

Lower Thames Crossing

Post-Consultation Scheme Assessment Report

Volume 6: Environmental Appraisal
Section 10: Appendices

Volume 6

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— Route Alignments
 ○ Junction
Constraints
 ▨ Area of Outstanding Natural Beauty (National value)
 ■ Green Belt (Regional value)
 - - - District Boundary
 — County Boundary

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Client

Halcrow Hyder Joint Venture
 Burderop Park
 Swindon, SN4 0QD
 Tel. +44(0)1793 812479

Project **LOWER THAMES
 CROSSING**

Drawing Title
**Landscape / Townscape
 Constraints**

Status	S5	Revision	P02
Scale	1:75,000	Date	08/08/16
Drawn By	L.HULME		
Checked By	S.RIMELL		
Approved By	A.SAUNDERS		
Project No.	HA PIN	Originator	Original Size
HA540039	HHJ		A3
Drawing Number	HHJ-EGN-ZZZZZZZEG-MP-EN-0001		

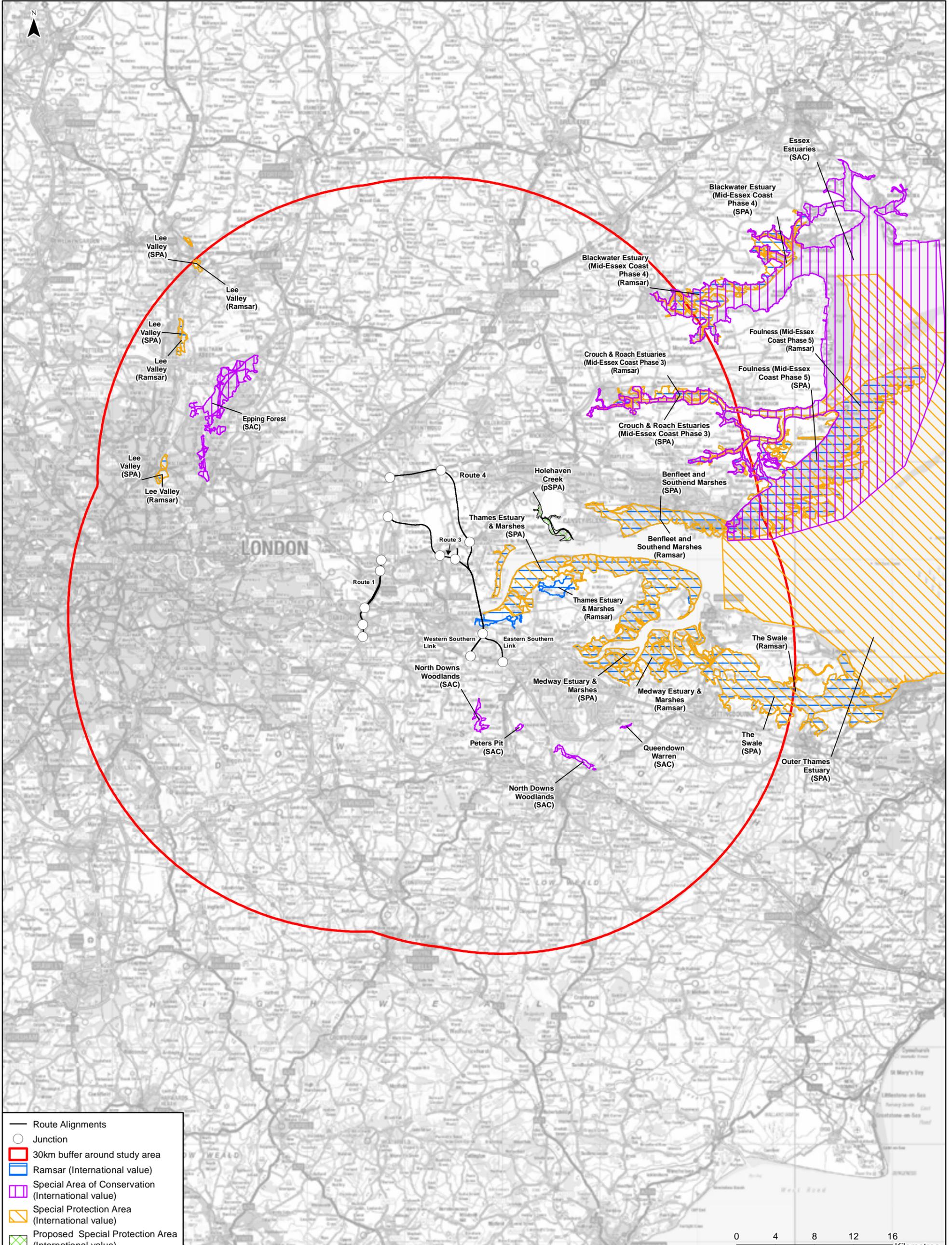
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P02	S5	08/08/16	Post Consultation SAR Issue	LH	SR	AS
P01	S5	18/01/16	SAR ISSUE	LH	SR	AS



- Junction
 - Route Alignments
 - - - District Boundary
 - County Boundary
- Major Planned Development**
- Basildon
 - Bexley
 - Brentwood
 - Dartford
 - Gravesham
 - Havering
 - Maidstone
 - Medway
 - Thurrock
 - Tonbridge and Malling
- Ecological Constraints**
- Ramsar (International value)
 - Special Area of Conservation (International value)
 - Special Protection Area (International value)
 - Ancient Woodland (National value)
 - Site of Special Scientific Interest (National value)
 - Recommended Marine Conservation Zone (National value)
 - Local Nature Reserve (Local value)
 - Local Wildlife Site (Local value)
 - Public Open Space (Barking & Dagenham)
- Cultural Heritage Constraints**
- Grade I Listed Building (National value)
 - Grade II* Listed Building (National value)
 - Grade II Listed Building (Regional value)
 - Scheduled Monument (National value)
 - Registered Parks and Garden (National value)
 - Conservation Area (National - Local value)
 - Local Historic Landscape (Local value)
- Landscape and Visual Amenity Constraints**
- Area of Outstanding Natural Beauty (National value)

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		Drawing Title Biodiversity, Historic Environment and Planning Constraints		Scale 1:75,000		Date 08/08/16			
P02 S5 08/08/16 Post Consultation SAR Issue LH SR AS P01 S5 18/01/16 SAR ISSUE LH SR AS		Rev Status Rev Date Purpose of revision Drawn Chkd Appr'd		Drawn By L.HULME		Checked By S.RIMMEL		Approved By A.SAUNDERS	
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				Drawing Number HHJ-EGN-ZZZZZZZZEG-MP-EN-0002					



- Route Alignments
- Junction
- ▭ 30km buffer around study area
- ▭ Ramsar (International value)
- ▭ Special Area of Conservation (International value)
- ▭ Special Protection Area (International value)
- ▭ Proposed Special Protection Area (International value)



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P02	S5	08/08/16	Post Consultation SAR Issue	LH	SR	AS
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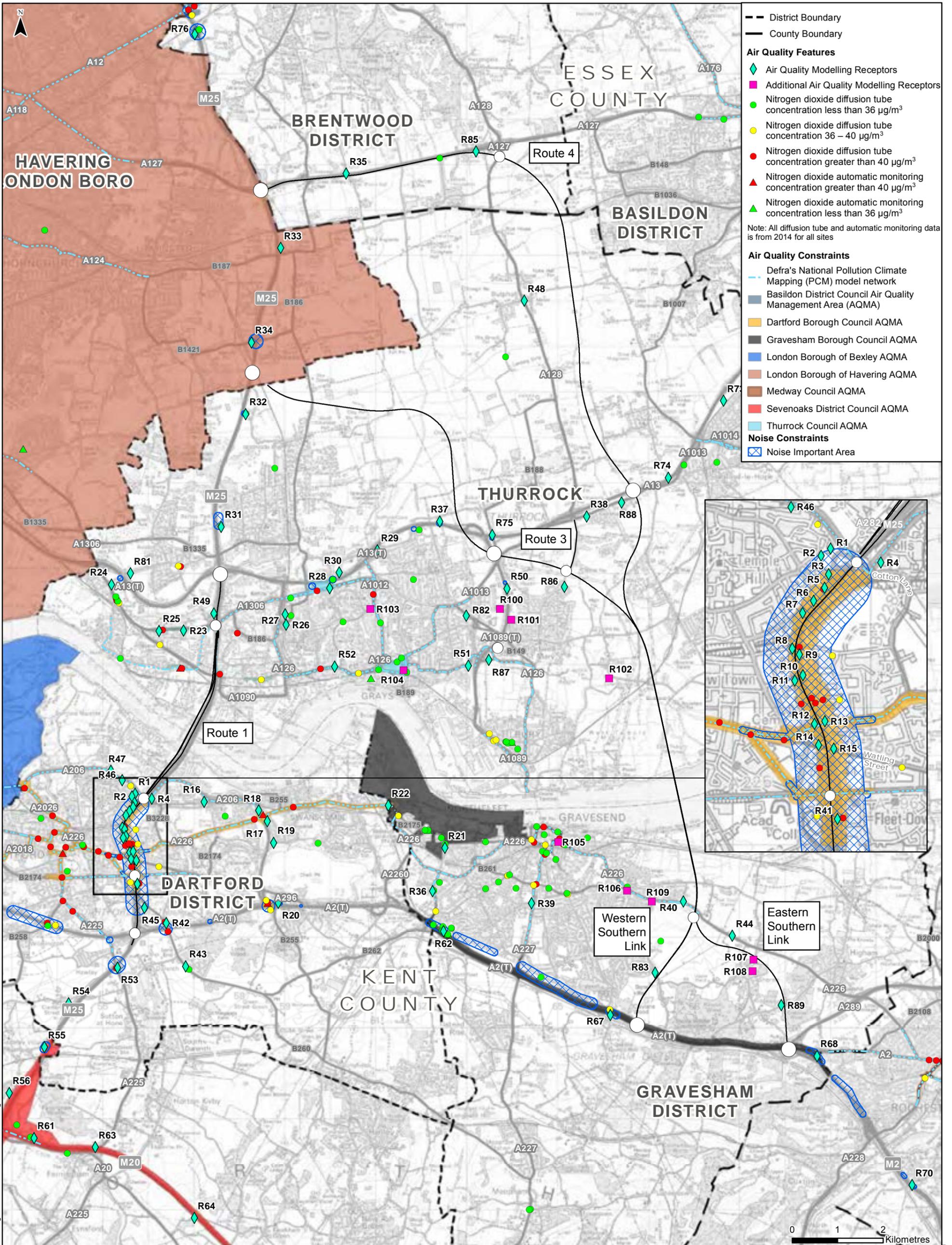
Client

Halcrow Hyder Joint Venture
 Burdorp Park
 Swindon, SN4 0QD
 Tel. +44(0)1793 812479

Project **LOWER THAMES CROSSING**

Drawing Title **Internationally Designated Sites**

Status	S5	Revision	P02
Scale	1:350,000	Date	08/08/16
Drawn By	L.HULME		
Checked By	S.RIMELL		
Approved By	A.SAUNDERS		
Project No.	HA PIN	Originator	Original Size
HA540039	HHJ		A3
Drawing Number	HHJ-EGN-ZZZZZZZEG-MP-EN-0003		



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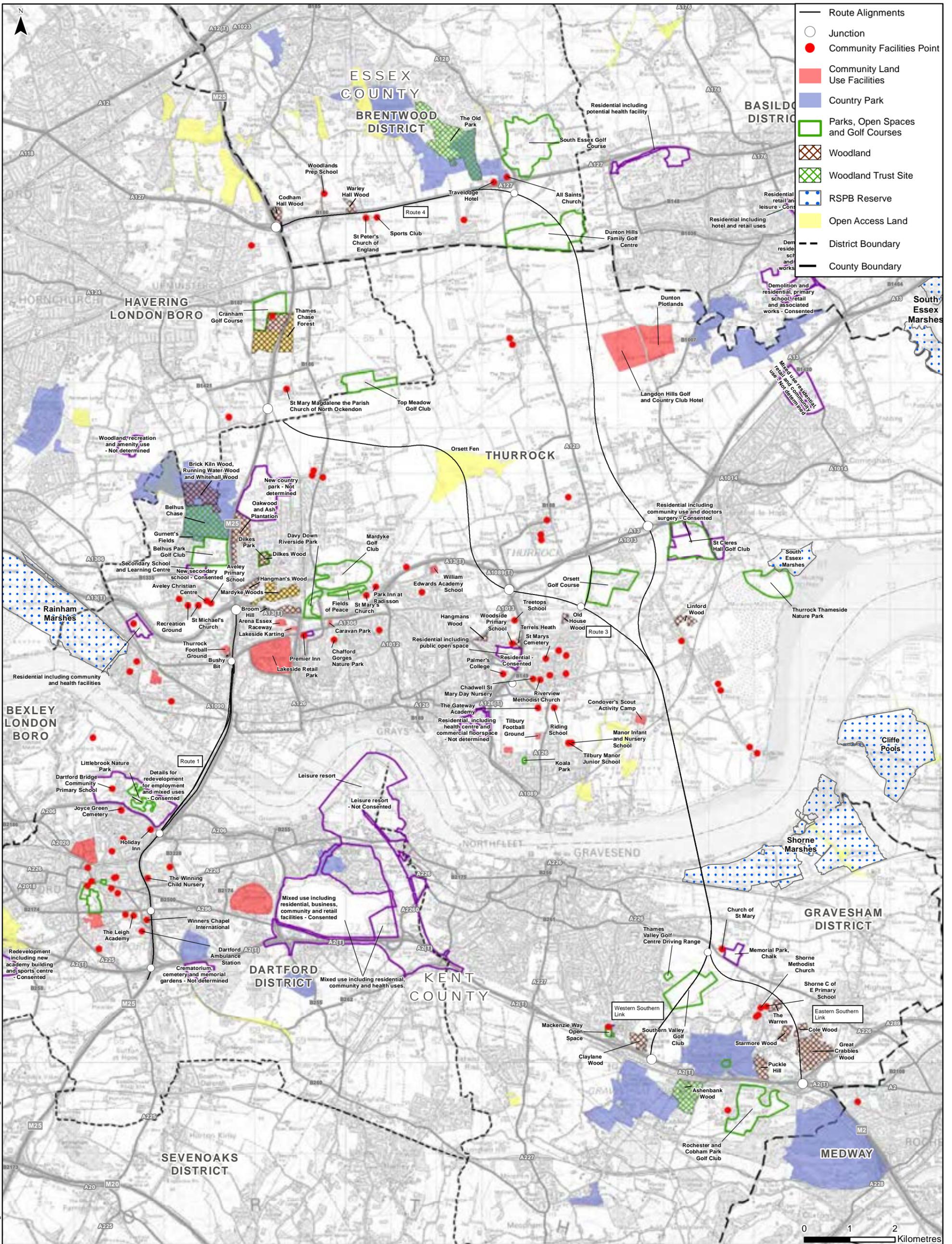
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Project LOWER THAMES CROSSING
 Drawing Title Air and Noise Constraints and Air Quality Modelling Receptor Locations

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Scale	1:75,000	Date	08/08/16
Drawn By	L.HULME		
Checked By	S.RIMELL		
Approved By	A.SAUNDERS		
Project No.	HA PIN	Originator	Original Size
HA540039	HHJ		A3
Drawing Number	HHJ-EGN-ZZZZZZZEG-MP-EN-0004		

Rev	Status	Rev. Date	Purpose of revision	Drawn	Chk'd	Appr'd
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Client						
Project	LOWER THAMES CROSSING					
Drawing Title	Community Land Use Constraints					
Project No.	HA	PIN	Originator	Original Size	A3	
	HA540039	HHJ				
Drawing Number	HHJ-EGN-ZZZZZZZZEG-MP-EN-0005					
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chk'd	Appr'd
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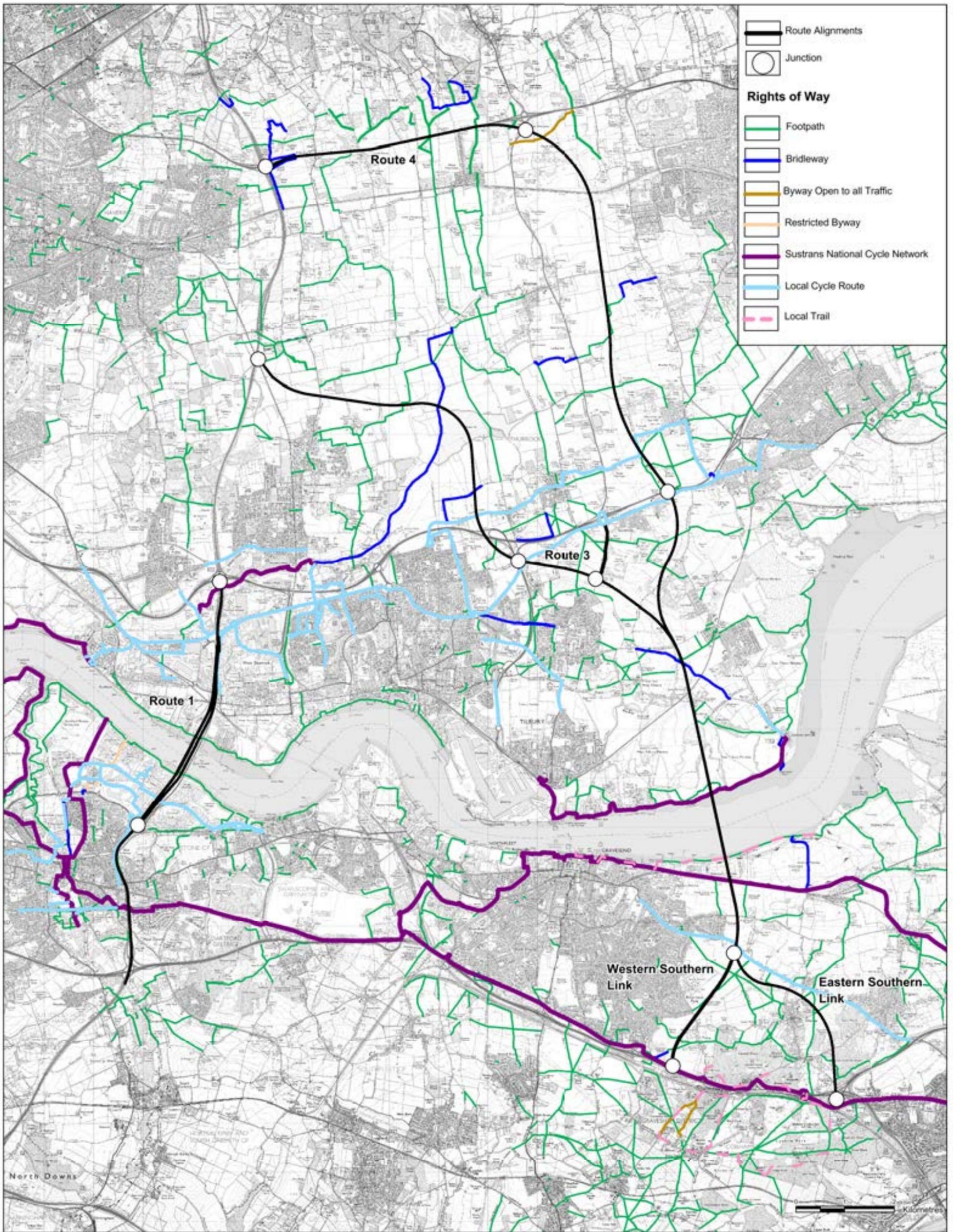
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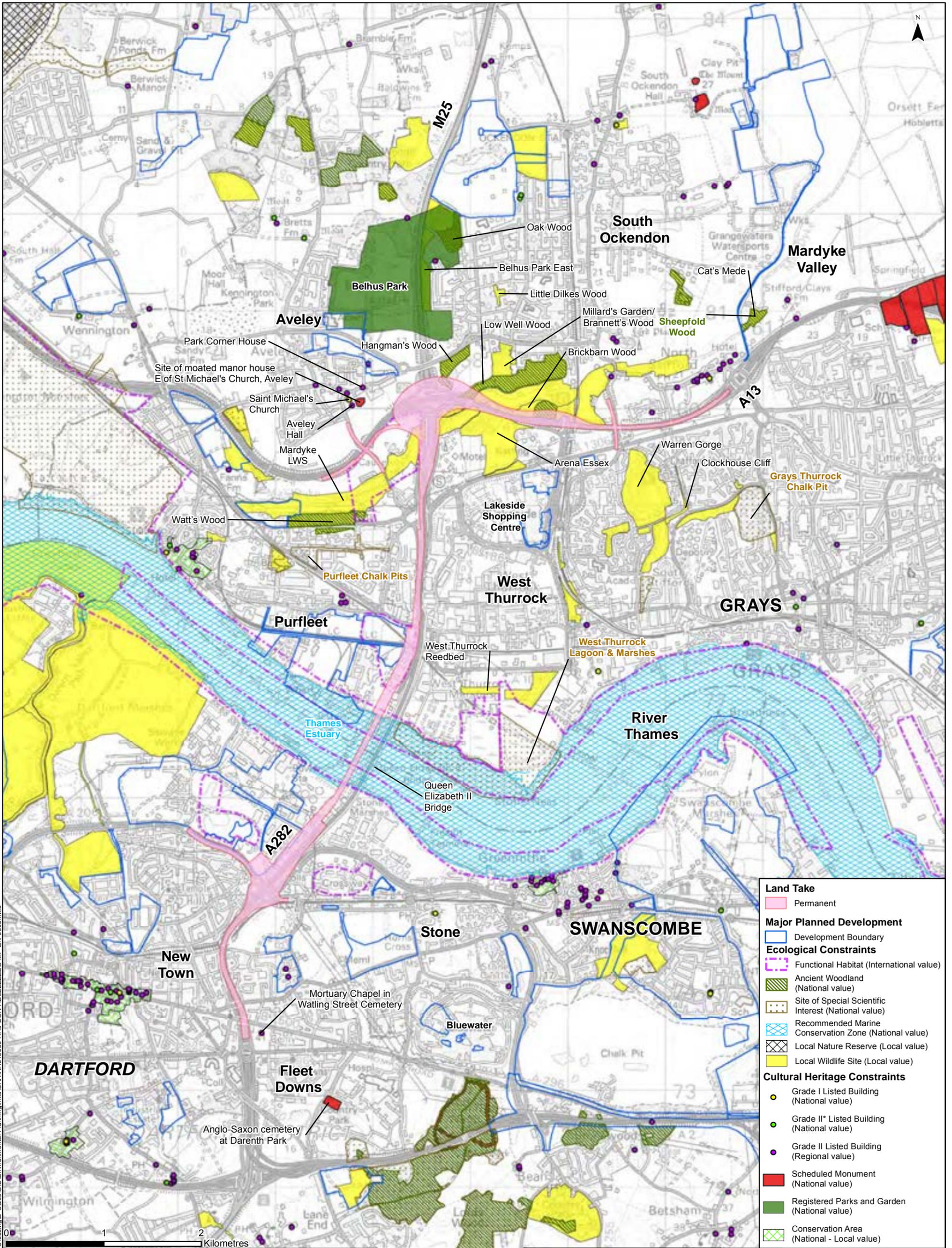
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Checked By	S.RIMELL		
Approved By	A.SAUNDERS		

Project No.	HA	PIN	Originator	Original Size	A3
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Drawing Number	HHJ-EGN-ZZZZZZZZEG-MP-EN-0005				



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		Client Halcrow Hyder Joint Venture Building Park Stevenage, Herts SG1 2DD Tel: +44(0)1438 74279		Drawing Title Public Rights of Way and Cycle Routes		Scale 1:70,000		Date 22/06/2016	
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Rev Status Rev Date Purpose of revision Drawn Checked Approved		Project No. HA540039		Approved By A.SAUNDERS		Drawing Number HHJ-EGN-ZZZZZZZZEG-MP-EN-0006			



Land Take	Permanent
Major Planned Development	Development Boundary
Ecological Constraints	Functional Habitat (International value)
	Ancient Woodland (National value)
	Site of Special Scientific Interest (National value)
	Recommended Marine Conservation Zone (National value)
	Local Nature Reserve (Local value)
	Local Wildlife Site (Local value)
Cultural Heritage Constraints	Grade I Listed Building (National value)
	Grade II* Listed Building (National value)
	Grade II Listed Building (Regional value)
	Scheduled Monument (National value)
	Registered Parks and Garden (National value)
	Conservation Area (National - Local value)

Rev	Status	Rev. Date	Purpose of revision	Drawn	Chck'd	Appr'd
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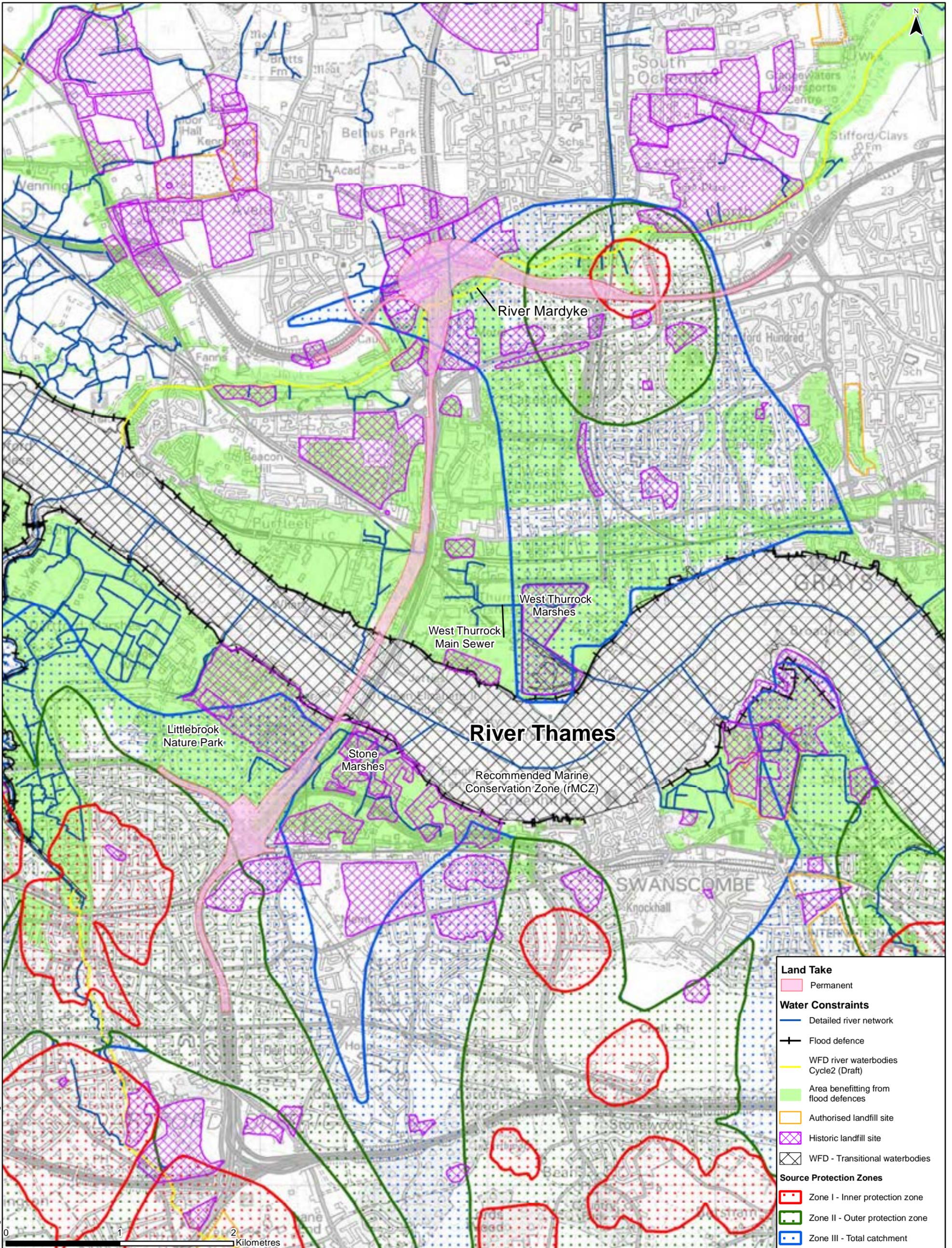
**LOWER THAMES
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Drawing Title

**Route 1 Bridge
 Land Take
 High Level Constraints**

Status	S5	Revision	P02
Scale	1:35,000	Date	08/08/16
Drawn By	L.HULME		
Checked By	S.RIMELL		
Approved By	A.SAUNDERS		
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HA540039	HHJ		A3
Drawing Number	HHJ-EGN-AD0ZZZZZEG-MP-EN-0003		

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Project	LOWER THAMES CROSSING					
Drawing Title	Route 1 Bridge Land Take Water Constraints					
Client						
Project No.	HA	PIN	Originator	Original Size	A3	
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Drawing Number	HHJ-EGN-AD0ZZZZZEG-MP-EN-0004					
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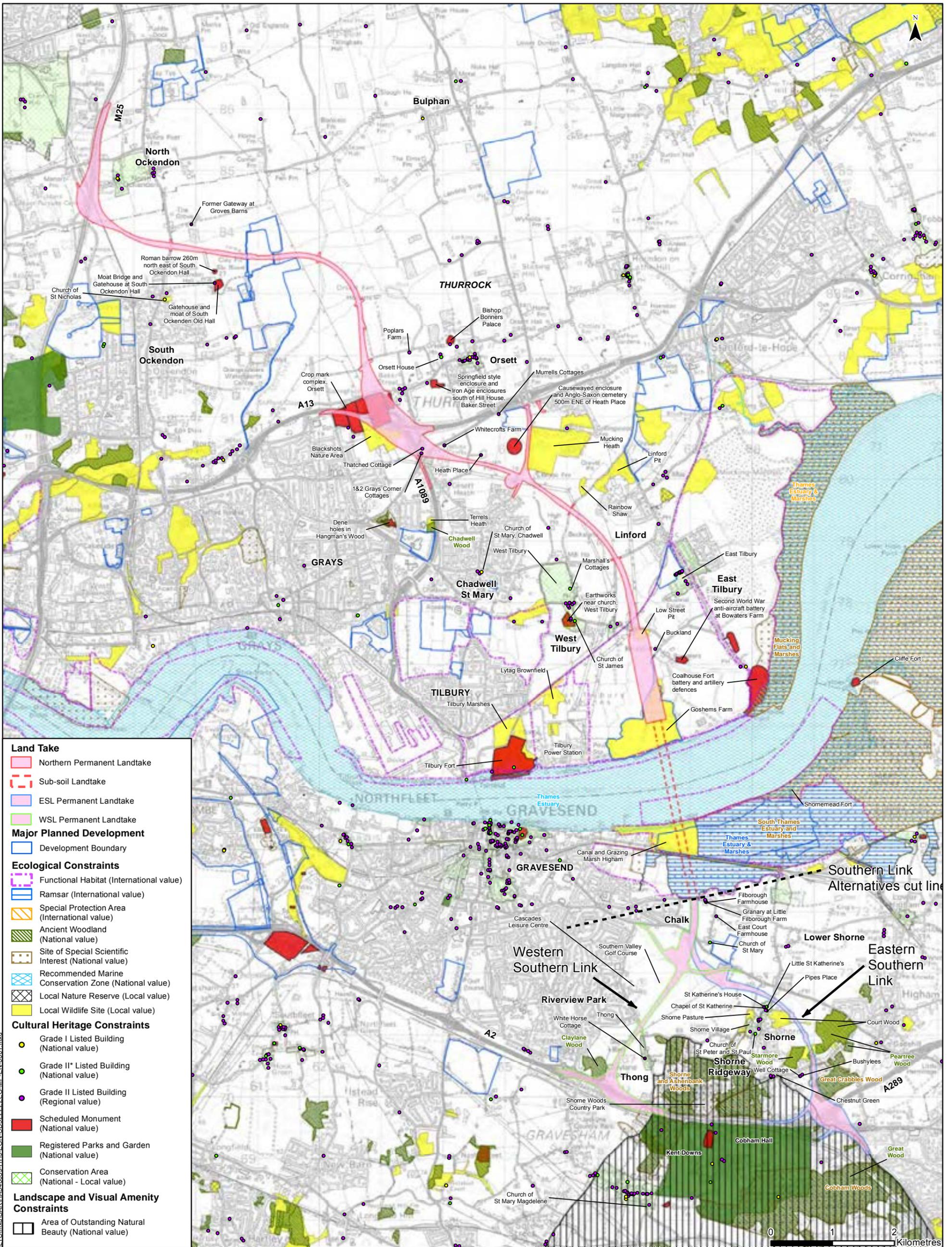
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Status	S5	Revision	P02
Scale	1:30,000	Date	08/08/16
Drawn By	L.HULME		
Checked By	S.RIMELL		
Approved By	A.SAUNDERS		
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Drawing Number	HHJ-EGN-AD0ZZZZZEG-MP-EN-0004		

Project No.	HA	PIN	Originator	Original Size	A3
	HA540039	HHJ			
Drawing Number	HHJ-EGN-AD0ZZZZZEG-MP-EN-0004				



- Land Take**
- Northern Permanent Landtake
 - Sub-soil Landtake
 - ESL Permanent Landtake
 - WSL Permanent Landtake
- Major Planned Development**
- Development Boundary
- Ecological Constraints**
- Functional Habitat (International value)
 - Ramsar (International value)
 - Special Protection Area (International value)
 - Ancient Woodland (National value)
 - Site of Special Scientific Interest (National value)
 - Recommended Marine Conservation Zone (National value)
 - Local Nature Reserve (Local value)
 - Local Wildlife Site (Local value)
- Cultural Heritage Constraints**
- Grade I Listed Building (National value)
 - Grade II* Listed Building (National value)
 - Grade II Listed Building (Regional value)
 - Scheduled Monument (National value)
 - Registered Parks and Garden (National value)
 - Conservation Area (National - Local value)
- Landscape and Visual Amenity Constraints**
- Area of Outstanding Natural Beauty (National value)

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Client
highways england

Project
LOWER THAMES CROSSING

Drawing Title
Route 3 Bored Tunnel Land Take High Level Constraints

Status	S5	Revision	P02
Scale	1:55,000	Date	08/08/16
Drawn By	L.HULME		
Checked By	S.RIMELL		
Approved By	A.SAUNDERS		
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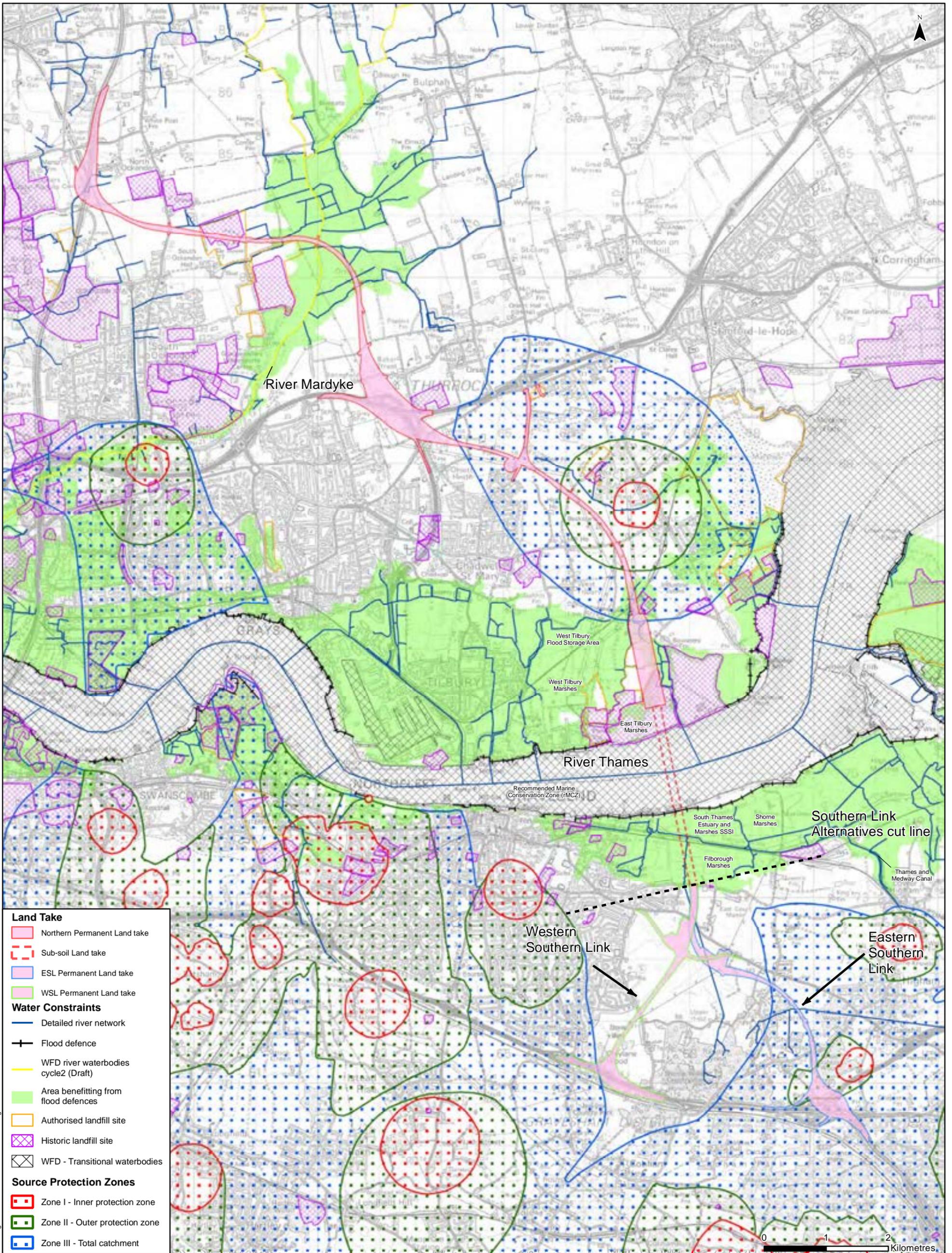
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- Land Take**
- Northern Permanent Land take
 - Sub-soil Land take
 - ESL Permanent Land take
 - WSL Permanent Land take
- Water Constraints**
- Detailed river network
 - Flood defence
 - WFD river waterbodies cycle2 (Draft)
 - Area benefitting from flood defences
 - Authorised landfill site
 - Historic landfill site
 - WFD - Transitional waterbodies
- Source Protection Zones**
- Zone I - Inner protection zone
 - Zone II - Outer protection zone
 - Zone III - Total catchment

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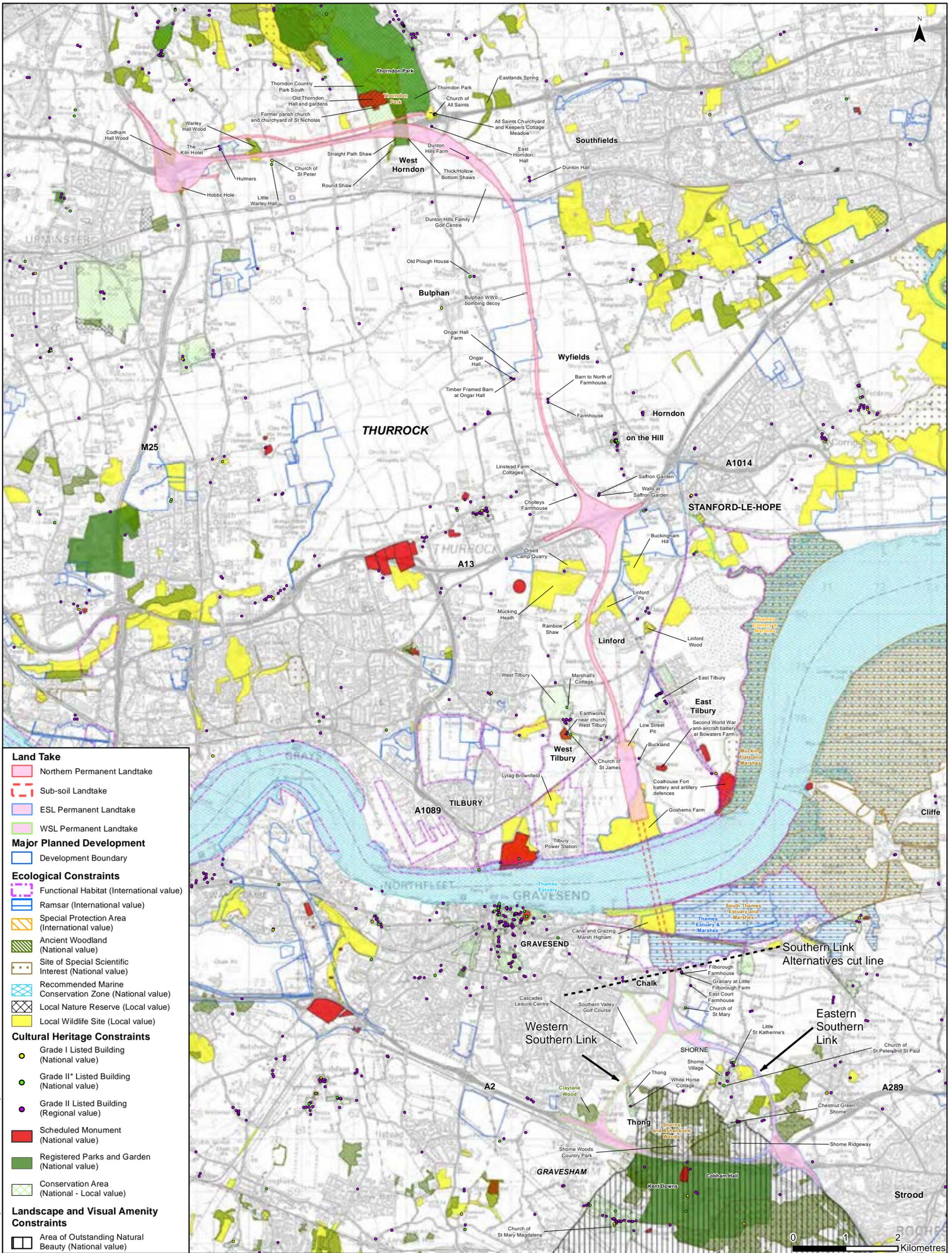
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Project **LOWER THAMES CROSSING**

Drawing Title **Route 3 Bored Tunnel Land Take Water Constraints**

Status	S5	Revision	P02
Scale	1:55,000	Date	08/08/16
Drawn By	L.HULME		
Checked By	S.RIMELL		
Approved By	A.SAUNDERS		
Project No.	HA PIN	Originator	Original Size
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Drawing Number	HHJ-EGN-CD3ZZZZZEG-MP-EN-0002		



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- Land Take**
- Northern Permanent Landtake
 - Sub-soil Landtake
 - ESL Permanent Landtake
 - WSL Permanent Landtake
- Major Planned Development**
- Development Boundary
- Ecological Constraints**
- Functional Habitat (International value)
 - Ramsar (International value)
 - Special Protection Area (International value)
 - Ancient Woodland (National value)
 - Site of Special Scientific Interest (National value)
 - Recommended Marine Conservation Zone (National value)
 - Local Nature Reserve (Local value)
 - Local Wildlife Site (Local value)
- Cultural Heritage Constraints**
- Grade I Listed Building (National value)
 - Grade II* Listed Building (National value)
 - Grade II Listed Building (Regional value)
 - Scheduled Monument (National value)
 - Registered Parks and Garden (National value)
 - Conservation Area (National - Local value)
- Landscape and Visual Amenity Constraints**
- Area of Outstanding Natural Beauty (National value)

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 Tel. +44(0)1793 812479



Project

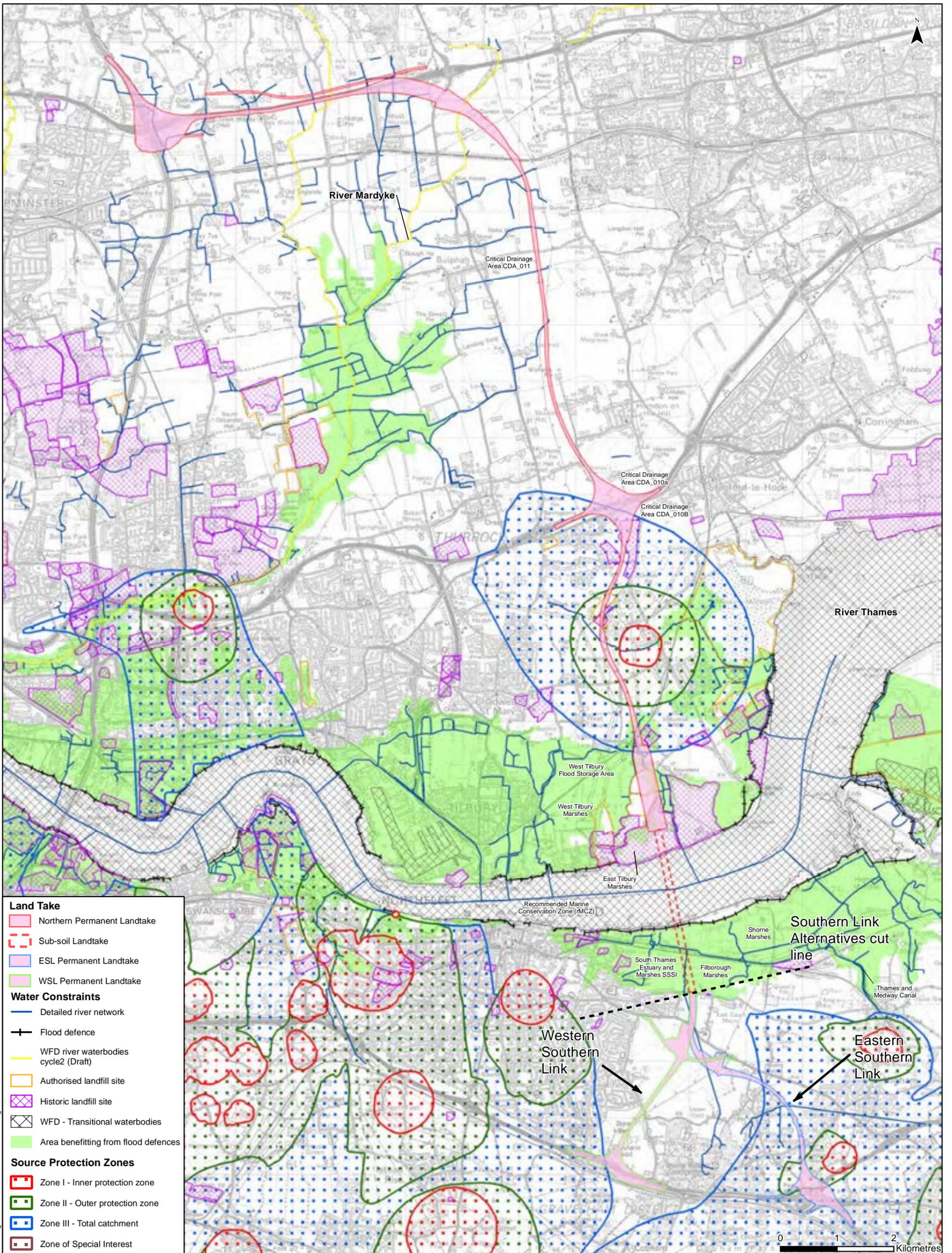
LOWER THAMES
CROSSING

Drawing Title

Route 4 Bored Tunnel
Land Take
High Level Constraints

Status	S5	Revision	P02
Scale	1:65,000	Date	08/08/16
Drawn By	L.HULME		
Checked By	S.RIMELL		
Approved By	A.SAUNDERS		
Project No.	HA PIN	Originator	Original Size
HA540039	HHJ		A3
Drawing Number	HHJ-EGN-CD4ZZZZEG-MP-EN-0001		

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P01	S5	18/01/16	SAR ISSUE	LH	SR	AS
Rev	Status	Rev. Date	Purpose of revision	Drawn	Chk'd	Appr'd



- Land Take**
- Northern Permanent Landtake
 - Sub-soil Landtake
 - ESL Permanent Landtake
 - WSL Permanent Landtake
- Water Constraints**
- Detailed river network
 - Flood defence
 - WFD river waterbodies cycle2 (Draft)
 - Authorised landfill site
 - Historic landfill site
 - WFD - Transitional waterbodies
 - Area benefitting from flood defences
- Source Protection Zones**
- Zone I - Inner protection zone
 - Zone II - Outer protection zone
 - Zone III - Total catchment
 - Zone of Special Interest

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 Tel. +44(0)1793 812479

Project
LOWER THAMES CROSSING

Drawing Title
Route 4 Bored Tunnel Land Take Water Constraints

Status	S5	Revision	P02
Scale	1:60,000	Date	08/08/16
Drawn By	L.HULME		
Checked By	S.RIMELL		
Approved By	A.SAUNDERS		

Project No.	HA	PIN	Originator	Original Size	A3
HA540039		HHJ			

Drawing Number
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Appendix 6.2 - Engagement with Environmental Bodies

Engagement with Environmental Bodies

Meeting Date	Purpose of Meeting	Attendees	Key Findings
22/01/2015	Workshop Update on project and options development, share draft approach to environmental appraisal and reporting, seek feedback on key environmental issues and opportunities.	Environment Agency (EA), Natural England, Marine Management Organisation (MMO), Historic England and Kent Downs Area of Outstanding Natural Beauty (AONB).	Attendees provided feedback on approach and data sources for the purposes of the appraisal. Agreed future lines of communication with the attendees and confirmed key points of contact.
04/03/2015	Bilateral Meeting To share the methodology and updated environmental constraints mapping	Historic England	Provided details about sensitivity of the Scheduled Monuments along the River Thames. Recommended engaging with the county archaeologists (Kent and Essex) and Greater London Archaeology Advisory Service to present the scheme details to them and to obtain baseline data. Potential for significant archaeological remains across study area based on crop mark information. This will require thorough assessment and mitigation at the next development phase of the project. Provided information about a number of the designated assets and the linkages between them e.g. East and West Tilbury.
24/04/2015	Bilateral Meeting To provide project update and present scheme options, provide an overview of the appraisal process, review constraints and understand potential option effects	Essex County Council Archaeology	Advised review of the Historic Environment Record and collation of the Historic Environment Characterisation Data. Provided cropmark data during the meeting and highlighted the high potential for there to be non-designated archaeological remains that could be affected.
05/05/2015	Bilateral Meeting To provide project update and present scheme options, provide an overview of the appraisal process, review constraints and understand potential option effects	Greater London Archaeology Advisory Service	Advised that information would be provided on potential heritage constraints. Highlighted that archaeological assets were previously identified at a construction compound for the M25 works.

Meeting Date	Purpose of Meeting	Attendees	Key Findings
07/05/2015	<p><i>Bilateral Meeting</i></p> <p>To provide project update and present scheme options, provide an overview of the appraisal process, review constraints and understand potential option effects</p>	Kent Downs AONB	<p>Highlighted the importance of considering the Kent Downs AONB Management Plan.</p> <p>Kent Downs AONB is keen to examine any potential opportunities from LTC to enhance the AONB.</p> <p>Highlighted the need for the costs associated with mitigation to be incorporated into scheme costs and this should inform the decision-making process.</p> <p>Consideration should be given to the impact of Options at A and C on the A2 at Canterbury and on the M20 at Roundhill.</p>
11/05/2015	<p><i>Bilateral Meeting</i></p> <p>To provide project update and present scheme options, provide an overview of the appraisal process, review constraints and understand potential option effects</p>	Kent County Council – Archaeology	<p>Kent CC highlighted the sensitivity of the Scheduled Monuments along the River Thames to setting impacts; they are an integral part of the military landscape.</p> <p>Advised review of the Historic Environment Record and collation of the Historic Environment Characterisation Data.</p>
03/06/2015	<p><i>Bilateral Meeting</i></p> <p>To provide project update and present scheme options, provide an overview of the appraisal process, review constraints and understand potential option effects</p>	Royal Society for the Protection of Birds (RSPB)	<p>RSPB welcomed the approach and also the completion of a Habitats Regulations Assessment (HRA) Screening Report for the options.</p> <p>RSPB advised that a GIS layer of their reserves can be presented on the constraints maps.</p>

Meeting Date	Purpose of Meeting	Attendees	Key Findings
17/06/2015	<p>Workshop</p> <p>To seek feedback on the draft shortlist and the rejected options, to explore and seek feedback on the detailed appraisal of the short list, to provide further details on the crossing types</p>	<p>Environment Agency, Natural England, MMO and Historic England.</p>	<p>Natural England requested a more detailed bilateral meeting to discuss HRA issues further – highlighted concerns and risks associated with an immersed tunnel and bridge options at Location C and the impact on European Sites.</p> <p>EA highlighted the need to consider potential contamination risks when considering the options, for example, locations of casting basins for an immersed tunnel.</p> <p>Contact DP World to discuss the ecological data that they hold as this may inform the next development stage of the project.</p> <p>EA highlighted that a new Thames Barrier is a major future development that could have implications for selection of the proposed solution.</p> <p>EA highlighted works undertaken as part of the TE2100 Plan and issues associated with HRA and habitat creation/compensation. Recommended that a further meeting be held to discuss the likely potential to recreate habitat in the event of it being affected by the Scheme (relating to loss of habitat associated with European Sites).</p>

Meeting Date	Purpose of Meeting	Attendees	Key Findings
01/07/2015	<p><i>Bilateral Meeting</i></p> <p>To seek detailed feedback on elements of the water environment appraisal, to discuss contaminated land constraints and to understand the Environment Agency (EA) future plans with regards to TE2100</p>	Environment Agency	<p>There is a Flood Storage Area located between Tilbury and Chadwell St Mary that could be affected by Route 2. This is potentially a significant issue for this option as there would be a need to create compensatory storage in the event of this area being affected.</p> <p>Groundwater conditions are very complex and constantly changing, the need for early monitoring data to inform the design of the proposed solution should be considered.</p> <p>There are limited opportunities to create compensatory habitat within the LTC area owing to coastal squeeze and managed realignments.</p> <p>Engage with the London Gateway Partnership to discuss compensatory land and how they have approached the issue.</p> <p>Highlighted the need for the scheme to also consider opportunities e.g. road embankments could provide a flood defence function that may support proposals in TE2100, there is potential for enhancement measures at Mardyke.</p> <p>Must consider presence of historic landfills as there may be asbestos present and there are associated high costs associated with disposal.</p> <p>Should a tunnel at location A be progressed it will be important to consider the impacts of any dewatering on Dartford Marshes. Dewatering at location C could have a significant impact on habitats.</p>

Meeting Date	Purpose of Meeting	Attendees	Key Findings
28/07/2015	<p><i>Bilateral Meeting</i></p> <p>To seek feedback on the proposed approach to the HRA of the short list</p>	Natural England	<p>Advised that a Part One Appropriate Assessment Report should be completed as there is a likelihood of significant effects as a result of the options.</p> <p>Approach to the Part One Appropriate Assessment was discussed including the fact that there would be a lot of uncertainty at this stage and that a traffic light system should be considered in the reporting.</p> <p>Highlighted the need for the assessment of a Ramsar site to cover more than just the bird interest.</p> <p>Natural England stated that the wider project team must be made aware of the risks associated with options and the potential effects on European Sites. Project costings also need to consider ‘whole life costs’ and compensation requirements (securing management of compensatory habitat in perpetuity). Natural England stated that assessment of alternatives is a key consideration and that discounting of an option with a higher cost but with a lesser impact on a European Site would not be a reason to discount an option.</p> <p>Natural England advised that the Part One Appropriate Assessment should consider other schemes and the potential for cumulative effects.</p>

Meeting Date	Purpose of Meeting	Attendees	Key Findings
28/07/2015	<p>Bilateral Meeting</p> <p>To discuss the approach to identifying mitigation/ compensation land.</p>	Natural England and the Environment Agency	<p>Highlighted that it would be difficult to create fresh water habitat and tidal habitats and that there would be long lead in times associated with this and the time it would take for the habitat to be viewed as functional.</p> <p>For each option where there may be a loss of habitat within a European Site it will be necessary to quantify the area affected (e.g. construction, operation and sterilisation due to other effects) before addressing the issues of availability and re-create ability.</p> <p>EA/Natural England advised that the scheme should aim to work within the bounds of presumption to compensate ahead of any impact on a Natura 2000 site (or its qualifying species) at a minimum ratio of 1:1. However, the ratio of compensatory habitat to be provided needs to be considered on a case by case basis. The challenge will be identifying a suitable ratio of compensatory habitat related to the time taken before the compensatory habitat becomes ‘functional’ and the stability of that habitat once it has become established (i.e. loss of intertidal habitat over time as saltmarsh develops). There is also a risk that compensatory habitat does not work, i.e. freshwater habitat creation much more difficult to achieve than intertidal habitats.</p> <p>There are no ‘fixed’ timescales for assessing when the condition of the compensatory habitat would be of comparable (or higher) value to that of the habitat which has been lost. Instead, it would be compared to the wider Natura 2000 network of adjacent habitats. Ultimately, the requirement would be for the compensatory habitat to form part of the surrounding Natura 2000 network of sites.</p> <p>All meeting attendees highlighted that the HRA process cannot be ‘short-cut’ and that each stage must be followed and that consideration of the least damaging alternative will be essential.</p> <p>Some potential areas for compensatory habitat were discussed within the LTC area.</p>

Meeting Date	Purpose of Meeting	Attendees	Key Findings
14/08/2015	Bilateral Meeting To provide an update on the proposed HRA methodology	RSPB	RSPB advised the inclusion of Holehaven Creek pSPA (potential Special Protection Area) and Site of Special Scientific Interest (SSSI) within the HRA. Advised that hydrology impacts on wetland habitats should be considered. RSPB will provide information received from Rainham Marshes regarding bird movements and effects from the existing Dartford Crossing. Recommended looking at Kent Wildlife Trust's biodiversity area mapping which identified existing ecological networks.
24/09/2015	Bilateral Meeting To provide an update on the environmental appraisal and crossings and to discuss opportunities and risks.	Environment Agency	Advised that the Water Framework Directive (WFD) assessment guidance may be available in January 2016 and it would be advisable to use the new guidance at the next development phase of the project. The Tilbury Flood Storage Area and the potential constraints for Route 2 was highlighted. A route through the Flood Storage Area is feasible so long as mitigation is put in place but cautioned it may be difficult to find a feasible option because of lack of capacity. Mardyke is an important area for water vole population. Opportunities for ecological enhancement should be considered. WFD salt marsh survey is likely to be undertaken in 2016 and the results of this survey may be useful for the next development stage of the project.
5/10/2015	Bilateral Meeting To discuss the draft Part 1 Appropriate Assessment	Natural England	Natural England highlighted the importance of the ditch network in the Ramsar site and its sensitive hydrology. Natural England reiterated the points raised in previous meetings about HRA and the need for the results of this to inform the selection of the proposed solution.

Meeting Date	Purpose of Meeting	Attendees	Key Findings
30/11/2015	<p><i>Bilateral Meeting</i> To provide a project update and initial results of the appraisal</p>	<p>Natural England, MMO and Historic England.</p>	<p>Further meeting during the consultation would be beneficial with the Statutory Environmental Bodies (SEBs) to enable discussion of the appraisal results.</p> <p>Natural England raised concern about the loss of wildlife sites and severance of ancient woodland for the ESL although they are pleased regarding the selection of a bored tunnel.</p> <p>Natural England stated that mitigation such as a green bridge for the ESL is potentially something that Highways England could consider.</p> <p>Historic England stated that whilst there may be some heritage concerns it will be easier for them to understand the impacts once more detail of the road alignment is made available and in particular how close the road will be to heritage assets. It was acknowledged that there is a greater concentration of heritage assets around the ESL compared to the WSL.</p>
30/11/2015	<p><i>Bilateral Meeting</i> To provide a project update</p>	<p>Kent Downs AONB</p>	<p>The AONB requested the opportunity to be involved in the methodology for a future Landscape and Visual Impact Assessment for the proposed solution.</p> <p>The AONB welcomed the discounting of certain options that would have had a greater impact on the AONB.</p>

Meetings Post Launch of the 2016 Consultation

Meeting Date	Purpose of Meeting	Attendees	Key Findings
08/02/2016	<p>Consultation Meeting</p> <p>To provide a project update and to outline the materials that were available during the consultation process.</p>	<p>Natural England</p> <p>Historic England</p> <p>Environment Agency</p>	<p>Meeting was primarily to advise on information available during consultation rather than to discuss scheme details.</p> <p>Clarification was provided by the LTC team about where specific scheme information could be obtained from the consultation documents.</p>
14/03/2016	<p>Bilateral Meeting</p> <p>To provide a project update</p>	RSPB	<p>Meeting was primarily to advise on information available during consultation rather than to discuss scheme details.</p> <p>Various data sources were identified that would provide useful information to inform the Environmental Impact Assessment (EIA) for the preferred route.</p>
21/07/2016	<p>SEB Meeting</p> <p>To discuss the main comments raised by the consultees in response to the consultation</p>	<p>Natural England</p> <p>Historic England</p> <p>Environment Agency</p>	<p>Environment Agency highlighted the importance of ensuring that issues associated with landfills potentially crossed by options are taken into account early enough in the design process.</p> <p>Historic England stated that they would like to be engaged in setting the scope of the cultural heritage assessment and that discussions will be required regarding mitigation options particularly where features are directly affect (Listed Buildings and Scheduled Monuments).</p> <p>Natural England stated that they would provide advice to inform the development of ecological survey methodologies for the future EIA.</p> <p>All parties acknowledged that the consultation process to date had been very helpful.</p>
08/08/2016	<p>Bilateral Meeting</p> <p>To provide a project update and to discuss their response to the consultation</p>	Kent Downs AONB	<p>AONB provided advice regarding their draft position statement on setting and advised that setting is very important and must be considered as part of the future Landscape and Visual Impact Assessment.</p> <p>AONB stated that they would like to be involved in establishing the scope of the LVIA for the preferred route.</p> <p>AONB commented that in terms of mitigation the AONB would expect exceptional effort particularly with regards to impacts as a result of the Eastern Southern Link. They highlighted the importance of learning from best practice in other countries. The AONB's Management Plan is very clear about mitigation and compensation.</p>

Meeting Date	Purpose of Meeting	Attendees	Key Findings
04/08/2016	Bilateral Meeting To provide details of the project and to discuss their response to the consultation	Kent Wildlife Trust	<p>Noted that ecological mitigation may be significant and should be considered as part of overall project costs.</p> <p>Recommended that LTC establish environmental stakeholder groups for Non-Governmental Organisations (NGOs) so that any conflict of interest and joint initiatives can be considered more easily. One for Essex and one for Kent. May wish to include Natural England as overarching authority for natural environment.</p> <p>North Kent Environmental Planning Group cited as effective example, which has developed a plan to reduce recreational impacts on Natura 2000 sites in Kent; care to be taken to avoid impacts (from LTC) on delivery of this plan.</p> <p>All Kent WLT biological records held by the Kent and Medway Biological Records Centre. Data requests can also be made via Buglife.</p>
11/08/2016	Bilateral meeting To provide details of the project and to discuss their response to the consultation	The Woodland Trust	<p>Advised of NPPF, NPS and current Standing Advice from Forestry Commission and Natural England with regard to irreplaceable nature of ancient woodland.</p> <p>Confirmed that loss of ancient woodland remains a significant concern. Currently 633 cases where ancient woodland under threat in UK from development.</p> <p>Noted that cannot mitigate loss, but compensation (as final resort) should be significant and ideally consist of reinstatement of Planted Ancient Woodland Sites or native tree planting to link remaining remnants of ancient woodland to improve ecological function.</p> <p>Concern that Route 2 and, particularly, Route 4 affect ancient woodland, whilst Route 3 north of river more favourable, but should consider potential for impact on veteran/ ancient trees.</p>
11/08/2016	Bilateral meeting To provide details of the project and to discuss their response to the consultation	Buglife	<p>Advised the Thames Terrace Grasslands in Essex support 2 of the top 5 invertebrate sites in the UK. This area of Essex has highest levels of invertebrate diversity in England.</p> <p>This network of important invertebrates sites should be considered as a whole, not on individual site basis.</p>

Appendix 6.3 - Air Quality Results

PREDICTED ANNUAL MEAN NO₂ CONCENTRATIONS AT SELECTED RECEPTORS WITHIN 200 METRES OF AFFECTED ROAD NETWORK

Receptor ID	Do Minimum (µg/m ³) ^[1]	Route 1 (µg/m ³) ^[1]	Route 1 Change µg/m ³	Route 3 WSL (µg/m ³) ^[1]	Route 3 WSL Change (µg/m ³)	Route 3 ESL (µg/m ³) ^[1]	Route3 ESL Change (µg/m ³)	Route 4 WSL (µg/m ³) ^[1]	Route 4 WSL Change (µg/m ³)	Route 4 ESL (µg/m ³) ^[1]	Route 4 ESL Change (µg/m ³)	Approximate Number of Potentially Influenced Receptors ^[2]
R1	34.3	39.5	5.2	34.4	0.1	34.5	0.2	34.5	0.2	34.5	0.2	<10
R2	27.5	32.5	5.0	27.9	0.4	27.9	0.4	27.9	0.4	27.9	0.4	<50
R3	40.0	39.5	-0.5	40.0	0.0	40.1	0.1	40.1	0.1	40.1	0.1	<50
R4	50.5	47.7	-2.8	46.6	-3.9	46.7	-3.8	46.7	-3.8	46.8	-3.7	<10
R5	41.4	42.6	1.2	40.7	-0.7	40.7	-0.7	40.8	-0.6	40.8	-0.6	<50
R6	34.8	36.8	2.0	34.3	-0.5	34.3	-0.5	34.4	-0.4	34.4	-0.4	<50
R7	33.5	35.3	1.8	32.9	-0.6	32.9	-0.6	33.0	-0.5	33.0	-0.5	<50
R8	47.7	51.2	3.5	47.4	-0.3	47.5	-0.2	47.6	-0.1	47.6	-0.1	<50
R9	47.9	51.9	4.0	44.1	-3.8	44.1	-3.8	44.2	-3.7	44.2	-3.7	<50
R10	42.1	45.1	3.0	39.1	-3.0	39.2	-2.9	39.2	-2.9	39.3	-2.8	<50
R11	41.7	44.4	2.7	37.2	-4.5	37.2	-4.5	37.3	-4.4	37.3	-4.4	<100
R12	52.0	55.6	3.6	45.0	-7.0	45.0	-7.0	45.2	-6.8	45.2	-6.8	<50
R13	41.9	44.0	2.1	39.4	-2.5	39.4	-2.5	39.5	-2.4	39.5	-2.4	<50
R14	34.7	36.6	1.9	33.8	-0.9	33.8	-0.9	33.9	-0.8	33.9	-0.8	<50
R15	35.2	37.3	2.1	34.6	-0.6	34.6	-0.6	34.7	-0.5	34.7	-0.5	<50
R16	20.2	20.2	0.0	20.1	-0.1	20.1	-0.1	20.1	-0.1	20.1	-0.1	<10
R17	21.7	21.7	0.0	21.7	0.0	21.7	0.0	21.7	0.0	21.7	0.0	<50
R18	23.5	23.5	0.0	23.3	-0.2	23.4	-0.1	23.3	-0.2	23.4	-0.1	<50
R19	20.1	20.2	0.1	20.1	0.0	20.1	0.0	20.1	0.0	20.1	0.0	<50
R20	25.8	26.1	0.3	25.3	-0.5	25.3	-0.5	25.4	-0.4	25.3	-0.5	<10
R21	23.6	23.5	-0.1	23.0	-0.6	23.7	0.1	23.0	-0.6	23.7	0.1	<100

Receptor ID	Do Minimum (µg/m³) [1]	Route 1 (µg/m³)[1]	Route 1 Change µg/m³)	Route 3 WSL (µg/m³)[1]	Route 3 WSL Change (µg/m³)	Route 3 ESL (µg/m³)[1]	Route3 ESL Change (µg/m³)	Route 4 WSL (µg/m³)[1]	Route 4 WSL Change (µg/m³)	Route 4 ESL (µg/m³)[1]	Route 4 ESL Change (µg/m³)	Approximate Number of Potentially Influenced Receptors [2]
R22	27.5	27.6	0.1	26.9	-0.6	27	-0.5	26.9	-0.6	27.0	-0.5	<50
R23	21.8	21.8	0.0	21.9	0.1	21.9	0.1	21.9	0.1	21.9	0.1	<50
R24	26.9	26.7	-0.2	26.8	-0.1	26.8	-0.1	26.8	-0.1	26.8	-0.1	<10
R25	23.8	23.8	0.0	23.9	0.1	23.9	0.1	23.9	0.1	23.9	0.1	<50
R26	33.1	33.1	0.0	33.1	0.0	33.1	0.0	33.0	-0.1	33.0	-0.1	<100
R27	37.3	37.0	-0.3	37.2	-0.1	37.2	-0.1	37.1	-0.2	37.1	-0.2	<100
R28	38.1	37.5	-0.6	37.6	-0.5	37.7	-0.4	37.5	-0.6	37.6	-0.5	<100
R29	24.5	25.0	0.5	24.8	0.3	24.9	0.4	25.0	0.5	25.0	0.5	<50
R30	17.8	18.3	0.5	17.6	-0.2	17.6	-0.2	17.6	-0.2	17.6	-0.2	<10
R31	21.5	21.7	0.2	20.9	-0.6	20.9	-0.6	21.1	-0.4	21.1	-0.4	<50
R32	25.4	25.8	0.4	24.2	-1.2	24.2	-1.2	24.6	-0.8	24.6	-0.8	<10
R33	30.2	30.8	0.6	34.8	4.6	34.9	4.7	28.9	-1.3	28.9	-1.3	<10
R34	24.7	24.8	0.1	25.9	1.2	25.9	1.2	24.0	-0.7	24.0	-0.7	<10
R35	17.4	17.4	0.0	17.1	-0.3	17.1	-0.3	18.5	1.1	18.6	1.2	<10
R36	22.3	22.4	0.1	23.0	0.7	22.4	0.1	23.0	0.7	22.5	0.2	<100
R37	20.5	20.6	0.1	20.1	-0.4	20.1	-0.4	20.4	-0.1	20.5	0.0	<10
R38	20.9	20.9	0.0	20.6	-0.3	20.6	-0.3	21.5	0.6	21.6	0.7	<50
R39	17.1	17.1	0.0	17.1	0.0	17.1	0.0	17.1	0.0	17.1	0.0	<100
R40	12.4	12.4	0.0	11.9	-0.5	13.8	1.4	11.9	-0.5	13.7	1.3	<50
R41	36.9	40.3	3.4	36.0	-0.9	36.0	-0.9	36.1	-0.8	36.1	-0.8	<50
R42	27.3	27.6	0.3	26.9	-0.4	26.9	-0.4	27.0	-0.3	27.0	-0.3	<10
R43	22.2	22.3	0.1	22.0	-0.2	22	-0.2	22.0	-0.2	22.0	-0.2	<50
R44	12.1	12.1	0.0	13.7	1.6	13.3	1.2	13.6	1.5	13.2	1.1	<10
R45	24.9	25.5	0.6	24.6	-0.3	24.6	-0.3	24.6	-0.3	24.6	-0.3	<10
R46	28.4	28.5	0.1	28.6	0.2	28.6	0.2	28.6	0.2	28.6	0.2	<50

Receptor ID	Do Minimum (µg/m³) [1]	Route 1 (µg/m³)[1]	Route 1 Change µg/m³	Route 3 WSL (µg/m³)[1]	Route 3 WSL Change (µg/m³)	Route 3 ESL (µg/m³)[1]	Route3 ESL Change (µg/m³)	Route 4 WSL (µg/m³)[1]	Route 4 WSL Change (µg/m³)	Route 4 ESL (µg/m³)[1]	Route 4 ESL Change (µg/m³)	Approximate Number of Potentially Influenced Receptors [2]
R47	28.5	28.5	0.0	28.7	0.2	28.7	0.2	28.7	0.2	28.7	0.2	<50
R48	22.9	22.8	-0.1	21.4	-1.5	21.4	-1.5	21.4	-1.5	21.4	-1.5	<10
R49	31.4	33.0	1.6	30.5	-0.9	30.5	-0.9	30.7	-0.7	30.6	-0.8	<10
R50	16.8	16.9	0.1	17.0	0.2	17.0	0.2	17.0	0.2	17.0	0.2	<10
R51	19.5	19.5	0.0	19.6	0.1	19.6	0.1	19.6	0.1	19.6	0.1	<50
R52	20.7	20.5	-0.2	20.7	0.0	20.7	0.0	20.7	0.0	20.8	0.1	<100
R53	35.4	38.9	3.5	35.6	0.2	35.5	0.1	35.7	0.3	35.6	0.2	<10
R54	24.1	24.4	0.3	24.3	0.2	24.2	0.1	24.3	0.2	24.2	0.1	<10
R55	21.4	21.8	0.4	21.5	0.1	21.5	0.1	21.5	0.1	21.5	0.1	<10
R56	19.0	19.2	0.2	19.0	0.0	19.0	0.0	19.0	0.0	19.0	0.0	<10
R57	19.4	19.6	0.2	19.6	0.2	19.6	0.2	19.7	0.3	19.6	0.2	<10
R58	18.3	18.6	0.3	18.6	0.3	18.6	0.3	18.6	0.3	18.6	0.3	<10
R59	19.1	19.0	-0.1	18.9	-0.2	18.8	-0.3	18.9	-0.2	18.8	-0.3	<50
R60	14.9	14.9	0.0	14.9	0.0	14.9	0.0	14.9	0.0	14.9	0.0	<10
R61	17.6	17.8	0.2	17.4	-0.2	17.3	-0.3	17.4	-0.2	17.4	-0.2	<10
R62	23.0	23.1	0.1	22.8	-0.2	22.6	-0.4	22.9	-0.1	22.6	-0.4	<100
R63	19.6	19.9	0.3	19.3	-0.3	19.2	-0.4	19.3	-0.3	19.2	-0.4	<10
R64	15.4	15.6	0.2	15.1	-0.3	15.0	-0.4	15.2	-0.2	15.1	-0.3	<10
R65	13.0	13.2	0.2	12.9	-0.1	12.8	-0.2	12.9	-0.1	12.9	-0.1	<10
R66	16.0	16.0	0.0	15.9	-0.1	15.9	-0.1	16.0	0.0	15.9	-0.1	<50
R67	22.6	22.7	0.1	22.9	0.3	21.8	-0.8	22.2	-0.4	21.9	-0.7	<100
R68	25.0	25.1	0.1	26.8	1.8	35.1	10.1	26.7	1.7	34.9	9.9	<50
R69	12.2	12.2	0.0	12.4	0.2	12.5	0.3	12.4	0.2	12.5	0.3	<50
R70	22.2	22.2	0.0	23.2	1.0	23.6	1.4	23.2	1.0	23.6	1.4	<50
R71	22.9	22.9	0.0	25.1	2.2	25.5	2.6	25.0	2.1	25.5	2.6	<50

Receptor ID	Do Minimum (µg/m³) [1]	Route 1 (µg/m³)[1]	Route 1 Change µg/m³	Route 3 WSL (µg/m³)[1]	Route 3 WSL Change (µg/m³)	Route 3 ESL (µg/m³)[1]	Route3 ESL Change (µg/m³)	Route 4 WSL (µg/m³)[1]	Route 4 WSL Change (µg/m³)	Route 4 ESL (µg/m³)[1]	Route 4 ESL Change (µg/m³)	Approximate Number of Potentially Influenced Receptors [2]
R72	18.5	18.5	0.0	18.7	0.2	18.8	0.3	18.7	0.2	18.8	0.3	<10
R73	15.8	15.8	0.0	15.9	0.1	15.9	0.1	15.9	0.1	15.9	0.1	<100
R74	21.8	21.9	0.1	22.2	0.4	22.2	0.4	21.3	-0.5	21.3	-0.5	<50
R75	22.9	23.0	0.1	25.2	2.3	25.2	2.3	23.1	0.2	23.1	0.2	<10
R76	29.9	30.3	0.4	32.6	2.7	32.7	2.8	32.7	2.8	32.8	2.9	<10
R77	21.1	21.2	0.1	21.4	0.3	21.4	0.3	21.4	0.3	21.4	0.3	<10
R78	18.7	18.8	0.1	18.4	-0.3	18.3	-0.4	18.4	-0.3	18.3	-0.4	<50
R79	25.4	25.6	0.2	25.1	-0.3	25	-0.4	25.1	-0.3	25.1	-0.3	<100
R80	22.1	22.2	0.1	22.2	0.1	23.3	1.2	22.2	0.1	23.3	1.2	<10
R81	25.5	25.5	0.0	25.5	0.0	25.5	0.0	25.5	0.0	25.5	0.0	<10
R82	19.6	19.6	0.0	20.0	0.4	20	0.4	19.7	0.1	19.7	0.1	<50
R83	12.4	12.4	0.0	14.1	1.7	12.1	-0.3	14.0	1.6	12.1	-0.3	<10
R84	20.2	20.2	0.0	19.0	-1.2	19.0	-1.2	19.2	-1.0	19.2	-1.0	<10
R85	19.2	19.1	-0.1	18.6	-0.6	18.6	-0.6	20.1	0.9	20.2	1.0	<10
R86	16.7	16.6	-0.1	16.9	0.2	16.9	0.2	16.4	-0.3	16.4	-0.3	<50
R87	18.4	18.5	0.1	18.7	0.3	18.7	0.3	18.6	0.2	18.6	0.2	<10
R88	17.5	17.5	0.0	17.4	-0.1	17.4	-0.1	17.8	0.3	17.8	0.3	<50
R89	12.5	12.5	0.0	12.5	0.0	14.5	2.0	12.5	0.0	14.3	1.8	<50
R93	15.7	15.7	0.0	16.1	0.4	17.7	2.0	16.1	0.4	17.6	1.9	<10
R94	15.6	15.7	0.1	15.8	0.2	15.8	0.2	15.6	0.0	15.6	0.0	<10
R95	13.7	13.7	0.0	13.7	0.0	13.7	0.0	14.6	0.9	14.7	1.0	<10
R100	14.5	14.5	0.0	14.6	0.1	14.6	0.1	14.6	0.1	14.6	0.1	<10
R101	14.9	14.9	0.0	14.9	0.0	14.9	0.0	14.9	0.0	14.9	0.0	<100
R102	13.9	13.9	0.0	13.9	0.0	13.9	0.0	13.8	-0.1	13.8	-0.1	<10
R103	31.3	31.6	0.3	31.5	0.2	31.5	0.2	31.5	0.2	31.5	0.2	<100

Receptor ID	Do Minimum (µg/m³) [1]	Route 1 (µg/m³) ^[1]	Route 1 Change µg/m³)	Route 3 WSL (µg/m³) ^[1]	Route 3 WSL Change (µg/m³)	Route 3 ESL (µg/m³) ^[1]	Route3 ESL Change (µg/m³)	Route 4 WSL (µg/m³) ^[1]	Route 4 WSL Change (µg/m³)	Route 4 ESL (µg/m³) ^[1]	Route 4 ESL Change (µg/m³)	Approximate Number of Potentially Influenced Receptors [2]
R104	29.1	29.2	0.1	28.4	-0.7	28.4	-0.7	28.7	-0.4	28.8	-0.3	<100
R105	18.3	18.3	0.0	18.4	0.1	18.4	0.1	18.4	0.1	18.3	0.0	<100
R106	20.6	20.7	0.1	21.4	0.8	21.7	1.1	21.4	0.8	21.6	1.0	<100
R107	14.1	14.1	0.0	13.0	-1.1	15.1	1.0	13.0	-1.1	15.0	0.9	<50
R108	11.8	11.8	0.0	11.7	-0.1	11.8	0.0	11.7	-0.1	11.8	0.0	<50
R109	14.1	14.1	0.0	15.2	1.1	14.9	0.8	15.1	1.0	14.8	0.7	<50

[1] LTT=Long Term Trend. Predicted NO₂ concentrations were adjusted using a Gap Factor based on the long term adjustment factor calculated by Highways England's Interim Alternative Long Term Gap Analysis Calculator v1.1. All values reflect predicted concentrations for the future year 2025.

[2] Value reflects an approximated number of receptors which occur in the vicinity (and thereby may experience a similar effect of the scheme) as the modelled receptor.

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