

# The Network Rail (East West Rail Bicester to Bedford Improvements) Order

Technical Note – Draft Policies SA2 and SE2  
Cumulative Impact Assessment

Network Rail

February 2019

# Contents

<b>Section</b>	<b>Page</b>
<b>1. Introduction</b>	<b>3</b>
<b>2. Exclusion from the Environmental Statement</b>	<b>3</b>
<b>3. SA2 and SE2 Cumulative Impact Assessment</b>	<b>4</b>
3.2 Relevant planning applications	4
3.3 CIA assumptions	5
3.4 Potential cumulative effects	6
3.5 Potential significant residual cumulative effects	7
<b>Appendix A - SA2 and SE2 Cumulative Impact Assessment</b>	

# 1. Introduction

- 1.1.1 The objection submitted by Central Bedfordshire Council (CBC) (OBJ/241) and corresponding Proof of Evidence comment on the omission of draft Policies SA2 and SE2 from the Cumulative Impact Assessment (CIA) reported within the Environmental Statement (ES) submitted as part of The Network Rail (East West Rail Bicester to Bedford Improvements) Order (the Order) on 27<sup>th</sup> July 2018.
- 1.1.2 OBJ/241 states (point 10):  
*“We draw attention to the above policies as ‘reasonably foreseeable future projects’, deserving of inclusion in the drafting of the Order. As a minimum, the SA2 and SE2 strategic allocations must be considered, given they inform the future assessment scenario within which EWR will operate.”*
- 1.1.3 These referenced draft policies were first put forward in the CBC Draft Local Plan published in July 2017 for formal consultation. Both proposed policies were subsequently included within the CBC Local Plan (2015 to 2035) submitted to government on 30 April 2018 for examination. This plan is subject to an independent examination by a Planning Inspector and is therefore yet to be adopted and subject to change. The draft policies are outlined below:
- Draft Policy SA2 Marston Vale New Villages: set out a new strategic land allocation for 4 new villages comprising 5000 new dwellings and a minimum of 40 hectares of employment land in the Forest of Marston Vale. These new settlements are reliant on connectivity provided by East West Rail improvements.
  - Draft Policy SE2 M1 Junction 13 Marston Gate: Expansion of the employment site (up to 35 hectares). This site will need to make the most of improvements at Ridgmont station in order to meet sustainability objectives.
- 1.1.4 No planning applications have been granted for either of the sites allocated within draft Policy SA2 or SE2.
- 1.1.5 This technical note sets out the reasons draft Policies SA2 and SE2 policies were excluded from the CIA reported within the ES and provides a high-level assessment of the potential cumulative effects between EWR2 and proposed development at draft Policies SA2 and SE2.

# 2. Exclusion from the Environmental Statement

- 2.1.1 The inter-project CIA reported within Chapter 15 of the ES (Volume 2i, Project-wide), considered the impacts arising between EWR2 and other relevant developments expected to come forward within similar timeframes and fulfilling certain criteria, as understood at the time of undertaking the assessment. The broad scope and methodology of this CIA was first outlined in the Scoping Report (Appendix 1.1, Volume 3 of the ES) submitted to the DfT on 30th June 2015.
- 2.1.2 The inter-project CIA considered the impacts of EWR2 in the context of the list of reasonably foreseeable future projects (RFFPs). The production of this RFFP list comprised two phases; the RFFP long-list and the RFFP short-list. The methodology for compiling these lists is set out in Section 15.4 of Chapter 15 of the ES (Volume 2i, Project-wide).
- 2.1.3 The CIA reported within the ES is based on the RFFP short-list as set out in Appendix 15.1, Volume 3 of the ES. Network Rail consulted the EWR Consortium on the RFFP short-list in December 2017 and a further review and update was completed in February 2018, taking EWR Consortium comments into consideration. This included reviewing adopted and emerging Development Plan projects from minerals and waste policy documents; and adding a small number of named development projects at the request of

the EWR Consortium. No comments were received requesting the inclusion of draft Policy SA2 or Policy SE2 from Central Bedfordshire Council, a member of the EWR Consortium. The RFFP short-list was subsequently fixed in March 2018 and formed the CIA for EWR2 reported within the ES.

2.1.4 As draft Policies SA2 and SE2 were at an early stage of site consideration they were not included within the RFFP short list for the following reasons:

- Local plan policies were considered where there was 'planning certainty'. In this situation there was too much uncertainty on sites coming forward from the CBC Draft Local Plan. The plan showed broad options for growth, but stated that further work would be required to determine the total number of new houses required and to decide on the right places to accommodate this growth. This is highlighted by the fact that draft Policies SA2 and SE2 were identified amongst other sites that were subsequently not taken forward.
- There was too little information on the allocations to conduct a meaningful CIA.

2.1.5 It is acknowledged that since the RFFP short-list was fixed, additional developments and policy allocations (including draft Policies SA2 and SE2) have and will continue to progress within the planning process to the point that cumulative impact assessment will be required. For such future projects, the responsibility to assess and mitigate potential cumulative effects with EWR2 sits with the developer/applicant. This is reinforced by the fact that the allocation and delivery of many of these future projects is dependent on the benefits of EWR2 and therefore, require the delivery of this project first. Proposed development allocations associated with draft Policies SA2 and SE2 would be supported by the EWR2, which would make access to these locations via public transport more easily achievable during operation. It is noted that in some areas land may be required from within the draft Policy SA2 area in order to construct EWR2. Given the overall area of the draft allocation these land requirements are considered modest.

## 3. SA2 and SE2 Cumulative Impact Assessment

3.1.1 As detailed above, Network Rail is confident the CIA reported within the ES has been undertaken in line with best practice and the cumulative impacts of the scheme have been reported and mitigated where necessary. Nevertheless, to demonstrate that the cumulative impacts between EWR2 and draft Policies SA2 and SE2 have been considered a high-level assessment has been undertaken. This assessment considers the potential for significant cumulative effects between EWR2 and proposed development associated with the draft policies during both construction and operational phases.

### 3.2 Relevant planning applications

3.2.1 Following the RFFP short-list was fixed in March 2018, a planning application was submitted on 25<sup>th</sup> May 2018 for a proposed development on the site allocated within draft Policy SA2. Details are outlined below:

- Outline planning application (CB/18/01969/OUT) for a mixed-use development including up to 5,000 homes and up to 30 hectares of employment land
- The outline application was submitted on 25 May 2018 by O&H
- This outline application is yet to granted, with a decision still pending

3.2.2 Several documents were submitted as part of this application, including an ES reporting the EIA undertaken for the development. These documents have been utilised to conduct this assessment.

## 3.3 CIA assumptions

### Scope of development - SA2 and SE2

- 3.3.1 This CIA assumes the delivery of the development as set out within draft Policy SA2 and SE2 of CBC Local Plan (2015 to 2035). The following has therefore been assessed:
- SA2: mixed-use development comprising of up to 5,000 dwellings and a minimum of 40 hectares of employment land. The employment land is intended for B1, B2 and B8 uses, specifically for employment relating to research and development, office, distribution, services and tourism.
  - SE2: provision of up to 35 hectares of new employment land and 8ha of screening and landscaping; deliver a mix of uses including B8 warehousing and distribution with associated B1 uses, A3 food and drink uses and a lorry park; facilitate necessary mitigation and improvements to the A507 and M1, including M1 Junction 13, to ensure the site is well connected to the strategic transport network.

### Scope of development - EWR2

- 3.3.2 This CIA assumes the delivery of the proposed development as detailed within The Network Rail (East West Rail Bicester to Bedford Improvements) Order was submitted to the Secretary of State for Transport on 27 July 2018 and displayed on Scheme Drawings, Volume 4 of the ES. Draft Policies SA2 and SE2 are situated within Route Section 2D. The proposed scope of EWR2 works within Route Section 2D is summarised below.

### Construction

- 3.3.3 There are no track works proposed in Route Section 2D. There are no earthworks required in Sections 2D except those associated with construction of new structures. Existing earthworks associated with the railway itself are to be retained.
- 3.3.4 The construction activities within Route Section 2D include:
- Site clearance including de-vegetation at discrete locations
  - Setting out and use of construction compounds during construction
  - Construction of new crossing structures
  - Closure of level crossings and diversions of the crossing routes to existing level crossings or newly constructed/existing structures
  - New drainage works associated with new structure crossings
  - Culvert works and minor watercourse realignments associated with new structure crossings
  - Signalling and power works – localised to areas of construction activity
  - Utility diversions
  - Highways closures and diversions
  - Planting of trees, shrubs and hedgerows
  - Creation of Ecological Compensation Areas
  - Creation of Compensatory Flood Storage Areas
  - Platform extensions at Woburn Sands and Ridgmont Station
  - Demolition of two private properties, Chuffa Cottage and South View, due to the properties falling under the footprint of the new highway alignment

## Operation

- 3.3.5 There is no proposal to increase the line speed along the BBM Line. The following services are proposed within Route Section 2D with the current services shown for context.

**Table 3.1: Route Section 2D current and proposed services**

Line	Current services	Opening year services (2024) “core”	Future year services (2035) “growth”
BBM Line	<ul style="list-style-type: none"> <li>1 passenger service per hour in each direction (35 per 24 hours)</li> <li>4 freight per 24 hours</li> </ul>	<ul style="list-style-type: none"> <li>2*** passenger services per hour in each direction (70 per 24 hours)</li> <li>4 freight per 24 hours</li> </ul>	<ul style="list-style-type: none"> <li>2*** passenger services per hour in each direction (72 per 24 hours)</li> <li>6 freight per 24 hours</li> </ul>

\*\*\*One of these passenger services per hour crosses from the BBM line to the BFO Line.

- 3.3.6 Freight trains may operate on the railway throughout the day or night and have been assessed as such in the EIA. The operating hours of the assumed timetable take into account passenger timetables on the wider railway network, including EWR Phase 1, which is already in operation. Passenger trains tend not to operate during the early morning when demand is very low. It has generally been assumed that passenger services will end before 2am and resume between 5am and 6am, with the busiest periods being the morning and evening rush hours.
- 3.3.7 Maintenance activities are required to ensure safe and effective operation of EWR2. No works are proposed during construction to change the existing or propose new maintenance infrastructure within Route Section 2D.

## Construction timeframes

- 3.3.8 As planning permission is yet to be granted for development at either draft Policy SA2 or SE2, detailed construction timeframes are not available.
- 3.3.9 Outline planning application CB/18/01969/OUT does state that:
- “If planning permission is granted, the development of the site could start in 2018 with the first houses being occupied in 2019. The development of the whole site is likely to take around 20 years to build, so would continue until 2039.”*
- 3.3.10 To ensure a worst-case assessment is reported it has been assumed that construction of both draft policies will be concurrent with construction of EWR2.

## 3.4 Potential cumulative effects

- 3.4.1 A description of the potential cumulative effects between EWR2 and SA2 and SE2 during both construction and operation is provided in Appendix A. This is set out by topic as reported in the ES.

## **3.5 Potential significant residual cumulative effects**

### **Draft Policy SA2**

#### ***Construction***

3.5.1 No significant cumulative effects are predicted during the construction of EWR2 and SA2.

#### ***Operation***

3.5.2 No significant cumulative effects are predicted during the operation of EWR2 and SA2.

### **Draft Policy SE2**

#### ***Construction***

3.5.3 No significant cumulative effects are predicted during the construction of EWR2 and SE2.

#### ***Operation***

3.5.4 No significant cumulative effects are predicted during the operation of EWR2 and SE2.

**Appendix A –SA2 and SE2 Cumulative Impact Assessment**

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
Land-use and agriculture	<b><u>Agricultural land quality</u></b>			
	<p>The land take from SA2 and SE2 within the study area has been assessed with reference to the baseline data in Chapter 6 (Land use and agriculture) Volume 2ii. This provides a worst-case assessment because the reports submitted with the planning applications for SA2 and SE2 have assessed lower agricultural land quality<sup>1,2</sup>. With the inclusion of SA2 and SE2, the cumulative permanent agricultural land take within Route Section 2D is estimated to be approximately 109 ha (an increase from 52 ha). This includes approximately 41 ha of Best and Most Versatile land from the construction of EWR2 and the RFFPs (PM7, MK18, CBE4, CBE1, CBE2, PB13, SA2 and SE2) comprising approximately 4 ha of Grade 2 land and 37 ha of Sub-grade 3a land. Approximately 67 ha is predicted to be Grade 3b land. Grade 2 land is of high sensitivity. The cumulative permanent loss of less than 20 ha of Grade 2 land is of negligible magnitude and significance. Sub-grade 3a land is of medium sensitivity. The cumulative</p>	<p><b>Construction</b>            No significant cumulative effects are predicted from construction of EWR2 and SA2 and it remains that no significant cumulative effects on agricultural land quality are predicted in Route Section 2D.</p> <p>Over the Project-wide study, the conclusion remains that significant cumulative effects are predicted due to the cumulative permanent loss of Sub-grade 3a land of over the 100 ha threshold.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SA2.</p>	<p>See assessment under SA2 column.</p>	<p><b>Construction</b>            No significant cumulative effects are predicted from construction of EWR2 and SE2 and it remains that no significant cumulative effects on agricultural land quality are predicted in Route Section 2D.</p> <p>Over the Project-wide study, the conclusion remains that significant cumulative effects are predicted due to the cumulative permanent loss of Sub-grade 3a land of over the 100 ha threshold.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SE2.</p>

<sup>1</sup> Land Research Associates (2018) Soils and Agricultural Quality of Land in Marston Vale Bedfordshire. Report 1302/2.

<sup>2</sup> Tim O'Hare Associates LLP (2018) Marston Gate Development Ridgmont, Bedfordshire Soil Resource Survey. Report TOHA/18/5332/2/LHJ.

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	<p>permanent loss of more than 20 ha but less than 50 ha of Sub-grade 3a land is of low magnitude and minor adverse significance. The cumulative permanent loss of over 50 ha of non-BMV land, of low sensitivity, is of low magnitude and minor adverse significance.</p>			
	<p><b><u>Farm Holdings</u></b></p>			
	<p>There would be a permanent cumulative land take of approximately 155.8 ha of land from Farm 2D-4 from EWR2, DCO1, DCO2 and SA2, which represents approximately 86.8% of the farm holding. The farm holding is of low sensitivity due to the large farm size. The cumulative magnitude of change is high and the significance of effect moderate adverse.</p>	<p><b>Construction</b>            Significant adverse effects are predicted from construction of EWR2, DCO1, DCO2 and SA2 on Farm 2D-4, with potential land take of 86.8% of the farm holding. EWR2 land take however, only accounts for 0.6% of the farm holding.</p> <p>The SA2 land take is well above the threshold for high magnitude of change and moderate adverse significance of effect, so the 0.6% makes no significant difference to this assessment. The overall construction impact of SA2 is therefore judged to be the same with or without EWR2,</p>	<p>There would be a permanent cumulative land take of approximately 57.9 ha of land from Farm 2D-1 from EWR2, PM7 and SE2, which represents approximately 3.2% of the farm holding. The farm holding is of low sensitivity due to the large farm size. The cumulative magnitude of change is negligible and the significance of effect negligible.</p>	<p><b>Construction</b>            No significant cumulative effects are predicted from construction of EWR2 and SE2.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SE2.</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
		<p>and there would be no cumulative impact.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SA2.</p>		
<b>Cultural heritage</b>	<p>Cultural heritage inter-project effects comprise the additive impact of land take where cultural heritage assets are affected by more than one project. These impacts, for site SA2 (Marston Vale New Villages), would include adverse effects to the setting of the Scheduled Monument Medieval village and moated sites at Thrupp End.</p>	<p><b>Construction</b>            No potential cumulative effects are identified, as any proposed development at SA2 will mitigate for their own effects on the setting of the Scheduled Monument. Consequently, it is expected that any cumulative effects on setting will be no more than minor adverse for the Scheduled Monument as reported in the ES.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SA2.</p>	<p>No predicted cumulative effects between SE2 and EWR2 relevant to cultural heritage.</p>	<p><b>Construction</b>            No significant cumulative effects are predicted from construction of EWR2 and SE2.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SE2.</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
Air quality	<p>The EWR2 baseline air quality survey results at Lidlington (2D-15-16, 18-22), represent areas of the Marston Valley development closest to EWR2. The baseline NO<sub>2</sub> concentrations in 2016 were 13 to 17 µg/m<sup>3</sup>, less than half the key AQS annual mean objective of 40 µg/m<sup>3</sup>.</p> <p><b>Construction</b>            The works in Route Section 2D are expected to be complete prior to the earliest opening year of the Marston Vale development, therefore there is not risk of cumulative dust impact of EWR2 on new receptors. There are existing sensitive receptors within 100 metres of both the Project boundary and the SA2 boundary. The risk of dust soiling associated with EWR2 around Marston is low for all construction activities (demolition, earthworks, construction and trackout). Both developments will have a suitable CEMP with appropriate measures in place to manage dust impacts such that cumulative residual effects will not be significant. An assessment of construction traffic was not presented in the EIA for Marston Vale however the construction trips are expected to interact with the EWR2 traffic study area. The traffic data used in the air quality assessment of construction traffic presented in the ES for EWR2, accounted for future growth from local developments. The traffic</p>	<p><b>Construction</b>            No significant cumulative effects are predicted during construction of EWR2 on SA2, or of SA2 and EWR2 in combination on receptors in the wider area.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SA2.</p>	<p>The EWR2 baseline air quality survey result close to Junction 13 of the M1 (2D-23), represents the southern and western extents of the Marston Gate Expansion. The 2016 annual average concentration was 29 µg/m<sup>3</sup> while Highways England and CBC measured 26 to 35 µg/m<sup>3</sup>.</p> <p><b>Construction</b>            There are no highly sensitive receptors within 100 m of both the Project boundary and the SE2 boundary. The Fruit Farm is within 20 m of the EWR2 track out route which carries just 6 HGVs per day at peak. Both developments would have a suitable CEMP in place to manage dust impacts on existing sensitive receptors in the study area. An assessment of construction traffic was not presented in the EIA for the Marston Gate Expansion however the construction trips are expected to interact with the EWR2 traffic study area. The traffic data used in the air quality assessment of construction traffic presented in the ES for EWR2, accounted for future growth from local</p>	<p><b>Construction</b>            No significant cumulative effects are predicted during construction of EWR2 on SE2 or of SE2 and EWR2 in combination on receptors in the wider area.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SE2.</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	<p>impacts during construction of EWR2 were shown in the Chapter 8 (Air Quality) Volume 2i, Project-wide of the ES not to be significant, even at the most sensitive receptor locations closest to the Construction Access Routes. On Beancroft Road, south of the junction with the A421, the estimated peak flow during the construction of EWR2 is 11 vehicles per day, a negligible increment both on its own and in combination with other cumulative development construction traffic.</p> <p><b>Operation</b>            SA2 potentially adds 5,000 new air quality sensitive receptors to the assessment area, although the plans show most of these would be more than 200 m from the rail track and therefore outside the air quality study area. The train services on Route Section 2D will intensify with EWR2. The air quality impacts from the more heavily trafficked line within Route Section 2B/C were assessed in the ES as slight at 50 m from the track (the closest SA2 receptor beyond the proposed vegetation barrier) and negligible beyond this distance. Given the lower volume of rail traffic compared to Route Sections 2B / C, the AQS objective for NO<sub>2</sub> will not be exceeded at new sensitive receptor locations within Marston Vale, with or without EWR2.</p>		<p>developments. The traffic impacts during construction of EWR2 were shown in the ES Chapter 8 not to be significant, even at the most sensitive receptor locations closest to the Construction Access Routes. On Station Road, south of Ridgmont Station, the estimated peak flow during the construction of EWR2 is 16 vehicles per day, a negligible increment both on its own and in combination with other cumulative development construction traffic.</p> <p><b>Operation</b>            SE2 is employment land and the proposed industrial units are not deemed to be sensitive to rail or road emissions. The CIA for Marston Gate Expansion states the development will result in a negligible increase in HGV movements. The air quality study area for the impact of road vehicle emissions associated with EWR2 is limited to areas around key stations and would not in any case overlap with that of SE2.</p>	

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	<p>While the Marston Vale development will generate additional traffic when EWR2 is operational, the EWR2 operational traffic impact study area is limited to areas around the key railway stations along the route where traffic flows may increase. The effects on air quality in these areas were shown in the ES not to be significant, even at the most sensitive receptor locations. The effects at SA2 are deemed to be negligible.</p>			
<b>Ecology</b>	<p><b>Construction</b>            SA2 lies adjacent to EWR2 construction works at Lidlington and Marston Road crossing. The construction activities relating to EWR2 at this location are limited to improvements to existing infrastructure, creation of flood storage and an Ecological Compensation Site.</p> <p>With the exception of barn owl, no significant residual effects on important ecological features are anticipated as a result of the construction of EWR2. EWR2 is likely to result in a negative residual effect on barn owl, significant at a Local scale, due to the potential impact of loss or disturbance of breeding/roost sites. No significant effects on barn owl are identified in the SA2 ES.</p> <p>During construction, SA2 identifies potential short-term impacts to important ecological features such as otter on Elstow Brook,</p>	<p><b>Construction</b>            No significant cumulative effects are predicted from construction of EWR2 and SA2.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SA2.</p>	<p><b>Construction</b>            SE2 lies approximately 150 m east of the construction works at Ridgmont Station. There are no construction works directly adjacent to SE2.</p> <p>With the exception of barn owl, no significant residual effects on important ecological features are anticipated as a result of the construction of EWR2. EWR2 is likely to result in a negative residual effect on barn owl, significant at a Local scale, due to the potential impact of loss or disturbance of breeding/roost sites. Taking into account the distance between EWR2 and SE2 and the localised nature of the construction at Ridgmont Station, no significant cumulative effect on barn owl or</p>	<p><b>Construction</b>            No significant cumulative effects are predicted from construction of EWR2 and SE2.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SE2.</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	<p>breeding birds (due to temporary loss of habitat) and bats (potential loss and disturbance to roosts). The construction works associated with EWR2 are localised, and not as extensive as SA2. Both SA2 and EWR2 propose measures to mitigate impacts on and protect important ecological features throughout construction. No significant cumulative effects are identified.</p> <p><b>Operation</b>            EWR2 identified potential negative effects on two important ecological features, <i>Myotis</i> bats and barn owl, due to potential for incidental collision with trains.</p> <p>SA2 does not lie near to any known EWR2 crossing points for <i>Myotis</i> bats. The SA2 ES concludes there will be no significant effect on bats post-construction due to mitigation measures proposed to protect bats along new transport corridors. There is no specific assessment relating to barn owls. However, no significant effects on breeding birds is identified in the SA2 ES.</p> <p>Whilst the EWR2 assessment identifies effects on <i>Myotis</i> bats and barn owl, this assessment does not change when the SA2 development effects are taken into consideration.</p>		<p>other ecological features are identified.</p> <p><b>Operation</b>            EWR2 identified potential negative effects on two important ecological features, <i>Myotis</i> bats and barn owl, due to potential for incidental collision with trains.</p> <p>SE2 does not lie near to any known crossing points for <i>Myotis</i> bats. SE2 is a commercial/employment development, with proposals for a lorry park adjacent to the operational railway and it is not anticipated that this would have additional impacts to bats or barn owl during operation of both projects. No cumulative effects are identified.</p>	

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
Noise and vibration	<p><b>Construction</b>            SA2 potentially adds 5000 new noise sensitive receptors to the assessment area, however most of these would be more than 300m from the track and therefore outside the noise study area.</p> <p><b>Operation</b>            There are train services on this line already which are set to intensify with due to EWR2. The noise impacts in Section 2D are shown to be predominantly negligible, with a small number of minor impacts.            It is expected that the layout and design of the proposed dwellings would take the existing and future railway noise levels into account with any appropriate mitigation or design features. Should new dwellings within 300m of the line be occupied before EWR2 starts operating they would have negligible or minor noise impacts, but these should be taken account of in the design of the development.</p> <p>To assess noise and vibration associated with cumulative operational traffic, traffic model data was provided by the relevant local authorities. This data accounts for potential growth from Local Plan sites and external areas. Any traffic generated by SA2 within the EWR2 operational assessment area has therefore been accounted for within</p>	<p><b>Construction</b>            Assuming any proposed development within site SA2 implements appropriate measures to manage construction noise and vibration, no significant cumulative effects are predicted during the construction of EWR2 and SA2.</p> <p><b>Operation</b>            Within the ES for EWR2, significant adverse night time effects are reported at a few properties in the vicinity of SA2 due to increased rail traffic along the line. The changes at these properties are however negligible or minor and mitigation is not proposed.</p> <p>Additionally, the traffic impact would be no worse than already assessed, and therefore there would be no worsening of traffic noise impacts from considering this development cumulatively.</p>	<p><b>Construction</b>            SE2 is employment land, so this would not introduce any new noise sensitive receptors to the assessment.</p> <p><b>Operation</b>            To assess noise and vibration associated with cumulative operational traffic, traffic model data was provided by the relevant local authorities. This data accounts for potential growth from Local Plan sites and external areas. Any traffic generated by SE2 within the EWR2 operational assessment area has therefore been accounted for within the cumulative assessment contained within the ES.</p>	<p><b>Construction</b>            Assuming any proposed development within site SE2 implements appropriate measures to manage construction noise and vibration, no significant cumulative effects are predicted during the construction of EWR2 and SE2.</p> <p><b>Operation</b>            There would no noise consequences from the cumulative effects of this development.</p> <p>Additionally, the cumulative traffic impacts are no worse than EWR2, so there would no noise consequences from the cumulative effects of this development.</p> <p>No significant cumulative effects are predicted during the operation of EWR2 and SE2.</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	the cumulative assessment contained within the ES.	No significant cumulative effects are predicted during the operation of EWR2 and SA2.		
<b>Geology, soils and land contamination</b>	<p>This development will be a potential receptor during the construction and operation of the EWR2 Project within Route Section 2D. In addition, there are several potential sources of contamination located within the proposed footprint of the Marston Valley site including the former Brogborough Hill Sand Pit and Marston Clay Pit (historical landfill), and several former brick works and clay pits. The contaminated land risk from EWR2 to receptors on and off site will be assessed within the generic quantitative risk assessment (GQRA) for Route Section 2D including production of a conceptual site model (CSM). This GQRA assessment and CSM will identify the risk to receptors including off site development and a remediation strategy will be written to identify and mitigate these risks.</p> <p>As no works are proposed to the track in Route Section 2D and works to structures will only be undertaken at discrete locations, limited ground excavation will be undertaken along Route Section 2D. Mitigation and control measures will be adopted during the construction of EWR2 in areas of excavation as outlined in the Construction Code of</p>	<p><b>Construction</b>            No significant cumulative effects are predicted from construction of EWR2 and SA2.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SA2.</p>	See assessment under SA2 column.	<p><b>Construction</b>            No significant cumulative effects are predicted from construction of EWR2 and SE2.</p> <p><b>Operation</b>            No significant cumulative effects are predicted during the operation of EWR2 and SE2.</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	Practice (CoCP) (Appendix 2.1, Volume 3 of the ES). Also material management of excavated soil will be managed in accordance with a Materials Management Plan (MMP) in accordance with the Voluntary CL:AIRE Definition of Waste Code of Practice. The Marston Valley development will be subject to the National Planning Policy Framework (NPPF) and will require mitigation and control measures to be adopted during the construction to reduce impacts to the environment from that development.			
<b>Landscape and visual impact</b>	<p><b><u>Landscape</u></b></p> <p>Marston Vale New Villages would be situated in the North Marston Clay Vale (Central Bedfordshire Section) landscape character area (LCA). During construction, EWR2 significance of effect on this LCA will be slight adverse. If construction phases overlap there would be a further increase in construction activity in the area. There would be a greater loss of trees and other landscape elements with resultant effects on landcover. There would be potential for adverse effects on landscape due to introduction of additional intrusive and urbanising elements and an increase in activity and movement and a loss of green infrastructure.</p>	<p><b>Construction</b></p> <p>Construction effects of SA2 are predicted to be significant due to the scale of the development and relatively high proportion of land use being changed. Due to the minor scope of additional EWR2 infrastructure within the vicinity of SA2, the overall construction impact of SA2: Marston Vale New Villages is judged to be the same with or without EWR2, and there</p>	<p>The majority of SE2 is located in the Aspley Clay Vale landscape character area (LCA). During construction EWR2 significance of effect on this LCA will be slight adverse. If construction phases overlap there would be a further increase in construction activity in the area. There would be a greater loss of trees and other landscape elements with resultant effects on landcover. There would be potential for adverse effects on landscape due to introduction of additional intrusive and urbanising elements and an increase in activity and</p>	<p><b>Construction</b></p> <p>Construction effects of SE2 are predicted to be slight to moderate adverse due to scale of the development and relatively high proportion of land use being changed.</p> <p>Due to the minor scope of additional EWR2 infrastructure within the vicinity of SE2, the overall construction impact of SE2 is judged to be the same with or without EWR2, and</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
		<p>would be no cumulative landscape impact.</p> <p><b>Operation</b>            During operation, EWR2 significance of effect on this LCA will be neutral but the effect arising from SA2: Marston Vale New Villages will be significant.</p> <p>Due to the minor scope of additional EWR2 infrastructure within the vicinity of SA2, the overall operation impact of SA2: Marston Vale New Villages is judged to be the same with or without EWR2, and there would be no cumulative landscape impact.</p>	<p>movement and a loss of green infrastructure.</p>	<p>there would be no cumulative landscape impact.</p> <p><b>Operation</b>            During operation, EWR2 significance of effect on this LCA will be neutral but the effect arising from SE2: M1 Junction 13 – Marston Gate Expansion will be slight to moderate adverse due to the scale of change within the LCA.</p> <p>Due to the minor scope of additional EWR2 infrastructure within the vicinity of SE2, the overall operation impact of SE2 is judged to be the same with or without EWR2, and there would be no cumulative landscape impact.</p>
	<b>Visual</b>	<p>The nature of change from SA2: Marston Vale New Villages during construction would result in additional impacts on existing visual receptors along the northern edge of Lidlington. Whilst the visual impacts of EWR2 would be closer to some receptors,</p>	<p><b>Construction</b>            Overall cumulative construction effects are predicted to be significant at certain receptors due to scale of the development and</p>	<p>The receptors and nature of change as a result of SE2: M1 Junction 13 – Marston Gate Expansion during construction and operation would be different to those arising from EWR2. This is due to the visual</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	<p>SA2: Marston Vale New Villages would be closer to others, visible from a greater number of properties and result in the loss of views across the surrounding countryside from public rights of way to the north of the railway corridor.</p>	<p>relatively high proportion of existing views being changed as a result of the site SA2 from residential properties to the north of Lidlington and for users of public right of way.</p> <p>Due to the minor scope of additional EWR2 infrastructure, the visual impacts of construction of SA2 are judged to be the same with or without EWR2 and there would be no cumulative visual impact.</p> <p><b>Operation</b>            In operation, SA2: Marston Vale New Villages would result in the presence of potential new visual receptors to the north of the railway corridor, the impact of EWR2 on these receptors would not be significant.</p> <p>SA2: Marston Vale New Villages would enclose views towards EWR2 from the surrounding countryside and be of greater impact than EWR2 from public rights of</p>	<p>separation created by intervening highway and motorway infrastructure with associated planting.</p>	<p>Junction 13 – Marston Gate Expansion in isolation.</p> <p><b>Operation</b>            There would be no cumulative visual effects during operation that are greater than those arising from EWR2 or SE2: M1 Junction 13 – Marston Gate Expansion in isolation.</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
		<p>way to the north of the railway corridor.</p> <p>Due to the minor scope of additional EWR2 infrastructure, the visual impacts of SA2 are judged to be the same with or without EWR2 and there would be no cumulative visual impact.</p>		
Water quality and flood risk	<b><u>Water Quality</u></b>			
	<p>Typically, new developments increase impermeable area and runoff. They can potentially cause drainage pathways to be altered and can provide an increased source of pollution to shared water receptors.</p> <p>The increase from one drainage outfall alone may not make a significant difference to the water quality of a receiving watercourse, however the cumulative effect of many outfalls, or the effects of their construction, has the potential to affect water quality across the catchment.</p> <p>However, for other projects in the vicinity, drainage strategies should be in place or proposed for these developments. These separate systems should accommodate temporary drainage requirements during the</p>	<p><b>Construction</b>            Assuming any proposed development implements a suitable construction drainage strategy and best practice measures, it is assessed that there will be no significant adverse cumulative effects during construction of EWR2 and SA2.</p> <p><b>Operation</b>            Assuming any proposed development implements a suitable drainage strategy, it is assessed that there will be no significant adverse</p>	<p>See assessment under SA2 column.</p>	<p><b>Construction</b>            Assuming any proposed development implements a suitable construction drainage strategy and best practice measures, it is assessed that there will be no significant adverse cumulative effects during construction of EWR2 and SE2.</p> <p><b>Operation</b>            Assuming any proposed development implements a suitable drainage strategy, it is assessed that there will be no significant adverse cumulative effects during</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	construction phases and appropriate mitigation that should ensure minimal impacts to water quality through construction and operational phases.	cumulative effects during the operation of EWR2 and SA2.		the operation of EWR2 and SE2.
	<b><u>Water Framework Directive (WFD)</u></b>			
	The WFD requires that any new project must not cause deterioration of the water environment. Therefore, a developer must mitigate for any effects on a surface water body.	<p><b>Construction</b> No significant cumulative effects are predicted from construction of EWR2 and SA2.</p> <p><b>Operation</b> No significant cumulative effects are predicted during the operation of EWR2 and SA2.</p>	See assessment under SA2 column.	<p><b>Construction</b> No significant cumulative effects are predicted from construction of EWR2 and SE2.</p> <p><b>Operation</b> No significant cumulative effects are predicted during the operation of EWR2 and SE2.</p>
	<b><u>Flood Risk</u></b>			
Drainage strategies are required for proposed developments, along with the appropriate level of flood risk assessment. In order to comply with planning requirements all developments must have appropriate mitigation in place and therefore will be unlikely to have significant effects on flood risk.	<p><b>Construction</b> No significant cumulative effects are predicted from construction of EWR2 and SA2.</p> <p><b>Operation</b> No significant cumulative effects are predicted during</p>	See assessment under SA2 column.	<p><b>Construction</b> No significant cumulative effects are predicted from construction of EWR2 and SE2.</p> <p><b>Operation</b> No significant cumulative effects are predicted during</p>	

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	<p>Flood risk assessments are required to consider flood risk during construction and operation and limit these to baseline wherever possible, it is therefore assessed that there will be no significant cumulative (additive) effects during construction or once operational.</p> <p>Flood risk and drainage strategies are required for all developments, to comply with Local and National planning requirements. It is unlikely that other development works in-combination with EWR2, will have significant effects on flood risk.</p> <p>A shared opportunity is being explored with the developers of SA2 to combine a Compensatory Flood Storage Area (CFSA) required for the EWR2 with an area of green infrastructure (potentially wet woodland) east of Lidlington for the development.</p>	<p>the operation of EWR2 and SA2.</p>		<p>the operation of EWR2 and SE2.</p>
<b>Traffic and transport</b>	<p><b>Construction</b>            The ES for SA2 states that that ‘a limited number of car and HV movements would usually occur during the peak hours’. Therefore, if construction occurs at the same time, the inclusion of Marston Vale (SA2) would not have a material cumulative impact over what was assessed within the submitted TA for EWR2.</p>	<p><b>Construction</b>            No significant cumulative effects are predicted during the construction of SA2 and EWR2.</p> <p><b>Operation</b>            Any traffic generated by SA2 within the EWR2 operational assessment area has been</p>	<p><b>Construction</b>            It’s anticipated that if construction of SE2 and EWR2 occurred simultaneously, EWR2 would use some of the same Construction Access Routes as those used by construction and operational traffic generated by SE. The impact of forecast EWR2 construction trips on these links is only minimal and were</p>	<p><b>Construction</b>            No significant cumulative effects are predicted during the construction of SE2 and EWR2.</p> <p><b>Operation</b>            Any traffic generated by SE2 within the EWR2</p>

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	<p>It's anticipated that EWR2 would use some of the same Construction Access Routes as those used by construction and operational traffic generated by SA2. The impact of forecast EWR2 construction trips on these links is relatively modest and therefore were not required to be included within the transport construction assessment area.</p> <p>The majority of construction traffic associated with SA2 would be generated outside of the peak hours. Links used by traffic generated by SA2 and EWR2 did not fall within transport construction assessment area and so the EWR2 ES was not required to assess junctions where SA2 would have a cumulative impact. Therefore, it is considered that regardless of the inclusion of SA2 the impact of EWR2 would be minimal, in terms of traffic and transport.</p> <p><b>Operation</b>            The nearest railway station is Ridgmont. The forecast increases in passenger trips is relatively modest (additional 69 two-way daily passenger trips in 2031, equating to 3 two-way vehicle trips in the AM peak and 2 two-way vehicle trips in the PM peak). These trips would not give rise to perceptible transport impacts on their surrounding highways.</p>	<p>accounted for within the cumulative assessment contained within the ES.</p> <p>No significant cumulative effects are predicted during the operation of SA2 and EWR2.</p>	<p>therefore not required to be included within the transport construction assessment area<sup>3</sup>.</p> <p>In addition, in planning and construction terms given the scale of the site and that a planning application has not yet been submitted, SE2 is still in its early stages. It is therefore unlikely that the site would generate significant volumes of operational trips within the EWR2 Construction Assessment Area.</p> <p>Links used by traffic generated by SE2 and EWR2 did not fall within transport construction assessment area and so the EWR2 ES was not required to assess junctions where SE2 would have a cumulative impact. Therefore, it is considered that regardless of the inclusion of SE2 the impact of EWR2 would be minimal, in terms of traffic and transport.</p> <p><b>Operation</b>            The nearest railway station is Ridgmont. The forecast increases in</p>	<p>operational assessment area has been accounted for within the cumulative assessment contained within the ES.</p> <p>No significant cumulative effects are predicted during the operation of SE2 and EWR2.</p>

<sup>3</sup> Based on IEMA guidelines for the Environmental Assessment of Road Traffic)

Topic	SA2 Cumulative Impact Assessment		SE2 Cumulative Impact Assessment	
	Assessment of potential cumulative effects	Significance of potential residual cumulative effects	Assessment of potential cumulative effects	Significance of potential residual cumulative effects
	<p>Therefore, Ridgmont Railway Station was not included within the Operational Assessment Area for the TA.</p> <p>The cumulative assessment within the TA for Bedford, Milton Keynes and Bedford Railway Stations were based on traffic model data from the relevant local authorities which account for potential growth from Local Plan sites and external areas.</p>		<p>passenger trips is relatively modest (additional 69 two-way daily passenger trips in 2031, equating to 3 two-way vehicle trips in the AM peak and 2 two-way vehicle trips in the PM peak). These trips would not give rise to perceptible transport impacts on their surrounding highways. Therefore, Ridgmont Railway Station was not included within the Operational Assessment Area for the TA.</p> <p>The cumulative assessment within the TA for Bedford, Milton Keynes and Bedford Railway Stations were based on traffic model data from the relevant local authorities which account for potential growth from Local Plan sites and external areas.</p>	