

A12 Chelmsford to A120 widening scheme TR010060

6.1 ENVIRONMENTAL STATEMENT CHAPTER 17 SUMMARY

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ENVIRONMENTAL STATEMENT CHAPTER 17 SUMMARY

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17 Summary

- 17.1.1 This chapter provides a summary of the likely significant residual effects as documented in the following chapters of this Environmental Statement [TR010060/APP/6.1]:
- Chapter 6 Air quality
 - Chapter 7 Cultural heritage
 - Chapter 8 Landscape and visual
 - Chapter 9 Biodiversity
 - Chapter 10 Geology and soils
 - Chapter 11 Material assets and waste
 - Chapter 12 Noise and vibration
 - Chapter 13 Population and human health
 - Chapter 14 Road drainage and the water environment
 - Chapter 15 Climate
 - Chapter 16 Cumulative effects assessment
- 17.1.2 Each of the above chapters provides an assessment of the likely significant effects with the implementation of mitigation measures (i.e. residual effects).
- 17.1.3 The likely significant residual effects during construction are listed in Table 17.1, while the likely significant residual effects during operation are listed in Table 17.2. The tables also detail the mitigation measures associated with the effects and their delivery mechanisms.

Table 17.1 Summary of likely residual significant effects and mitigation during construction

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Air quality			
No significant effects identified.			
Cultural heritage			
Lionfield Cottages cropmarks (Asset 72) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Burgate field enclosure, Rivenhall End (Asset 354) – Removal of archaeological remains affecting the whole asset.	Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Hole Farm cropmarks (Asset 411) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Cropmarks along Crane's Lane (Asset 439) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Kelvedon Enclosure (Asset 647) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Cropmarks east of Hill House Farm (Asset 775) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation. Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Geophysical anomalies south-east of junction 21 (Asset 949) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Circular enclosure north-west of Prested Hall (Asset 950) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Geophysical anomalies west of Prested Hall (Asset 951) – Removal of archaeological remains affecting approximately 75% of the known extent of the asset.	Archaeological Excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Geophysical anomalies south and east of Potts Green (Asset 953) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation. Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Geophysical anomalies west of Inworth Hall (Asset 954) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Geophysical anomalies south of the Railway, Hatfield Peverel (Asset 956) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Geophysical Anomalies north of Hare Lodge (Asset 957) – Removal of archaeological remains affecting the whole asset.	Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Enclosures west of Sniveller's Lane (Asset 958) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Prehistoric settlement north-east of Henry Dixon Road (Asset 960) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation. Palaeoenvironmental assessment, analysis and reporting.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Prehistoric field boundaries west of Maldon Road (Asset 962) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Possible late prehistoric enclosure south of Ewell Hall Chase (Asset 964) – Removal of archaeological remains affecting the whole asset.	Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Possible Roman enclosure west of Park Farm (Asset 965) – Removal of archaeological remains affecting the whole asset.	Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Roman industrial activity west of Park Farm (Asset 966) – Removal of archaeological remains affecting approximately 75% of the known extent of the asset.	Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Prehistoric field system west of Prested Hall Farm (Asset 967) – Removal of archaeological remains affecting the whole asset.	Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Possible Iron Age settlement south of Highfields Lane (Asset 968) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Roman features south-east of Kelvedon (Asset 970) – Removal of archaeological remains affecting the whole asset.	Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Possible late prehistoric field system west of Easthorpe Road (Asset 971) – Removal of archaeological remains affecting approximately 75% of the known extent of the asset.	Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Possible Iron Age enclosure north of Easthorpe Road (Asset 973) – Removal of archaeological remains affecting the whole asset.	Archaeological excavation.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Multi-period field system west of Wishingwell Farm (Asset 974) – Removal of archaeological remains affecting approximately 60% of the known extent of the asset.	Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Roman field system east of Hall Chase (Asset 975) – Removal of archaeological remains affecting the whole asset.	Strip, map and sample.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
River Blackwater area of palaeoenvironmental potential (Asset 977) – Removal of archaeological remains affecting the whole asset.	A further stage of evaluation may be required subject to the outcome of ongoing consultation with the relevant stakeholders. Archaeological Excavation or Strip Map and Sample, the extent of which will be subject to the outcome of ongoing consultation with the relevant stakeholders. Palaeoenvironmental assessment, analysis and reporting.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Area of high Palaeolithic potential 1 (Asset 978) – Removal of archaeological remains affecting approximately 30% of the known extent of the asset.	A further stage of evaluation may be required subject to the outcome of ongoing consultation with the relevant stakeholders. Archaeological Excavation or Strip Map and Sample, the extent of which will be subject to the outcome of ongoing consultation with the relevant stakeholders.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Area of high Palaeolithic potential 2 (Asset 979) – Removal of archaeological remains affecting the whole asset.	A further stage of evaluation may be required subject to the outcome of ongoing consultation with the relevant stakeholders. Archaeological Excavation or Strip Map and Sample, the extent of which will be subject to the outcome of ongoing consultation with the relevant stakeholders.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)
Area of high Palaeolithic potential 3 (Asset 980) – Removal of archaeological remains affecting the whole asset.	A further stage of evaluation may be required subject to the outcome of ongoing consultation with the relevant stakeholders. Archaeological Excavation or Strip Map and Sample, the extent of which will be subject to the outcome of ongoing consultation with the relevant stakeholders.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Area of high Palaeolithic potential 4 (Asset 981) – Removal of archaeological remains affecting the whole asset.	<p>A further stage of evaluation may be required subject to the outcome of ongoing consultation with the relevant stakeholders.</p> <p>Archaeological Excavation or Strip Map and Sample, the extent of which will be subject to the outcome of ongoing consultation with the relevant stakeholders.</p>	<p>REAC, within the first iteration of the EMP [TR010060/APP/6.5]</p> <p>Archaeological Mitigation Strategy (Appendix 7.10) [TR010060/APP/6.3]</p>	Moderate adverse (significant)
Grade II listed 'The Generals' (Asset 57) – Impact on setting from construction works to the existing junction 19. Some minor land-take along the pavement and verge near the entrance from Main Road. Impact from noise and dust plus visual intrusion from construction machinery and traffic.	<p>Retain and protect existing stand of trees in front of The Generals, along the Main Road. This would maintain screening and retain trees which contribute to aesthetic value.</p> <p>Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].</p>	<p>REAC, within the first iteration of the EMP [TR010060/APP/6.5]</p> <p>Retained and Removed Vegetation Plans [TR010060/APP/2.14]</p>	Moderate adverse (significant)
Grade I listed Boreham House (Asset 69) – Affected by construction works associated with junction 19 within the setting. Minor land-take along Main Road, plus construction of associated earthworks and landscaping which would affect the entrance to Boreham House within the existing highways land. Impacts would include noise and dust plus visual intrusion from construction traffic and demolition machinery.	<p>Landscape mitigation would be used in the area of the entrance.</p> <p>Standard mitigation measures to reduce noise during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].</p>	<p>REAC, within the first iteration of the EMP [TR010060/APP/6.5]</p>	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Grade II listed Nos. 12 and 14 (Asset 141) – Impacts on the setting from the demolition and replacement of the Bury Lane Bridge together with the earthworks associated with the cutting and landscaping for the road widening. Impacts from noise and dust plus visual intrusion from construction traffic and machinery during construction.	Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)
Grade II listed Post Office Stores (Asset 146) – Impacts on the setting from the demolition and replacement of the Bury Lane Bridge together with the earthworks associated with the cutting and landscaping for the road widening. Impacts from noise and dust plus visual intrusion from construction traffic and machinery during construction.	Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)
Grade II* listed Hole Farmhouse (Asset 420) – Setting impacted by construction of a new offline section of road at Rivenhall End. Impacts from construction traffic and conversion of part of the existing A12 into a new local access road, construction of a pond, borrow pit to the north and soil storage area with compound. Impacts would result from the visual intrusion associated with the construction of earthworks and landscaping plus noise and dust from construction traffic and machinery.	Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Grade I listed Parish Church of All Saints, Inworth (Asset 708) – Setting impacted during construction from enlargement of roadside lay-by at pinch-point and removal of trees and hedge along roadside to church. Construction of flood compensation area to the south of church and new attenuation pond to the south-east, plus soil storage areas to the north-east would result in impacts on the aesthetic and communal values of the church from construction traffic, dust, noise and visual intrusion.	<p>Reinstatement of church boundary and adjacent field through replanting after construction phase.</p> <p>Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].</p>	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)
Grade II listed Church View House (Flispes) (Asset 784) – Impact on the setting from construction of an offline section of raised A12, together with a new side road and the construction of the Wishingwell Overbridge. The construction activities for the associated earthworks and landscaping would result in noise and dust plus visual intrusion from construction machinery and traffic.	<p>Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].</p>	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Grade II listed Easthorpe Green Farmhouse (Asset 785) – Impact on the setting from construction of an offline section of raised A12, together with a new side road and the construction of the Wishingwell Overbridge. The construction activities for the associated earthworks and landscaping would result in noise and dust plus visual intrusion from construction machinery and traffic.	Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)
Grade II listed Doggets Hammer Farm (Asset 795) – Impact on the setting from construction of the offline section of new road. Impacts from visual intrusion from construction machinery plus associated noise and dust within the setting of the listed building.	Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)
Grade II listed No. 172 London Road, Marks Tey (Asset 805) – Impacts on the setting from construction of upgraded junction 25 at Marks Tey, new roundabout plus demolition and replacement of a footbridge. The impacts would include visual intrusion, noise and dust from construction machinery and traffic.	Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Grade II* listed barn south of Marks Tey Hall (Asset 816) – Impacts on the setting from a new offline section of A12 road at junction 25, a new access road and reconfiguration of junction 25, satellite compound, and the demolition and replacement of the existing footbridge. Impacts would result in visual intrusion from construction machinery and traffic together with associated noise and dust.	Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)
Grade II listed barn to north-west of Marks Tey Hall (Asset 817) – Impacts on the setting from a new offline section of A12 road at junction 25, a new access road and reconfiguration of junction 25, satellite compound, and the demolition and replacement of the existing footbridge. Impacts would result in visual intrusion from construction machinery and traffic together with associated noise and dust.	Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)
Grade II listed Marks Tey Hall (Asset 819) – Impacts on the setting from a new offline section of A12 road at junction 25, a new access road and reconfiguration of junction 25, satellite compound, and the demolition and replacement of the existing footbridge. Impacts would result in visual intrusion from construction machinery and traffic together with associated noise and dust.	Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Grade II registered park and garden Boreham House (Asset 67) – The presence and operation of construction plant nearby would create a temporary visual impact in a key view from the interior of the park, affecting the ability to understand the relationship between the park, house and wider landscape.	Level 2 historic landscape recording. Standard mitigation measures to reduce noise and vibration during construction. Details of these standard measures are provided in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)
Landscape and visual¹			
Local landscape character areas (LCA) A7 Lower Chelmer River Valley and F3 Totham Wooded Farmland.	N/A – mitigation planting would take time to establish. Mitigation described under the year 15 operational landscape and visual effects (see Table 17.2).	N/A	Moderate adverse (significant)
Local LCA A9 Blackwater River Valley, Landscape sub-area A9A, B19 Langley Green Farmland Plateau, B21 Boreham Farmland Plateau, B2 Easthorpe Farmland Plateau, F1 Messing Wooded Farmland.	N/A – mitigation planting would take time to establish. Mitigation described under the year 15 operational landscape and visual effects (see Table 17.2).	N/A	Large adverse (significant)
Representative viewpoints 2, 3, 4, 8, 10 (vehicle travellers on Little Braxted Lane), 11 (vehicle travellers on Little Braxted Lane), 13 (vehicle travellers on Braxted Road), 17 (vehicle travellers on B1023 Inworth Road), 19 (vehicle travellers on Easthorpe Road), 23, and 24.	N/A – mitigation planting would take time to establish. Mitigation described under the year 15 operational landscape and visual effects (see Table 17.2).	N/A	Moderate adverse (significant)

¹ Construction landscape and visual effects are grouped by the significance of effect.

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Representative viewpoints 5 (users of the footpath/cycleway and residents within private properties), 6, 7, 9, 11 (users of National Cycle Route), 11a, 15, 16, 28, 30, 34, and 35 (users of the public footpath and residents within private properties).	N/A – mitigation planting would take time to establish. Mitigation described under the year 15 operational landscape and visual effects (see Table 17.2).	N/A	Large adverse (significant)
Representative viewpoints 10 (users of National Cycle Route), 13 (residents within private properties), 17 (residents within private properties), 18, 19 (users of the public footpath), 20, 22, 27, 29, 32, and 33.	N/A – mitigation planting would take time to establish. Mitigation described under the year 15 operational landscape and visual effects (see Table 17.2).	N/A	Very large adverse (significant)
Biodiversity			
Water vole – habitat gain	No mitigation measures proposed as effect is beneficial.	N/A	Moderate beneficial (significant)
Geology and soils			
Soils – loss of 460ha of agricultural land, of which 332ha comprises best and most versatile agricultural land.	Wastage of soil to be avoided as far as practicable via stripping and sustainable reuse elsewhere, as per the standard mitigation measures.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]. A soil resource plan will be produced prior to construction.	Very large adverse (significant)
Soils – degradation of soils supporting medium-value site of ecological importance (Whetmead Local Wildlife Site and Local Nature Reserve)	Application of good practice soil management measures as per Section 10.10 of Chapter 10: Geology and soils [TR010060/APP/6.1].	REAC, within the first iteration of the EMP [TR010060/APP/6.5]. A soil resource plan will be produced prior to construction.	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Material assets and waste			
No significant effects identified.			
Noise and vibration			
Noise level above the daytime significant observable adverse effect level (SOAEL) and the temporal thresholds for some activities within the area of Hatfield Peverel, Rivenhall End and the offline section between J24 and J25.	Consideration of further measures to reduce the noise from construction activities.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant adverse
Noise level above the night-time SOAEL and the temporal thresholds for some activities within the area of J19, Hatfield Peverel, Witham bypass and Marks Tey.	Consideration of further measures to reduce the noise from construction activities.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant adverse
Noise level above the daytime SOAEL and the temporal thresholds for the operation of borrow pit F.	Consideration of further measures to reduce the noise from construction activities.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant adverse
Levels of vibration above the SOAEL for vibratory compaction during structures backfilling through Hatfield Peverel and the Witham bypass.	Consideration of measures to reduce the level of vibration during construction.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant adverse
Increase in local traffic through the Hatfield Grove and Bury Farm estates during the closure of Station Road and Bury Lane Bridges.	Ongoing review of programme and traffic management phasing.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Outline Construction Traffic Management Plan [TR010060/APP/7.7]	Significant adverse

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Increase in noise due to use of strategic diversion route.</p> <p>266 dwellings within 25m of the planned diversion route.</p>	Ongoing review of programme and traffic management phasing to reduce usage of strategic diversion route.	<p>REAC, within the first iteration of the EMP [TR010060/APP/6.5]</p> <p>Outline Construction Traffic Management Plan [TR010060/APP/7.7]</p>	Significant adverse
Population and human health – land use and accessibility effects			
<p>Private property and housing in Hatfield Peverel – Permanent acquisition of five residential properties. Temporary acquisition of one property, and temporary land-take on a further four, to accommodate Bury Lane Bridge and Station Road Bridge replacement proposals. Disruption and inconvenience of access to over 400 properties during the proposed Station Road Bridge replacement.</p>	<p>(i) The principles of the compensation code will apply.</p> <p>(ii) Support would be provided for occupiers who may need to find alternative accommodation.</p> <p>(iii) Phased demolition and bridge replacement to ensure north-south access is maintained for Hatfield Peverel residents.</p> <p>(iv) Maintain access for residents living within and around works associated with the proposed scheme where practicable.</p> <p>(v) Reinstate land temporarily acquired, to its former use unless otherwise agreed with landowners.</p>	<p>(i) DCO (procedures under Powers of Acquisition and Possession of Land)</p> <p>(ii), (iv) and (v) REAC, within the first iteration of the EMP [TR010060/APP/6.5]</p> <p>(iii) and (iv) Outline Construction Traffic Management Plan [TR010060/APP/7.7]</p>	Large adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Private property and housing in Witham and Rivenhall End – Demolition of two houses, direct land-take from a further 10 properties, including permanent land-take from eight properties resulting in partial loss of garden areas.	(i) The principles of the compensation code will apply. (ii) Support would be provided for occupiers who may need to find alternative accommodation. (iii) Maintain access for residents living within and around works associated with the proposed scheme where practicable. (iv) Reinstate land temporarily acquired to its former use unless otherwise agreed with landowners.	(i) DCO (procedures under Powers of Acquisition and Possession of Land) (ii), (iii) and (iv) REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)
Community land and assets in Hatfield Peverel – minor magnitude indirect impacts on a variety of community assets and a moderate magnitude impact on Hatfield Peverel railway station, due to impacts on access north-south of the A12 in Hatfield Peverel associated with the Station Road Bridge and Bury Lane Bridge demolition and replacement proposals.	Phased demolition and bridge replacement to ensure north-south access is maintained for Hatfield Peverel residents, together with the following mitigation measures: <ul style="list-style-type: none"> Provision of a temporary car park to allow temporary and alternative access and provide a parking area for the railway station users during the Station Road bridge replacement Provision of a shuttle service with stops at the temporary car park, Hatfield Peverel railway station, Station Road and central Hatfield Peverel. Vehicles would be suitable to support persons with accessibility needs Temporary pedestrian/cycle bridge over the A12 to provide access during the Station Road Bridge replacement 	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Outline Construction Traffic Management Plan [TR010060/APP/7.7]	Large adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Community land and assets in Witham and Rivenhall End – Temporary loss of car park for the Church of Latter-day Saints and loss of access to Whetmead Local Nature Reserve as well as potential disturbance due to the gas main diversion proposals. Several impacts on access and minor encroachment on an area of informal green space and a golf course.	(i) Maintain access for users of community assets within and around works associated with the proposed scheme where physical land-take of asset is not required. (ii) Reinstate land temporarily acquired to its former use unless otherwise agreed with landowners. (iii) Replace lost open space with equivalent or better quality.	(i), (ii) and (iii) REAC, within the first iteration of the EMP [TR010060/APP/6.5] (ii) and (iii) DCO (procedures under Powers of Acquisition and Possession of Land)	Moderate adverse (significant)
Community land and assets in Marks Tey – General disruption and inconvenience of access to community facilities including Marks Tey railway station, Marks Tey recreation ground and Marks Tey Parish Hall due to proposed works associated with the new arrangement for J25 improvements. The level of inconvenience may be sufficient to deter some use of facilities.	Maintain access for users of community assets within and around works associated with the proposed scheme.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)
Development land and business in Witham, Rivenhall End, Kelvedon, Feering, Inworth and Marks Tey – General disruption and inconvenience of access for businesses in these settlements due to traffic management and construction activities in the construction phase (short to medium term).	(i) Maintain access for users of business assets within and around works associated with the proposed scheme where physical land take of asset is not required (ii) Reinstate land temporarily acquired to its former use unless otherwise agreed with landowners (iii) Appoint Community Liaison Manager to address business concerns	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Agricultural landholdings – moderate or major impacts on agricultural land affecting 17 farm businesses.	<p>(i) Appoint an Agricultural Liaison Officer for ongoing engagement with landholders, tenants and their agents.</p> <p>(ii) Undertake record condition of farm assets at pre-construction against which to measure quality of reinstatement of temporarily acquired land.</p> <p>(iii) Require Principal Contractor to protect biosecurity, water supplies, soils, and other farm assets.</p>	REAC, within the first iteration of the EMP [TR010060/APP/6.5].	Large adverse (significant)
Walkers, cyclists and horse riders in Boreham (outside of main settlement) – Major disruption to walkers and cyclists who use routes across Boreham Bridge and Generals Lane Roundabout, including users of Chelmsford to Boreham cycle route. Impacts on several public rights of way (PRoWs) due to haul roads and drainage works.	<p>(i) Plan to limit requirements for PRoW, footway and cycleway closures or diversions during the construction phase.</p> <p>(ii) Temporary diversion routes provided and appropriately signed.</p> <p>(iii) Where closure of a PRoW is required during construction and no local diversion can be provided, appropriate signage would be supplied at each end of the closed PRoW.</p>	<p>(i), (ii) and (iii) Outline Construction Traffic Management Plan [TR010060/APP/7.7]</p> <p>(i), (ii) and (iii) REAC, within the first iteration of the EMP [TR010060/APP/6.5]</p> <p>(ii) and (iii) DCO (procedures under Powers of Acquisition and Possession of Land)</p>	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Walkers, cyclists and horse riders in Hatfield Peverel – Considerable diversions for walkers and cyclists required over several months due to proposals for demolition and replacements of Bury Lane Bridge, Station Road Bridge and Wellington Road Bridge in Hatfield Peverel. Prevention of access to/from public footpath FP 90_29 (Hatfield Peverel), and the Latneys Boarding Kennels and Cattery, except via a lengthy diversion (approximately 2km) due to the demolition of Woodend Bridge mainly affecting recreational users. Moderate adverse magnitude impacts on the footways alongside the eastbound and westbound sides of the A12 carriageway between Hatfield Peverel and Witham, mainly affecting active travellers.</p>	<p>(i) Plan to limit requirements for PRow, footway and cycleway closures or diversions during the construction phase.</p> <p>(ii) Temporary diversion routes provided and appropriately signed.</p> <p>(iii) Where closure of a PRow is required during construction and no local diversion can be provided, appropriate signage would be supplied at each end of the closed PRow.</p> <p>(iv) Phased demolition and bridge replacement to ensure north-south access is maintained for Hatfield Peverel residents together with the following measures:</p> <ul style="list-style-type: none"> • Temporary access through two new housing estates, Hatfield Grove and Bury Farm • Provision of a shuttle service with stops at the temporary car park, Hatfield Peverel railway station, Station Road and central Hatfield Peverel. Vehicles would be suitable to support persons with accessibility needs • Temporary pedestrian bridge over the A12 to provide access during the Station Road bridge replacement 	<p>(i), (ii), (iii) and (iv) Outline Construction Traffic Management Plan [TR010060/APP/7.7]</p> <p>(i), (ii), (iii) and (iv) REAC, within the first iteration of the EMP [TR010060/APP/6.5]</p> <p>(ii) and (iii) DCO (procedures under Powers of Acquisition and Possession of Land)</p>	<p>Very large adverse (significant)</p>

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Walkers, cyclists and horse riders in Witham and Rivenhall End – Considerable diversions for walkers and cyclists required over several months due to proposals for Oliver’s Bridge widening, and activities associated with J22, which would impact on users of National Cycle Network Route 16. Proposed highway works to B1389 and J22 would also disrupt access for walkers and cyclists seeking to access the east-west footway along the existing A12 to/from Colchester. These are both very well-used routes so there is potential to affect large numbers of walkers, cyclists and horse riders. Closure of public footpath (FP 121_101 (Witham)) for approximately 17 months, preventing access to Whetmead Nature Reserve except via a large diversion.</p>	<p>(i) Plan to limit requirements for PRow, footway and cycleway closures or diversions during the construction phase.</p> <p>(ii) Temporary diversion routes provided and appropriately signed.</p> <p>(iii) Where closure of a PRow is required during construction and no local diversion can be provided, appropriate signage would be supplied at each end of the closed PRow.</p>	<p>(i), (ii) and (iii) Outline Construction Traffic Management Plan [TR010060/APP/7.7]</p> <p>(i), (ii) and (iii) REAC, within the first iteration of the EMP [TR010060/APP/6.5]</p> <p>(ii) and (iii) DCO (procedures under Powers of Acquisition and Possession of Land)</p>	<p>Large adverse (significant)</p>

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Walkers, cyclists and horse riders in Kelvedon, Feering and Inworth – Closure of public footpath FP 78_18 (Feering) for approximately 39 months during the proposed demolition of Threshelford Bridge and construction of the replacement structure. This would limit access to the PRow network for residents of Feering except via major magnitude diversions. Various other impacts on PRows involving moderate magnitude diversions.	(i) Plan to limit requirements for PRow, footway and cycleway closures or diversions during the construction phase. (ii) Temporary diversion routes provided and appropriately signed. (iii) Where closure of a PRow is required during construction and no local diversion can be provided, appropriate signage would be supplied at each end of the closed PRow.	(i), (ii) and (iii) Outline Construction Traffic Management Plan [TR010060/APP/7.7] (i), (ii) and (iii) REAC, within the first iteration of the EMP [TR010060/APP/6.5] (ii) and (iii) DCO (procedures under Powers of Acquisition and Possession of Land)	Moderate adverse (significant)
Walkers, cyclists and horse riders in Marks Tey, Copford and Easthorpe – Closure of footpaths FP 144_19 and FP 144_18 for approximately 20 months and stopping up of northernmost 200m of FP 144_18, during construction reducing recreational access for Marks Tey residents except via major magnitude diversions. Disruption to the east-west route alongside the eastbound carriageway of the A12 while the proposed Wishingwell Farm Roundabout, Easthorpe Road Roundabout and Feering East Roundabout are constructed would affect active travel commuters. Works to J25 would likely cause disruption to walkers and cyclists in Marks Tey for a period of at least two years.	(i) Plan to limit requirements for PRow, footway and cycleway closures or diversions during the construction phase. (ii) Temporary diversion routes provided and appropriately signed. (iii) Where closure of a PRow is required during construction and no local diversion can be provided, appropriate signage would be supplied at each end of the closed PRow.	(i), (ii) and (iii) Outline Construction Traffic Management Plan [TR010060/APP/7.7] (i), (ii) and (iii) REAC, within the first iteration of the EMP [TR010060/APP/6.5] (ii) and (iii) DCO (procedures under Powers of Acquisition and Possession of Land)	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Population and human health – human health effects			
Noise – significant night-time and daytime noise affecting some residents in Hatfield Peverel, near Witham bypass, Rivenhall End, Easthorpe, Marks Tey and the 266 receptors associated with the planned A12 diversion route. Associated health outcomes: <ul style="list-style-type: none"> Reduced mental wellbeing Sleep disturbance 	(i) Consideration of further measures to reduce the noise from construction activities. (ii) Development of a Noise and Vibration Management Plan.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Negative (significant)
Active travel – disruption of east-west shared-use cycle track during construction with the potential risk of discouraging existing commuters from undertaking active travel journeys during the construction phase. Associated health outcomes: <ul style="list-style-type: none"> Weight gain Reduced mental wellbeing 	Provide efficient, well-signed diversion routes around areas of construction to limit delay for active travel commuters.	Outline Construction Traffic Management Plan [TR010060/APP/7.7] REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Negative (significant)
Road drainage and the water environment			
No significant effects identified.			
Climate			
No significant effects identified.			

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Cumulative effects			
Asset 57 (Generals), Asset 67 (Boreham House (registered park and garden), and Asset 69 (Boreham House, grade I listed building) – Temporary moderate impacts during construction of the proposed scheme and the Beaulieu Park development (planning ID 3). The Beaulieu Park development has assessed either beneficial or neutral effects on these assets, and therefore the cumulative effects remain as moderate adverse.	No mitigation proposed, as the cumulative effect would be no greater than from the proposed scheme itself.	N/A	Moderate adverse (significant)
Loss of agricultural land – combined permanent loss of agricultural land from the proposed scheme, Chelmsford North East Bypass (planning ID 1), Beaulieu Park development (planning ID 3), and Longfield Solar Farm (planning ID 8).	None in addition to the mitigation proposed for the proposed scheme in Chapter 10: Geology and soils, of the Environmental Statement [TR010060/APP/6.1]. Further measures could not mitigate the cumulative effects.	N/A	Very large adverse (significant)
Hanson Aggregates – Construction of the proposed scheme, Chelmsford North East Bypass (planning ID 1), and Beaulieu Park development (planning ID 3) may affect access to Hanson Aggregates if the construction of these developments occurs at the same time or in close succession.	Access arrangements for use during construction are subject to negotiation between National Highways, its contractors and the site landowner.	N/A	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Generals Lane – The Beaulieu Park development (planning ID 3) and the proposed scheme overlap with Generals Lane so may both cause cumulative impacts on access via the footway or for cyclists on this lane.	Mitigation as detailed in Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1].	Outline Construction Traffic Management Plan [TR010060/APP/7.7]	Moderate adverse (significant)
Footway alongside eastbound A12 carriageway between Hatfield Peverel and Witham and onto B1389 Hatfield Road – Potential cumulative disruption of access along the footway due to the construction phases of a housing development (planning ID 21) and the proposed scheme.	Mitigation has been included in Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1]. All walking, cycling and horse-riding routes would be maintained where safe and reasonably practicable to do so. Temporary diversion routes would be well-signed and would be suitable for all potential users of the existing provision. Traffic management measures would be implemented to ensure safe access. The construction works would be phased such that disruption to access is minimised, with full road closures restricted to nights and weekends.	Outline Construction Traffic Management Plan [TR010060/APP/7.7]	Large adverse (significant)
Rosewood Business Park/Eastways Industrial Estate – Construction phases of a commercial development (planning ID 22) and the proposed scheme would further affect access to the receptor if construction of both projects occurs at the same time or in close succession.	Maintain access for business and customers where practicable.	Outline Construction Traffic Management Plan [TR010060/APP/7.7]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Existing footway/cycleway along London Road, Feering – Access to footway would be disrupted by the proposed scheme and the construction of two commercial developments (planning IDs 40 and 41) may further disrupt this footway or the proposed diversions due to its proximity to the footway.	Mitigation is set out in Chapter 13: Population and human health, of the Environmental Statement [TR010060/APP/6.1]. All walking, cycling and horse-riding routes would be maintained where safe and reasonably practicable to do so. Temporary diversion routes would be well-signed and would be suitable for all potential users of the existing provision. The construction works would be phased such that disruption to access is minimised, with full road closures restricted to nights and weekends.	N/A	Large adverse (significant)

Table 17.2 Summary of likely residual significant effects and mitigation during operation

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Air quality			
No significant effects on air quality at human health and Defra's Pollution Climate Mapping (PCM) receptors. The assessment identified significant effects at ecological receptors owing to an increase in nitrogen deposition (this effect is reported under the biodiversity aspect).			
Cultural heritage			
Church View House (Flispes) (Asset 784) – Impact on the setting from new offline section of road including new Wishingwell Overbridge and a new side road to the south-east. This new infrastructure would result in visual intrusion within the setting of the house from the presence of the new raised road section, including associated traffic noise, lighting and signage (Viewpoint 20, LVIA, see Chapter 8: Landscape and visual [TR010060/APP/6.1]).	The noise impacts would be reduced by the proposed road surfacing with better noise reducing properties than conventional low noise road surfacing, and acoustic barrier. Visual impacts would be reduced by a landscape bund, along with woodland and tall screen planting, to screen the asset from the new access road.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Environmental Masterplan [TR010060/APP/6.2]	Moderate adverse (significant)
Easthorpe Green Farmhouse (Asset 785) – Impact on the setting from new offline section of road including new Wishingwell Overbridge and a new side road to the south-east. This new infrastructure would result in visual intrusion within the setting of the house from the presence of the new raised road section, including associated traffic noise, lighting and signage (Viewpoint 20, LVIA, see Chapter 8: Landscape and visual [TR010060/APP/6.1]).	The noise impacts would be reduced by the proposed road surfacing with better noise reducing properties than conventional low noise road surfacing, and acoustic barrier. Visual impacts would be reduced by a landscape bund, along with woodland and tall screen planting, to screen the asset from the new access road.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Environmental Masterplan [TR010060/APP/6.2]	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Doggets Hammer Farm (Asset 795) – Impact on the setting from a new offline section of A12 together with the proposed Potts Green Bridge. Impacts would include visual intrusion from the presence of the new road, the new bridge, new lighting and signage (Viewpoint 22 and photomontage, LVIA, see Chapter 8: Landscape and visual [TR010060/APP/6.1]) within its setting, resulting in visual intrusion and erosion of the setting affecting its tranquillity, and harm to the aesthetic value and historic legibility of the listed building.</p>	<p>A road surfacing with better noise reducing properties than a conventional low noise road surface is proposed in this area, plus an acoustic bund and woodland planting to the south.</p>	<p>REAC, within the first iteration of the EMP [TR010060/APP/6.5] Environmental Masterplan [TR010060/APP/6.2]</p>	<p>Moderate adverse (significant)</p>
<p>Barn south of Marks Tey Hall (Asset 816) – Impact from the new offline section of A12 road within its setting, including a new roundabout south-west of junction 25 and a new offline access road to provide access from the A12 to the listed building along Chase Road. The impacts would result from visual intrusion of the new infrastructure including lighting and signage and associated traffic noise, harming the aesthetic value and historic legibility of the listed building.</p>	<p>Tree planting is proposed as mitigation to the north of the access road to reduce the visual intrusion from the new offline road. The proposed road surface with better noise reducing properties than conventional low noise road surfacing would reduce noise from road traffic.</p>	<p>REAC, within the first iteration of the EMP [TR010060/APP/6.5] Environmental Masterplan [TR010060/APP/6.2]</p>	<p>Moderate adverse (significant)</p>

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Barn to north-west of Marks Tey Hall (Asset 817) – Impact from the new offline section of A12 road within its setting, including a new roundabout south-west of junction 25 and a new offline access road to provide access from the A12 to the listed building along Chase Road. The impacts would result from visual intrusion of the new infrastructure including lighting and signage and associated traffic noise, harming the aesthetic value and historic legibility of the listed building.	Tree planting is proposed as mitigation to the north of the access road to reduce the visual intrusion from the new offline road. The proposed road surface with better noise reducing properties than conventional low noise road surfacing would reduce noise from road traffic.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Environmental Masterplan [TR010060/APP/6.2]	Moderate adverse (significant)
Marks Tey Hall (Asset 819) – Impact from the new offline section of A12 road within its setting, including a new roundabout south-west of junction 25 and a new offline access road to provide access from the A12 to the listed building along Chase Road. The impacts would result from visual intrusion of the new infrastructure including lighting and signage and associated traffic noise, harming the aesthetic value and historic legibility of the listed building.	Tree planting is proposed as mitigation to the north of the access road to reduce the visual intrusion from the new offline road. The proposed road surface with better noise reducing properties than conventional low noise road surfacing would reduce noise from road traffic.	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Environmental Masterplan [TR010060/APP/6.2]	Moderate adverse (significant)
Landscape and visual (year 1)²			
Local LCA F3 Totham Wooded Farmland.	N/A – mitigation planting would take time to establish. Mitigation described under the year 15 operational landscape and visual effects.	N/A	Moderate adverse (significant)

² Year 1 operational landscape and visual effects are grouped by the significance of effect.

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Local LCA A9 Blackwater River Valley, Landscape sub-area A9A, B19 Langley Green Farmland Plateau, B21 Boreham Farmland Plateau, B2 Easthorpe Farmland Plateau, F1 Messing Wooded Farmland.	N/A – mitigation planting would take time to establish. Mitigation described under the year 15 operational landscape and visual effects.	N/A	Large adverse (significant)
Representative viewpoints 3, 6, 7, 8 (winter only), 10 (vehicle travellers on Little Braxted Lane), 11 (vehicle travellers on Little Braxted Lane), 13 (vehicle travellers on Braxted Road), 17 (vehicle travellers on B1023 Inworth Road), 23, 28, 30, 34, and 35 (users of the public footpath).	N/A – mitigation planting would take time to establish. Mitigation described under the year 15 operational landscape and visual effects.	N/A	Moderate adverse (significant)
Representative viewpoints 5 (users of the footpath/cycleway and residents within private properties), 9, 11 (users of National Cycle Route), 11a, 15, 16, 19 (users of the public footpath), 20, 27, 29, 32, and 33.	N/A – mitigation planting would take time to establish. Mitigation described under the year 15 operational landscape and visual effects.	N/A	Large adverse (significant)
Representative viewpoints 10 (users of National Cycle Route), 13 (residents within private properties), 17 (residents within private properties), 18, and 22.	N/A – mitigation planting would take time to establish. Mitigation described under the year 15 operational landscape and visual effects.	N/A	Very large adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Landscape and visual (year 15)			
<p>Receptor: Local LCA A9 Blackwater River Valley.</p> <p>Description of effect: Restored borrow pit I and parts of restored borrow pits F and J and the increased extent of highway infrastructure presented by J22 and the offline bypass between J22 and J23, as well as the elevated nature of proposed elements within the low-lying landscape, would cause residual change to land use and field pattern. Increased highway infrastructure would also affect tranquillity and night-time character. There would be permanent removal of two potential veteran trees.</p>	<p>Mitigation planting would include woodland planting of trees and shrubs, intermittent trees and shrubs, individual trees and hedges with intermittent trees along the offline bypass between J22 and J23 and around J22 and Braxted Road Overbridge.</p>	<p>Environmental Masterplan [TR010060/APP/6.2]</p> <p>First iteration of the EMP, which includes the Landscape and Ecological Management Plan (LEMP) [TR010060/APP/6.5]</p>	<p>Moderate adverse (significant)</p>
<p>Receptor: Local LCA landscape sub area A9A.</p> <p>Description of effect: The online widening on embankment over the River Blackwater, the raised realignment of Maldon Road and Highfields Overbridge replacement would exacerbate the presence of elevated structures within a localised part of the low-lying valley landscape. The gas main diversion easement would restrict the capacity to plant trees including on the embankment west and south-west of Whetmead Local Nature Reserve, and where woodland and willow plantation would be lost within the River Blackwater Valley resulting in residual change to the character of the landscape.</p>	<p>Mitigation planting would include woodland planting of trees and shrubs along the widened A12 east of Witham and intermittent trees and shrubs on the southern embankment of the A12 where it runs through the Blackwater River Valley.</p>	<p>Environmental Masterplan [TR010060/APP/6.2]</p> <p>First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Moderate adverse (significant)</p>

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Receptor: Local LCA B19 Langley Green Farmland Plateau.</p> <p>Description of effect: The increased extent of highway infrastructure presented by part of the offline bypass between J24 and J25, the subsequent change to land use and field pattern, effects on tranquillity and night-time character, the elevated nature of some proposed elements within the relatively flat plateau landscape and severance of the driveway/avenue to Prested Hall would result in noticeable residual change to the existing landscape character.</p>	<p>Mitigation planting would include woodland planting of trees and shrubs and tall screen planting along the offline bypass between J24 and J25, individual trees at Prested Hall Overbridge and along the realigned Easthorpe Road and intermittent trees and shrubs around attenuation ponds.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Moderate adverse (significant)</p>
<p>Receptor: Local LCA B21 Boreham Farmland Plateau.</p> <p>Description of effect: Restored borrow pits E and F and the increased extent of highway infrastructure at J21, including additional lighting, would add to the change in land use and field pattern east of Hatfield Peverel. The loss of a group of trees and an individual tree of Tree preservation Order status and a potential veteran tree, would be permanent.</p>	<p>Mitigation planting would include woodland planting of trees and shrubs along the widened A12 corridor and around J19 and J21. New woodland planting of trees and shrubs, hedges with intermittent trees and individual trees would help integrate attenuation and ecology ponds and access tracks into the landscape.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Moderate adverse (significant)</p>
<p>Receptor: Local LCA F3 Totham Wooded Farmland.</p> <p>Description of effect: Borrow pit J as well as new lighting at J24, which falls largely within the adjacent landscape, would present uncharacteristic features within the arable landscape. The loss of a potential veteran tree would be permanent.</p>	<p>Mitigation planting within the restored borrow pit J and individual trees along the J24 slip road.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Moderate adverse (significant)</p>

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Receptor: Local LCA B2 Easthorpe Farmland Plateau.</p> <p>Description of effect: The increased extent of highway infrastructure presented by part of the offline bypass between J24 and J25, the subsequent change to land use and field pattern, effects on tranquillity and night-time character, the elevated nature of some elements within the relatively flat plateau landscape would result in noticeable residual change to the existing landscape character.</p>	<p>Mitigation planting would include individual trees along the realigned roads, woodland planting of trees and shrubs, tall screen planting and individual trees along the offline bypass between J24 and 25, and intermittent tree and shrub planting around the attenuation ponds.</p>	<p>Environmental Masterplan [TR010060/APP/6.2]</p> <p>First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Moderate adverse (significant)</p>
<p>Receptor: Local LCA F1 Messing Wooded Farmland.</p> <p>Description of effect: Although J24 would be in cutting, which would reduce the prominence of the infrastructure within the landscape, the increased extent of highway infrastructure at J24, the subsequent change to land use, field pattern and the introduction of lighting at J24 would result in noticeable residual change to the existing landscape character.</p>	<p>Mitigation planting along the widened A12 corridor, around J24 and around the attenuation ponds and access tracks would include woodland planting of trees and shrubs, intermittent trees and shrubs and individual trees.</p>	<p>Environmental Masterplan [TR010060/APP/6.2]</p> <p>First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Moderate adverse (significant)</p>
<p>Receptor: Representative viewpoint 5. Representative view north-east from footpath/cycleway south of A12, east of Hatfield Peverel.</p> <p>Receptor type: users of the footpath/cycleway.</p> <p>Description of effect: The proximity to J21 is likely to result in some residual noticeable views of the expanded highway infrastructure, albeit in the context of the existing lit A12.</p>	<p>Mitigation planting at J21 and along the A12 corridor would include woodland planting of trees and shrubs, and hedges with intermittent trees along either side of the footpath/cycleway.</p>	<p>Environmental Masterplan [TR010060/APP/6.2]</p> <p>First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Moderate adverse (significant)</p>

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Receptor: Representative viewpoint 10. Representative view south-west from Little Braxted Lane/National Cycle Route 16. Receptor type: users of national cycle route. Description of effect: The presence of major infrastructure would remain a noticeable feature of the view.</p>	<p>Mitigation planting would include intermittent trees and shrubs along the highway cutting and around Little Braxted Bridge.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Large adverse (significant)</p>
<p>Receptor: Representative viewpoint 11. Representative view north-east from Little Braxted Lane/National Cycle Route 16. Receptor type: users of national cycle route. Description of effect: The presence of major infrastructure and lighting at J22 would remain a noticeable feature of the view.</p>	<p>Mitigation planting would include intermittent trees and shrubs and woodland planting of trees and shrubs on the embankments of J22.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Large adverse (significant)</p>
<p>Receptor: Representative viewpoint 11a. Representative view north from PRoW 105_29, east of Little Braxted Lane. Receptor type: users of the PRoW (public bridleway) and residents within private properties. Description of effect: Glimpses of traffic and signage, including gantries, on J22 and the offline bypass between J22 and J23 would remain perceptible through intervening mitigation planting, and this would form a new permanent feature in the view.</p>	<p>Mitigation planting would include hedges with intermittent trees along the realigned Little Braxted Lane, and woodland planting of trees and shrubs on the embankments of J22.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Moderate adverse (significant)</p>

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Receptor: Representative viewpoint 13. Representative view west from residential properties along Braxted Road, Rivenhall End. Receptor type: residents within private properties.</p> <p>Description of effect: Raised structures including elevated offline bypass between J22 and J23 and Braxted Road Overbridge on embankment would remain noticeable within the low-lying Blackwater River Valley landscape.</p>	<p>Mitigation planting would include woodland planting of trees and shrubs on the eastern embankment of Braxted Road Overbridge and along the southern side of the offline bypass between J22 and J23.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Large adverse (significant)</p>
<p>Receptor: Representative viewpoint 17. Representative view west from residential properties along B1023 Inworth Road. Receptor type: residents within private properties.</p> <p>Description of effect: The new roundabout adjacent to the B1023 and new lighting columns along a section of Inworth Road, at the roundabout and at J24, would remain noticeable in the view.</p>	<p>Mitigation planting would include woodland planting of trees and shrubs along parts of the southbound carriageway of the A12 and individual trees around the new roundabout, J24 and along the side roads.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Large adverse (significant)</p>
<p>Receptor: Representative viewpoint 18. Representative view north-west from PRow 78_12, east of the driveway to Prested Hall (grade II listed). Receptor type: users of the PRow (public footpath) and residents within private properties.</p> <p>Description of effect: The elevated nature of new structures, severance of the formal drive to Prested Hall and closer proximity of major infrastructure would mean the proposed scheme would remain noticeable in the view.</p>	<p>Mitigation planting would include intermittent trees and shrubs and individual trees around Prested Hall Overbridge, and tall screen planting and linear woodland planting of trees and shrubs along the offline bypass between J24 and J25,</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Large adverse (significant)</p>

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Receptor: Representative viewpoint 20. Representative view north of PRoW 128_22, and Easthorpe Green Farmhouse (grade II listed). Receptor type: users of PRoW (public footpath) and residents within private properties. Description of effect: The proposed scheme, including Wishingwell Overbridge, would remain perceptible, bringing the traffic closer to the viewpoint.</p>	<p>Mitigation planting would include woodland planting of trees and shrubs (partly on an acoustic bund east of the offline bypass between J24 and J25) and tall screen planting east and west of the offline bypass between J24 and J25, and individual trees along Wishingwell Overbridge.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Moderate adverse (significant)</p>
<p>Receptor: Representative viewpoint 22. Representative view south-east from PRoW 144_19 near Doggets Hammer Farm (grade II listed), Potts Green. Receptor type: users of the PRoW (public footpath) and residents within private properties. Description of effect: The proximity to the offline bypass between J24 and J25 and the change in the character of the view, with the introduction of highway infrastructure to the rural context, would remain noticeable.</p>	<p>Mitigation planting would include woodland planting of trees and shrubs along and north of an acoustic bund between Potts Green and the offline bypass between J24 and J25.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Large adverse (significant)</p>
<p>Receptor: Representative viewpoint 27. Representative view north from PRoW 145_5, near Inworth Hall (grade II listed). Receptor type: users of the PRoW (public footpath). Description of effect: Borrow pit J and new lighting at J24 would cause a noticeable change in view.</p>	<p>Mitigation planting would include woodland planting of trees and shrubs along the southbound carriageway of the A12 and around J24 Underbridge, and mitigation planting within the restored borrow pit J.</p>	<p>Environmental Masterplan [TR010060/APP/6.2] First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Large adverse (significant)</p>

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Receptor: Representative viewpoint 32. Representative view north-west from PRow 78_18 on periphery of Prested Hall (grade II listed) grounds.</p> <p>Receptor type: users of the PRow (public footpath) and residents within private properties.</p> <p>Description of effect: The elevated nature of Prested Hall Overbridge, and closer proximity of major infrastructure including the offline bypass between J24 and J25 would remain noticeable in views.</p>	<p>Mitigation planting would include linear woodland planting of trees and shrubs and tall screen planting along the offline bypass between J24 and J25, and blocks of intermittent trees and shrubs around Prested Hall Overbridge.</p>	<p>Environmental Masterplan [TR010060/APP/6.2]</p> <p>First iteration of the EMP, which includes the LEMP [TR010060/APP/6.5]</p>	<p>Large adverse (significant)</p>
Biodiversity			
<p>Perry's Wood Local Wildlife Site – air quality effects due to nitrogen deposition exceeding the relevant thresholds.</p>	<p>Offsetting to be provided through planting of woodland habitat within an area of the Order Limits unaffected by changes in nitrogen emissions.</p>	<p>LEMP, which is part of the first iteration EMP [TR010060/APP/6.5]</p>	<p>Large adverse (significant)</p>
<p>Perry's Wood ancient woodland – air quality effects due to nitrogen deposition exceeding the relevant thresholds.</p>	<p>Offsetting to be provided through planting of woodland habitat within an area of the Order Limits unaffected by changes in nitrogen emissions.</p>	<p>LEMP, which is part of the first iteration EMP [TR010060/APP/6.5]</p>	<p>Large adverse (significant)</p>
Geology and soils			
No significant effects identified.			
Material assets and waste			
No significant effects identified.			

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Noise and vibration			
Above SOAEL and minor increase. 28 dwellings along Main Road, Boreham.	No mitigation practicable.	N/A	Significant adverse
Moderate decreases. 35 dwellings in Hatfield Peverel.	Surfacing with better noise-reducing properties than a conventional low-noise surface.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate decrease. One other sensitive receptor in Hatfield Peverel.	Surfacing with better noise-reducing properties than a conventional low-noise surface.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate decreases. 23 dwellings along Baker Way, Witham.	Surfacing with better noise-reducing properties than a conventional low-noise surface.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate decreases. 26 dwellings around the Maldon Road underbridge.	Surfacing with better noise-reducing properties than a conventional low-noise surface and noise barriers.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate decrease. One other sensitive receptor around the Maldon Road underbridge.	Surfacing with better noise-reducing properties than a conventional low-noise surface and noise barriers.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Major decreases. Four dwellings around J22.	Alignment and surfacing with better noise-reducing properties than a conventional low-noise surface.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Major and moderate decreases. 69 dwellings within Rivenhall End.	Alignment and surfacing with better noise-reducing properties than a conventional low-noise surface.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Major decreases. Three other sensitive receptors within Rivenhall End.	Alignment and surfacing with better noise-reducing properties than a conventional low-noise surface.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate decrease. Three dwellings at Hole Farm.	Alignment and surfacing with better noise-reducing properties than a conventional low-noise surface.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate decreases. 306 dwellings within Kelvedon.	Resurfacing of the concrete on the Kelvedon bypass.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate decrease. One other sensitive receptor in Kelvedon.	Resurfacing of the concrete on the Kelvedon bypass.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate increase. Four dwellings along Braxted Road.	No mitigation practicable.	N/A	Significant adverse
Moderate decreases. Eight dwellings along Highfields Lane.	Resurfacing of the concrete on the Kelvedon bypass.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate decrease. One other sensitive receptor along Highfields Lane.	Resurfacing of the concrete on the Kelvedon bypass.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate decreases. Nine dwellings around the proposed new J24.	Surfacing with better noise-reducing properties than a conventional low-noise surface.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Above SOAEL and minor increase. Four dwellings along Inworth Road.	No mitigation practicable.	N/A	Significant adverse
Moderate decreases. Seven dwellings within Inworth.	Resurfacing of the concrete on the Kelvedon bypass.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Moderate decrease. One other sensitive receptor in Inworth.	Resurfacing of the concrete on the Kelvedon bypass.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Above SOAEL and minor increase. Four dwellings along Kelvedon Road on the approach to Tiptree.	No mitigation practicable	N/A	Significant adverse
Major and moderate increases. 71 dwellings along Kelvedon Road, through Messing and then Harborough Road.	No mitigation practicable.	N/A	Significant adverse
Major increases. Three other sensitive receptors along Kelvedon Road, through Messing and then Harborough Road.	No mitigation practicable.	N/A	Significant adverse
Moderate decreases 12 dwellings along Grange Road to the west of Tiptree	N/A	N/A	Significant beneficial
Moderate and major decreases. 242 dwellings on the east of Kelvedon and Feering.	Alignment and resurfacing of the concrete on the Kelvedon bypass.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Moderate and major decreases. 10 other sensitive receptors on the east of Kelvedon and Feering.	Alignment and resurfacing of the concrete on the Kelvedon bypass.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
One moderate increase and one above SOAEL and minor increase. Two dwellings at Easthorpe Green.	Surfacing with better noise-reducing properties than a conventional low-noise surface and noise barrier.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant adverse
Major increase. One dwelling of Wishingwell Farm.	Surfacing with better noise-reducing properties than a conventional low-noise surface and noise barrier.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant adverse
Major increase. One other sensitive receptor (recording studio) at Wishingwell Farm.	Surfacing with better noise-reducing properties than a conventional low-noise surface and noise barrier.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant adverse
Major increase. One dwelling of Doggetts.	Surfacing with better noise-reducing properties than a conventional low-noise surface and noise barrier.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant adverse
Moderate and major decreases. 62 dwellings within Marks Tey.	Alignment and surfacing with better noise-reducing properties than a conventional low-noise surface.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant beneficial
Above SOAEL and minor increase. One dwelling of Hall Chase Farm House.	Surfacing with better noise-reducing properties than a conventional low-noise surface and noise bund.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Significant adverse
Above SOAEL and minor increase. Seven dwellings along London Road, Copford.	No mitigation practicable.	N/A	Significant adverse

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Population and human health – land use and accessibility effects			
Agricultural landholdings – permanent loss of proximately 395ha arable agricultural resource.	(i) Appoint an Agricultural Liaison Officer for ongoing engagement with landholders, tenants and their agents. (ii) Undertake record condition of farm assets at pre-construction against which to measure quality of reinstatement of temporarily acquired land. (iii) Require Principal Contractor to protect biosecurity, water supplies, soils, and other farm assets.	REAC, within the first iteration of the EMP [TR010060/APP/6.5]	Large adverse (significant)
Walkers, cyclists and horse riders in Boreham – Improvements to pedestrian and cycling infrastructure on and around J19 and removal of past severance of BR 213_23 and BR 213_45 (Boreham) with proposed Paynes Lane Bridge.	None required (overall beneficial provision)	N/A	Moderate beneficial (significant)
Walkers and cyclists in Kelvedon, Feering and Inworth – Removal of severance through provision of Sniveller's Lane Bridge, enhanced shared-use cycle track along B1024 providing east-west connectivity with greater amenity than current provision along existing A12, several other minor improvements to PRow, improving overall access.	None required (overall beneficial provision)	N/A	Moderate beneficial (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Walkers and cyclists in Marks Tey, Copford and Easthorpe – removal of existing severance through provision of proposed Easthorpe Road Overbridge and improvements in connectivity by linking proposed new shared-use cycle tracks to existing PRow network, for example near Wishingwell Farm Overbridge. A number of minor improvements to existing pedestrian crossings in Marks Tey to accommodate cyclists.	None required (overall beneficial provision)	N/A	Moderate beneficial (significant)
Population and human health – human health effects			
Traffic noise – impacts on sleep disturbance.	Low-noise surfacing, barriers and bunds, as described in Section 12.10 of Chapter 12: Noise and vibration [TR010060/APP/6.1]	REAC, within the first iteration of the EMP [TR010060/APP/6.5] Environmental Masterplan [TR010060/APP/6.2]	Negative (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
<p>Access to greenspace (physical and visual) – combination of loss of vegetation, visual intrusion and effects on landscape character and tranquillity as well as improvements to physical access to the countryside and outdoor recreation from the proposed scheme.</p> <p>Associated health outcomes:</p> <ul style="list-style-type: none"> Effects on mental well-being 	Tree, shrub and woodland planting proposals as set out in Section 8.10 of Chapter 8: Landscape and visual [TR010060/APP/6.1].	Environmental Masterplan [TR010060/APP/6.2] REAC and LEMP, within the first iteration of the EMP [TR010060/APP/6.5]	Uncertain (significant) – it is uncertain whether mental wellbeing benefits associated with improved access to outdoor recreation would outweigh reduced mental wellbeing from landscape and visual impacts on local residents.
Road drainage and the water environment			
Flood risk: Proposed flood mitigation works associated with Ordinary Watercourse 21 result in mitigation of existing flood risk to the existing A12 ('essential infrastructure') and to residential properties.	No mitigation measures proposed as effect is beneficial.	N/A	Large - Very large beneficial (significant)
Flood risk: Proposed flood mitigation works associated with Ordinary Watercourse 26 result in decreased flood risk (maximum decrease >100mm) to a local road and decreased flood risk (maximum decrease 10-50mm) to residential properties.	No mitigation measures proposed as effect is beneficial.	N/A	Moderate beneficial (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Flood risk: Proposed flood storage areas associated with Inworth Road result in mitigation of existing flood risk to the road.	No mitigation measures proposed as effect is beneficial.	N/A	Very large beneficial (significant)
Climate			
No significant effects identified.			
Cumulative effects			
LCA B21 Boreham Farmland Plateau – cumulative effects on landscape character from the proposed scheme in combination with planning IDs 1, 3, 8, 15, and 21. It is likely there would be moderate adverse effects from the proposed scheme and the other developments.	None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement for the proposed scheme [TR010060/APP/6.1].	N/A – Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].	Moderate adverse (significant)
Local LCA A9 Blackwater River Valley – cumulative effects on landscape character from the proposed scheme in combination with planning IDs 19, 20, 22, 24, 25, 26, 27, and 28. It is likely there would be moderate adverse effects from the proposed scheme and the other developments.	None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement for the proposed scheme [TR010060/APP/6.1].	N/A – Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].	Moderate adverse (significant)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Representative viewpoints 11 and 11a – disruption to the landscape from the proposed scheme and Colemans Farm Quarry (planning IDs 28 and 25) resulting in cumulative visual effects from the viewpoints.	None of the cumulative residual effects would be greater than the residual landscape and visual effects caused by the proposed scheme. Therefore, no additional mitigation is proposed additional to that outlined in Chapter 8: Landscape and visual, of the Environmental Statement for the proposed scheme [TR010060/APP/6.1].	N/A – Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].	Moderate adverse (significant)
Paynes Lane/BR123_23 and BR123_45 – The Beaulieu Park development (planning ID 3) overlaps with BR213_23 which is connected to Paynes Lane and BR213_45 on the other side of the A12. During operation, it is anticipated that this route would become more important as a means of access for new residents at the estate, and a cumulative beneficial impact is anticipated from the proposed scheme design which addresses past severance through the proposed Paynes Lane Bridge for walkers, cyclists and horse riders.	None proposed – effect beneficial.	N/A	Large beneficial (significant)
Residents at the north-eastern edge of Witham (north of the Great Eastern Main Line) – incremental development around the edge of Witham from the proposed scheme and housing and commercial developments (planning IDs 23 and 24) would negatively affect visual access to greenspace (a protective factor for mental wellbeing) for existing residents at settlement edge.	Landscape and visual mitigation as set out in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. No additional mitigation identified.	N/A – Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].	Negative (significant) for operation (up to 15 years)

Description of effect	Mitigation measures	Mitigation mechanism	Significance of effect
Residents of Kelvedon, users of PRow and local lane network for outdoor recreation – incremental loss of greenspace from the proposed scheme and a housing development (planning ID 27) would affect the wider community seeking outdoor recreation. This would potentially affect mental wellbeing associated with greenspace and physical exercise outdoors.	Landscape and visual mitigation as set out in Chapter 8: Landscape and visual, of the Environmental Statement [TR010060/APP/6.1]. No additional mitigation identified.	N/A – Landscape mitigation for the proposed scheme is illustrated in Figure 2.1: Environmental Masterplan [TR010060/APP/6.2].	Negative (significant) for operation (up to 15 years)