A12 Chelmsford to A120 widening scheme

TR010060

9.27 Written submission of oral case for Issue Specific Hearing 1

Rule 14(3)

Planning Act 2008

Infrastructure Planning (Examination Procedure) Regulations 2010

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The Infrastructure Planning
(Examination Procedure) Rules 2010

A12 Chelmsford to A120 widening scheme

Development Consent Order 202[ ]

Written submission of oral case for Issue Specific Hearing 1

Regulation Number	Rule 14(3)
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1 Applicant's responses to Representations made at Issue Specific Hearing 1: Tuesday 28 February 2023 (10:00 – 16:00) and Wednesday 1 March 2023 (10:00 – 12:15)

1.1. Introduction

1.1.1 The Issue Specific Hearing (**ISH1**) for the A12 Chelmsford to A120 Widening Scheme (**DCO**) application was held virtually on Microsoft Teams and in person at First Floor, Kingsland Church, 86, London Road, Lexden, Colchester, CO3 9DW on Tuesday 28 February 2023 and the morning of Wednesday 1 March 2023.

1.1.2 The Examining Authority (ExA) invited the Applicant to respond to matters raised at the Hearing but also in writing following ISH1.

1.1.3 This document summarises the responses made at ISH1 by the Applicant and also seeks to fully address the representations made by Affected Parties, Interested Parties and other parties attending.

1.1.4 The Applicant has responded to the topics raised by each of the attending parties in the sequence that the ExA invited them to speak and provides cross-references to the relevant application or examination documents in the text below.

1.2. Post-hearing submissions in response to matters raised at Issue Specific Hearing 1 (ISH1)

Ref:	Comment/ Representation by:	Questions/Issues Raised at ISH1	Applicant's Response
AGENDA ITEM 2 – TRAFFIC AND TRANSPORT			
1.	Examining Authority (ExA)	The ExA detailed the formal purpose and arrangements for the hearing and made introductions. The ExA also ran through the agenda.	Noted
2.	ExA	The ExA asked the Applicant to speak to the need for the scheme, improvements/benefits that will be delivered/alternatives considered.	**Overall need for the scheme** The need for the proposed scheme is set out in the Case for the Scheme document [APP-249]. The A12 is an important economic link in Essex and across the east of England. It provides the main south-west/north-east route through Essex and Suffolk, connecting Ipswich to London and to the M25. In addition, the A12 is an important commuter route between Chelmsford and Colchester, but current congestion often affects drivers' average speed during the morning commute, which has an average speed of 40mph compared to the speed limit of 70mph. All the sections of the A12 between Junctions 19 to 25 are in the worst performing 10% of the Strategic Road Network (**SRN**) in the east of England. The A12 has previously been improved in stages and is now a dual carriageway for its entire length between the M25 and A14. However, this has resulted in a road constructed to varying standards with sections that are dual two- and three-lane, and locations where at-grade accesses to residential, commercial and agricultural properties have been retained. Due to variability in the standard of the corridor and

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			limited suitable diversion routes, the A12 is vulnerable to collisions and incidents, which can cause significant disruption over a wide area. Significant housing and business growth is planned in the area over the coming years. Without further interventions, the issues of congestion, road safety and impact on the economy as described above are anticipated to worsen in the future, exacerbated by forecast traffic growth both locally and strategically. The high volume of traffic using the A12 corridor, combined with the forecast growth in traffic, is likely to result in a greater level of conflict between highway users, with the potential to result in a greater number of incidents. In addition, without intervention, network resilience is likely to reduce as traffic volumes increase, resulting in a network less able to cope with incidents. The proposed scheme has been promoted for many years, and is identified as a national priority in the National Infrastructure Delivery Plan (2016), East of England Route Strategy (2017), various Highways England plans and the Department for Transport's Road Investment Strategy plans for 2015-2020 (RIS1) and 2020-2025 (RIS2). The proposed scheme meets a national need to increase the capacity of the SRN, improve the safe operation of the network for all users, improve the freight connections to East of England ports and would be fundamental to provide the necessary highway capacity to support the traffic growth generated by the wider housing and employment development plans for Essex. The benefits for the scheme are also set out in the Case for the Scheme [APP-249]. The proposed scheme is expected to deliver significant benefits, including around improved safety, faster and more reliable journeys by road, and improved facilities for walkers, cyclists, horse riders and public transport users to provide better connectivity and safer more enjoyable journeys. An economic assessment of benefits which can be monetized found that the scheme would deliver benefits of which would comfortably exceed the cost of the scheme.

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3.			**Development of the scheme** National Highways have an established process for developing schemes like the A12. The scheme is currently in stage 4. Detailed design is in stage 5, construction stage 6. The preferred route announcement concluded stage 2. This is documented chapter 3 of the Environmental Statement [APP-070]. During stage 0 the Applicant considered an array of strategic options to address the issues the road had. This did not just focus on road interventions but also included, for instance, public transport enhancements. Two strategic options were taken forward to stage 1 and generated 9 options. These options were refined and subject to traffic and environmental assessments to create four options to be taken forward to the route options consultation which represented the beginning of stage 2. The first consultation took place in stage 2 spring 2017 where the Applicant presented 4 options and asked for people's views on the existing Junctions. The main feedback was support for route two (which provided 2 bypasses, one at Rivenhall End, the other between Junctions 24 and 25) and is the route presented for development consent. Respondents also suggested that all Junctions had some problems needing to be addressed. There was support for merging Junctions 20a and 20b, and some key statutory stakeholders suggested the project consider linking Junction 24 to the B1023, or relocating it. There were also core concerns about traffic on The Street in Hatfield Peverel, and traffic on Kelvedon High Street, both communities sandwiched by a partial movement Junctions. This feedback was captured in the 2017 consultation report. The brochure and the report can be found in 5.2 Consultation Report - Annex A1: Option Consultation Materials [APP-046] The first preferred route was for junctions 19 to 23 and was announced in October 2019. At the same time the Applicant announced a consultation on options between Junctions 23 and 25 which took account of the proposed Colchester Braintree Borders Garden Community. Some Interested Parties have suggested that the option submitted for Development Consent still considers the garden community, but this is not correct.

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			The options that considered were bypasses between Junctions 24 and 25 further to the south than the proposed scheme. The Applicant confirmed in the consultation that if garden community did not go ahead, neither would the options that considered it. It didn't go ahead, so neither did the options. Further information on the garden community consultation can be found in Consultation Report - Annex A2: Option Consultation Materials [APP-047]. The assessment of the four 2017 consultation options, which concluded overall route 2 would be the preferred route can be found in the Scheme Assessment Report and the Scheme Assessment Report Addendum which is available on the National Highway's scheme website.
4.	ExA	The ExA asked the Applicant to outline their approach to Junctions 20a and 20b	**Design detail** Junction 21 seeks to combine the movements of the existing Junctions 20a, 20b and 21 into an all-movements Junction which facilitates northbound and southbound movements between Hatfield Peverel, Witham and the A12. The weaving lengths, which is the measure of the distance between the merges and diverges where drivers can join and leave the A12, are well below the length required by the Design Manual for Roads and Bridges, which is the suite of standards for Trunk Road design in England, which is a significant contributing factor to collisions. Throughout the design of the scheme, all movement junctions are preferred as they negate the need for traffic to route through the settlements which have half or three-quarter movement junctions at either side, can be seen at Hatfield Peverel. This is a consistent approach which has been taken by the applicant at Hatfield Peverel, Witham, Kelvedon and Feering. The proposed Junction 21 south-facing slip roads provide access from the northbound A12 into Hatfield Peverel and Witham, and from these settlements onto the southbound A12, essentially combining the existing Junction 20a and south-facing Junction 21 south facing slip roads. The originally designed Junction 21 position was some 250m north of where it is currently proposed within the DCO application materials, in early

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			preliminary design, the applicant undertook a study to bring this Junction closer to the Duke of Wellington Roundabout to minimize the length of link road between Hatfield Peverel and the proposed Junction 21, and reduce the number of vehicles choosing to drive along Main Road to reach the southbound A12. Whilst this change has increased the span of the proposed Wellington Bridge, as the slip roads for Junction 21 now sit under the proposed bridge length, the applicant proposed this change to mitigate the forecasted increase of traffic on Main Road at this early stage.
5.	ExA	The ExA asked the Applicant to outline the impact upon existing junctions and local roads in Boreham / Hatfield Peverel (including Main Road, Duke of Wellington Roundabout, Plantation Road and Church Road) and in Messing / Inworth / Tiptree.	**Impact upon existing Junctions and local roads** A strategic traffic model was developed to predict the level of traffic demand in future, both with and without the proposed scheme. This covers a wide geographic area, with increasing levels of detail the closer it gets to the proposed scheme location. This traffic model was developed in line with national traffic modelling guidance (the Department for Transport's Transport Appraisal Guidance). Further information on the development of this model can be found in the Applicant's Transport Assessment [APP-253]. The impact on local roads flows in is presented in the Transport Assessment Appendix C [APP-256]. For simplicity, a summary of the impacts is now provided in two parts split by geographic area. The traffic flows provided are the predicted changes in traffic in vehicles per hour, comparing the predicted flows in 2027 with the proposed scheme in place compared to predicted flows without the scheme in place. **Impact on local rounds around Boreham and Hatfield Peverel** • Traffic on B1137 The Street in Hatfield Peverel is predicted to reduce by up to 50%, as this stretch of road would no longer take the major movement between A12 junction 20a and the B1019 Maldon Road.

Ref:	Comment/ Representation by:	Questions/Issues Raised at ISH1	Applicant's Response
			• Traffic on Church Road in Hatfield Peverel is predicted to decrease, as most traffic from B1019 Maldon Road would be travelling east towards the proposed new junction 21 instead of west towards junction 20a. This makes the route via Church Road less attractive. • Traffic on B1137 Main Road in Boreham is predicted to increase in the AM peak, and reduce in the PM peak. The removal of Junction 20a southbound means that some traffic from the west side of Hatfield Peverel would choose to travel via Main Road to join A12 southbound at junction 19, where they otherwise would have joined the A12 at junction 20a. Main Road traffic is predicted to increase by 34% in the AM peak only. This equates to an additional 184 vehicles. The PM peak traffic is predicted to decrease by 14% (93 vehicles). Even with the increase in the AM, the traffic levels on Main Road are within the capacity of the road. • Traffic on Church Road in Boreham is not predicted to change significantly: a 2% increase in daily traffic (100 vehicles per day) • Traffic on Waltham Road is predicted to decrease, with a decrease in daily flow of 20%. • Traffic on Plantation Road in Boreham is predicted to increase. However, the predicted increase would only be around one vehicle per minute. The increase in daily traffic is 17% (590 vehicles per day). Even with this increase, the traffic levels are within the capacity of the road. The predicted increases will be within the typical capacity of roads of this type. Although some roads would become busier due to the proposed scheme, comparing their predicted flows against the typical capacities of these type of single carriageway roads shows that the roads would not be operating above their maximum capacity. As explained in the Applicant's response to Boreham Conservation Society's written response REP2-039-003, even with the predicted increase in traffic in the AM peak the B1137 Main Road and Plantation Road are predicted to have peak flows which are at less than 70% of the maximum capacity of those roads.

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			As well as these comparisons of average flows against typical capacities, more detailed 'junction models' were also developed which can more accurately model complex interactions between vehicles at junctions, and junction-specific properties such as ease of visibility on different arms. The impact on local junctions, modelled in more detail to make delays more accurate, in Boreham and Hatfield Peverel is summarised in the Transport Assessment Appendix A [APP-254]. In summary: • Duke of Wellington Junction between B1019 Maldon Road and B1137 The Street in Hatfield Peverel. No proposal to change to this junction is included as part of the proposed scheme, but traffic patterns will change at the junction as more traffic from B1019 Maldon Road would turn right to use the new junction 21 to join the A12 southbound, instead of turning left to junction 20a. There would also be a significant reduction in traffic arriving from junction 20a to turn right for the B1019 Maldon Road. Overall, there is predicted to be a slight improvement in junction performance. However, the B1019 Maldon Road arm is predicted to have an increase in its average queue from 45m to 62m. Detailed queue information is provided in chapter G.1 of Transport Assessment - Appendix G [APP-260]). • For Church Road, Plantation Road and Waltham Road, chapters G.6, G.7 and G.8 respectively of Transport Assessment Appendix G [APP-260] provide information on the predicted changes in delay to get onto Main Road. Church Road and Waltham Road are not predicted to have a significant change in the level of delay to get onto Main Road. Plantation Road is predicted to have an increase in delay of around 23 seconds on average to get onto Main Road in the AM peak, with no significant change in the PM peak. **Impact on local rounds around Kelvedon, Feering, Messing, Inworth and Tiptree** • Traffic on the B1024 through Kelvedon and Feering is predicted to reduce by around 20%.

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			• Traffic on the B1023 north of the proposed junction 24 is predicted to reduce slightly, as traffic from the Tiptree area travelling to the A12 northbound would join at the proposed new junction 24 instead of through Feering to the existing junction 24 location. • Traffic is predicted to increase on the B1023 through Inworth by 30-40%, as more traffic from Tiptree would use the proposed junction 24 to access the A12 southbound instead of travelling via Braxted Park Road • Traffic is predicted to decrease on Braxted Park Road for the same reason. • Traffic in Messing is predicted to increase, as the model predicts some traffic would travel via Messing to get to junction 24 from the B1022. However, even with this increase the level of traffic in Messing is predicted to be only around 2 cars per minute. As well as these comparisons of average flows against typical capacities, more detailed 'junction models' were also developed which can more accurately model complex interactions between vehicles at junctions, and junction-specific properties such as ease of visibility on different arms. The impact on local junctions in this area is summarised in the Transport Assessment Appendix A [APP-254]. In summary: • The double mini-roundabout in Tiptree between B1023 Kelvedon Road and B1022 Maldon Road has been assessed. By the time the scheme opens, the junction is predicted to be close to capacity in the PM peak. The proposed scheme would not have a significant impact on the performance of this junction. • The 'Gore Pit' junction between B1023 Inworth Road and B1024 Feering Hill in Feering is predicted to be over capacity by the time the proposed scheme would open. However, with the proposed scheme in place the junction would have lower queues and delays than it would otherwise.

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6.	ExA	The ExA asked the Applicant to outline the proposed mitigation for the increase in traffic on Main Road.	Regarding Boreham village, the existing speeds are relatively low on B1137 considering it is a 40mph limit in Boreham at present, with the Applicant proposing a reduction to 30mph. Regarding the existing average speed in the relevant section, the information available to us shows this to be 32mph in the middle of the day (10.00-16.00). This suggests that most drivers are already choosing a speed more in keeping with the location and usage than the 40mph posted speed limit. In the section of B1137 between Boreham and Hatfield Peverel, there are speed limit sections (from southwest to northeast) of 40mph, 60mph and 50mph. Measured speeds over this section show average speeds below the posted speed limits. This is likely to reflect the relatively confined environment; some frontage development and the narrow adjacent footway because self-evident hazards are most effective in naturally suppressing driver speed. While the detail of existing speed profile in this section is limited, it suggests that a lowering of the speed limit is both appropriate and safe, and it is likely that a reduction in the limit would deliver a small but worthwhile reduction (typically 1- 2mph) in speed. The currently available speed data suggests that there is no necessity for additional engineering measures to be implemented for a reduced speed limit to operate safely. It is further worth noting that the UK vehicle fleet is increasingly fitted with speed limit monitoring and driver alert technology, and this is likely to provide further benefits over time for both locations. Reductions in speeds are expected when the limit is reduced (based on research evidence in Department for Transport guidance 'Setting Local Speed Limits' and subsequent research supports this evidence). Typical speed reductions for signed-only speed limit changes are in the region of 1-2mph, and such a reduction would bring a small but worthwhile further benefit, noting that a 1mph speed limit change has been shown to have a typical 5% casualty-reduction effect (research by TRL and others). This suggests that reducing the posted speed limit from the current 40mph to the 30mph proposed by

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			the A12 scheme is likely to result in an average speed consistent with the character of the Boreham settlement and its usage and encourage the growth of active travel. Further speed reductions – and associated safety benefits - would be expected if flow increases as expected at some times of day within the capacity of the road. No additional engineering measures or speed enforcement cameras are necessary in the operational period to achieve an average speed that is suitably consistent with the proposed posted speed limit. Lower speeds also have an effect in deterring drivers from choosing that route compared to using A12 via J21. This means there is a complex balance of deterring drivers (lower flow on B1137) and not deterring them (higher flow and lower speed). The higher flow would mean that it takes a bit longer to get a gap to cross the road, or to get a gap to pull out of a driveway (drivers should reverse in and drive out as guided by the Highway Code – due to visibility to pedestrians and other vehicles; other drivers' awareness, and drivers being in 'drive mode' frame of mind when arriving and reversing in, but often less so when they first get into car to leave home). These activities can still be done safely with the forecast levels of flow. **Speed cameras** Speed enforcement is not proposed because the speeds in Boreham are already more like those expected in a 30mph, and more traffic in Boreham is likely to reduce speeding, and therefore the scheme is not worsening speeding at those times. At other times for example late at night when people might choose to drive much faster, the scheme would not have an adverse effect. Therefore, while speed enforcement, for example through average speed cameras, would have benefits at all times when speeding is possible (principally off-peak), the Applicant has not proposed it as part of the scheme proposals. The same would apply during construction because additional traffic lowers speeds rather than increasing them. The Applicant is firmly of the view that no additional measures are required on Main Road. However, the Applicant also appreciates that several stakeholders have raised the desire

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			for more measures and as such the Applicant will continue to liaise with Essex County Council on this matter.
7.	ExA	In relation to the traffic coming up from Maldon and joining the roundabout, what is the strategy to ensure that traffic will follow this and join Junction 21?	The Applicant has taken several steps to encourage the use of junction 21 for vehicles coming from Maldon. Junction 21 was moved closer to Hatfield Peverel to make it a more convenient connection for drivers, and following the statutory consultation reduced speed limits on Main Road have been proposed which is predicted to further encourage the use of junction 21. In addition, clear signage will be provided at the Maldon Road/The Street junction to direct all drivers to junction 21 for all A12 journeys be it northbound or southbound journeys. The traffic modelling work predicts that of drivers on the B1019 Maldon Road heading to either Chelmsford or the A12 southbound towards London, 88% would turn right at the Duke of Wellington roundabout and travel via junction 21. This is because even though it is a longer distance, it is predicted to be quicker. This takes into account the predicted quicker speeds on the widened A12, as well as the proposed reduced speed limits on the B1137. This traffic modelling assessment was produced using the methodologies set out in the Department for Transport's Transport Analysis Guidance, specifically Unit M3.1 section 2.8. Further information on how the traffic predicts route choices was provided in the Applicant's Response to Open Floor Hearing 1 [REP1-009], response references 49 and 50. These responses stated that the prediction of which routes people take on their journeys takes into account both the journey time and distance of a trip. How each traveller weighs up journey time and distance is based on standard traffic modelling parameters provided in the Department for Transport's Transport Appraisal Guidance. The traffic model also takes into account the impact of congestion.

<table>
<tr><th>Ref:</th><th>Comment/ Representation by:</th><th>Questions/Issues Raised at ISH1</th><th>Applicant's Response</th></tr>
<tr><td>8.</td><td>ExA</td><td>The ExA asked for clarification on the comparative journey times to join the A12 southbound from B1019 Maldon Road via both B1137 Main Road and the proposed junction 21. In particular what are the predicted journey times in the middle of the day.</td><td>Based on the 2027 traffic model, the comparative journey times to join the A12 southbound from B1019 Maldon Road via both B1137 Main Road and the proposed junction 21 are shown in the table below.

<table><tr><td rowspan="2">Route</td><td colspan="3">Journey Time (min/sec)</td></tr><tr><td>AM</td><td>IP</td><td>PM</td></tr><tr><td>Via B1137 Main Road</td><td>11m14s</td><td>9m28s</td><td>10m17s</td></tr><tr><td>Via the proposed junction 21</td><td>9m59s</td><td>7m50s</td><td>8m55s</td></tr><tr><td>Difference</td><td>1m15s</td><td>1m38s</td><td>1m22s</td></tr></table>
The traffic model predicts the route via the proposed junction 21 to be between one and two minutes quicker than the route via B1137 Main Road. The journey time saving in the model is significant enough to encourage traffic to use this route in the traffic model.</td></tr>
<tr><td>9.</td><td>Ruth Mabbutt on behalf of Chelmsford City Council</td><td>Chelmsford City Council raised concerns in relation to Boreham which have been set out in detail in the Council's Local Impact Report particularly in relation to additional mitigation.

Chelmsford City Council raised concerns about the effect of closing Junction 20a and how this will lead to an increase in traffic through Boreham as well as a change in the</td><td>The Applicant would direct the Interested Party to the response to section 6 above.</td></tr>
</table>

Ref:	Comment/ Representation by:	Questions/Issues Raised at ISH1	Applicant's Response
		quality of life impacting on residents and businesses to the detriment of the community. Chelmsford City Council is not convinced that the mitigation of just lowering the speed limits is sufficient. Reference is made to paragraph 6.27 of the Local Impact Report which sets out Chelmsford City Council's proposals. • Average speed cameras covering the section of Main Road from the southern end of Boreham village to the existing A12 J20a on-slip, • A new signalised pedestrian crossing with road narrowing in the vicinity of Boreham Co-op, • Road narrowing at: Location 1 (Boreham village entrance for SW traffic), Location 2 (outside Orchard cottages) and Location 3 (pedestrian entrance to recreation ground), • Softer measures at: Location 1 (outside of	

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		Orchard Cottages) and location 2 (just before the recreation ground) and location 3 (outside of the Little Hedgehogs Day nursery). The Council would like these proposals considered	
10.	Robin Green on behalf of Maldon District Council	Maldon District Council made the following points: In relation to the scheme objectives set out in the Environmental Statement, which include reducing congestion and improving journey time, Maldon District Council supports this. The A12 is a crucial element for Maldon District Council with the two main access routes being via Junctions 20a and 20b.	The Applicant welcomes Maldon District Council's support for the scheme objectives including those to reduce congestion and improve journey times. As noted in the Case for the Scheme [APP-249], the proposed scheme would save motorists as much as 1 hour 20 mins in a working week due to reduced congestion if they travel daily between junctions 19 and 25. The proposed scheme would also improve the reliability of journeys, as fewer incidents would be expected on the A12 and the additional lane would provide additional flexibility when incidents do occur. This reduces both journey time and variance in journey time (journey reliability) – which together reduce the likelihood of drivers choosing low-speed village routes where they are more likely to be held up by delivery vehicles; people reversing in driveways and other interruptions to movement. The Applicant notes the importance of the A12 and its junctions to Maldon District Council, and directs them to the response to comment reference 4 above. The proposed junction 21 seeks to combine the movements of the existing Junctions 20a, 20b and 21 into an all-movements junction which would serve the movements between B1019 Maldon Road and the A12 northbound and southbound.
11.	Robin Green on behalf of Maldon District Council	With respect of Maldon Town and Heybridge, growth is expected and	The Applicant would direct the Interested Party to the response to comment reference 13 below.

Ref:	Comment/ Representation by:	Questions/Issues Raised at ISH1	Applicant's Response
		the regeneration area in Heybridge will put demand on the A12.	
12.	Robin Green on behalf of Maldon District Council	It is common ground that the Duke of Wellington roundabout does not operate well at the moment and it is not suitable. From the outset of the consultation process, Maldon District Council has sought the provision of a bypass to alleviate the Duke of Wellington roundabout but this has been ruled out by the applicant. Maldon District Council stated that this is not consistent with the scheme's objectives and an appropriate solution could have been found and incorporated the bypass within the project. The parameters are set out by the terms of the application but consideration should be given to the provision of an appropriate new link.	While noting the congestion that occurs at the Duke of Wellington roundabout, its safety performance is good with only one collision between 2017 and 2021 (the last five years for which full data is available). This was a 2-car shunt on the northbound entry to the junction and it resulted in a slight injury to one of the drivers involved. There were no serious or fatal injuries in that 5-year period. In terms of its traffic performance, the existing operation of the Duke of Wellington roundabout was taken into account when assessing the impact of the proposed scheme. As described in the response to comment reference 13 below, existing traffic observations were used to develop a model of its existing operation. Predicted future changes in traffic flows at the junction were then applied to the model to forecast its future performance with and without the proposed scheme. Regarding the provision of a bypass to alleviate the Duke of Wellington roundabout, as noted in response to comment reference 13 below the Applicant does not consider that the overall performance of the roundabout is made worse by the proposed scheme. The Applicant's response to RR-040-004 which can be found in Deadline 1 submission Applicant's Response to Relevant Representations - Rev 2 [REP1-002] further notes that the Applicant has undertaken a comprehensive assessment of various bypass options. The assessment of the bypass options found serious challenges to feasibility, including significant carbon, land, environmental, construction and cost impacts.. Accordingly, a bypass has not been included as part of the proposed scheme.

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13.	Robin Green on behalf of Maldon District Council	Maldon District Council asked to what extent the Applicant's model has had regard to planned growth in Maldon and does the Applicant agree that at present Duke of Wellington roundabout has insufficient capacity to deal with the traffic and that this will only get worse?	The Applicant will take this opportunity to re-iterate how planned growth in Maldon has been taken into account in the traffic modelling work. A base year traffic model was developed to represent the existing traffic situation as it was in 2019. This takes into account housing and businesses and how people travel to and from them, including housing and business in Maldon. The model complied with strict guidance in Unit M3 of the Department for Transport's Transport Analysis Guidance (TAG), which gives criteria on how accurately the model should represent current conditions. From that base model, future year traffic models were produced which take into account government forecasts on the growth in trips. These government forecasts include growth rates specific to Maldon District, based on information in their planning documents. The use of these government growth forecasts is mandated by TAG Unit M3, so is common to all traffic models across the country. In addition, several specific local developments within Maldon District were included in the traffic model. This includes developments which are recently completed so would not have been represented in the 2019 base year traffic model flows. This list of developments was informed by planning information provided to the project by Maldon District Council. Full details of which developments are included in the model is provided in the Uncertainty Log which is Appendix A within the Combined Modelling and Appraisal Report Appendix C: Transport Forecasting Package Report [APP-264]. The traffic flows in the future year traffic models include traffic generated from these developments. Planned housing and employment growth beyond those with planning applications is still included in the traffic model but as 'background growth' applied across Maldon District rather than in specific locations. This background growth is especially important when taking employment growth into account, as there is less certainty of the number of jobs that a development site will be able to support during its planning application stage. In summary, the traffic model flows used within the proposed scheme's assessment take full account of existing and committed future traffic emerging from Maldon District in line with Department for Transport modelling guidance, and assesses the impact that the scheme would have on that traffic. To clarify, the Applicant assesses the impact that the proposed scheme would have on traffic conditions against a baseline where the growth in

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			Maldon District has already taken place; it does not assess the impact of that the growth in Maldon District itself. These traffic flows were used to inform the environmental assessments, and also used to feed into the separate Duke of Wellington junction model used for its operational assessment. As shown in Table 4-1 of [APP-264], relief roads at the South Maldon and North Heybridge Garden Suburbs are also included within the future year traffic models. Regarding the performance of the Duke of Wellington roundabout, a detailed assessment is provided in section G.1 of the Transport Assessment - Appendix G: Junction Modelling Technical Notes – Local Road Junctions [APP-260]. A detailed model of the junction was produced, which was validated against observed traffic data from 2019 to confirm it modelled existing conditions sufficiently accurately. Predicted future changes in traffic flows at the junction were then applied to the model to forecast its future performance. This showed that queues and delays at the junction would get worse in the future, regardless of whether the Applicant's proposed scheme is built. If the proposed scheme is built, there is predicted to be a slight improvement in junction performance. However, the B1019 Maldon Road arm is predicted to have an increase in its average queue from 45m to 62m.
14.	Jackie Longman on behalf of Maldon District Council	Maldon District Council noted the position of location 9 shown on the figure C.1 of the Transport Assessment – Appendix C [AP-256]. The modelling should show that traffic emanates from Maldon District and it is not only cars but also the strategic rail network and heavy traffic from the larger employment site.	As the Applicant noted in response to comment reference 13 above, the traffic model used to assess the scheme performance takes into account existing traffic that emanates from Maldon District, as well as its future planned growth. Much of the traffic at point 9 on figure C.1 of the Transport Assessment Appendix C (the B1019 Maldon Road) either starts or ends its journey in Maldon District. This includes cars and HGV traffic, and takes into account trips to and from local rail stations. Under the proposed scheme, Wellington bridge would be upgraded to allow traffic in both directions between the Duke of Wellington roundabout and the proposed junction 21. This change in road network layout is taken into account in the assessment of traffic flow changes shown in figure C.1 of the Transport Assessment Appendix C [APP-256]. Point 7

Ref:	Comment/ Representation by:	Questions/Issues Raised at ISH1	Applicant's Response
		Traffic is currently going north to Colchester and Ipswich on the one-way section over the Duke of Wellington bridge. Maldon District Council would like to understand how upgrading the Duke of Wellington Bridge will impact on traffic.	of this figure represents Wellington bridge, which would have a significant increase in traffic as it changes from a predominantly one-way to a two-way road. The section of The Street east of the A12 junction 20b off-slip would see a significant reduction in traffic, as that slip road would be closed and the traffic would use Wellington bridge instead. These changes in traffic patterns are taken into account in the assessment of the Duke of Wellington roundabout described in response to comment reference 13 above.
15.	Andrew Harding on behalf of Messing and Inworth Parish Council	Messing and Inworth Parish Council would like to explore, in relation to the DCO, whether the scheme is construction of a new road or just alteration. The ExA commented that this issue would be more appropriate for Issue Specific Hearing 2	The Applicant responds to this issue in its written response to ISH 2
16.	Andrew Harding on behalf of Messing and Inworth Parish Council	Messing and Inworth Parish Council is concerned about the timing of various consultations in terms of when communities were advised. In relation to Junction 24, this was made available only in 2021 with insufficient time to comment. Messing and Inworth Parish Council would like to know why the Applicant has not used the	The preferred route (PRA) for junction 23 (Kelvedon north) to 25 (Marks Tey interchange) was announced in 28 August 2020 and this confirmed the relocation of junction 24. As documented in the draft Statement of Common Ground [REP2-012], the Applicant met with the Parish Council as part of the East Community Forum in advance of the PRA on 24 August 2020. The Applicant further met with the Parish Council on: • 11 November 2020 • 10 March 2021 • 6 April 2021

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		Department for Transport's Early Appraisal Sifting Tool (EAST) assessment tool which completely changes the route and the options.	• 15 June 2021 The purpose of these meetings was to ensure that the Parish Council was up to date with the scheme and understood the next steps, as well as answer any questions they may have. As outlined in the Applicant's Consultation Repot [APP-045] the Statutory Consultation launched in June 2021. The communities of Inworth and Messing were included in the distribution area. In addition, the Parish was contacted directly via email on the day of the launch. A Statement of Community Consultation [APP-052] was agreed with the local planning authorities and highway authority and implemented by the Applicant. In terms of the timing of the consultations the Statutory Consultation ran for 55 days, and the Supplementary Consultation ran for 41 days, both considerably longer than the statutory minimum requirement. The Applicant would also highlight the Adequacy of Consultation responses received from the host authorities: AoC-001, AoC-002, AoC-003, AoC-005 and AoC-008. Further engagement following the Statutory Consultation is outlined in the Statement of Common Ground [REP2-012]. The Early Appraisal Sifting Tool (EAST) is a tool provided by the Department for Transport. The EAST guidance notes that *'EAST is a decision support tool that has been developed to quickly summarise and present evidence on options in a clear and consistent format. It provides decision makers with relevant, high level, information to help them form an early view of how options perform and compare. The tool itself does*

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			not make recommendations and is not intended to be used for making final funding decisions'. During the early stages of the proposed scheme's development, EAST was used to develop a shortlist of route options. During later stages of scheme refinement, such as the assessment of potential bypass designs set out in Environmental Statement - Appendix 3.3: Junction 24, Inworth Road and Community Bypass Technical Report [APP-095], the Applicant did not consider it appropriate to use EAST. More detailed appraisal information was available by that time, such as a detailed traffic model and locally-specific environmental assessment tools. Instead, the assessment of options set out in chapter 8 of that report adopted the principles used in EAST, and scored options against a similar range of criteria including its strategic fit against objectives, economic and environmental impacts, deliverability, cost and practical feasibility.
17.	Linda Reed on behalf of Boreham Parish Council	Boreham Parish Council sought clarification in relation to the numbers presented by the Applicant specifically the prediction for an addition of 184 vehicles per hour on the Main Road towards Junction 19. Church Road and Plantation Road tend to be used for those heading in the direction Boreham Parish Council would like to know why there has been no change on the predictions for Church Road?	Traffic modelling undertaken by the Applicant predicts that the majority of traffic on Church Road travels to or from the direction of A12 junction 19. The proposed scheme does not alter the route that this traffic would take to travel to or from junction 19, so it is not predicted to cause a significant change in traffic on Church Road. Further details on the traffic changes in Boreham are provided in the Applicant's response to comment reference 5 above. This also confirms that even with the predicted increase in traffic in the AM peak, the B1137 Main Road is predicted to have peak flows which are at less than 70% of its maximum capacity. In the PM peak, traffic is predicted to reduce on B1137 Main Road.

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18.	Nick Mansell of Pinsent Masons LLP on behalf of Edmundson Electrical Limited and Royal London UK Real Estate Fund	Pinsent Masons LLP raised issues in relation to site access and impact on local highway network. Discussions are ongoing with the Applicant. Information has been requested and still to be provided by the Applicant.	The Applicant responds to the points raised in its written responses for Compulsory Acquisition Hearing 1. Discussions continue with the Affected Parties.
19.	Nick Mansell of Pinsent Masons LLP on behalf of Edmundson Electrical Limited and Royal London UK Real Estate Fund	Pinsent Masons LLP raised concerns about access arrangement through the Edmundson Electrical Limited site. The access is required for gas diversion works. This is referred to in Edmundson Electrical Limited's relevant representation. This is not currently provided in the Outline Construction and Traffic Management Plan (**OCTMP**). There is a concern about obstruction to the only access to the Edmundson Electrical Limited distributing centre and car park which is used heavily. The width of the access is sufficient for vehicles required. Edmundson Electrical Limited has suggested alternative routes to the Applicant but has received no	The Applicant responds to the points raised in its written responses for Compulsory Acquisition Hearing 1. The alternatives suggested are not considered viable and the Applicant believes the proposed temporary access over the Edmundson Electrical Limited car park and yard will cause the least disruption to both the Affected Parties and the wider area compared to an access directly from the A12.

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		information on why this has not been progressed.	
20.	Nick Mansell of Pinsent Masons LLP on behalf of Edmundson Electrical Limited and Royal London UK Real Estate Fund	Pinsent Masons LLP made a general point in relation to traffic impact and management around Junction 19. There has been a lack of information in relation to the impact and the gas diversion works. The A12 is already heavily congested even before construction commences. The OCTMP has been updated but additional provisions are required to accommodate additional traffic. The OCTMP is not sufficient.	The Applicant responds to the points raised in its written responses for Compulsory Acquisition Hearing 1. The Applicant rejects the need for a separate Construction Traffic Management Plan for junction 19. The Applicant sees no need nor justification for the approach proposed. The current access proposal would have the least impact on junction 19. Due to the level differences between the works area and the A12 northbound carriageway, there would be the requirement for substantial temporary works to construct a safe and suitable access to the works area. This would require multiple HGV movements to remove part of the embankment, move the material off site and additional movements to then transport suitable material to create a sloped access, this would put additional HGV's in an already busy area of the A12. For safe access and egress temporary traffic management would be required on the A12 carriageway. The traffic management would have to run along the A12 mainline and the junction 19 northbound exit slip, towards the junction. The reason for this is that works traffic would not be able to safely egress from the traffic management, as this would be in the weaving zone for traffic looking to exit the A12 at this junction. During peak traffic hours traffic currently queues from the junction 19 northbound exit slip onto the A12 mainline, by putting traffic management on the A12 and exit slip at this location would reduce the capacity of the junction, thus making queuing on the A12 mainline worse.
21.	ExA	The ExA suggested that this is submitted as a written representation.	The Applicant has responded to the written representation (REP2-099-905), which would be submitted for the Deadline 3 submission.

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22.	Angela and Antony Carter	Mr and Mrs Carter raised concerns in relation to the Duke of Wellington roundabout. The Carters agreed with Maldon District Council with regards to the interface of Maldon Road and The Street. Turning north to the A12 is very narrow and forces drivers to turn into the way of incoming traffic, posing a danger. A pedestrian crossing is likely to cause traffic to stop. Any vehicles past Church Road will turn and utilise this road as a rat run. It is unlikely that traffic will turn right and the impulse will be to increase speed. Mr and Mrs Carter do not consider that the design presented is appropriate. Mr and Mrs Carter also raised concerns about the lack of provisions to facilitate the Maldon Road bypass, which would remove all the problems around Duke of Wellington and remove the argument around removing Junction 20a.	Regarding the proposed scheme's predicted impact on the performance of the Duke of Wellington roundabout, the Applicant would refer the Interested Party to its response to comment references 12 and 13 above. Regarding the impact on Church Road, the Applicant would refer the Interested Party to its response to comment reference 5 above. This states that traffic on Church Road in Hatfield Peverel is predicted to decrease, as most traffic from B1019 Maldon Road would be travelling east towards the proposed new junction 21 instead of west towards junction 20a. This makes the route via Church Road less attractive. Regarding the provision of a Maldon Road bypass, the Applicant would refer the Interested Party to its response to comment reference 12 above.
23.	Alan Baker	Mr Baker raised an issue in respect of Gershwin Boulevard footbridge.	The Applicant responds to Mr Baker later in part 109 of this document.

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		The ExA stated that the points raised by Mr Baker would be more appropriate later during ISH when Public Rights of Way were discussed.	
24.	Michael Humphries KC on behalf of Essex County Council	Essex County Council supports the principle and need for the scheme but there are fundamental concerns and it is seeking substantial changes to scheme and to the dDCO.	The Applicant is grateful for the County Council's support in principle.
25.	Michael Humphries KC on behalf of Essex County Council	Essex County Council's Local Impact Report sets out the summary of the key issues in section 8.2 and concerns in relation to particular junctions and length of highway in Section 8.3.	The Applicant has provided comments on the County Council's Local Impact Report separately.
26.	Michael Humphries KC on behalf of Essex County Council	In relation to the detrunking of the dual carriageway, the issue raised is in connection with the condition of the road to be handed over and the maintenance and burden on the Essex County Council. The dual carriageway will be over-provision in relation to what Essex County Council needs.	The County Council first put forward detailed proposals in relation to the sections of the existing A12 to be de-trunked in March 2022 (6 months after the close of the Statutory Consultation). These can be found in the County Council's position matrix in Appendix A of Applicant's Response to Relevant Representations [PDA-004]. The Applicant undertook an assessment of the County Council's proposals in relation to de-trunking which concluded they would cost approx. £30million to deliver. As noted in [PDA-004], the County Council's proposals included requests for, amongst other things:

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		Speed enforcement and maintenance are a concern and there is an opportunity to reduce the width and carry out some greening of the former carriageway in accordance with the National Policy Statement National Networks (**NPSNN**), the Sustainable Transport Strategy and with Department for Transport Guidelines.	• Replacement of dual carriageway with 7.3m single asphalt carriageway to modern standards with bus stop bays with solar canopies (where appropriate) and segregated provision for active modes. • De-straightening' of highway alignment to encourage speed limit adherence. • Removal of existing dual carriageway in its entirety including base course, sub-base (where appropriate) and vehicle restraint systems (VRS). • Provision of an electronically monitored and enforced bus gate at appropriate point on route to ensure it is used for local access and buses only. • Backfill of remaining highway corridor to former carriageway level with appropriate material and tree planting along length of corridor or conversion to linear park / greenway with provision for linear solar farm. • Widening and resurfacing of segregated WCH route along length of linear park and provision of linear solar farm. • Simple T-junctions at New Lane, Wishing Well Farm and Easthorpe Road junctions, rather than roundabouts. Since this time, the County Council has revised their de-trunking proposals. However, the extent of the proposals that remain from the County Council cannot be justified in terms of demand or purpose and would be disproportionately expensive. The proposals would have significant engineering difficulties given the levels differences in places between the two carriageways and would require significant drainage works, as well as alterations to a number of existing accesses and side roads. Additional stopping up of highways and private means of access would be required and future ownership of closed highways would

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			need to be determined. Extensive consultation of a fully worked up scheme would be required to ensure there was no severance of access to the highway. Compulsory purchase of additional land (outside of the Order limits) and environmental impact assessment would also likely be required. In short, the scale of the intervention requested, which was not the subject of pre application consultation, is substantial and cannot be incorporated into the proposed scheme at such a late stage. At the point of de-trunking, the Applicant would handover a highway that is safe and serviceable. However, if the County Council wish to re-engineer the carriageway at that point in time it is, of course, entitled to do so. In the context of the proposed scheme, the Applicant does not consider the County's proposals are necessary to mitigate impacts of the proposed scheme or that they constitute a reasonable or proportionate enhancement opportunity for cyclists and pedestrians such that they should form part of the proposed scheme. It should be noted that the proposed scheme already incorporates a continuous walking and cycling route segregated from traffic in this area. Notwithstanding the above, the Applicant will continue to work with the County Council in relation to de-trunking, and in particular ensure that the principles outlined in the letter captured in Appendix A of Applicant's Response to Relevant Representations [PDA-004] are taken forward.
27.	Michael Humphries KC on behalf of Essex County Council	Essex County Council raised concerns about improvement to the proposed WCH facilities. In line with Department for Transport guidelines and NPSNN, this does not comply with the NPSNN	The Applicant is required, by paragraph 5.205 of the NPSNN to satisfy the matters raised in 3.15 & 3.16 of the same document, to consider reasonable opportunities to support other transport modes in developing infrastructure. The proposed scheme would provide a considerable improvement to walking, cycling and horse riding (WCH) provision. The proposed scheme submitted for development consent would include: • A total of 30km of new and/or improved WCH facilities.

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		(paragraphs 3.15 and 3.16 of the NPSNN).	• Six road bridges with walking and cycling provision, five of which would be new or upgraded provision. • Five road bridges with walking provision. • Five new WCH bridges, one improved walking and cycling bridge. Overall, there would be 20km of additional WCH provision. The project is also bringing over 3.5km of existing facilities up to compliance with current guidance. Where connecting routes are bridleways, the Applicant has reflected that in the classification of the asset, eg Paynes Lane. Where bridges crossing the A12 with no bridleway connection are not classified as bridleways they have been future-proofed for equestrian use (higher parapet), except at the Marks Tey replacement bridge where this is not geometrically appropriate. The Applicant believes these proposals for substantial improvements to the provision for walking, cycling and horse riding in the Order Limits demonstrate how the Applicant has taken reasonable opportunities for developing infrastructure in accordance with paragraph 5.205 of the NPSNN. The measures already included in the proposed scheme are proportionate and reasonable.
28.	Michael Humphries KC on behalf of Essex County Council	Essex County Council raised concerns about the impact of the scheme on the local roads, the concern relates to modelling uncertainty. The Essex County Council is uncertain that the correct data has been taken into account when carrying out the modelling. A key input is speed. Lower speeds have been assumed on those roads and that has an effect on reducing traffic speed and flows. If the speed limits are not observed the model	The Applicant's approach to traffic modelling is fully in accordance with the required approach in the Department for Transport's Transport Analysis Guidance and as such the modelling is reliable and robust. The Applicant notes that Essex County Council provided a list of additional queries relating to traffic modelling in their Local Impact Report. The Applicant has provided detailed responses to these queries in its response to the Local Impact Report, which provide further evidence as to the robustness of the traffic modelling. The Applicant will continue to work with Essex County Council to seek to resolve any of the County Council's concerns. As noted in the Applicant's response to Essex County Council's Local Impact Report, the Applicant plans to undertake pre-construction and post-opening traffic surveys as part of its standard scheme evaluation processes. The exact detail of these surveys will be defined during spring to summer 2023, to allow surveys to take place in autumn 2023. The Applicant notes the County Council's suggested locations for traffic monitoring outlined in its Local Impact Report, and will take these into consideration when defining

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		will be wrong and will be greater impact on local roads. This issue was raised in the context of the A428 DCO. National Highways objected to idea operational management and the Secretary of State imposed requirement 22 in that DCO. Draft of Lower Thames Crossing Order has requirement 14 put forward for monitoring and management of impact on local roads. Essex County Council sees no reason why, in relation to the local roads, the County Council should be any worse off than any of these other schemes and will be seeking a requirement of either mitigation or requirement for monitoring. There are ongoing discussions with the Applicant on a range of issues and progress is being made but it is important that this is raised at this stage so that it can be examined. Essex County Council would like to see this included in the A12 DCO or by other mechanism that is yet to be identified.	the pre-construction and post-opening traffic survey locations. The Applicant will consider further the potential for a commitment to monitoring at specific locations where the Applicant is predicting an increase in traffic in its modelling. The Applicant will not commit to additional post scheme commitments beyond clearly justified monitoring at specific locations. The Applicant will respond further at Deadline 4.

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29.	Michael Humphries KC on behalf of Essex County Council	Essex County Council has submitted detailed reports to the Applicant on these issues. This will be submitted to the ExA at this stage. Enforcement on speed limits and mitigation has been identified.	The Applicant can confirm it received a report on Main Road and a report covering Messing, Inworth and Tiptree on 7 February 2023 and will respond further at Deadline 4.
30.	Billy Parr on behalf of Essex County Council	In relation to the Junctions 20a and 20b, Essex County Council has concerns about traffic on the B1137 Main Road through Boreham. There will be an increase in traffic due to closures of Junctions 20a and 20b. The implications for the traffic proposed for that road is an increase of 186 vehicles, which is perceptible and significant. The Local Impact Report set out issues with modelling uncertainty. Essex County Council is not discrediting the modelling done but this is inherently difficult and there's uncertainty. With regards to a potential roundabout linking the B1137 with the southbound carriageway of the A12,the Applicant is proposing to change speed limit. Essex County	As a Maldon Link Road is not required as part of the proposed scheme, the Applicant does not see that there is a sufficient justification for a financial commitment to any Maldon Link Road proposal. As such the Applicant will not be giving a commitment that will be material to the ExA's or Secretary of State's consideration of the Application. It is open for the County Council and the relevant local planning authorities to consider whether such financial contributions can and should be secured from development proposals that would benefit from such a proposal, or whether a proposal could be funded through a community infrastructure levy. That said, the Applicant has had several letter exchanges with the council regarding this matter as outlined in Appendix A of PDA-004, and looks forward to ongoing engagement with the council.

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		Council supports this in principle but it is not sufficient. This was sought many times through Boreham but conclusion was that whilst this will be ideal it requires many additional measures because simply reducing speed limits is not sufficient. Proposal for signage and relocation of Junction 21 -the Applicant has in the past looked at other measures in the Duke of Wellington roundabout and these have been ruled out. Maldon Link Road – Essex County Council supports the provision of the link road. However, the Council is concerned that it is not clear that this will be justified in planning terms, the Applicant could still choose to make a contribution.	
31.	Mark Stubbs on behalf of Essex County Council	Essex County Council stated that in terms of the measures, first measure that is key is the average speed camaras. This is supported by Essex Police and others. This is necessary because the B1137 is wide and it does not lend itself to lower speeds. Without the camaras, if there are localised road widening,	As noted in section 6 above, the Applicant does not believe additional measures are required for Main Road. However, the Applicant accepts that there are several Interested Parties that would like to see some enhancement measures. The Applicant is happy to consider how it could help deliver these and will liaise with the council to discuss this further. Such measures may include further signage and the installation of a pedestrian crossing. With regard to traffic flow monitoring, as part of the standard evaluation process that National Highways projects are subject to, the Applicant plans to undertake 'baseline'

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		people will slow down for the widenings and then speed up. Chelmsford City Council is aligned with Essex County Council in relation to this. Essex County Council requires at least two sets of speed cameras: • Between Hatfield Peverel and Boreham for 40mph • In Boreham Village for 30mph There should be a new zebra crossing in the vicinity of the Boreham Co-op which needs to be signalised. Signals are necessary to remind drivers this is a village environment. There are three locations, set out in the Local Impact Report. This will become an attractive alternative for drivers coming from Maldon Road.	traffic surveys in autumn 2023. This is the last available period when surveys can be done before the planned start of construction works, given the constraints that traffic surveys are not typically undertaken in the winter months of mid-December to mid-February. The exact detail of these surveys, including their location, will be defined during spring to summer 2023. The specification of post-opening traffic surveys in the same location will also be defined. The Applicant notes Essex County Council's suggested locations for traffic monitoring, and will take these into consideration when defining the baseline and post-opening traffic survey locations during spring to summer 2023. The Applicant will consider further the potential for a commitment to monitoring at specific locations where the Applicant is predicting an increase in traffic in its modelling. The Applicant will not commit to additional post scheme commitments beyond clearly justified monitoring at specific locations. The Applicant will respond further at Deadline 4.

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		Essex County Council reiterated the issues raised in relation to the uncertainty with the modelling around all of this. Essex County Council needs a commitment from the Applicant in relation to ongoing monitoring and that should have some "teeth", so if there are material adverse impact there should be mechanism to provide additional measures.	
32.	Michael Humphries KC on behalf of Essex County Council	Essex County Council's Local Impact Report sets out the issues in relation to Junction 21 itself and the design. The Applicant has accepted that point but that needs to be reflected in the draft DCO or on another mechanism.	The Applicant will continue to liaise with the County Council on this point but does not agree that there is a need to amend the dDCO on this point. As the Applicant has confirmed to Essex County Council, most recently on 21 February 2023, no additional works to the slip road arrangements at Junction 21 are required as part of the proposed scheme and as such do not intend to secure any additional works at Junction 21 through the DCO. However, the Applicant does recognise Essex County Council's historical and ongoing aspirations for a Maldon Link Road and will continue to engage with them on this matter.
33.	Councillor Katherine Evans on behalf of Essex Local Access Forum (**ELAF**)	ELAF raised concerns in relation to [one of the ways to narrowing Boreham] and the removal of Wood End bridge on Junction 21.	The Applicant notes that road narrowings can have an adverse effect on the safety and comfort of cycling on the road, and this is one of the reasons that no such measures are proposed in Boreham.

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			The Applicant has responded to the question raised by the ExA regarding pedestrian and cycling routes in the Wood End bridge vicinity in 9.14 Applicant's Response to the Examining Authority's First Round of Written Questions (ExQ1) [REP2-025]
34.	Bill Kyle and Charles Martin on behalf of Boreham Conservation Society (**BCS**)	BCS raided issues in relation to Junction 19 and traffic in the construction phase. The modelling shows that the highway traffic is expected queue on the A12. Their position is that the queuing will continue on the B1137 however this is not shown in the plans shown by the Applicant. BCS sought confirmation that there is no intention to link B1137 measures.	A detailed traffic modelling assessment of the performance of A12 junction 19 was undertaken and is presented in chapter F.1 of the Transport Assessment - Appendix F: Junction Modelling Technical Notes – A12 Junctions [APP-259]. In this assessment, junction 19 is predicted to operate with long queues and significant delays by 2027 if the proposed scheme is not built. This suggests that the junction layout modelled in this scenario (the Beaulieu Park junction layout developed by Mayer Brown Ltd which is currently under construction) is not adequate to cater for the traffic levels predicted by 2027. Due to the high level of congestion in this modelled scenario, it is not possible to treat the detailed model results with certainty, or to understand the impact that the additional traffic related to the construction of the proposed scheme would have on the junction performance. However, based on the levels of expected construction traffic and their routing through junction 19, it is expected that there would be little impact during the AM peak and in the middle of the day. In the PM peak, there would be additional queuing on the southbound A12 off-slip as traffic leaves the A12 to enter Chelmsford. Queues on B1137 Main Road have been assessed but are not expected to be significant.
35.	Bill Kyle and Charles Martin on behalf of BCS	The Applicant has produced a report at Junction 20a which was shared in their response to relevant representations. There is an argument against the closure of Junction 20a. The Applicant pointed out that the unexpected closure of Junction 20a	As noted in section 5.2 Consultation Report - Annex A1: Option Consultation Materials [APP-046], the Applicant consulted on the opportunity to merge junctions 20a and 20b in Spring 2017 and the responses to that consultation can also be found in APP-046. The Interested Party correctly notes that confirmation of the proposal to not re-provide junction 20a was published following the Transport Secretary authorising the announcement of the first preferred route which covered junction 19 (Boreham

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		following the PRA announcement and that, in their opinion, there was minor support for the closure. BCS raised issues in relation to the desirability of the provision of a link road. BCS is seeking further clarification in relation to justification for closing Junction 20a and not including the link road.	interchange) to junction 23 (Kelvedon south). This announcement took place on 21 October 2019 and an in person event took place in Boreham on 15 November The Applicant has discussed its proposals with the Interested Party on several occasions following the PRA, but in recognition of their ongoing concerns the Customer Lead and Highways Lead representing the Applicant met with the Interested Party on 6 March 2023 talk through the technical note included in Appendix B of Applicant's Response to Relevant Representations [PDA-004]. The Applicant hopes that the Interested Party found the meeting helpful.
36.	Bill Kyle and Charles Martin on behalf of BCS	With regards to the justification on safety grounds, a crash map was quoted. BCS is not convinced that all accidents can be attributed to junction access. In response, the Applicant explained that this was due to disproportionate costs and land take. The Applicant produced a refined plan and the objections from Applicant was that with reducing size, lorries travelling from Boreham would not have enough room. They think that a lorry heading north from Boreham would be lost.	[redacted] is, like https://www.think.gov.uk/thinkmap/ a freely available online record of recorded road traffic collisions which resulted in personal injury to one or more road users. The data shows that there were five such collisions in the most recent five years for which full records are available (2017-2021 inclusive). Three of these collisions resulted in serious injury to road users, and three of the five involved injuries to cyclists. This is an indication that the current J20a connection with B1137 is not operating well with respect to road safety. The applicant maintains that the B1137 is the appropriate route for HGVs for journeys between Boreham, Hatfield Peverel, Maldon and Witham, as such, on a road of this nature it is important that two HGVs can safely pass one another in the vicinity of the roundabout, irrespective of their onward destination.

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37.	Bill Kyle and Charles Martin on behalf of BCS	In relation to the Duke of Wellington roundabout, saving a minute. It will be difficult to keep the 40mph restriction through Boreham. BCS would like justification for reducing the prediction of increase in traffic down Plantation Road. It is common ground with Essex County Council and Chelmsford City Council as well as with Essex Policy in applying for the installation of speed cameras. BSC would like for this to cover from Boreham to Junction 19.	The applicant believes its proposed mitigation is sufficient and refers the reader to line item 31 Regarding the Interested Party's comment about the traffic predictions for Plantation Road, the Applicant has responded to this point in paragraph 4.1.3 of the Explanation of Traffic Model Changes technical note, which was provided as Appendix OFH1A in Applicants Response to Open Floor Hearing 1 – Rev 1 [REP1-009].
38.	Bill Kyle and Charles Martin on behalf of BCS	The Applicant had argued that a departure from Design Manual for Roads and Bridges (**DMRB**) should be justified. DMRB is advisory and that departure from standards is not unknown. BSC suggested that accepting the alternative plan would be preferable than facing the criticism. This is a plan that will	The applicant has considered that a roundabout or signalised junction to provide a link to the southbound A12 carriageway between Hatfield Peverel and Boreham would have significant challenges. These are explored in detail in the A12 Junction 20a Southbound Merge Assessment of Alternatives, contained within 9.3 Applicant's Response to Relevant Representations - Rev 2 [REP1-002]. Whilst the applicant agrees with the BCS that departures from the DMRB are not unknown, each departure must be independently justified and balanced against compliant alternatives in terms of road user and road worker safety. For this reason, the applicant considered a signalised arrangement at Junction 20a, rather than a non-compliant

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		retain Junction 20a and will not involve the widening of the bridge.	roundabout to reduce land take in this vicinity. This would also provide for cyclist safety in passing through the junction, noting the 5 collisions, three resulting in injury to cyclists, that occurred in the most recent five years for which full data are available. The departures from the DMRB regarding horizontal alignment and superelevation required to achieve a roundabout similar to the one proposed by BCS would be expected to score very similarly to the signalised arrangement (described as DS-2 in the above report), but with -2 for 8b (highway geometry) rather than the -1 given for DS-2. This is due to the alignment being a specific departure from standards, rather than an unconventional application of the standards. Additionally, if J20a were retained, it would need to be converted from its existing easy-to-use lane-gain layout as the slip road becomes lane 1 of 3 from the junction to J19. It would instead be short taper merge slip as the applicant is proposing 3 lanes upstream of the junction. That junction would also be unlit whereas other junctions are lit, so it's also harder for drivers to judge in night time and/or adverse weather conditions. The applicant maintains that a more compact solution that the compliant roundabout assessed (DS-1), either via a roundabout with departures from standards, or the signalised arrangement considered would be significantly worse than the baseline regarding safety of the network, the environment, walking and cycling connectivity, cost and construction challenge.
39.	Gary Sung on behalf of Braintree District Council	Braintree District Council's Local Impact Report sets out the Council's views. Braintree District Council generally supports the scheme and supports economic residential growth.	The Applicant is grateful to the District Council for its support for the scheme. The Applicant believes it is mitigating the effects of its proposals and in regard to improvements to the highway network at Hatfield Peverel the Applicant believes no further mitigation is required for the reasons given in its Maldon Road and Hatfield Peverel Bypass Technical Report [APP-094].

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		Braintree District Council are the Local Planning Authority and rely on Essex County Council for highways issues, Braintree District Council were party to previous consultation on the roundabout to Hatfield Peverel. Braintree District Council do not support this element. The negative effects of development should be mitigated. There are benefits to residents to Church Road. Braintree District Council shares concerns with Essex County Council and Maldon District Council. There are ongoing discussions regarding a Statement of Common Ground in relation to roundabout on Duke of Wellington.	

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		Braintree District Council supports Essex County Council's views that there is modelling uncertainty and also support monitoring and additional mitigation. Braintree District Council referenced the Applicant's Maldon Road and Hatfield Peverel technical report. The three proposed options that have been explored as mitigation of Duke of Wellington. Options 1 and 2 are likely to be undeliverable because planning permission has been granted for the east of Maldon Road	
40.	Andrew Harding on behalf of Messing and Inworth Action Group (**MIAG**)	MIAG asked the Applicant to clarify how they have taken note of future housing development. MIAG believes that the traffic modelling is insufficiently robust.	As outlined in sections 8.3 and 8.4 of the Combined Modelling and Appraisal Report [APP-261], future growth in traffic is based on forecasts provided by the Department for Transport. Specific local developments (such as housing and employment developments) are also taken into account. Developments with submitted planning applications and which are over a certain size threshold are included within the traffic model. This is in accordance with the Department for Transport's Transport Analysis Guidance Unit M4. As noted in the Applicant's response to comment reference 52 below, the Applicant has received the Interested Party's Written Representations which outline their concerns with the Applicant's traffic modelling. The Applicant has responded to these concerns in their response submitted at Deadline 3. The traffic model meets Department for Transport criteria for its accuracy compared to observed traffic conditions, and its predictions of

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			future traffic flows were prepared in line with Department for Transport guidance. The Applicant considers its assessment of traffic impacts to be sufficiently robust.
41.	Charles Martin on behalf of BCS	There have been submissions and vast correspondence about Junction 20a. There is no realistic alternative design as of yet. BCS believes that Applicant agrees that an alternative is viable, it just needs refining in relation to the issues of HGVs. A roundabout at that location will change design standards to an open road to a village. The ExA will drive thought on their ASI. BCS requested that they stop there and look at the area.	The Applicant clarified that its position on the feasibility of re-providing Junction 20a is that physically a junction providing a link is achievable, however it would need to be justified in terms of a wide range of assessment criteria, as given in the A12 Junction 20a Southbound Merge Assessment of Alternatives, contained within 9.3 Applicant's Response to Relevant Representations - Rev 2 [REP1-002]. The applicant maintains that an alternative to the routing for some vehicles forecasted to use the B1137 above and beyond the arrangement shown in the DCO materials is not warranted.
42.	Councillor Katherine Evans on behalf of ELAF	ELAF raised concerns about the removal of Woodend Bridge at Junction 21. The ExA stated that they would deal with Public Rights of Way during the continuation of the hearing the next day.	The Applicant responds to ELAF's issues later in this document.
43.	Councillor Katherine Evans on	Feering Parish Council have no issues with location of J24 where	The Applicant welcomes both Feering and Kelvedon Parish Council's support for the proposed location of the new A12 junction 24.

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	behalf of Feering Parish Council	proposed, neither do Kelvedon Parish Council. Feering Parish Council has concerns about the traffic modelling and the traffic forecast for Inworth Road North and Hinds Bridge. Feering Parish Council would like clarification as to whether it will include traffic coming from Coggeshall joining the A12. Feering Parish Council would like clarification that this traffic has been included somewhere. Feering Parish Council is also seeking operational mitigation if the traffic forecast proves to be incorrect. There are concerns that the forecast is not taking into account Feering's Strategic Growth Plan. The Crown Estate have raised concerns that the model has not taken this growth into account.	The Applicant confirmed that the predicted traffic from Coggeshall was included in the modelling. The traffic model represents a wide area around north Essex and the trips that are produced across that area. Further information on the traffic model area is provided in chapter 2.3 of the Transport Assessment [APP-253]. On the B1023 over Hinds Bridge the proposed scheme is predicted to reduce the amount of traffic on the bridge in 2027, as shown in figure C.3 of the Transport Assessment - Appendix C [APP-256]. In 2042, although the proposed scheme is predicted to reduce the total amount of daily traffic over the bridge, there is predicted to be an increase of 9% in the PM peak as show in figure C.9. However, during this PM peak the level of HGVs is predicted to decrease. Regarding the Feering Strategic Growth location development, the Applicant would refer the Interested Party to its response to RR-004-009 in the Applicant's Response to Relevant Representations - Rev 2 [REP1-002]. The traffic model includes the first phase of development at the Feering strategic growth location, containing 162 dwellings. However, the second phase of 835 dwellings is not included. This is because, despite being identified in the Braintree District Council Local Plan, no planning application had been submitted for this development when the traffic model was developed in May 2021. This approach is in line with Unit M4 of the Department for Transport's Transport Analysis Guidance.
44.	Michael Humphries KC on behalf of Essex County Council	Junction 24 is another junction which Essex County Council's Local Impact Report makes representations about. The technical note on mitigation sets out precisely what Essex	The Applicant will respond to the report at Deadline 4.

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		County Council wants and this has not yet been submitted but will be submitted to PINs.	
45.	Billy Parr on behalf of Essex County Council	Essex County Council is content with the principle of an all-movements junction at Junction 24. The Council first saw detail of the arrangements in Summer 2021. There are three main ongoing concerns: 1. The design of the roundabout. This will be maintained by Essex County Council. This should have been designed to DMRB standards for 50mph, failing that 40mph, failing that 30mph. This was designed for streets as a 30mph roundabout. This location is not residential and it is not appropriate. There is a need to secure compliance with 30mph for vehicles approaching the roundabout. There will be safety concerns. 2. The lack of sufficient measures on Inworth Road to accommodate increase in traffic. There is a significant forecast increase as a	The applicant welcomes Essex County Council's support for the principle of an all-movements junctions at Junction 24, although wishes to clarify that the proposed junction position arrangement and position where described in detail in the Scheme Assessment Report Addendum – Appendix D - J24 Junction Strategy Technical Note [REP1-006] which was published as part of the Preferred Route Announcement in August 2020. The applicant notes the concerns raised by Essex County Council, which mirror those raised in the Local Impact Report, the Applicant has responded to the numbered matters raised at Deadline 3 in their response to ECC's LIR (para 8.3.65 -8.3.71). In summary: 1. The intention of the proposed Inworth Road roundabout is to signify the transition from the Strategic Road Network to the local road network and encourage drivers to behave in a manner that is appropriate to the network they are on. The approaches and exits of the proposed roundabout have been designed for a speed limit of 30mph in accordance with Manual for Streets which is the appropriate standard for local roads which are not solely focused on the conveyance of vehicular traffic. Designing the roundabout links for a speed limit of 50mph would give drivers the wrong impression about the local road nature of the B1023 and Kelvedon Road and could encourage drivers to accelerate as they approach the proposed roundabout. 2. The current average observed speed along the B1023 between the existing A12 and Inworth village is 30mph in the northbound direction and 31mph in the southbound direction in the interpeak hours (10:00 to 16:00). This is consistent with the approach speed designed for at the roundabout, and therefore additional engineering measures are not required to control drivers' speed.

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		result of the junction relocation. The measures do not go far enough and there are additional pinch points that need to be widened. Essex County Council would like village entry treatment and average speed camaras and this is supported by Essex Police. 3. The need for further measures to reduce traffic using an inappropriate road. The is an impact on Messing. A technical report is prepared setting out measures and will be submitted with the summary of the case.	3. The Applicant notes the Interested Party's requests to provide measures to encourage speed compliance where vehicle speeds may increase due to pinch point widening, include further walking and cycling improvements on the B1023 and for the inclusion of subtle interventions in Messing Village to reduce the likelihood of traffic using inappropriate routes to access the A12. The Applicant maintains the position outlined in the letter to Essex County Council dated 1st December 2022 [Appendix A, REP1-002] regarding these issues. The Applicant will review the report provided by the Interested Party regarding subtle interventions on local roads in Messing village and will take this into consideration in the detailed design.
46.	Andrew Harding on behalf of MIAG	MIAG is a small group established to review this Junction. MIAG is also concerned about the Inworth roundabout. MIAG have been attempting to discuss with the Applicant. MIAG was only sent an updated design the night before the hearing. It now looks like a segregated left turn which is arguably dangerous. Experts have raised the dangers of the segregated turn lane which is what the Applicant is changing the design to. The alignment ties in to	The updated and emerging design was provided to Essex County Council on 16th January 2023, and the Applicant told the County Council the drawing could be shared with MIAG. The proposed change is as a result of ongoing detailed design being carried out by the Applicant on which the Applicant is fully engaging with Essex County Council. This is part of ongoing design evolution. It is likely the design change, if made, will be dealt with via requirement 10, relating to detailed design, but the Applicant will keep the position under review, reflecting on progress made in discussions with Essex County Council. The applicant has considered a historic suggestion by Messing and Inworth Parish Council regarding the proposed extension of the 30mph for the whole stretch up toward Feering. Given the nature of the road the change of speed limit was not possible, but the Applicant looked to extend the 30mph from Inworth to give the impression to drivers that they are entering a village rather than, south of the proposed Junction 24, a road solely for the conveyance of traffic.

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		Hinds Bridge which is a dangerous bridge. Essex County Council and the Applicant are pointing at each other over who will be responsible. It is not a safe place and it will become actively dangerous. This seems to be implacable position by the Applicant. MIAG had mentioned the circumstances of disabled child during the open floor hearing but nothing happened until today when a discussion was offered. It looks like Messing and Inworth are considered last in the Applicant's decisions.	The application of Manual for Streets is the appropriate thing to do to reinforce the nature of the significance of roads in the area and should take place on the exit of the roundabout rather than along the B1023. Reference was made to Chapter 3 of the Appendix Technical Note in which The Main Alternative was considered in full. [APP-095]. In summary, the northern bypass proposal, north of the A12 to is to elongate the route and discourage drivers to use it as rat run. The proposal would increase the number of properties suffering from a Significant Observed Adverse Effect Level in relation to noise, this data is captured within Table 8.3 of the aforementioned technical note. The Applicant is considering fully each of the issues raised by MIAG and the Parish Council
47.	Andrew Harding on behalf of MIAG	MIAG stated that they have solutions and the 'Main Alternative'. If the correct assessment tools are used, there is very little differences between the alternatives looked at by the Applicant. This is a biased approach.	The Applicant continues to consider the information put to it by MIAG and on an objective basis does not believe a compelling case can be made for the Main Alternative compared to the proposed minor interventions to the B1023.

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		Only in 2021, it was clear what was happening with Junction 24. MIAG designed the Main Alternative and has been repeatedly ignored. There were discussions about costs of alternatives. MIAG stated that these are unlikely accurate. We are already looking at overbudget numbers. The benefit to the living quality of Messing and Inworth will be protected by the Main Alternative. Essex County Council's Local Impact report talks about their resources being stretched. Essex County Council expects the Parish Council to be able to put forward a better alternative.	
48.	Michael Humphries KC on behalf of Essex County Council	Essex County Council stated with apologies that the Applicant had sent them the plan earlier but Essex County Council had been delayed in sending it to MIAG.	The Applicant said it would respond in writing to the comments made by Mr Harding. As part of the engagement expected with the local highways authority, further to several discussions, an early detailed design drawing of the roundabout connecting with the B1023 was shared with Essex County Council on 16 January 2023. On 17 February 2023 the Applicant was asked by the council whether the drawing could be shared with Mr Harding and on 21 February the Applicant confirmed it was happy for the drawing to be shared as long as it was explained that it was an emerging design. The Applicant cannot comment on why it was not shared by the council with Mr Harding until the day before the hearing.

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			The applicant is grateful that the council clarified this at the hearing.
49.	ExA	The ExA wanted clarification on the context of the plan being changed.	The Applicant stated a detailed design drawing which is evolving and shows the reconsideration for the need for the segregated left turn lane was shared with Essex County Council to aid discussion on the highway geometry. As part of this evolution, the additional traffic capacity that a segregated left turn lane would provide may not be necessary for acceptable performance of the proposed Inworth Road Roundabout.
50.	ExA	The ExA asked whether the revised plan has been included in the draft DCO and made it clear that the ExA is only considering what is in front of them at the moment. The ExA will need to know what is being passed on to make a representation.	The Applicant said that the draft DCO has not been changed. It seems that it is likely to be done at detailed design under requirement 10 rather than a revised plan before the Examination, but the Applicant will continue to consider the approach, reflecting on progress of discussions with Essex County Council.
51.	ExA	With regards to Hinds Bridge, there are representation about the increase in danger the proposals will cause. Does the Applicant recognise this as being a fair reflection?	The Applicant stated that it is necessary to distinguish between the existing issues and the change that the proposed scheme introduced. As stated in the Applicant's response to comment reference 43 above, traffic is forecast to change but no increase in HGV flow is forecast at this location. The passing of these vehicles at the pinch point of the bridge is an existing issue which is not worsened by the scheme. Therefore, no changes are proposed to be made at the bridge because safety is not predicted to worsen as a result of the scheme.
52.	Andrew Harding on behalf of MIAG	MIAG referred to a modest lengthening of speed limit. As far as [they] are concerned the traffic projections were not taken as correct, this is assuming that the	MIAG raised concerns about the traffic modelling in their Deadline 2 submission Written Representations (WR) and summaries – Appendix [REP2-085]. The Applicant has responded to these concerns in their response submitted at Deadline 3. The traffic model meets Department for Transport criteria for its accuracy compared to observed traffic conditions, and its predictions of future traffic flows were prepared in line with

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		project will go ahead. There should not be an assumption that what the Applicant is saying is correct for future projections.	Department for Transport guidance. The Applicant considers its assessment of traffic impacts to be sufficiently robust.
53.	Councillor Katherine Evans on behalf of Feering Parish Council	Feering Parish Council reiterated the comment that the Hinds Bridge issue is taken to operational monitoring. The business location is attractive to Crown Estate because of the easy access to the A12.	The applicant believes this is a matter for the Crown Estate, Local Planning Authority and Essex County Council to resolve. The Applicant's Scheme does not give rise to significant impacts that would justify an intervention at this location. As stated in the Applicant's response to comment reference 43 above, traffic is forecast to change but no increase in HGV flow is forecast at this location. The passing of these vehicles at the pinch point of the bridge is an existing issue which is not worsened by the scheme.
54.	Michael Humphries KC on behalf of Essex County Council	Essex County Council raised in its Local Impact Report, section 8.3. Technical notes have been produced on what should happen in relation to this and notes will be submitted.	The Applicant has responded to the Local Impact Report as part of the Deadline 3 submission.
55.	Sean Perry on behalf of Essex County Council	There are a number of issues where Essex County Council and the Applicant are further apart. 1. The Applicant has not fully considered all the opportunities to support other transport modes. 3.1.7 of NPSNN speaks about appropriate use for WCH and active travel. This is at odds with Essex County Council's agenda and the promotion of green infrastructure.	The Applicant would direct the council to the response provided in section 26 above.

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		2. The dual carriage way to be detrunked, Rivenhall to Feering, are a significant overprovision. The Applicant is proposing for these sections to be detrunked at a speed limit of 40 and 50 mph. Due to the straight nature of the Roman road, this will promote and encourage high speeds that Essex County Council will have to manage. This could lead to the potential of antisocial behaviour. 3. A number of structures that will be handed over the Essex County Council to maintain and due to budget, the Council are not in a position to conduct maintenance. There have been discussions where Essex County Council has put forward what they think are better alternatives. Reference to the Local Impact Report 8.3 and Annex 3. Essex County Council made a further request to the ExA to visit some areas including Dock Road, Rettendon which introduced wide WCH facilities and lower speeds to improve safety.	

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56.	Gary Sung on behalf of Braintree District Council	There are two sections that are due to be detrunked, Junction 22 Rivenhall End and the former Junctions 24 to 25. There are impediments at Rivenhall End. There is a lack of consideration for placemaking and the detrunking is out of character of the village of Rivenhall End. This is a missed opportunity to make improvements. There have been incidents of street racing.	The Applicant would direct the council to the response provided in reference 26 above.
57.	Councillor Katherine Evans on behalf of Feering Parish Council	Feering Parish Council is broadly supportive of Essex County Council's proposals of green infrastructure. There are concerns how the laybys will be engineered so that there is no conflict with WCH users.	The Applicant has not yet detailed the arrangements for parking laybys along the de-trunked sections, but will ensure safe continuity of any off-road cycle routes through these facilities.
58.	Michael Humphries KC on behalf of Essex County Council	Essex County Council stated the scheme must be looked at in the context of the NPSNN and it is not enough to just hand it over. The ExA should give due consideration to local active transport. The	The Applicant has given extensive consideration to WCH and other active travel provision throughout the Application. The proposed scheme would provide a considerable improvement to walking, cycling and horse riding (WCH) provision. The proposed scheme submitted for development consent would include: •A total of 30km of new and/or improved WCH facilities.

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		Scheme should be developed in light of local plans with focus on sustainable development. If they do not comply with this the development is not in compliance with the NPSNN.	•Six road bridges with walking and cycling provision, five of which would be new or upgraded provision. Five road bridges with walking provision:. •Five new WCH bridges, one improved walking and cycling bridge. Overall, there would be 20km of additional WCH provision. The project is also bringing over 3.5km of existing facilities up to compliance with current guidance. Paragraph 3.17 and more specifically paragraph 5.205 of the NPSNN requires applicants to use reasonable endeavours to address the needs of cyclists and pedestrians in the design of new schemes and to identify opportunities to invest in infrastructure where there are existing severance issues that act as a barrier to non-motorised users The statements above demonstrate that the proposed scheme achieves this and would deliver a sustainable scheme which address both historic severance and encourages active travel. The Applicant has assessed the proposed scheme against local policies in the Case for the Scheme - Appendix F: Local Planning Policy Accordance Tables [APP-252]. This demonstrates compliance between the scheme and the adopted local plans. The proposed scheme has also been assessed against the National Policy Statement for National Networks in Appendix A: National Networks National Policy Statement Accordance Table of the Case for the Scheme [APP-250] This demonstrates that the proposed scheme is fully in accordance with the NPS. The extent of intervention proposed by the County Council is neither reasonable nor proportionate given its likely cost and the substantial scale of intervention that would be needed to remove a carriageway and allow the de-trunked road to be accessed by existing frontagers. The proposed scheme does not of itself create severance on the de-trunked sections and de-trunking will not act as a barrier to cycling and walking. Where reasonable opportunities for improvements to the WCH network have been identified, these have been incorporated into the proposed scheme. The scale of the

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			changes proposed by the County Council go substantially beyond what could be considered proportionate or reasonable.
59.	Councillor Katherine Evans on behalf of Feering Parish Council	Feering Parish Council stated with regard to Easthorpe Road that the Parish Council were not consulted to have a road bridge across the A12. It is apparently going to be gated. This will reduce the local road network to what it was 10 years ago. Why is the Applicant making these changes in local road network when it is not part of the SRN? Furthermore, no account has been taken of potential rat running in Messing.	As outlined in the Statutory Consultation, the Applicant presented a proposed scheme that maintained all vehicle access from Easthorpe Road to what would be the detrunked A12. As part of the suite of information, traffic flows were presented which showed an increase in traffic on Easthorpe Road of 18% in the AM peak and 74% in the PM peak. This can be seen in Annex J1: Section 47 Consultation Material [APP-056]. In response to the consultation many respondents raised concerns about the increased traffic flow and some suggested the access provided by the proposed scheme be changed to reduce traffic flows. The Applicant undertook a cross discipline assessment of the access arrangements and concluded that restricted access was a suitable proposal. The findings of this work were presented in the Supplementary Consultation. Further information can be found in Annex J2: Section 47 Consultation Material [APP-057]. The Applicant can confirm that the Parish Council provided a response to the Supplementary Consultation which outlined its views on Easthorpe Road. This can be found on page 1295 in Tables evidencing regard had to consultation responses (in accordance with section 49 of the Planning Act 2008) [APP-062].
60.	Roger Wacey	Mr Wacey stated that there was no sense in building Wishingwell bridge.	The Applicant believes the bridge is required to mitigate severance by the proposed scheme and provide access to both agricultural land and residential properties.

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Agenda Item 3 - Air Quality			
61.	EXA's points to cover: a) AQ Assessment and overall conclusions b) Specific locations/receptors c) Standards and monitoring	What are the main areas of positive/negative changes and possibility of mitigation? Requested the Applicant to focus on receptors.	A1) Air Quality Assessment Approach • The assessment approach is described in full in the Environmental Statement Chapter 6, Section 6.5 [APP-073] and follows the guidance in DMRB LA105. The steps taken in order to assess the air quality impacts of the proposed scheme are, in summary: • Determine the affected road network (ARN) from the 2027 traffic model for the scheme. • Determine the state of air quality across the ARN from local monitoring data. • Verify the dispersion model using the base traffic model data 2019. • Select human relevant receptors most likely to experience the greatest +/- change and absolute pollutant concentration. Select ecological receptors from designated habitats. All receptors are within 200m of the ARN. • Assess the significance of effects on human health receptors using DMRB LA 105 criteria (DMRB Table 2.92N). • Assess the potential significant effects on ecological receptors using criteria shown in Figure 2.98 of DMRB LA 105 A2) Overall conclusions 260 human health receptors across the air quality study area were assessed for levels of NO2, PM10 and PM2.5 in accordance with DMRB LA 105 criteria [DMRB Table 2.92N]. In total 253 receptors (i.e. residential properties) were below 10% of the annual mean NO2 standard of 40 µg/m3. Four properties were within 10% of the standard. Three properties were in exceedance of the standard. All exceeding properties are adjacent

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			to the A12 corridor. One property (R225 Boreham) would exceed the standard with the proposed scheme in place and therefore represents a new exceedance. The two other exceedances east of Junction 25 (R189 and R193) were exceeding the standard in both the do minimum and do something scenarios. Modelling also predicted an improvement of air quality for those receptors where the offline sections of the scheme have been proposed, notably along the existing London Road west of Junction 25 and in the villages of Kelvedon and Ferring. In addition, there are also benefits where rerouting has been predicted. These include properties on The Street in Hatfield Peverel, properties on Braxted Park Road and on the B1022. B1) Specific locations and receptors The results of the local air quality assessment indicated that one property (represented by receptor R225) in exceedance of the AQO in the DS had a magnitude of change deemed to be 'medium' (4µg/m3 or less). The other two properties (represented by R193 and R189) in exceedance of the NO2 AQO had a magnitude of change predicted to be 'small' (2µg/m3 or less). This was assessed against the guideline number of properties provided in DMRB LA 105 to inform the risk of significant effect. Overall, the Applicant concluded that the risk to human receptors is 'not significant'. Ecological receptors Oral submissions by Alex Jeal, Ecology lead (AJ), on behalf of the Applicant, are given below. Appendix 9.15, Assessment of air quality effects on ecological receptors [APP-139], concludes that during operation, the only designated site with a predicted significant effect is Perry's Wood Local Wildlife Site and ancient woodland. Although the Local Wildlife Site is of county value, the boundaries coincide with the ancient woodland designation, which is of National value. Therefore, the Local Wildlife Site is valued at a National level within the assessment. Perry's Wood Local Wildlife Site and Ancient Woodland is located approximately 270m south of the Order Limits along the B1023 Kelvedon Road as shown on Figure 9.1 of the Environmental Statement [APP-222].

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			As set out in Table 7.1 of Appendix 9.15 Assessment of air quality effects on ecological receptors [APP-139] it should be noted that: • the baseline nitrogen deposition already exceeds the upper critical load of 20kg N/ha/yr • site investigation found the only species that is potentially sensitive to additional nitrogen is compact rush (Juncus conglomeratus) of which there was only one plant in a disturbed area • it is assessed that the potential loss of this species would not affect the quality of the woodland ground flora of the site and it is probable that other factors (such as disturbance) have more influence than nitrogen deposition on the persistence (or not) of this species • however, given the lack of scientific data for woodland habitats, a precautionary approach has been taken and it is assumed that there could be an effect on site integrity as 0.74ha (20%) of the site would be affected • but the time taken for nitrogen emissions to reduce to do minimum levels is estimated at 11 years, so the effects are temporary and could theoretically be reversible. According to DMRB LA 108, the significance of a moderate impact level on a site of National value could be either moderate or large. Again, a precautionary approach has been taken and significance is assessed as large adverse (significant). C1) Standards Air quality results are compared against AQOs, the most relevant to the proposed scheme are presented in Environmental Statement Chapter 6 paragraph 6.4.3 [APP-073]. C2) Monitoring

Ref:	Comment/ Representation by:	Questions/Issues Raised at ISH1	Applicant's Response
			The air quality study area extends over four local authority areas, Chelmsford, Braintree, Maldon and Colchester. Environmental Statement Figure 6.2 [APP-206] shows the location and monitored annual mean 2019 NO2 concentrations. Two monitoring sites in the study area measured NO2 concentrations above the annual mean AQO (40µg/m3) in 2019. These were BR3 at Foxden, Rivenhall, in Braintree; and CBC137 at 93B Coggeshall Road, Colchester. Site CBC137 is located at a relevant public exposure location for the application of the annual mean AQO. After being distance-corrected to the nearest relevant exposure location, site BR3 is below the AQO (i.e. not in exceedance). According to the latest Colchester AQ Status Report annual mean NO2 recorded at CBC137 was 33.3 µg/m3. There is one Air Quality Management Area (AQMA) in the air quality study area. This is the Lucy Lane North AQMA, in the Borough of Colchester. According to the latest Colchester AQ Status Report annual mean NO2 recorded at CBC131 (Lucy Lane North AQMA1) was 27.6 µg/m3. Project specific monitoring was undertaken by the Applicant across 11 sites between May 2017 and July 2018. Eight of the 11 sites were within 200m of the ARN and therefore considered to be appropriate for application in the air quality assessment. Locations are shown in the Environmental Statement Figure 6.2 [APP-206]. Following annualisation, none of the survey sites were found to exceed the level of the annual mean AQO.
62.	ExA	The level of NO_2 at Receptor 225 is in excess of UK standard for annual mean NO_2 of 40µg/m^3. Does this mean a further AQMA would need to be declared and mitigation required?	Based on a conservative modelling approach which identified no significant effects (i.e. receptor numbers in exceedance of the Air Quality Standards below the guideline bands, which inform the judgement of significant effects), in accordance with criteria presented in Table 2.92N of the DMRB LA105, there is no need to undertake a Project Air Quality Action Plan for receptor R225 or consider the declaration of an AQMA.

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			Existing monitoring suggests the status of air quality in the area is currently in compliance as outlined below. The air quality study area extends over four local authority areas, Chelmsford, Braintree, Maldon and Colchester. Figure 6.2 [APP-206] in the Environmental Statement shows the location and monitored annual mean 2019 NO_2 concentrations. All monitoring sites used NO2 diffusion tubes. There are no continuous monitors in the study area. • Two monitoring sites in the study area measured NO_2 concentrations above the annual mean Air Quality Standards (40µg/m3) in 2019. These were BR3 at Foxden, Rivenhall, in Braintree; and CBC137 at 93B Coggeshall Road, Colchester. Site CBC137 is located at a relevant public exposure location for the application of the annual mean Air Quality Standards. After being distance-corrected to the nearest relevant exposure location, site BR3 is below the Air Quality Standards (i.e. not in exceedance). • According to the Braintree draft Air Quality Status Report 2022 for year 2021, site BR3 is compliant. • According to the latest Colchester Air Quality Status Report 2022 for year 2021, the annual mean NO_2 recorded at CBC137 was 33.3 µg/m^3. • There is one AQMA in the air quality study area. This is the Lucy Lane North AQMA, in the Borough of Colchester. • According to the latest Colchester Air Quality Status Report 2022 for year 2021, annual mean NO_2 recorded at CBC131 (Lucy Lane North AQMA1) was 27.6 µg/m^3. • Project specific monitoring was undertaken across 11 sites between May 2017 and July 2018. Eight of the 11 sites were within 200m of the ARN and therefore considered to be appropriate for application in the air quality assessment. Monitoring locations are shown in Figure 6.2 [APP-206] in the Environmental

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			Statement. Following annualisation, none of the survey sites was found to exceed the level of the NO_2 annual mean Air Quality Standard. It should also be noted that the assessment undertaken was conservative and therefore the impacts are likely to have been overstated. The modelling approach has applied long-term trend gap factor LTTE6 to take account of underperforming vehicles in terms of Euro 6 engines. The same gap factor has been more latterly applied to offset the overly optimistic take-up of low emissions vehicles. This approach elevates the future predicted road Nox contribution in the peak construction and operational opening years (i.e. 2025 and 2027 respectively). The Applicant explained the conservative nature of the air quality assessment in detail in its Response to the Examining Authority's First Written Questions at question 2.0.8 [REP2-025]. Whilst air quality has been assessed through the application of modelling tools, recent monitoring evidence indicates that receptors are more likely to show compliance, as set out above. Regarding whether further mitigation would need to be proposed, the assessment must accord with the guidelines set out in the DMRB LA105 guidelines, which determine the threshold of significant effects needed for mitigation to be required. Given the results of the assessment explained above, DMRB provides that no mitigation is required as no significant effects are reported.
63.	ExA	R189 response at 1WQ 2.0.7. How will this be delivered through the DCO process?	Given the uncertainty in the emissions and air dispersion modelling (which is reported in ES Chapter 6 Air Quality Section 6.6 [APP-073], the Applicant will continue to discuss aspects of monitoring at this location to determine the status of the air quality.

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64.	Chelmsford CC – Ruth Marbutt	Written reps set out in REP2-107 Extremely concerned about impacts of proposal specifically in relation to R225. Whilst there may be no overall increase in NO_2 levels, receptor at that particular property would experience unacceptable increase. Chelmsford CC will need to implement an AQ Management Plan for R225. Further monitoring is required and The Applicant has an obligation under LAQM PG 22 to provide this. AQ potential to impact residents of Boreham due to increase of traffic on main road and A12 itself. Suggested 3-fold approach to mitigation: 1. Applicant to consider whether mitigation is necessary 2. Applicant to consider possible further monitoring using diffusion	The Applicant's response to AQ questions from Chelmsford CC, Boreham PC, Maldon DC and Colchester CC has been addressed in the Applicant's responses to these bodies' Local Impact Reports, which are submitted at Deadline 3.

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		tubes – is there anything in the AQ plan to ensure this would be deliverable? 3. Council of view that more could be done to understand the true extent of the AQ position.	
65.	Boreham PC	To the extent that AQ predictions are based on traffic volumes, monitoring and mitigation should be increased.	The Applicant's response to AQ questions from Chelmsford CC, Boreham PC, Maldon DC and Colchester CC has been addressed in the Applicant's responses to these bodies' Local Impact Reports, which are submitted at Deadline 3.
66.	Colchester CC – Belinda Silkstone	1. receptors R189 and R225 are in Colchester CC AQ management area. R193 is outside it. 1 receptor exceeding objectives is not exempt just because it consists of a single property. This could be an AQM area in its own right. Mitigation should be explored.	The Applicant's response to AQ questions from Chelmsford CC, Boreham PC, Maldon DC and Colchester CC has been addressed in the Applicant's responses to these bodies' Local Impact Reports, which are submitted at Deadline 3.

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		Colchester CC has started monitoring at R193.	
67.	Messing and Inworth PC – Andrew Harding	Expressed alarm at potential for rat-running which will take a substantial number of vehicles past Messing primary school. Roads around school border the classrooms and are on hills which will lead to increased emissions. Very concerned about AQ for children. Suggested that NH are not examining their own argument on the basis that criteria are not triggered at the moment. We need to look to future for these children.	The Air Quality assessment necessarily includes a prediction of air quality impacts, in line with the criteria provided in DMRB LA105. If an area does not coincide with the LA 105 triggering criteria, there is no possibility of a significant effect in that area, so it is effectively scoped out of the assessment. The Applicant is required to carry out its assessment in accordance with DMRB LA 105 and the Applicant would have been 60 if it had not carried out the assessment in line with guidance and the methodology and criteria within it.
68.	ExA	Why was no receptor assessed at this location (Messing primary school)?	This location was not included in the AQ assessment because it did not trigger the relevant DMRB LA105 criteria.

Ref:	Comment/ Representation by:	Questions/Issues Raised at ISH1	Applicant's Response
69.	Essex CC – Bill Parr	Essex CC is not the authority for AQ for the areas mentioned, but is for highways and transport and therefore has a responsibility to consider AQ. Council strategy is to better understand the situation in Essex. Council has good understanding about NO2, but PM 2.5 is less well understood. It is difficult to achieve mitigation, but green infrastructure can assist. AQ modelling flows from traffic modelling, so Essex CC have identified at 8.2.36 of their LIR points where they think AQ monitoring should occur.	The Applicant's response to AQ questions from Chelmsford CC, Boreham PC, Maldon DC and Colchester CC has been addressed in the Applicant's responses to these bodies' Local Impact Reports, which are submitted at Deadline 3.
70.	Maldon DC – Robin Green	Drew attention to the AQ impacts referred to in their submission relating to the B1019 and A414. Construction works around Junctions 20a and 20b and 21 (Duke of Wellington roundabout) are all likely to lead to increase in traffic on A414. Maldon DC view is that during construction phase there will be an adverse effect at Market Hill.	The Applicant acknowledges the concern raised that some traffic is likely to flow via the A414 to bypass the construction works around junction 20a and 20b. Construction of the new junction 21 and the removal of junctions 20a and 20b would be phased and temporary in duration. DMRB LA105 does not offer guidance on changes in personal traffic behaviour due to diversionary events. However, if traffic emissions and subsequent concentrations did change as a result of the closures, the temporary nature of the construction phase would not significantly affect air quality within the Maldon and Danbury AQMAs. It should be noted that vehicle drivers are not considered receptors for AQ assessment under DMRB LA105.

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		Regarding accuracy of modelling at Duke of Wellington Junction, will there also be reduced AQ for drivers stuck in traffic here?	The NPSNN at para 5.11 makes it clear that air quality considerations are likely to be particularly relevant in the decision making process where schemes are proposed within or adjacent to an AQMA and where changes are sufficient to bring about the need for a new AQMA, change the size of an existing AQMA, bring about changes to exceedance of the Limit Values, or where they may have the potential to impact on nature conservation sites. It is fully recognised that air quality considerations are relevant to the decision for development consent on the proposed scheme. However, the key point for decision making is paragraph 5.12 of the NPS, which states that the Secretary of State must give air quality considerations substantial weight where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to EIA and / or where they lead to a deterioration in air quality in a zone/agglomeration.
AGENDA ITEM 4 – NOISE			
71.	NOISE	ExA requested a summary of Noise Assessment (positive and negative effects).	Overall, the assessment of the proposed scheme has predicted that there would be 806 dwellings and 18 other sensitive receptors experiencing a significant beneficial effect. These significant beneficial effects have been achieved through the route alignment (i.e. moving the A12 away from noise sensitive receptors), earth bunds, noise barriers, removal of the existing concrete surfacing and in some locations the use of a surfacing with better noise reducing properties than a conventional low noise surface (referred to as 'enhanced low noise surfacing' at the hearing and below for ease of reference). There is predicted to be 123 significant adverse effects at dwellings and four at other sensitive receptors. The majority of the significant adverse effects at these 123 dwellings is due to an increase in traffic volume on the road network away from the A12.

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			For the assessment of operational noise, the general approach to assessment follows DMRB LA 111 which itself draws on guidance. The calculation methodology used, the Calculation of Road Traffic Noise, is that prescribed within paragraph 5.191 of the NPSNN. Proprietary noise modelling software was used to create a 3D model of the existing road and the proposed scheme. Predicted traffic data is input to predict noise levels at each receptor. The calculated noise levels are then used in accordance with LA111 to undertake the assessment of impacts and whether the proposed scheme will introduce any significant adverse effects. Figure 12.5 of the Environmental Statement [APP-232] shows the significant effects, both adverse and beneficial, across the proposed scheme. These are where there are changes in noise of 3 dB(A) or more, or a 1 dB(A) change when the absolute noise level is above the Significant Observed Adverse Effect Level (SOAEL). Figure 12.5: Operational Noise Significant Effects (mitigated scheme) [APP-232] shows the significant beneficial and adverse effects across the proposed scheme in the opening year of 2027. There are 28 dwellings along Main Road in Boreham that are predicted to experience a significant adverse effect. This is due to the increase in traffic volume along Main Road. Within Hatfield Peverel there are predicted to be significant beneficial effects at 35 dwellings. This is due to the use of the enhanced low noise surface on the A12 in this location. The enhanced low noise surface is proposed along the Witham bypass where there is predicted to be some beneficial effects at dwellings in the area of Gershwin Boulevard. Around the Maldon Road area it is proposed to also install noise barriers and here there is predicted to be 26 significant beneficial effects. The enhanced low noise surface will also cause a reduction in noise across the Whetmead Local Nature Reserve.

Ref:	Comment/ Representation by:	Questions/Issues Raised at ISH1	Applicant's Response
			Within Rivenhall End a large number of significant beneficial effects are predicted due to realignment of the A12 and the provision of enhanced low noise surface on both sides of the road. There is also earth bunding proposed to the north of the proposed alignment to reduce the noise on the rear of receptors to the south of the existing A12. In addition, a noise barrier is proposed alongside Fair Rest Caravan site. Along Braxted Road to the east of Rivenhall End there are significant adverse effects predicted at four dwellings. This is due to an increase in traffic volume along this road, although the overall traffic volume is low on this road. The current concrete road surface on the Kelvedon bypass is to be replaced with conventional low noise surface, which will provide around a 7dB(A) reduction in terms of noise. This change of surface generates significant beneficial effects for the whole of the eastern side of Kelvedon. In the area of the proposed new Junction 24, north of where the proposed new slip road joins Inworth Road, there are significant beneficial effects due to the resurfacing of the concrete road surface on the A12. Along Inworth Road there are predicted to be significant adverse effects at four dwellings. These dwellings are predicted to experience a change in noise of just over 1 dB(A) but these receptors already have an existing noise level above the SOAEL. This increase in noise is due to an increase in traffic volume along Inworth Road. However, at some dwellings within Inworth that are not directly alongside Inworth Road, there are predicted to be significant beneficial effects due to the resurfacing of the concrete road surface on the A12. Within Messing there are 71 dwelling where a significant adverse effect is predicted due to an increase in traffic volume. These changes in noise are above 3 dB(A) but the absolute noise level is not above the SOAEL.

Ref:	Comment/ Representation by:	Questions/Issues Raised at ISH1	Applicant's Response
			On the eastern end of Kelvedon/Feering there are predicted to be significant beneficial effects due to the change in alignment of the A12. This includes those dwellings currently directly alongside the existing A12. For the offline alignment between Easthorpe Green and junction 25 at Marky Tey, it is proposed to use the enhanced low noise surface on both carriageways. At Easthorpe Green there is predicted to be a significant adverse effect at two dwelling. A noise barrier is also proposed here to reduce the noise. At Wishingwell Farm and Doggetts there are also predicted to be significant adverse effects and noise barriers are also proposed at these two locations, although at Doggetts this will be part earth bund and part noise barrier. On the south west side of Markeys Tey there are predicted to be significant beneficial effects due to the change in alignment of the A12. For one receptor to the south of the new alignment, Hall Chase Farm House, there is predicted to be a significant adverse effect. An earth bund is proposed here to reduce the increase in noise. Along London Road in Copford there are predicted to be seven significant adverse effects due to an increase in noise of 1 dB(A) and the absolute noise level at the dwellings being above the SOAEL. This increase in noise is due to an increase in traffic volume along London Road.
72.	Messing and Inworth PC – Andrew Harding	71 properties in Messing, 4 in Inworth will suffer severe adverse impacts. 1 property will suffer adverse effects day and night. Of the 123 adverse effects, 71 are in Messing.	The noise impacts within Messing are described in paragraph 12.11.47 of Chapter 12: Noise and Vibration, of the Environmental Statement [APP-079]. At 71 dwellings and three other sensitive receptors (All Saints Church, Messing Village Hall and Brook Farm on Kelvedon Road) along the route from Inworth Road to the B1022 (via Kelvedon Road, through Messing and then Harborough Road), there is predicted to be a significant adverse effect. This would be caused by a moderate (3–5dB(A)) increase in noise at 16 dwellings and a major (+5dB(A)) increase at 55 dwellings. This increase in noise would be caused by an increase in traffic volume along this route. Paragraph

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		Most appropriate solution for these villages has not been pursued. Mr Harding estimates that 66% of adverse effects would be avoided if an alternative option adopted.	12.11.47 also explains why there are no noise specific mitigation options available in Messing. The Applicant is very constrained in Messing as to which noise mitigation measures can be used. A low noise surface is not effective when the vehicles are travelling at low speeds as there are within Messing. The installation of noise barriers would not be practical in a village environment, as these would block visibility and access. Paragraph 12.11.47of Chapter 12 of the ES explains why there are no noise specific mitigation options available in Messing.
73.	Braintree DC	Operational phase baseline surveys have to be validated. Regarding 'enhanced low noise surface': what condition is it expected to be in in 2042? 3 dwellings in Braintree qualify for sound proofing. Council wants to ensure this is put in place prior to construction.	The issues raised by Braintree DC are the same as those within their Local Impact Report [REP2-041], to which the Applicant has responded at Deadline 3.
74.	Mr Roger Wacey	Wishingwell Farm Responding to the Applicant's D1 response REP-060. The Applicant took readings at LT10 and LT8 at some distance from the A12. Wishingwell farm will be only 22 metres from new A12.	Under DMRB LA111, instead of direct measurements, the Applicant is required by paragraph 5.191 of NPSNN and by the DMRB LA111 to adopt a predictive approach. As has been explained within the Applicant's Comments on information received at Deadline 1 [REP2-030], specifically in response to REP1-061, baseline noise measurements are not used to inform the assessment of road traffic noise impacts. This is accordance with DMRB LA111: Noise and vibration, which states in Section 3.51.1 that calculated noise levels should be used to determine noise level changes. The noise assessment for the Environmental Statement [APP-079] was undertaken

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		Using an app on his phone, Mr Wacey measured 88 db of noise. Wishing Well Farm runs a recording studio which has not been usable for some time due to works in the area. If NH cannot take an accurate reading from Wishingwell, how can they be sure that the measures they are proposing are sufficient? There is a need to take specific readings where relevant. Mr Wacey believes his son will suffer at those levels. He took issue with noise levels being averaged out over 18 hours, rather than assessed at peak times in the morning/evening. He also expressed frustration that measurements are not taken as experienced by individual human receptors.	following DMRB LA11 using calculated noise, as required by the Calculation of Road Traffic Noise, which is the methodology prescribed within paragraph 5.191 of the NPSNN. Noise levels are not measured with noise measurements used during the noise assessment process mainly to provide a baseline to set construction noise limits, as is explained within paragraph 3.9 of DMRB LA111. With the proposed scheme, the alignment of the A12 would be approximately 30m from the recording studio at Wishingwell Farm. It is understood that the interested party is suggesting that the Applicant should undertake a noise measurement at this distance (i.e. 30m) from the existing road and use the result of that measurement for the assessment. This suggestion would not provide an accurate indication of the noise level at the recording studio for a number of reasons. First, a measurement of the existing situation would contain noise from the existing traffic, which is lower in both flow and speed than that predicted by the applicant for the proposed scheme. Secondly, the existing road surface, which is the primary factor in the generation of noise at this part of the A12, is different to that of the proposed scheme. Thirdly, and linked to the second point, a measurement of the exiting noise would not account for the extensive noise mitigation measures being proposed in this location. These mitigation measures, described within paragraph 12.10.14 and 12.10.17 of Chapter 12: Noise and vibration [APP-079], are the surface with better noise reducing properties than a conventional low noise surface and a 4m high 245m long noise barrier. The first point of these reasons, if everything else was equal, would mean a measured noise level from the existing road would be slightly lower than that of the proposed. However, the second and third points would mean a measured noise level of the existing situation would be considerably higher than that of the proposed scheme, as it would not account for the proposed mitigation measures. Considering these points, a measurement of the noise from the existing road should not be used to provide an indication of the expected noise from the proposed scheme at a similar distance.

Ref:	Comment/ Representation by:	Questions/Issues Raised at ISH1	Applicant's Response
75.	Boreham PC	Concerns re cumulative negative impacts on Boreham village. Effects presented appear to be very localised. Can potential localised mitigation be considered? There are areas where there are dwellings very close to the road.	The significant adverse effects identified at receptors along Main Road in Boreham are where there is a minor increase in noise (1 – 2.9 dB(A)) and the absolute noise level is above the Significant Observed Adverse Effect level (SOAEL). These are localised due to the nature of the predicted changes in traffic in these locations. Specific noise mitigation measures, even localised, are not possible in this urban environment for the reasons explained in paragraph 12.11.31 of Chapter 12: Noise and vibration [APP-079]. Specifically, a low noise surface is only considered to be effective by DMRB LA 111 when average speeds are above 75km/h. The predicted speeds along Main Road are between 48 and 62km/h and so low noise surfacing would not be effective. For a noise barrier to be effective it needs to be unbroken and extend for some distance either side of the receptor. In an urban situation such as Main Road, where access is required to the residential receptors via Main Road, it is not possible to have a barrier that is unbroken.
76.	Mr Carter	Measurement of baseline noise (11 May – 26 May 2021) took place during the second phase of Covid lockdown when road traffic was well below full operational effect. Location 20 Rookery Close monitor (at bottom of Mr Carter's garden) has a brick garage and shed shielding it. There is also a 40-foot conifer hedge, but the monitor still showed over 60 db which is far above WHO recommended maximum. 7 Wentworth Close, monitor was placed behind the existing noise	The Applicant has responded to many of the points raised by Mr Carter within the Applicant's Comments on information received at Deadline 1 [REP2-030], specifically in response to REP1-020. The Applicant intended to undertake a series of baseline noise surveys in May 2020. This exercise was postponed due to the Covid 19 pandemic which resulted in a reduction in traffic flow and some travel restrictions. Starting in June 2020 actual traffic levels on the A12 were examined and compared with 2019 levels using the National Highways WebTRIS webpage. This was undertaken in order to identify a window in which to complete the baseline noise surveys to ensure that they would be representative. Two separate automatic traffic counting stations were examined between Witham and Kelvedon. For the month of the baseline noise surveys (i.e., May 2021), traffic flow was down 9% on what it was in a comparable month pre-Covid (i.e., May 2019). This change in traffic flow in terms of noise would equate to 0.4 dB(A). Given the natural variation in environmental noise measurements, this difference of 0.4 dB(A) was considered to be insignificant and so the baseline noise surveys undertaken in May 2021 are considered to be representative of the pre-Covid levels.

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		barrier. Measured 57db during day. Proposed noise barriers at 3 farms. What is cost-benefit analysis of low noise level surface? Direct causation between speed and noise. What was calculation that meant that north and south embankment would not qualify for a noise barrier. Mr Carter agreed to put other points in writing.	On the specific locations raised by Mr Carter, the comment on the location at 20 Rookery Close is correct. The noise survey equipment at 7 Wentworth Close was not placed behind an existing noise barrier. There was a noise barrier approximately 40m away and offset to the east. The noise levels measured at 20 Rookery Close and 7 Wentworth Close are above World Health Organization (WHO) guideline level for outdoor spaces. However, the guidance within DMRB LA111 does not require projects to be assessed against the WHO guideline noise levels. There has been no cost benefit analysis undertaken of the use of the low noise surface. This surfacing is proposed in order to mitigate significant adverse effects. The Applicant considers that mitigating significant adverse effects should take priority, within reason, over cost. This is why there are several isolated receptors along the proposed scheme where a noise barrier is proposed. Within Hatfield Peverel there are no noise barriers proposed and the reasons are explained within the Applicant's Comments on information received at Deadline 1 [REP2-030], specifically in response to REP1-020. With regard to the question of mitigation, NPSNN paragraph 5.195 sets out the aims that have to be met by the proposed scheme. These have to be considered within the context of Government policy on sustainable development. It must be recognized that many factors determine mitigation decisions. Engineering constraints for example due to topography, whether installation of a noise barrier would, itself, have environmental impacts such as landscape and visual effects or noise impacts due to reflective noise.
77.	Chelmsford CC – Ruth Mabbutt	Ref. LIR REP2-107. Specific point – Boreham will be negatively affected by project. 28 dwellings where there will be no noise mitigation. Boreham residents will experience higher	The issues raised by Chelmsford CC are the same as those within their Local Impact Report, to which the Applicant has responded at Deadline 3. The question of low noise surfacing only on one side of carriageway is addressed in the response to the ExA written question 15-04 The provision of a surface with better noise reducing properties than a conventional low noise surface (referred to as enhanced low noise surface during the hearings for ease of reference) is described

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		levels of noise. We do not understand why northern side of carriageway cannot be provided with low noise surface. Additional vegetation at roundabout has not been considered. Mitigation should be looked at in further detail. This should be included in a proposal or Requirements. Chelmsford CC would like to be consulted and have input into documentation.	within para's 12.10.16 and 12.10.17 of Chapter 12 of the Environmental Statement [APP-079]. When significant effects are identified, the first mitigation measures examined are to reduce the noise at source. The path of the noise is then next considered, followed by measures at the receiver. This mitigation hierarchy is described in paragraphs 12.10.1 to 12.10.4 of Chapter 12: Noise and vibration, of the Environmental Statement [APP-079]. Removing the significant adverse effects through surfacing was therefore considered first. The surface of the A12 alongside Boreham is already a low noise surface, and so following the guidelines in DMRB LA 111 for noise modelling, no benefit in noise terms could be gained through re-surfacing with a conventional low noise surface. Using an enhanced low noise surface was therefore considered. Re-surfacing just one carriageway was first examined in order to retain as much of the relatively new existing surface as possible and this was found to be sufficient to remove the significant adverse effect at the dwellings. Since this is predicted to reduce the noise level to the level it would be without the proposed scheme, this option was therefore taken forward by the Applicant. The provision of the enhanced low noise surface on both carriageways would deliver minor reductions in noise of between 1.8 and 2 dB(A) at those dwellings alongside the A12. Therefore, the provision of the enhanced low noise surface on both carriageways would deliver a minor benefit (which is classed as a noise reduction between 1.0 to 2.9 dB(A)) compared with the identified mitigation which would have delivered negligible changes in noise. With the identified mitigation, all of the identified significant adverse effects would be removed, and this would be the same if both carriageways were resurfaced.

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			The proposed scheme would therefore meet the first aim of paragraph 5.195 within the National Networks National Policy Statement by avoiding significant adverse impacts on health and quality of life from noise as a result of the new development.
78.	ExA	What are the proposals in terms of future monitoring? What are the implications of inaccuracies in traffic modelling on implementation?	This question relates specifically to operational noise monitoring. The Applicant has responded to this question within the Applicant's Response to the Examining Authority's First Round of Written Questions (ExQ1) [REP2-025]. This was raised as question 15.0.9. As is stated within paragraph 4.2 of DMRB LA111, noise monitoring cannot provide a reliable gauge for whether the predicted magnitude and extent of operational adverse impacts are greater or lesser than those predicted in the assessment. Instead, there is a reliance within DMRB LA111 on ensuring that the installed mitigation measures meet the correct specifications. As explained in the hearing, assessment is based on *calculated* road noise levels because monitoring based on ambient noise levels on the ground is impacted by many factors and environmental noise varies on an hourly, daily and seasonal basis, with any measurement only representing a snapshot of the noise environment. Therefore, in order to arrive at monitoring figures that can be relied on, measurement over very long periods of time would be needed to obtain reliable data. It is for this reason section 4.2 of DMRB LA 111 says operational noise monitoring is not necessary. Instead, checking mitigation measures will perform is best done prior to installation to check against performance specification to identify any defects. Since the noise assessment relies on traffic data in order to calculate noise levels, any inaccuracies in traffic data would translate to inaccuracies in the calculated noise levels. However, the calculation methodology within the Calculation of Road Traffic Noise requires reasonably large changes in traffic flow to cause differences in a level of

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			noise that would be noticeable. For example, an increase in traffic flow of 10% equates to 0.4 dB(A), and a 25% increase in traffic is required before a change to be 1 dB(A), which is lowest level is generally considered to be noticeable.
79.	Boreham PC	Might it be simpler to measure using numbers of vehicles?	Chris Alves-Greenland, on behalf of the Applicant, gave a brief clarification to provide a layman's explanation in relation to Boreham traffic noting that it would not be possible to assert that a change in traffic is solely due to the proposed scheme upon road opening or in a given design year as traffic flows could not be compared against the scenario where the proposed scheme had not been built.
80.	Messing and Inworth PC – Andrew Harding	Statistics from the Applicant (RS) are surprising. 71 homes in Messing will have severe adverse effects – over half the village in a conservation area. Wishes to stress the catastrophic effect of this on the two villages.	This point has been answered at line item 72 above.

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81.	Braintree DC	No comment was made on Construction noise impacts during the hearing, but Braintree DC requested for this to be done offline. Braintree questions are in LIR.	The Applicant has responded to all points in the Local Impact Report [REP2-041] in writing at Deadline 3.
AGENDA POINT 4 (continued) – DESIGN – This Agenda Point was not addressed at the issue specific hearing			
82.			
AGENDA ITEM 6 – CULTURAL HERITAGE			
83.	The ExA – Mr Gorst – referred to Historic England's written reps relating to scheduled monuments.	Essex CC Noted that there has been long and successful involvement between the Council and the archaeological consultants. Essex CC is happy with the level of work carried out for the majority of	The Palaeolithic and palaeoenvironmental potential of the proposed development has been assessed through a staged programme of assessment and investigation, which has drawn on desk-based research and field investigation. As the first stage, the Applicant commissioned a Palaeolithic and palaeoenvironmental desk-based assessment (Francis Wenban-Smith, 2020) [APP-108], which was designed to answer specific questions about the potential for in situ remains to be preserved in areas where borrow pits were being considered, and where the proposed

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	Comments were invited from Essex CC	archaeological issues. Their main concern, however, is the level of work and conclusions relating specifically to paleolithic investigations. The initial DBA did not cover the entire scheme and therefore the predictive model used for paleolithic assessment is not comprehensive enough. Mitigation is not appropriate because insufficient work has been done to rule out the presence of paleolithic sites. Essex CC is still working with Jacobs and is aware that field work may not be possible prior to determination by the SoS. The need for the WHOLE site to be assessed has previously been discussed and the Council accepts that further work will be necessary. Essex CC noted that the document for AMS excludes the area for paleolithic assessment. This will need to be revised in line with further information and Essex CC advice.	development was therefore most likely to have an impact. Including changes in the design of the proposed development which took place after the Palaeolithic Desk-Based Assessment [APP-108] was prepared, the areas where the greatest potential for impact to occur remains unchanged. The Applicant considers the coverage and findings of this report to be sufficient for its intended purpose. The purposive fieldwork undertaken to inform the Palaeolithic and Palaeoenvironmental Evaluation Report – Part 1 [APP-115] and Palaeolithic and Palaeoenvironmental Evaluation Report – Part 2 [APP-116] has refined the understanding of quaternary deposits and their Palaeolithic potential in those areas where the proposed development is likely to have the most impact. These reports also covered the full length of the proposed development. The Applicant is aware of the rarity, value, and sensitivity of the Palaeolithic resource in Essex, and is in the process of undertaking additional desktop and digital work to determine the extent of this resource across the area of construction impact. The results of this work will be a more detailed understanding of the potential Palaeolithic archaeological remains and of the impacts of the proposed scheme upon it and will be provided to Essex County Council and the other cultural heritage consultees in due course for their review and comment. Once agreed with the cultural heritage consultees, and combined with the existing Paleolithic Desk-Based Assessment [APP-108] and Palaeo-environmental Evaluation Reports [APP-115 and APP-116], this will inform a written scheme of investigation for Palaeolithic and palaeoenvironmental archaeology which will be secured through the First Iteration Environmental Management Plan [APP-184] and Commitment CH5 of the REAC [APP-185]. Following the extensive archaeological works already undertaken the Applicant is currently interpreting the results and carrying out further desktop analysis to inform the proposed Advanced Works phase of the project planned towards the end of 2023. This is to ensure any archaeological features can be appropriately mitigated before planned construction in 2024.

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			The additional desktop and digital work, including that relating to palaeolithic and palaeoenvironmental archaeology is being developed to inform the advanced works. It is an ongoing workstream. As part of the usual approvals process all of this information would be shared with Historic England and Essex County Council, and relevant information would subsequently be published.
84.	Robin Green – Maldon DC	Concerns raised: 2. Gas main diversion (Work 69) – REP2-069 – will result in construction/maintenance. The access track from Little Braxted Lane (highly constrained road, a number of heritage properties, bridges, access opposite Grade 1 listed church). Has the Applicant fully considered the impact of vehicles going to/from the gas main along Little Braxted lane? 3. What proposals will be included in the order to	The Applicant has responded to Maldon DC's Local Impact Report in detail at Deadline 3. Impacts from construction and operation of the proposed development, including the gas main diversion, on designated and non-designated heritage assets and their settings have been fully assessed in Chapter 7: Cultural Heritage [APP-074], and Appendix 7.9: Cultural Heritage Impact Summary Tables [APP-117] of the Environmental Statement. The locations of all cultural heritage assets in the baseline are shown on Figures 7.1: Cultural Heritage: Archaeological Remains [APP-215] and 7.2: Cultural Heritage: Built Heritage and Historic Landscape [APP-216] of the Environmental Statement. Because construction traffic would not use Little Braxted Lane, and operational traffic would be infrequent and compliant with the existing access restrictions, an effect of neutral significance was assessed for the listed buildings in Little Braxted, including grade I listed St Nicholas Church, at construction and operation of the proposed scheme. Little Braxted Lane at a point near Colemans Fishery heading south towards Little Braxted at the junction between Little Braxted Lane and Lea Lane currently has a 2 metre width restriction, with a 3 tonne weight limit on the northern of the two bridges. The proposed scheme would not amend this either during construction or operation. During construction, the Outline Construction Traffic Management Plan (OCTMP) [REP2-003] and its Appendix B [REP2-004] Permitted and Excluded Routes for Construction Vehicles, further clarifies that construction HGVs would not be permitted to use this route. During the operational stage, for the infrequent

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		ensure vehicles are not too heavy, too wide and too long for Little Braxted Lane? 3. St Nicholas Church (Grade I listed) and Mill House Bridge (Grade II listed)	inspection/maintenance visits required to the buried pipeline, Cadent would only be able to use vehicles that comply with the rules for that stretch of road, so less than 2m wide. As the restrictions on the use of the road would not be changing, it is confirmed that construction HGVs cannot use the route and ongoing maintenance for the buried gas main is infrequent, there would be no impact on the heritage assets in the vicinity of Little Braxted Lane from vehicles going to and from the gas main. Furthermore, with regard to the Little Braxted Lane post construction, in the Statement of Common Ground with Essex County Council [REP2-018] ref 2.56 states 'National Highways will proactively work with Essex Highways to design Little Braxted Lane in a manner that deters HGV's and oversize vehicles from travelling southwards from the A12 beyond the access to Colemans quarry, whilst recognising that this will remain an Essex Highways asset'.
85.	Jackie Longman – Maldon DC	Little Braxted is a historic settlement and all listed buildings coloured yellow (Dovecote, Little Braxted Hall), blue and red (St Nicholas Church) are of listed status nationally. Little Braxted Lane is a historic route. Single track with passing places.	Impacts from the proposed development on designated and non-designated heritage assets and their settings have been fully assessed in Chapter 7: Cultural Heritage [APP-074], and Appendix 7.9: Cultural Heritage Impact Summary Tables [APP-117] of the Environmental Statement. The locations of all cultural heritage assets in the baseline are shown on Figures 7.1: Cultural Heritage: Archaeological Remains [APP-215] and 7.2: Cultural Heritage: Built Heritage and Historic Landscape [APP-216] of the Environmental Statement. No significant effects were assessed for the listed buildings in Little Braxted, and this assessment is presented in Appendix 7.9: Cultural Heritage Impact Assessment Summary Tables [APP-118] of the Environmental Statement.

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86.	David Sorapure – Essex CC	Noted that the assessment of vibration impacts has used standard criteria for annoyance/comfort. Would something more targeted for e.g. timber framed historic buildings be more appropriate, particularly in respect of the increased level of construction traffic. Suggested monitoring should be targeted to historic buildings and requested ongoing engagement with stakeholders.	The Applicant considers that the scale used within Chapter 12: Noise and vibration [APP-079] for human response to vibration is appropriate. The structure of the building, or even the type of building, should not be a factor in how the level of vibration is perceived. The Applicant acknowledges that some buildings may be more susceptible to building damage than others, although a building of historical value should not (unless it is structurally unsound) be assumed to be more sensitive. In a location such as Messing there should be no construction traffic as this is an excluded route for construction traffic. The excluded routes are described within the Outline Construction Traffic Management Plan [REP2-003] and are shown in the Outline Construction Traffic Management Plan – Appendix B permitted and excluded Routes for Construction Vehicles [REP2-004].
87.	Alan Barker	Alan Baker noted that the church (at Little Braxted) was 900 years old last year and emphasised the importance of the history of Essex.	[The parish church of St Nicholas is a Grade I Listed church (Asset 358) which has 12th century origins with 19th century alterations. This makes it an historic building with significant architectural, historic, archaeological and communal value. The assessment of built heritage impacts from the proposed scheme have been fully assessed in Chapter 7: Cultural Heritage [APP-074], and Appendix 7.9: Cultural Heritage Impact Summary Tables [APP-117]. The parish church of St Nicholas, and other listed buildings in Little Braxted are shown on Sheet 2 of Figure 7.2: Built Heritage and Historic Landscape [APP-216] of the Environmental Statement. The assessment did not predict any impacts on the setting of St Nicholas Church during construction (short-term) or operation of the proposed scheme.

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88.	Messing and Inworth PC Alan Baker The ExA noted that Messing was very much on the Panel's agenda for the site inspection.	Andrew Harding – The Parish Council described Messing as a tiny village on a T junction. All the buildings within it are listed. The Council believes that the village will be severely affected by SOAEL. All the houses are ON the highway (rather than just 'near' it). The wall surrounding church is ON the road and is already in a poor state. Severe damage to listed properties and to the church wall have not been adequately studied. This little hamlet has a long history (in sight of Boudica's battlefield) and this heritage appears to have been forgotten. Messing PC reminded the Applicant that it has responded to the Applicant's response. The PC does not accept that assessment on noise takes account of the proximity of houses to the road and considers this as a major risk for affected buildings.	The Parish Council is referred to the Applicant's detailed responses on vibration provided at the Relevant Representation response stage (REP1-002). The following additional points are noted: • The assessment of negative effects on 71 properties in Messing relates to noise not vibration. Noise and vibration in relation to the setting of cultural heritage assets in Messing has been assessed as not significant. • The assessment took into account the nature and significance of the buildings in Messing. The Applicant acknowledges Messing Parish Council's comments on the significant history associated with the village. The Messing conservation area lies over 1.5km from the Order Limits for the proposed scheme and outside the 1km study area used to identify designated heritage assets for assessment in the Environmental Statement, as explained in Paragraph 7.7.3 of Chapter 7: Cultural Heritage [APP-074]. The proposed scheme is predicted to result in an increase of traffic up to approximately two vehicles per minute from less than one vehicle per minute, which is not expected to affect the setting of the Messing conservation area and listed buildings. The noise assessment uses the methodology within the Calculation of Road Traffic Noise (CRTN) to calculate the noise level at each house. This calculation methodology takes into account the distance between the source of the noise (i.e. the road traffic) and the receiver (i.e. the building).

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89.	ExA – drew attention to Historic England's concerns about the scheduled monument	Has the significance of impacts on the Rivenhall Long Mortuary site possibly been underplayed?	A detailed written response has been prepared for this site for deadline 3 in the Applicant's response to Historic England's Written Representation.
90.	Ruth Mabbett – Chelmsford CC	Referred to concerns relating to Grade I listed property, Boreham House, south east of J19 and to the Grade II listed gardens surrounding it (REP-L027). The Council emphasised the significance of the buildings and their setting. The Council expressed concern that these have not been assessed in sufficient detail to fully consider impacts and appropriate mitigation. An inconsistency in the application was noted in relation to 'realignment' and in relation to planting in the landscape/heritage assessment. The Council considers that widening of the road will lead to visually intrusive effects and questioned the Applicant's assessment that this impact is	The Applicant has noted these comments in its response to Chelmsford City Council's Local Impact Report. The impacts on the grade I listed Boreham House (Asset 69) and its associated grade II registered landscape park (Asset 67) have been fully assessed in Chapter 7: Cultural Heritage [APP-074] of the Environmental Statement and Appendix 7.8: Cultural Heritage Impact Assessment Summary Tables [APP-117]. The assessment has concluded that the construction phase will have a Moderate effect on the heritage value of Boreham House (Asset 69) and the operational phase of the proposals will have a Slight effect on it. The impact on the grade II registered Boreham House landscape park (Asset 67) during construction was assessed as being Moderate and during operation it would be Slight. The proposed mitigation measures within the grounds of Boreham House are set out in Section 1.4 of the First Iteration Environmental Management Plan, Appendix I, Landscape and Ecology Management Plan 6.5 [APP-193] paragraph 1.4.14. The mitigation strategy proposes replacing non-native trees and shrubs removed during construction with planting at Boreham House. This would include new woodland, trees, shrubs and hedge planting as indicated on Figure 2.1 of the Environmental Masterplan [APP-086], These proposals will form the basis of the planting design to be developed during the detailed design stage. Non-native trees and shrubs would be used, where

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		'slight'. Chelmsford CC's view is that a comprehensive landscaping scheme through mitigation or requirement is needed. The Council also drew attention to the Boreham House lake feeder – a brick culvert not shown on any constraints plans. This feeds the lake from a natural spring and forms an important part of a designated landscape. The Council asked that this feeder is protected and that further attenuation to the lakeside and surface of the lake are considered.	required, for the reinstatement of non-native horse-chestnut at Boreham House to offset the loss of a Tree Preservation Order tree. The EMP indicates that non-native trees and shrubs, forming the reinstatement, will be indicated in the Series 3000 Landscape and Ecology Series specifications and accompanying appendices to be prepared during detailed design. In addition, there will be mitigation planting to the west of Boreham House gardens (Assets 67 and 69) within the Chelmer and Blackwater Navigation Conservation Area (Asset 68), as shown in Figure 2.1 of the Environmental Masterplan, Part 1 [APP-086]. This shows an area of new grassland with intermittent tree planting (LE2.5), woodland planting (LE2.1/LE2.2/LE2.4) and an area of wet woodland planting (LE6.1) to the west of the Grade I Listed Boreham House and the grade II registered park and garden. These indicative areas of planting will form the basis of the planting design to be further developed during the detailed design stage. It is considered that this mitigation will help to enhance the grounds of Boreham House and to mitigate any harm to the setting of Boreham House from works to Junction 19 and Main Road, which are approximately 350m to the north of the Listed Building. Chelmsford City Council drew attention to an apparent inconsistency in the description of mitigation for operational phase impacts through 'landscape planting' in reference to the grade II registered park and garden at Boreham House in Chapter 7: Cultural Heritage [APP-074] of the Environmental Statement. The Applicant was referring to the proposed wet woodland planting, tree and shrub planting and individual trees west and south-west of the asset which would reinforce existing screening vegetation between Boreham House and gardens and the A12. The Applicant has been in consultation with Chelmsford City Council regarding the potential location of the culvert referred to, which is believed to feed water to the lake in the grounds of Boreham House (Asset 69). The construction team has been made aware of its presence and will be able to undertake identification of the culvert on the ground, during the detailed design phase. The presence and importance of the feeder/culvert has been drawn to the attention of the construction team and the

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			Applicant will continue to engage with the Chelmsford City Council, throughout the detailed design phase and construction phase, in order to retain and safeguard this feeder to the lake.
91.	David Soropure – Built Heritage Essex CC	The Council asked that for specific buildings in Messing there should be an assessment of impacts from increased vehicle traffic and vibration. The impact on historic fabric in particular needs to be focused on. The Council queried the value category for conservation areas in the DBA where these are given a medium value. Concern was expressed that, with reference to the NPPF and NPSNN, conservation areas are considered to have a high level of significance. The Council asked the Applicant to reconsider their assessment on this basis.	The Applicant acknowledges that some buildings may be more susceptible to building damage than others, although a building of historical value should not (unless it is structurally unsound) be assumed to be more sensitive. Traffic travelling through Messing is predicted to increase with the proposed scheme and this will include some increase in HGV movements. The existing roads through Messing do not offer an attractive route for larger HGV movements. The roads in the village are not being altered meaning vehicles would not be likely to be traveling at any greater speed through the village than vehicles currently travel. The increase in HGV movements through Messing is likely to be from those in the weight range 7.5 to 18t. Such vehicles will already be seen in the village, in part to provide deliveries to homes and businesses within Messing. It is unlikely that building damage would be caused by the passage of vehicles in this weight range in Messing as vehicles will be moving at relatively low speed. It is not anticipated the additional movements have the potential to lead to significant adverse vibration effects. Conservation areas were assessed as medium value in Chapter 6 Cultural Heritage [APP-074] Table 7.7 in the Environmental Statement. The medium category includes assets of medium or high importance and rarity, regional scale, and limited potential for substitution. By contrast the high category is reserved for assets of high importance and rarity, national scale, and limited potential for substitution. Table 7.7 also allows for conservation areas to be assessed on a case by case basis based on a professional judgement. There are many conservation areas in Essex and about 10,000 in the UK and it is important to have a categorization system that distinguishes between nationally important conservation areas, such as the City of Bath conservation

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			area, which is also part of a World Heritage Site, and the many conservation areas in our villages and towns which are important at a more local or regional level. The Applicant is comfortable with the assessment of medium value for the conservation areas identified, as set out in the Chapter 6 Cultural Heritage [APP-074] Table 7.7 in the Environmental Statement.
AGENDA ITEM 6 (continued) – CLIMATE CHANGE			
92.	ExA	Requested a summary of the approach to assessment of emissions (in response to DL2 points).	Different greenhouse gases (GHGs) have different global warming potentials, hence emissions of GHGs are typically expressed in tonnes of carbon dioxide equivalent (tCO_2e) and often referred to as 'carbon' emissions. The Climate Change Act 2008 sets a legally binding target for the Government to cut carbon emissions to net zero by 2050 (i.e. a 100% reduction in the UK's carbon emissions by 2050 compared with those in 1990). It also requires five-yearly carbon budgets to be set so as to meet the 2050 target. Six carbon budgets have been adopted to-date. The time periods covering the fourth, fifth and sixth budgets, which are those relevant to this scheme, are 2023-2027, 2028-2032 and 2033-2037, respectively. Achieving net zero will require the UK's future carbon emissions to be aligned with these budget targets and any future new or revised carbon budget targets that may be set out by Government. The assessment approach taken for the proposed scheme has followed the guidance set out in the DMRB LA 114 Climate standard and is in line with the National Policy Statement National Networks (NPSNN), paragraph 5.17 which states that applicants

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			should '*provide evidence of the carbon impact of the project and an assessment against the UK Government's carbon budgets*'. To do this the Applicant has estimated carbon emissions associated with the construction and operational maintenance of the proposed scheme, including construction related activities/materials and their associated transport. The Applicant has also estimated carbon emissions associated with road users once the proposed scheme is operational. The Applicant has then calculated equivalent emissions for the baseline scenario without the proposed scheme in place (i.e. the Do-Minimum scenario). Carbon emissions have been calculated over the lifecycle of the proposed scheme as described in Table 15.7 of Chapter 15: Climate [APP-082]. These calculations have been undertaken using industry recognised tools, including: • The National Highways Carbon Tool (version 2.4) – to estimate construction and operational maintenance emissions; • Defra's Emission Factors Toolkit (version 11.0) – to estimate operational road user emissions; and • The Woodland Carbon Code Calculation Spreadsheet (version 2.4) – to estimate carbon sequestration in woodland. The estimated net change in carbon emissions as a result of the proposed scheme (i.e. Do-Something emissions minus Do-Minimum emissions) has then been collated over relevant time periods and compared with the carbon budgets (as per Table 3.18 of DMRB LA 114). While noting that '*it is very unlikely that the impact of a road project will, in isolation, affect the ability of Government to meet its carbon reduction plan targets*', paragraph 5.18 of the NPSNN goes on to state that '*any increase in carbon emissions is not a reason to refuse development consent, unless the increase in carbon emissions resulting from the proposed scheme are so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets*'.

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			There is, however, no set significance threshold for carbon (i.e. an absolute or relative change in carbon emissions that could be considered significant), therefore professional judgement has been used to assess whether increases in carbon emissions as a result of the proposed scheme could have a material impact on the ability of the UK Government to meet its carbon reduction targets (and would therefore potentially be significant). The Applicant referred to the assessment provided in Table 15.23 of Chapter 15: Climate [APP-082] which shows that the construction of the proposed scheme is estimated to contribute approximately 0.022% of the fourth carbon budget. Operation of the proposed scheme is estimated to contribute approximately 0.002% of the fourth carbon budget, 0.009% of the fifth carbon budget and 0.015% of the sixth carbon budget. It is considered that this magnitude of emissions from the proposed scheme would not have a material impact on the ability of the UK Government to meet its carbon budgets, and therefore is not anticipated to give rise to a significant effect on climate, in line with the position set out within paragraph 5.18 of the NPSNN.
93.	Ex A	Request for further information regarding: a) cumulative assessment b) [Road Investment Strategy (RIS)] assessment of local areas meeting carbon target	The Applicant referred to paragraphs 15.11.14 to 15.11.19 of Chapter 15: Climate [APP-082], noting that the assessment of climate impacts undertaken is inherently cumulative. This is as a result of: • the inclusion of the proposed scheme and other locally committed transport schemes and developments within the traffic model on which the road user carbon emissions calculations are based; • the fact that national carbon budgets themselves are cumulative since they address carbon emissions from a wide variety of sources across the different sectors of the economy; • the assessment providing for an overall change in emissions as a result of the proposed scheme which can be set against and in the context of the UK carbon budgets.

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			The Applicant noted that the only statutory carbon targets are the carbon budget targets and the Net Zero 2050 target set at a national level i.e. they are targets for the UK as a whole. There are no sectoral targets (e.g. for transport), nor any statutory targets set at a subnational geographic scale. In addition to the absence of sectoral or sub-national scale targets for carbon emissions, it is not possible for the Applicant to produce a baseline at such scales. Accordingly, there is no reasonable basis upon which the Applicant can assess the potential likely significant effect of the proposed scheme's carbon emissions at anything other than at national level.
94.	ExA - Mr Hunter	Mitigation of construction emissions: how can we be sure those measures will be carried forward?	There is a difference between mitigation for construction emissions and operational emissions, respectively, with operational emissions (e.g. those relating to operational road users) more heavily influenced by national policy (e.g. the Transport Decarbonisation Plan (TDP). The established mitigation hierarchy set out in paragraph 3.22.1 of DMRB LA 114 Climate has been followed for this scheme, so that firstly actions have been taken to avoid / prevent carbon emissions, followed by actions to reduce or remediate emissions. As set out in paragraph 15.10.2 of Chapter 15: Climate [App-082], measures have been embedded within the design of the scheme to reduce the magnitude of carbon emissions associated with construction phase activities by using as much existing infrastructure as possible, removing or modifying elements of the scheme and using borrow pits. Measures have also been taken to support active travel, thereby encouraging modal shift from private car and reducing operational phase road user carbon emissions, as well as to reduce carbon losses from existing carbon stores (such as soil and vegetation) and improve carbon sequestration.

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			As set out in paragraph 15.10.6 of Chapter 15: Climate [App-082], measures are also proposed to reduce emissions associated with the transport of employees and raw materials, waste treatment and transport. In addition, paragraph 15.10.9 of Chapter 15: Climate [App-082] describes a number of enhancement measures, which have been identified, such as opportunities to use low emission construction plant and equipment and lower carbon materials. With regard to measures which would be taken to further avoid or reduce carbon emissions during the construction stage, it is noted that the Applicant's 2030/2040/2050 Net Zero Highways Plan includes a commitment to ensure that all construction plant and compounds on the Applicant's construction and maintenance projects will be zero emissions by 2030 (i.e. after the proposed scheme is proposed to be constructed). However, the availability, diversity and affordability of low emission construction plant and machinery, for example, is likely to increase over time as we approach this milestone. Furthermore, whilst the suitability and performance of such equipment is currently being demonstrated on high profile projects such as HS2, it is not yet commonly used in the construction industry, nor available in large numbers or for all equipment types. It is therefore expected that some low emission construction plant will be used during the construction of the proposed scheme as the availability, affordability and technical readiness of such equipment improves over time, however, it is not yet considered possible nor appropriate to make specific commitments at this stage within the DCO, which it may not be possible to deliver. With regard to measures which would be taken to further avoid or reduce carbon emissions associated with the consumption of raw materials; a voluntary 30% carbon reduction target has been set for the embodied carbon associated with the proposed scheme. It is noted, however, that such measures can only be developed and assessed at the detailed design stage when more detailed design information is available than currently. This is because it is only at this next stage when the ‘final’ design and associated material quantities are known, and where the practicality, cost effectiveness and any implications for design standards relating to safety and quality of

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			such measures can be fully understood. As such, it is not considered possible to commit to specific embodied carbon reduction measures at this stage. These measures are not secured in the DCO for the reasons stated. As a result, they have not been accounted for within the assessment nor relied upon within the assessment of significance presented in Chapter 15: Climate [App-082].
AGENDA ITEM 6 (continued) - BIODIVERSITY			
95.	ExA – Mr Hunter	Regarding the gas pipeline, the ExA requested: 1. an update on surveys 2. confirmation as to the extent of work to be done 3. an update on the alternative area of vegetation clearance to reduce impacts as noted in the Maldon DC Local Impact Report	Further to the Applicant's response to ExQ1 7.0.3 [REP2-025], the Applicant has the following update on the surveys at Blue Mills. The arboricultural assessment was undertaken in February 2023 and the report will be submitted at Deadline 3 [TR010600/EXAM/9.30]. Key points to note from the assessment: 1. The black poplar is confirmed as a potential veteran tree (i.e. a tree not formally designated as a veteran tree by the Woodland Trust, but assessed as part of A12 field surveys to qualify as a veteran tree), so the valuation of its importance has been upgraded from county value as stated in the response to ExQ1 7.0.3 [REP2-025] to National value which is consistent with the valuation of other veteran trees assessed within Chapter 9 [APP-076] and is in accordance with DMRB LA 108. 2. A line of mature oak trees have been identified as 'the next generation of veteran trees', however, as they do not currently meet the criteria for veteran trees they have not been assessed as such. However, it is acknowledged that they are protected by Maldon District Council Tree Preservation Order (Ref 07/22) as a woodland group. Maldon District Council's Local Impact Report has identified another proposed local wildlife site, Barn Grove Local Wildlife Site. The Applicant assumes that the next steps

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			for formal designation of this site would be as per the proposed Blue Mills Local Wildlife Site. For this site the Council have advised its designation is an ongoing procedure with the Essex Local Nature Partnership Board who are responsible for the confirmation of the designation, and the Council do not have a date for when the Board will sit to consider the proposed designation. However, the Applicant will treat the proposed site as if it is a confirmed LWS in the interim. The anticipated effects on this site are assessed within the Applicant's response to the Local Impact Report (para 6.3 - 6.3.23) which will be submitted to the examination at Deadline 3. In summary, the Applicant noted that the wet woodland component of the proposed Barn Grove has the potential to be affected through: - Construction phase hydrological effects on the wet woodland component of the potential Local Wildlife Site as the gas main bisects a ditch which is connected to the site (however mapping indicates the ditch is downstream of the wet woodland which limits the potential for effects). - There would be no direct construction effects on the proposed Barn Grove Local Wildlife Site as it is located outside of the Order Limits. There are not anticipated to be any resultant significant air quality, noise and vibration impacts at the proposed Barn Grove LWS. - Operational effects should the backfilled trench draw water away from the surrounding habitats. However, it would be possible to avoid impacts to the wet woodland from changes in hydrology both during construction and operation of the proposed scheme, by control of construction works and incorporating impermeable material to prevent flow of water along the trench It is important to note that the assessment of effects presented within Chapter 9 [APP-076] and updated within our response to ExQ1 7.0.3 [REP2-025] and within the response to Maldon District Council's Local Impact Report (para 6.3 - 6.3.23) presents a worst-case scenario. Sheet 8 of 21 of the Retained and Removed Vegetation Plans –

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			Part 1 [APP-035], vegetation loss would be restricted to a 30m corridor within the Order Limits for the gas main. For example, commitment LV15 of the REAC [APP-185] requires the working width for the installation of the gas main diversion would be reduced as far as reasonably practicable through woodland and where the gas main diversion crosses through hedgerow field boundaries. The width of the Order Limits is greater than 30m to enable Cadent to determine the appropriate route for the gas main, taking into consideration sensitive environmental receptors. By having a wider Order Limits there is greater flexibility in the design for this purpose. At present a 30 metre corridor is assumed, but there would be scope to replant parts of the 30m corridor to reduce the width of the gap in the long term as per commitment LV14 of the REAC [APP-185]. With respect to ensuring legal compliance, and the potential otter holt in the black poplar. In this regard, REAC commitment BI34 [APP-185] requires that should any new resting places be identified, and should they be located in a place that would be disturbed, damaged or destroyed as a result of the proposed scheme, a European Protected Species Mitigation licence would be obtained from Natural England to agree the specific mitigation approach. The Applicant acknowledges the point raised by Maldon District Council in their Local Impact Report regarding use of boring machinery and the potential for disturbance of the potential otter holt, this is addressed within the written response to Local Impact Report (para 6.3 - 6.3.23). The alternative route proposed by Maldon District Council within their Local Impact Report is the subject of ongoing discussions with Cadent Gas.

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96.	Sue Hooton – Essex CC principal ecologist	At REP2-056 LIR, Essex CC asked for the results of dormice surveys and requested to see these.	The Dormouse Survey Report is available on the Examination library [AS-036]. No dormice or evidence of dormice was recorded and, as per paragraph 7.1.4 of the Dormouse Survey Report [AS-036], it has been concluded dormice are likely to be absent from the entire Order Limits and would therefore not be impacted by the proposed scheme. This would result in a reduction of the assessment of effects on dormice from 'slight adverse' during construction and 'neutral' during operation' to 'no effects', as there is no impact pathway.
97.	Robin Green-Maldon DC	The final alignment of the gas main diversion, construction methodology, and proposed mitigation of the pipeline are not known yet. This presents a difficulty for Maldon. The gas main diversion is a very significant aspect of the scheme for Maldon. Requested appropriate mitigation as close as possible to Blue Mills nature reserve.	It is not the case that no information on the proposed gas main diversion has been presented by the Applicant. Order Limits have been drawn for the diversion at a width greater than 30m to enable Cadent to determine the appropriate route for the gas main, taking into consideration sensitive environmental receptors and ground conditions, as is the usual procedure when consenting such infrastructure. By having a wider Order Limits there is greater flexibility in the design for this purpose. A full assessment of the potential effects of the gas main diversion has been undertaken. This has been done assuming a 30 metre corridor, so that the worst case has been assessed, but there would be scope to replant parts of the 30m corridor to reduce the width of the gap in the long term as per commitment LV14 of the REAC [APP-185]. The proposed methodology also assumes open-trench cutting, subject to discussions with Cadent. Measures to mitigate have been identified in the REAC [APP-185] at LV14, LV15, with respect to Replanting along the easement and minimising the working width for the installation of the gas main diversion as far as reasonably practicable through woodland and where the gas main diversion crosses through hedgerow field boundaries. The assessment assumes a trenchless crossing of the River Blackwater as per commitment LV15 [APP-185]. Discussions with Cadent are ongoing regarding micro-siting of the pipeline with a view to minimising the effects, however the Applicant has presented a worst-case scenario

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			in order that the Examining Authority and Interested Parties are able to take a view of the proposals. The following information was obtained in advance of DCO submission and was included within the baseline section of Chapter 9 Biodiversity of the Environmental statement [APP-076]: • Phase 1 Habitat Survey data - due to a 600m buffer (to allow for flexibility in the evolving design) being used for the Phase 1 Habitat surveys which were undertaken from 2016 to 2020, Phase 1 Habitat survey data were available for the entire route of the gas main diversion (with the exception of a small segment of habitat which is clearly identifiable as broadleaved woodland from aerial photographs) from the original suite of surveys (Appendix 9.8: Phase 1 Habitat Survey Report [APP-132]). • Partial riparian mammal data - surveys undertaken in 2020 included the most northerly crossing of the River Blackwater by the gas main diversion. Results are included within Appendix 9.10: Riparian Mammal Survey Report [APP134]. • Partial badger and ground-based bat roost assessment data - the majority of the gas main diversion to the east of the River Blackwater is divided into three land holdings. Where access was permitted for two of the three land parcels, badger surveys and ground-based bat roosts assessments were undertaken in the winter of 2021 and these data were included in Appendix 9.4: Bat Survey Report [APP-128] and Appendix 9.2: Badger Survey Report [APP-126]. Access for the remaining land parcel was permitted in July 2022, after which the ground-based bat roost assessments and badger surveys were completed Since submission of the DCO the following surveys have been completed and reports have been submitted to the examination: • Dormouse surveys [AS-036] • Bat dawn/dusk and climbing surveys [AS-032] • Botanical surveys [REP2-027]

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			• Badger surveys [REP2-026] • Riparian mammal surveys [REP2-029] Reptile surveys have also been undertaken to inform the detailed design of the proposed scheme and these reports have also been submitted to the examination. • Tetratech reptile survey report [REP2-034] • Reptile survey report Blue Mills [REP2-028] An arboricultural survey was undertaken in February 2023 and the Applicant has submitted the report to the examination at Deadline 3 [TR01600/EXAM/9.30]. Mitigation for effects on Blue Mills would be achieved within the site as the primary method of mitigation would be replanting along the easement as per commitment LV14 of the REAC [APP-185]. As per ExQ1 7.0.3 the narrow strip above the pipeline which could not be replanted would act as a ride which would provide some benefits in terms of increasing the diversity of habitats present. Rides are a component part of woodland and so although there may be a loss in the number of trees, the area of the woodland and proposed Local Wildlife Site would not be affected.
98.	ExA	Where does the Applicant expect to be by end of Examination in with regard to the gas diversion?	Whilst conversations with Cadent are on-going regarding the gas main diversion, the assessment has been undertaken using a worst-case scenario, and the anticipated impacts of the gas main diversion are only expected to reduce further as a result of those discussions. Prior to the end of examination it is expected that the detailed design will have progressed to inform the final alignment and construction methodology. It is anticipated that this will have been shared with the directly affected parties.

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99.	ExA	What ecological and / or offsetting measures are proposed for Perrys Wood?	A project air quality action plan was produced (see Appendix 6.6 of the Environmental Statement [APP-105]).This concluded there is no feasible mitigation for the air quality impact on Perry's Wood and so in accordance with the mitigation hierarchy the project moved to looking at offsetting measures. As stated in paragraph 9.10.32 of Chapter 9 of the Environmental Statement [APP-076], offsetting would therefore be provided through the creation of 7.4ha of broadleaved woodland habitat as part of the restoration of borrow pit F. This planting is the large triangular block of woodland within the southern part of borrow pit F as shown on Sheet 7 of 21 Figure 2.1 Environmental Masterplan [APP-086]. Offsetting for Perry's Wood Local Wildlife Site and ancient woodland will be secured through commitment BI16 of the Register of Environmental Actions and Commitments [APP-185] within the first iteration of the Environmental Management Plan [APP-184]. The offsetting planting is located approximately 8km southwest of Perry's Wood. The location for the woodland was selected because it falls outside the 200m buffer around the operational and construction Affected Road Network and so would not be subject to air quality impacts and is immediately adjacent to an area of existing broadleaved woodland, providing continuity of habitat and maximising the functional value of the new woodland, which is in accordance with the Lowton principles of 'bigger, better and more joined up'. The design of this woodland would be developed at detailed design into the final landscape design. Indicative species lists are detailed in the Landscape and Ecology Management Plan [APP-193] in the first iteration Environmental Management Plan [APP-184]. The proposed species composition would reflect the species typical of Perry's Wood and other ancient woodlands in the local area, although not ash due to the prevalence of ash dieback in the area. The maintenance and management of this area of habitat would be the responsibility of National Highways. Monitoring of the establishment of newly created habitat to offset impacts to Perry's Wood ancient woodland would be undertaken as per commitment BI14 of the

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			Register of Environmental Actions and Commitments [APP-185] within the first iteration of the Environmental Management Plan [APP-184]. As per paragraph 9.12.3 of Chapter 9 of the Environmental Statement [APP-076] the purpose would be to ensure habitats are establishing as desired and to make recommendations for alterations to management regimes where required. Management of the newly created habitat to offset impacts to Perry's Wood would be secured through commitment LV18 of the REAC [APP-185], a five-year aftercare period as outlined within the Landscape and Ecology Management Plan would be established for all soft environmental features of the proposed scheme. The long-term management, maintenance and monitoring of the soft estate would pass to National Highways.
100.	ExA – Hunter	What discussions have taken place with stakeholders to agree this approach?	With respect to Perry's Wood, Natural England have agreed issues relating to ancient woodland for the proposed scheme subject to the Applicant adhering to Natural England's standing advice with respect to ancient woodland, although they have not provided specific feedback on the mitigation for Perry's Wood. The Applicant has complied with this standing advice. Natural England have commented within their response to ExQ1 that it is not within Natural England's remit to comment on specific LNR/LWS sites. In paragraph 13.12 of their Local Impact Report, Colchester City Council welcome the proposed offsetting habitat.

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101	ExA	Requested an update on protected species licensing	The presence of 3 protected species has been identified and appropriate species licences have been sought / obtained as follows: 1. Great Crested Newts: an 'Impact Assessment and Conservation Payment Certificate' with Natural England to use District Level Licensing; the certificate was countersigned by Natural England on 23 March 2022. 2. Badgers: a letter of no impediment (LONI) was issued by Natural England on 17 January 2023. 3. Bats: following consultation with Natural England, a revised application for a bat licence is now ready for submission, taking into account a brown long-eared bat roost with the potential to be affected by severance. The Applicant is working with Natural England to secure the LONI with respect to bats.
102	Andrew Harding – Messing	No-one has scoped out that Messing has 14 species of protected bird within 5 miles, several species of bats in local church. Habitat for birds and bats will be severely impacted. No-one has looked at messing because we are outside the limits of investigation. There are 5 red kits, otters – we are very concerned. Just because we are outside assessment doesn't mean there will not be dramatic impacts cumulative, collateral.	The ecological survey buffers were set out in the scoping report and Preliminary Environmental Information Report (PEIR), and have been agreed with key stakeholders. The purpose of survey buffers are to effectively agree the zone of influence for each receptor (the extent of likely impacts). Any individual animals beyond the zone of influence and survey buffer would be unaffected by the proposed scheme. Details are provided within Appendix I of the Scoping Report (available on the planning inspectorate's webpage https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010060/TR010060-000006-A12%20-%20Environmental%20Scoping%20Report.pdf), within a table setting out the different survey buffers for each species. Survey buffers were determined based on best practice and shared with key stakeholders such as Natural England, the local authorities and the local wildlife trust who were given opportunity to comment. This was repeated in the PEIR. Messing is 1.6 km from the nearest part of the Order Limits. The widest survey buffer for any species is 1.5km for barn owls. Messing therefore falls outside the zone of influence for all species assessed as part of the proposed scheme.

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			Although it is acknowledged birds and bats are relatively mobile species, any effects caused to animals which reside in Messing but use the habitats within the proposed scheme would have been captured as part of the assessment of impacts for animals within the Order Limits. For example, the baseline surveys undertaken for bats included surveys to record bats which forage and commute within the Order Limits regardless of the roost location.
103.	Sue Hooton – Essex CC ecologist	Barbastelle bats (REP-2.32) – would like to know when information from the Applicant will be available.	The Applicant shared a figure showing barbastelle bat activity with Essex County Council during a meeting on 26 May 2022 and have noted from the Local Impact Report that there is still interest in that issue. The Applicant has therefore formally submitted the figure as an appendix to our response to Essex County Council's Local Impact Report (para 8.3.34 - 8.3.42) at Deadline 3. The response to para 8.3.34 - 8.3.42also contains detailed information on barbastelle and Nathusius' pipistrelle which is hoped will be of use to the County Council.
104.	Mark Woodger – Essex	Absence of mention of 'enhancement' and 'gain'. 10% biodiversity net gain is not referred to in the chapters	Table 9.3.2 within section 9.13 of Chapter 9 Biodiversity [APP-076], shows that the proposed scheme will result in a net gain of 25% for habitats, 36% for hedgerows and 157% for rivers and ditches, which is well in excess of the 10% requirement. It should be noted that biodiversity net gain is not currently a legal obligation that NSIPs must abide by. The application of the BNG requirements for NSIPs is currently under consultation and is not expected to come into effect until November 2025. Enhancement measures for the proposed scheme are set out in paragraph 9.10.116 to 9.10.121 of Chapter 9 of the Environmental Statement [APP-076].

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105.	James Carr – Env Agency	Mitigation hierarchy – we have huge concerns regarding rivers. A road scheme is all about corridors for people. There is a risk that this road scheme will build a wall across huge numbers of rivers and exclude the passage of wildlife up and downstream. We need to do better than this. Would like to see much greater ambition. BNG figure for streams and rivers has been combined (against guidance). It is noted in the ES, but is incredibly low. Proposed culverts will have huge impacts on water biodiversity. We do not understand why DMRB has not reviewed the damaging impacts of previous schemes. No consideration has been given to this. Why not use clear span bridges instead of culverts? Mitigation proposed for this scheme adds meanders downstream, but does not look at the location where the problem is created. We would consider it	In light of that fact that water and drainage were not on the agenda of this Issue Specific Hearing, a water specialist was not present at the hearing. The issue being raised by the Environment Agency is in relation to the use of culverts, instead of clear span bridges. The Applicant has explained why culverts have been selected in their response to the Environment Agency's Written Representation (sub-question REP2-053-004) and is summarised below. For the online widening culverts, alternatives could not be provided without creating significant and lengthy delays to the existing A12 traffic. This would require the full excavation of the existing carriageway in a staged approach and because of the online nature of the road alignment, no temporary alternative route could be easily provided whilst this was undertaken. For the new proposed Rivenhall Brook crossing, a clear span alternative is not considered feasible due to the amount of clearance between the culvert soffit/water level and the finished road level. Based on the current culvert design, this would be less than 2m, and likely less for a clear span option, which would further reduce light ingress, negating the perceived benefits of providing a wider structure and also requiring significantly higher material investment. With respect to the new proposed Domsey Brook culvert, a clear span alternative would need to be of disproportionate width to the size of the watercourse itself (which is approximately 3m) in order to accommodate the existing bank profile. As well as requiring significantly more material investment compared to the current design, the structure would be more complex to construct and would present a greater risk of contamination to the watercourse during construction due to the need for it to be delivered online rather than offline. Conversations with the Environment Agency in relation to drainage design are ongoing, and the Applicant will update the Examining Authority on the progress of those discussions in due course.

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		ludicrous to separate off a road above the scheme in this way.	It should be noted that our approach to biodiversity net gain for rivers and streams/ditches is in line with guidance and the combination of these is a quirk of the metric as opposed to anything the Applicant has control over. As stated in our response to the Environment Agency's written representation (sub question reference REP2-053-012) it is accepted that rivers and drainage ditches are unique to one another. However, Metric 3.0 is designed to include both rivers and ditches in the rivers and streams metric, rather than separating them. They are both individual habitat types in the rivers and streams metric and distinctiveness multipliers are assigned as such to account for that. There is no statement in the user guide for Biodiversity Net Gain Metric 3.0 suggesting to separate those habitat types defined as 'other river and stream' and those defined as 'ditches' into separate metrics. Therefore, to do so would deviate from the methodology for assessing biodiversity units in the rivers and streams metric.
AGENDA ITEM 6 (continued) – GEOLOGY AND SOILS			
	ExA	The Examining Authority proposed that the issue of borrow pits was addressed at a later date.	Please see the Applicant's Response to Compulsory Acquisition Hearing Ref: 28 and 29 for responses covered in the hearing.

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106.	ExA	Approach toward the use of agricultural land	This response draws on submissions already provided to Relevant Representations, particularly RR-184 Natural England in the Applicant's response at REP1-002. The Applicant has sought to minimise the impact on agricultural land in 2 principal ways: **1. Limiting land-take from agricultural land** The potential impacts of the proposed development on agricultural land, including that which is classed as Best and Most Versatile (BMV), has been considered throughout the development process. It has been a consideration when assessing potential impacts of route options as detailed in Chapter 3 (Assessment of Alternatives) of the ES [APP-070] and the direct land-take impacts are quantified in Chapter 13 (Population and Human Health) of the ES [APP-080]. The area of BMV land lost to the proposed development is quantified in Chapter 10 (Geology and Soils) of the ES [APP-077]. In designing the scheme there has been consideration of the need to reduce as far as is practicable the land-take from agricultural land. For example, paragraph 10.10.2 of Chapter 10 [APP-077] of the ES states that embedded mitigation has consolidated development footprints to reduce the loss of agricultural land, such as reducing the length of the offline bypass between junction 22 and junction 23. **2. Protecting the agricultural capability of permanently acquired land and land temporarily possessed** Where land is identified as being permanently acquired, this includes approximately 55.8ha of agricultural land temporarily acquired with permanent access rights for maintenance and of this, approximately 24.0ha would be BMV land. It is expected that the 55.8ha of land temporarily acquired with permanent rights and the 84.5ha of land temporarily acquired with no acquisition of permanent rights would have the potential to be returned to agriculture although there may be some restrictions on agricultural use on 55.8ha. However, this future use as agriculture would be determined by the owner/occupier of the land to be returned post-construction.

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			Paragraph 10.10.5 (bullet 18) of Chapter 10: Geology and soils [APP-077] states that 'Where land is to be reinstated to its former use, such as for agricultural restoration, soils would be reinstated to their pre-disturbance depths and quality as far as practicable, with reference to the Soil Resource Plan'. It is considered that the measures contained within Section 10.10 of Chapter 10: Geology and soils [APP-077] and the Soil Handling Management Plan (forming Appendix M of the first iteration Environmental management Plan (EMP) [APP-197]) would ensure that BMV agricultural land would be restored back to its original quality as far as is practicable. A commitment will be made within the second iteration Environmental management Plan to restore BMV agricultural land back to its original Agricultural Land Classification (ALC) grade, where the land is known to be returned to agricultural use post-construction (Soil Handling Management Plan (forming Appendix M of the first iteration Environmental management Plan (EMP) [APP-197])). The Applicant would restore the soils and land in essential mitigation areas to conditions that could support BMV agricultural land in the future as far as practicable, taking into account requirements for the operational land use (e.g., tree planting), the overall cut-fill balance, and providing that this does not compromise the essential mitigation. This would be considered further during design development and the approach would be set out in the Soil Resource Plan committed to in paragraph M.5.1 of the Soil Handling Management Plan [APP-197]. Borrow pits would be restored in accordance with Minerals Planning Practice guidance. However, the final landform would not in all cases support BMV capability within the borrow pit areas given that the borrow pits would be excavated to maximum depths of approximately 4m to 17m below existing ground level and the current earthworks volume deficit does not support reinstating the borrow pits back to original ground levels. The locations and purpose of borrow pits are as detailed in Table 2.10 in Chapter 2: The proposed scheme, of the Environmental Statement [APP-069] and borrow pit restoration is described in paragraphs 2.6.95 to 2.6.99. The Environmental Masterplan, Figure 2.1 of the Environmental Statement [APP-086 (sheets 6 and 7), APP-087 (sheets 11, 12 and 13) and APP-088 (sheet 14)] shows indicative borrow pit

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			restoration proposals, in line with the borrow pit restoration design principles [APP-278], section 4. Further mitigation in relation to agricultural land is provided in the REAC (Appendix A to the First Iteration Environmental Management Plan) [APP-185] at references GS6 (soil mtg plan), PH2 and PH3. The Examining Authority is also directed to the Applicant's response to WQ 10.0.3 in relation to biosecurity of soils in its responses at [REP2-025].
107.	Andrew Harding	If preserving best soil, why build a new stretch of road, rather than alter the existing road? How is this compatible with the disruption of land?	This question relates to alternatives – a point which we have previously addressed in the Case for the Scheme [APP-249] and Environmental Statement – Chapter 3: Assessment of Alternatives [APP-070]. This is summarised in Ref: 3 above.
AGENDA ITEM 6 (continued) – LAND USE			
108.	Essex CC – Shirley Anglin (PROW lead)	The Applicant has mostly addressed severance of historic routes, and the Council's PROW team pleased with this. None of WCH overbridges designated in line with LTN 120. Zig zag ramps are problematic for cyclists and horse riders. Essex	Responses to Written Questions relating to Wood End Bridge have already been given [REP2-025]. In respect of design structures safeguarding access for equestrians, the Applicant has taken a forward outlook of 120 years. Where connecting routes are bridleways the Applicant has reflected that and provided a design for all bridleway users. An example is the Paynes Lane bridge. Bridges crossing the A12 with no bridleway connection are not yet bridleways but are nonetheless all future-proofed for equestrian use (with a higher parapet) with the exception of the Marks Tey replacement bridge.

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		have made comment on this in LIR. Accessibility for disabled users must be considered. All bridges must provide for horses, regardless of onward route. Rights of way improvement scheme. Footpath 30, footpath 19 should both be designated as bridleways. NPSNN 5.184 mitigation measures on PROW should include all 3 groups in design of overbridges.	The Applicant recognises the aspiration for many more WCH routes, but the proposals put forward already represent a substantial improvement and are therefore considered a reasonable provision. The Applicant has no power to designate wider routes beyond order limits as bridleway and responsibility for such improvements must remain with the County Council. Regarding comments about designation and zig-zag ramps, the Applicant's firm position is that the proposals are compliant with LTN 1/20 and recognises that Essex CC has a differing interpretation of the application of this guidance. The applicant continues to work with Essex CC, and this communication is captured within a matrix which is contained within the emerging statement of common ground [REP2-018]. The Applicant considers that macro alignment is appropriate (rather than the micro alignment or minimum radii) and notes the different types of flow structures suggested by Essex CC. The applicant expects to make minor amendments to the minimum radii of these structures within requirement 10 of the DCO. Gershwin Bridge will be opened as a footbridge, but ready for upgrade to a bridleway if required because the connecting path has become a bridleway.
109	Mr Baker – residents of parts of Maldon Road	Request for location of bridge to be moved to align with Howbridge Hall Road. Could bridge start and end there?	The Applicant has submitted a Technical Note (TR01600/EXAM/9.26 Gershwin Boulevard Bridge Technical Note) at Deadline 3. The Technical Note provides reasons for the location of Gershwin Boulevard Bridge. The Note assesses the visual impact of the bridge and considers the suggested alternative location. Gershwin Boulevard Bridge would provide a new bridge for walkers to provide a safe crossing point over the A12 and address the existing severance of footpath 121_95 by the A12. Footpath 121_95 continues south and merges with Maldon Road for a short length in the vicinity of a number of premises and residences, and then onto James Cooke Wood and footpath 268_7 which runs parallel to the River Blackwater. The suggested alternative location would ultimately connect to a section of Maldon Road remote from any built-up area, and no clear onward facility, and would not be

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			considered by the Applicant to provide enhancement to the existing local Public Right of Way network. Whilst the landscape and visual effects of a bridge in either location would likely be comparable, there would be greater scope for landscape and visual mitigation at the proposed location.
110.	Keith Lomax – Olivers Drive resident	Egress of bridge – poor visibility onto Maldon Road. Request for bridge to be moved south west. Asked for site visit to extend to Gershwin Boulevard.	The Applicant has submitted a Technical Note (TR01600/EXAM/9.26 Gershwin Boulevard Bridge Technical Note) at Deadline 3. The Technical Note provides reasons for the location of Gershwin Boulevard Bridge, assesses the visual impact of the bridge and considers the suggested alternative location. The proposed bridge would provide access to the proposed replacement land that would form open space. This would connect directly to Maldon Road in the vicinity Olivers Bridge and provide circular routes on existing footways adjacent to James Cooke Wood and to either the Witham Rail Trail via Blue Mills Hill or back into Witham along Maldon Road. Regarding the comments made about the visibility onto Maldon Road, in the last five years, up to June 2021, there have been two crashes where slight injury was reported in the vicinity of the southern end of footpath 121_95. Whilst the Applicant sees potential merit in the creation of a new footpath west of the proposed bridge as indicated by the Interested Party, footpath 121_95 south of the A12 serves an area of Maldon Road with a number of premises and residences. The suggested route west of the bridge would ultimately connect to a section of Maldon Road remote from any built-up area, and no clear onward facility, with the accident record of Maldon Road the junction of Howbridge Hall Road and Maldon Road in the last five years, up to June 2021 indicating one crash where severe injury occurred, holistically that route would not be considered by the Applicant to provide enhancement to the existing local Public Right of Way network

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			Whilst the landscape and visual effects of a bridge in either location would likely be comparable, there would be greater scope for landscape and visual mitigation at the proposed location.
111	Catherine Evans (Chairman of local access forum)	Speaking in support of bridge from Gershwin Boulevard. Necessity to demolish Wood End bridge – would like to see its retention for walkers. North side of Witham cut off by Network Rail, so lack of crossing for walkers is important. Cyclists going to Hatfield Peverel station – Duke of Wellington roundabout problem (D2 submission confirms Ms Evans' proposal).	The Applicant welcomes the support for this structure, which will reduce historic severance and improve PRoW networks. The aspiration for retention of Wood End Bridge is noted, but this structure must be demolished to accommodate widening of A12. With the proposed scheme, a replacement structure at that location would only provide connection between Witham and Latney's Boarding Kennels and the adjacent Public Footpath 90_29. The level of potential usage cannot justify an additional replacement structure and therefore it is proposed that users could travel via J21. Multiple new and existing bridges will provide for those from north Witham crossing of A12, including J21; Gershwin Boulevard; Oliver's Bridge; Benton Bridge; Brain Bridge and Little Braxted Bridge (Ref: Streets, Rights of Way and Access Plans The Applicant has considered routing for cyclists from Witham into Hatfield Peverel. The Applicant is aware that there are no existing off-carriageway cycling facilities east of the proposed cycle track proposed as part of the Wellington Bridge replacement, but acknowledges that enhancement to provide a safe crossing of Wellington Bridge to would be welcome and is working with Essex County Council to provide a safe crossing from Wellington Bridge to facilitate onward cycling routes on carriageway.

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112	Braintree District Council	1. support WCH bridge at Gershwin Boulevard. 2. Echo Ms Evans point regarding Wood End Bridge (significant diversion for existing users). 3. Planning application on Eastways industrial estate seeks to link to existing footpath on north of A12. Ongoing discussions to create a link in detailed design. IT may need to be noted in DCO that modifications will be used. Will submit additional documentation to the Exam.	1. The Applicant welcomes the support for Gershwin Bridge. 2. Regarding Wood End Bridge, the previous item explains the reason for the omission of a replacement. 3. Whilst the applicant will consider the Council's point regarding a new proposal for a potential new line if details are provided to the applicant by the District Council, . It cannot be expected that the Applicant provide for proposed schemes it had no knowledge of when the application for development consent was made. Further the proposed scheme is a material consideration for the District Council when considering development control proposals. The District Council should not seek applicants for planning permission to create new public rights of way that would conflict with the proposed scheme.