a natural storage area. However, further analysis of the ground levels indicates that the meadow and Oak Tree Close are at similar levels so creating a storage area would require raised embankments, which would not be economically viable.

Responsibility

Lead Organisation: Guildford Borough Council

Partners: Surrey County Council, parish council and Worplesdon Flood Forum

Summary of costs and benefits

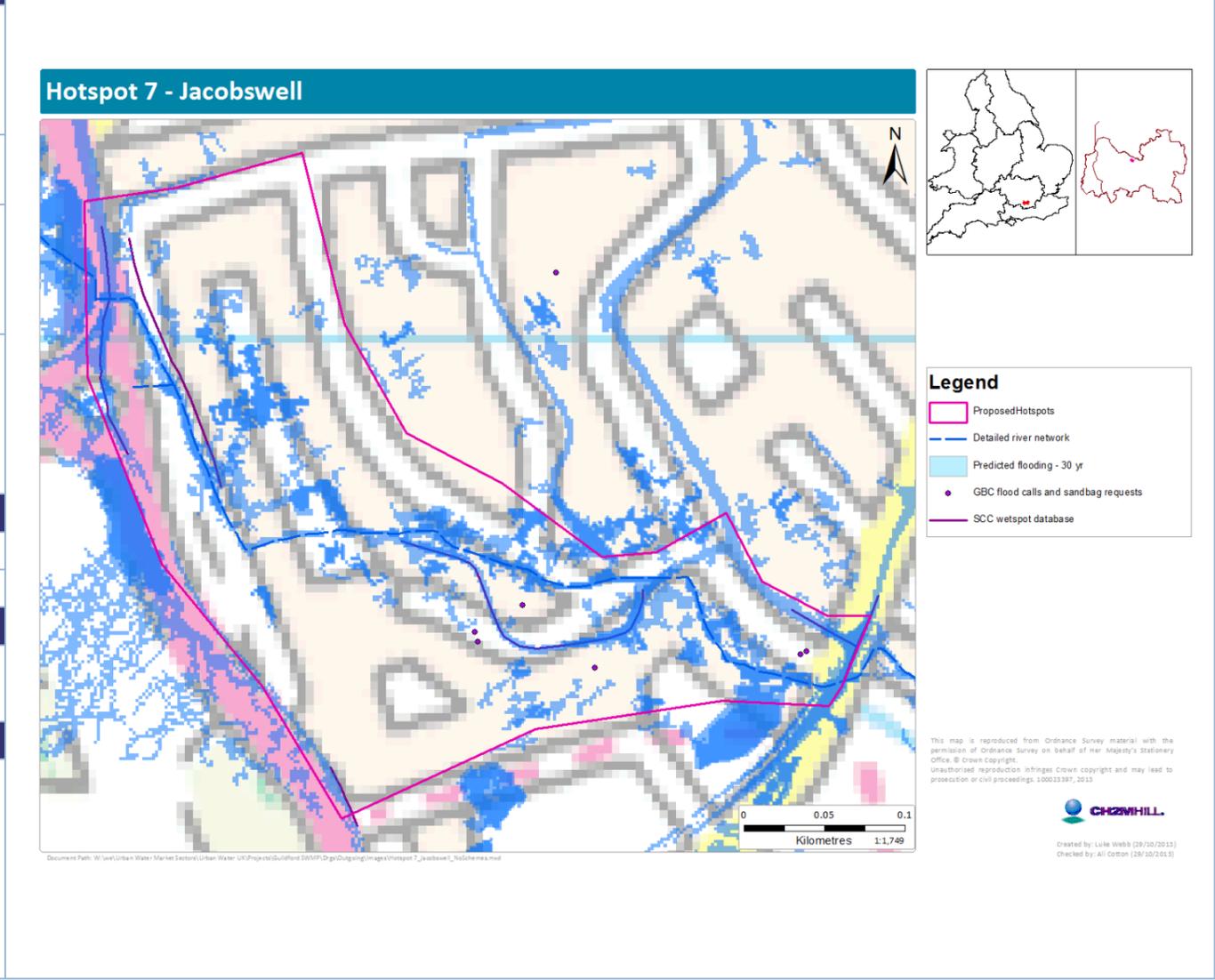
Costs = £22,000

Benefits = £380,000

Funding strategy

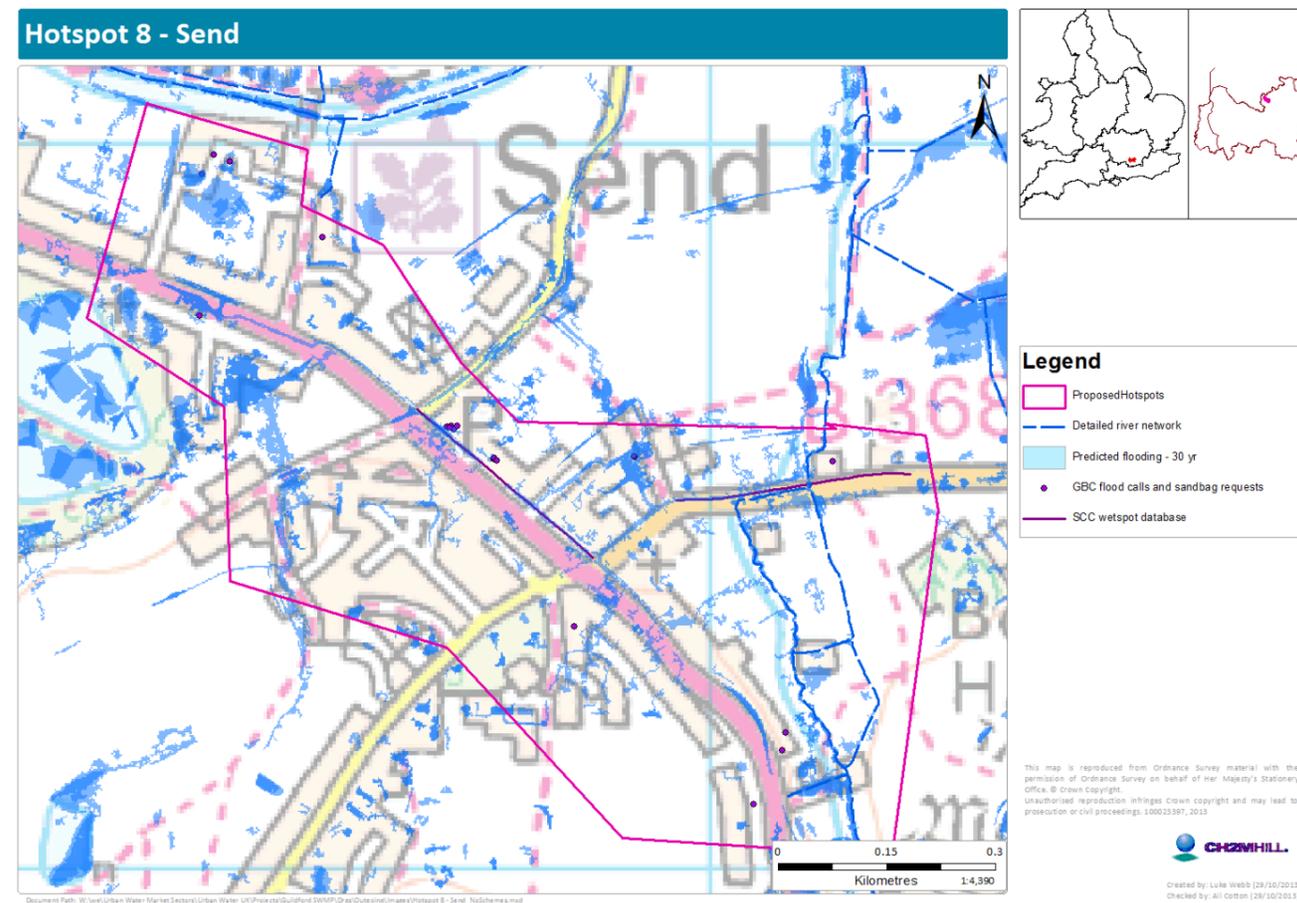
It is recommended that the works at Jacobswell are funded by Guildford Borough Council and Surrey County Council. The Borough should focus funding on the embankment on Oak Tree Close and the potential for an additional trash screen, whilst the County Council should investigate highway flooding issues in Brookside. It is recognised that there is an active flood forum in Jacobswell who contribute to the management and maintenance of the watercourse. The Borough Council and flood forum should continue to work in partnership to manage flood risk from the watercourse, as blockages or obstructions could result in flooding to residential properties.

Map:



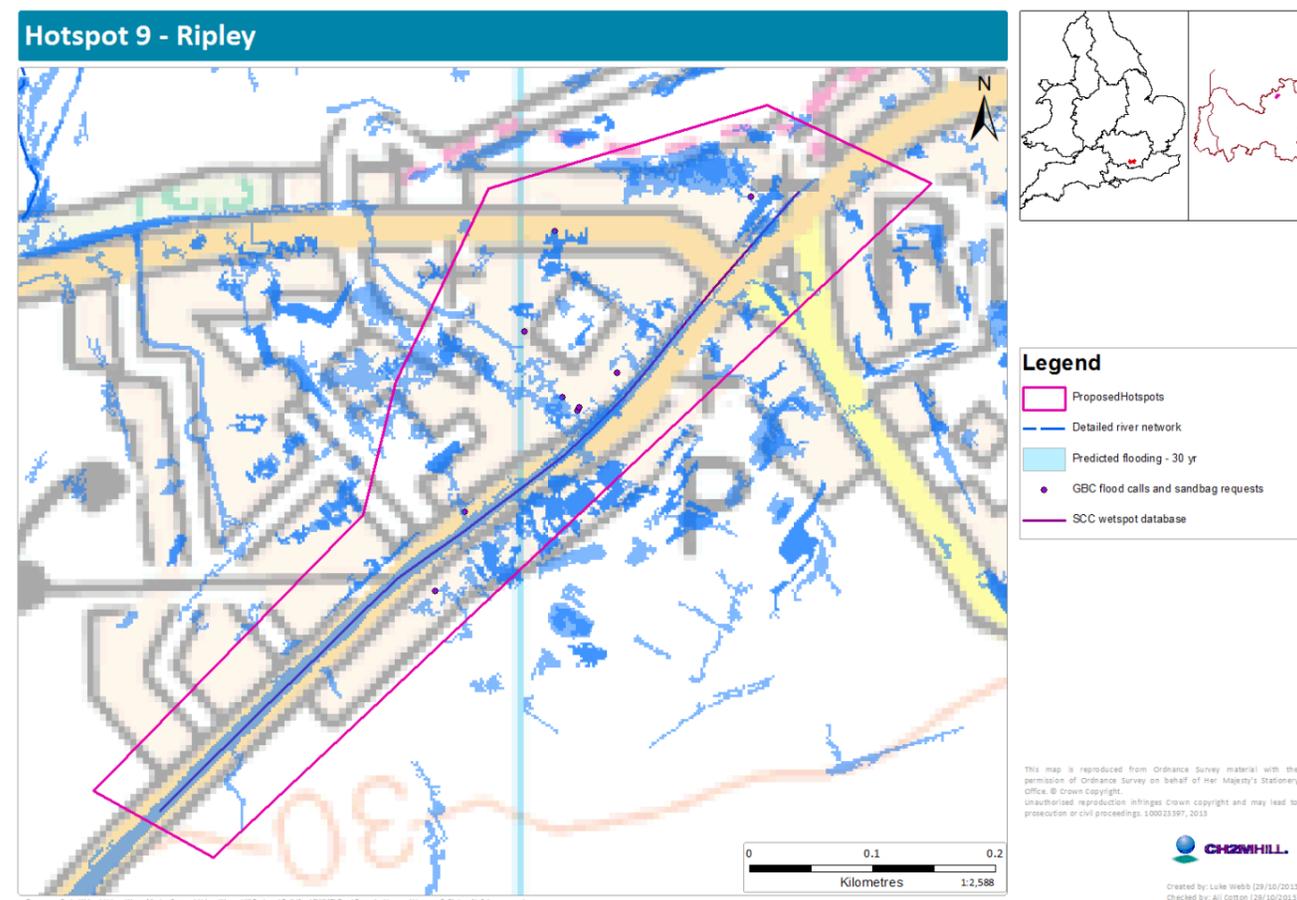
Send	
Actions	
1.	Properties on Send Road appear to be vulnerable to flooding because they are lower than the highway and there is no highway drainage outside the properties. It is recommended that additional highway gullies (or an aco drain) be installed to prevent internal flooding to these properties. In addition, Send Marsh Road is also vulnerable to flooding because the highway gullies appear insufficient to drain water away. Further investigation and mitigation is required.
2.	There is no evidence of the watercourses overtopping in this area, but regular maintenance and inspections of culverts will be required to minimise risks of blockages that could result in flood risk to properties and infrastructure.
Potential future action	
3.	Should there be a residual flood risk following improvements to the highway drainage network, property level protection would be suitable for properties on Send Road.
Responsibility	
Lead Organisation	Surrey County Council
Partners	
Summary of costs and benefits	
Costs = £20,000 (for highway works)	
Benefits = £120,000 (for highway works)	
Funding strategy	
The flood risk issues in Send appear to be localised and related to the condition and location of highway drainage within the area. Therefore it is recommended that Surrey County Council act as the lead organisation for further investigation and funding of the proposed mitigation measures. Should property level protection be progressed in this area, an FDGiA application could be submitted to secure funding for the scheme, although local contributions would be needed to secure FDGiA.	

Map:



Ripley	
Actions	
1.	Evidence from the site visits indicated that the highway gullies along the High Street were in poor condition and needed additional maintenance. In addition the presence of highway gullies along the pavement indicates a historic problem in this area, which should be further investigated by Surrey County Council. Ripley Parish Council have also identified a range of other highway ditches and pipe network which requires enhancement and maintenance. These have been passed onto SCC as the highways authority for consideration.
2.	There is a localised ditch that runs alongside Grove Heath North (to the west of Ripley) and into a culvert under Portsmouth Road. The inlet to the culvert is completely blocked and needs to be cleared to prevent flooding onto the main road through Ripley, although this does not cause property flooding.
3.	The natural wet area behind properties to the south of the High Street could be converted into an attenuation area. It is estimated that up to 5,300 m ³ of storage is feasible at this location, assuming a maximum embankment height of 2m (no excavation). It is estimated that it could accommodate flows up to and including the 1 in 75 year rainfall probability event.
4.	Work with local landowners to change farming practices to provide more natural attenuation of pluvial runoff. This would not prevent flooding but would mitigate the impacts by reducing the flow rate of pluvial runoff.
Potential future action	
5.	Should flood storage behind the High Street area not be technically, socially or economically feasible it is recommended that property-level protection be progressed.
Responsibility	
Lead Organisation	Surrey County Council and Guildford Borough Council
Partners	Environment Agency (to provide support for FDGiA funding)
Summary of costs and benefits	
Costs = £355k (including highways works and design, construction and maintenance of storage areas)	
Benefits = £650,000	
PF Score = 41% (£190,000 needed to secure FDGiA funding)	
Funding strategy	
Improvements to the existing highway drainage on High Street and the ditch network adjacent to Grove Heath North should be progressed and funded by Surrey County Council as the highways authority. Officers from Guildford Borough Council should take the lead on working with local landowners to improve the management of land to reduce runoff rates.	
The most feasible funding opportunity for the flood storage area to the south of the High Street would be FDGiA. However, initial analysis of the Partnership Funding Score indicates that significant cost savings or external contributions would be needed to fund the scheme. Further work will be required to seek cost savings, as it is considered unlikely that £190,000 can be raised locally to support the scheme, in the absence of a recent flood history in the area.	

Map:



The Horsleys

Actions

1. Improve maintenance of gullies in Kingston Avenue (at low spot) where flooding has occurred before and increase number if there are too few.
2. Undertake CCTV of the culverts under the railway, in the back gardens of 44-49 Kingston Ave and at the roundabout nr 16 Kingston Avenue.
3. Investigate condition and maintenance of highway network on East Lane and The Street
4. Surface water mapping indicates potentially significant flood risk to properties in Horsley due to the watercourse which runs south to north. There is no anecdotal evidence of flooding along the watercourse, so no immediate mitigation measures are recommended. Rather, further liaison with local residents should be undertaken to establish if there is any flooding history from the watercourse. If there is any current (or future) evidence of flood risk due to the watercourse, further detailed hydraulic modelling of the watercourse would be necessary.

Potential future action

5. Should improvements to the highway drainage network not resolve the flooding on Kingston Avenue, property level protection should be offered to properties which have flooded in the past.

Responsibility

Lead Organisation	Surrey County Council and Guildford Borough Council
Partners	Environment Agency (to provide support for FDGiA funding) and local residents

Summary of costs and benefits

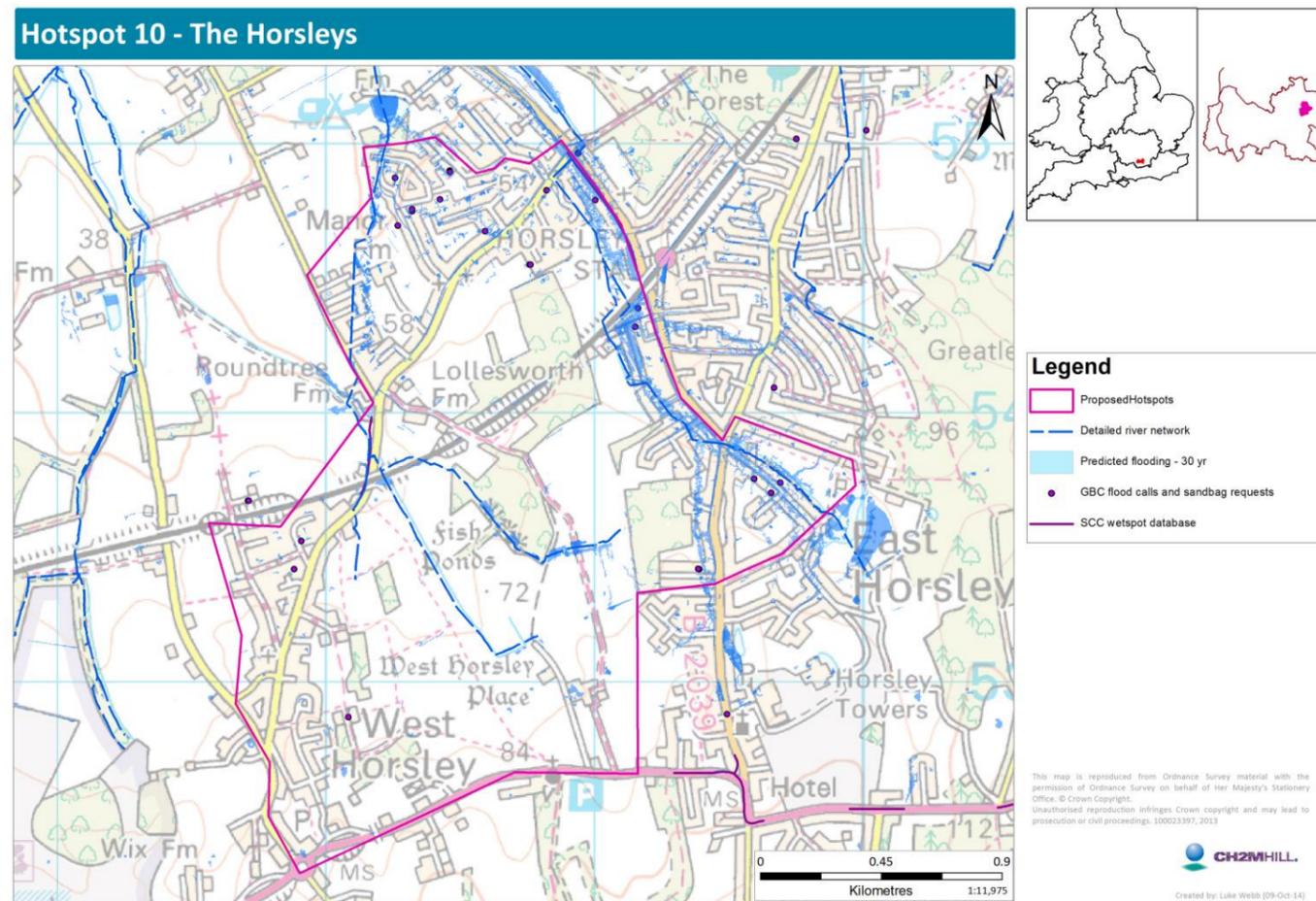
Costs for highway works = £10,000
 Benefits of highway works = £240,000
 Estimated costs for future hydraulic modelling = £75k

Funding strategy

It is recommended that highway drainage improvements on Kingston Avenue are funded and delivered by Surrey County Council as the highways authority. A CCTV survey of the watercourse to the rear of Kingston Avenue should be undertaken by Guildford Borough Council.

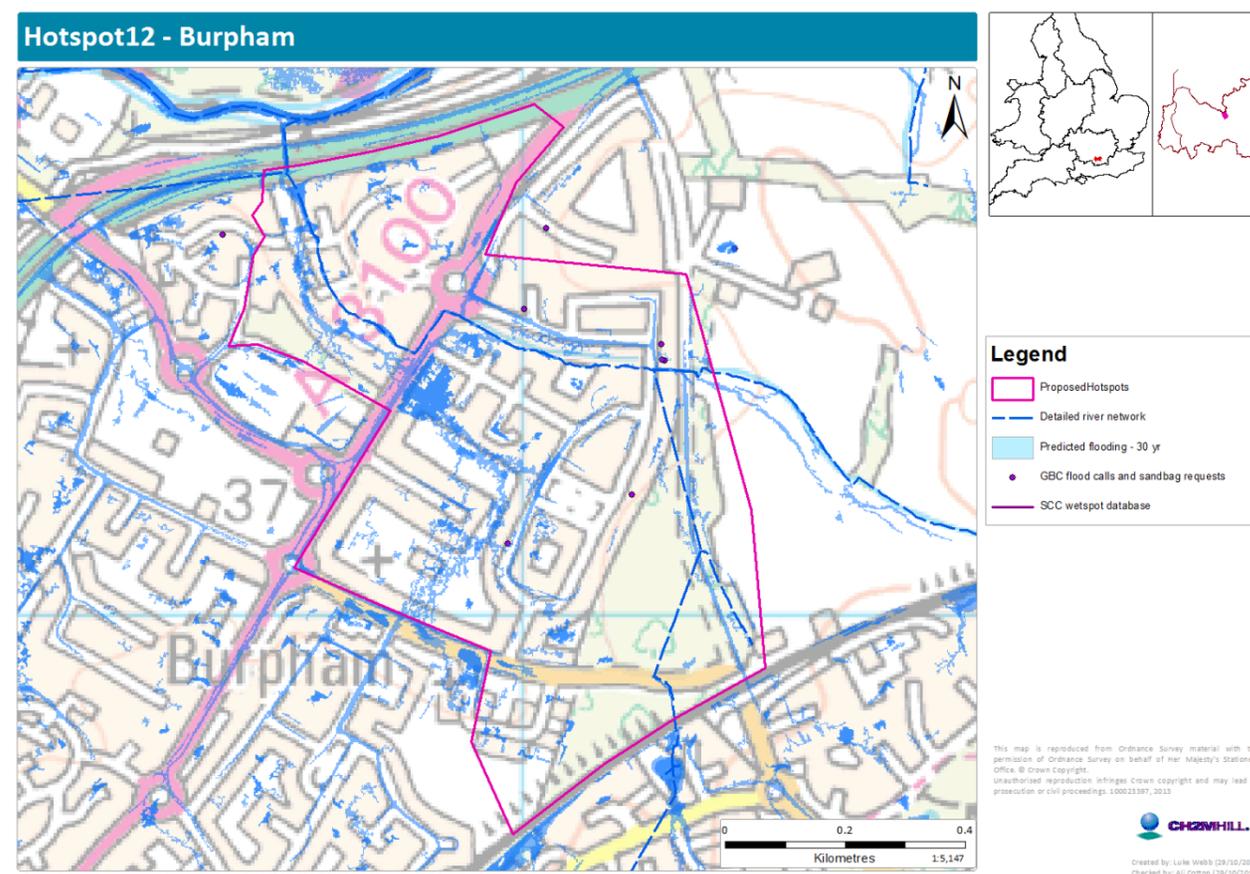
Further investigation and detailed hydraulic modelling of the watercourse through East Horsley is recommended. Initially, Guildford Borough Council should undertake engagement and consultation with local residents to better understand historic flooding in the catchment. Subsequently, it is recommended that an application for FDGiA funding is submitted to undertake detailed hydraulic modelling of the watercourse and drainage network in East Horsley to improve understanding of flood risk and potential mitigation measures. A CCTV survey of the culverted watercourses may be required and should be funded by Guildford Borough Council.

Map:



Burpham	
Actions	
1.	The culvert and headwall to the rear of 92/94 Gosden Hill Road is showing imminent signs of collapse and urgent work is required to rectify this.
2.	Ongoing maintenance of the culvert under New Inn Lane is required because the culvert is prone to blockage and causing flooding.
3.	Investigate condition of balancing pond south of railway near Fitzjohn Close
4.	There remains significant uncertainty about the watercourses which drain to Merrow Lane. Several outlets were observed during the site visit but it was not possible to follow the route of each watercourse/ditch as part of the SWMP. It is recommended that a detailed watercourse walkover survey is undertaken to establish the source and pathway of each of the watercourses/ditches which drain towards Merrow Lane. Cross sections (of open sections and culvert inlets/outlets) should be taken at various points of the survey and the watercourses should be mapped to enable further hydraulic modelling work to be progressed.
5.	The route of the watercourse downstream of New Inn Lane is uncertain due to historic development in the area. A CCTV survey (and review of adopted surface water sewer maps) should be undertaken to confirm the route and size of the network.
6.	Downstream of London Road there is evidence of bank erosion, scour and deposition of sediment within the watercourse. Maintenance is required to remove vegetation and accumulated sediment, as well as to manage bank erosion and scour.
7.	Along watercourses downstream of London Road there is evidence of mis-connections which need to be assessed.
8.	Once the watercourse survey has been undertaken it is recommended that a detailed integrated hydraulic model of the catchment is produced to better understand flooding mechanisms. The model will help to justify the business case for further funding. The model would represent the entire hotspot area.
9.	Subject to the watercourse survey and detailed integrated hydraulic modelling, it is recommended that upstream storage to the east of Merrow Lane be provided. It is estimated that 8,300m ³ of storage can be provided at this location which would offer flood storage between a 1 in 50 year and 1 in 75 year rainfall probability event.
10.	Investigate the condition, connectivity and pumping arrangements of the sewer network on New Inn Lane and Raynham Close
Potential future action	
10.	Should flood storage upstream of Merrow Lane area not be technically, socially or economically feasible it is recommended that property-level protection be progressed.
Responsibility	
Lead Organisation	Guildford Borough Council
Partners	Surrey County Council, Environment Agency (to provide support for FDGiA funding), Thames Water, and local residents
Summary of costs and benefits	
Costs = £20,000 for structural repairs to culvert near Gosden Hill Road	
Costs = £12,000 per annum for maintenance of watercourse downstream of London Road, and £4,000 per annum for maintenance of culvert under New Inn Lane	

Map:



Costs = £530,000 for flood storage to the east of Merrow Lane
Benefits (only benefits of flood storage quantified) = £1,000,000
PF Score = 53% (£290,000 needed to secure FDGiA funding)

Funding strategy

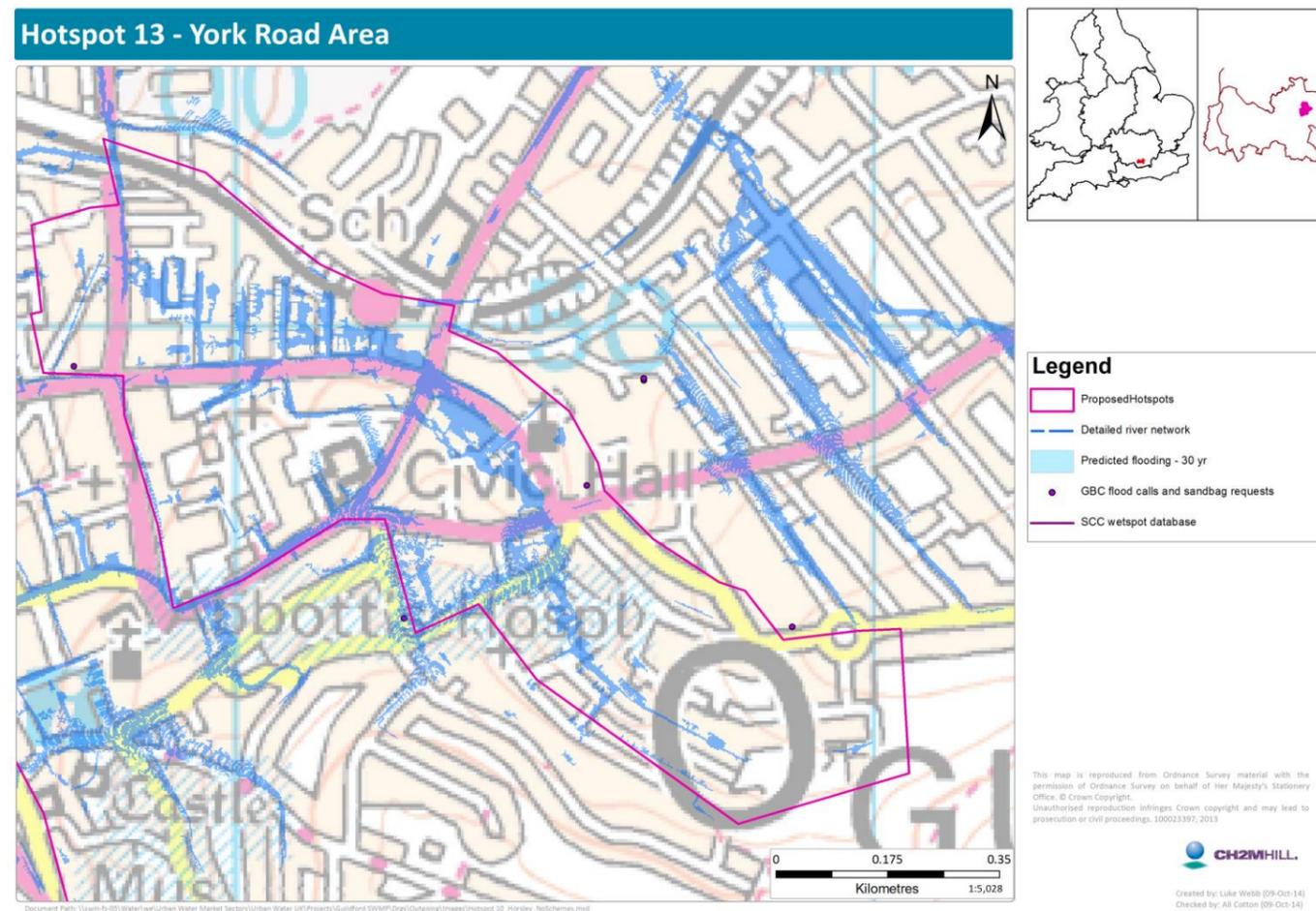
It is recommended that the following proposed mitigation measures are progressed and funded by Guildford Borough Council:

- works to repair the culvert and headwall to the rear of Gosden Hill Road;
- walkover survey (including taking cross sections) of all watercourses within the area;
- undertake works to alleviate bank erosion, bed scour and deposition of sediment on the watercourse downstream of London Road;
- undertake pro-active maintenance of the culvert near New Inn Lane which is prone to blockage and causes property flooding, and;
- commission a CCTV survey of the watercourse to trace the route of the culvert downstream of New Inn Lane.

A funding application for FDGiA should be submitted to develop the flood storage area to the east of Merrow Lane. Detailed hydraulic modelling should be undertaken of the study area to support the economic appraisal and design of the proposed flood storage area. This would include a more detailed hydrological analysis to improve confidence and certainty of flows arriving at Merrow Lane.

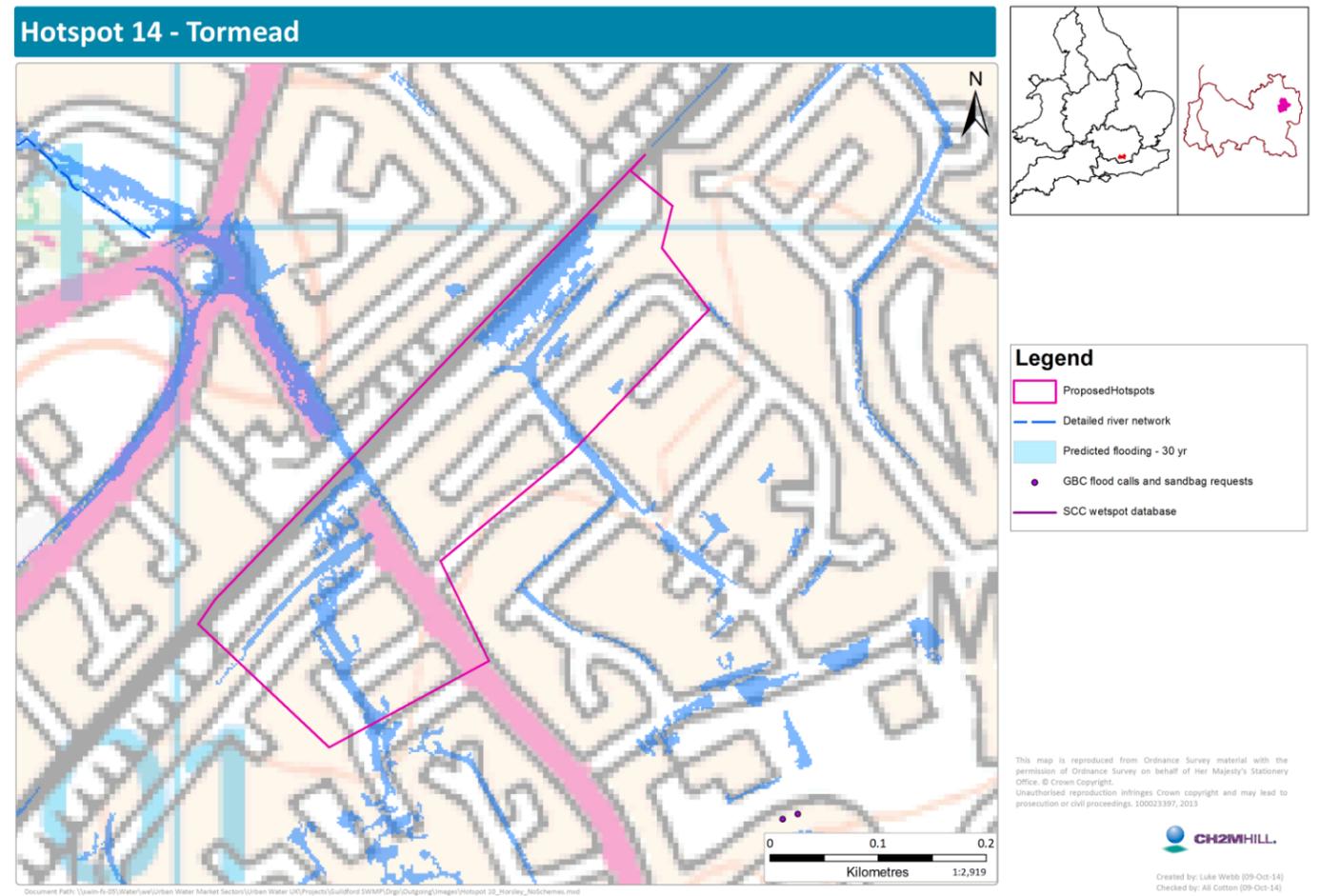
York Road area	
Actions	
1.	Consider condition and enhanced maintenance of gullies in key locations, e.g. Cooper Road, Cline Road, York Road,
2.	Undertake detailed study of the drainage in this area, to confirm capacity of current network and options to alleviate flooding. Possible options include: <ul style="list-style-type: none"> • Upsizing the drainage network • Disconnecting surface water into localised above ground storage areas • Property level protection
Responsibility	
Lead Organisation	Guildford Borough Council
Partners	Surrey County Council and Thames Water
Summary of costs and benefits	
Costs =	For improve maintenance and detailed investigation are in the region of £60,000
Benefits =	Cannot be quantified at this stage
Funding strategy	
As the highways authority Surrey County Council should take act as the lead organisation in improving maintenance of the highway network. The detailed investigation of flooding will require collaboration of Guildford Borough Council, Surrey County Council and Thames Water.	

Map:



Tormead and Collingwood Crescent	
Actions	
1.	Check existing maintenance of key network through Collingwood Crescent
2.	Consider upsizing 375mm network on Boxgrove Road
Responsibility	
Lead Organisation	Surrey County Council
Partners	Thames Water
Summary of costs and benefits	
Costs = For improved maintenance of the culvert under Collingwood Crescent the costs have been estimated at £4,000 per annum. The costs of upsizing the 375mm culvert on Boxgrove Road has not been costed	
Benefits = Cannot be quantified at this stage	
Funding strategy	
The measures will need to be funded for by Thames Water and/or Surrey County Council	

Map:



Effingham

Actions

1. Improve maintenance of ditches, culverts and drains running adjacent to, or underneath Effingham Common Road
2. Work with sub-station asset owner to improve resilience of electricity sub-station on Orestan Lane

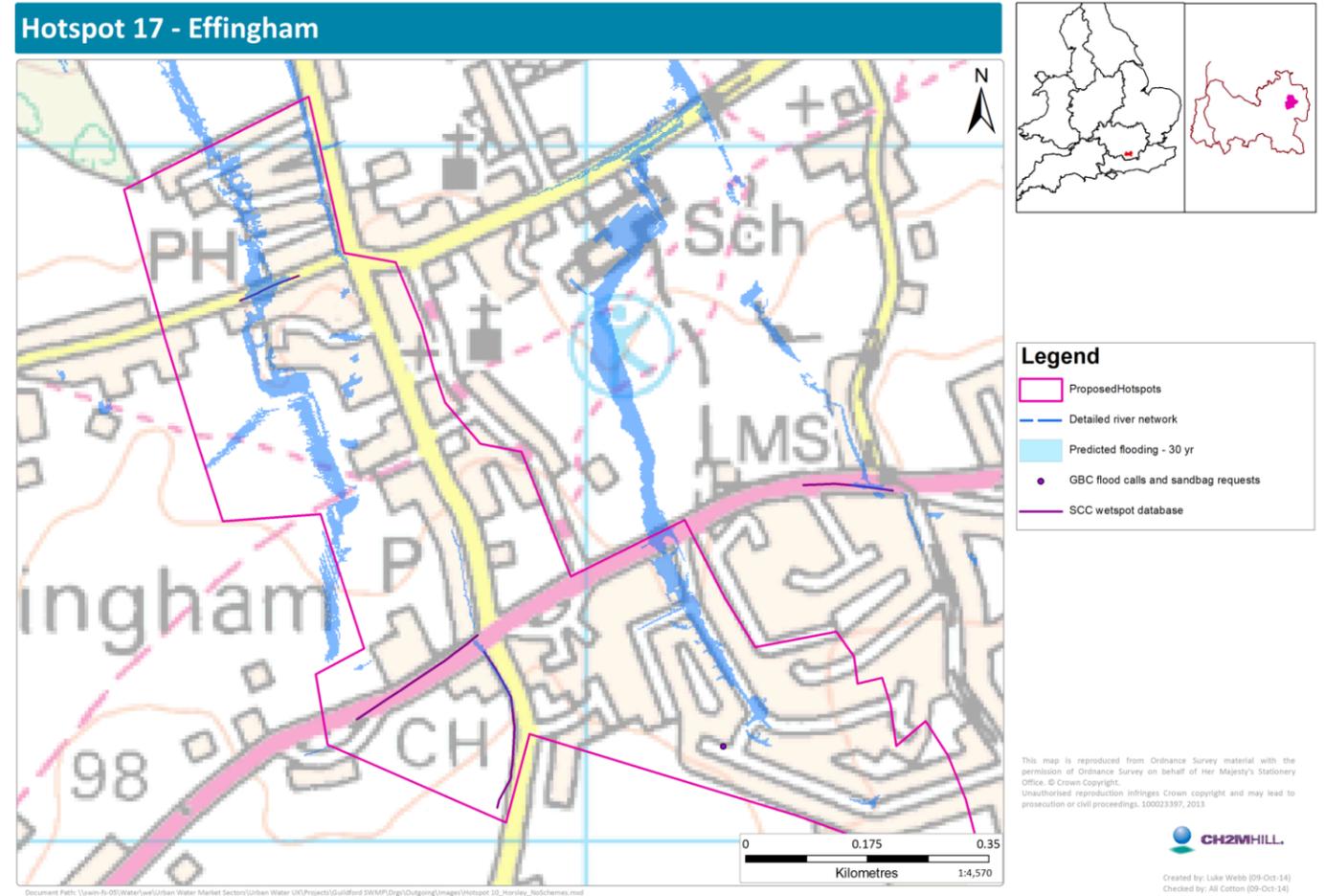
Responsibility

Lead Organisation	Guildford Borough Council
Partners	Surrey County Council, Effingham Parish Council and riparian owners

Summary of costs and benefits

At this stage no costs or benefits have been ascribed to the two measures outlined above. It is unknown at this stage what additional resilience is needed at the electricity sub-station, and it is anticipated that the costs of clearing ditches, culverts and drains will be borne by riparian owners (or possibly Surrey County Council as the highways authority).

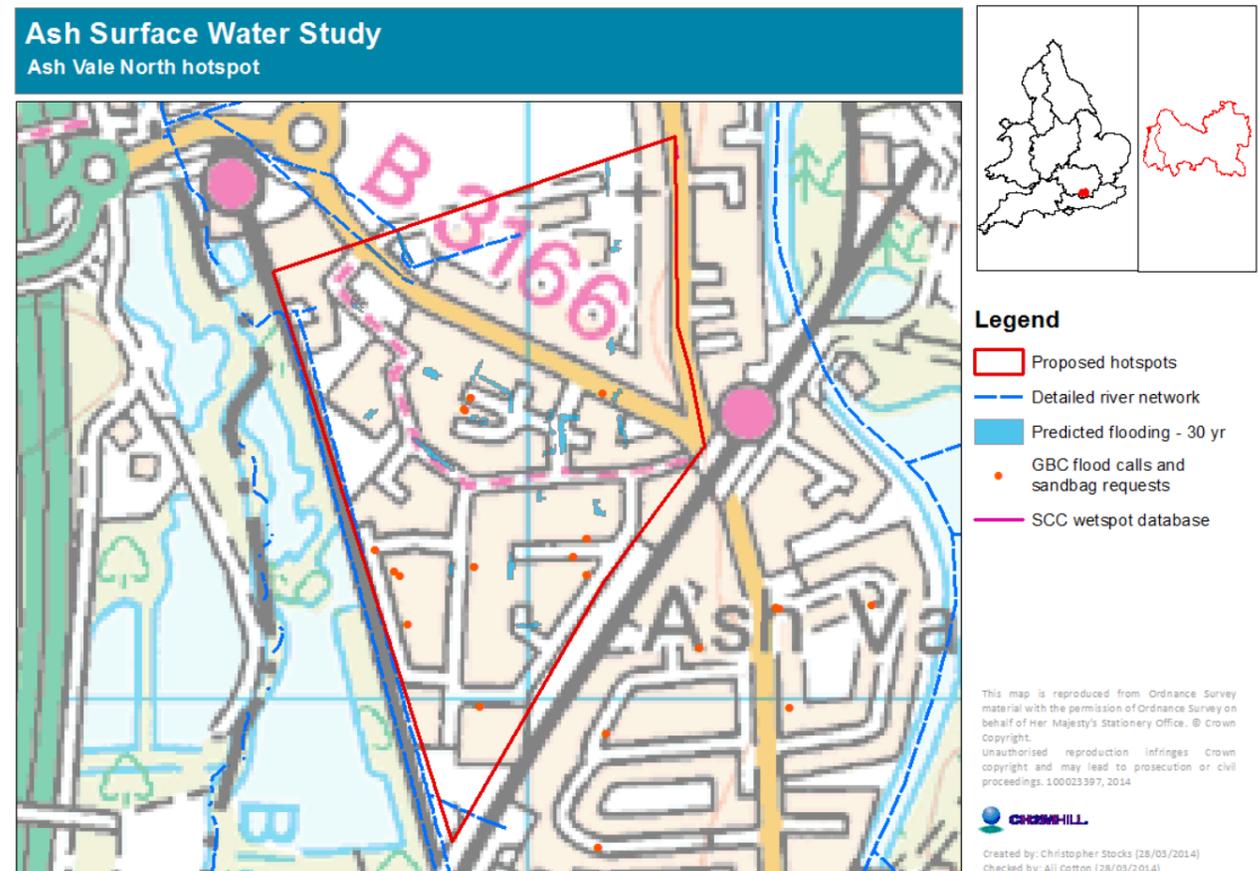
Map:



Action plans for hotspot locations: Western Catchment

Ash Vale North	
Actions	
1.	Local evidence indicates the culvert could not discharge during December 2013 because the outlet was blocked on the western side of the railway. Guildford Borough Council should investigate whether the culvert is flowing freely, and ensuring there are no restrictions
2.	There is a channel which is located at the toe of the National Rail embankment to the west of the study area. This need to be well maintained by Network Rail to maximise conveyance of surface water away from properties
3.	There was some evidence on site of blocked highway gullies and these need to be well maintained to ensure flows are effectively conveyed away from properties
4.	Maintenance of the channel and balancing pond near Lysons Avenue should be undertaken
5.	The route of surface water sewers from Fir Acre Road area (Ash Vale South hotspot) is unclear. If they discharge under the railway and ultimately discharge into the drainage channel near Wellesley Close there is a possibility the culvert would not have sufficient capacity to pass forward flows. Therefore a CCTV Survey should be undertaken to establish the connectivity of the network in this area
6.	Preliminary calculations suggest that upsizing it to a 1.6 x 1.6m culvert would provide sufficient capacity to pass forward all flows (assuming surface water sewers discharge from Ash Vale South hotspot). This has not been costed at this stage, until the contributing area can be better defined
7.	The downstream end of the catchment suffers flooding because of excess surface water which cannot be drained away. Therefore measures are proposed to reduce the amount of surface water generated upstream by introducing localised storage in green areas around Birch Way and Cypress Grove. Area around Birch Way and Cypress Grove is approximately 18000m ² . Assuming 10% of this can be utilised as localised above ground storage this gives a total stored area of 1800m ² . As this is a residential areas, the depth of the any above ground storage are limited to 0.5m. Hence this gives a total water stored of 900m ³ .
8.	Wellesley Close was severely flooded as surface water backed up from the drainage channel. This measure seeks to store surface water in underground storm cells near garages on Wellesley Close to store flows in storm events. Wellesley Close is approximately 150m in length, take 80% of the length as available for underground storage which is 120m. Assuming the width of the storm cells to be 3m with a depth of 0.5m gives a total volume of storm cells to be 180m ³ .
9.	The intrusion of surface water into the foul water network causes overloading to the foul water network assets. Most importantly, the pumping station is then required to operate outside its designed operating conditions. The proposed measure here is to increase the capacity of the pumping station and this will provide relief to the foul water system and reduce flood risk to properties on Wellesley Close
10.	There is evidence of surface water ingressing into the foul network through manholes. It is recommended that sealing of foul manholes is undertaking to reduce surface water

Map:



	ingress into the foul network. This will reduce the likelihood of the foul pumping station being overwhelmed by surface water
11.	There is anecdotal evidence suggesting that misconnections of surface water into the foul water network are present. Identifying the misconnections will help to reduce the risk of foul water flooding which is more onerous than surface water flooding.
Responsibility	
Lead Organisation	Guildford Borough Council
Partners	Surrey County Council, Thames Water, Network Rail and local residents
Summary of costs and benefits	
Total costs of proposed works are £239,000, although some measures have not been costed at this stage (e.g. pumping upgrades or improvements to the culvert under the railway) Estimated benefits = £1.1 million (assuming 20 properties can have a standard of protection of 1 in 25 years)	
Funding strategy	
The flood risk issues in Ash Vale North are localised and primarily relate to the operation of the existing drainage system within the area, particularly how surface water is discharged via the drainage ditch and foul water via the existing pumping station. Thames Water are the asset owners and operators for the sewerage network, and would be responsible for funding improvement works to their network subject to the work being cost-beneficial for Thames Water. The drainage ditch to the west of the hotspot is owned and maintained by Network Rail, so improvements to the ditch or culvert might be funded by Network Rail. Guildford Borough Council could make a contribution towards improvement works and progress this scheme as jointly funded with Thames Water and Network Rail. CCTV Survey work should be funded by Guildford Borough Council.	

Ash Vale South

Actions

1. The open watercourse which runs north-east to south-west from Vale Road was flowing freely during the site visit. This watercourse is critical to drainage of this area, so the watercourse and 450mm culvert need must continue to be well maintained to ensure adequate conveyance of surface water from the north of the hotspot
2. Along Fir Acre Road there was significant evidence of blocked highway gullies with resultant standing water. Given Fir Acre Road is a natural conveyance route for excess surface water it is vital that highway gullies are well maintained to reduce flood risk to properties.
3. It is assumed that improved maintenance of gullies on Fir Acre Road will be sufficient to reduce flood risk in this area. However, should further flooding occur, additional highway gullies may be required to convey surface water away from properties and into the 450mm culvert under the railway.
4. Based on an initial assessment of capacity it is possible that the 450mm culvert under the railway which drains surface water from the north of this hotspot is under-sized and could result in backing up and flooding. There is no anecdotal evidence of this occurring so Guildford Borough Council should engage with local residents and Network Rail in the first instance to gather local evidence of flooding. Should there be evidence the culvert is under capacity improvement works may be required but have not been costed at this stage
5. Implement property level protection for affected properties

Responsibility

Lead Organisation	Guildford Borough Council
Partners	Surrey County Council, Network Rail

Summary of costs and benefits

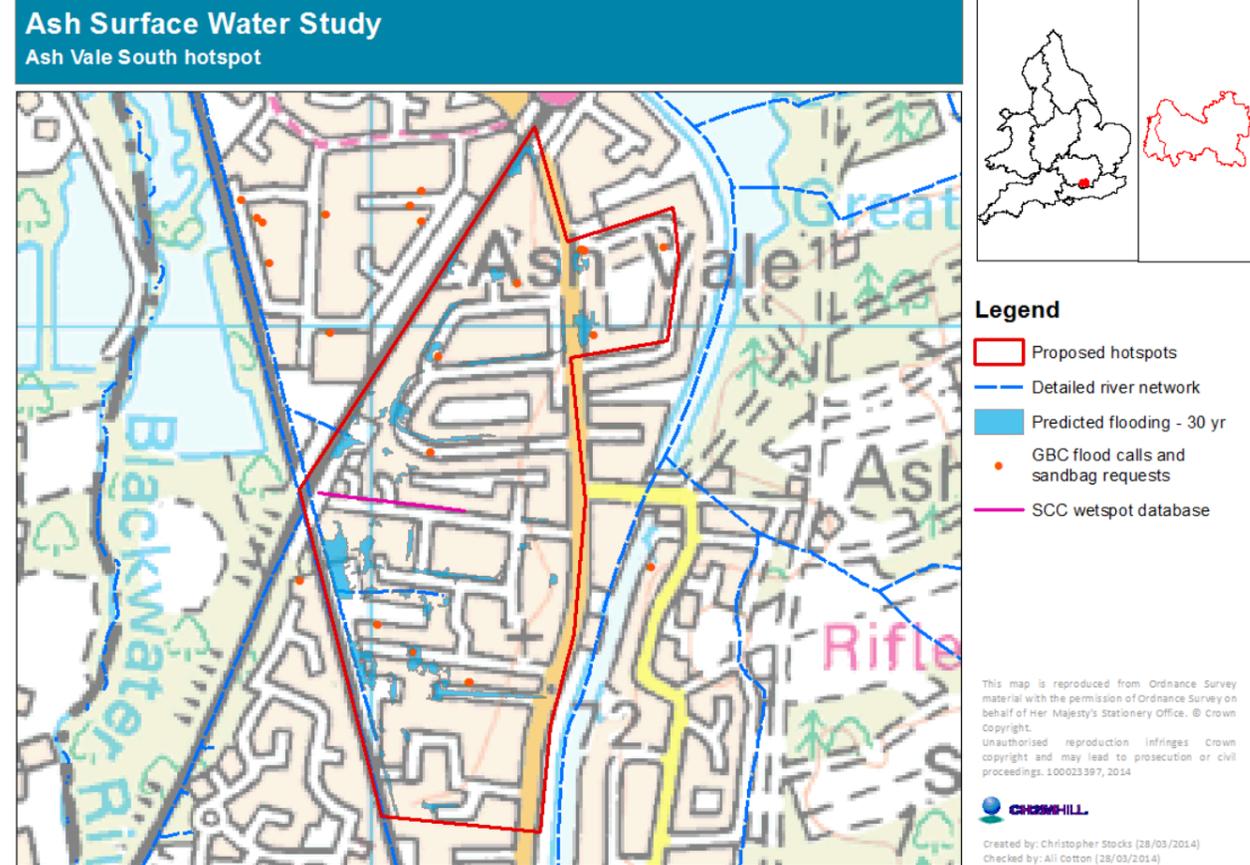
The estimated costs of maintenance for actions 1 to 3 are £12,000 per annum. It is not possible to quantify the monetary benefit from this maintenance.

Property level protection has been assumed to implemented to 15 homes (based on an uptake ratio of 50%), which would cost £82,500 based on £5,500 per property. Total benefits of property level protection would be £450,000 over a 20 year period.

Funding strategy

Maintenance of the open watercourse is believed to be undertaken by Network Rail as the asset owner, and therefore Network Rail should fund ongoing maintenance of this watercourse. Improvements to highway gullies on Fir Acre Road should be funded by Surrey County Council as the highways authority. Property level protection could be funded by Guildford Borough Council, or a Flood Defence Grant in Aid (FDGiA) application could be submitted. Defra's FDGiA Calculator indicates property level protection could qualify for up to £64,500 to protect 15 properties. This would mean £18,000 would need to be secured from Guildford Borough Council or local residents to secure Central Government funding through FDGiA

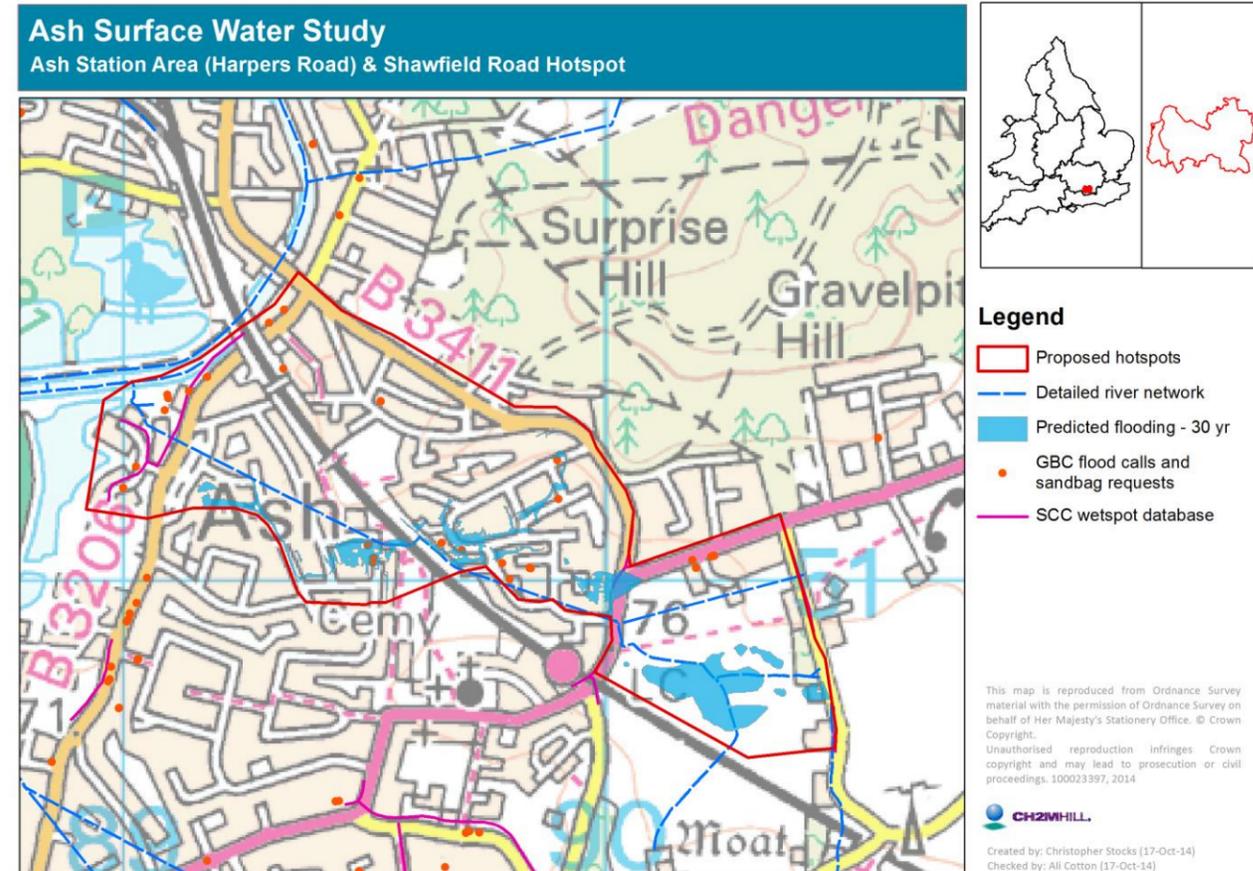
Map:



Ash Station Area (Harpers Road) & Shawfield Road

Actions	
Ash Station Area	
1.	There is some discrepancy between the Thames Water sewer maps and anecdotal evidence about the size of the culvert which was the historic watercourse. As a result the capacity of this culverted section of the watercourse is uncertain until further CCTV is undertaken
2.	Downstream of the railway it is worth noting that there was significant overgrowth of the watercourse once it emerged to the west of the railway so it was not possible to observe the culvert outlet. Therefore, improved maintenance of watercourse on the d/s side of railway (near Murrell Road) should be undertaken to ensure the watercourse can freely flow and that the culvert outlet is kept clear
3.	A flood storage area to the east of Ash Hill Road would reduce the risk of surcharge and overtopping of the culvert which would cause flooding to properties along the natural valley of the historic watercourse. A proposed site, bounded by Ash Hill Road to the west, Guildford Road to the north and the railway to the south has been identified in a natural depression. The land is naturally quite flat, so a low level embankment approximately 650m is proposed, tying into a level of 75.7m AOD. The maximum height of the embankment would be 1m, and the average height above existing ground level would be 0.25m. This would provide storage in the region of 10,000 to 11,000 m ³ , subject to further analysis and design
4.	Following completion of the CCTV Survey it is recommended that a detailed integrated hydraulic model of the catchment is produced to better understand flooding mechanisms. The model will help to justify the business case for further funding. The model would represent the entire hotspot area and would include Thames Water sewer data to understand exceedance from the surface water sewer network
5.	Pluvial runoff from the wooded area may drain onto Ash Hill Road and subsequently onto Miles Road. It is anticipated that the existing network should have sufficient capacity to drain any pluvial runoff, assuming the network is well maintained. Therefore, the condition of the highway and surface water sewer network should be checked to ensure it is in good condition.
6.	Work with owners of Ash Station Area (Harpers Road) to provide more natural attenuation of runoff on their land. This would not prevent flooding but would mitigate the impacts by reducing the flow rate
7.	Should measures SC-6 or SC-1 described above not be feasible it is recommended that property level protection be implemented for properties at risk upstream of the railway. There are 37 properties at risk based on ISIS 2D modelling for the 1 in 30 year rainfall event. Assuming an uptake ratio of 50% this measure would implement property-level protection for up to 19 homes.
Shawfield Road	
1.	Undertake CCTV Survey of the key surface water drainage network along Shawfield Road, Winchester Road, and Beeton's Avenue to establish condition, size and connectivity of the network
2.	Check condition of existing highway gullies on Shawfield Road to ensure they are fully functioning
3.	Flooding of properties occurs downstream of the railway bridge on Shawfield Road and Culverlands Crescent. During times of excess surface runoff there are several options to manage exceedance flows away from properties: <ol style="list-style-type: none"> 1. install a raised section of the road (e.g. sleeping policeman) immediately upstream of the ditch connection to the rear of properties on Shawfield Road and re-camber

Map:



this section of the road to encourage surface water into the ditch (NB: the capacity of this ditch under high levels in the Blackwater need to be established to ensure it does not cause overtopping of the ditch);

2. Install a cross-drain structure upstream of the ditch connection to the rear of properties on Shawfield Road, which will connect to the ditch (NB: the capacity of this ditch under high levels in the Blackwater need to be established to ensure it does not cause overtopping of the ditch), or;
3. Re-profile Shawfield Road along a 150m length to encourage surface flows to run along the road and not towards properties. The surface water could then discharge into a newly created swale in the grassed area between Shawfield Road and Grange Farm Road. An initial check on levels would indicate the grass verge could be used as a swale, and could accommodate 350m³ storage assuming a 70m long, 0.5m deep swale with a bottom width of 1m and side slopes of 1 in 4.

Responsibility

Lead Organisation	Guildford Borough Council
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Partners	Surrey County Council, Thames Water
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Summary of costs and benefits

Estimated costs = The estimated cost of the proposed storage area is £280,000 (based on initial concept), with CCTV Survey and identified maintenance adding a further £8,000 per annum, and detailed hydraulic modelling costing £25,000-£30,000

Estimated benefits = £830,000 (assuming 40 properties will have a 1 in 30 year standard of protection)

On Shawfield Road the CCTV Survey will cost approximately £4,000 and a walkover assessment of gullies should be funded by officer time. The costs for subsequent exceedance flow measures has yet to be determined.

Funding strategy

Guildford Borough Council and Surrey County Council should provide funding for CCTV Survey and identified maintenance, although Thames Water may be willing to contribute towards the CCTV Survey of their asset.

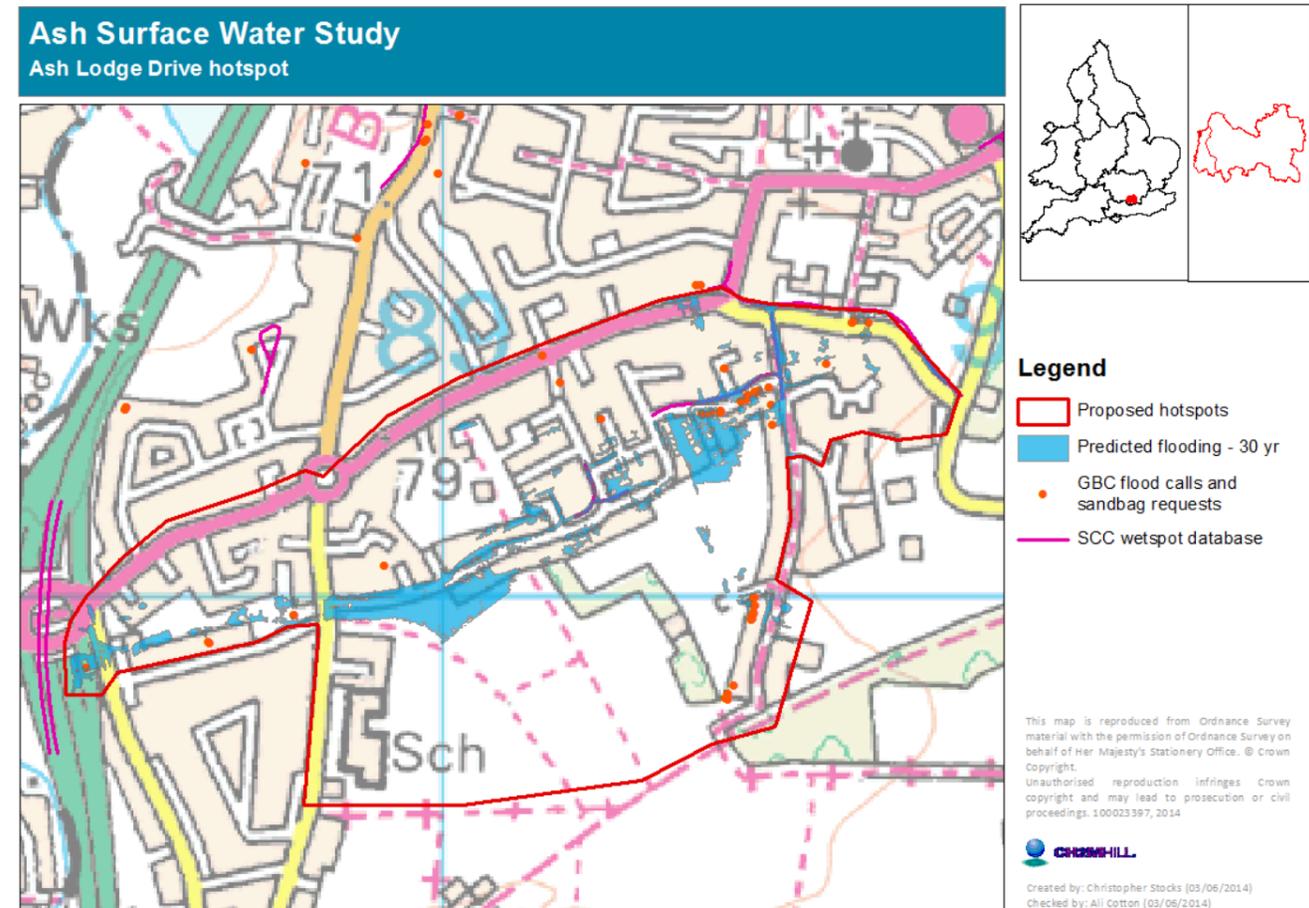
For the flood storage area it is recommended that a Flood Defence Grant in Aid (FDGiA) application be submitted. However, the cost-benefit ratio for the scheme is relatively low. Based on the FDGiA calculator there is potential to secure £165,000 towards the scheme from FDGiA funding, which would leave a funding gap for the improvement works in the region of £100,000 (excluding the hydraulic modelling). It is unclear how the funding shortfall can be met.

With respect to Shawfield Road the initial CCTV Survey and walkover assessment should be undertaken by Guildford Borough Council or Surrey County Council. Funding for any subsequent works to manage exceedance flows will need to be determined during design of the measures.

Ash Lodge Drive

Actions	
1.	As a first step Guildford Borough Council should ensure that culvert inlets which capture runoff from the south of Ash Lodge Drive are well maintained. Local residents confirmed that during times of heavy rainfall the main culvert inlet needs to be maintained daily to avoid blockage of the culvert, which would exacerbate flood risk.
2.	To support the development of the business case it is recommended that CCTV Survey of the key 900mm and 1050mm surface water sewers be undertaken, as well as at key pinch pints in the network (e.g. Ash Church Road, South Lane)
3.	Surface water sewers at the head of the catchment (Ash Church Road / Ash Street) are rapidly exceeded during times of heavy rainfall which causes exceedance flows to run down Ash Church Road and Ash Street before flowing onto Ash Lodge Drive, Loddon Way, Lea Close, Grange Road/South Lane, Littlefield and Southlands Closes. It is worth noting that these surface water sewers have not been adopted by Thames Water and it is believed this is because they are considered to be under-sized. Local evidence indicates the sewers are 150mm to 225mm. At this stage it is proposed to upsize the sewer along Ash Church Road / Ash Street to a 300mm before it connects into Ash Lodge Drive to alleviate exceedance flows at the head of the catchment, but this would need to be confirmed via modelling
4.	East of South Lane sewer maps indicate the surface water sewers drain to the low spot on South Lane into a 375mm sewer, before flowing into the 1050mm surface water sewer which runs to the south of Ash Lodge Drive. The initial capacity assessment for the 375mm sewer indicates this is a potential pinch point in the network where flooding would occur. The sewer should be upsized to a 900mm to reduce flood risk from this point in the network.
5.	To alleviate risk of surcharging of the 1220mm surface water sewer to the south of Ash Lodge Drive it is recommended that additional flood storage is provided in the fields to the south of the disused railway near Bin Wood. This could be achieved by throttling the culvert under the disused railway such that it can only pass a 1 in 2 year flow (approximately 200 to 400 l/s) and storing flood water behind the existing embankment. The existing embankment will need to be raised to minimise the risk of overtopping in more extreme rainfall events.
6.	Should further flood storage be required to compensate for upsizing the drainage network upstream or to provide an enhanced level of protection the existing green space bounded to the north by Ash Lodge Drive and to the west by Manor Road should be utilised. The Flood Risk Assessment for the proposed development south of Ash Lodge Drive has identified a detention basin will be provided in this location to manage surface runoff from the development site. There is sufficient scope in this location to upsize the proposed detention basin. An overflow from the surface water sewer could be provided into the detention basin to alleviate risk of surcharging and backing up from this sewer. This would only provide a small amount of attenuation as the difference in ground level is only approximately 500mm, it would rely on an overflow arrangement to discharge into the storage area before surcharge onto the highway occurred.
7.	There is evidence of surface water ingress to the foul network causing foul system to flood properties. Sealing of the foul network around Southlands Road would reduce flood risk from the foul network
8.	Following completion of the CCTV Survey it is recommended that a detailed integrated hydraulic model of the catchment is produced to better understand flooding mechanisms. The model will help to justify the business case for further funding. The model would represent the entire hotspot area and would include Thames Water sewer data to understand exceedance from the surface water sewer network

Map:



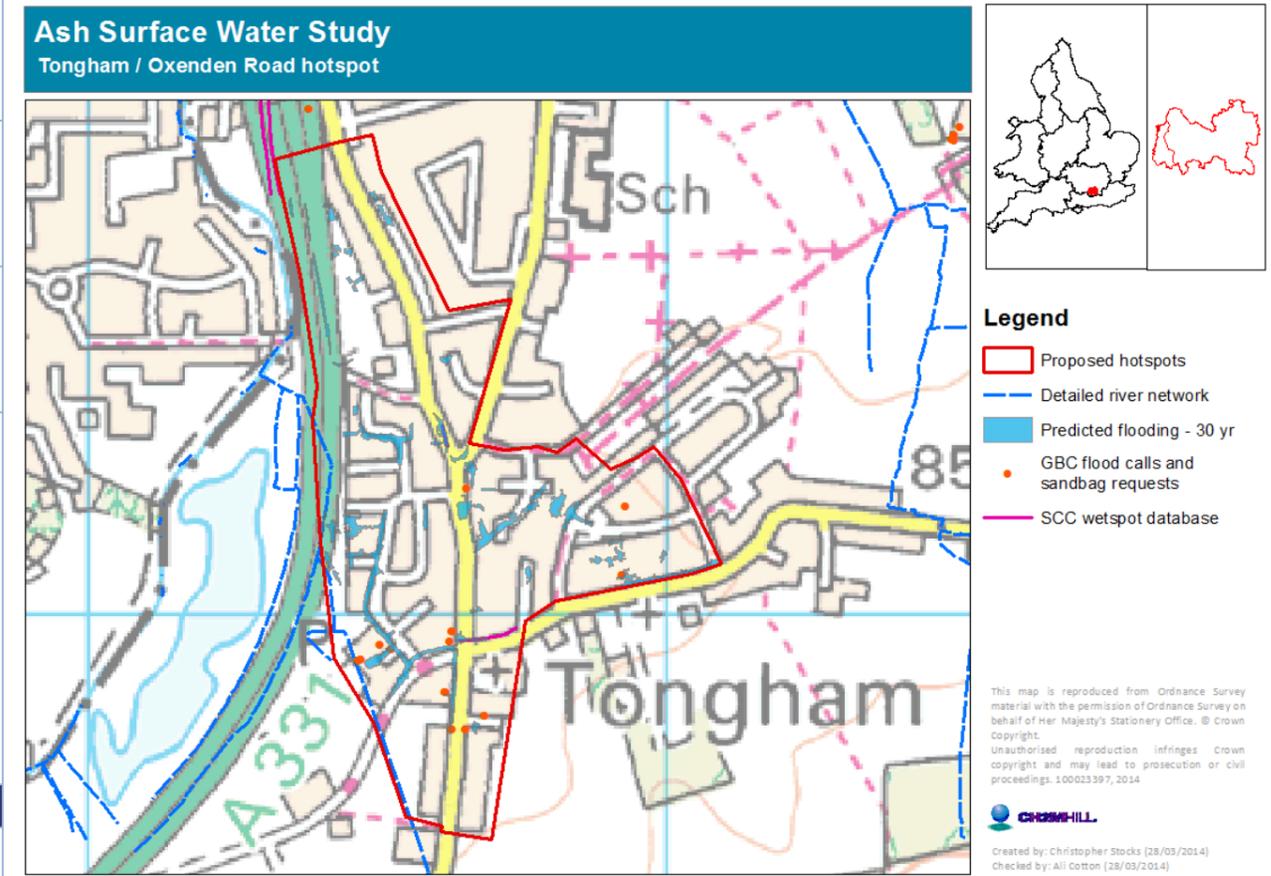
9.	Local evidence indicates that the balancing pond near South Lane which was built to attenuate runoff from The Briars development is potentially under-sized. A review of the balancing pond size compared to predicted inflows should be undertaken to confirm whether the balancing pond is providing sufficient attenuation, and whether upsizing may be required
10	Should measures described above not be feasible it is recommended that property level protection be implemented for properties at risk upstream of the railway. There are 118 properties at risk based on ISIS 2D modelling for the 1 in 30 year rainfall event. Assuming an uptake ratio of 50% this measure would implement property-level protection for up to 59 homes.
Responsibility	
Lead Organisation	Guildford Borough Council
Partners	Thames Water, local residents, Bewley Homes (developers)
Summary of costs and benefits	
Estimated costs = £750,000 (excluding action 7 which has not been costed at this stage, action 9 which is unknown until improvement works are scoped through a high level investigation, and action 10 which is an alternative approach)	
Estimated benefits = £2.4 million (assuming 120 properties will have a standard of protection of 1 in 50 years)	
Funding strategy	
<p>Guildford Borough Council should fund the following mitigation measures:</p> <ul style="list-style-type: none"> • Improve maintenance of the culvert inlets of watercourse from the south of Ash Lodge Drive; • CCTV Survey of the surface water sewer network (although Thames Water should be engaged to identify whether they would contribute), and; • Investigation of the balancing pond near South Lane. <p>For the significant capital investment measures (upsizing the network and providing storage near Bin Wood) it is recommended that a Flood Defence Grant in Aid (FDGiA) application be submitted. However, the cost-benefit ratio for the scheme is relatively low. Based on the FDGiA calculator there is potential to secure £500,000 towards the scheme from FDGiA funding, which would leave a funding gap for the improvement works in the region of £186,000. The funding gap would need to be sourced from external sources, including Guildford Borough Council, Thames Water and Bewley Homes.</p>	

Tongham

Actions

1.	There are isolated reports of flooding in this area based on Guildford Borough Council's data. In the south of the hotspot there is reported flooding on New Road, The Street and in a cul-de-sac off Lambourne Way. The available evidence indicates that flooding in these locations were due to blocked drainage, which is assumed to be blocked highway gullies in the absence of other data. In addition Surrey County Council have reported a flooding problem on their wetspot on Poyle Road near the junction with The Street, although it should be noted that this system was cleared in 2008. Throughout the hotspot there are other areas where surface water is predicted to pond, although it is not predicted to result in property flooding. This includes: Grange Road near the junction with Lambourne Way, Newton Way, The Street near the junction with Manor Road. Given these data it is recommended that the function of highway gullies and pipes are key to ensuring surface water are adequately drained in this area.
2.	There is previous evidence of overtopping of the watercourse on Poyle Road although this is believed to be as a result of poor maintenance rather than hydraulic capacity. Therefore, it is critical that the watercourse is well maintained. This includes maintenance of the culverted sections
3.	Following feedback during public consultation it was agreed that Guildford Borough Council will undertake an additional site walkover with local residents to identify any additional pinch points which could cause property flooding. This may identify additional actions which can be fed back into this action plan
4.	<p>There is little evidence that the watercourse to the south of Poyle Road has overtopped due to hydraulic incapacity. Therefore capital investment to reduce peak flows arriving to this watercourse should only be undertaken if evidence emerges of hydraulic incapacity. To reduce peak flows (if required) there are two potential options identified:</p> <ul style="list-style-type: none"> intercepting pluvial runoff from the playing fields to the south of Poyle Road with a low embankment, or; providing upstream flood storage. <p>Guildford Borough Council should monitor water levels on the watercourse during times of heavy rainfall and engage with local residents to gain additional local knowledge about the watercourse.</p>

Map:



Responsibility

Lead Organisation	Guildford Borough Council and Surrey County Council
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Partners	Local residents
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Summary of costs and benefits

The estimated costs of maintenance for actions 1 and 2 are: £20,000 per annum. It is not possible to quantify the monetary benefit from this maintenance.

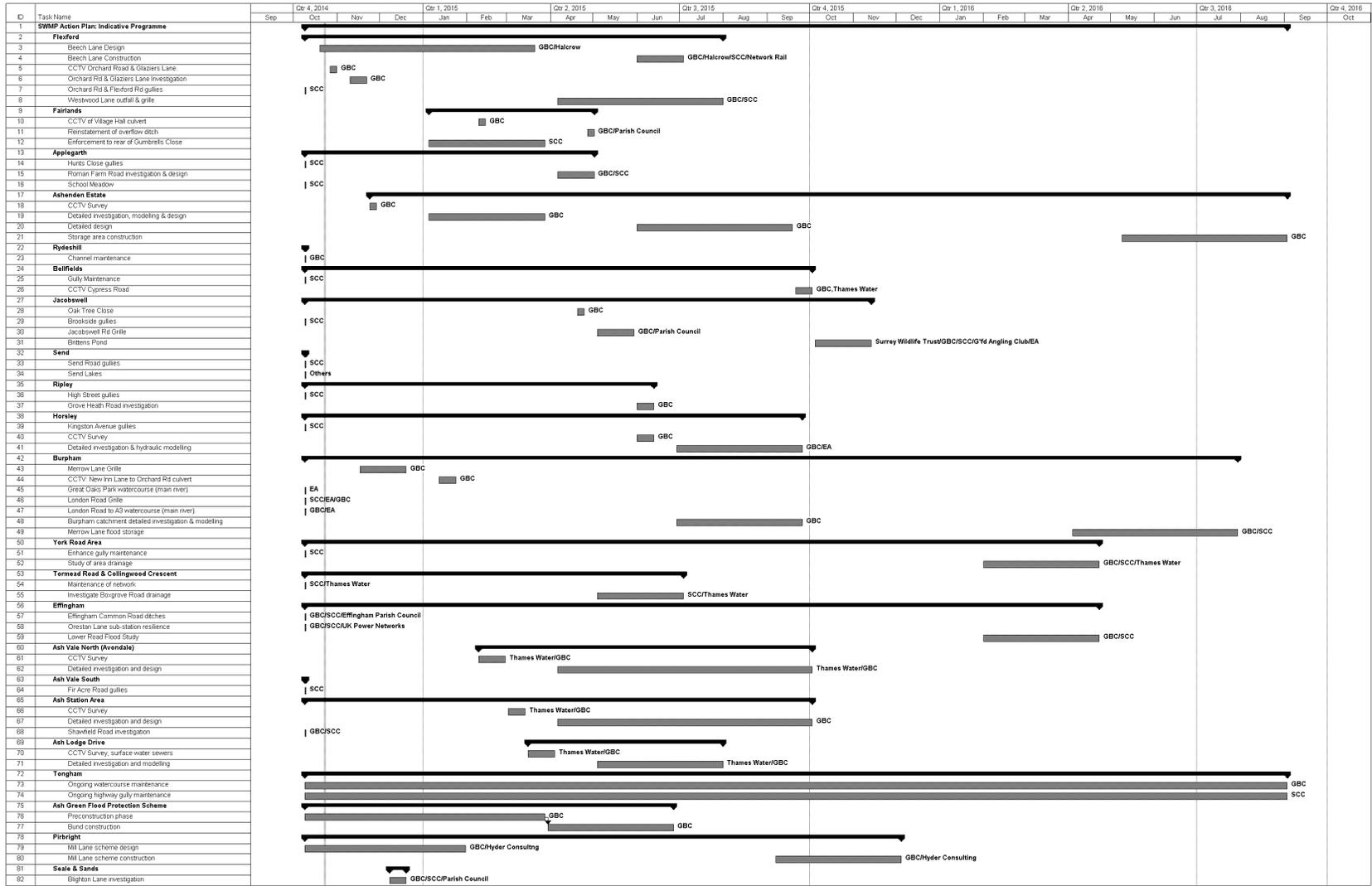
Action 3 is associated with officer time from Guildford Borough Council and no costs for improvement works has been undertaken at this stage

Funding strategy

At this stage only maintenance improvements are recommended to be taken forward in the absence of further evidence of historic flooding to properties. Investigation and maintenance of the highway system

should be undertaken by Surrey County Council, whereas the maintenance of the watercourse south of Poyle Road should be undertaken by Guildford Borough Council. Should enhancement works be required to manage flows into the watercourse this should be funded by Surrey County Council or Guildford Borough Council. It is unlikely that any enhancement works would receive Central Government funding because few properties would benefit from the scheme, based on current evidence.

Appendix 2
Indicative Programme



Appendix 3

General Fund Capital Programme 2015-16 Bid

GENERAL FUND CAPITAL PROGRAMME 2015-16 TO 2019-20: BID FOR FUNDING

Scheme title	Surface Water Management Plan
Location	Various locations throughout the borough.
Landowner	Various – both public and private

Officer responsible for project	Tim Pilsbury/Geoff Fowler
Service Unit responsible for project	Environment

Project champion/Councillor (if applicable)	James Whiteman/Matt Furniss
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NOTES: This form must be completed for any capital scheme to be considered for funding through the General Fund capital programme over the next five years.

Please ensure that the information provided in the bid will enable Management Team and the Executive to clearly understand the objectives of your proposal, including what the Council will get in return for its investment. The information should be clear and concise, and the property/asset/location etc. properly identified. You must include an investment appraisal (for example cost benefit analysis, payback etc), where appropriate, in your justifications.

In view of the limited resources available you should ensure that any bid should relate to essential schemes and corporate plan projects. The justification which you provide should clearly set out the reasons as to why the Council must invest in the scheme.

Your proposal must be discussed with your Executive Head of Service before completing and submitting your bid. All bids must be signed off by the Head of Service and Executive Head of Service before submission and projects without the support of the Executive Head of Service will not be put forward. You should also discuss your bid with your portfolio holder.

Approved bids will be included in the provisional five year capital programme and will require a further report to the Executive requesting inclusion onto the approved capital programme.

Should your bid need immediate Executive approval, please ensure you state this and fully explain why.

Please indicate when the scheme needs to be undertaken and phase your estimate accordingly. Plan forward, allowing for lead-in time, procurement issues, preparation of tenders etc., and profile your estimate in section 6 overleaf on a realistic timetable. This is important as this information is used for cash flow purposes to estimate the amount of interest the Council will receive from investments over the years and the borrowing requirement for funding the capital programme.

It is appreciated that, at this stage, estimates may be an early indication and not based on detailed information; please include any comments about the factors taken into account when preparing your estimate in section 6.

It is important to include the component parts of the project, along with their useful lives and an estimate of the cost at the end of the useful life.

S106 Bids under £40,000: This form should also be completed for any new S106 proposal up to a value of £40,000 which you wish to be considered for expenditure approval. There is no longer a separate form for these. However, in January 2012 the Executive agreed that:

‘the Head of Planning Services and the Head of Parks and Countryside, in consultation with the relevant Ward Councillor and the Head of Financial Services, are authorised to add a new scheme, or amend approved schemes, up to a total of £40,000 per scheme where the scheme is to be fully funded from S106 contributions and the contribution is in hand.’

Please ensure that information provided in the bid will enable the relevant officers to clearly understand the objectives of your proposal, and the reasons for the expenditure. The information should be clear and concise, and the property/asset/location etc. properly identified.

The justification which you provide should clearly set out the details of the S106 to be used to fund the project.

Please indicate when the scheme needs to be undertaken and phase your estimate accordingly. Plan forward, allowing for lead-in time, procurement issues, preparation of tenders etc., and provide your estimate in section 7 overleaf on a realistic timetable.

Again, It is appreciated that at this stage estimates may not be finalised; please include any comments about your estimate basis in section 7.

1. Description of project. Please enter below a full description of your proposal, indicating whether the project is Essential, Important, Desirable or S106 or third party funded.

The Surface Water Management Plan and the Ash Surface Water Study were started early in 2013 and recently completed in 2014. The reports are informing an Action Plan which will be presented to the Executive in January 2015. The reports highlight a number of areas in the borough that are referred to as “hot spots”, which are particularly vulnerable to surface water flooding. Many of these areas suffered badly from flooding during the period of heavy rain last winter. Implementing risk reduction measures to control flooding is necessarily a multi agency task, which could involve private and public watercourses, highway drainage and public sewers. The Council’s responsibility stems from its powers under the Land Drainage Act 1991 and the Flood and Water Management Act 2010. Its key partners in this initiative are Surrey County Council, The Environment Agency and Thames Water. Other significant partners will become involved at appropriate stages. The aim of this project is to promote further flood risk reduction initiatives and projects in conjunction with our partners and to promote joint working. To do this it will be necessary to employ consultants and contractors to undertake investigations, studies and some minor flood risk reduction works. It is hoped that by adopting a joint working approach we will be able to attract funding from central government and elsewhere for major capital investment that has been identified within the plan.

2. Estimated Timetable	Duration (number of months)	Start date (month/year)
Pre-contract, design, procurement etc.	12	1 April 2015
Contract works	12	1 April 2015

3. Justification for project. Please provide a full justification for this proposal, indicating why the Council MUST undertake this project, including full details of:

- whether the scheme is a result of legal/statutory requirements
- whether the scheme is a result of stakeholder consultation
- how his scheme fits in with the Fundamental Themes and strategic priorities in the Corporate Plan and your Service Plan
- any efficiency gains resulting from the project

The Council is the local flood risk management authority by virtue of the Land Drainage Act 1991. It has a duty to work with Surrey County Council (The Lead Local Flood Authority or LLFA) under the Flood and Water Management Act 2010 as well as other flood risk management authorities such as the Environment Agency. The Borough has a number of areas which are particularly vulnerable to flooding as was demonstrated by the flooding of winter 2013/14 and the recent public consultation for the SWMP associated with the Local Plan.

Flood prevention contributes to strategic priorities under all of the fundamental themes of the Corporate Plan. It is essential for public health, promotes and is part of sustainable development, safeguards business and the economy and is a vital part of the borough's infrastructure.

4. Implications if project not undertaken.
Please set out the implications if the bid fails.

Flooding will continue during very wet weather and in some cases may become more frequent and worse.

5. Options.
Please give details of other viable options considered, and why they have been rejected.

Addressing the issues will require continued investment and joint working with all the key agencies with a robust system of assessing priorities and allocating resources.

6. Consents required:	Yes/No		Yes/No
Planning Permission required?	N	Building Regulations required?	N
Any other consent required?	N		

7. Estimated Gross Cost 2015-16 to 2019-20:

The capital programme covers five financial years. You must provide estimates on a realistic basis, allowing for lead-in time, procurement issues etc, in the financial years as appropriate. **Costs must be shown gross, and not netted off for any external funding contributions which should be included in section 8.**

	2015-16 £000	2016-17 £000	2017-18 £000	2018-19 £000	2019-20 £000	Total £000
Land Acquisition						
Contractor Payments	140					
Consultants Fees	40					
Salaries: Property Services						
Salaries: Housing Services						
Salaries: Engineers	20					
Other Fees						
Equipment/Vehicle Purchases						
Other (please state)						
Other (please state)						
TOTAL CAPITAL COST	200					
Is the estimate based on quotations, detailed knowledge or is it an outline estimate figure?	This is an outline estimated figure.					

8. External Funding:

Please provide details of any external income or source of funding and whether it is conditional or guaranteed:

	2015-16 £000	2016-17 £000	2017-18 £000	2018-19 £000	2019-20 £000	Total £000
Receipts						
Contributions						
Grants						
S106						
Other (please state)						
Is the estimate based on quotations, detailed knowledge or is it an outline estimate figure?	Not known at this stage.					
S106 reference number if known						

9. Expected useful life of the asset

Where the expected lives of each significant component of the asset are different (for example buying a property with a flat roof) you must estimate both the useful lives and cost of replacing each component part; please add additional components where applicable. Please only include major components

	Basis of Estimate	Estimated Value (£)	Estimated Life (Years)
Component 1 (works identified from specification)	Guess	200,000	50
Component 2 (please specify)			

10. Revenue Implications:

This section MUST be completed for each scheme detailing additional revenue costs or savings arising from the proposal. Include costs at current prices and include maintenance costs after the capital scheme has finished. If the project is approved, the figures will be incorporated in the service's revenue estimates.

	2015-16 £000	2016-17 £000	2017-18 £000	2018-19 £000	2019-20 £000	Total £000
Employees' costs	5	5	5	5	5	5
Other costs	20	20	20	20	20	20
Less additional income						
Net additional expenditure/(income) (enter NIL if no implications)	25	25	25	25	25	25
Please provide further details:	Increased maintenance and inspection regime for watercourses required.					

NOTES: All sections of this form must be completed before submission and must include full details of the project and a convincing justification. When finalised, please pass this form to your Head of Service, who will need to ensure that all elements are in place to enable your Executive Head of Service and the Management Team to make a proper evaluation of the proposal. The form must be signed by your Head of Service and Executive Head of Service.

1. Form completed by:	Geoff Fowler
Date:	23/09/2014
2. Head of Service:	
Date:	
3. Executive Head of Service:	James Whiteman
Date:	23/09/2014

Save this form as a word document with an appropriate project title and email it to your Head of Service, who in turn should forward it to the Executive Head of Service.

When forwarding by email, and accompanying message indicating approval of the bid by both the Head of Service and Executive Head of Service will also be acceptable.

A signed hard copy of the bid may be submitted, but also submit the completed pro-forma by email.

When signed off by all parties, the form should be submitted as part of the business planning process submission and copied to Vicky Worsfold (vicky.worsfold@guildford.gov.uk)

