



Appendix L

Cumulative Effects Assessment – long list ‘other projects’

Table L1: Long list of ‘other projects’ considered in the cumulative effects assessment

As the chapter explains, given this is the scoping stage of the assessment, this is a very early snapshot of the likely developments that would need to be considered. Furthermore, some of the projects below are currently still being deliberated due to changes in funding and policies. These projects are included for now as it is possible the funding could still be forthcoming. Plans and strategies, such as those by Thames Water and SCC are also included in the scope of the cumulative effects assessment as per the PINS guidance.

‘Other development’ details							Stage 1
ID	Application Reference	Brief description	Developer + estimated construction period	Distance to Project (closest element)	Status	Tier	Within ZOI? (The ZOI for this scoping stage is the topic study area. Please refer to the relevant Topic Chapter and sub section “ChapterNumber.3.3” with relevant drawing referenced therein)
1	EN070005	The Southampton to London Pipeline Project DCO. Replacing 90km (56 miles) of its existing 105km (65 miles) aviation fuel pipeline that runs from the Fawley Refinery near Southampton, to the West London Terminal storage facility in Hounslow.	Esso Petroleum Company 2021-2023	0km (crosses Littleton Lane section of Channel)	Decision: DCO granted	1-2	Yes
2	129088-JAC-REP-EMF-000001 Rev A02	Western Rail Link to Heathrow. A new rail connection on the Great Western Main Line, providing a more direct rail route for passengers travelling to Heathrow.	Network Rail 2018-2023	5.6km	Pre-application	2	Yes (Within biodiversity ZOI – mobile spp. and bats)
3	TR020003	Expansion of Heathrow Airport. Includes a third runway to the north-west of the existing two, a new terminal building, transport, and additional surface access (moving roads and redirecting the M25 through a tunnel under the new runway).	Heathrow Airport Limited Third runway by 2026 Expansion completion by 2050	5km	Pre-application	2	Yes
4	TR010030	M25 Junction 10/A3 Wisley Interchange. Road and junction upgrade with accompanying environmental mitigation (40 hectares of land to be enhanced to replace the 14 hectares required for the highway works themselves)	Highways England 2022-2025	6.5km	Decision	2	Yes (Within biodiversity ZOI – mobile spp. and bats)
5	TR010019	M4 Junctions 3 to 12 Smart Motorway. Improving the M4 between junction 3 at Hayes and junction 12 at Theale by upgrading it to a smart motorway creating an additional lane.	National Highways 2018-2022	Approx. 7.9km (from Teddington weir), 10.4km from Runnymede Channel	Decided (DCO granted followed by an application for a non-material change has been submitted)	1-2	Yes (Within biodiversity ZOI – mobile spp. and bats)

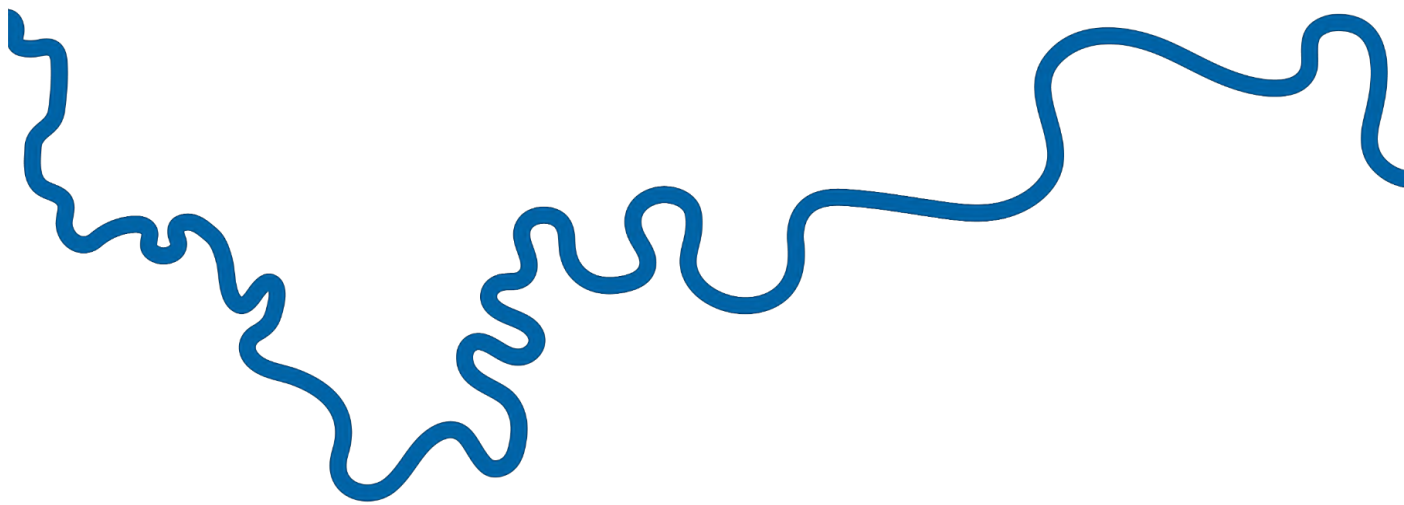
‘Other development’ details							Stage 1
ID	Application Reference	Brief description	Developer + estimated construction period	Distance to Project (closest element)	Status	Tier	Within ZOI? (The ZOI for this scoping stage is the topic study area. Please refer to the relevant Topic Chapter and sub section “ChapterNumber.3.3” with relevant drawing referenced therein)
6	WWO10001	Thames Tideway Tunnel – A 15 mile “Super Sewer” under the Thames.	Thames Water Utilities Limited 2020-2025	Approx. 6.5km from Teddington weir (nearest works location is the Barn Elms site); c. 20km from Spelthorne channel	Decision: DCO granted; Under construction	1	Yes (Within biodiversity ZOI – bats only)
7	TR010021	Silvertown Tunnel. A tunnel under the Thames linking Silvertown to the Greenwich Peninsula in east London.	Transport for London 2020-2025	Approx. 24km from Teddington weir; 33km from Spelthorne channel	Decision: DCO granted; Under construction	1	Yes (Within biodiversity ZOI – bats only)
8	“The North London Heat and Power Generating Station Order”	North London Heat and Power Project - Redeveloping the EcoPark and including an Energy Recovery Facility and recycling facilities.	North London Waste Authority 2019-2030	c. 25km	Decision: DCO granted; Under construction	1	Yes (Within biodiversity ZOI – bats only)
9	N/A (hybrid bill)	High Speed 2 (HS2) High Speed railway from London to Birmingham & Manchester.	High Speed Two Ltd 2017-2026	Various but c. 20km	Approved	1	Yes
10	7210693 / 18/01212/OUT (Note: suggested by council but no EIA)	Shepperton Studios expansion – The redevelopment of Shepperton Studios: demolitions and new builds, new vehicular and pedestrian access from Shepperton Road and the relocation of existing access off Studios Road.	Shepperton Studios	0.85km	Approved	2	Yes
11	RU.22/0374	Thorpe Park Install a rollercoaster along with associated buildings and structures, ground works infrastructure and infilling of part of lake and	Merlin Entertainment Group 2022-2024	0.45km	Planning application submitted	2	Yes

‘Other development’ details							Stage 1
ID	Application Reference	Brief description	Developer + estimated construction period	Distance to Project (closest element)	Status	Tier	Within ZOI? (The ZOI for this scoping stage is the topic study area. Please refer to the relevant Topic Chapter and sub section “ChapterNumber.3.3” with relevant drawing referenced therein)
		landscaping following the demolition of existing buildings and structures.					
12	21/2758/FUL	Twickenham Riverside Scheme Demolition of existing structures; mixed use redevelopment of the site including residential and landscaping: floating pontoon and floating ecosystems, alterations to highway layout and parking provision and other relevant works.	London Borough of Richmond-upon-Thames	c. 30km	Assessment	3	Yes
13	21/03939/FUL / PP-10416630	Surrey County Hall Refurbishment, restoration and extension of Surrey County Hall (Grade II*)	Royal Borough of Kingston Upon Thames	c. 1.5km	Pending consideration	3	Yes
14	SP21/01831/SCC (Surrey CC Ref: SCC Ref 2019/0215)	Extraction of sand and gravel from King George VI reservoir and transportation by conveyor to Hithermoor Quarry for processing; retention and use of existing processing plant; continuation of wet and dry recycling of construction demolition and excavation waste including windfall aggregate, retention and use of the Hydraulically Bound Material plant and creation of temporary bunds together with retention and use of offices, welfare facilities, HGV parking with retention and use of the existing haul road and access from Leylands Lane; with restoration of Lower Mill Farm voids to nature conservation; and of Hithermoor Quarry to nature conservation, public access and agricultural use.	Brett Aggregates Ltd.	2.2km away from Runnymede Channel	Consultation	3	Yes
15	(Surrey CC Ref 2009/0015)	Mineral extraction together with the erection of processing plant and associated ancillary infrastructure, mineral processing and concrete production, the provision of a new roundabout access into Stroude Road and the restoration of the site to open grazed parkland and grassland	Hanson Quarry Products Europe Ltd.	1.8km away from Runnymede channel	Consultation	3	Yes

‘Other development’ details							Stage 1
ID	Application Reference	Brief description	Developer + estimated construction period	Distance to Project (closest element)	Status	Tier	Within ZOI? (The ZOI for this scoping stage is the topic study area. Please refer to the relevant Topic Chapter and sub section “ChapterNumber.3.3” with relevant drawing referenced therein)
		through the importation of inert materials on a site of some 57 Ha.					
16	(Surrey CC Ref 2021/0023)	Extraction of sand and gravel from land at Whitehall Farm together with the erection of processing plant and associated mineral infrastructure, the provision of a new access from Stroude Road, restoration involving the importation of inert materials to agriculture, parkland, wet grassland, reedbeds, and new woodland on a site of approximately 38 Ha, and the temporary closure of footpath 64, and permanent diversion of footpath 39.	CEMEX UK Operations Ltd 2021-2030	2.3km to Runnymede Channel	Consultation	3	Yes
17	(Surrey CC Ref 2021/0013) / (Surrey CC Ref 2021/0030) / (Surrey CC Ref 2020/0052)	Installation of a concrete screed plant including silo, water tank, batch tower and aggregate storage bin for use in connection with existing concrete batching plant at Queen Mary Quarry (retrospective).	Brett Aggregates Ltd. 2021-2024	2.2km to Laleham Reach HCA	Consultation	3	Yes
18	(Surrey CC Ref 2012/0061)	Extraction of sand and gravel and restoration to landscaped lakes for nature conservation after use at Manor Farm, Laleham and provision of a dedicated area on land at Manor Farm adjacent to Buckland School for nature conservation study; processing of the sand and gravel in the existing Queen Mary Quarry (QMQ) processing plant and retention of the processing plant for the duration of operations; erection of a concrete batching plant and an aggregate bagging plant within the existing QMQ aggregate processing and stockpiling areas; installation of a field conveyor for the transportation of mineral and use for the transportation of mineral from Manor Farm to the QMQ processing plant; and construction of a tunnel beneath the Ashford	Brett Aggregates Ltd. 2015-	0.3km to Laleham Reach HCA	Determined - Approval	1	Yes

'Other development' details							Stage 1
ID	Application Reference	Brief description	Developer + estimated construction period	Distance to Project (closest element)	Status	Tier	Within ZOI? (The ZOI for this scoping stage is the topic study area. Please refer to the relevant Topic Chapter and sub section "ChapterNumber.3.3" with relevant drawing referenced therein)
		Road to accommodate a conveyor link between Manor Farm and QMQ for the transportation of mineral.					
19	Surrey CC Ref 2019/0099 / SCC Ref 2020/0049	Land at Queen Mary Quarry, west of Queen Mary Reservoir, Ashford Road, Laleham, Staines - Construction of a new double weighbridge and office building and the subsequent demolition of the existing double weighbridge and office building.	Brett Aggregates Ltd. 2019-2033	2.2km to Laleham Reach HCA	Determined - Approval	1	Yes
20	Surrey CC Ref 2021/0141	Manor Farm Quarry, Ashford Road, Laleham - Section 73 planning application to vary conditions 2, 44 and 48 of planning permission SP/2012/01132 for the extraction of sand and gravel at Manor Farm Quarry including ancillary development and the restoration of the site.	Brett Aggregates Ltd. 2021-	0.32km to Laleham Reach HCA	Opinion issued	3	Yes
21	Surrey CC Ref 2012/0173	Watersplash Farm Quarry, Gaston Bridge Road, Shepperton - Proposed extraction of concreting aggregate from land at Watersplash Farm together with the erection of processing plant and associated mineral infrastructure, the provision of a new access from the Gaston Bridge Road/Green Lane roundabout, restoration involving the importation of inert restoration materials to agriculture, flood meadows, lake and reed beds with public access, on a site of 28 ha, and temporary diversion of public footpath 53 for the duration of operations.	Cemex UK Operations Ltd 2020 + 5 years mineral extraction + 6 years restoration	0.95km to Desborough Island HCA	Determined – Approval	3	Yes
22	Surrey CC Ref 2021/0124	Shepperton Quarry, Littleton Lane, Shepperton - The continued restoration of the former mineral workings without compliance with planning permission ref: STA789/6 dated 19 August 1955 as amended by decision ref: SP98/0643 dated 28 February 2012 to extend the duration of time and	Brett Aggregates Ltd. 2021-	Land East of Littleton North. Site of RTS Temporary Material Processing Site.	Consultation	3	Yes

‘Other development’ details							Stage 1
ID	Application Reference	Brief description	Developer + estimated construction period	Distance to Project (closest element)	Status	Tier	Within ZOI? (The ZOI for this scoping stage is the topic study area. Please refer to the relevant Topic Chapter and sub section “ChapterNumber.3.3” with relevant drawing referenced therein)
		to amend the restoration plan set out in Conditions 1, 2 and 22 of SP98/0643.					
23	Surrey Minerals Plan Primary Aggregates Development Plan 2009-2026.	Hamm Court Farm, Addlestone, Weybridge - This is the indicative area of any future mineral development and will be refined at the planning application stage. The area is approximately 26ha and would give an estimated yield of 0.78 million tonnes of concreting aggregate (this includes 150,000t of variable silty sand and gravel).	Unknown	0.46km from Land South of Chertsey Road HCA.	Not submitted	3	Yes



The River Thames Scheme, delivered in a partnership led by the Environment Agency and Surrey County Council, will reduce flood risk for residents and businesses and improve the surrounding area.



Appendix M

Summary of relevant legislation, policy and guidance

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1 Introduction

- 1.1.1.1 This Appendix summarises the key legislation, policy and guidance relevant to each of the environmental topics proposed to be ‘scoped in’ to the Environmental Impact Assessment (EIA) for the River Thames Scheme (RTS) (‘the project’).
- 1.1.1.2 Chapter 2 of the Scoping Report (Legislative and Policy Context) outlines the broader legislation and policy of relevance to the project, including those against which the Development Consent Order (DCO) will be assessed.
- 1.1.1.3 Where guidance has been used to inform the proposed assessment methodology, this is outlined within the relevant chapters.
- 1.1.1.4 Legislation, policy and guidance is subject to change and development, therefore the relevant status of those outlined within the Scoping Report (including this appendix) will be reviewed during the preparation of the Preliminary Environmental Information Report (PEIR) and Environmental Statement (ES).

2 Development Plan Documents relevant to RTS

- 2.1.1.1 The following adopted plans, emerging plans, supplementary planning documents and other guiding documents have been identified as being potentially relevant to the project. Further detail regarding specific policies of key relevance to the project, split by environmental topic, is provided within Section 4 of this Appendix.

2.1.1 Surrey County Council

Adopted plans

- Surrey Minerals Plan 2011 Core Strategy Development Plan Document (DPD) 2011 (adopted 2011);
- Surrey Minerals Plan 2011 Primary Aggregates DPD (adopted 2011);
- Surrey Waste Local Plan (adopted 2020); and

- Surrey Aggregates Joint Development Plan Document for the Minerals and Waste Plans (adopted 2013).

Emerging plans

- Surrey emerging Minerals and Waste Local Plan (to supersede the Surrey Minerals Plan 2011 (and associated Development Plan Documents) and the Surrey Waste Local Plan 2019-2033).

Supplementary Planning Documents (SPDs)

- Surrey Design Guide 2002.

Other relevant documents

- Surrey Local Transport Plan 4 2022-2032 (adopted 2022);
- Surrey Nature Partnership 2022; and
- Surrey Climate Change Strategy 2020 (adopted 2020).

2.1.2 Greater London Authority

Adopted plans

- London Plan 2021 (adopted 2021).

2.1.3 Runnymede Borough Council

Adopted plans

- Runnymede 2030 Local Plan (adopted 2020); and
- Thorpe Neighbourhood Development Plan 2015-2030 (adopted 2021).

Supplementary Planning Documents

- Infrastructure Delivery and Prioritisation SPD (November 2021);
- Runnymede Design SPD (July 2021);
- Thames Basin Heaths SPD (April 2021); and
- Green and Blue Infrastructure SPD (November 2021).

Other relevant documents

- Car Parking Supplementary Planning Guidance (2021);
- Trees, Woodland and Hedgerows Supplementary Planning Guidance (2003); and
- Vehicular, cycle and electric vehicle parking guidance for new development (November, 2021).

2.1.4 Spelthorne Borough Council

Adopted plans

- Spelthorne Borough Council Core Strategy and Policies Development Plan Document (adopted 2009);
- Allocations DPD (adopted 2009);
- Adopted Proposals Map (adopted 2009); and
- Local Plan 2001 Saved Policies (updated 2009).

Emerging plans

- Spelthorne Borough Council Emerging Local Plan 2022-2037 (to supersede the current adopted plan documents noted above).

Supplementary Planning Documents

- Flooding SPD (2012).

2.1.5 Royal Borough of Windsor and Maidenhead

Adopted plans

- Royal Borough of Windsor and Maidenhead Local Plan 2013-2033 (adopted 2022); and
- Horton and Wraysbury Neighbourhood Plan 2018-2033 (adopted 2020).

Supplementary Planning Documents

- Borough Wide Design Guide SPD (June 2020);
- Thames Basin Heaths SPA SPD (adopted 2018);
- Sustainable Design and Construction SPD (adopted 2009); and
- Datchet Design Guide SPD (adopted 2021).

Other documents

- Royal Borough of Windsor and Maidenhead Local Flood Risk Management Strategy (LFRMS) 2015;
- Royal Borough of Windsor and Maidenhead Level 1 2017 and Level 2 2018 Strategic Flood Risk Assessments; and
- Royal Borough of Windsor and Maidenhead Local Transport Plan 3 2012.

2.1.6 Elmbridge Borough Council

Adopted plans

- Elmbridge Borough Council Core Strategy 2011 (adopted 2011); and

- Elmbridge Borough Council Development Management Plan 2015 (adopted 2015).

Emerging plans

- Elmbridge Borough Council emerging Draft Local Plan 2022-2037 (to supersede the Core Strategy 2011 and the Development Management Plan 2015).

Supplementary Planning Documents

- Design and Character SPD and map (adopted 2012);
- Development contributions SPD (adopted 2020);
- Flood Risk SPD (adopted 2016); and
- Parking SPD (adopted 2020).

2.1.7 London Borough of Richmond upon Thames

Adopted plans

- London Borough of Richmond upon Thames Local Plan 2018 (amended 2020);
- Twickenham Area Action Plan (adopted 2013);
- Ham and Petersham Neighbourhood Plan (adopted 2018); and
- West London Waste Plan (adopted 2015) (joint waste plan for seven London Boroughs, including the London Borough of Richmond upon Thames) .

Emerging plans

- London Borough of Richmond upon Thames emerging Draft Local Plan 2021 (to supersede the Local Plan 2018).

Supplementary Planning Documents

- Air Quality SPD (adopted 2020);
- Design Quality SPD (adopted 2006);
- Development Control for Noise Generating and Noise Sensitive Development (adopted 2018);
- Refuse and Recycling Storage Requirements (adopted 2015);
- Sustainable Construction Checklist (adopted 2020); and
- Transport (adopted 2020).

Other documents

- London Borough of Richmond upon Thames Surface Water Management Plan (adopted 2021);

- Construction Management Plan – guidance notes and template 2021;
- Planning Guidance Document Delivering SuDS in Richmond (adopted 2015);
- Supplementary Planning Guidance on redevelopment of potentially contaminated sites (adopted 2003);
- Planning information for Conservation Areas (adopted 2002);
- Listed Buildings SPG (2015);
- Design guidelines for nature conservation and development SPD;
- Design guidelines for trees: Landscape design, planting and care SPG (1999);
- Trees: Legislation and Procedures SPG (1999).

2.1.8 Royal Borough of Kingston upon Thames

Adopted plans

- Royal Borough of Kingston upon Thames Local Development Framework Core Strategy (adopted 2012);
- Kingston Town Centre Area Action Plan (adopted 2008); and
- South London Waste Plan (adopted 2012).

Emerging plans

- Kingston Local Plan 2019 – 2041 (once adopted will replace the Royal Borough of Kingston upon Thames Local Development Framework Core Strategy and Kingston Town Centre Area Action Plan).

Other documents

- Access for all (adopted 2005);
- Riverside Public Realm (adopted 2018); and
- Sustainable Transport (adopted 2013).

3 Other relevant plans and guidance documents

3.1.1.1 Other plans which are likely to be relevant to the project are listed below. Those which are relevant to specific environmental topics are noted in Section 4 of this appendix.

- Greater London Authority London Environment Strategy (2018);

- Manual for Streets (2007);
- Manual for Streets 2 (2010);
- Greater London Mayor's Transport Strategy (2018b);
- Souder City: Greater London Authority Mayor's London Ambient Noise Strategy 2004;
- London Invasive Species Initiative 2014;
- Thames River Basin Management Plan 2009 and 2015;
- Thames Estuary 2100 Plan (TE2100) 2011;
- Thames Catchment Flood Management Plan (CFMP) 2009;
- Thames River Basin District Flood Risk Management Plan 2016; and
- Environment Agency: Reaching Net Zero by 2030.

4 Summary of relevant legislation, policy and guidance relevant to each environmental topic

4.1 General

The general legislative and policy context for the project is set out in Chapter 2 of the Scoping Report. This Section outlines legislation specific to each individual topic and the key policies likely to be of relevance to the EIA.

4.2 Air Quality

4.2.1 Legislation

4.2.1.1 Legislation relating to Air Quality and pertinent to the project comprises:

- Regulation 5 of the Infrastructure Planning (EIA) Regulations 2017 ('the EIA Regulations') requires EIAs to identify, describe and assess in an appropriate manner the effects of the RTS on "air." Schedule 4 provides greater detail on the information to be included in the Environmental Statement.
- The AQSs are defined in the Air Quality Standards Regulations 2010 as amended. The AQOs are derived from the Air Quality (England) Regulations 2000 as amended. The Air Quality Standards Regulations 2010 (as amended) transpose requirements from the EU Ambient Air Quality Directive.

- The Environment Act 1995 requires all LPAs to carry out periodic reviews of air quality within their administrative areas and declare Air Quality Management Areas (AQMA) where standards are exceeded.
- The Environment Act 2021 makes some modifications to the process which LPAs must follow regarding the declaration of AQMAs and monitoring progress to improve air quality. It also requires for legislation to be adopted setting an air quality ‘target’ for PM2.5 before October 2022.
- Conservation of Habitats and Species Regulations (2017).

4.2.2 National Policy

4.2.2.1 National planning policy relating to Air Quality and pertinent to the project comprises:

- The Draft NPS for Water Resources Infrastructure (Defra, 2018), establishes the requirements for air quality assessments and the procedures which applicants should follow to secure mitigation to ensure air quality thresholds are not breached. It indicates that an air quality assessment should be included as part of the ES and considerations are particularly relevant where water resources infrastructure are proposed within or adjacent to AQMAs or any roads which exceed limit values, or where they could potentially impact Natura sites. It also includes sections relating to dust and odour;
- National Planning Policy Framework (NPPF) (2021). Paragraphs relevant to air quality include: 174 and 186 (which sit under Section 15 of the NPPF);
- Paragraph 174 of the NPPF states: “Planning policies and decisions should contribute to and enhance the natural and local environment by... preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions....”;
- Paragraph 186 of the NPPF states: “Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of AQMAs and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be

considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in AQMAs and Clean Air Zones is consistent with the local air quality action plan”; and

- Air Quality Planning Practice Guidance (PPG) (2019) supports the NPPF by including recommendations on the scope of an air quality assessment, explaining that the assessments should consider any potential adverse impacts on biodiversity or sites designated for their biodiversity value.

4.2.3 Local and regional planning policy

4.2.3.1 Local and regional planning policies relating to Air Quality and pertinent to the project are:

- London Plan (2021), Policy SI1: Improving Air Quality;
- Runnymede Borough Council Local Plan 2030. Policy EE2: Environmental Protection;
- Spelthorne Borough Council Core Strategy and Policies Development Plan Document (2009) Policy EN3: Air Quality;
- Elmbridge Borough Council Core Strategy (2011). Policy: CS25: Travel and Accessibility;
- London Borough of Richmond Upon Thames Local Plan. Policy LP10: Local Environmental impacts, Pollution and Contamination;
- London Borough of Kingston Upon Thames, Core Strategy Policy CS1: Climate Change mitigation; and
- Royal Borough of Windsor and Maidenhead Local Plan 2013 – 2033. Policy EP2: Air Pollution.

4.2.4 Guidance

4.2.4.1 Industry guidance relevant to Air Quality and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Air Quality Chapter of the Scoping Report.

- Local Air Quality Management Technical Guidance (Defra, 2016) ('TG16');
- The Environmental Protection UK (EPUK) and the Institute of Air Quality Management's (IAQM) Land-Use Planning & Development Control: Planning for Air Quality (Moorcroft *et al.*, 2017) ('the EPUK-IAQM guidance');

- Design Manual for Roads and Bridges, (Highways England *et al.* 2019): LA 105 Air quality ('the DMRB guidance');
- Institute of Air Quality Management (IAQM) (2018) Guidance on Monitoring in The Vicinity of Demolition & Construction Sites ('the IAQM 2018 guidance');
- Institute of Air Quality Management (IAQM) (2020) Guide to the Assessment of Air Quality Impacts on Designated Nature Conservation Sites 2020 ('the IAQM 2020 guidance');
- The Mayor of London's (2014) Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance ('the MOL SPG');
- The Natural England (2016) guidance on The Ecological Effects of Air Pollution From Road Transport: An Updated Review;
- Mayor of London's London Plan Guidance: Air Quality Neutral Consultation Draft (2021); and
- Mayor of London's London Plan Guidance: Air Quality Positive, consultation draft (2021).

4.3 Biodiversity

4.3.1 Legislation

4.3.1.1 Legislation relating to Biodiversity and pertinent to the project comprises:

- Countryside and Rights of Way Act (2000), offers protection to public rights of way, increases the protection for SSSIs and strengthens wildlife enforcement legislation;
- Convention on Wetlands of International Importance as Waterfowl Habitat 1975 ('Ramsar Convention' or 'Wetlands Convention');
- Conservation of Habitats and Species Regulations (2017), as amended by the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 imposes a duty on operating authorities to maintain the integrity of sites designated for nature conservation importance;
- EU Regulation 1143/2014 on Invasive Alien Species (IAS);
- Habitat and Birds Directive 1992 - ensures the conservation of a wide range of rare, threatened, or endemic animal and plant species which are listed in the annexes within the Directive and protected in various ways;
- The Invasive Alien Species (Enforcement and Permitting) Order 2019 (SI 527/2019) gives effect to EU regulations on the prevention and management of the spread of invasive alien species;

- Protection of Badgers Act 1992 - prohibits the deliberate killing, injuring, or capturing of a wild badger; and any interfering with badger setts (and the attempt to do so);
- Public Health (Control of Disease) Act 1984 Part II, classes some aquatic pathogens as notifiable diseases;
- Salmon and Freshwater Fisheries Act 1975 - provides protection of salmonid and freshwater species, and their migration routes;
- Section 41 of the Natural Environment and Rural Communities Act (NERC) 2006 – this Act mirrors the obligation to enhance biodiversity stated in the NPPF and Environment Act;
- The Environment Act 2021 - aims to improve air and water quality, tackle waste, improve biodiversity and make other environmental improvements;
- The Eels (England and Wales) Regulations 2009 – afford powers to the Environment Agency to implement measures for the recovery of eel stocks, and have implications for operators of abstractions and discharges such that they must provide and maintain safe passage (e.g., screening of intakes, eel passes);
- The Keeping and Introduction of Fish (England and River Esk Catchment Area) Regulations 2015;
- The Hedgerow Regulations 1997 - provides important protection to hedgerows by prohibiting the removal of most countryside hedgerows (or parts of them) and protecting them from destruction or damage;
- Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 - which transport the Water Framework Directive into domestic law in order to promote sustainable water use and contribute to the mitigation of floods and droughts;
- Wild Mammals Act 1996 - makes it an offense for any person to mutilate, kick, beat, nail or otherwise impale, stab, burn, stone, crush, drown, drag or asphyxiate any wild mammal with intent to inflict unnecessary suffering; and
- Wildlife and Countryside Act (as amended) 1981 - consolidates and amends several pieces of national legislation and is the principle mechanism for the legislative protection of wildlife in the UK. The Act makes it an offence to disturb, injure or kill listed species of flora and fauna.

4.3.2 National Policy

- 4.3.2.1 National planning policy relating to Biodiversity and pertinent to the project comprises:

- Section 4.3 of the Draft NPS for Water Resources Infrastructure (Defra, 2018) relates to ‘Biodiversity and Nature Conservation’ and is relevant to the assessment of biodiversity;
- National Planning Policy Framework (NPPF) (2021). Paragraphs relevant to biodiversity include Section 15: paragraphs 174, 175, 179, and 180 Section 17 paragraph 211;
- A Green Future: Our 25 Year Plan to Improve the Environment “includes policies related to the concept of ‘environmental net gain’, improving woodlands, protecting and recovering nature and protecting biodiversity at the national and international level;
- Biodiversity 2020 Strategy – the UK Biodiversity Action Plan (UKBAP) (1994 – 2020) has been superseded by the UK post 2010 Biodiversity Framework covering the period 2011 – 2020. The Government’s 25 year Environment Plan acts as the current goal-setting document to inform a refreshed adjustment of the BOA objectives, pursuant to Section 9 of the Environment Act. Under its Goal 3 of the 25-year plan: “Thriving plants & wildlife”, the plan includes various targets related to biodiversity to be achieved by 2042. Surrey Nature Partnership Biodiversity Opportunity Area (BOA) identifies the River Thames as a BOA (R01-06) and also important terrestrial habitats which are defined under National Character Area (NCA) NC15. The BOA Policy statements most applicable to the scheme include TV03: Staines Moor & Shortwood Common and TV04: Thorpe and Shepperton;
- Thames River Basin Management Plan (RBMP) (2015) and draft plan (2021) - details the WFD aims and objectives for the River Thames Catchment.

4.3.2.2 The PEIR / ES will take in to account the progress of any Local Nature Recovery Strategies that are brought forward.

4.3.3 Local and regional planning policy

4.3.3.1 Local and regional planning policies relating to Biodiversity and pertinent to the project are:

- Surrey Waste Local Plan (2019-2033). Relevant policies include Policy DC2: Planning Designations and Policy DC3 General Considerations;
- Surrey Emerging Surrey Waste Local Plan. Relevant policies include Policy 13: Sustainable Design and Policy 14: Protecting Communities and the Environment;

- Surrey County Council, Surrey Minerals Plan Core Strategy 2011. Relevant policies include Policy MC2 Spatial Strategy, protection of key interests in Surrey and Policy MC14 Reducing the adverse impacts of minerals development;
- London Plan 2021. Relevant policies include: GG2 making the best use of land; D8 Public Realm; S5 Sports and recreation facilities; G6 Biodiversity and access to nature; G7 Trees and Woodlands; SI 13 Sustainable Drainage; SI17 Protecting and enhancing London's waterways;
- London Environment Strategy (2018), in particular Chapter 5: Green Infrastructure;
- London Invasive Species Initiative (2014);
- Runnymede Borough Council Local Plan 2030. Relevant policies include: EE9 Biodiversity, Geodiversity and Nature Conservation; EE10 Thames Basin heaths Special Protection Area; EE11 Green Infrastructure; EE12 Blue Infrastructure; IE4 The Visitor Economy; SD7 Sustainable Design; and SL25 Existing Open Space;
- Spelthorne Borough Council Core Strategy and Policies Development Plan Document (under consultation, 2009). Relevant policies include: EN7 Tree Protection; EN8 Protecting and Improving the Landscape and Biodiversity; EN9 River Thames and its Tributaries;
- Spelthorne Emerging Local Plan (2020-2035) which will supersede the 2009 Core Strategy. Relevant Policies include Policy E1 Green and Blue Infrastructure, Policy E2: Biodiversity and Policy E4: Environmental Protection;
- Elmbridge Borough Council Core Strategy (2011). Relevant policies include: CS14 Green Infrastructure; CS15 Biodiversity; CS17 Local Character, Density and Design;
- Elmbridge Borough Council emerging Draft Local Plan 2022 – 2037, Policy ENV1: Green and Blue Infrastructure, Policy ENV2: Trees and Hedgerows and Policy ENV6: Biodiversity;
- London Borough of Richmond Upon Thames Local Plan (2018). Relevant policies include: LP 9 Floodlighting; LP 13 Green Belt Metropolitan Open Land and Local Green Space; LP15 Biodiversity; LP 16 Trees, Woodlands and Landscape;
- London Borough of Kingston Upon Thames Core Strategy (2012). Relevant policies include: CS4 River Thames Corridor, Tributaries and the Riverside; DM5 Green belt, Metropolitan Open Land and Open Space Needs; DM 6 Biodiversity; DM 7 Thames Policy Area;
- London Borough of Kingston Upon Thames New Local Plan 2013-2033 (emerging). Relevant policies include: NR2 Nature

- Conservation and Biodiversity; NR3 Trees, Woodlands and Hedgerows; and
- Royal Borough of Windsor and Maidenhead Local Plan 2021 – 2033 (2013). Relevant policies include Policy NR2: Nature Conservation and Biodiversity, Policy NR3: Trees, Woodlands and Hedgerows and Policy EP1: Environmental Protection.

4.3.4 Guidance

4.3.4.1 Industry guidance relevant to Biodiversity and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Biodiversity Chapter of the Scoping Report.

- PINS Advice Note Ten: Habitats Regulations Assessment (HRA) relevant to Nationally Significant Infrastructure Projects, August 2022 (version 9);
- PINS Advice Note Eleven: Working with public bodies in the infrastructure planning process 2017 (version 4);
- Planning Practice Guidance (2019) Natural Environment, explains key issues in implementing policy to protect and enhance the natural environment, including local requirements;
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2018) guidelines for EclA in the UK and Ireland for Terrestrial, Freshwater, Coastal and Marine Environments;
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2017) Guidelines for Preliminary Ecological Appraisal (PEA);
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2017) Guidelines for Ecological Report Writing;
- Chartered Institute of Ecology and Environmental Management (CIEEM) (2019) Advice note on the Lifespan of Ecological Reports and Surveys;
- UKTAG (2013) UK Technical Advisory Group on WFD: Guidance on the Assessment of Alien Species Pressures; and
- UKTAG (2015) UK Technical Advisory Group on the WFD: Classification of alien species according to their level of impact.

4.4 Climatic Factors

4.4.1 Legislation

4.4.1.1 Legislation relating to Climatic Factors and pertinent to the project comprises:

- The EIA Regulations require consideration of 'the impact of the project on climate', and 'the vulnerability of the project to climate change' (Schedule 4, paragraph 5(f));
- The Climate Change Act 2008 (2050 Target Amendment) Order 2019 sets up a framework for the UK to achieve its long-term goals of reducing GHG emissions by 100% by 2050 over the 1990 baseline and to ensure steps are taken towards adapting to the impact of climate change. A 2020 target has also been set to reduce emissions by 34% over the 1990 baseline which has been met with a 49.7% reduction (Department for Business, Energy & Industrial Strategy, 2022). The Act introduces a system of carbon budgeting which constrains the total amount of emissions in a given time period and sets out a procedure for assessing the risks of the impact of climate change for the UK, and a requirement on the Government to develop an adaptation programme;
- The Act introduced new powers and duties on climate change adaptation and mitigation. For adaptation it established a:
 - UK-wide Climate Change Risk Assessment that must take place every five years;
 - National Adaptation Programme which must be put in place and reviewed every five years to address the most pressing climate change risks;
 - Government power to require 'bodies with functions of a public nature' and 'statutory undertakers' - for example, water and energy utilities - to report on how they have assessed the risks of climate change to their work, and their response; and
 - Adaptation Sub-Committee of the independent Committee on Climate Change (CCC) in order to oversee progress on the national programme and advise on the risk assessment;
- Third UK Climate Change Risk Assessment (CCRA3) (HM Government, 2022) and supporting evidence report has recently been published to support the Climate Change Act. It provides a summary of the most significant risk pathways modelled in the CCRA3 Interacting Risks project pertaining to infrastructure. The aim

of the Interacting Risks project was to undertake an examination of how to represent and model interacting climate change risks between infrastructure, the built environment and the natural environment. The modelling is to examine the scale and range of impacts across different spatial scales (Munday, 2020). Technical Report chapters are also available for 'Natural Environment and Assets', 'Health, Communities and the Built Environment', and 'Business and Industry', which can all relate in some way to the project, and these risks will be considered in the assessment.

2.1.1.1 The Planning Act (2008, Section 10(3)(a)) requires the Secretary of State to have regard to the desirability of mitigating, and adapting to, climate change in designating an NPS. This has led to the drafting of the NPS for Water Resources Infrastructure, described in Section 4.4.2 below. For mitigation, the Act sets out Carbon targets and budgeting to achieve net zero by 2050. These include:

- Carbon budgets divided into sectors, set in increments of five years. These budgets are used as targets for the maximum amount of carbon which can be emitted during these periods;
- A duty from the Secretary of State to set out an indicative annual range for the net UK carbon account for each year and report on proposals and policies for meeting carbon budgets; and
- An annual statement of UK emissions is also provided, highlighting UK GHG emissions/removals, methods used to measure GHG emissions and comparisons to the targets that have been set.

4.4.2 National Policy

4.4.2.1 National planning policy relating to Climatic Factors and pertinent to the project comprises:

- The Draft NPS for Water Resources Infrastructure (Defra, 2018) states that the “applicant should provide evidence of the carbon impact of the project (including embodied carbon), both from construction and operation, such that it can be assessed against the government’s carbon obligations, including but not limited to carbon budgets”. Although the project does not fall under this policy, the guidance is considered useful and worth acknowledging during the assessment;
- National Planning Policy Framework (NPPF) (2021) paragraphs 8, 98, 131 and 152-158. The NPPF describes ways in which the challenge of climate change can be met (new development should

- be planned for in ways that “avoid increased vulnerability” and can help to reduce GHG emissions);
- Planning Practice Guidance (2019) provides advice to LPAs and developers on aspects such as how to integrate mitigation and resilience measures and how to deal with the uncertainties associated with climate change; and
 - The Flood and Coastal Erosion Risk Management Policy Statement (2020) sets out the Government's ambition to create a nation that is more resilient to future flood risk and reduces the risk of harm to people, the environment and the economy. The expansion of national flood defences and infrastructure is one of the policy areas. The Policy Statement also sets out the need to take a catchment-based approach to flood risk. The Policy Statement considers NICs Assessment of Resilient Infrastructure Systems which sets out a detailed framework for resilience. In articulating a national strategy of resilience identified in this Assessment, the NIC placed flood defence programmes high in its order of priorities of meeting government's resilience standards.

4.4.3 Local and regional planning policy

4.4.3.1 Local and regional planning policies relating to Climatic Factors and pertinent to the project are:

- Surrey County Council, Climate Change Strategy provides a joint framework for collaborative action on climate change mitigation and adaptation across Surrey's local authorities and other partners;
- Surrey County Council, Surrey Greener Futures Climate Change Delivery Plan (2012-2025);
- Surrey County Council, Local Transport Plan 4 (LPT4) 2022 – 2032 (2021) aims to reduce the 46% of carbon emissions currently generated by transport in Surrey by 2030;
- Surrey County Council, Surrey Waste Local Plan 2019-2033 aims to minimise GHG emissions, including through energy efficiency in waste facilities, and ensure resilience and enable adaptation to a changing climate;
- London Plan (2021). Relevant policies include: GG6 Increasing efficiency and resilience; G1 green Infrastructure; G5 Urban greening; G7 Trees and Woodlands; SI2 Minimising GHG emissions;
- The Mayor's London Environmental Strategy includes details on the importance of green infrastructure and how this has multiple benefits, including climate change resilience. It also describes

measures to reduce the use of natural resources and enhance the low carbon circular economy;

- The Mayor's Transport Strategy (2018) promotes ways to reduce the usage of private vehicles, strategies for construction trips consolidation, promotion of electric vehicles, etc;
- Runnymede Borough Council Local Plan 2030. Relevant policies include Policy SD7 Sustainable Design and Policy SD8 Renewable and Low Carbon Energy and Policy EE13 Managing Flood Risk;
- Spelthorne Borough Council Current Development Plan (2009). Relevant policies include Policy SP7: Climate Change and Transport and Policy CC1 Renewable Energy, Energy Conservation and Sustainable Construction;
- Spelthorne Borough Council Emerging Local Plan 2022-2037. Relevant Policies include Policy PS1: Responding to the Climate Emergency;
- Elmbridge Borough Council emerging Draft Local Plan 2022-2037. Relevant policies include Policy CC1 Energy Efficiency, renewable and low carbon energy;
- London Borough of Richmond Upon Thames Local Plan. Relevant policies include Policy LP20 Climate Change Adaption and Policy LP22 Sustainable Design and Construction;
- London Borough of Kingston Upon Thames Core Strategy. Relevant policies include Policy DM1 Sustainable Design and Construction, Policy DM2 Low Carbon Development and Policy DM3 Designing for Changing Climate;
- Royal Borough of Windsor and Maidenhead Local Plan 2003 includes a chapter on 'environment' but there are no specific climate change policies; and
- Royal Borough of Windsor and Maidenhead Borough Local Plan 2013-2033 (2018) includes an objective to ensure new development takes account of the need to mitigate climate change and biodiversity loss.

4.4.4 Guidance

4.4.4.1 Industry guidance relevant to Climatic Factors and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Climatic Factors Chapter of the Scoping Report.

- Assessing Greenhouse Gas Emissions and Evaluating their Significance (IEMA, 2022);

- PAS2080: 2016 Carbon Management in infrastructure guidance (Construction Leadership Council, 2021);
- The Environment Agency's 'Reaching net zero by 2030' document (Environment Agency, 2021); and
- Climate Change Resilience and Adaptation, (IEMA, 2020d).

4.5 Cultural Heritage, Archaeology and Built Heritage

4.5.1 Legislation

4.5.1.1 Legislation relating to Cultural Heritage, Archaeology and Built Heritage, and pertinent to the project comprises:

- Ancient Monuments and Archaeological Areas Act (1979) defines Scheduled Monuments as sites, which have been selected by a set of non-statutory criteria to be of national importance. Where scheduled sites are affected by development proposals there is a presumption in favour of their physical preservation. Works which affect a Scheduled Monument require Scheduled Monument Consent from the Secretary of State;
- Planning (Listed Buildings and Conservation Areas) Act, 1990, includes a list of buildings (Listed Buildings) of national, regional or local historical and architectural importance which are protected under the Act and afforded protection from physical alteration or effects on their historical setting. Works directly affecting a listed building require Listed Building Consent from the Secretary of State;
- Town and Country Planning (Development Management Procedure) (England) Order 2015 sets out the requirements for statutory consultation procedure relating to designated heritage assets. Historic England (HE) must be consulted on development likely to materially affect a Grade I or II* listed building, the site of a Scheduled Monument and any Grade I or Grade II* garden or park of special historic interest. The Gardens Trust must be consulted in relation to all registered gardens or parks; and
- Hedgerow Regulations 1997 gives protection to hedgerows of historic importance.

4.5.2 National Policy

4.5.2.1 National planning policy relating to Cultural Heritage, Archaeology and Built Heritage and pertinent to the project comprises:

- The Draft NPS for Water Resources Infrastructure (Defra, 2018). Section 4.7 pertains to the historic environment. Section 4.7.1 notes that the construction and operation of water resources infrastructure has the potential to result in adverse impacts on the historic environment, both above, and below the surface. Adverse impacts and the significance of heritage assets could occur directly (through loss of, or harm to assets) or indirectly (through effects on setting);
- National Planning Policy Framework (NPPF) is supported by guidance given in the National PPG and by specific Historic Environment Good Practice Guides issued by Historic England Paragraphs relevant to cultural heritage, archaeology and the built environment include those which sit under Section 16 of the NPPF and 211 (under Section 17); and
- The NPPF identifies Designated Heritage Assets, relevant to the RTS, as Scheduled Monuments, Listed Buildings/Structures, Conservation Areas and Registered Parks and Gardens. Non-Designated Heritage Assets are defined as buildings, sites, monuments, areas, landscapes, or places having a degree of heritage significance but not such as would enable them to meet the criteria for designated heritage assets. The majority of such assets relevant to the RTS comprise either archaeological sites, findspots of historic artefacts or Areas of High Archaeological Potential (AHAP) identified by the Local Authority.

4.5.3 Local and regional planning policy

4.5.3.1 Local and regional planning policies relating to Cultural Heritage, Archaeology and Built Heritage and pertinent to the project are:

- London Plan (2021). Relevant policies include: HC1 Heritage Conservation and Growth; HC3 Strategic and Local Views and HC4 London View Management Framework;
- Runnymede 2030 Local Plan Relevant policies include: EE3 Strategic Heritage Policy; EE4 Listed Buildings; EE3 Conservation Areas; EE6 Parks and gardens of Special Historic Interest; EE7 Scheduled Monuments, County Sites of Archaeological Importance and Areas of High Archaeological Importance; and EE8 Locally Listed and other Non-Designated Heritage Assets;
- Spelthorne Borough Council Local Plan (2001). Relevant policies include: BE20 Buildings of Local Interest; BE21 Conservation Areas; BE22 Archaeology, Ancient Monuments and Historic Landscapes; BE24 Scheduled or Other Nationally Important Monuments and Areas of High Archaeological Importance; BE25

- Areas of High Archaeological Importance; BE26 Other Areas; and BE27 Historic Landscapes and Gardens;
- Spelthorne Borough Council Local Plan 2022-2037 (emerging). Relevant policies include: PS3 Heritage, Conservation and Landscape;
 - Elmbridge Borough Council Core Strategy. Relevant policies include: HEN7 The Setting of a Listed Building; HEN11 Development within a Conservation Area; HEN16 Areas of Archaeological Importance; HEN17 Development within Areas of High Archaeological Importance; and HEN18 Parks and Gardens of Special Historic Interest;
 - London Borough of Richmond Upon Thames Local Plan. Relevant policies include: DM HD 1 Conservation Areas - designation, protection and enhancement; DM HD 2 Conservation of Listed Buildings and Scheduled Ancient Monuments; DM HD 3 Buildings of Townscape Merit; DM HD 4: Archaeological Sites; LP4: Non-Designated Heritage Assets; and LP7: Archaeology;
 - London Borough of Kingston Upon Thames Core Strategy. Relevant policies include: DM 7: Thames Policy Area; DM12 Development in Conservation Areas and Affecting Heritage Assets; and
 - Royal Borough of Windsor and Maidenhead Local Plan 2021 – 2033. Relevant policies include HE1: Historic Environment and HE2 Windsor Castle and Great Park.

4.5.4 Guidance

4.5.4.1 Industry guidance relevant to Cultural Heritage, Archaeology and Built Heritage and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Cultural Heritage, Archaeology and Built Heritage Chapter of the Scoping Report.

- Planning Practice Guidance (2019) Historic Environment, advises on enhancing and conserving the historic environment;
- Historic Environment Good Practice Advice in Planning Guides issued by Historic England;
- Standard and guidance for archaeological field evaluation (ClfA, 2014a);
- Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (ClfA, 2014c);

- Standard and guidance for the collection, documentation, conservation and research of archaeological materials (ClfA, 2014d);
- Code of Conduct (ClfA, 2014a);
- Standards and Guidance for Archaeological Desk-Based Assessments (ClfA, 2020);
- Historic England/Greater London Archaeological Advisory Service (GLAAS). Guidelines for Archaeological Projects in Greater London (Historic England, 2015a);
- Principles of Cultural Heritage Impact Assessment in the UK (IEMA, 2021);
- Management of Research Projects in the Historic Environment, Historic England (Historic England, 2015b);
- Archaeological Archives – A guide to best practice in creation, compilation, transfer and curation [2nd Edition] (Brown, 2011);
- Environmental Archaeology [2nd edition] (Campbell et. al., 2011) 31;
- Preserving Archaeological Remains: Decision-taking for Sites under Development (Historic England 2016);
- Land Contamination and Archaeology (Historic England, 2017);
- The Setting of Heritage Assets. Guidance Note. Historic Environment Good Practice Advice in Planning 3 (Historic England, 2015c);
- Caring for Digital Data in Archaeology: A Guide to Good Practice, (Archaeology Data Service, 2013);
- Geophysical Survey in Archaeological Field Evaluation. (English Heritage, 2008);
- Geoarchaeology: Using Earth Sciences to Understand the Archaeological Record (Historic England, 2015d);
- Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood (English Heritage, 2010); and
- Waterlogged Organic Artefacts: Guidelines on their Recovery, Analysis and Conservation (English Heritage, 2012).

4.6 Flood Risk

4.6.1 Legislation

4.6.1.1 Legislation relating to Flood Risk and pertinent to the project comprises:

- Floods Directive (2007/60/EC) requires Member States to assess if all water courses and coast lines are at risk from flooding, to map the flood extent and to identify the assets and humans at risk in these areas and to take measures to reduce this flood risk;
- The Flood Risk Regulations 2009 transpose the Floods Directive (Directive 2007/60/EC) into domestic law, and require that Preliminary Flood Risk Assessments (PFRAs) are prepared by the Environment Agency and Lead Local Flood Authorities (LLFAs) to identify areas at significant risk of flooding;
- Flood and Water Management Act 2010 provides for better, more comprehensive, management of flood risk for people, sets the requirements for flood risk assessments and defines the roles of those responsible for managing flood risk;
- Water Framework Directive (2000/60/EC) requires member states to produce River Basin Management Plans for RBDs which set out how organisations, stakeholders and communities will work together to improve the water environment. Flood Risk Management Plans (FRMPs) produced by LLFAs and the Environment Agency are produced for the RBDs;
- Water Environment (Water Framework Directive) (England and Wales) Regulations 2017, transport the Water Framework Directive into domestic law in order to promote sustainable water use, and contribute to the mitigation of floods and droughts;
- The Environmental Permitting (England and Wales) Regulations 2016 sets out the legislation regarding permitting for flood risk activities;
- The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009, sets the requirements for the Environment Agency to exercise a general supervision of all matters relating to flood defence and the obligation to carry out flood defence functions through committees;
- Water Act 2003 sets the main licence requirements for transfers, abstractions and impoundment; and
- Land Drainage Act 1991 sets out the requirements and consents required for changes to ordinary watercourses.

4.6.2 National Policy

4.6.2.1 National planning policy relating to Flood Risk and pertinent to the project comprises:

- The Draft NPS for Water Resources Infrastructure (Defra, 2018) in particular Section 4.8 Flood Risk. This requires an applicant to

“identify and assess the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed taking climate change into account... Where the development may be affected by, or may add to, flood risk, the application should seek early consultation with the Environment Agency, and, where relevant, other flood risk management bodies such as lead local flood authorities, Internal Drainage Boards, sewerage undertakers, highways authorities and reservoir owners and operators... When determining an application, the Secretary of State will need to be satisfied that flood risk will not be increased elsewhere, and will only consider development appropriate in areas at risk of flooding where, informed by a flood risk assessment, following the Sequential Test and, if required, the Exception Test, it can be demonstrated that: within the site, the most vulnerable development is located in areas of lowest flood risk, unless there are overriding reasons to prefer a different location; the development is appropriately flood resistant and resilient; it incorporates sustainable drainage systems, unless there is clear evidence that this would be inappropriate; any residual risk can be safely managed.”;

- National Planning Policy Framework (NPPF) (2021). Paragraphs relevant to flood risk include those set under Section 14 (Meeting the challenge of climate change, flooding and coastal change);
- Flood and Coastal Erosion Risk Management Strategy (HM Government, 2020). Relevant policies include: Policy I Upgrading and expanding national flood defences and infrastructure; Policy II: Managing the flow of water more effectively; Policy III Harnessing the power of nature to reduce flood and coastal erosion risk and achieve multiple benefits; Policy IV: Better preparing communities; and Policy V: Enabling more resilient places through a catchment-based approach; and
- National Flood and Coastal Erosion Risk Management Strategy for England (Environment Agency, 2020) sets out the approach to delivering the government’s policies set out in the Flood and Coastal Erosion Risk Management Strategy.

4.6.3 Local and regional planning policy

4.6.3.1 Local and regional planning policies relating to Flood Risk and pertinent to the project are:

- Surrey Waste Local Plan (2019-2033). Relevant policies include Policy DC2: Planning Designations and Policy DC3 General Considerations;

- Surrey Emerging Surrey Waste Local Plan. Relevant policies include Policy 13: Sustainable Design and Policy 14: Protecting Communities and the Environment;
- Surrey County Council, Surrey Local Flood Risk Management Strategy 2017-2032;
- London Plan 2021. Relevant policies include: SI12 - Flood Risk Management; SI13 – Sustainable Drainage; and SI14 – Waterways – Strategic Role;
- The Mayor’s London Environment Strategy (Greater London Authority, 2018);
- The Thames River Basin Management Plan (RBMP), (Environment Agency, 2015) details the WFD aims and objectives for the River Thames Catchment;
- Thames Estuary 2100 Plan, (Environment Agency, 2012). Relevant policies include ‘Policy 3: Continue with existing or alternative actions to manage flood risk’;
- Thames Catchment Flood Management Plan Summary Report (Environment Agency, 2009). Relevant policies include ‘Policy 5: Areas of moderate to high flood risk where we can generally take further action to reduce flood risk’;
- Thames River Basin District Flood Risk Management Plan (2015 – 2021);
- Runnymede Borough Council Local Plan Policy EE13: Managing Flood Risk;
- Spelthorne Borough Council Core Strategy and Policies Development Plan. Relevant policies include: Policy LO1 Flooding;
- Elmbridge Borough Council Core Strategy. Relevant policies include: CS26 Flooding;
- London Borough of Richmond Upon Thames Local Plan. Relevant policies include Policy LP12 Flood Risk and Sustainable Drainage;
- London Borough of Richmond Upon Thames Emerging Local Plan, Policy 8 Flood Risk and Sustainable Drainage;
- London borough of Richmond Upon Thames Surface Water Management Plan (SWMP) (2021);
- London Borough of Kingston Upon Thames Core Strategy. Relevant policies include: DM4 Water Management and Flood Risk; and
- Royal Borough of Windsor and Maidenhead Local Flood Risk Management Strategy: Strategic Environmental Assessment (2015) (2015).

4.6.4 Guidance

4.6.4.1 Industry guidance relevant to Flood Risk and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Flood Risk Chapter of the Scoping Report.

- Planning Practice Guidance – Flood Risk and Coastal Change (2021);
- Technical Guidance to the NPPF;
- Environment Agency Flood and coastal risk projects, schemes and strategies: climate change allowances (Environment Agency, 2021b) (replacing the Environment Agency Guidance: Adapting to climate change: guidance for risk management authorities);
- National Infrastructure Planning Advice Note Eighteen: The Water Framework Directive (2017);
- Surrey County Council PFRA, (2011);
- Surrey County Council PFRA 2017 Addendum (Updating the 2011 assessment) (2017);
- Runnymede 2030 Strategic Flood Risk Assessment (2018);
- SBC Strategic Flood Risk Assessment (,2018);
- EBC Level 1 Strategic Flood Risk Assessment (2019);
- LBRUT PFRA, 2011;
- LBRUT Level 1 Strategic Flood Risk Assessment (2021);
- RBWM Strategic Flood Risk Assessment (Level 1 SFRA) (2017);
- RBWM Level 2 SFRA Plus Sequential Test and Exception Test (2018);
- CIRIA Guidance: Environmental good practice on site guide (fourth edition) (C741) (2015);
- Sustainable Drainage Systems (SUDS) Manual, C753 (2021);
- Assessment of How Strategic Surface Water Management Informs Sustainable Drainage Systems Delivery in Developed Areas Through Spatial Planning and Development Management - WT15125 (2022);
- Sustainable Drainage System Design Guidance (2022);
- Non-statutory technical standards for sustainable drainage systems (2015);
- SuDS Sector Guidance (2021); and
- National Standards for sustainable drainage systems (2022).

4.7 Health

4.7.1 Legislation

4.7.1.1 Aside from the EIA Regulations, there are no legislative requirements, formal guidance or standards as to how effects on human health should be assessed in the UK. However, the Health and Social Care Act (2012) introduced a duty on local authorities to “take such steps as it considers appropriate for improving the health of the people in its area”.

4.7.1.2 A project-level Equality Impact Assessment (EqIA) is also proposed to be undertaken and will accompany the DCO application. The EqIA will focus on assessing the impacts on groups with protected characteristics as defined in the Equality Act 2010.

4.7.2 National Policy

4.7.2.1 National planning policy relating to Health and pertinent to the project comprises:

- The Draft NPS for Water Resources Infrastructure (Defra, 2018). Health is outlined as one of the key principles of the NPS in particular Section 3.12 which states ““The construction and use of water resources infrastructure has the potential to affect people’s health, wellbeing and quality of life. Infrastructure can have direct impacts on health because of traffic, noise, vibration, air quality and emissions, light pollution, community severance, dust, odour, polluting water, hazardous waste and pests. New or enhanced water resources infrastructure may also have indirect health impacts, for example if they affect access to key public services, local transport, opportunities for cycling and walking, or the use of open space for recreation and physical activity (see also Section 4.13). It should be noted that there is potential for increased employment, along with the new recreational opportunities (particularly for reservoirs) that may have indirect positive health impacts”; and
- National Planning Policy Framework (NPPF) (2021). Paragraphs relevant to health include paragraph 92 and others set under Section 8. One of the three main objectives of NPPF is to “*support strong, vibrant and healthy communities*”. Paragraph 92 of the NPPF states that planning policies and decisions should ensure that developments: “*enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible*

green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling.

4.7.3 Local and regional planning policy

4.7.3.1 Local and regional planning policies relating to Health and pertinent to the project are:

- Surrey County Council, Surrey Waste Local Plan 2019 – 2033. Relevant policies include: Policy 13 Sustainable Design and Policy 14 Protecting Communities and the Environment;
- Surrey County Council, Climate Change Strategy (2020) considers health and wellbeing impacts associated with the failure to adapt to climate change. This includes "*Disruption to health, social care and emergency management services and school provision from flooding, heatwaves and storms*" and "*Excess deaths and illness from overheating*". Furthermore, the strategy highlights the importance of tackling climate change by stating "*The potential implications if we do nothing for communities include increased risk of flooding and extreme heat, disruption to our critical infrastructure, networks and industry, and increased risk to our health and wellbeing*";
- London Plan (2021). Relevant policies include Policy GG3: Creating a Healthy City; Policy S2: Health and social care facilities and Policy T2: Healthy Streets;
- Runnymede Borough Council Local Plan 2030. Relevant policies include Policy SL1: Health and Wellbeing and Policy SL25: Existing Open Space;
- Spelthorne Borough Council Core Strategy and Policies 2009 Development Plan. Relevant policies include EN4 Provision of Open Space and Sport and recreation Facilities;
- Elmbridge Borough Council Core Strategy (2011). Relevant policies include CS14 Green Infrastructure;
- London Borough of Richmond Upon Thames Pre-publication Draft Local Plan. Relevant policies include LP 30 Health and Wellbeing;
- London Borough of Richmond Upon Thames Local Plan (2018). Relevant policies include Policy 52 Health and Wellbeing;
- London Borough of Kingston Upon Thames Core Strategy (2012). Relevant policies include Policy DM21 Health Impacts; and
- Royal Borough of Windsor and Maidenhead Borough Local Plan 2013 – 2033. Relevant policies include: Objective 10 Open Space and Leisure, Policy QP1 Climate Change, Policy QP4 River Thames Corridor and Policy EP2 Air Pollution.

4.7.4 Guidance

4.7.4.1 Industry guidance relevant to Health and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Health Chapter of the Scoping Report.

- Planning Practice Guidance (2019) Healthy and Safe Communities;
- The National Planning Practice Guidance (PPG): Healthy and safe communities (2022) provides guidance on promoting healthy and safe communities;
- Design Manual for Roads and Bridges (DMRB) (Highways England *et al.* 2019): Relevant policies include LA 112 Population and Human Health. Whilst the RTS is not a highways project, in the absence of other formal guidance, it is considered that the DMRB provides appropriate guidance and is transferable to other types of project;
- Public Health England (PHE) (now named the UK Health Security Agency ('UKHSA')) – Advice on the content of Environmental Statements accompanying an application under the Nationally Significant Infrastructure Planning Regime (PHE, 2021);
- UKHSA – HIA in spatial planning: A guide for LPA public health and planning teams (PHE, 2020);
- UKHSA – Spatial Planning for Health: An evidence resource for planning and designing healthier places (PHE, 2017);
- National Health Service (NHS) Healthy Urban Development Unit – Rapid HIA Tool (NHS London Healthy Urban Development Unit, 2019);
- IEMA - HIA in Planning (IEMA, 2020);
- Town and Country Planning Association (TCPA) – The State of the Union: Reuniting Health with Planning (TCPA, 2019);
- TCPA – Public Health in Planning: good practice guide (TCPA, 2015); and
- TCPA – Spatial Planning for Health guide (TCPA, 2010).

4.7.4.2 HIA policy and guidance is now being adopted by greater numbers of local authorities, although this typically aligns with the UKHSA and TCPA guidance identified above. Therefore, for brevity in this Scoping Report, a detailed review of this has not been undertaken, although it will be set out in the PEIR. The commentary below outlines whether the relevant councils have (or have not) adopted / emerging policy and guidance:

- **SBC** – currently no known adopted health policy or guidance for Surrey County Council. Surrey County Council are responsible for providing health services in Spelthorne Borough;
- **RBC** – currently no known adopted health policy or guidance for Surrey County Council. Surrey County Council are responsible for providing health services in Runnymede Borough;
- **RBWM** – currently no known adopted health policy or guidance;
- **EBC** – currently no known adopted health policy or guidance for Surrey County Council. Surrey County Council are responsible for providing health services in Elmbridge Borough;
- **LBRUT** – the Council has a ‘Health Impact Assessment’ document published in December 2016. This document provides guidance on HIAs for proposed developments and follows the London Healthy Urban Development Unit guidance (LBRUT, 2016); and
- **RBKUT** – currently no known adopted health policy or guidance. As noted earlier, HIAs are required for all major developments in Kingston, with the London Healthy Urban Development Unit guidance typically being applied.

4.8 Landscape and Visual Amenity

4.8.1 Legislation

4.8.1.1 Legislation relating to Landscape and Visual Amenity and pertinent to the project comprises:

- Environment Act 2021;
- The Wildlife and Countryside Act 1981;
- Countryside and Rights of Way Act 2000; and
- The Thames Conservancy Act 1932.

4.8.2 National Policy

4.8.2.1 National planning policy relating to Landscape and Visual Amenity and pertinent to the project comprises:

- The Draft NPS for Water Resources Infrastructure (Defra, 2018) emphasises the importance of good design within sustainable infrastructure development. The draft NPS states. *“There may be opportunities for the applicant to demonstrate good design in terms of site layout and design measures relative to existing landscape and historical character and function, landscape permeability, landform*

and vegetation whilst integrating biodiversity and nature conservation interests". The document goes on to further highlight the importance of a demonstrable design process that includes stakeholder engagement and transparent optioneering leading to a preferred design. Moreover the draft NPS outlines the importance of assessment of potential landscape and visual impacts of NSIPs (both construction and operational impacts). It also demonstrates the identification of potential mitigation measures. *"The landscape and visual impacts of a proposed water resources NSIP will vary on a case-by-case basis according to the type of infrastructure (including any associated development), its location and the landscape setting of the proposed development. Landscape and visual effects also include tranquillity effects, which would affect people's enjoyment of the natural environment and recreational facilities. In this context, references to landscape should be taken as covering waterscape, seascape and townscape, where appropriate"*; and

- National Planning Policy Framework (NPPF) (2021). Relevant paragraphs are included under Sections 12 (Achieving Well Designed Places), 13 (Protecting Green Belt) and 15 (Conserving and Enhancing the Natural Environment).

4.8.3 Local and regional planning policy

4.8.3.1 Local and regional planning policies relating to Landscape and Visual Amenity and pertinent to the project are:

- London Plan (2021);
- Runnymede Borough Council Local Plan 2030. Relevant policies include: Policy SL1: Health and Wellbeing; Policy EE1: Townscape and Landscape Quality; Policy EE2: Environmental Protection; Policy EE6: Parks and Gardens of Special Historic Interest; Policy EE9: Biodiversity, Geodiversity and Nature Conservation; Policy EE11: Green Infrastructure; Policy EE12: Blue Infrastructure; Policy EE16: Outdoor Sport and Recreation in the Green Belt; and Policy EE19: Change of Use of Land in the Green Belt;
- Spelthorne Borough Council. Relevant policies include: Policy C01: Providing Community Facilities; Policy C02: Provision of Infrastructure for New Development; Policy C03: Provision of Open Space for New Development; Policy EN4: Provision of Open Space for New Development; Policy EN6: Conservation Areas, Historic Landscapes, Parks and Gardens; Policy EN7: Tree Protection; Policy EN8: Protecting and Improving the Landscape and

- Biodiversity; Policy EN9: River Thames and its Tributaries; Policy EN10: Recreational Use of the River Thames; and Policy CC2: Sustainable Travel;
- Elmbridge Borough Council Local Plan. Relevant policies include: DM1 - Presumption in Favour of Sustainable Development; DM2 - Design and Amenity; DM5 – Pollution; DM6 - Landscape and Trees; DM9 - Social and Community Facilities; DM13 - Riverside Development and Uses; DM17 - Green Belt (development of new buildings); DM20 - Open Space and Views; DM21 - Nature Conservation and Biodiversity; and DM22 - Recreational uses of waterways;
 - London Borough of Richmond Upon Thames Local Plan. Relevant policies include: LP1 – Local Character and Design Quality; LP5 – Views and Vistas; LP10 – Local Environmental Impacts, Pollution and Land Contamination; LP12 – Green Infrastructure; LP13 – Green Belt, Metropolitan Open Land and Local; Green Space; LP15 – Biodiversity; LP16 – Trees, Woodlands and Landscape; LP20 – Climate Change Adaptation; LP21 – Flood Risk and Sustainable Drainage; LP22 – Sustainable Design and Construction; LP24 – Waste Management; LP28 – Social and Community Infrastructure; LP30 – Health and Wellbeing; LP31 – Public Open Space, Play Space Sport and Recreation; LP32 – Allotments and food growing spaces; and LP44 Sustainable Travel Choices;
 - Royal Borough of Kingston Upon Thames Core strategy. Relevant policies include: CS3 The Natural and Green Environment; CS4 River Thames Corridor, Tributaries and the Riverside; CS6 - Sustainable Travel; DM3 - Designing for Climate Change; DM5 - Green belt Metropolitan Open Land and Open Space Needs; DM6 – Biodiversity; and DM21 – Health impacts; and
 - Royal Borough of Windsor and Maidenhead Local Plan. Relevant policies include: QP2 Green and Blue Infrastructure; QP4 River Thames Corridor; QP5 Development in Rural Areas and the Green Belt; HE1 Historic Environment; HE2 Windsor Castle and Great Park; IF2 Sustainable Transport; and IF5 Rights of Way and Access to the Countryside.

4.8.4 Guidance

- 4.8.4.1 Industry guidance relevant to Landscape and Visual Amenity and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Landscape and Visual Amenity Chapter of the Scoping Report.

- Guidance for Landscape and Visual Impact Assessment 3rd edition (2013);
- National Design Guide: Planning practice guidance for beautiful enduring and successful places 2021(MHCLG (2021b));
- Planning Practice Guidance (2019) Natural Environment, explains key issues in implementing policy to protect and enhance the natural environment, including local requirements;
- Visual representation of development proposals – Technical Guidance Note 06/19 (Landscape Institute, 2019);
- Photography and photomontage in landscape and visual impact assessment - Advice Note 01/11 (Landscape Institute, March 2018);
- Residential Visual Amenity Assessment (RVAA) - Technical Guidance Note 2/19 (Landscape Institute, 15 March 2019); and
- Design Principles for National Infrastructure (National Infrastructure Commission Design Group, 2020).

4.9 Materials and Waste

4.9.1 Legislation

4.9.1.1 Legislation relating to Materials and Waste and pertinent to the project comprises:

- Environmental Impact Assessment Regulations (2017) specify in Schedule 4 the requirement to consider effects on material assets and quantities and types of waste within an EIA. This has been interpreted to include consideration of natural resources and waste;
- Council Directive 2003/33/EC establishes criteria and procedures for the acceptance of waste at landfills;
- Environmental Protection Act (1990) underpins the UK legislative framework for waste management;
- The Waste (England and Wales) Regulations 2011; transposes the EU Waste Framework Directive 2008 (Amended in 2018 2018/851) into UK law and outlines the waste hierarchy concept and the requirements in its application;
- The Controlled Waste Regulations 2012; Controlled waste is waste that is subject to legislative control in either its handling or its disposal. The types of waste covered in the regulations include domestic, commercial and industrial waste;

- The Environmental Permitting Regulations (England and Wales) 2016 sets out the legislation regarding permitting of landfills and waste management activities and sites. They transpose the EU Landfill Directive 1999/31/EC, which set out a pollution control regime for landfills for the purpose of implementing the European Directive 99/31/EC on the landfill of waste. The “Landfill Directive” means Council Directive 1999/31/EC on the landfill of waste, as read with Council Decision 2003/33/EC establishing criteria and procedures for the acceptance of waste at landfills pursuant to Article 16 of, and Annex II to, Directive 1999/31/EC; and
- The Hazardous Waste (England and Wales) (Amendment) Regulations 2016; ensures the safe management of hazardous material/ waste, these regulations are applicable during the construction phase of the project for any hazardous material/ waste that may be encountered.

4.9.2 National Policy

4.9.2.1 National planning policy relating to Materials and Waste and pertinent to the project comprises:

- The Draft NPS for Water Resources Infrastructure (Defra, 2018), relevant policies are found in Section 14.12. This requires an applicant to *“set out the arrangements that are proposed for managing any waste produced in the application for development consent...The applicant should prepare a Site Waste Management Plan. The arrangements in the plan should include information on the proposed waste recovery and disposal system for all waste generated by the development and should also include details of the alternatives that have been considered... The applicant must demonstrate that all waste produced by the facility will be managed in accordance with the waste hierarchy and that, during construction, excavated soil, subsoil and rock will, where possible, be reused... The applicant must also set out the process in place to ensure their duty of care as a waste producer is met... The applicant should seek to minimise the volume of waste produced. The applicant should also seek to minimise the volume of waste sent for disposal unless it can be demonstrated that this is the best overall environmental, social and economic outcome when considered over the whole lifetime of the project.”*.

2.1.1.2 National Planning Policy Framework (NPPF) (2021). Relevant paragraphs relating to materials and waste are set under Chapter 17 states that

sustainable development includes minimisation of waste and pollution within environmental objectives of planning policies. Chapter 17 of the NPPF relates to '*Facilitating the Sustainable Use of Minerals*' and outlines eight requirements that planning policies should apply. These policies include, but are not limited to:

- Take account of the contribution that substitute, or secondary and recycled materials and minerals waste would make to the supply of materials, before considering extraction of primary materials, whilst aiming to source minerals supplies indigenously; and
- To encourage the prior extraction of minerals, where practical and environmentally feasible, if it is necessary for non-mineral development to take place.

4.9.3 Local and regional planning policy

4.9.3.1 Local and regional planning policies relating to Materials and Waste and pertinent to the project are:

- Surrey County Council 2019-2033 Local Waste Plan. Various policies include detail of sustainable waste management; recycling of inert construction, demolition and excavation waste; safeguarding; and the recovery of inert waste to land. Key policies include Policy 5: Recovery of Inert Waste to Land and Policy 6: Disposal of Non-inert waste to land;
- Surrey County Council Minerals Core Strategy Development Plan Document (2011a). Relevant policies include: Policy MC3: Spatial strategy – mineral development in the Green Belt; Policy MC4: Efficient use of mineral resources; Policy MC5: Provision of productive capacity for the supply of recycled and secondary aggregates; Policy MC6: Safeguarding mineral resources and development; Policy MC11: Mineral extraction outside preferred areas; Policy MC14: Reducing the adverse impacts of mineral development; and Policy MC15: Transportation of Minerals;
- Surrey County Council Primary Aggregates Development Plan (2011b) forms part of the Surrey Minerals Plan and sets out proposals regarding the working of primary aggregate resources across the county and identifies the preferred areas for future primary aggregate extraction for the period 2009-2026;
- Runnymede Borough Council 2015-2030 Local Plan. Relevant policies include SD7 Sustainable Design: Development;
- Spelthorne Borough Council Core Strategy and Policies Development Plan (2009). Relevant policies include: CC1

- Renewable Energy, Energy Conservation and Sustainable Construction and SP6 - Maintaining and Improving the Environment;
- Elmbridge Borough Council Core Strategy (Elmbridge Borough Council, 2011) refers to the Surrey Waste Plan 2008 (since superseded by the Surrey County Council Local Waste Plan 2019-2033) and Surrey Minerals Plan as detailed above;
- Elmbridge Borough Council Elmbridge Local Plan Development Management Plan (Elmbridge Borough Council, 2015) refers to the Surrey Waste Plan 2008 (since superseded by the Surrey County Council Local Waste Plan 2019-2033) and Surrey Minerals Plan as detailed above;
- London Borough of Richmond Upon Thames West London Waste Plan (2015). Relevant policies include: WLWP 6 – Sustainable Site Waste Management;
- London Borough of Richmond Upon Thames Local Plan. Relevant policies include: LP24 Waste Management; and
- Royal Borough of Kingston Upon Thames Core Strategy. Relevant policies include: CS9 Waste reduction and Management.

4.9.4 Guidance

4.9.4.1 Industry guidance relevant to Materials and Waste and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Materials and Waste Chapter of the Scoping Report.

- Definition of Waste: Development Industry Code of Practice (CL:AIRE, 2011);
- IEMA Guide: Materials and Waste in Environmental Impact Assessment (Danson *et al.*, 2020);
- UK Sustainable Remediation Forum (SuRF-UK) (framework);
- Waste and Resources Action Programme (WRAP) guidance documents;
- Defra (2011) ‘Guidance on applying the Waste Hierarchy’, produced under regulation 15(1) of the Waste (England and Wales) Regulations 2011;
- Waste Duty of Care Code of Practice (Defra and Environment Agency, 2018);
- Waste Management Plan for England (Defra, 2021);
- Our Waste, Our resources: a Strategy for England Defra and EA, 2018);

- Guidance on the classification and assessment of waste: Technical Guidance WM3 (EA, 2021);
- Environmental permitting: Core guidance For the Environmental Permitting (England and Wales) Regulations 2016 (SI 2016 No 1154) (Defra, 2020); and
- Waste recovery plans and deposit for recovery permits guidance (EA, 2021).

4.10 Noise and Vibration

4.10.1 Legislation

4.10.1.1 The key legislation relating to Noise and Vibration and pertinent to the project comprises the Control of Pollution Act (1974). This requires that ‘Best Practicable Means’ (as defined in Section 72 of CoPA) are adopted to control construction noise on any given site. CoPA refers to BS5228 as best practicable means in Sections 60 and 72. Section 61 sets out the process for application to the LPA for prior consent to carry out works. The Control of Noise (Code of Practice for Construction and Open Sites) (England) Order 2015 approves BS5228.

4.10.2 National Policy

4.10.2.1 National planning policy relating to Noise and Vibration and pertinent to the project is summarised in this Section.

4.10.2.2 The Draft NPS for Water Resources Infrastructure (Defra, 2018) makes direct reference to the government’s noise policy being set out within the Noise Policy Statement for England (NPSE) (see below for further information). References to noise within the NPS are noted to apply equally to the assessment of vibration.

4.10.2.3 The Draft NPS for Water Resources states that where noise impacts are likely to arise as a result of a water infrastructure development, applicants should include noise assessment as part of their ES. It is specified that this assessment should be undertaken in accordance with the relevant British Standards and other guidance. Furthermore it states that applicants should consult the relevant authorities on the scope of the ES and should consult Natural England with regard to the assessment of noise on protected species and other wildlife.

- 4.10.2.4 The Noise Policy Statement for England (NPSE) (Defra, 2010) seeks to clarify the underlying principles and aims in existing policy documents, legislation and guidance that relate to noise. The statement applies to all forms of noise, including environmental noise, neighbour noise and neighbourhood noise. It sets out the long-term vision of the government's noise policy, which is to "promote good health and a good quality of life through the effective management of noise within the context of policy on sustainable development".
- 2.1.1.3 The NPSE promotes the effective management and control of noise, within the context of Government policy on sustainable development and thereby aims to:
- Avoid significant adverse impacts on health and quality of life;
 - Mitigate and minimise adverse impacts on health and quality of life; and
 - Where possible, contribute to the improvements of health and quality of life.
- 2.1.1.4 The statement uses the concept of noise exposure categories as follows:
- No Observed Effect Level (NOEL) – the level below which no effect can be detected. Below this level no detectable effect on health and quality of life due to noise can be established;
 - Lowest Observable Adverse Effect Level (LOAEL) – the level above which adverse effects on health and quality of life can be detected; and
 - Significant Observed Adverse Effect Level (SOAEL) – the level above which significant adverse effects on health and quality of life occur.
- 2.1.1.5 It is recognised that SOAEL does not have a single objective noise-based level that is applicable to all sources of noise in all situations and therefore the SOAEL is likely to be different for different sources, receptors and at different times of the day.
- 4.10.2.5 No guidance has been issued at the time of writing to identify the SOAEL and LOAEL for typical noise sources and receptors. For RTS this will therefore be chosen based on relevant guidance (see Section 4.10.4 below), precedent from other projects and professional judgement.

- 4.10.2.6 National Planning Policy Framework (NPPF) (2021). Relevant paragraphs include: 174, 185 (set under Section 15), and 211 (set under Section 17). It states that:

“Planning policies and decisions should contribute to and enhance the natural and local environment by preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by unacceptable levels of noise pollution.

Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:

a) mitigate and reduce to a minimum, potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;

b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.”

- 4.10.2.7 Planning Practice Guidance Noise (2019), advises on how planning can manage potential noise impacts in new developments. It expands on the use of SOAEL specifying that “if the exposure is predicted to be above this level the planning process should be used to avoid this effect occurring, for example [...] by use of appropriate mitigation such as by altering the design and layout. Whilst such decisions must be made taking account of the economic and social benefit of the activity causing the noise, it is undesirable for such exposure to be caused.”

- 4.10.2.8 The PPG also goes on to identify unacceptable noise exposure stating that “at the highest extreme, noise exposure would cause extension and sustained changes in behaviour without an ability to mitigate the effect of noise. The impacts on health and quality of life are such that regardless of the benefits of the activity causing the noise, this situation should be avoided.”

4.10.2.9 In addition, the PPG refers to further considerations to mitigating noise on residential developments stating that the noise impact may be partially offset if the residents of those dwellings have access to:

- A relatively quiet facade (containing windows to habitable rooms) as part of their dwelling, and/or;
- A relatively quiet external amenity space for their sole use, (e.g. a garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced with increasing noise exposure and could be such that significant adverse effects occur, and/or;
- A relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings, and/or;
- A relatively quiet, protected, external publicly accessible amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minutes walking distance).

4.10.3 Local and regional planning policy

4.10.3.1 Local and regional planning policies relating to Noise and Vibration and pertinent to the project are:

- Surrey County Council Surrey Minerals Plan (Core Strategy DPD) (2011). Relevant policies include: MC14 Reducing the adverse impacts of minerals development;
- Surrey County Council Surrey Waste Local Plan (Submission version, January 2019). Relevant policies include: Policy 14 Development Management.
- London Plan (2021);
- Runnymede Borough Council 2015-2030 Local Plan. Relevant policies include: EE1 Townscape and Landscape Quality;
- Spelthorne Borough Council Spelthorne Core Strategy and Policies Development Plan Document, (2009). Relevant policies include: EN11 Development and Noise;
- Spelthorne Emerging Local Plan (2020-2037) which will supersede the 2009 Core Strategy. Relevant policies include: E4 Environmental Protection;
- Elmbridge Borough Council Elmbridge Development Management Plan, (2015). Relevant policies include: DM5 Pollution;

- London Borough of Richmond Upon Thames Local Plan. Relevant policies include: LP8 Amenity and Living Conditions and LP10 Local Environmental Impacts, Pollution and Land Contamination;
- London Borough of Kingston Upon Thames Core Strategy (RBKUT, 2012). Relevant policies include: DM1 Sustainable Design and Construction Standards; and
- Royal Borough of Windsor and Maidenhead Borough Local Plan 2013 – 2033. Relevant policies include: EP4 Noise.

4.10.4 Guidance

4.10.4.1 Industry guidance relevant to Noise and Vibration and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Noise and Vibration Chapter of the Scoping Report.

- British Standard (BS) 7445-2: 1991 Description and measurement of Environmental Noise;
- British Standard 8233: 2014 Guidance on Sound Insulation and Noise Reduction for Buildings;
- British Standard 6472-1: 2008 Guide to Evaluation of Human Exposure to Vibration in Buildings Part 1: Vibration Sources other than Blasting;
- British Standard 5228: 2009+A1: 2014 Code of practice for noise and vibration control on construction and open sites;
- British Standard 7385: 1993 Evaluation and Measurement for Vibration in Buildings;
- British Standard 4142: 2014+A1: 2019 Methods for rating and assessing industrial and commercial sound;
- Department of Transport/Welsh Office Memorandum 'Calculation of Road Traffic Noise' (Department of Transport, 1988);
- Highways Agency 'Design Manual for Road and Bridges LA 111 - Noise and vibration' (DMRB, 2020);
- World Health Organisation (WHO) Guidelines for Community Noise (1999);
- ISO 9613-2:1996 Attenuation of sound during propagation outdoors – Part 2: A general method of calculation; and
- IEMA and IOA Guidelines for Noise Impact Assessment 2014.

4.11 Socio-Economics

4.11.1 Legislation

- 4.11.1.1 There are no topic specific legislative requirements, formal guidance or standards as to how Socio-Economic effects should be assessed in the UK.
- 4.11.1.2 The requirement to consider effects on 'population' within an EIA are transposed from Directive 2014/52/EU into Schedule 4 of the EIA Regulations. This has been interpreted to include consideration of socio-economic effects.
- 4.11.1.3 A project-level Equality Impact Assessment (EqIA) is also proposed to be undertaken and will accompany the DCO application. The EqIA will focus on assessing the impacts on groups with protected characteristics defined in the Equality Act 2010.

4.11.2 National Policy

- 4.11.2.1 National planning policy relating to Socio-Economics and pertinent to the project is summarised in this Section.
- 2.1.1.6 The Draft NPS for Water Resources Infrastructure (Defra, 2018) notes how applicants should seek to maximise opportunities for local employment during construction and operational phases of development. It also states that consideration should be given to how the impacts of infrastructure during the construction and operational phases such as job creation and increased spending in local communities, visual impacts and traffic creation may affect local communities and amenities.
- 2.1.1.7 The NPS states that applicants should describe the existing socio-economic conditions in the areas surrounding proposed developments, following appropriate consultation with those most likely to be affected and should consider how the proposed project correlates with relevant local planning policies. Significant negative and positive effects should be reported within an ES. It is recognised that socio-economic impacts may have linkages to other impacts reported within the ES for example visual or health effects. Furthermore, potential cumulative effects should also be considered. For example, if consent were to be granted for a number of construction projects in the area, there could be significant short-term effects, such as a potential shortage of construction workers to meet the needs of the project or other developments in the region

- 2.1.1.8 National Planning Policy Framework (NPPF) (2021) identifies three elements of sustainable development including a social objective and an economic objective.
- 2.1.1.9 The social objective is “to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering well-designed, beautiful and safe places, with accessible services and open spaces that reflect current and future needs and support communities’ health, social and cultural well-being”.
- 2.1.1.10 The economic objective is “to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure”.
- 2.1.1.11 The NPPF also contains a framework for building a strong, responsive and competitive economy and making effective use of land and achieving well designed places. It recognises the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services, including the economic and other benefits of the best and most versatile agricultural land and of trees and woodland.
- 2.1.1.12 Similarly, the Defra policy paper “A Green Future: Our 25 Year Plan to Improve the Environment “(Defra 2018) contains targets regarding the improvement of access to nature. This is complimented by the UK Industrial Strategy (Department for Business, Energy and Industrial Strategy, 2017), which explains how the industrial strategy promotes clean growth and environmental protection and enhances natural capital, which is essential for economic growth.

4.11.3 Local and regional planning policy

- 4.11.3.1 Local and regional planning policies relating to Socio-economics and pertinent to the project are:
- Surrey County Council Surrey Minerals Plan 2011 Core Strategy Development Plan Document (2011). Relevant policies include: MC14 Reducing the adverse impacts of minerals development;
 - Surrey County Council Surrey Waste Local Plan (2020). Relevant policies include: Policy 14 Protecting communities and the environment;

- London Plan (2021). Relevant policies include: Policy S1 Developing London's Social Infrastructure; Policy SI7 Reducing Waste and Supporting the Circular Economy and Policy E11 Skills and Opportunities for all;
- Runnymede Borough Council 2015-2030 Local Plan. Relevant policies include: Policy SD6 Retention of social and community infrastructure; Policy SL25 existing open space; Policy EE13 Managing flood risk; and Policy IE4 Visitor economy;
- Spelthorne Borough Council Spelthorne Core Strategy and Policies Development Plan Document, (2009). Relevant policies include: Policy SP5 Meeting community needs and Policy EN10 Recreational use of the River Thames;
- Elmbridge Borough Council Core Strategy (Elmbridge Borough Council, 2011). Relevant policies include CS16 Social and community infrastructure; and CS23 Employment land provision;
- Elmbridge Borough Council Elmbridge Local Plan Development Management Plan (2015) (Elmbridge Borough Council, 2015). Relevant policies include: DM13 Riverside development and uses and DM20 Open Space and views;
- London Borough of Richmond Upon Thames Local Plan (2018). Relevant policies include: LP12 Green Infrastructure and LP28 Social and Community Infrastructure;
- London Borough of Kingston Upon Thames Core Strategy (2012). Relevant policies include: Policy CS11 Economy and Employment and Policy CS16 Community Facilities; and
- Royal Borough of Windsor and Maidenhead Local Plan 2013 – 2033. Relevant policies include: Policy QP1 Sustainability and Placemaking and Policy QP4 River Thames Corridor.
- Local Cycling and Walking Improvement Plans for Runnymede, Spelthorne and Elmbridge (which will replace existing Cycling Plans) (unpublished).

4.11.4 Guidance

- 4.11.4.1 Whilst the RTS is not a highways project, in the absence of other formal guidance, it is considered that the DMRB provides appropriate guidance and is transferable to other types of project.
- 4.11.4.2 In particular, LA112 Population and Human Health (Highways England et al 2020) provides relevant guidance in relation to some aspects of the assessment.

- 4.11.4.3 Where appropriate, information contained within Planning Practice Guidance will be considered including in relation to ‘healthy and safe communities’, ‘open space, sports and recreational facilities, public rights of way and local green space’.

4.12 Soils and Land

4.12.1 Legislation

- 4.12.1.1 Legislation relating to Soils and Land and pertinent to the project comprises:

- The EIA Regulations specify in Schedule 4 the requirement to consider effects on ‘land’ and ‘soils’ within an EIA. This has been interpreted to include consideration of agricultural land, geology and land potentially affected by contamination;
- Part 2A of the Environmental Protection Act (EPA) 1990. Part 2A outlines a specific regime for managing contaminated land, which is supplemented by the Contaminated Land (England) (Amendment) Regulations 2012. In order for significant harm to be caused there must be a clear pollutant linkage; source-pathway-receptor, which must be identified for land to be classed as contaminated land under UK law (Defra, 2012); and
- The Water Resources Act (1991 – amendment in 2009) protects the quality of groundwater and surface water, defined as ‘Controlled Waters’. This Act relates to soil contamination in cases where the type and mobility of contamination poses a risk of pollution to Controlled Waters.

4.12.2 National Policy

- 4.12.2.1 National planning policy relating to Soils and Land and pertinent to the project is summarised in this Section.
- 4.12.2.2 The Draft NPS for Water Resources Infrastructure (Defra, 2018) sets out that “Development of land will affect soil resources, including physical loss of and damage to soil resources, through land contamination and structural damage. Indirect impacts may also arise from changes in the local water regime, organic matter content, soil biodiversity and soil process”.

- 4.12.2.3 Section 4.10.5 of the draft NPS states that “Where pre-existing land contamination is being considered through development, the objective is to ensure that the site is suitable for its intended use. Risks would require consideration in accordance with the contaminated land statutory guidance as a minimum”
- 4.12.2.4 Section 4.10.12 identifies that “Applicants should seek to minimise impacts on the best and most versatile agricultural land. Where significant development on agricultural land is demonstrated to be necessary, applicants should use poorer quality land (grades 3b, 4 and 5) where possible to minimise impacts on soil quality (except where doing so would be inconsistent with other sustainability considerations). Applicants should also identify any effects on soil quality and show how they would minimise those effects, including by proposing appropriate mitigation measures”.
- 4.12.2.5 Under the Section on Decision Making it is set out that “The Secretary of State will take into account the economic and other benefits of the best and most versatile agricultural land, and ensure the applicant has put forward appropriate mitigation measures to minimise impacts on soils or soil resources”
- 4.12.2.6 National Planning Policy Framework (NPPF) (2021). The NPPF encourages the effective use of land by reusing undeveloped brownfield of low environmental value. The following Sections are of relevance to Soils and Geology and have been considered in this assessment:
- Section 11 – Making effective use of land: paragraph 120 highlights that planning policies and decisions should “support appropriate opportunities to remediate despoiled, degraded, derelict, contaminated or unstable land”;
 - Section 15 - Conserving and enhancing the natural environment: paragraph 174 states that “Planning policies and decisions should contribute to and enhance the natural and local environment by..... remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate...”; and
 - Section 15 - Ground conditions and pollution: paragraphs 183, is pertinent to this Chapter setting out that planning policies and decisions should ensure that:

“a) a site is suitable for its proposed use taking account of ground conditions and any risks arising from land instability and contamination. This includes risks arising from natural hazards or former activities such

as mining, and any proposals for mitigation including land remediation (as well as potential impacts on the natural environment arising from that remediation);

b) after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part IIA of the Environmental Protection Act 1990; and

c) adequate site investigation information, prepared by a competent person, is available to inform these assessments. 184. Where a site is affected by contamination or land stability issues, responsibility for securing a safe development rests with the developer and/or landowner.”.

4.12.3 Local and regional planning policy

4.12.3.1 Local and regional planning policies relating to Soils and Land and pertinent to the project are:

- Surrey County Council Minerals Core Strategy Development Plan (2011). Relevant policies include Policy 6 protecting Communities and the Environment;
- Runnymede Borough Council 2015-2030 Local Plan. Relevant policies include: EE2 Environmental Protection;
- Spelthorne Borough Council Core Strategy and Policies Development Plan (2009). Relevant sections and policies include Section 10 and Policy EN15: Development on Land Affected by Contamination;
- Elmbridge Borough Council Elmbridge Local Plan Development Management Plan (2015) (Elmbridge Borough Council, 2015). Relevant policies include: DM5 Pollution;
- London Borough of Richmond Upon Thames Local Plan (2018). Relevant policies include LP10 Local Environmental Impacts, Pollution and Land Contamination;
- London Borough of Kingston Upon Thames Core Strategy (2012). Relevant policies include DM1 Sustainable Design and Construction Standards; and
- Royal Borough of Windsor and Maidenhead Local Plan 2013 – 2033. Relevant policies include EP5 Contaminated Land and Water.

4.12.4 Guidance

4.12.4.1 Industry guidance relevant to Soils and Land and pertinent to the project is outlined below. Guidance that has been used to inform the assessment

methodology for this topic is outlined within the Soils and Land Chapter of the Scoping Report.

- The Institute of Environmental Management and Assessment (IEMA) Guide: A New Perspective on Land and Soil in Environmental Impact Assessment (Stapleton *et al.*, 2022);
- Safeguarding our Soils: A Strategy for England (Defra, 2009);
- The UK Sustainable Remediation Forum (SuRF-UK) (framework);
- The Land Contamination Risk Management (LCRM) guidance (Environment Agency, 2021);
- The Land Quality Management Limited (LQM) CIEH S4UIs (2014);
- Development of Category 4 Screening Levels (C4SLs) report (CL:AIRE, 2014);
- British Standard (BS) BS 10175:2011+A2:2017 Investigation of potentially contaminated sites: Code of Practice and BS 5930:2015 Code of Practice for ground investigations;
- British Standard (BS) specification for topsoil and requirements for use (BS3882: 2015); A similar specification for sub-soils (BS 8601:2013) provides similar guidance for subsoils.
- The Construction Code of Practice (COP) for the Sustainable Use of Soils on Construction Sites (Defra, 2009);
- Part 2A Contaminated Land Statutory Guidance (Defra, 2012 – revised 2019);
- Managing and reducing land contamination: guiding principles (GPLC) (Environment Agency, 2010 – updated 2016);
- Updated Technical Background to the Contaminated land exposure assessment (CLEA) Model (Environment Agency, 2009a);
- Using Soil Guideline Values SC050021/SGV Introduction (Environment Agency, 2009);
- (Control of Asbestos Regulations, Interpretation for Managing and Working with Asbestos in Soil and Construction and Demolition Materials (CAR-SOIL) (CL:AIRE, 2012);
- CIRIA report SP168 Asbestos in soil and made ground: a guide to understanding and managing risks (Nathanail et al.2014);
- CIRIA report C765 Asbestos in soil and made ground good practice site guide (2017);
- CIRIA report C781 Contaminated sediments: a guide for risk assessment and management (2019);
- CIRIA report C665, Assessing Risks Posed by Hazardous Ground Gases to Buildings guidelines (2007);

- European Standards (EN), (ISO) EN ISO 15175:2018 Soil quality. Characterization of contaminated soil related to groundwater protection (which supersedes EN ISO 15175: 2011) (ISO, 2018);
- EN ISO 15800:2019 Soil quality. Characterization of soil with respect to human exposure (ISO, 2019);
- BS EN ISO 21365:2020 Soil quality. Conceptual site models for potentially contaminated sites (BS, 2020);
- BS8485:2015+A1:2019 - Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings;
- BS 8576:2013 Guidance on investigations for ground gas. Permanent gases and VOCs BS, 2013);
- The Environment Agency's approach to groundwater protection (EA, 2018);
- The Land Contamination Risk Management (LCRM) guidance (Environment Agency, 2021). (Note: This replaces the Model Procedures for the Management of Land Contamination (CLR11, 2004) guidance);
- The Remedial Targets Methodology (RTM);
- The Definition of Waste: Development Industry Code of Practice (CL:AIRE, 2011);
- IEMA Guide: Materials and Waste in Environmental Impact Assessment (Danson *et al.*, 2020); and
- The Environment Agency guidance on pollution prevention from piling and penetrative ground improvement methods on contaminated land (Environment Agency, 2001).

4.13 Traffic and Transport

4.13.1 Legislation

4.13.1.1 The EIA Regulations will be used in the preparation of the ES chapter. No other legislation is specifically relevant for the transport chapter of the ES.

4.13.2 National Policy

4.13.2.1 National planning policy relating to Traffic and Transport and pertinent to the project is summarised in this Section.

4.13.2.2 The Draft NPS for Water Resources Infrastructure (Defra, 2018) (Section 4.14) includes points addressed by other guidance in relation to the

assessment of traffic and transport. It includes but is not limited to the need to consider temporary closure of PRow, consideration of using rail and water freight and the utility of management plans to mitigate traffic impacts. It is also assumed that the operational effects of such infrastructure would be minimal in terms of traffic and transport impacts.

2.1.1.13 National Planning Policy Framework (NPPF) (2021). Section 9 ‘Promoting Sustainable Transport’, states that ‘all developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely effects of the proposal can be assessed’.

2.1.1.14 The NPPF states that applications for development should:

- give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
- address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
- create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;
- allow for the efficient delivery of goods, and access by service and emergency vehicles; and
- be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations.

4.13.3 Local and regional planning policy

4.13.3.1 Local and regional planning policies relating to Traffic and Transport and pertinent to the project are:

- Surrey County Council Draft Surrey Local Transport Plan 4 (LTP4) 2022 – 2032 (2021);
- Surrey Minerals Plan (Core Strategy Development Plan Document (DPD)) (2011). Relevant policies include: MC15 Transport of minerals;

- Surrey County Council Surrey Waste Local Plan 2019 – 2033 (2020); Relevant policy includes Policy 15 Transport and Connectivity
- London Plan (2021). Relevant policies include: T7 Deliveries, servicing and construction;
- Runnymede 2030 Local Plan (2020). Relevant policies include: SD4 Highway Design Considerations and SD5 Infrastructure Provision and Timing;
- Spelthorne Core Strategy (2009). Relevant policies include: SP7 Climate Change and Transport;
- Elmbridge Development Management Plan (2015). Relevant policies include: DM7 Access;
- Elmbridge Core Strategy (2011). Relevant policies include CS25 travel and Accessibility;
- London Borough of Richmond upon Thames Local Plan. Policy LP 44: Sustainable Travel Choices;
- London Borough of Richmond upon Thames Draft Local Plan (2021) (emerging). Relevant policies include: Draft Policy 3 Tackling the climate change emergency; Draft Policy 7 Waste and the circular economy and Draft Policy 47 Sustainable travel choices;
- Royal Borough of Kingston Upon Thames Core Strategy; Policy CS6: Sustainable Travel and Policy CS7: Managing Vehicle Use;
- Royal Borough of Windsor and Maidenhead Local Plan 2013 – 2033 (2022); Policy QP3 Character and Design of New Development; Policy IF12 Sustainable Transport; and
- Local Cycling and Walking Improvement Plans for Runnymede, Spelthorne and Elmbridge (will replace existing Cycling Plans).

4.13.4 Guidance

4.13.4.1 Industry guidance relevant to Traffic and Transport and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Traffic and Transport Chapter of the Scoping Report.

- Planning Practice Guidance (2019). The Transport evidence bases in plan making and decision taking section gives guidance to help local planning authorities assess and reflect strategic transport needs in Local Plan making. The Travel Plans, Transport Assessments and Statements section provides advice on when Transport Assessments and Transport Statements are required, and what they should contain;

- Guidelines for the Environmental Assessment of Road Traffic published by IEMA in 1993 (IEMA, 1993); and
- Design Manual for Roads and Bridges guidance on environmental assessment (DMRB, 2020a; 2020b).

4.14 Water Environment

4.14.1 Legislation

4.14.1.1 Legislation relating to the Water Environment and pertinent to the project comprises:

- The Environment Act 2021; particularly Part 5, sets out relevant legislation post Brexit for water, including the use of The Water Environment (Water Framework Directive (WFD) (England and Wales) Regulations 2017 and changes to the priority substances listed;
- The Water Environment (Water Framework Directive (WFD) (England and Wales) Regulations 2017 which requires a process to manage, protect and improve the water environment and implements River Basin Management Plans (RBMPs);
- The Water Resources Act 1991, as amended by the Water Act 2003; sets out provisions for the control of pollution of water, abstraction, working in or near watercourses and consent for the erection of temporary and permanent obstructions of watercourses;
- The Water Resources Act 1991, amended by the Water Resources (Abstraction and Impounding) Regulations 2006, set out the legal framework for abstraction and impounding licensing. Licenses are granted by the Environment Agency, or by predecessor organisations to abstract specific volumes of water over particular periods, subject to conditions such as taking water when certain flows or levels in rivers are met;
- The Water Resources Act 1991, amendment in 2009, protects the quality of groundwater and surface water, defined as 'Controlled Waters'. This Act relates to soil contamination in cases where the type and mobility of contamination poses a risk of pollution to Controlled Waters; The main UK legislation covering land affected by contamination is Part 2A of the Environmental Protection Act (EPA) 1990. Part 2A outlines a specific regime for managing contaminated land, which is supplemented by the Contaminated Land (England) (Amendment) Regulations 2012. In order for significant harm to be caused there must be a clear pollutant linkage;

- source-pathway-receptor, which must be identified for land to be classed as contaminated land under UK law (Defra, 2012);
- The Environmental Permitting (England and Wales) Regulations 2016 (as amended), provide a consolidated system of environmental permitting in England and Wales. The regulation of abstraction and impounding licensing will move from the Water Resources Act 1991 to the Environmental Permitting (England and Wales) Regulations 2016 in 2023;
 - The Groundwater Regulations 1998; focus on the protection of groundwater for domestic or agricultural use;
 - The Bathing Water Regulations 2013, amended 2018; which establishes standards for monitoring of water quality in places where large numbers of people are expected to bathe;
 - Thames Conservancy Act 1932; which deals with the development of accommodations and river management of the non-tidal River Thames and provides a system of licensing;
 - Water Resources Act 1991; set out the offence to cause or knowingly permit and poisonous, noxious or polluting material or any solid waste to enter any controlled water with the policing being the responsibility of the Environment Agency; and
 - Environmental Protection Act 1990; introduced a system of integrated pollution control for disposal to land, water and air.

4.14.2 National Policy

4.14.2.1 National planning policy relating to the Water Environment and pertinent to the project comprises:

- The Draft NPS for Water Resources Infrastructure (Defra, 2018) sets out the need and government's policies for the development of nationally significant infrastructure projects relevant to water resources in England. It will help to ensure that where nationally significant water resources infrastructure is needed, it can be delivered in a timely manner to a high standard. Section 4.15 of the draft NPS requires the applicant to ensure that the environmental statement clearly sets out the following:
 - *the existing quality of waters affected by the proposed project;*
 - *existing water resources affected by the proposed project and the impacts of the proposed project on water resources;*
 - *existing physical characteristics of the water environment (including quantity and dynamics of flow) affected by the*

proposed project, and any impact of physical modifications to these characteristics;

- *any impacts of the proposed project on water bodies or protected areas under the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 including groundwater resources, bathing or coastal waters;*
- *the likely range of impacts on existing water quality, resources, physical characteristics of the water environment and waterbodies or protected areas due to climate change, and*
- *any cumulative effects.*
- National Planning Policy Framework (NPPF) (2021) has a requirement for conserving and enhancing the natural environment, and states that new development should be prevented from contributing to unacceptable levels of water pollution and should, wherever possible, help to improve water quality conditions. The NPPF forms the basis of various LPA local plans, relevant policies of which are listed in the following Sections.

4.14.3 Local and regional planning policy

4.14.3.1 Local and regional planning policies relating to the Water Environment and pertinent to the project are:

- Surrey County Council Surrey Waste Local Plan 2019 – 2033 (2020). Relevant policies include Policy 13 Sustainable Design; Policy 14 Protecting Communities and the Environment and Policy 15 transport and Connectivity;
- London Plan (2021);
- Runnymede 2030 Local Plan (2020). Relevant policies include: EE12 Blue Infrastructure;
- Spelthorne Borough Council Emerging Local Plan 2020-2035. Relevant policies include EN9 River Thames and its Tributaries and EN10 Recreational Use of the River Thames;
- Elmbridge Borough Council Core Strategy (2011). Relevant policies include CS12 The River Thames Corridor and its Tributaries;
- London Borough of Richmond upon Thames Local Plan (2018). Relevant policies include: Lp18 Rover Corridors; Lp21 Flood Risk and Sustainable Drainage; and LP23 Water resources and infrastructure; and

- London Borough of Kingston Upon Thames Core Strategy (2011). Relevant policies include: CS4 River Thames Corridor, Tributaries and the Riverside; DM4 Water Management and Flood Risk and DM7 River Thames Corridor, Tributaries and Riverside Proposals.

4.14.4 Guidance

4.14.4.1 Industry guidance relevant to the Water Environment and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for this topic is outlined within the Water Environment Chapter of the Scoping Report.

4.14.4.2 Primary sources of guidance which inform government policy relevant to surface water, groundwater and WFD for this project include:

- Thames River Basin Management Plan 2016 and the 2021 draft update set out how organisations, stakeholders and communities will work together to improve the water environment in the River Thames catchment;
- European commission 'Common Implementation Strategy' guidance documents and technical reports produced to assist stakeholders to implement the Water Framework Directive;
- Thames Abstraction Licensing Strategy sets out the current water resource availability along the River Thames and the strategy for managing water resources in this catchment; and
- Flood and Coastal Erosion Risk Management Strategy (HM Government, 2020). This policy statement sets out the government's long-term ambition to enhance resilience to future flood and coastal erosion risk, reducing the risk of harm to people, the environment and the economy.

4.14.4.3 National Infrastructure Planning Advice Note Eighteen: The Water Framework Directive has no statutory status but provides advice and clarification of the process and information to be provided with a DCO application, in respect of the WFD.

4.14.4.4 Industry guidance relevant to the Water Environment and pertinent to the project is outlined below. Guidance that has been used to inform the assessment methodology for the project is outlined within the Water Environment chapter of the Scoping Report.

- Design Manual for Roads and Bridges guidance on environmental assessment (2020);

- TAG: The UK TAG published by the Department for Transport provides information on transport modelling and appraisal (2022);
- WFD Assessment guidance: estuarine and coastal waters (2017);
- The Environment Agency guidance on Flood Risk activities: environmental permits;
- Pollution Prevention Guidelines (2007), although withdrawn in 2015, provide environmental good practice guidance for the management of water, runoff, materials and chemicals, construction vehicles and facilities, storage and pollution incident response planning. Replacements for certain aspects have subsequently been updated in the form of the Guidance for Pollution Prevention (GPPs), although not specific to England. These include; GPP 1: Understanding your environmental responsibilities - good environmental practices; GPP 2: Above ground oil storage tanks; GPP 3: Use and design of oil separators in surface water drainage systems; GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer; GPP 5: Works and maintenance in or near water; PPG 6: Working at construction and demolition sites; PPG 7: Safe storage - The safe operation of refuelling facilities; GPP 13 Vehicle washing and cleaning; GPP 21: Pollution incident response planning; and GPP 22: Dealing with Spills;
- CIRIA C781 (2019) best practice guidance on Contaminated sediments: a guide for a risk assessment & management;
- CIRIA C741(2016) Environmental Good Practice on site;
- CIRIA C648/9 (2006) Control of water pollution from linear construction projects;
- CIRIA C532 (2001) Control of Water Pollution from Construction Sites;
- CIRIA C786 (2019) Culvert, screen and outfall manual;
- The Environment Agency's Safety, Health and Wellbeing Code of Practice contains guidance on pollution prevention;
- River Condition Assessment guidance, part of the 'Rivers and Streams Component of the Biodiversity Net Gain Metric' (2021); and
- The Environment Agency's 'Approach to Groundwater Protection'.

4.15 Cumulative Effects Assessment

4.15.1 Legislation

4.15.1.1 Legislation relating to Cumulative Effects Assessment and pertinent to the project comprises:

4.15.1.2 The EIA Regulations state that ESs should include a description of the likely significant effects of the development on the environment arising from '(e) the cumulation of effects with other existing and/or approved projects, taking account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.'

4.15.1.3 The EIA Regulations, specifically Regulation (5(2)(e)) states that 'the EIA' must identify, describe and assess in an appropriate manner, the direct and indirect significant effects of the proposed development on the interaction between topics.

4.15.2 National policy

4.15.2.1 There is no national planning policy that relates specifically to the assessment of cumulative effects.

4.15.3 Local and regional planning policy

4.15.3.1 There is no local or regional planning policy that relates specifically to the assessment of cumulative effects.

4.15.4 Guidance

14.15.4.1 Planning Inspectorate Advice Note Nine: Rochdale Envelope (Planning Inspectorate, 2018a) states that the approach must '...ensure that the assessment of the worst case scenario(s) addresses impacts which may not be significant on their own but could become significant when they inter-relate with other impacts alone or cumulatively with impacts from other development (including those identified in other aspect assessments).'

14.15.4.2 Planning Inspectorate Advice Note Seventeen: Cumulative Effects Assessment Relevant to Nationally Significant Infrastructure Projects (NSIPs) (Planning Inspectorate, August 2019), which is considered to represent best practice for cumulative effects assessments in relation to DCO projects.

14.15.4.3 IEMA (2020). Impact Assessment Outlook Journal Volume 7: Demystifying Cumulative Effects.

4.16 References

4.16.1.1 Please refer to 'References' section at the end of the River Thames Scheme Environmental Impact Assessment Scoping Report for full details.



The River Thames Scheme, delivered in a partnership led by the Environment Agency and Surrey County Council, will reduce flood risk for residents and businesses and improve the surrounding area.



Appendix N

Habitat Regulations Screening Assessment

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Executive Summary

The first stage of a Habitats Regulations Assessment (HRA) is to identify European and Ramsar sites that have potential to be affected by a proposal. An HRA Screening Assessment is then completed to determine whether the potential effects of the proposal on the sites identified are likely to be significant. Where a proposal is assessed as having a likely significant effect on a European or Ramsar site then a detailed Appropriate Assessment must be completed.

This report documents the findings of an HRA Screening assessment carried out in accordance with PINS Advice Note 10 (Planning Inspectorate, 2022). The Screening assessment was undertaken at the same time as, and supporting, the Environmental Impact Assessment (EIA) scoping report for the River Thames Scheme (RTS). This report will also be used to support pre-application consultation with appropriate nature conservation bodies (ANCB) including Natural England.

European and Ramsar sites that need to be included in the HRA Screening Assessment for the River Thames Scheme (RTS) were identified by using a series of buffer zones around the project boundary for EIA scoping. Each buffer zone represents a zone of influence of the project on a specific type of ecological feature. The use of different zones follows guidance in the Guidelines for Ecological Impact Assessment (CIEEM, 2018) and the Design Manual for Roads and Bridges (Highways England, 2020). The buffers used were:

- 2 km or the extent of the 1:100 year floodplain affected by the RTS where greater, as a core buffer zone. All European and Ramsar sites within this buffer were included in the HRA Screening Assessment
- 10 km hydrogeological linkage and mobile species buffer zone. European and Ramsar sites within this buffer that contain a groundwater dependent terrestrial ecosystem or with mobile species as qualifying features such as breeding or wintering birds were included in the HRA Screening Assessment
- 20 km otter buffer zone. European and Ramsar sites within 20 km and that include otter as a qualifying feature were included in the HRA Screening Assessment
- 30 km bats buffer zone. European and Ramsar sites within 30 km and that include bats as a qualifying feature were included in the HRA Screening Assessment.

The following sites were identified for inclusion in the HRA Screening Assessment:

- South West London Waterbodies Special Protection Area (SPA) (within 2 km)
- Thames Basin Heaths SPA (within 2 km)

HRA – Screening Assessment to inform EIA Scoping Report

- Richmond Park SAC (within 2 km)
- Thursley, Ash, Pirbright & Chobham SAC (within 2 km)
- Mole Gap to Reigate Escarpment SAC (bats as a qualifying feature, 11.5 km from the project boundary for EIA scoping at the closest point)
- South West London Waterbodies Ramsar site (within 2 km)

There are no European and Ramsar sites within the 10 km buffer zone that contain groundwater dependent terrestrial ecosystems, or additional European or Ramsar sites with mobile species as qualifying features.

There are no European and Ramsar sites within the 20 km buffer zone with otter as a qualifying feature.

There are no known areas secured as sites compensating for damage to a European site, future European site designations, or amendments to qualifying features that may be affected by RTS within the study area. This will be confirmed or amended through pre-application consultation with ANCB.

The HRA Screening Assessment used the source-pathway-receptor model to identify where there are potential likely significant effects on each qualifying feature of the European and Ramsar sites at this stage of project development. This process:

- a. Identified the changes in the environment that could be brought about by construction and operation (including maintenance) of RTS (source)
- b. Identified categories of hazard that the sources of change in the environment could have on qualifying features (e.g. 'permanent habitat loss').
- c. For each qualifying feature, assessed whether there is a potential pathway for each hazard to affect achievement of conservation objectives (e.g. is there a pathway for the 'permanent habitat loss' hazard to affect the conservation objective of the feature in question). This considered information in the 'Supplementary Advice on Conserving and Restoring Site Features' for each relevant site.
- d. Where a pathway between a hazard and a conservation objective was identified, assessed whether the effects on the qualifying feature are likely to be significant in the absence of any mitigation, i.e. whether there is a likely significant effect (LSE).

The RTS was assessed as having a likely significant effect on two European and Ramsar sites and their qualifying features, acting alone:

- South West London Waterbodies SPA

- South West London Waterbodies Ramsar site.

The Screening assessment concluded that there are no conceivable effects on/no potential effect pathways to any other European site or their qualifying features as a result of RTS alone.

An Appropriate Assessment will need to be carried out to assess whether the RTS will have an Adverse Effect on Integrity (AEol) on the South West London Waterbodies (SWLW) SPA and Ramsar site.

The potential for in combination effects will be included within the Appropriate Assessment for the SWLW SPA and Ramsar site. In accordance with PINS Advice Note 10, it is not necessary at the HRA Screening stage to consider whether the effects of RTS could combine with any other plan or project that affects any other same European site(s) and qualifying feature(s).

The SWLW SPA and Ramsar sites are spatially identical. They are both designated for gadwall *Mareca (formerly Anas) strepera* over winter and for northern shoveler *Anas clypeata* over winter and when on spring and autumn migration. The project only has potential to affect three of the waterbodies included in the SWLW designations boundary: St Anne's Lake, Wraysbury Reservoir and Wraysbury 2 (N).

Gadwall and shoveler also use other waterbodies within the project boundary for EIA scoping. Those waterbodies provide suitable alternative habitats and support the designated site populations and as such have a functional linkage to the SWLW SPA and Ramsar sites. Data from BTO Wetland Bird Surveys and surveys carried out for RTS were used to identify which potentially affected waterbodies outside the SWLW designations boundary provide a critical supporting function (i.e. whether the habitats are necessary to maintain or restore the conservation status of the designated species). A waterbody was categorised as 'supporting' (i.e. as providing a critical supporting function to) the SWLW SPA and Ramsar site if the numbers of gadwall or shoveler that regularly use it are 1% or greater than the total SWLW population as stated in the Ramsar site citation. The following waterbodies were categorised as 'supporting' and are within / up to 100m of the project boundary for EIA scoping and could therefore be directly affected or disturbed:

Runnymede Channel

- Lake south of Green Lane
- Abbey Lake
- Manor Lake

- Fleet Lake
- Abbey 1
- Twynersh Lakes Complex.

Spelthorne Channel

- Littleton South
- Littleton East
- Sheepwalk West 1
- Sheepwalk West 2
- Sheepwalk East
- Black Ditch Pond
- Halliford Mere Complex
- Ferry Lane Lake.

Land South of Wraysbury Reservoir Habitat Creation Area

- Hythe End Central
- Hythe End West
- Hythe End East.

The Appropriate Assessment will consider the effects of the RTS on these 17 waterbodies and the supporting function they provide, in addition to considering the effects on the three waterbodies included in the SWLW designations boundary (St Ann's Lake, Wraysbury Reservoir and Wraysbury 2 (N)) that are potentially affected by the RTS.

Habitats Regulations Assessment Process

Anyone applying for development consent for a Nationally Significant Infrastructure Project (NSIP) must, in accordance with the Conservation of Habitats and Species Regulations 2017 (as amended) ('the Habitats Regulations'), provide the Competent Authority with such information as may reasonably be required for the purposes of carrying out an HRA. For NSIPs the Competent Authority is the relevant Secretary of State.

European sites protected by the Habitats Regulations include Special Areas of Conservation (SACs and Special Protection Areas (SPAs. Additionally, it is a matter of UK Government policy and guidance that the following sites should also be subject to a HRA, where affected by a plan or project: proposed SACs (pSCAs); potential SPAs (pSPAs); Ramsar sites (both proposed and listed); and areas secured as sites compensating for damage to a European site.

PINS Advice Note 10 (Planning Inspectorate, 2022) advises that applicants should also consider future European site designations or amendments to qualifying features that may be affected by the Proposed Development as being needed to be included in an HRA. These are ones which, once consultation has been initiated, would be considered a European site under policy.

Habitats Regulations Assessment (HRA) is a staged process, summarised below:

- Stage 1. Screening – check if the proposal would potentially have an LSE on the European site(s)'s conservation objectives, both alone or in combination with other plans or projects. At this stage mitigation measures proposed for the purpose of avoiding or minimising risk to a European site should not be taken into account. If a conclusion of no LSE is reached for all European sites and their qualifying features considered, it is not necessary to proceed to the next stages of HRA. If the risk of the proposal having an LSE cannot be ruled out, HRA Stage 2 will be required.
- Stage 2. Appropriate assessment (AA) – assess the implications of the proposal for the qualifying features of the European site(s), in view of the site(s)' conservation objectives to determine whether an adverse effect on integrity (AEoI) of the relevant European Site will be caused, and identify ways to avoid or minimise any effects.
- Stage 3. Derogation – consider if proposals that would have an AEoI on a European site(s) qualify for an exemption. There are three tests to this stage to be followed in order: consider alternative solutions; consider IROPI; and

secure compensatory measures. Each test must be passed in sequence for a derogation to be granted.

Each of these stages can be an iterative process, with assessments being refined as project designs develop and based on consultation.

This report documents the findings of an HRA screening assessment carried out at the same time as, and supporting, the Environmental Impact Assessment (EIA) scoping report for the River Thames Scheme (RTS). This report will also be used to support pre-application consultation with appropriate nature conservation bodies (ANCB) including Natural England.

The Screening assessment reported here may be reviewed at subsequent project stages and following consultation. The final Screening assessment will be reported in the information to be provided to the Competent Authority ‘for the purposes of the assessment’ with submission of the NSIP application.

HRA Screening Method

Approach and Guidance

The HRA Screening followed guidance in PINS Advice Note 10 (Planning Inspectorate, 2022) and references therein. The stages undertaken are described in the following sections.

The tables presented in this report have been designed to help carry out, and to clearly present the process and findings of, the assessment of LSE as part of the EIA Scoping stage. PINS Advice Note 10 requires that applicants should provide the “following HRA information with their application:

- A summary table of all European sites and qualifying features and each pathway of effect considered at each HRA Stage (screening, AA/IROPI, and the derogations, as applicable), for each phase of the Proposed Development (construction, operation, decommissioning, as relevant);”

A draft summary table that complies with PINS Advice Note 10 requirements will be prepared to support the Preliminary Environmental Information Report (PEIR). A final version will be provided with the DCO application.

In addition to PINS Advice Note 10 the following guidance documents were consulted:

- The Guidelines for Ecological Impact Assessment (CIEEM, 2018)

- Design Manual for Roads and Bridges Standard LA 115 - Habitats Regulations assessment (DMRB, 2020).

The Design Manual for Roads and Bridges (DMRB) is well-established as an industry standard focussed on linear infrastructure schemes and has been used by many non-road infrastructure schemes. DMRB Standard LA 115 was used to inform the establishment of study areas.

Study Area

The HRA Study Area was developed by considering the Zones of Influence of the River Thames Scheme (RTS) for different ecological features. The most expansive Zone of Influence relevant to the RTS is for bats due to the potentially large foraging ranges for some species around roosts, and to account for dispersal across the landscape and between roosts in different seasons. This means that changes to feeding habitats with the project boundary for EIA scoping could theoretically affect bats which are designated features of European Sites a substantial distance from the project. Based on guidance in DMRB Standard LA 115 that HRA Screening should be carried out for SACs within 30km of a project where bats are noted as one of the qualifying interests a 30 km buffer zone around the project boundary for EIA scoping was applied. This represents the HRA Study Area.

All European and Ramsar sites within 30km of the project are shown on drawing number ENVIMSE500260-GBV-ZZ-3ZZ-DR-EN-10091, Appendix A.

Identifying Relevant Sites

This iteration of HRA Screening considered all SPAs, pSPAS, SACs, pSACs and listed and proposed Ramsar sites within the HRA Study Area. Pre-application consultation with ANCBs will confirm whether there are areas secured as sites compensating for damage to a European site, future European site designations, or amendments to qualifying features that may be affected by RTS within the HRA Study Area.

For the purposes of identifying European and Ramsar sites that need to be considered in the HRA Screening, a series of buffer zones within the HRA Study Area were projected around the project boundary for EIA scoping. Each buffer zone represents a Zone of Influence of the project for different ecological features. The use of various Zones of Influence is in accordance with Guidelines for Ecological Impact Assessment (CIEEM, 2018) and accounts for different potential connectivity pathways between the project and specific ecological receptors. The buffers used were:

- 2 km or the extent of the 1:100 year floodplain affected by the RTS where greater, as a core buffer zone. It is considered that all ecological receptors typically present within 2km of the project boundary for EIA scoping could be affected when taking account of movement and dispersal. This follows DMRB guidance that HRA Screening should be carried out for all European sites within 2km of, or on land functionally linked to, a project.
- 10 km – Hydrogeological linkage and mobile species buffer zone. This follows a precautionary approach which assumes that:
 - (a) Changes to hydrology or hydrogeology within the project boundary for EIA scoping could affect designated sites that contain a groundwater dependent terrestrial ecosystem at distances of greater than 2 km from proposed works. 10 km was selected as an appropriate and precautionary distance to identify potential pathways beyond which any potential effects of the RTS would not be measurable.
 - (b) Habitat changes within the project boundary for EIA scoping could affect designated sites with species as qualifying features which may regularly move across larger areas of land when foraging, e.g. breeding or wintering birds. Foraging ranges vary a lot between species but given the geographical and landscape setting of RTS (highly developed and modified lowland areas, not close to the coast) and the characteristics of species likely to be present, 10 km was selected as a precautionary distance to identify potential pathways. The regular foraging ranges of many species will be much smaller than this and larger buffer zones for specific species were used as described below.
- 20 km – Otter buffer zone. This is based on the foraging ranges of otter.
- 30 km – Bat species buffer zone. This is based on maximum foraging ranges of bats considering all species.

Assessment of Likely Significant Effects of RTS Acting Alone

The HRA Screening Assessment used the source-pathway-receptor model to identify where there are potential likely significant effects on each qualifying feature of the relevant European and Ramsar sites at this stage of project development, considering the characteristics of RTS and what the potential pathways are that could lead to effects on a European site. This process:

- a. Identified the changes in the environment that could be brought about by construction and operation (including maintenance) of the RTS (source).
- b. Identified categories of hazard that the sources of change in the environment could have on qualifying features (e.g. 'permanent habitat loss').
- c. For each qualifying feature, assessed whether there is a potential pathway for each hazard to affect achievement of conservation objectives (e.g. is there a pathway for the 'permanent habitat loss' hazard to affect the conservation

objective of the feature in question). This considered information in the ‘Supplementary Advice on Conserving and Restoring Site Features’ for each relevant site.

- d. Where a pathway between a hazard and a conservation objective was identified, assessed whether the effects on the qualifying feature are likely to be significant in the absence of any mitigation, i.e. whether there is an LSE.

The precautionary principal was followed, meaning that if the risk of a hazard causing an LSE could not be ruled out, then it was concluded there is an LSE. A precautionary approach was taken to consideration of mitigation. Measures intended to avoid or reduce harmful effects that may become an integral part of the DCO application were not considered at the HRA Screening stage.

In Combination Effects

The approach in PINS Advice Note 10 was followed, which states “A conclusion may be reached that the Proposed Development alone may have an effect on a European site(s) that is not significant. In this situation, the Applicant must then consider if this effect could combine with any other plan or project that affects the same European site(s) and qualifying feature(s), that on its own also does not have a significant effect. If, in combination, the Proposed Development could have a significant effect on the European site, HRA Stage 2 will be required.”

Statement of Screening Outcomes

PINS Advice Note 10 states that “in relation to each European site and qualifying feature, the Applicant will need to conclude from evidence gathered and any ANCB consultation responses received that either:

1. There would be no conceivable effect on/no potential effect pathways to any European site and its qualifying features as a result of the Proposed Development. A statement to be provided within the application documents to this effect; or
2. LSE on European site(s) as a result of the Proposed Development, alone or in combination with other plans or projects, can be excluded and therefore there is no need to progress to HRA Stage 2. An NSER to be provided within the application documents to this effect; or
3. LSE on European site(s) and qualifying features are considered to exist, either alone or in combination with other plans or projects, and an AA by the Competent Authority is likely to be required. The Applicant should move to HRA Stage 2 and document the HRA Stage 1 screening findings in an HRA Report.”

A statement of the outcomes of this iteration of the HRA screening assessment has been provided for each relevant site, according to the outcome options stated above.

Results of HRA Screening

Relevant Sites

The following sites were identified for inclusion in the HRA Screening Assessment:

- South West London Waterbodies SPA (within 2 km)
- Thames Basin Heaths SPA (within 2 km)
- Richmond Park SAC (within 2 km)
- Thursley, Ash, Pirbright & Chobham SAC (within 2 km)
- Mole Gap to Reigate Escarpment SAC (bats as a qualifying feature, 11.5 km from the project boundary for EIA scoping at the closest point)
- South West London Waterbodies Ramsar site (within 2 km).

There are no European and Ramsar sites within the 10 km buffer zone that contain groundwater dependent terrestrial ecosystems, or additional European or Ramsar sites with mobile species as qualifying features.

There are no European and Ramsar sites within the 20 km buffer zone with otter as a qualifying feature.

Qualifying Features of Relevant Sites

The qualifying features of the relevant sites are set out in Table 1.

Table 1: Qualifying Features of Relevant Sites

Site type and name	Qualifying features
SAC	
Richmond Park	<ul style="list-style-type: none"> ● Stag beetle <i>Lucanus cervus</i>
Thursley, Ash, Pirbright & Chobham	<ul style="list-style-type: none"> ● Northern Atlantic wet heaths with <i>Erica tetralix</i> ● European dry heaths ● Depressions on peat substrates of the Rhynchosporion
Mole Gap to Reigate Escarpment	<ul style="list-style-type: none"> ● Stable xerothermophilous formations with <i>Buxus sempervirens</i> on rock slopes (Berberidion p.p.)

Site type and name	Qualifying features
	<ul style="list-style-type: none"> • Semi-natural dry grasslands and scrubland facies on calcareous substrates (Festuco-Brometalia) (*important orchid sites) • <i>Taxus baccata</i> woods of the British Isles • European dry heaths • Asperulo-Fagetum beech forests • Great crested newt <i>Triturus cristatus</i> • Bechstein's bat <i>Myotis bechsteinii</i>
SPA	
South West London Waterbodies	<ul style="list-style-type: none"> • Northern shoveler <i>Anas clypeata</i> (non-breeding) • Gadwall <i>Mareca [Anas] strepera</i> (non-breeding)
Thames Basin Heaths	<ul style="list-style-type: none"> • European nightjar <i>Caprimulgus europaeus</i> (breeding) • Woodlark <i>Lullula arborea</i> (breeding) • Dartford warbler <i>Sylvia undata</i> (breeding)
Ramsar site	
South West London Waterbodies	<ul style="list-style-type: none"> • Northern shoveler <i>Anas clypeata</i> (peak counts in spring/autumn) • Gadwall <i>Mareca [Anas] strepera</i> (peak counts in winter)

Effects of the River Thames Scheme on the Environment

The sources of changes to the environment that could be caused by construction and operation of the RTS and may give rise to effects on European and Ramsar sites and their qualifying features are set out in Table 2. The sources of change are categorised into the types of hazard they could cause to qualifying features if there is an exposure pathway.

Table 2: Hazards and causative sources of change to the environment

Construction Phase	
C1	Direct harm to qualifying features (individuals or habitats)
	Construction of the flood relief channels (flow control structures, road and rail crossings; flood embankments), associated permanent infrastructure.
	Construction of landscape and green infrastructure opportunities and environmental mitigation

C2	Temporary habitat loss
	Construction working areas, siting of site compounds, storage of materials and equipment, materials management areas and access routes for construction vehicles.
C3	Changes to physical structure and function of habitats
	Changes to waterbody water levels and extents during construction, e.g. from dewatering and management of working areas.
	Changes to waterbody edge habitats during construction from management of working areas.
	Risk of changes to groundwater levels and movements due to excavations, dewatering and temporary works interacting with the groundwater table and affecting waterbody recharge and levels.
C4	Changes to physico-chemical conditions and resultant changes to lake ecosystems
	Risk of pollution from construction activities close to or within aquatic environments.
	Risk of pollution from construction through former landfill sites close to aquatic environments.
	Risk of sediment generation from construction activities close to or within aquatic environments.
	Air borne pollution from construction (vehicle emissions, dust generation), including deposition on nearby habitats.
C5	Introduction and Spread of Invasive Non-native / Alien Species
	Significant movement of machinery and personnel required for construction.
C6	Displacement
	Additional sources of sensory (visual, noise, vibration, lighting) disturbance generated by construction activities.
Operation Phase	
O1	Permanent habitat loss
	Final footprint of the flood relief channels (flow control structures, road and rail crossings; flood embankments), associated permanent infrastructure.
	Final footprint of the landscape and green infrastructure opportunities and environmental mitigation
O2	Changes to physical structure and function of habitats
	Changes to waterbody water levels during operation of the flood relief channel, both from an augmentation flow or during times of flood.

	Changes to water flow velocities through existing waterbodies during operation of the flood relief channel, both from an augmentation flow or during times of flood.
	Risk of changes to groundwater levels and movements due to the completed channel interacting with the groundwater table and affecting waterbody recharge and levels.
O3	Changes to physico-chemical conditions and resultant changes to lake ecosystems
	Risk from sediment generation during operation of the flood relief channel, from flood flows containing high suspended sediment levels and existing sediments being mobilised due to increased flow velocity passing through waterbodies during flood conditions.
	Risk of changes in waterbody water quality associated with the diversion of water from the River Thames through waterbodies during operation of the Project.
	Risk of pollution incidents from operation of the flood relief channel through areas of existing landfill, including from groundwater pathways.
O4	Introduction and spread of Invasive Non-Native / Alien Species (INNS)
	Risk of colonisation of waterbodies by River Thames biota (primarily fish) or from biota from other interconnected lakes because of the additional connectivity provided by the flood relief channel.
	Risk of spread of INNS between the River Thames and waterbodies because of the additional connectivity provided by the flood relief channel.
O5	Displacement
	Additional sources of physical and sensory (visual, noise) disturbance generated by use of improved public amenities (including new or improved footpaths, bridleways, cycle paths, and access for small craft into the flood relief channel) and by channel maintenance.

Assessment of Likely Significant Effect of RTS Acting Alone

Matrices to identify where there are pathways between hazards of the RTS and conservation objectives for each relevant site are provided in Appendix B. The findings of this assessment are summarised below.

South West London Waterbodies SPA and Ramsar Site

The SPA and Ramsar site cover the same spatial area and have the same qualifying features and so have been considered together. These sites comprise a series of reservoirs and former gravel pits used by significant numbers of northern shoveler

Anas clypeata and gadwall *Mareca [Anas] strepera* during the winter and when migrating. The waterbodies that comprise the SPA/Ramsar site boundary are part of a much larger complex and ducks using the SPA will also use other waterbodies. The overall complex provides waterbodies with a range of characteristics, which birds use at different times of year and different times of day depending on their needs (Natural England, 2018). As such potential effects on the ‘supporting’ waterbodies within the overall waterbody complex need to be considered as well as on the SPA waterbodies themselves.

Two of the SPA waterbodies are partially within the project boundary for EIA scoping, several of the ‘supporting’ waterbodies will become part of the permanent flood relief channel, and further ‘supporting’ waterbodies could be indirectly affected. Therefore, there are clear pathways between the RTS hazards and the SPA / Ramsar site. The potential effects of those hazards, in the absence of mitigation, could ultimately result in reduced numbers of ducks being able to be supported by the SPA / Ramsar site as a result of direct harm to individual ducks during construction, temporary and permanent loss of habitat used by the ducks, temporary and permanent changes to physical and physical-chemical conditions making existing waterbody habitat less favourable, spread of invasive non-native species making existing waterbody habitat less favourable, and displacement due to disturbance.

The RTS will have a Likely Significant Effect on the qualifying features of the South West London Waterbodies SPA and Ramsar site.

Thames Basin Heaths SPA

The SPA comprises several units within a broad M3 corridor extending south west from the M25, London. The closest unit is 2 km from the project boundary for EIA scoping at the Drinkwater Pit habitat creation area, with most units between 6 km and 25 km away. Some units overlap with the Thursley, Ash, Pirbright & Chobham SAC. The qualifying species utilise lowland heathland habitats and rotationally managed coniferous plantation woodland for breeding (Natural England, 2016c). The RTS will not have any direct effects on any SPA units, none of the SPA units are within the extent of the River Thames 1:100 year floodplain that will be affected by RTS, and, given the distances between the RTS and the SPA units, there are no pathways for any other RTS hazards to affect the supporting habitats. The RTS will not have a Likely Significant Effect on the Thames Basin Heaths SPA.

Richmond Park SAC

The qualifying feature for Richmond Park, stag beetle *Lucanus cervus*, is reliant on decaying wood which in Richmond Park is provided by a large number of ancient trees with decaying timber (Natural England, 2016a). Maintaining an abundance and continuity of supply of this habitat within the park is key to achieving all conservation objectives. The SAC is located 1.8 km from the project boundary for EIA scoping at its closest point at Teddington Weir but is greater than 10 km from the end of Channel Section 2. Therefore there are no pathways for any RTS hazards to affect achievement of conservation objectives. The RTS will not have a Likely Significant Effect on the Richmond Park SAC.

Thursley, Ash, Pirbright & Chobham SAC

The SAC comprises several units containing wet heaths, dry heaths, and depressions on peat substrates of the Rhynchosporion. Maintaining favourable hydrology and water chemistry conditions, low nutrient levels, favourable soil properties, appropriate levels and types of vegetation cover and control of undesirable species are important to achieving the conservation objectives for all qualifying features (Natural England, 2016b). The closest SAC unit is 2 km from the project boundary for EIA scoping at the Drinkwater Pit habitat creation area, with most units between 7 km and 20 km from the RTS. The RTS will not have any direct effects on any SAC units, none of the SAC units are within the extent of the River Thames 1:100 year floodplain that will be affected by RTS, and, given the distances between the RTS and the SAC units, there no pathways for any other RTS hazards to affect the supporting processes. The RTS will not have a Likely Significant Effect on the Thursley, Ash, Pirbright & Chobham SAC.

Mole Gap to Reigate Escarpment SAC

This SAC is located approximately 11.5 km from the project boundary for EIA scoping at its closest points. There are no pathways for any RTS hazards to directly or indirectly affect any of the habitat qualifying features. The distance between the RTS and the SAC also means there are no pathways to affect the great crested newt population in the ponds at Headley Heath.

The other qualifying feature, Bechstein's bat *Myotis bechsteinii*, is closely associated with mature, broadleaved woodland (BCT, 2016) and within the Mole Gap to Reigate Escarpment are known to utilise underground caverns in the chalk as hibernation sites (Natural England, 2019). There are no pathways for the RTS to affect supporting habitats within the SAC boundary but the potential to affect foraging resources outside the SAC, and of potential connectivity to other populations via suitable habitats, was considered. Bat Conservation Trust guidance (BCT, 2016)

defines a Core Sustenance Zone as the “area surrounding a communal roost within which habitat availability and quality will have a significant influence on the resilience and conservation status of the colony using the roost”. For Bechstein’s bat the Core Sustenance Zone is identified as 1km, with a moderate degree of confidence. This means that bats that roost in the Mole Gap to Reigate Escarpment SAC will not rely on habitats within the project boundary for EIA scoping.

There are fragmented areas of broadleaved woodland between the SAC and the project boundary for EIA scoping, but very few ancient woodland areas north of the M25 (Priority Habitat Inventory and Ancient Woodland inventory, viewed on MAGIC, August 2022). The M25 is itself a barrier to movement and dispersal. *Myotis* species have been recorded during bat surveys for the RTS, but there are no specific records for Bechstein’s bats. Overall, the potential for the Mole Gap to Reigate Escarpment population to be functionally connected to other potential populations closer to the RTS is considered very low. The RTS will not have a Likely Significant Effect on the Mole Gap to Reigate Escarpment SAC.

In Combination Effects

The assessment of Likely Significant Effect of RTS acting alone concluded that:

- There would be an LSE on the South West London Waterbodies SPA and Ramsar Site
- There are no conceivable effects on or potential effect pathways between RTS and any other European site.

The potential for in combination effects will be included within the Appropriate Assessment for the South West London Waterbodies SPA and Ramsar site.

In accordance with PINS Advice Note 10, it is not necessary at the HRA Screening stage to consider whether the effects of RTS could combine with any other plan or project that affects any other same European site(s) and qualifying feature(s).

Statement of Screening Outcomes

South West London Waterbodies SPA and Ramsar Site

An LSE on these sites and qualifying features are considered to exist from RTS acting alone, and an AA by the Competent Authority is likely to be required.

Thames Basin Heaths SPA

There would be no conceivable effect on/no potential effect pathways to this European site and its qualifying features as a result of RTS.

Richmond Park Special Area of Conservation (SAC)

There would be no conceivable effect on/no potential effect pathways to this European site and its qualifying features as a result of RTS.

Thursley, Ash, Pirbright & Chobham SAC

There would be no conceivable effect on/no potential effect pathways to this European site and its qualifying features as a result of RTS.

Mole Gap to Reigate Escarpment SAC

There would be no conceivable effect on/no potential effect pathways to this European site and its qualifying features as a result of RTS.

Overall HRA Screening Conclusion

The RTS was assessed as having a likely significant effect on two European and Ramsar sites and their qualifying features acting alone:

- South West London Waterbodies (SWLW) SPA
- South West London Waterbodies (SWLW) Ramsar site.

An Appropriate Assessment (AA) will be required to assess whether the RTS will have an Adverse Effect on Integrity (AEoI) on the SWLW SPA and Ramsar site.

Assessment of SPA / Ramsar Supporting Waterbody Status

Definition of SPA / Ramsar Supporting Waterbody Status

The SWLW SPA and Ramsar sites are spatially identical. They are both designated for gadwall *Mareca (formerly Anas) strepera* over winter and for northern shoveler *Anas clypeata* over winter and when on spring and autumn migration.

The project only has potential to affect three of the waterbodies included in the SWLW designations boundary: St Anne's Lake, Wraysbury Reservoir and Wraysbury 2 (N). However, gadwall and shoveler also use other waterbodies within and nearby the project boundary for EIA scoping. Those waterbodies provide suitable alternative habitats and support the designated site populations and as such have a 'functional linkage' to the SWLW SPA and Ramsar sites, based on the definition in Chapman and Tyldesley (2016).

To determine which of the potentially affected waterbodies outside the SWLW designations boundary could provide a critical supporting function (i.e. whether the habitats are necessary to maintain or restore the conservation status of the designated species), use of the waterbodies by gadwall and shoveler during the

migration and wintering seasons was evaluated. To account for potential disturbance effects, all waterbodies within 100 m of the project boundary for EIA scoping were included in the assessment.

Data from BTO Wetland Bird Surveys and surveys carried out for RTS were used to identify the populations of gadwall and shoveler that regularly use the waterbodies. A waterbody was categorised as ‘supporting’ (i.e. as providing a critical supporting function to) the SWLW SPA and Ramsar site if the numbers of gadwall or shoveler that regularly use it are 1% or greater than the total SWLW population as stated in the protected site citations. The 1% threshold was used to match the threshold used to define nationally or internationally important populations. Under the Ramsar Convention criterion 6, a wetland is considered internationally important if it regularly holds at least 1% of the individuals in a population of one species or subspecies of waterbird. A wetland in Britain is considered nationally important if it regularly holds 1% or more of the estimated British population of one species or subspecies of waterbird (BTO, 2022). So, for the SWLW SPA and Ramsar sites, a waterbody was considered to be ‘supporting’ if it regularly holds 1% or more of the cited population.

The same analysis was carried out for waterbodies upstream of the Runnymede Channel that are outside the project boundary for EIA scoping but where data was available from previous design development stages. This analysis is useful for helping to understand use of waterbodies by gadwall and shoveler across the whole complex. The findings of the analysis for these waterbodies are shown in the appendices but are not discussed further in the text of this report.

Protected Site Populations

The current citations for the SPA and Ramsar site, taken from the Standard Data Form and Ramsar Information Sheets published on the JNCC website, provide markedly different populations (Table 3, Table 4).

Table 3: South West London Waterbodies SPA qualifying features and cited populations

Species	Reason for qualification	Season of occurrence in international importance	Cited Population	Period of source data
Gadwall	Article 4.2 Migratory Species	Winter	710 individuals	5 year mean peak 1993/94 – 1997/98
Shoveler	Article 4.2 Migratory Species	Winter	853 individuals	5 year mean peak 1993/94 – 1997/98

Table 4: South West London Waterbodies Ramsar site qualifying features and cited populations

Species	Reason for qualification	Season of occurrence in international importance	Cited Population	Period of source data
Gadwall	Criteria 6: >1% biogeographic population	Winter	487 individuals	5 year mean peak 1998/99 – 2002/03
Shoveler	Criteria 6: >1% biogeographic population	Migration (spring / autumn)	397 individuals	5 year mean peak 1998/89 – 2002/03

WeBS data and the British Trust for Ornithology report “South West London Waterbodies SPA Wildfowl Population Analysis” (BTO, 1994) were reviewed to understand the apparent discrepancy. This review suggests that the populations stated in the SPA Standard Data Form are the peak count between 1993/94 – 1997/98 and not the mean peak. The Ramsar citation is based on the mean peak between 1998/99 – 2002/03.

PINS Advice Note 10 clarifies that an AA “should conclude on whether an AEol on a European site(s) and qualifying features can or cannot be ruled out. This information should be ‘identified in the light of the best scientific knowledge in the field’. All reasonable scientific doubt that the Proposed Development would not have an AEol must be ruled out, both alone or in combination with other plans or projects, otherwise the Applicant’s assessment will need to move to HRA Stage 3: Derogations”.

To comply with the requirement that “all reasonable scientific doubt that the Proposed Development would not have an AEol must be ruled out...”, when calculating whether a waterbody is categorised as ‘supporting’ the SWLW SPA and Ramsar (i.e. when dividing observed birds by the cited population), the lower baseline populations cited in the Ramsar Information Sheet were used. This is the more precautionary approach.

Data for Numbers of Gadwall and Shoveler that Regularly use Waterbodies

Data for the numbers of gadwall that use waterbodies in winter and the spring and autumn migration periods were obtained from two sources:

- Wetland Bird Survey Data (WeBS) core counts obtained from the British Trust for Ornithology (BTO)

- Surveys commissioned by the Environment Agency specifically to inform RTS.

WeBS counts are not undertaken on every waterbody of interest and data is limited or missing in some years. WeBS data for wintering and migration seasons also only becomes available around 18 months after surveys due to the need to collate and analyse it. The Environment Agency commissioned surveys to fill in gaps in WeBS data coverage, to provide more specific numerical data for waterbodies which are combined into a single WeBS reporting sector, and to provide data on behaviour of birds using the waterbodies. The population used for each waterbody in the assessment of supporting status was either the 5-year mean peak for the most recently available WeBS data, or the mean peak for the available RTS survey data. Appendix C provides a summary of the data sources available for each waterbody.

Non-breeding bird surveys were carried out on behalf of the Environment Agency between December 2021 and February 2022 with a focus on terrestrial habitats within the project boundary. The 2021/22 survey findings were not used when calculating the mean peak for waterbodies because the survey methods were not comparable. No gadwall or shoveler were recorded during the 2021/22 surveys. Flocks of pochard were noted on two occasions (once close to the edge of Manor Lake, once on the banks of Ferry Lane Lake), but none of the other species described as ‘non-qualifying species of interest’ in the SWLW SPA citation (English Nature, 2000) were recorded.

Assessment of Waterbody Supporting Status to SWLW SPA/Ramsar Site

Table 5 shows the calculations for use of waterbodies by gadwall and shoveler, based on the most recent data available for each waterbody divided by the number of birds in the cited Ramsar population.

Table 5: Assessment of Waterbody Supporting Status to SWLW SPA/Ramsar Site

Channel Section	Waterbody	Status	% Cited Ramsar Population	
			Gadwall	Shoveler
Runnymede	Egham Hythe Pond	-	0.6	0.3
	Meadlake	-	0.0	0.0
	Lake south of Green Lane	Supporting	0.0	1.3
	Lake south of Norlands Lane	-	0.0	0.5
	St Ann's Lake	SPA/Ramsar	16.9	0.9

Channel Section	Waterbody	Status	% Cited Ramsar Population	
			Gadwall	Shoveler
	Abbey Lake	Supporting	5.2	0.3
	Manor Lake	Supporting	10.3	7.9
	Fleet Lake	Supporting	6.6	1.8
	Abbey 1	Supporting	4.5	1.1
	Abbey 2	-	0.7	0.0
	Twynersh Lakes Complex (combined)	Supporting	1.2	0.0
	Chertsey Reservoir	-	0.4	0.0
Spelthorne	Littleton North	-	0.9	0.8
	Littleton South	Supporting	5.9	0.2
	Littleton East	Supporting	4.2	1.2
	Sheepwalk West 1	Supporting	1.6	0.0
	Sheepwalk West 2	Supporting	3.2	0.0
	Sheepwalk West 3	-	0.0	0.0
	Sheepwalk East	Supporting	2.9	0.1
	Manor Farm Lake	-	0.0	0.0
	Black Ditch Pond	Supporting	2.1	0.0
	Halliford Mere Complex (combined)	Supporting	0.7	1.3
	Ferry Lane West 1	-	0.0	0.3
	Ferry Lane West 2	-	0.0	0.0
	Ferry Lane West 3	-	0.0	0.0
	Ferry Lane Lake	Supporting	1.0	2.7
Land South of Wraysbury Reservoir HCA	Wraysbury Reservoir	SPA/Ramsar	2.7	0.5
	Blenheim Lake	-	0.2	0.0
	Wraysbury 2 (N)	SPA/Ramsar	9.7	3.0
	Hythe End Central	Supporting	11.9	7.1
	Hythe End West	Supporting	25.1	5.3
	Hythe End East	Supporting	9.2	0.3
Land between Desborough Cut and Engine River HCA	Engine River (Broadwater Lake)	-	0.0	0.0

Based on the analysis presented in Table 5, the following waterbodies were categorised as ‘supporting’ and are within / up to 100m of the project boundary for EIA scoping and could therefore be directly affected or disturbed (also see drawing number ENVIMSE500260-GBV-ZZ-3ZZ-DR-EN-10126, Appendix A):

Runnymede Channel

- Lake south of Green Lane
- Abbey Lake
- Manor Lake
- Fleet Lake
- Abbey 1
- Twynersh Lakes Complex.

Spelthorne Channel

- Littleton South
- Littleton East
- Sheepwalk West 1
- Sheepwalk West 2
- Sheepwalk East
- Black Ditch Pond
- Halliford Mere Complex
- Ferry Lane Lake.

Land South of Wraysbury Reservoir Habitat Creation Area

- Hythe End Central
- Hythe End West
- Hythe End East.

The Appropriate Assessment will consider the effects of the RTS on these 17 waterbodies and the supporting function they provide, in addition to considering the effects on the three waterbodies (St Ann's Lake, Wraysbury Reservoir and Wraysbury 2 (N)) included in the SWLW designations boundary that are potentially affected by the RTS.

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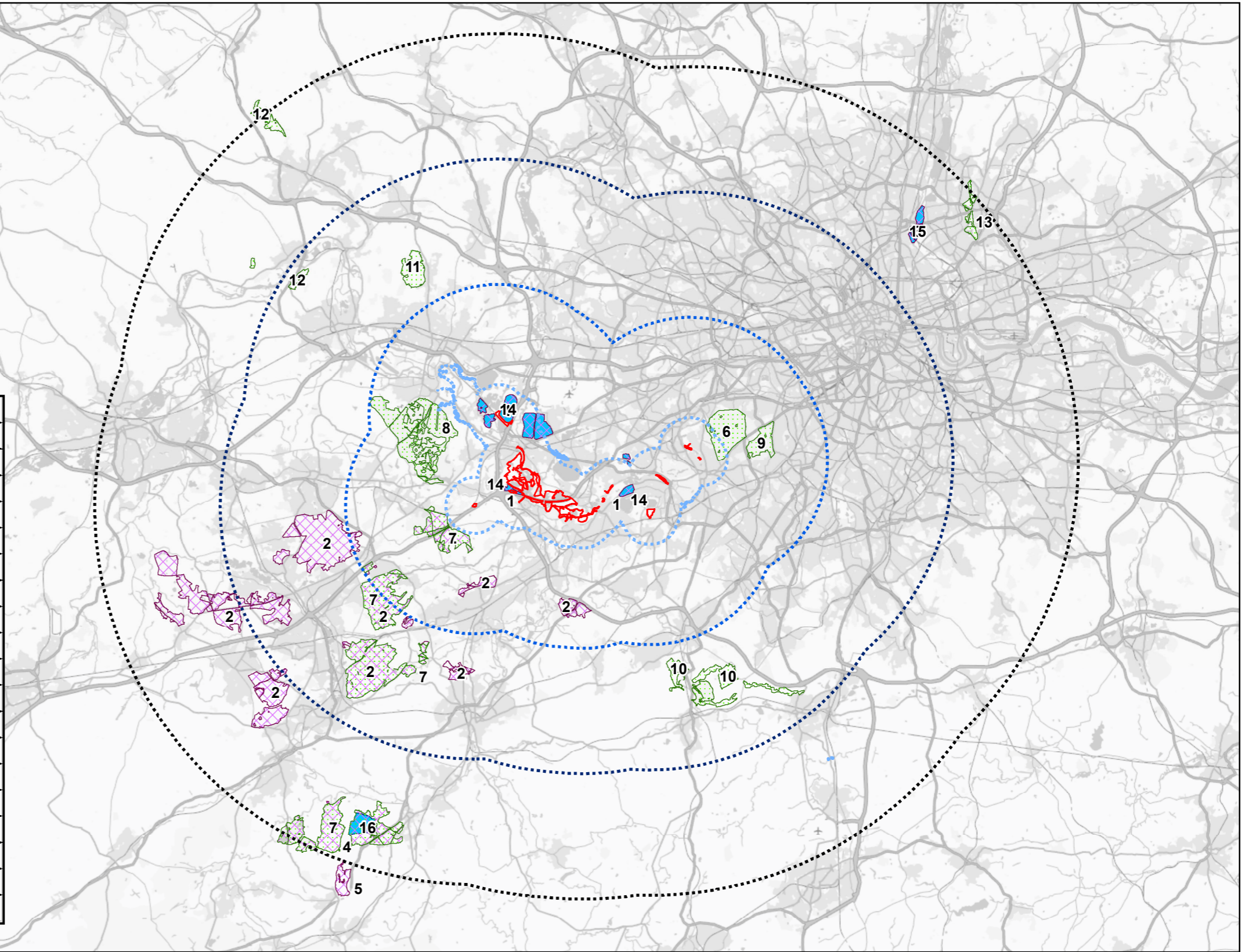
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<https://infrastructure.planninginspectorate.gov.uk/legislation-and-advice/advice-notes/advice-note-ten/>

Appendix A Drawings

ENVIMSE500260-GBV-ZZ-3ZZ-DR-EN-10091 – Habitats Regulations Assessment:
European and Ramsar sites within 30km of project boundary for EIA scoping

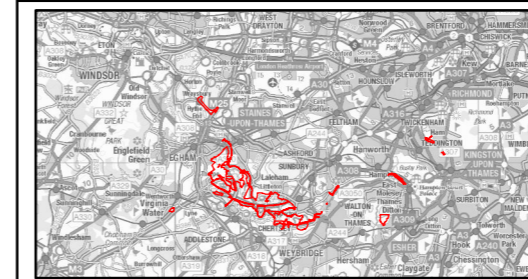
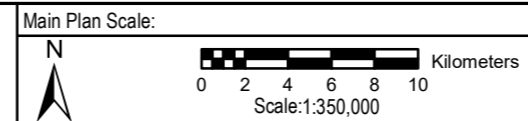
ENVIMSE500260-GBV-ZZ-3ZZ-DR-EN-10126 – Habitats Regulations Assessment:
Supporting waterbodies to the South West London Waterbodies SPA and Ramsar
site

Site ID	Site Name
Special Protection Area (SPA)	
1	South West London Waterbodies
2	Thames Basin heaths
3	Lee Valley
4	Thursley, Hankley & Frensham Commons
5	Wealden Heaths Phase II
Special Area of Conservation (SAC)	
6	Richmond Park
7	Thursley, Ash, Pirbright & Chobham
8	Windsor Forest & Great Park
9	Wimbledon Common
10	Mole Gap to Reigate Escarpment
11	Burnham Beeches
12	Chilterns Beechwoods
13	Epping Forest
Ramsar Site	
14	South West London Waterbodies
15	Lee Valley
16	Thursley & Ockley Bogs



Legend:

- PROJECT BOUNDARY FOR EIA SCOPING
- 2KM BUFFER FROM PROJECT BOUNDARY FOR EIA SCOPING OR 1:100 FLOODPLAIN AFFECTED BY RTS', WHICHEVER IS THE GREATER
- 10KM BUFFER OF PROJECT BOUNDARY (TO IDENTIFY SITES WITH GROUNDWATER DEPENDENT ECOSYSTEMS AND MOBILE SPECIES)
- 20KM BUFFER OF PROJECT BOUNDARY (TO IDENTIFY SITES WITH OTTER AS A QUALIFYING FEATURE)
- 30KM BUFFER OF PROJECT BOUNDARY (TO IDENTIFY SITES WITH BATS AS A QUALIFYING FEATURE)
- SPECIAL AREA OF CONSERVATION (SAC)
- SPECIAL PROTECTION AREA (SPA)
- RAMSAR SITE



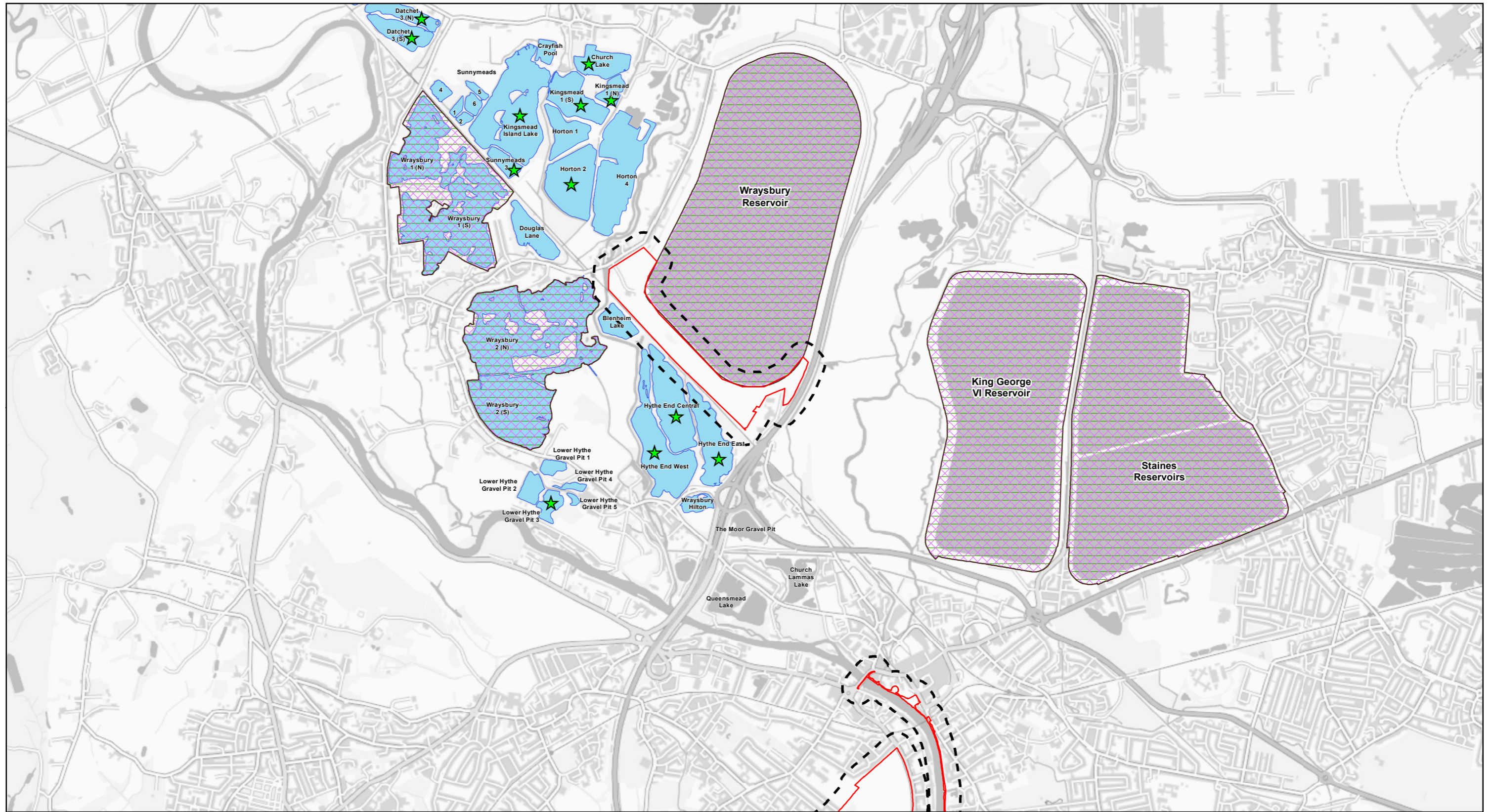
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RIVER THAMES SCHEME						
HABITATS REGULATION ASSESSMENT: EUROPEAN AND RAMSAR SITES WITHIN 30KM OF PROJECT BOUNDARY FOR EIA SCOPING						
Rev.	Drawn	Chkd	Rvwd	Apprvd	Date	Description
P01	AT	RC	AB	VL	18/08/2022	FOR REVIEW AND COMMENT
P02	AT	RC	AB	VL	22/09/2022	UPDATED FOLLOWING CLIENT REVIEW
Status: S3						
Designed by: RC		Date: 08/22		Revision: P02		
Scale: 1:350,000 Project Number: 123703 Drawing Number: ENV/MSE/00260-GBV-ZZ-3ZZ-DR-EN-10091						

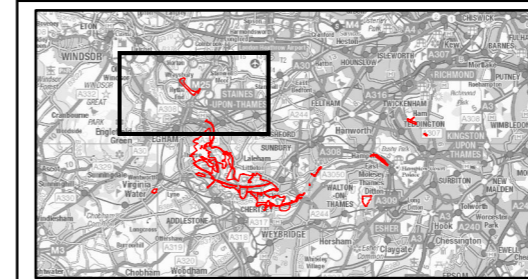
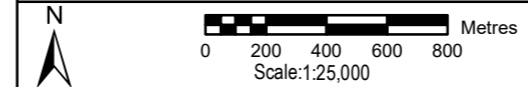
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Legend:

- PROJECT BOUNDARY FOR EIA SCOPING
- PROJECT BOUNDARY 100M DISTURBANCE BUFFER
- SPECIAL PROTECTION AREA (SPA)
- RAMSAR SITE
- LAKES ASSESSED FOR SPA / RAMSAR SUPPORTING STATUS
- SOUTH WEST LONDON WATERBODIES SPA AND RAMSAR SITE SUPPORTING WATERBODY

Main Plan Scale:



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RIVER THAMES SCHEME

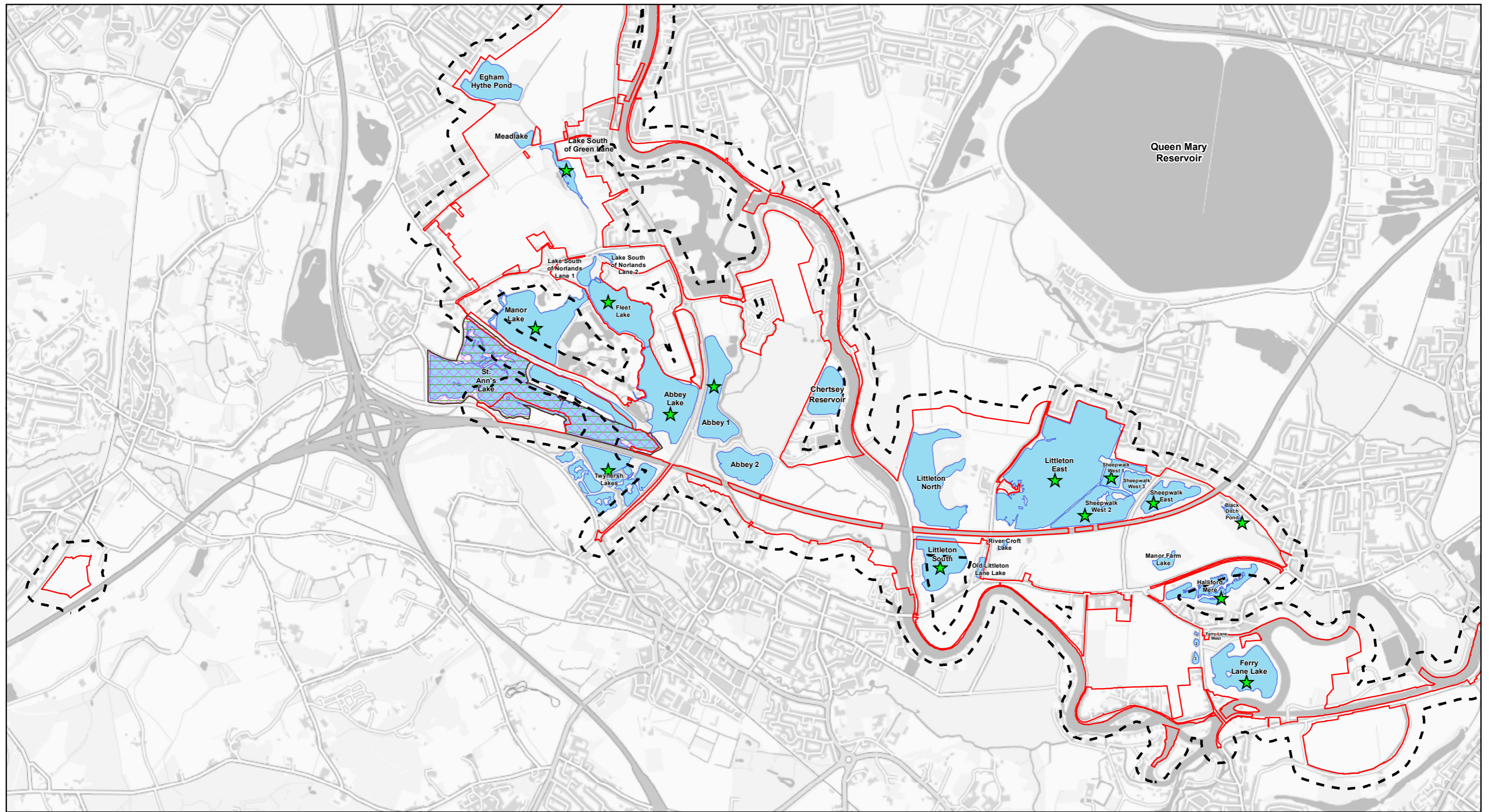
HABITATS REGULATIONS ASSESSMENT: SUPPORTING WATERBODIES TO THE SOUTH WEST LONDON WATERBODIES SPA AND RAMSAR SITE
SHEET 1 OF 3

Rev.	Drawn	Chkd	Rwdd	Appr'd	Date	Description
P01	MA	AB	VL	VL	24/08/2022	FOR REVIEW AND COMMENT
P02	MA	AB	VL	VL	22/09/2022	UPDATED FOLLOWING CLIENT REVIEW

Status: S3						
Designed by: AB		Date: 08/22			Revision: P01	

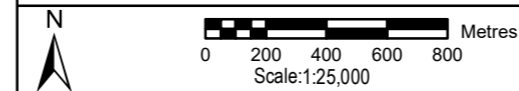
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- Legend:**
- PROJECT BOUNDARY FOR EIA SCOPING
 - PROJECT BOUNDARY 100M DISTURBANCE BUFFER
 - SPECIAL PROTECTION AREA (SPA)
 - RAMSAR SITE
 - LAKES ASSESSED FOR SPA / RAMSAR SUPPORTING STATUS
 - ★ SOUTH WEST LONDON WATERBODIES SPA AND RAMSAR SITE SUPPORTING WATERBODY

Main Plan Scale:



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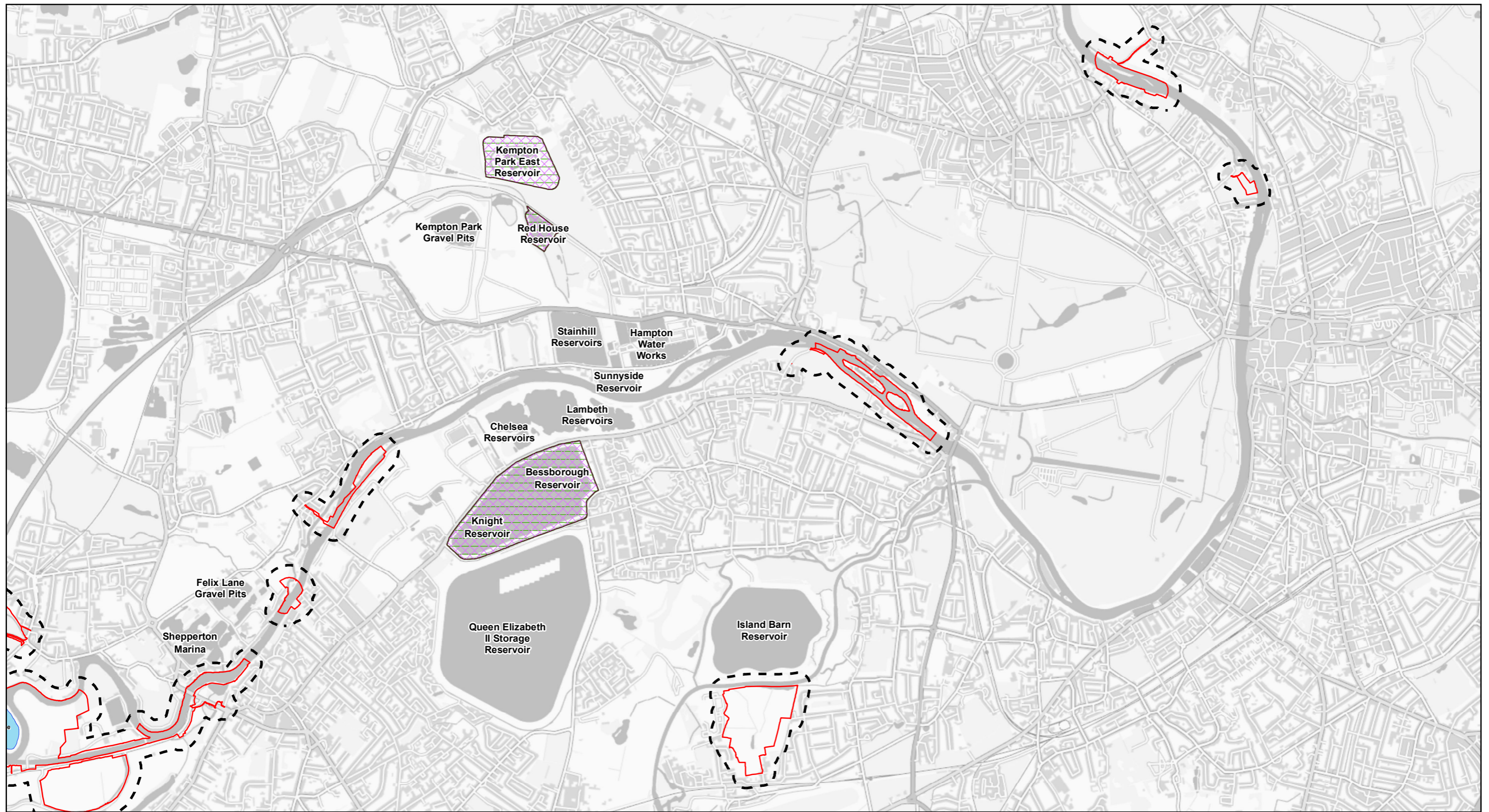
RIVER THAMES SCHEME

HABITATS REGULATIONS ASSESSMENT: SUPPORTING WATERBODIES TO THE SOUTH WEST LONDON WATERBODIES SPA AND RAMSAR SITE SHEET 2 OF 3

Rev.	Drawn	Chkd	Rwdd	Apprvd	Date	Description
P01	MA	AB	VL	VL	24/08/2022	FOR REVIEW AND COMMENT
P02	MA	AB	VL	VL	22/09/2022	UPDATED FOLLOWING CLIENT REVIEW

Status: S3						
Designed by: AB		Date: 08/22			Revision: P01	

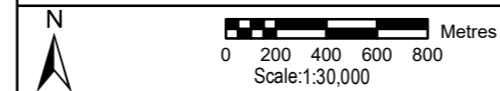
Scale: 1:25,000 Project Number: 123703 Drawing Number: ENVMS500260-GBV-ZZ-32-DR-EN-10126



Legend:

- PROJECT BOUNDARY FOR EIA SCOPING
- PROJECT BOUNDARY 100M DISTURBANCE BUFFER
- SPECIAL PROTECTION AREA (SPA)
- RAMSAR SITE
- LAKES ASSESSEED FOR SPA / RAMSAR SUPPORTING STATUS

Main Plan Scale:



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RIVER THAMES SCHEME

HABITATS REGULATIONS ASSESSMENT: SUPPORTING
WATERBODIES TO THE SOUTH WEST LONDON
WATERBODIES SPA AND RAMSAR SITE
SHEET 3 OF 3

Rev.	Drawn	Chkd	Rvwd	Apprd	Date	Description
P01	MA	AB	VL	VL	24/08/2022	FOR REVIEW AND COMMENT
P02	MA	AB	VL	VL	22/09/2022	UPDATED FOLLOWING CLIENT REVIEW

Status: S3						
Designed by: AB		Date: 08/22		Revision: P01		

Scale: 1:30,000 Project Number: 123703 Drawing Number: ENV/MSE/00260-GBV-ZZ-3Z2-DR-EN-10126

Appendix B Assessment of Potential Pathways for Effects

Table B1: Key to Assessment Tables

Construction Phase Hazards	
C1	Direct harm to qualifying features (individuals or habitats)
C2	Temporary habitat loss
C3	Changes to physical structure and function of habitats
C4	Changes to physico-chemical conditions
C5	Introduction and spread of Invasive Non-Native / Alien Species (INNS)
C6	Displacement
Operation Phase Hazards	
O1	Permanent habitat loss
O2	Changes to physical structure and function of habitats
O3	Changes to physico-chemical conditions
O4	Introduction and spread of Invasive Non-Native / Alien Species (INNS)
O5	Displacement
Assessment	
x	No potential pathway for effect
P	Potential pathway for effect from this RTS hazard

Table B2: Assessment of pathways to effects for South West London Waterbodies SPA and Ramsar Site

Conservation Objective	Hazards (see table 2)											
	C1	C2	C3	C4	C5	C6	O1	O2	O3	O4	O5	
Species Feature:												
A051. <i>Anas Strepera</i> ; Gadwall (non-breeding)												
A056. <i>Maraea</i> (formally <i>Anas</i>) <i>clypeata</i> ; Northern shoveler (non-breeding)												
Maintaining or restoring:												
<ul style="list-style-type: none"> The extent and distribution of the habitats of the qualifying features 	x	P	x	x	x	x	P	x	x	P	x	
<ul style="list-style-type: none"> The structure and function of the habitats of the qualifying features 	x	x	P	x	P	x	x	P	x	P	P	
<ul style="list-style-type: none"> The supporting processes on which the habitats of the qualifying features rely 	x	x	x	P	x	x	x	x	P	P	x	
<ul style="list-style-type: none"> The population of each of the qualifying features 	P	P	P	P	P	P	P	P	P	P	P	P
<ul style="list-style-type: none"> The distribution of the qualifying features within the site 	P	P	P	P	P	P	P	P	P	P	P	P

Table B3: Assessment of pathways to effects for Thames Basin Heaths SPA

Conservation Objective	Hazards (see table 2)											
	C1	C2	C3	C4	C5	C6	O1	O2	O3	O4	O5	
Species Features:												
A224 <i>Caprimulgus europaeus</i> European nightjar (Breeding)												
A246 <i>Lullula arborea</i> Woodlark (Breeding)												
A302 <i>Sylvia undata</i> Dartford warbler (Breeding)												
Maintaining or restoring:												
• The extent and distribution of the habitats of the qualifying features	x	x	x	x	x	x	x	x	x	x	x	x
• The structure and function of the habitats of the qualifying features	x	x	x	x	x	x	x	x	x	x	x	x
• The supporting processes on which the habitats of the qualifying features rely	x	x	x	x	x	x	x	x	x	x	x	x
• The population of each of the qualifying features	x	x	x	x	x	x	x	x	x	x	x	x
• The distribution of the qualifying features within the site	x	x	x	x	x	x	x	x	x	x	x	x

Table B4: Assessment of potential pathways for effects for Richmond Park SAC

Conservation Objective	RTS Hazards											
	C1	C2	C3	C4	C5	C6	O1	O2	O3	O4	O5	
Species Feature: S1083. <i>Lucanus cervus</i>; Stag beetle												
Maintaining or restoring:												
<ul style="list-style-type: none"> The extent and distribution of the habitats of qualifying species 	x	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> The structure and function of the habitats of qualifying species 	x	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> The supporting processes on which the habitats of qualifying species rely 	x	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> The populations of qualifying species 	x	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> The distribution of qualifying species within the site 	x	x	x	x	x	x	x	x	x	x	x	x

Table B5: Assessment of pathways to effects for Thursley, Ash, Pirbright & Chobham SAC

Conservation Objective	RTS Hazards											
	C1	C2	C3	C4	C5	C6	O1	O2	O3	O4	O5	
Habitat Features:												
H4010. Northern Atlantic wet heaths with <i>Erica tetralix</i> ; Wet heathland with cross-leaved heath												
H4030. European dry heaths												
H7150. Depressions on peat substrates of the Rhynchosporion												
Maintaining or restoring:												
• The extent and distribution of qualifying natural habitats	x	x	x	x	x	x	x	x	x	x	x	x
• The structure and function (including typical species) of qualifying natural habitats	x	x	x	x	x	x	x	x	x	x	x	x
• The supporting processes on which qualifying natural habitats rely	x	x	x	x	x	x	x	x	x	x	x	x

Table B6: Assessment of pathways to effects for Mole Gap to Reigate Escarpment SAC

Conservation Objective	RTS Hazards										
	C1	C2	C3	C4	C5	C6	O1	O2	O3	O4	O5
Habitats Features:											
H4030. European dry heaths											
H5110. Stable xerothermophilous formations with <i>Buxus sempervirens</i> on rock slopes (<i>Berberidion</i> p.p.); Natural box scrub											
H6210. Semi-natural dry grasslands and scrubland facies: on calcareous substrates (<i>FestucoBrometalia</i>) (important orchid sites); Dry grasslands and scrublands on chalk or limestone (important orchid sites)*											
H9130. <i>Asperulo-Fagetum</i> beech forests; Beech forests on neutral to rich soils											
H91J0. <i>Taxus baccata</i> woods of the British Isles; Yew-dominated woodland*											
Maintaining or restoring:											
<ul style="list-style-type: none"> The extent and distribution of qualifying natural habitats and habitats of qualifying species 	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> The structure and function (including typical species) of qualifying natural habitats 	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely 	x	x	x	x	x	x	x	x	x	x	x

Conservation Objective	RTS Hazards											
	C1	C2	C3	C4	C5	C6	O1	O2	O3	O4	O5	
Species Features:												
S1166. <i>Triturus cristatus</i> ; Great crested newt												
S1323. <i>Myotis bechsteini</i> ; Bechstein`s bat												
Maintaining or restoring:												
<ul style="list-style-type: none"> The extent and distribution of qualifying natural habitats and habitats of qualifying species 	x	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> The structure and function of the habitats of qualifying species 	x	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely 	x	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> The populations of qualifying species 	x	x	x	x	x	x	x	x	x	x	x	x
<ul style="list-style-type: none"> The distribution of qualifying species within the site 	x	x	x	x	x	x	x	x	x	x	x	x

Appendix C Summary of Data Sources for use of Waterbodies by Gadwall and Shoveler

Table C1: Summary of Data Sources for use of Waterbodies by Gadwall and Shoveler

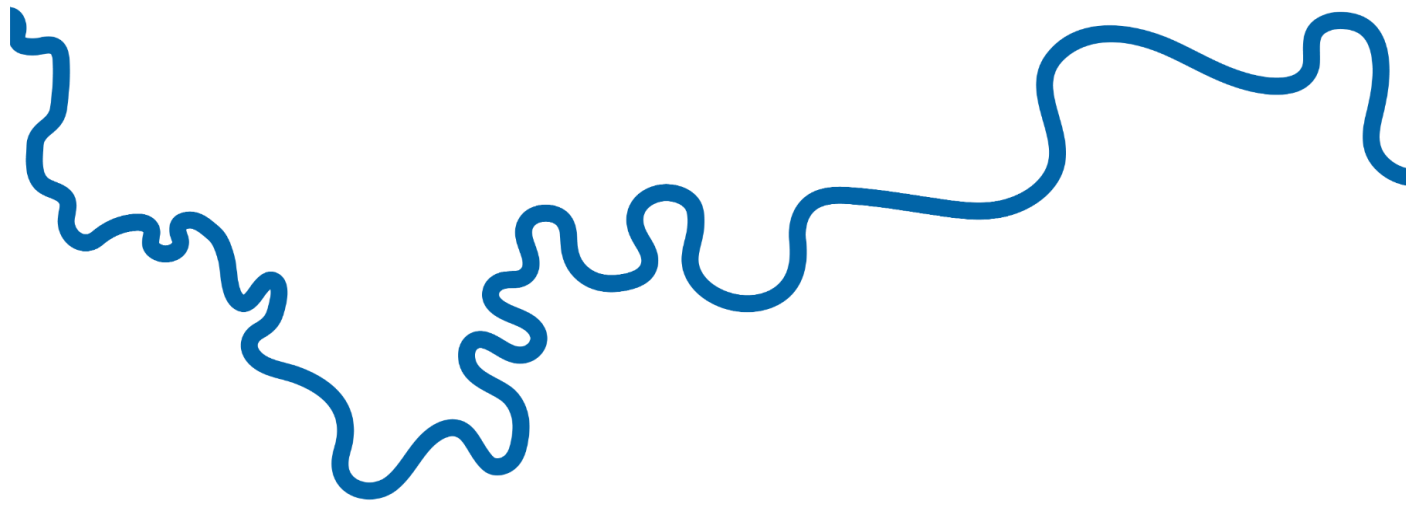
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			RTS Env Monitoring	WeBS	RTS Env Monitoring	WeBS	RTS Env Monitoring	WeBS	WeBS	WeBS	WeBS	RTS Env Monitoring	WeBS	WeBS	RTS Env Monitoring
Runnymede	Egham Hythe Pond	Egham Hythe Lake		Y		Y		Y	Y	Y	Y	Y			
	Meadlake	Egham Hythe Pond													Y
	Lake south of Green Lane	Feltham Piscatorial													Y
	Lake south of Norlands Lane	Lake south of Norlands Lane													Y
	St Ann's (in SPA)	Thorpe Water Park Pit 1	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
	Abbey Lake	Thorpe Water Park Pit 2	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
	Manor Lake	Thorpe Water Park Pit 3	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
	Fleet Lake	Thorpe Water Park Pit 4	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
	Abbey 1	Thorpe Water Park Pit 12+13	Y	Y	Y	Y	Y	Y	Y	Y	Y		Y	Y	Y
	Abbey 2	n/a	Y		Y		Y					Y			Y
	Chertsey Reservoir	Chertsey Reservoir										Y			
	Twynersh Lakes Complex	Twynersh Fishing complex										Y			
Spelthorne	Littleton North	Littleton Lane West	Y		Y		Y					Y			Y
	Littleton South	Littleton Lane West	Y		Y		Y					Y			Y
	Littleton East	Littleton Lane East Gravel Pit	Y		Y		Y					Y			Y
	Sheepwalk West 1	Sheepwalk Gravel Pits (North)										Y			Y
	Sheepwalk West 2	Sheepwalk Gravel Pits (North)	Y		Y		Y					Y			Y
	Sheepwalk West 3	Sheepwalk Gravel Pits (North)										Y			Y

Channel section	Lake	WeBS sector name	2012/13		2013/14		2014/15		2015/16	2016/17	2017/18	2018/19		2019/20	2020/21
			RTS Env Monitoring	WeBS	RTS Env Monitoring	WeBS	RTS Env Monitoring	WeBS	WeBS	WeBS	WeBS	RTS Env Monitoring	WeBS	WeBS	RTS Env Monitoring
	Sheepwalk East	Sheepwalk Gravel Pits (East)	Y		Y		Y					Y			Y
	Manor Farm Lake	Sheepwalk Gravel Pits (South)										Y			Y
	Black Ditch Pond	Sheepwalk Gravel Pits (South)													Y
	Halliford Mere Complex	Halliford Mere										Y	Y		Y
	Ferry Lane West 1	n/a													Y
	Ferry Lane West 2	n/a													Y
	Ferry Lane West 3	n/a													Y
	Ferry Lane Lake	Ferry Lane Gravel Pit	Y		Y		Y					Y			Y
Land South of Wraysbury Reservoir HCA	Wraysbury Reservoir (SPA)	Wraysbury Reservoir		Y		Y		Y	Y	Y	Y	Y			
	Blenheim Lake	Wraysbury Blenheim Fishing Lake		Y		Y		Y	Y	Y					
	Wraysbury 2 (N)	Wraysbury 2 (N) gravel pit	Y	Y	Y	Y	Y	Y	Y		Y				
	Hythe End Central	Colne Mere		Y		Y		Y	Y	Y	Y				
	Hythe End West	Hythe Lagoon		Y		Y		Y	Y	Y	Y				
	Hythe End East	Heron Lake					Y					Y			
Land between Desborough Cut and Engine River HCA	Engine River	Broadwater Lake (Walton/Weybridge)												Y	
Upstream of Runnymede Channel (outside of project boundary for EIA Scoping)	Datchet 2	Datchet Gravel Pits	Y		Y		Y					Y			
	Datchet 3 (N&S)	Datchet Gravel Pits	Y		Y		Y					Y			
	Sunnymeads (1-6)	Kingsmead Island Lake	Y (1-3 only)	Y	Y (1-3 only)	Y	Y (1-3 only)	Y	Y	Y	Y				

Channel section	Lake	WeBS sector name	2012/13		2013/14		2014/15		2015/16	2016/17	2017/18	2018/19		2019/20	2020/21
			RTS Env Monitoring	WeBS	RTS Env Monitoring	WeBS	RTS Env Monitoring	WeBS	WeBS	WeBS	WeBS	RTS Env Monitoring	WeBS	WeBS	RTS Env Monitoring
	Kingsmead Island Lake	Kingsmead Island Lake	Y	Y	Y	Y	Y	Y	Y	Y	Y				
	Horton 1	Horton Gravel Pits (South)										Y			
	Horton 2	Horton Gravel Pits (South)										Y			
	Kingsmead 1 (N)	Horton Gravel Pits		Y		Y		Y	Y	Y	Y	Y			
	Kingsmead 1 (S)	Horton Gravel Pits		Y		Y		Y	Y	Y	Y	Y			
	Church Lake	Horton Gravel Pits		Y		Y		Y	Y	Y	Y				
	Douglas Lake	Wraysbury Dive Pit		Y		Y		Y	Y	Y					
	Wraysbury 1 gravel pits (N & S)	Wraysbury I (North); Wraysbury I (South)	Y		Y		Y					Y			
	Wraysbury 2 (S)	Wraysbury 2 (S) gravel pit		Y		Y	Y	Y	Y	Y	Y				
	Lower Hythe Gravel Pits 1 - 5	Lower Hythe GP										Y			
	Wraysbury Hilton	Hilton Gravel Pit		Y		Y		Y	Y	Y	Y				

Key:

RTS Env Monitoring	Surveys commissioned by the Environment Agency specifically to inform the River Thames Scheme
WeBS	Wetland Bird Survey Data (core counts) obtained from the British Trust for Ornithology (BTO)



The River Thames Scheme, delivered in a partnership led by the Environment Agency and Surrey County Council, will reduce flood risk for residents and businesses and improve the surrounding area.