

Croydon Resilience Forum

PREPARING FOR EMERGENCIES



Flood Risk Information

V1.0 October 2020

This document provides supporting information to the CRF Multi-Agency Flood Response Guidance.

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Croydon Resilience Team

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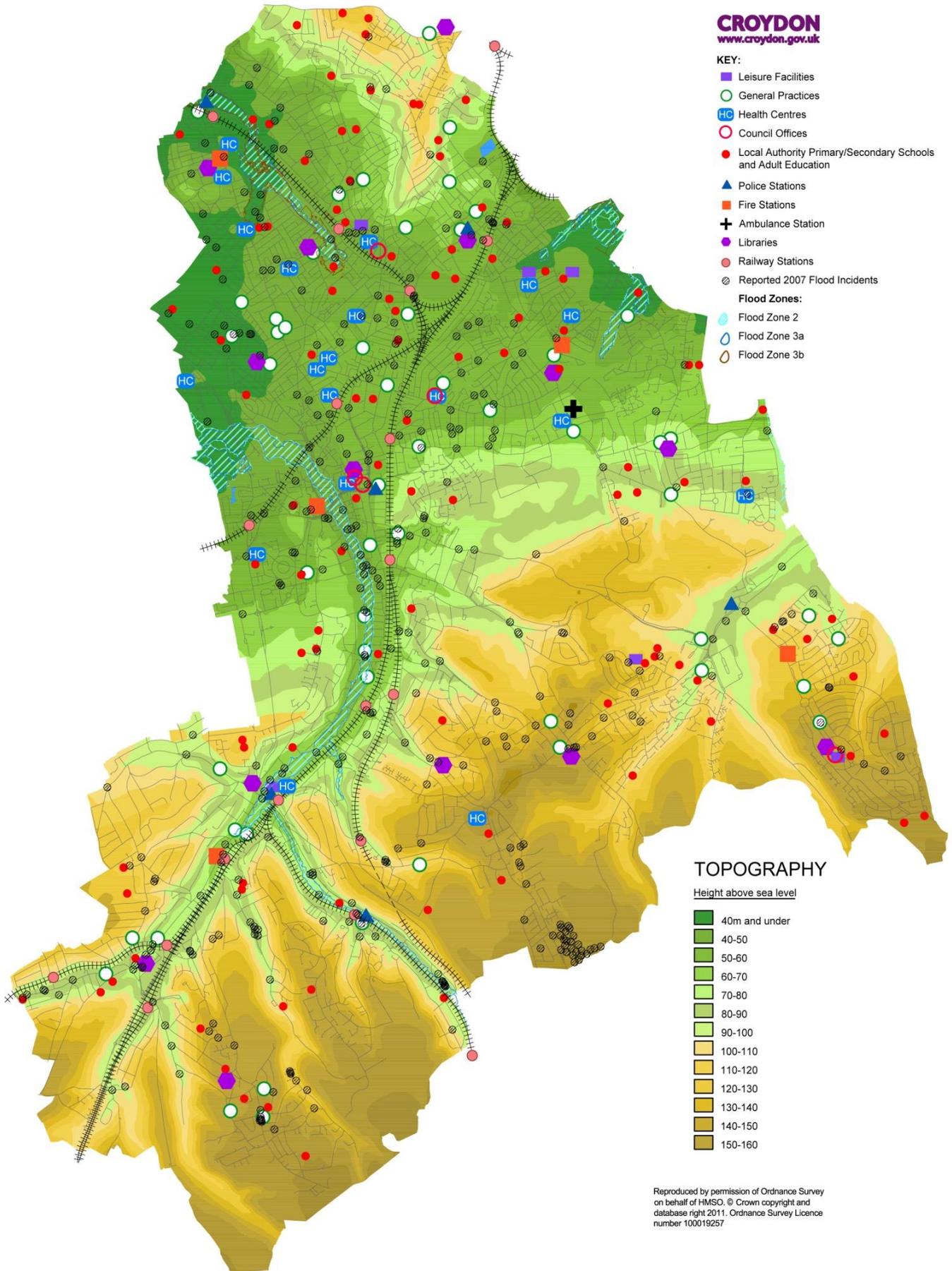
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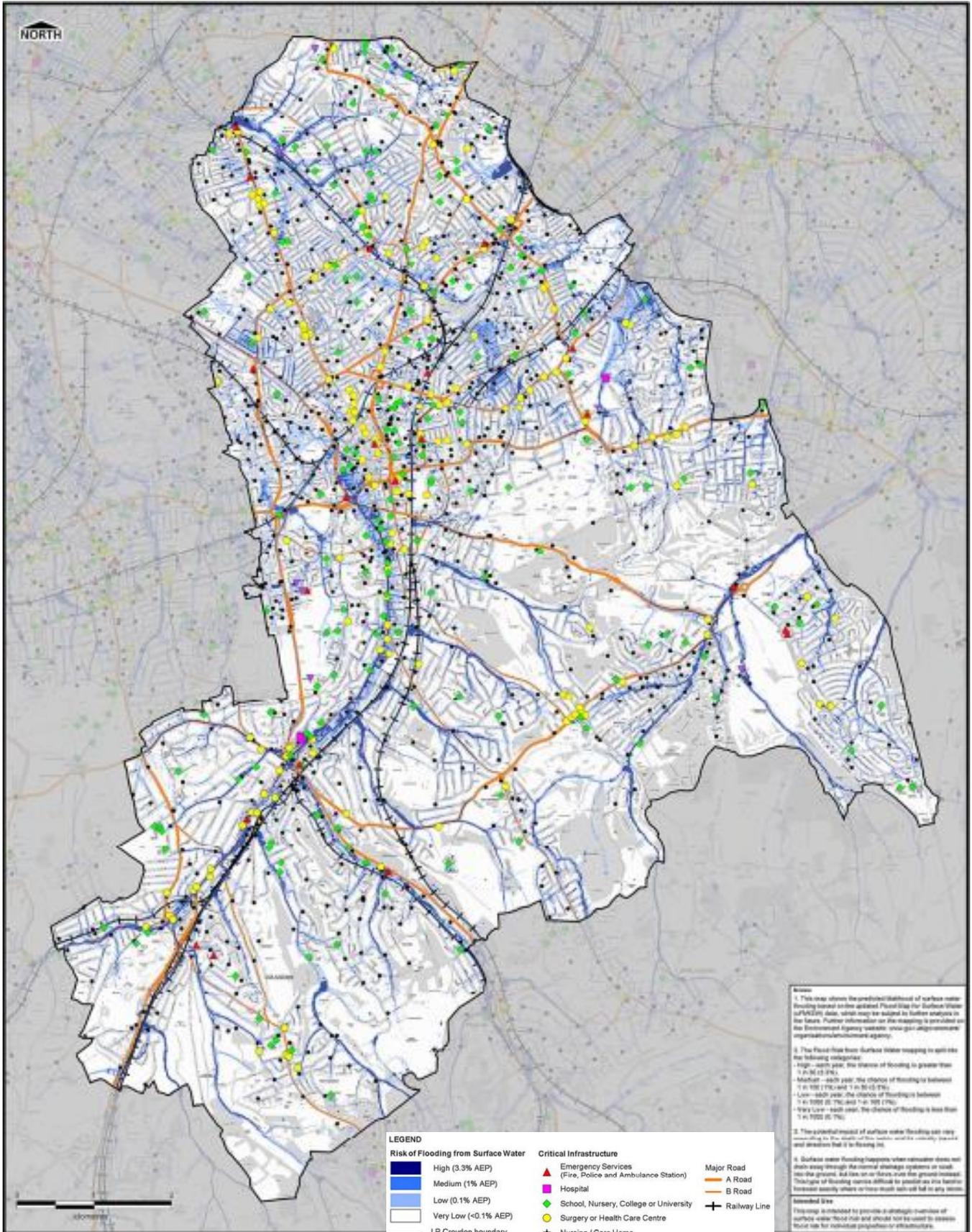
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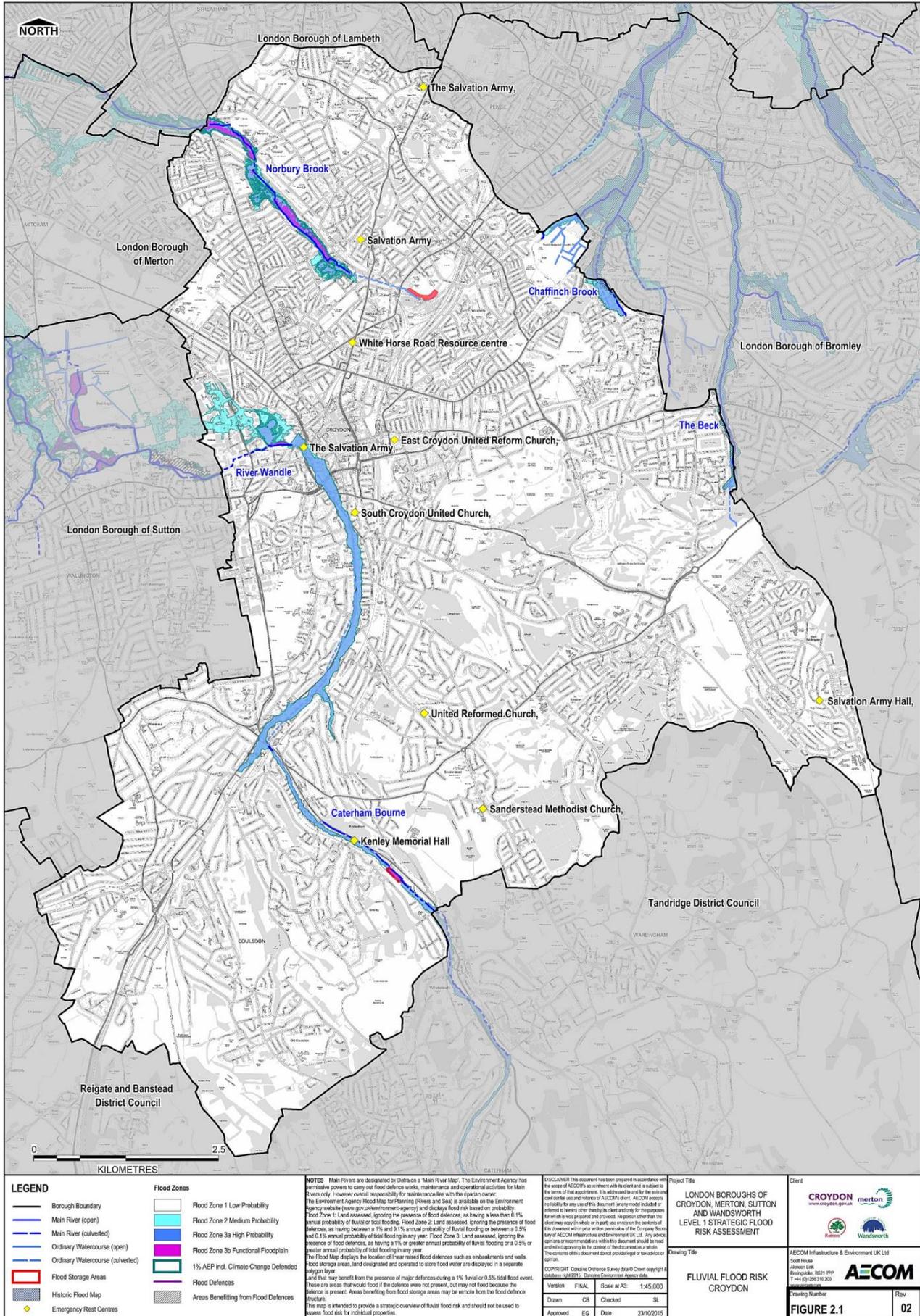
1 Topography Map of Croydon (2011)



2 Key Infrastructure Map (with surface water flood risk)



3 Fluvial Flood Risk Map (2015)



4 Fluvial Flood Risk Zone Assessments

There are 3 flood zones as defined by the EA; Flood Zone 1, 2 and 3. The flood zones are based on the likelihood of an area flooding, with flood zone 1 areas least likely to flood and flood zone 3 areas more likely to flood. Flood zone 3b's are classified as functional floodplain, and are deemed to be the most at risk land of flooding. In Croydon, as **Table 1** demonstrates, there are 235 residential properties at the highest risk of flooding.

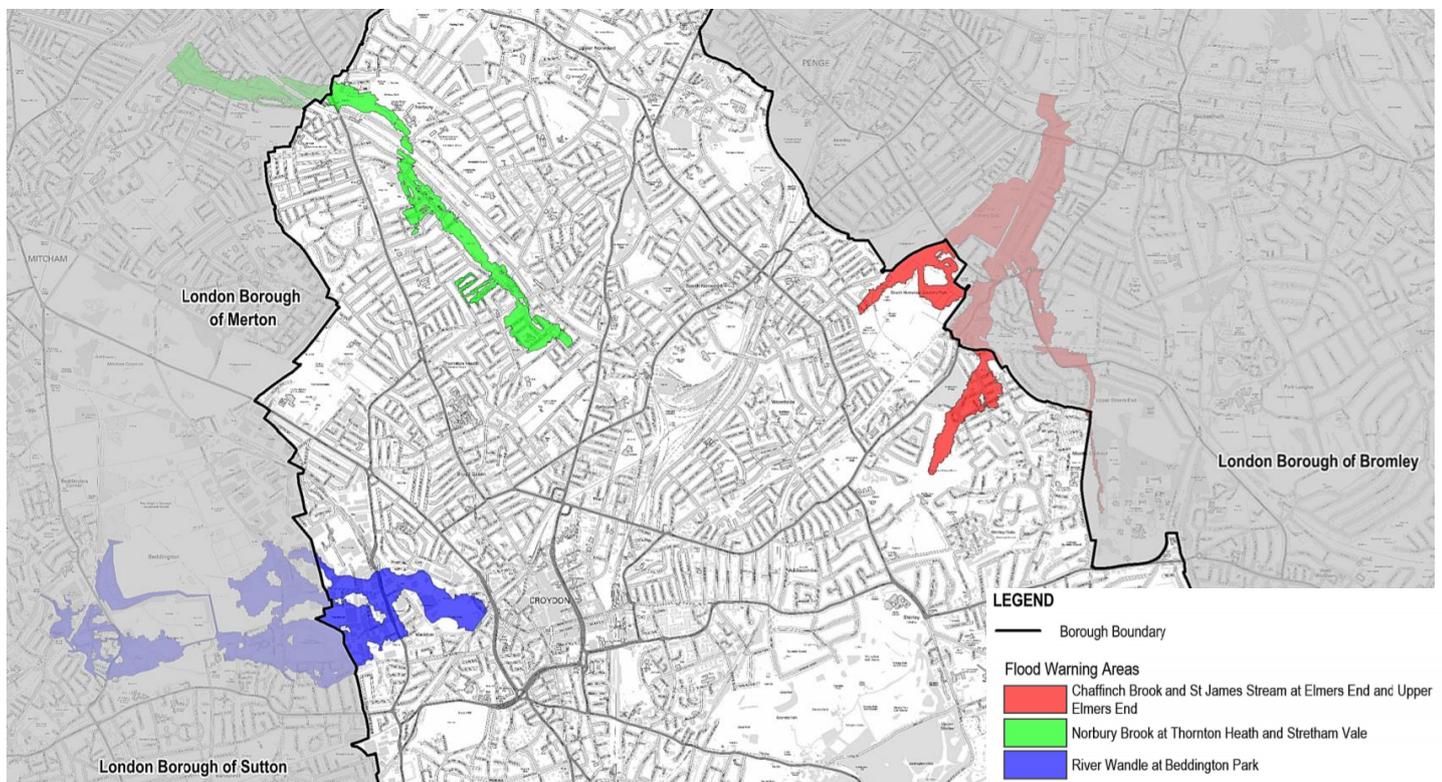
	Flood Zone 1			Flood Zone 2			Flood Zone 3a			Flood Zone 3b		
	Residential	Non-residential	Unclassified	Residential	Non-residential	Unclassified	Residential	Non-residential	Unclassified	Residential	Non-residential	Unclassified
TOTAL	144,140	6,149	8,649	1,030	113	107	3,913	380	326	235	48	15

Table 1 - Properties at risk of fluvial flooding in London Borough of Croydon by Flood Zone (2015)

The Environment Agency acknowledges three fluvial Flood Warning Areas (FWA) in the London Borough of Croydon. These are as follows:

Flood Warning Area	FWA Code
The River Wandle at Beddington Park	064WF41BeddPark
The Norbury Brook at Thornton Heath and Streatham Vale	064FWF41Norbury
Chaffinch Brook and St James Stream at Elmers End	064FWF43UpprElm

Figure 1 - Croydon Flood Warning Areas (2015, SFRA)



4.1 River Wandle Flood Warning Zone

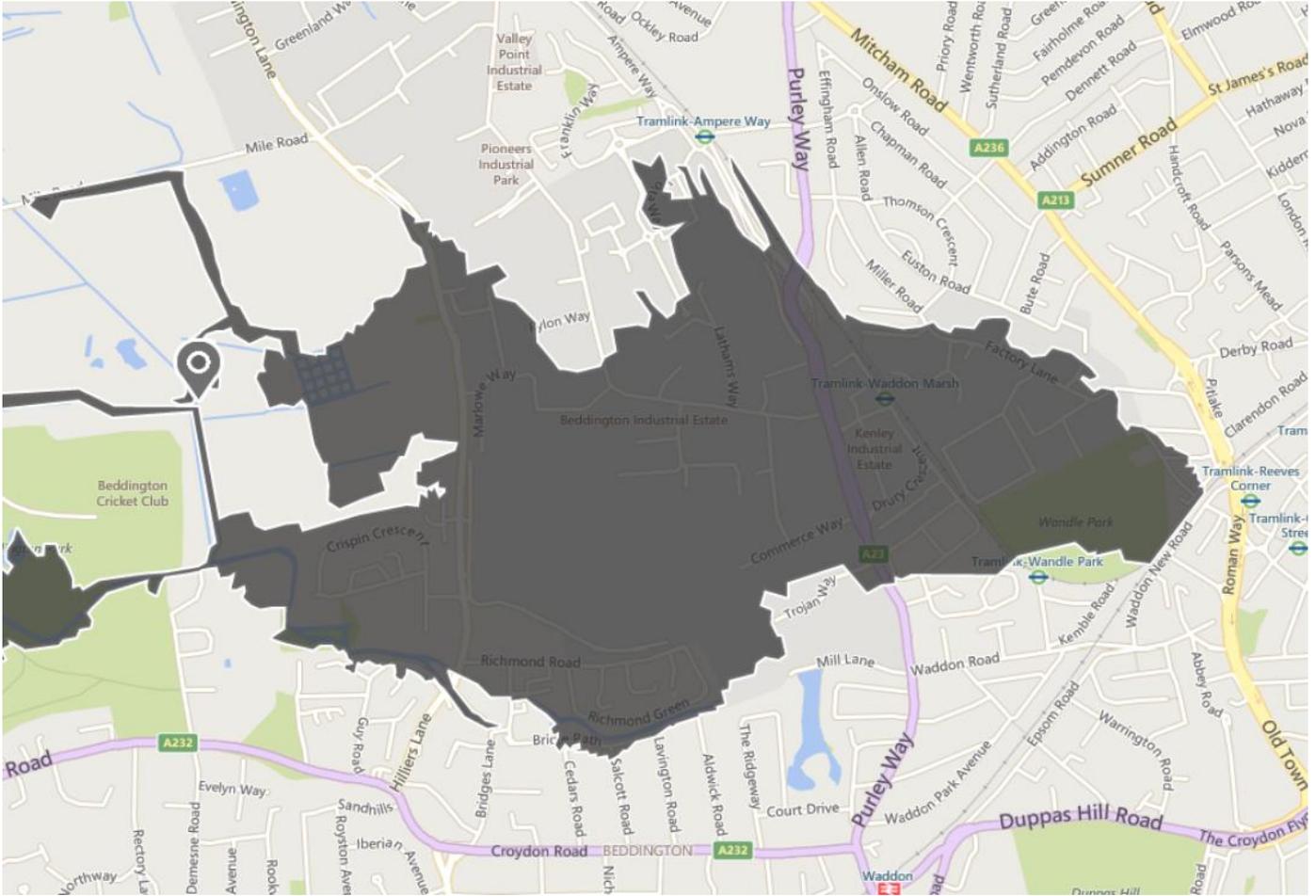


Figure 2 – Flood map for Wandle flood warning zone

Please note: the FWA area information on the following page, sourced by the Environment Agency, may have slight inaccuracies (e.g. property numbers) or omissions (e.g. new infrastructure) as the current assessment is a now few years old and awaiting a revision as part of the Agency review cycle.

NOT PROTECTIVELY MARKED

Flood Warning Area			Flood Warning Area Reference Code	
The River Wandle at Beddington Park			064FWF41BeddPark	
Locations Affected			Messages Issued (EA)	
The area within the Borough contained in this flood warning area is bounded by Roman Way spreading west across Wandle Park across the Purley Way to the boundary with the London Borough of Sutton. The north boundary is Factory Lane and Beddington Farm Road. The south boundary is the edge of Wandle Park through to Mill Lane.			<ul style="list-style-type: none"> Flood Warning Flood Warning Update Severe Flood Warning 	
			Floodline Quickdial Code	
			173802	
			Lead Time	
		2 hours		
Frequency of Flooding	Probability of Flooding	Properties at Risk	Properties registered on Floodline Warnings Direct	
1:1000	0.1% (low)	1450	Fully	Extended Direct Warnings*
1:100	1% (medium)	257		
1:20	5% (high)	18	182	942
1:5	20% (very high)	6		
Key Infrastructure				
<ul style="list-style-type: none"> Southern Network Gas Holder site, Factory Lane Tram line 			<ul style="list-style-type: none"> A23 A236 Kingsley Primary School, Thomson Crescent 	
History of Flooding				
Month / Year	Number of Properties / areas affected			
July 2007	6 properties flooded (2 properties flooded, Wood Street and New Road in Mitcham. 4 properties flooded Richmond Green and Beddington)			
1991	41 properties flooded			
August 1981	89 properties flooded			
1979	3 properties flooded			
1978	21 properties flooded			
1977	59 properties flooded			
1975	20 properties flooded, including 15 in Beddington			
1970	59 properties flooded			
September 1968	54 properties flooded			
1966	10 properties flooded			
Flood Defences / Alleviation Measures				
As the result of frequent flooding, the River Wandle has had major flood alleviation works carried out along its length from the River Thames to Richmond Green. Wandle Park and Beddington Park act as flood plains to take additional river flows.				
Other Information				
<ul style="list-style-type: none"> On receipt of a flood warning, Wandle Park and Beddington Park are expected to flood. It is anticipated that water may accumulate on roads, it is not expected that properties will flood to any great depth. It is possible that the car parks on the retail parks of Purley Way will flood. 				

*Properties can benefit from full registration or Extended Direct Warnings (EDW) - a limited opt-out service to homes and businesses at 'high-risk' from flooding, who are currently not registered to receive warnings.

4.2 Norbury Brook Flood Warning Zone

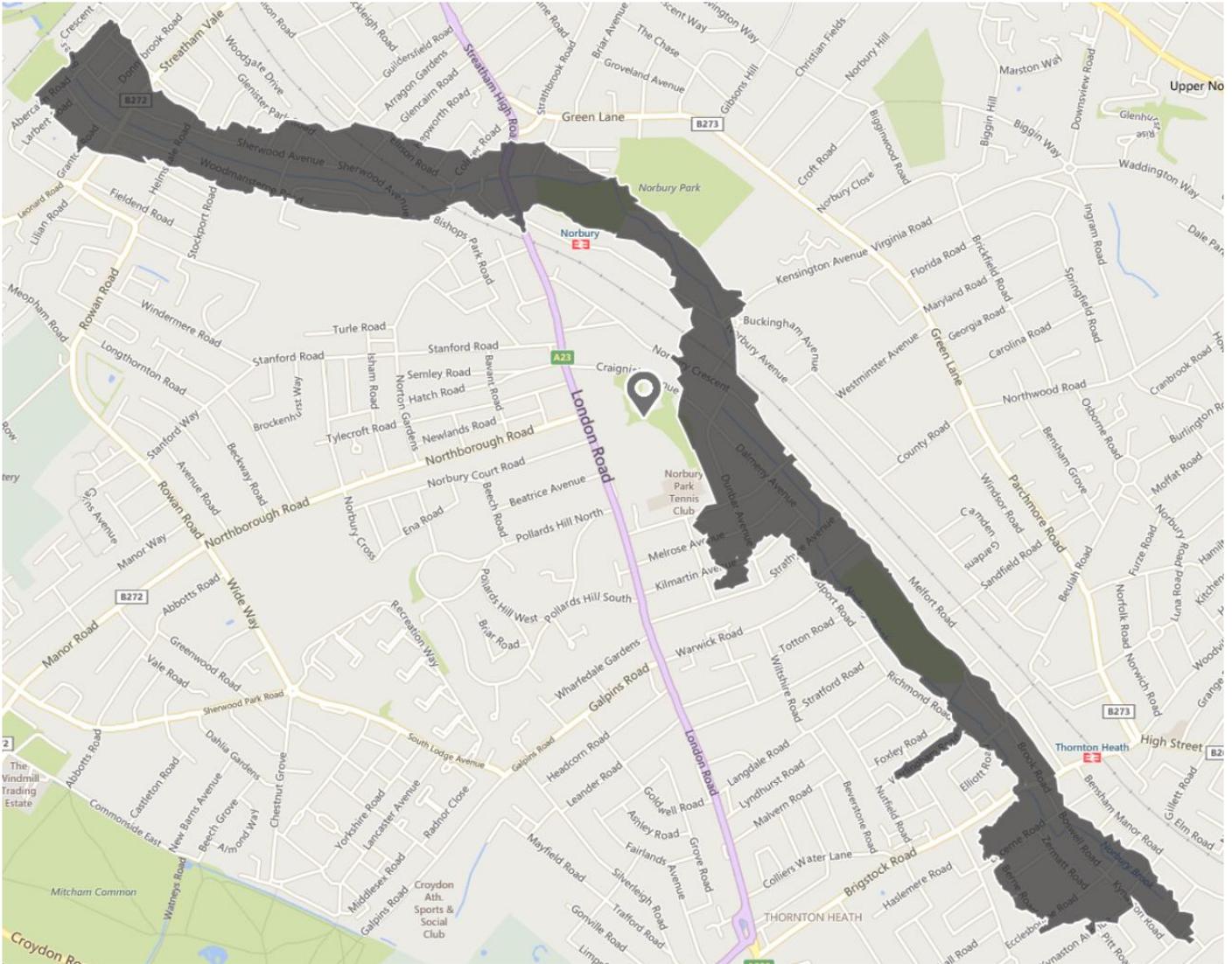


Figure 3 – Flood map for Norbury Brook Flood Warning Zone

Please note: the FWA area information on the following page, sourced by the Environment Agency, may have slight inaccuracies (e.g. property numbers) or omissions (e.g. new infrastructure) as the current assessment is a now few years old and awaiting a revision as part of the Agency review cycle.

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Flood Warning Area			Flood Warning Area Reference Code	
The Norbury Brook at Thornton Heath and Streatham Vale			064FWF41Norbury	
Locations Affected			Messages Issued (EA)	
<p>The Norbury Brook (River Graveney) is the main tributary of the River Wandle. It flows through industrial and residential areas. Areas at risk include:</p> <p>Thornton Heath – Boswell Road, Zermatt Road, Geneva Road, Lucern Road, Brook Road, Elliott Road, Bremar Avenue, Strathyre Avenue, Kilmartin Avenue, Dunbar Avenue, Melrose Avenue, Ederline Avenue, Dalmeny Avenue, Craignish Avenue, Norbury Crescent and Norbury Avenue.</p> <p>Norbury – Kuala Gardens and Granville Gardens.</p>			<ul style="list-style-type: none"> • Flood Warning • Flood Warning Update • Severe Flood Warning 	
			Floodline Quickdial Code	
			173801	
			Lead Time	
			2 hours	
Frequency of Flooding	Probability of Flooding	Properties at Risk	Properties registered on Floodline Warnings Direct	
1:1000	0.1% (<i>low</i>)	1971	Fully	Extended Direct Warnings*
1:100	1% (<i>medium</i>)	1130		
1:20	5% (<i>high</i>)	259	169	1581
1:5	20% (<i>very high</i>)	4		
Key Infrastructure				
<ul style="list-style-type: none"> • Kensington Avenue Infant School, Kensington Avenue • Kensington Avenue Junior School, Kensington Avenue 				
History of Flooding				
Month / Year		Number of Properties / areas affected		
July 2007		1 property flooded, Dalmeny Avenue		
July 1997		9 properties flooded		
1983		39 properties flooded		
September 1973		175 properties flooded		
September 1968		14 properties flooded		
Flood Defences / Alleviation Measures				
<p>Due to the increased need for housing in South London, various improvement schemes were put in place by Surrey County Council to reduce risk from the 1920s onwards. This involved construction of concrete walls, flood defences and culverts. The scheme was designed to provide a level of protection to approximately a 1 in 50 year flood event (2% probability in any given year). This scheme is currently being reviewed as part of the Wandle and Graveney Strategy.</p>				
Other Information				
<ul style="list-style-type: none"> • On receipt of a flood warning, it is expected that Norbury Park will flood and take most of the excess water, properties adjoining the park may flood but it is not anticipated to any great depth. • A key issue in this catchment is the ongoing problem of fly-tipping and high levels of rubbish in the Norbury Brook. This causes an increased risk of blockages, particularly at trash screens. 				

*Properties can benefit from full registration or Extended Direct Warnings (EDW) - a limited opt-out service to homes and businesses at 'high-risk' from flooding, who are currently not registered to receive warnings.

4.3 Chaffinch Brook and St James Stream at Elmers End Flood Warning Zone

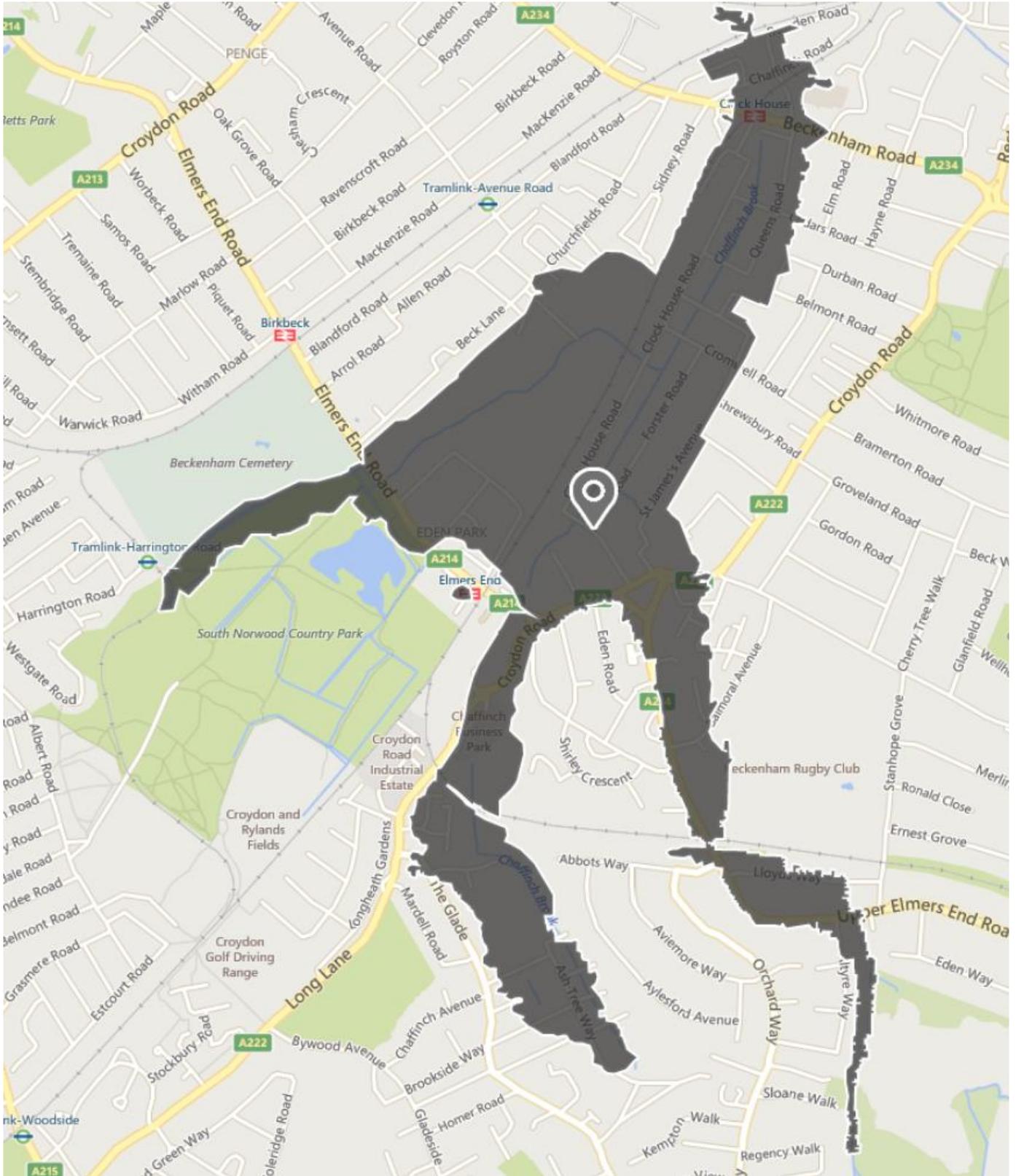


Figure 4 – flood map of Chaffinch Brook Flood Warning Zone

Please note: the FWA area information on the following page, sourced by the Environment Agency, may have slight inaccuracies (e.g. property numbers) or omissions (e.g. new infrastructure) as the current assessment is a now few years old and awaiting a revision as part of the Agency review cycle.

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Flood Warning Area			Flood Warning Area Reference Code	
The Chaffinch Brook and St James Stream at Elmers End and Upper Elmers End			064FWF43UpprElm	
Locations Affected			Messages Issued (EA)	
<p>The Chaffinch Brook flows from Croydon through Beckenham to the River Ravensbourne confluence and is joined by St. James Stream. In the lower reaches, the Chaffinch Brook is known as the Pool River. Areas at risk include:</p> <p>Chaffinch Brook (Upper Elmers End to Elmers End) - Horton Way, Mallard Way, Puffin Close, Croydon Road, Elmers End Road, Wimbourne Way, Clock House Road and Forster Road. St James' Stream - Altyre Way, Upper Elmers End Road, Holly Close, Priory Close and St. James' Avenue.</p>			<ul style="list-style-type: none"> Flood Warning Flood Warning Update Severe Flood Warning 	
			Floodline Quickdial Code	
			173911	
			Lead Time	
2 hours				
Frequency of Flooding	Probability of Flooding	Properties at Risk	Properties registered on Floodline Warnings Direct	
1:1000	0.1% (low)	1516	Fully	Extended Direct Warnings*
1:100	1% (medium)	429		
1:20	5% (high)	158	132	1451
1:5	20% (very high)	42		
Key Infrastructure				
<ul style="list-style-type: none"> Monks Orchard Primary School 				
History of Flooding				
Month / Year		Number of Properties / areas affected		
July 2007		Around 40mm of rain fell on 20 July, causing the Spring Brook to come out of banks. There was also a blockage on a trash screen. 3 business flooded on Bromley Road (junction with Downham Lane) and 9 houses flooded on Downham.		
1997		3 properties flooded and 1 road flooded		
August 1981		47 properties flooded		
1974		41 properties flooded		
1973		47 properties flooded		
1969		6 properties flooded		
1968 September		Extensive flooding was experienced; numerous properties and roads were affected in the Orpington, Bromley and Chislehurst areas.		
Flood Defences / Alleviation Measures				
Croydon secured Government funding in 2018 and is working jointly with Bromley Council and the EA to undertake a feasibility flood alleviation study which will look into the flooding mechanism within the Chaffinch Brook catchment, and identify viable/affordable long term measures that could be implemented to better manage the flood risks. The study is currently in the Optioneering Stage and is anticipated to be completed by December 2020. Although this date may now change due to the impact of the COVID-19				
Other Information				
<ul style="list-style-type: none"> On receipt of a flood warning, it is expected that some flooding of roads and a little in property will occur. The Ravensbourne Catchment is highly urbanised, and has many debris screens throughout the catchment. These screens are very susceptible to blockages and can cause flooding at many locations. Proactive action is taken to try to ensure that screens are kept clear, especially when the weather forecast is poor. 				

*Properties can benefit from full registration or Extended Direct Warnings (EDW) - a limited opt-out service to homes and businesses at 'high-risk' from flooding, who are currently not registered to receive warnings.

5 Surface Water Flood Risk Summary

According to national research undertaken by Defra¹, Croydon is ranked the 4th settlement in England most susceptible to surface water (pluvial) flooding, with as many as 21,100 properties estimated to be at risk. London Borough of Croydon's growth strategy provides an increase of approximately 21,510 new homes and many new jobs; these plans for urbanisation and redevelopment within London Borough of Croydon present a significant challenge to the existing drainage systems. **Table 4** dissects the number of residential and non-residential properties at a low, medium and high risk of surface water flooding in Croydon, based on the Environment Agency's 'Flood Risk for Surface Water' mapping.

Direct rainfall modelling has been undertaken across the entire Borough for five specified return periods. The results of this modelling have been used to identify Local Flood Risk Zones (LFRZs) where flooding affects houses, businesses or infrastructure. Those areas identified to be at more significant risk have been delineated into Critical Drainage Areas (CDAs) representing one or several LFRZs as well as the contributing catchment area and features that influence the predicted flood extent.

Within the London Borough of Croydon, sixteen CDAs have been identified and can be seen in **Figure 6**. The chief mechanisms for flooding can be broadly divided into two categories;

- *Scattered Flooding Incidents* - geographically dispersed and relatively isolated flooding of individual properties or small groups of properties (e.g. Chipstead Valley Road, Woodside, South Norwood);
- *More Severe Pluvial Flooding* – more significant pluvial flooding with interlinked sources of flooding, multiple asset owners and typically affecting a significantly greater number of properties (e.g., Brighton Road, Purley Cross and South and Central Croydon).

CDA_043 South and Central Croydon, CDA_041 Brighton Road and CDA_040 Purley Cross have the greatest number of receptors at risk of flooding, in proportion to the size of the CDA. The CDA for South and Central Croydon is also identified to have the greatest amount of critical infrastructure at risk and the highest number of commercial properties.

No single organisation has overall responsibility for surface water flooding with different aspects of the drainage system falling to either The Highway Authority (in this case London Borough of Croydon Council), Thames Water, riparian owners and Transport for London (red routes including the A23, A24 and A232).

July 2020 update: the SWMP and the CDAs are currently being reviewed by the council's Professional Services Provider, Arcadis. Additional hydraulic modelling works are being undertaken which may see existing CDAs extended or new ones created.

¹ National Rank Order of Settlements Susceptible to Surface Water Flooding, Defra 2009
Croydon Flood Risk Information v1.0

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Drainage Catchment	uFMfSW Low			uFMfSW Medium			uFMfSW High		
	Residential	Non-residential	Unclassified	Residential	Non-residential	Unclassified	Residential	Non-residential	Unclassified
DC20	691	22	28	221	7	12	158	4	8
DC21	629	3	28	245	4	5	79	9	1
DC22	9,977	461	410	2,731	124	118	1,132	131	93
DC23	322	2	18	41	0	5	16	0	0
DC37	771	57	101	291	40	25	101	106	31
DC38	2,654	156	155	519	75	35	123	26	13
DC39	5,106	394	396	2,669	454	231	1,998	278	159
DC40	3,811	131	205	1,220	61	62	568	28	56
DC41	176	35	12	79	1	3	36	1	3
DC42	2,701	50	104	726	29	42	594	25	47
DC43	484	28	21	134	21	6	27	6	0
DC44	574	5	14	141	5	10	118	3	6
DC45	601	5	15	117	5	7	131	66	1
DC46	899	11	29	247	0	13	223	7	19
DC47	223	9	47	117	1	8	93	7	10
DC53	49	2	6	15	2	2	49	0	1
DC54	496	15	25	93	21	13	21	11	8
DC55	810	17	40	194	2	7	132	1	5
DC56	1,116	31	68	294	19	34	257	28	52
TOTAL	32,090	1,434	1,722	10,094	871	638	5,856	737	513

Notes: The property counts are generated by calculating the number of properties that intersect with each of the categories within the uFMfSW. Where properties intersect two or three categories from the uFMfSW, the property has been counted in the category of greatest risk. Counts have been provided by Drainage Catchment.

Ordnance Survey MasterMap was used to provide a dataset of all the buildings in the study area. Polygons with feature codes 10021, 10062, 10185 and 10187 were classified as buildings. The number of addresses located at basement or ground floor level associated with each OSMM building polygon was determined using the Environment Agency National Receptor Database (NRD). The NRD was also used to determine the use of the property, based on definitions (MCM Codes) within Appendix 3.1 of the Multi-Coloured Manual [2]. These have been grouped into three categories; Residential, Non-Residential, Unclassified.

Table 2 - Properties at risk of surface water flooding in London Borough of Croydon by Drainage Catchment (2015)

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Table 3 - Properties at risk of surface water flooding

No. Properties at Risk of Surface Water Flooding in Croydon <i>(based on Environment Agency 'Flood Risk for Surface Water' mapping)</i>		At Risk			
		Low	Medium	High	
Residential Total		33,614	10,440	3,714	
Non Residential	Commercial & Industrial	2,455	1,272	578	
	Critical Infrastructure	Emergency Services (Fire, Police & Ambulance Station)	11	6	3
		Hospitals	3	3	2
		Schools and Education Facilities	134	72	35
		Surgery or Health Care	67	32	12
		Residential Home	5	1	1
		Sewage Treatment	3	2	1
		Electricity Sub Station or Building	68	27	14
	Other	147	63	34	
	Non Residential Total		2,893	1,478	680
Total		36,507	11,918	4,394	

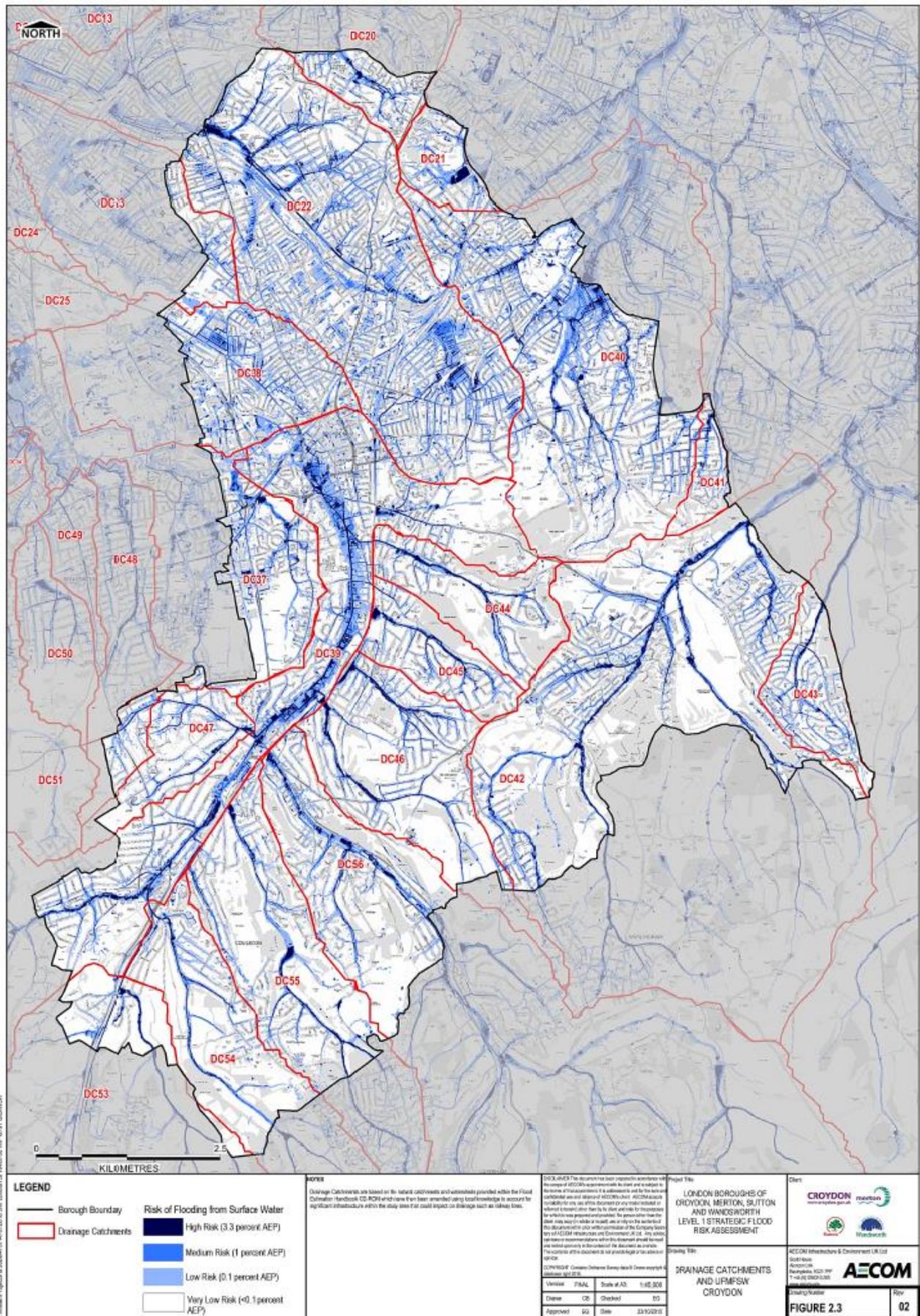


Figure 5 - Map of Surface Water Flooding with drainage catchments (2015)

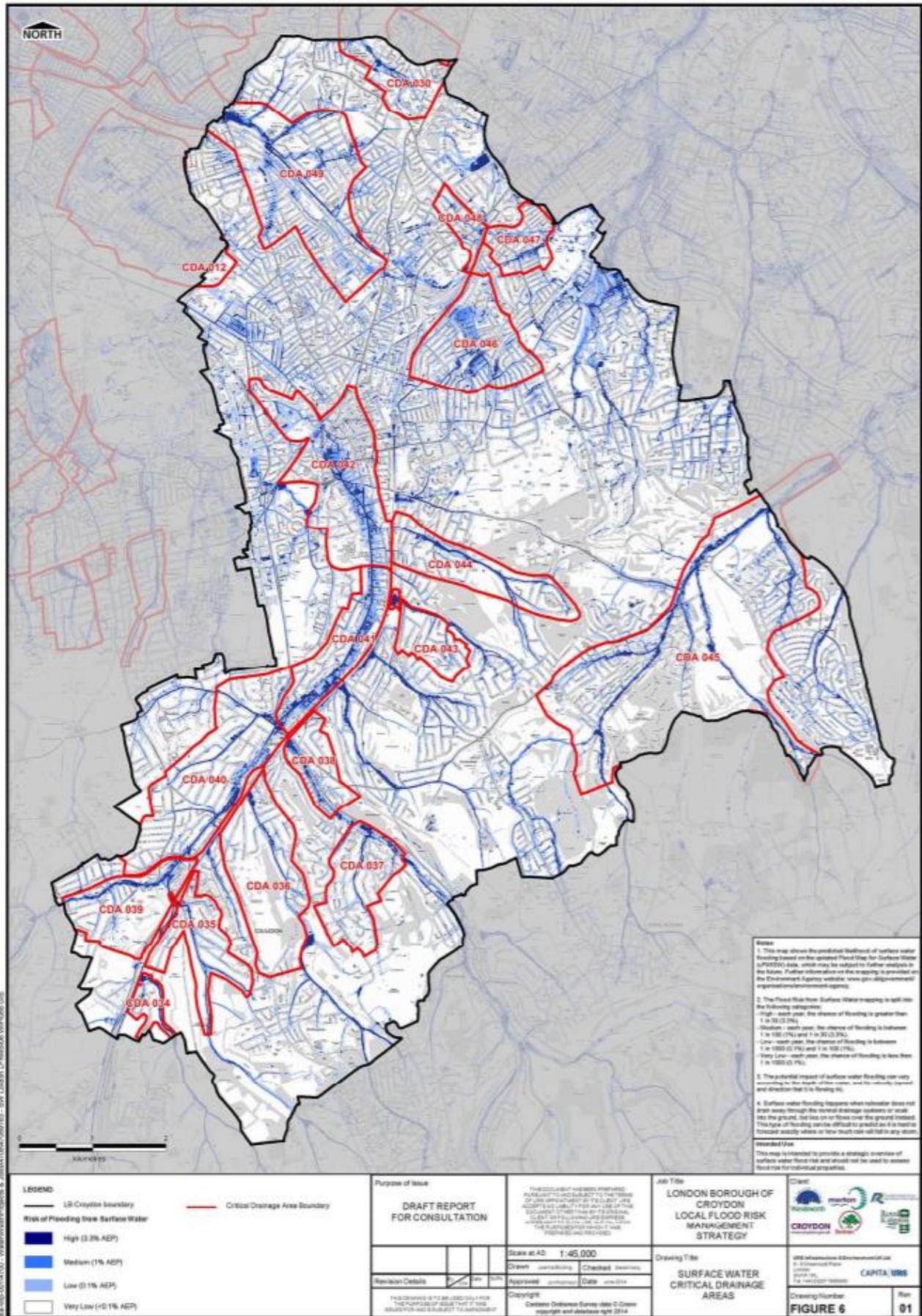


Figure 6 - Surface Water Critical Drainage Areas (2014)

5.1 CDA Flood Risk Summary – CDA_040 Purley Cross

CDA_040 Purley Cross		
Flood Risk Categorisation	Surface water and ordinary watercourse	
Description	<ul style="list-style-type: none"> • This CDA covers the section of Brighton Road from Coulsdon Town Rail Station northwards to the Purley Cross junction. • Brighton Road is located in a natural depression along the former pathway of the River Wandle. • During periods of heavy rainfall, surface water flows down the side roads and ponds along Brighton Road resulting in highway flooding and flooding of properties on either side of the highway. • Accordingly, reported incidents of flooding are concentrated along Brighton Road. • Due to its location in a topographic depression, the pluvial modelling identifies this area to be susceptible to significant depths of flooding. 	
Property Count	Approximately 2316 Non-deprived ² households and 83 commercial properties flood to a depth of greater than 0.03m.	Approximately 101 Non-deprived households and 20 commercial properties flood to a depth of greater than 0.5m.
Critical Infrastructure	<ul style="list-style-type: none"> • A23 TfL red route from London to Brighton • 2 Fire Stations • Electrical substation • Schools • Community Centres • Residential Homes 	
Validation / History of Flooding	<ul style="list-style-type: none"> • This area floods almost every year. • The Purley Cross junction has historically experienced severe flooding, most notably in July 2007 when approx. 320 properties and 26 schools reported surface water flooding, and the gyratory system including the surface water pumping system was completely submerged beneath 2 to 3 metres of floodwater. • There are 16 records of flooding within this CDA since 1961. • There are 12 records of pluvial flooding at Purley Cross, Brighton Road, Woodcote High School, Russell Hill Road, Smitham Bottom Lane, The Chase, The Horseshoe and Old Lodge Lane. • In addition there are records of sewer flooding at Brighton Road, Old Lodge Lane, Reedham Drive, Foxley Lane and Purley Cross 	



Figure 7 - 2007 Flooding at Purley Cross



Figure 8 - 2015 Flooding at Purley Cross

² (Non-) Deprived Households: Those households (not) falling into the lowest 20% of ranks by the Office of National Statistics' Indices of Multiple Deprivation.

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5.2 CDA Flood Risk Summary – CDA_041 Brighton Road

CDA 041 Brighton Road		
Flood Risk Categorisation	Surface Water, Culverted Ordinary Watercourse	
Description	<ul style="list-style-type: none"> • Brighton Road is located along the former pathway of the River Wandle. During periods of heavy rainfall, surface water is channelled from higher land in Kenley and Sanderstead towards Purley and ponds along the length of Brighton Road. • The Brighton Road is defined as Environment Agency Flood Zone 3a however the watercourse is entirely culverted along this section and joins the River Wandle in neighbouring London Borough of Sutton. • Croydon secured Government funding in 2019, to undertake hydraulic modelling of Brighton Road between Purley Cross and the River Wandle, which hope to improve our understanding of the flood risks in this area. 	
Property Count	Approximately 2357 Non-deprived households and 373 commercial properties flood to a depth of greater than 0.03m.	Approximately 163 Non-deprived households and 26 commercial properties flood to a depth of greater than 0.5m.
Critical Infrastructure	<ul style="list-style-type: none"> • TfL Red Route (A23) • Hospital • Fire Station • Brighton Road Bus Depot • Electrical substation 	
Validation / History of Flooding	<ul style="list-style-type: none"> • There are records of flooding at more than 8 locations along this section of Brighton Road. • During the 20th of July 2007 flood event, reportedly more than 50 properties reported to be affected by surface water flooding along the Brighton Road corridor. The capacity of the surface water drainage system was overwhelmed and the residual surface water resulted in roadway and property flooding. Flooding extended beyond the Brighton Road frontage to adjacent roads and properties. 	

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5.3 CDA Flood Risk Summary – CDA_043 South and Central Croydon

CDA 042 South & Central Croydon			
Flood Risk Categorisation	Surface Water, Culverted Ordinary Watercourse		
Description	<ul style="list-style-type: none"> • This CDA covers the upper extent of Brighton Road extending from Haling Park to Wandle Park. • Surface water flows into the channel of the former River Wandle in the area designated as Environment Agency Flood Zone 3a and ponds to significant depths. • Surface water is shown to pond beneath the Croydon flyover and the subways beneath Mitcham Road including Booth Road and Bourne Street. 		
Property Count	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%; padding: 5px;"> Approximately 3450 Non-deprived households of which 431 are basements; 327 Deprived households, of which 17 are basements; and 830 commercial properties, of which 464 are basements, flood to a depth of greater than 0.03m. </td> <td style="width: 50%; padding: 5px;"> Approximately 349 Non-deprived households of which 25 are basements; 5 Deprived households, of which 3 are basements; and 49 commercial properties, of which 11 are basements, flood to a depth of greater than 0.5m. </td> </tr> </table>	Approximately 3450 Non-deprived households of which 431 are basements; 327 Deprived households, of which 17 are basements; and 830 commercial properties, of which 464 are basements, flood to a depth of greater than 0.03m.	Approximately 349 Non-deprived households of which 25 are basements; 5 Deprived households, of which 3 are basements; and 49 commercial properties, of which 11 are basements, flood to a depth of greater than 0.5m.
Approximately 3450 Non-deprived households of which 431 are basements; 327 Deprived households, of which 17 are basements; and 830 commercial properties, of which 464 are basements, flood to a depth of greater than 0.03m.	Approximately 349 Non-deprived households of which 25 are basements; 5 Deprived households, of which 3 are basements; and 49 commercial properties, of which 11 are basements, flood to a depth of greater than 0.5m.		
Critical Infrastructure	<ul style="list-style-type: none"> • A23 TfL Red Route • Fire Station, Duppas Hill Terrace • Sewage Treatment Works • 14 Electrical substations • Police Station, Wellesley Road • Croydon Hospital • Tram network (Reeves Corner and Central stations) 		
Validation / History of Flooding	<ul style="list-style-type: none"> • London Borough of Croydon has records of pluvial flooding at 33 locations within this CDA including Wellesley Road (Croydon underpass), Brighton Road, Haling Park Road, Church Street, Cliffe Road, Howard Primary School, Duppas Hill Terrace, North End, Park Lane, Parker Road, Queen Street, Southbridge Place, Waddon Road, Warham Road, Warrington Road, Barlett Street, Selsdon Road, • Incidents of sewer flooding have been recorded at Purley Road, Miller Road and North End. • Incidents of groundwater flooding have been recorded at Barham Road, Brighton Road and Church Road. 		

6 Groundwater Flood Risk Summary

The borough of Croydon is divided into two distinct areas with respect to bedrock geology. The north of the borough is underlain by impermeable London Clay, whereas the south is underlain by permeable chalk. The Council have 37 records of groundwater flooding in the borough. Instances of groundwater flooding have been reported in a number of areas in Croydon with some regular hotspots in the north of the borough. The most high profile and widespread floods influenced by high groundwater have been associated with the Caterham Bourne in the south of the borough, which caused significant disruption in the winter of 2000-2001 and more recently in early 2014, threatening significant numbers of homes, essential infrastructure and transport networks. **Appendix L** displays the flood risk posed in Croydon from groundwater.

6.1 Caterham Bourne Catchment

The Caterham Bourne is an ephemeral watercourse, meaning it flows intermittently usually after periods of heavy or prolonged rainfall, and is predominantly dry at other times. Historically, it is recorded to flow heavily approximately every 7 years, although smaller flows can be observed more frequently. The bourne rises in Surrey within the district of Tandridge. The source location is reported to vary with three valley flow paths leading towards the Wapses Lodge roundabout on the A22 in Surrey. The EA map the start of the designated main river at Wapses lodge, where the three flow paths combine.

The route of the bourne flows in a North West direction through Whyteleafe and into Croydon, roughly following the course of the A22, through Kenley to Purley Cross in Croydon. The bourne then flows within a culvert, flowing north east under Brighton Road to the balancing pond at the Purley Oaks depot. The bourne continues to flow in a northerly direction, mostly within culverts, eventually joining the River Wandle at Waddon. More information on the catchment can be found in the Caterham Bourne Flood Investigation Report³.

Areas at risk of Groundwater Flooding in the Caterham Bourne Catchment including Caterham, Whyteleafe, Kenley, Purley, South Croydon, Beddington and Carshalton

The Environment Agency provides a Flood Alert service to the groundwater flooding in the Caterham Bourne catchment – the only groundwater flood alert area in London. **Appendix K** displays the catchment area; the Flood Alert Reference Code is 064FAG41Caterham.

6.2 Groundwater Alert for South East London

The Groundwater Flood Alert area has recently been expanded to include areas that have been previously affected or could be affected by groundwater flooding. This new service will mean members of the public living within areas that could be affected by groundwater flooding can register to receive Groundwater Flood Alerts.

3

<https://www.croydon.gov.uk/sites/default/files/articles/downloads/Caterham%20Bourne%20S19%20Flood%20Investigation%20Report%20%E2%80%93%20October%202014%202.pdf>