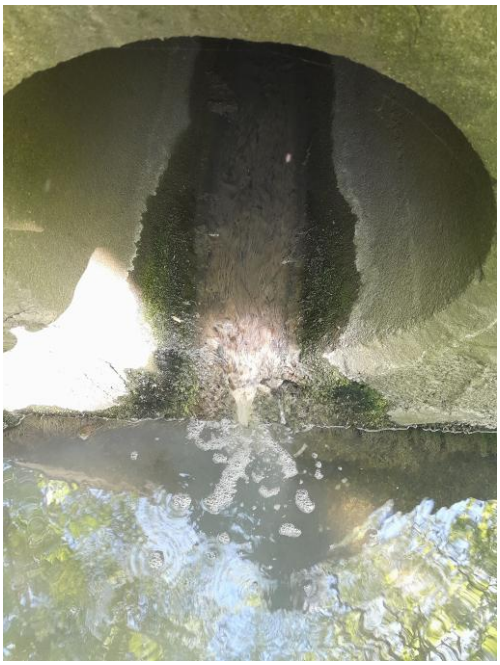
An audit of the surface water outfalls, "Outfall Safari" along the Upper Brent and Dollis Brook

September 2026

ACKNOWLEDGEMENTS

The Outfall Safari programme in London is funded by Thames Water. The Upper Brent and Dollis Brook Outfall Safari was made possible through a collaborative effort between Zoological Society of London (ZSL), Thames21, the Environment Agency and a dedicated network of citizen scientists. We are incredibly grateful to all the volunteers who contributed their time and effort to surveying the river, providing the valuable data that underpin this report. We would also like to thank Cartographer for developing the survey recording platform that enabled volunteers to collect and submit their findings in the field.



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1. AIMS

The Outfall Safari programme in London works with local communities to survey each tributary of the Thames that flows above ground within Greater London on a four-year rotation. The Outfall Safaris form part of a wider programme of work to improve the condition of London's rivers by improving water quality and supporting the restoration of habitats and wildlife populations.

Much of outer London is served by a separate drainage system, where foul sewers carry wastewater to sewage treatment works, while surface water drains discharge to the nearest watercourse. Cross-connections between these systems can result in sewage entering the surface water network and being discharged into rivers through surface water outfalls. These can arise from misconnections, blockages, or failing or poorly designed infrastructure. Further information on water quality across London can be found here. Surface water outfalls can also provide a pathway for other pollutants, including road runoff and chemicals washed into surface water drains.

Through systematic surveys of surface water outfalls, signs of pollution can be identified and assessed across a catchment. The resulting data are shared with Thames Water for follow-up assessment and potential inclusion in the Surface Water Outfall Programme (SWOP), as well as with Catchment Partnerships and Environment Agency representatives. This helps to identify and prioritise potentially polluting outfalls for further investigation and action to improve water quality across London's rivers.

The 2026 Upper Brent and Dollis Brook Outfall Safari included the following watercourses:

- Upper Brent River
- Dollis Brook
- Mutton Brook
- Folly Brook
- Decoy Brook

The aims of the 2026 Upper Brent and Dollis Brook Outfall Safari were to:

- Record and map dry-weather conditions of outfalls across the Upper Brent, Dollis Brook and the other surveyed tributaries.
- Assess and rank the potential pollution impact of outfalls and report polluting outfalls to Thames Water for further investigation.

- Recruit and engage volunteers from communities surrounding the Upper Brent and its tributaries, providing them with the knowledge and information needed to identify and report pollution to Thames Water and the Environment Agency on an ongoing basis.

2. METHODS

The Outfall Safari programme is designed to identify and assess potentially polluting surface water outfalls in urban river catchments. Thames Water assigns known outfalls a unique reference number and What3Words location to support the identification of individual assets. The development of long-term records associated with individual assets could, in future, enable pollution histories to be tracked over time. Trained volunteers systematically conducted bankside surveys, recording both known Thames Water outfall locations and any additional outfalls identified during the survey that were not currently recorded as known Thames Water assets. Survey data were recorded and submitted using the Cartographer survey platform. A comprehensive guide to the Outfall Safari methodology and associated resources can be accessed via ZSL's London's Rivers webpage: A guide to running an Outfall Safari (London's Rivers | ZSL).

Each outfall was assessed using a standardised survey method. Surveyors recorded the flow of discharge from the outfall, ranging from no flow to high flow. Outfalls were then scored against two indicators of potential pollution: the downstream visual impact, scored from 0 to 10 and ranging from no visible effect to an impact extending more than 30 m downstream of the outfall; and the condition of the discharge, scored from 0 to 10 and ranging from no visible or olfactory evidence of pollution to severe indicators such as gross odour, gross sewage or a very extensive pollution problem. The scores for these two indicators were combined to give each outfall an overall score between 0 and 20. Flow was recorded as part of the assessment but did not contribute to this score. Any outfall scoring 10 or above was required to be reported immediately to Thames Water for further investigation, with volunteers also encouraged to report these outfalls to the Environment Agency where possible.

Surveyors photographed each outfall as part of the assessment. Submitted surveys were subsequently reviewed and quality checked by ZSL staff through Cartographer, with photographs used alongside the recorded survey information to verify assessments and approve records.

Volunteers also recorded sections of river that could not be surveyed from the bank due to restricted access or insufficient visibility of the channel. These records were used to identify sections requiring additional survey effort, with in-channel surveys subsequently undertaken by ZSL staff where required.

3. RESULTS

A total of 13 volunteers took part in the Outfall Safari training on 19/03/2026. Surveys were conducted between 07/04/2026 and 02/07/2026, with no in-channel surveys necessary.

Of the 29.7 km of un-culverted waterways identified to be surveyed, 22.4 km (75.5%) of the river was surveyed from the bankside. A further 5.4 km (18.3%) was classified as inaccessible, while 1.8 km (6.2%) was not surveyed (Table 1; Figure 1). Sections classified as inaccessible could not be safely or effectively surveyed due to factors including restricted or private access, dense vegetation, deep water, steep banks and limited safe entry and exit points. Unsurveyed areas largely comprised small, sporadic sections that were not completed during the survey period, alongside one section that was inadvertently missed.

Table 1, Coverage of the Upper Brent and Dollis Brook during the Outfall Safari surveys.

	(km)	(%)
Surveyed bankside	22.4	75.5
Inaccessible	5.4	18.3
Not surveyed	1.8	6.2
Total	29.7	100

Surveys identified 123 outfalls across the Upper Brent, Dollis Brook, and the other surveyed tributaries (Figure 1). Of these, 73 (59.3%) showed no visible evidence of pollution, while 44 (35.8%) surface water outfalls scored ≥6 (Table 2; Table 4).

Table 2, Number of outfalls and their respective scores.

Outfall Score	0	4	**6**	**8**	**10**	**12**	**16**
Number of outfalls	73	6	19	10	13	1	1
Percentage (%)	59.3	4.9	15.4	8.1	10.6	0.8	0.8

15 outfalls scored ≥10 (Figure 2), meeting the threshold for immediate reporting to Thames Water under the Outfall Safari survey protocol. Details of these high-scoring outfalls and their associated reporting reference numbers are provided below.

- Survey Number 16: Score 10, Reference number to EA N/A, Reference number to TW 1743556
- Survey Number 18: Score 10, Reference number to EA 2517975, Reference number to TW 1736289
- Survey Number 22: Score 10, Reference number to EA N/A, Reference number to TW 1733910
- Survey Number 23: Score 10, Reference number to EA N/A, Reference number to TW 1756055
- Survey Number 30: Score 10, Reference number to EA N/A, Reference number to TW 1673586
- Survey Number 42: Score 10, Reference number to EA N/A, Reference number to TW 1673037
- Survey Number 60: Score 10, Reference number to EA N/A, Reference number to TW 1670201
- Survey Number 61: Score 10, Reference number to EA N/A, Reference number to TW 1670213
- Survey Number 77: Score 16, Reference number to EA N/A, Reference number to TW 01656061
- Survey Number 87: Score 10, Reference number to EA N/A, Reference number to TW 01653594
- Survey Number 97: Score 12, Reference number to EA N/A, Reference number to TW 01649947
- Survey Number 103: Score 10, Reference number to EA N/A, Reference number to TW N/A
- Survey Number 106: Score 10, Reference number to EA N/A, Reference number to TW N/A
- Survey Number 109: Score 10, Reference number to EA N/A, Reference number to TW N/A
- Survey Number 115: Score 10, Reference number to EA N/A, Reference number to TW N/A

3.1. THAMES WATER REFERENCE NUMBERS

Prior to the Outfall Safari survey season, Thames Water assigned reference numbers to 161 outfalls in the Upper Brent and Dollis Brook. During the surveys, volunteers or ZSL staff identified and scored 93 of these assets. Surveyors also discovered 30 outfalls that did not have an associated Thames Water reference number (Table 3; Figure 3).

Table 3, Thames Water Outfall Reference Number Information.

Total number of Thames Water outfalls assigned reference numbers	161
Outfalls present and recorded with a Thames Water reference number during the survey	93
Number of outfalls recorded with no Thames Water reference number	30
Number of outfalls with a Thames Water reference number that were found to not be present	3

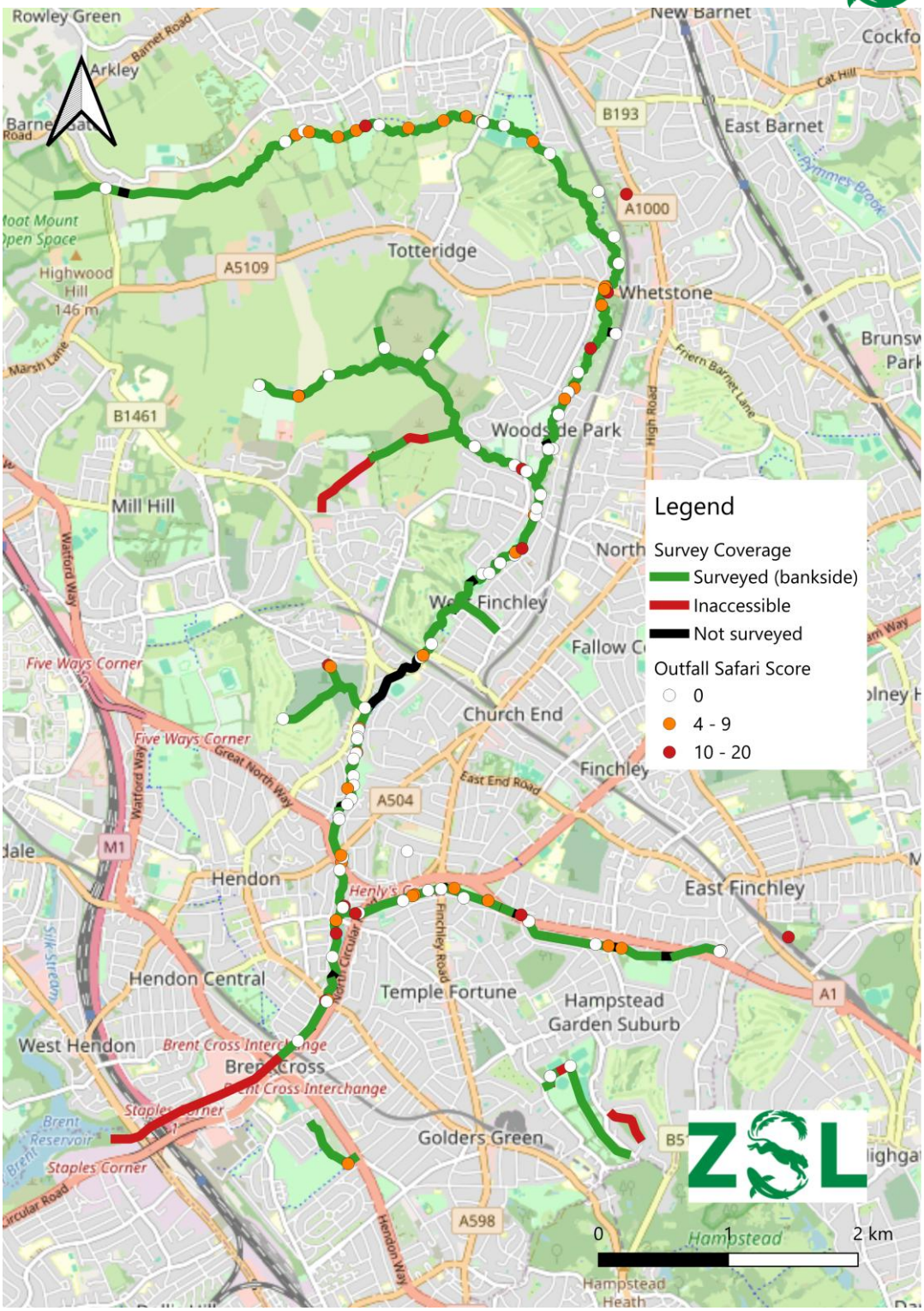


Figure 1, Surveyed sections of the Upper Brent and Dollis Brook Outfall Safari area, with the locations and scores of assessed outfalls.

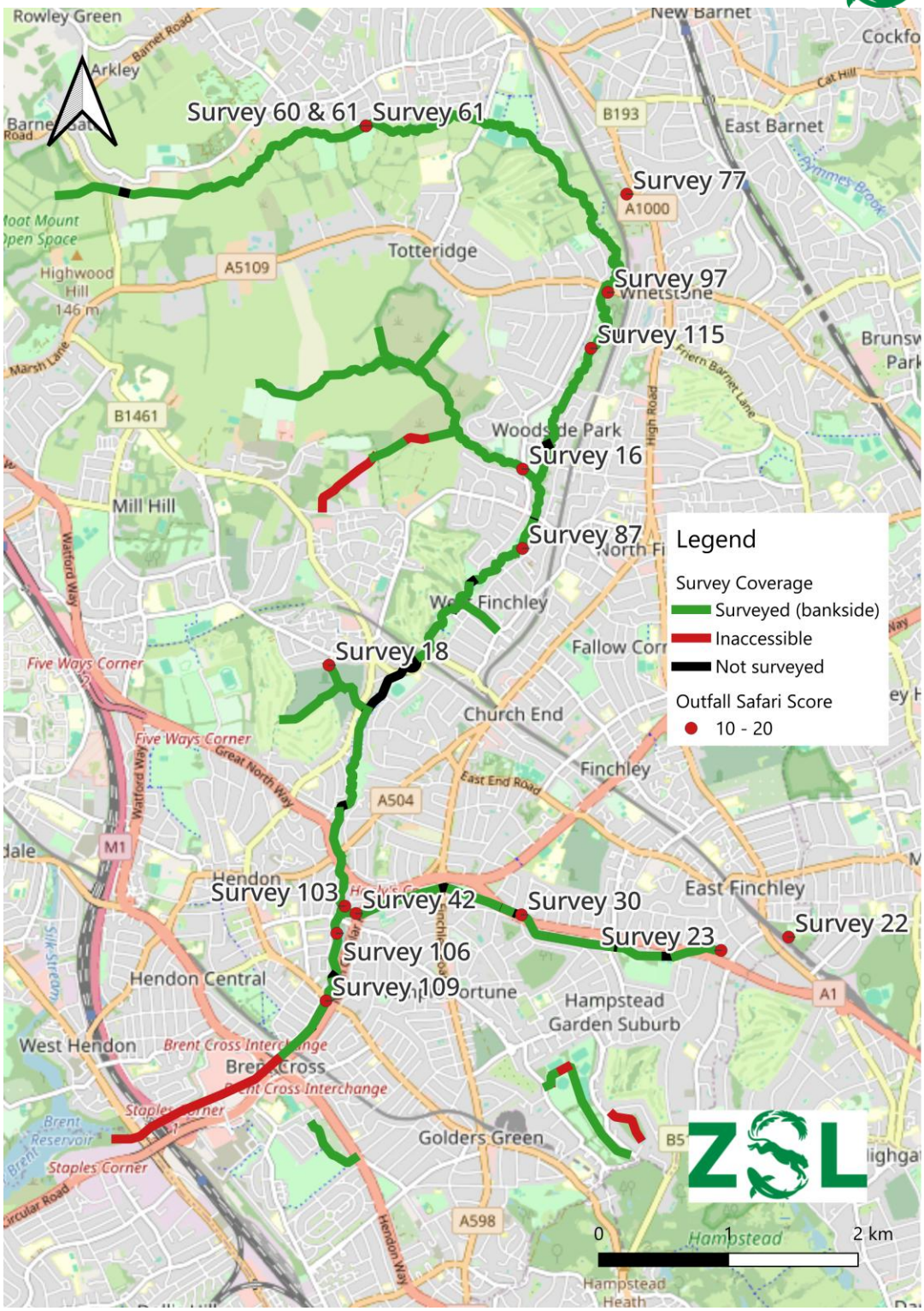


Figure 2, Locations of high-scoring outfalls (Outfall Safari Score ≥10) identified during the 2026 Upper Brent and Dollis Brook Outfall Safari.

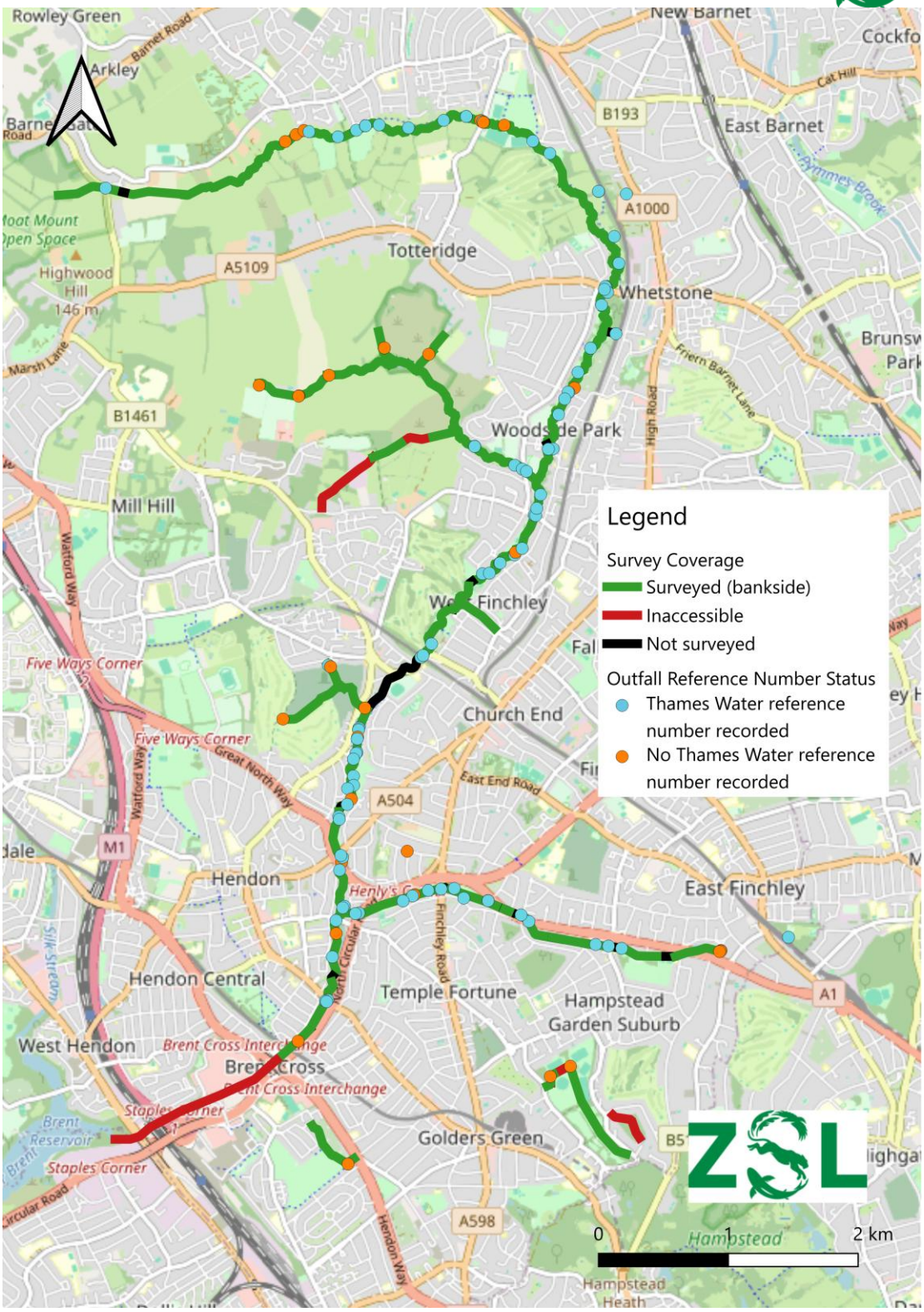


Figure 3, Locations of assessed outfalls with and without a recorded Thames Water reference number.

4. DISCUSSION

The 2026 Upper Brent and Dollis Brook Outfall Safari provided an updated assessment of surface water outfalls across the Upper Brent, Dollis Brook and the other surveyed tributaries. Of the 123 outfalls assessed, 73 (59.3%) showed no visible evidence of pollution and scored 0. However, 44 outfalls (35.8%) scored ≥6, including 15 (12.2%) that scored ≥10. The relatively high proportion of outfalls scoring ≥6, including 15 that met the threshold for immediate reporting to Thames Water, highlights the importance of further investigation of potential pollution sources within the catchment. Outfall Safari surveys provide a snapshot of conditions at the time of assessment. Some outfalls may discharge intermittently and therefore show no evidence of pollution when surveyed, while the impact of individual outfalls may vary between surveys. The results should therefore be interpreted only as a snapshot of outfalls that are polluting at the time of survey.

The survey also provided an opportunity to assess the accuracy and completeness of existing outfall location information. Of the 123 outfalls assessed, 93 were recorded with a Thames Water reference number, while 30 had no associated reference number. In addition, three locations assigned a Thames Water reference number prior to the survey were recorded as not present. These findings highlight the value of field-based surveys for verifying existing outfall records and identifying additional outfalls. Outfalls without a Thames Water reference number cannot necessarily be assumed to be Thames Water assets, and further investigation is required to establish their ownership and status. Similarly, locations recorded as not present may require further verification to determine whether existing location information needs to be updated.

Survey coverage was affected by access, safety and visibility constraints. Of the 29.7 km of watercourse identified for survey, 75.5% was successfully surveyed from the bankside, while 18.3% was classified as inaccessible and 6.2% was not surveyed. Restricted or private access, dense vegetation, deep water, steep banks and limited safe entry and exit points prevented some areas from being safely or effectively surveyed. Dense vegetation may also have reduced bankside visibility and made individual outfalls more difficult to identify. Unsurveyed areas largely comprised small, sporadic sections that were not completed during the survey period, alongside one section that was inadvertently missed. There is also an element of subjectivity in assigning Outfall Safari scores, particularly where outfalls are viewed from a distance or visibility is restricted, which may result in some outfalls being under- or over-scored. Photographs submitted with each assessment and subsequent quality checking by ZSL staff provided an additional level of verification. As outfalls scoring ≥10 are required to be reported

immediately to Thames Water, clear training and guidance on applying the scoring criteria consistently are particularly important.

The 2026 survey was undertaken during the first year of using Cartographer as the survey recording platform, and some teething issues were encountered. In particular, pre-existing outfall locations displayed as points on the survey map could be interpreted by volunteers as indicating where an outfall was expected to be present. Some mapped locations did not correspond with an outfall observed in the field, while displaying existing locations may also have directed surveyors' attention towards mapped points and increased the risk of previously unmapped outfalls between these locations being overlooked. Future surveys should reinforce during volunteer training that the entire allocated river section should be systematically searched irrespective of the locations displayed on the map. Consideration should also be given to how pre-existing outfall locations are displayed within Cartographer to minimise potential bias while retaining useful information for surveyors.

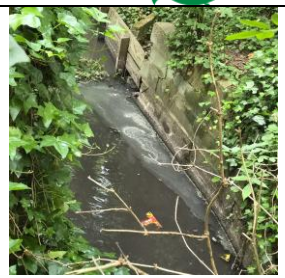
Despite these limitations, the 2026 Upper Brent and Dollis Brook Outfall Safari benefited from an engaged volunteer network, enabling a substantial proportion of the survey area to be assessed. Citizen science provides an important means of identifying potentially polluting outfalls and verifying existing outfall information across an extensive river network. Continued refinement of outfall location information, clearer guidance on the use of Cartographer, and consideration of access, vegetation and visibility when planning surveys should help improve the efficiency and completeness of future Outfall Safaris.

Table 4, Details and photographs of outfalls with an Outfall Safari impact score of ≥6.

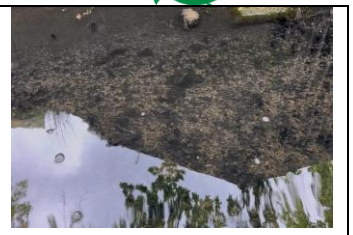
Survey Number	Location (latitude, longitude)	Bank Side	Thames Water Reference Number	Outfall Score	Image 1	Image 2	Image 3
2	51.62304, -0.2157	Left	N/A	8			
6	51.62302, -0.21574	Left	N/A	6			
16	51.61799, -0.19087	Left	FOLY0003	10			

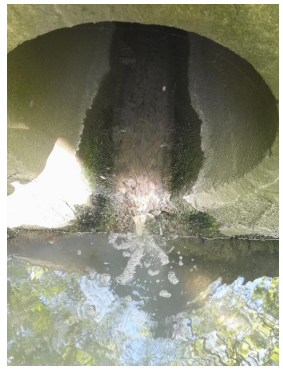
							
17	51.56999, -0.21024	Left	N/A	8			
18	51.60445, -0.21243	Right	DOLL0096	10			

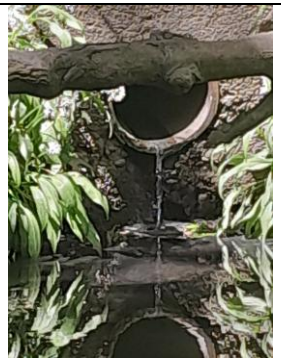
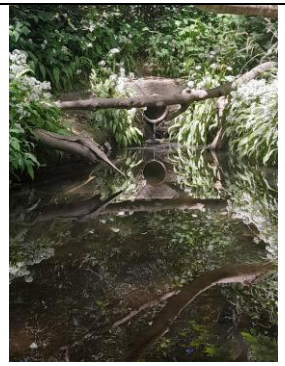
							
19	51.60434, -0.21219	Left	N/A	8			
22	51.58566, -0.16125	Right	MUTT0038	10			
23	51.58474, -0.16876	Right	MUTT0019	10			

							
27	51.58505, -0.18127	Right	MUTT0001	6			
30	51.5872, -0.19099	Right	MUTT0024	10			
31	51.58858, -0.20288	Left	N/A	8			

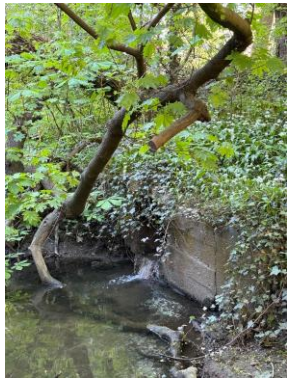
							
36	51.58818, -0.19466	Right	MUTT0030	8			
38	51.58903, -0.19842	Left	MUTT0013	8			
42	51.58729, -0.20942	Right	MUTT0009	10			

							
45	51.64107, -0.21602		N/A	6			
47	51.64127 , -0.21458	Left	DOLL0071	6			
48	51.64092, -0.21136	Left	DOLL0046	6			

							
49	51.64137, -0.20932	Left	DOLL0070	6			
50	51.59842, -0.20926	Left	DOLL0007	6			
55	51.59593, -0.21029	Left	DOLL0036	6			

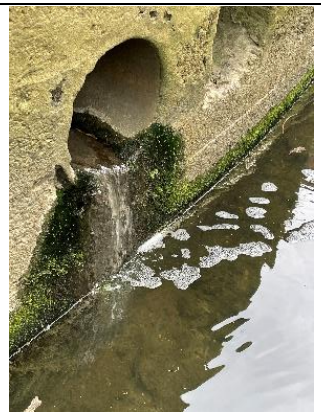
							
60	51.64168, -0.20831	Left	DOLL0005	10			
61	51.64168, -0.20829	Left	DOLL0006	10			

64	51.64205, -0.19961	Left	DOLL0075	8			
66	51.64232, -0.19709	Left	DOLL0021	6			
69	51.64198, -0.19527	Left	DOLL0048	6			
73	51.64062, -0.18969	Left	DOLL0082	8			

							
77	51.63697, -0.17928	Left	DOLL0088	16			
79	51.60512, -0.2019	Left	DOLL0052	6			

86	51.61224, -0.19162	Right	N/A	6			
87	51.61251, -0.19088	Right	DOLL0069	10			
96	51.63058, -0.18162	Right	DOLL0065	6			

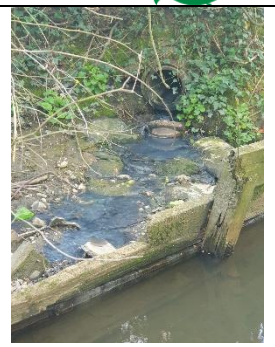
							
97	51.63019, -0.18137	Left	DOLL0085	12			
98	51.63039, -0.18173	Right	DOLL0004	6			
99	51.59084, -0.21097	Left	N/A	6			

							
101	51.59131, -0.21104	Left	DOLL0073	8			
103	51.5878, -0.21066	Left	DOLL0014	10			

							
105	51.58682, -0.21158	Right	BRNT0041	6			
106	51.58592, -0.21156	Right	N/A	10			

							
108	51.58133, -0.2125	Left	BRNT0150	8			
109	51.58126, -0.21276	Right	BRNT0133	10			

							
114	51.62931, -0.18204	Right	DOLL0042	6			
115	51.62633, -0.18325	Right	DOLL0053	10			

							
117	51.62359, -0.18506	Left	N/A	6			
120	51.62283, -0.18614	Right	DOLL0047	6			

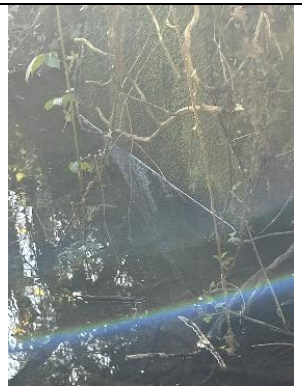
							

Table 5, Areas identified as inaccessible and their respective start and end points.

Nearest road to inaccessible section start	Inaccessible section start (latitude, longitude)	Nearest road to inaccessible section end	Inaccessible section end (latitude, longitude)	Length (m)	Reason for inaccessibility
Partingdale Lane	51.6152344, -0.2131805	Burtonhole Lane	51.6188299, -0.2074086	~590 m	Inaccessible section followed by culverted watercourse beneath Mill Hill Substation.
Burtonhole Lane	51.6197914, -0.2043256	Michleham Down	51.6202051, -0.2008108	~260 m	Dense vegetation restricting access.
Hampstead Way	51.5756065, -0.1876762	Wildwood Road	51.5757304, -0.18769494	~20 m	Culverted section.

Hampstead Way	51.5762000, -0.1873700	Wildwood Road	51.5766783, -0.1858683	~120 m	Dense vegetation restricting access.
Ingram Avenue	51.5734090, -0.1807909	Wildwood Rise	51.5717407, -0.1778064	~310 m	Private gardens with no public access.
Priestley Way	51.571677, -0.236361	Cooper Road	51.577218, -0.218229	~1400 m	Section connects to Brent Reservoir, with deep water, steep banks and limited safe entry and exit points.