

19. Assessment of Cumulative Effects

Introduction

19.1 Cumulative effects comprise the combined effects of reasonably foreseeable human induced changes within a specific geographical area and over a certain period of time and can be both direct and indirect. The assessment of whether cumulative effects are significant or not needs to be undertaken in the context of the characteristics of the existing environment.

19.2 This Chapter reports the assessment of cumulative effects in line with the EIA Regulations¹, including Regulation 4, Paragraph 2 which states:

“The EIA must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the proposed development on the following factors—

(a) population and human health;

(b) biodiversity, with particular attention to species and habitats protected under Directive 92/43/EEC(1) and Directive 2009/147/EC(2);

(c) land, soil, water, air and climate;

(d) material assets, cultural heritage and the landscape;

(e) the interaction between the factors referred to in sub-paragraphs (a) to (d) [emphasis added]”.

19.3 In addition, Schedule 4, Paragraph 5(e) of the EIA Regulations states the need to consider the following:

“...the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources”.

19.4 Therefore, to accord with the EIA Regulations and best practice guidance, in terms of providing an assessment of cumulative effects, the following types of cumulative effects are reported in this Chapter:

- **Effect interactions:** The interaction of environmental effects of the Project for Assessment affecting the same receptor, either within the Assessment Boundary or in the surrounding area^a; and
- **In-combination effects:** The combination of environmental effects of the Project for Assessment in conjunction with / alongside environmental effects from other projects, affecting the same receptor.

^a i.e. the technical study areas as defined in **Technical Chapters 7 – 18**.

- 19.5 The assessments have focused on the Project for Assessment which includes the Proposed Scheme. This ensures that all cumulative effects are comprehensively assessed. Where there are nuances between the Project for Assessment and Proposed Scheme which are relevant to cumulative conclusions, there are clearly outlined within this Chapter.

Guidance

- 19.6 Planning Practice Guidance (PPG)² refers to the parts of the EIA Regulations noted above, which require cumulative effects to be assessed and reported as part of an ES.
- 19.7 There is no widely accepted current methodology or best practice for the assessment of cumulative effects for projects under The EIA Regulations. However, it is acknowledged that guidance on the approach to the assessment of in-combination effects for projects that fall under the Nationally Significant Infrastructure Project (NSIP) regime has been issued by the Planning Inspectorate. However, as this is focused on NSIPs, it is not necessarily applicable to all projects / sectors.
- 19.8 Given this, the methodology adopted for the assessment reported in this Chapter has been based on the principles of the Planning Inspectorate guidance, the types of receptors assessed and the nature of the Project for Assessment alongside professional judgement, drawing on previous experience and knowledge at Turley. Such an approach is considered to be proportionate and robust.

Summary of Consultation

- 19.9 An EIA Scoping Report was submitted to both Bury Council (BC) and Rochdale Borough Council (RBC) (**Appendix 2.1**) on 17th October 2024, which set out the approach and methodology to be adopted within the EIA for the assessment of cumulative effects. In addition, the EIA Scoping Report set out the list of relevant projects to be considered as part of the assessment of in-combination effects (referred to as 'Cumulative Projects').
- 19.10 A Scoping Opinion has not been received to date; however, a number of consultation responses have been received and are provided in **Appendix 2.2**. A summary of the response to these comments are provided in **Appendix 2.3**. No commentary in relation to the cumulative assessment (including on the Cumulative Projects for assessment) was included within the responses and therefore, the approach and methodology used in this Chapter broadly follows that set out in the EIA Scoping Report. However, updates have also been made following further technical analysis and evaluation, which are outlined below.
- 19.11 No further consultation with BC and RBC or other statutory agencies has been undertaken / completed during the preparation of this Chapter beyond that undertaken as part of the EIA Scoping process (**Appendices 2.1 – 2.4**) and consultations undertaken for the **Technical Chapters 7 - 18**.

19.12 Since the submission of the EIA Scoping Report, there have been a number of changes. One cumulative project^b which was being monitored has been removed as no planning application has been submitted and therefore there is insufficient information to inform an assessment. Two additional cumulative projects^c has been added due to submission of planning applications for these projects following submission of the EIA Scoping Report.

Methodology

Effect Interactions

19.13 The assessment of effect interactions has followed a two-stage process:

- Stage 1: Identification of potential effect interactions; and
- Stage 2: Qualitative appraisal.

Stage 1: Identification of potential effect interactions

19.14 Following the completion of **Technical Chapters 7 – 18**, the residual effects have been collated into a matrix so that effect interactions on common receptors^d can be identified. The matrix groups the receptors into categories, aligning with Schedule 4, Paragraph 4 of the EIA Regulations (e.g. population and human health, climate, etc).

19.15 Where a residual effect is reported in **Technical Chapters 7 – 18** to be negligible, then this was excluded from the matrix (**Table 19.2** and **19.3**). As noted in **Chapter 2: Approach to EIA**, a 'negligible' level of residual effect indicates that the effect is unlikely to cause a noticeable change at a receptor and / or the receptor is not considered sensitive to a change / impact. Given this, negligible effects when considered collectively are unlikely to give rise to effect interactions. Where effects have been identified to be unlikely and / or not significant, these have also been excluded from further analysis.

19.16 The threshold for inclusion within the matrices has also been set at a 'minor' level residual effect, as this is considered to address the potential for a number of effects that are not necessarily considered to be 'Significant' in isolation to become 'Significant' when they are considered collectively.

19.17 Where the level of effect ranged across receptors assessed, the worst case level of effect was included in **Tables 19.2** and **19.3**, i.e. the 'least beneficial' or 'most adverse'.

19.18 Where residual effects are different for the Project for Assessment and the Proposed Scheme, this has been identified within **Tables 19.2** and **19.3**. However, the

^b Land To The West Of Bamford And South Of Norden, Rochdale, planning application reference 21/01531/SCO

^c (Cumulative Project 14) Plot 4A, Heywood Distribution Park and (Cumulative Project 15) Trub Farm.

^d The common sensitive receptors considered within this assessment are those which are assessed within two or more of the technical assessments within the ES.

conclusions of the effect interactions are based on interactions with the Project for Assessment to ensure a worst case assessment of the comprehensive development.

Stage 1: Qualitative Appraisal

19.19 Where effect interactions have been identified, a qualitative appraisal has been undertaken for the relevant receptor categories. The qualitative evaluation at the receptor level considered the following:

- Clear identification of specific receptor(s) considered for each effect 'contributing' to a potential effect interaction;
- Sensitivity (or value, importance, etc.) of the receptor / receiving environment to change;
- Magnitude of change (or impact) of each residual effect;
- Duration (of the effects individually and collectively utilising the short / medium / long-term criteria set out in **Chapter 2: Approach to EIA**) and reversibility of the effect;
- If the effects are temporary and / or permanent;
- If the effects are experienced / occur concurrently or sequentially; and / or
- The geographical / spatial extent of the individual effects.

19.20 An overall qualitative assessment of the effect interactions on the specific receptors has then been made using the information contained within this ES (including Technical **Chapters 7 – 18** and supporting appendices in **Volume 2**, where appropriate) alongside professional judgement.

19.21 Where possible, a conclusion on effect interactions has been provided, discussing the likelihood of the effect interactions being 'Significant' or 'Not Significant'. Beneficial effects do not outweigh adverse effects but may be experienced concurrently.

19.22 This process has been documented within the 'Assessment of Effect Interactions' section of this Chapter.

In-Combination effects^e

19.23 The assessment of effect interactions has followed a two-stage process:

- Stage 1: Identification of Projects for Assessment; and
- Stage 2: Assessment of In-Combination Effects.

^e The methodology has been updated / extended from that presented in the EIA Scoping Report (**Appendix 2.1**) to provide clarity on the approach adopted within this Chapter.

Stage 1: Identification of Projects for Consideration

19.24 Step 1 was completed as part of the EIA Scoping Report (**Appendix 2.1**), with a list of Cumulative Projects identified for consideration.

19.25 Following the submission of the EIA Scoping Report, a further search using the following databases was undertaken in January 2025:

- BC's and RBC's online register of projects^{3 4};
- Nearby Councils' (including Manchester City Council (MCC)⁵ and Oldham Council (OC)⁶) online register of projects;
- Planning Inspectorate online register of projects⁷;
- Transport and Works Order Act online register of projects⁸;
- Parliament Hybrid Bills online register⁹; and
- The Landstack^f map function to identify planning applications (particularly from BC and RBC).

19.26 The 'cut-off' date of the end of January 2025⁸ was set in order to allow technical studies / evaluations / modelling to account for any additional projects identified through this further search that may underpin the assessments within the ES (e.g., visualisations).

19.27 The criteria applied to identify projects for further consideration was the same as that outlined in the EIA Scoping Report (**Appendix 2.1**), reproduced below:

- Applications dating from January 2017 onwards. It is anticipated that applications prior to this date will already have been built out (and therefore form part of the baseline) and / or where subsequent applications have been submitted these would be captured within the search dates;
- Applications with resolution to grant planning permission;
- Applications with planning permission, either under construction or not yet implemented (unless already considered as part of the baseline scenario);
- Applications submitted, which have the potential to be determined prior to the determination of the Proposed Scheme;
- Applications which have been refused but subject to an appeal not yet determined;

^f Landstack is an interactive mapping tool that displays all planning applications submitted to local planning authorities and automatically updates on a weekly basis.

⁸ i.e. 12 weeks prior to finalisation of the cumulative assessment as part of the ES, as noted in the EIA Scoping Report (**Appendix 2.1**).

- The project being of a relevant scale: the threshold for consideration has been set as the Schedule 2 criteria in the EIA Regulations, at which there is a potential for 'likely significant effects' (however, it is recognised that this needs to be applied with caution); Schedule 1 projects; and nationally significant infrastructure projects; and
- Projects within 5km of the Assessment Boundary^h will be considered acknowledging the maximum extent of likely receptorsⁱ.

19.28 In line with the EIA Regulations, this search was focused on projects and therefore is not inclusive of sites allocated within local plans, core strategy documents or supplementary planning documents. This approach has been adopted as it is unlikely that there is sufficient information to inform a robust in-combination assessment.

19.29 This is with the exception of JPA 1.2 which is allocated within the PfE as part of the Northern Gateway cross boundary strategic allocation and it is being progressed by the NGDV. Given the location of JPA 1.2 and likely common receptors with the Project for Assessment it is considered appropriate to assess the potential impact of this Cumulative Project^j separately.

19.30 The updated and now final list of Cumulative Projects (in total, 16)^k is set out in **Table 19.1** and their locations are shown in **Figure 19.1**.

Assessment of South Heywood

19.31 As detailed in **Chapter 2: Approach to the EIA**, South Heywood^l will be considered as both baseline and cumulatively. This is considered appropriate as the construction of South Heywood has commenced with the construction and operation of the Queen Elizabeth II Way link road to the M62 Junction 19. The operation of Queen Elizabeth II Way will therefore be considered as the current baseline. Construction of a proportion of the proposed houses for South Heywood have also been built and have formed part of the baseline.

Assessment of Traffic Related Effects

19.32 An alternative approach has been adopted for the purpose of the **Transport Assessment** and therefore for traffic related effects in the ES, a wider range of projects will be considered. The **Transport Assessment** considers a 'development log' which is

^h This is considered to be an appropriate study area to identify Cumulative Projects where there is a potential for in-combination effects.

ⁱ This is likely to include the receptors that may be influenced by changes in traffic composition. It may not include all Cumulative Projects that could influence the local economy but a 5km study area is considered to be appropriate to capture the maximum effect (in this case, anticipated to be beneficial).

^j Cumulative Project 13 (see **Figure 19.1** and **Table 19.1**).

^k The application for a Material Recycling Facility at Pilsworth Landfill (application reference 71273) has been considered using the methodology described within this Chapter. On the basis that there are either no common receptors with the Project for Assessment or where common receptors exist, there are unlikely to be significant effects, the project has been screened out from assessment within the ES.

^l Cumulative Project 1 (see **Figure 19.1** and **Table 19.1**).

based on assumptions about when such projects will happen and when. This is the most reliable assumptions available. Therefore, traffic related effects in the EIA have been based on a greater number of Cumulative Projects than those specifically required as part of the EIA. Four of the Cumulative Projects^m included for assessment in the EIA are not included in the development log but are likely to be accounted for within the network growth included in the traffic flows.

- 19.33 With regards to traffic data for South Heywood (Cumulative Project 1) (as discussed above), the baseline traffic data has been collated following the operation of Queen Elizabeth II Way in November 2022 and therefore has accounted for the redistribution of the traffic on the local road network and a proportion of traffic associated with the housing built on the site. However, whilst some housing has already been built out, the trip generation/changes associated with the remainder of the South Heywood scheme have not been included in the traffic counts and have been included within the **Transport Assessment** development log and considered cumulatively.
- 19.34 It should be noted that the projects included within the development log have been included in the baseline traffic data scenarios (including future baseline). This is because cumulative assessment outputs form part of the baseline assessment required for evaluation within the **Transport Assessment** in line with standard transport assessment practices.
- 19.35 The only cumulative project considered as a separate cumulative traffic scenario (outside of the development log) is JPA 1.2. As detailed above, given the location of JPA 1.2 and likely common receptors with the Project for Assessment it is considered appropriate to assess the potential impact of this Cumulative Project separately.

Assessment of Off-site Foul Water Infrastructure

- 19.36 The foul water network upgrades, operated by United Utilities (UU), will be extended along Pilsworth Road to the M66 and onwards to Pilsworth Way in the west. This will not be delivered by the Applicant but by UU. For completeness, the foul water network upgrades are considered as part of this Chapter.
- 19.37 The details of the foul water upgrades are not known and consideration of the works are considered qualitatively based on reasonable assumptions regarding the scale of works and associated activities. It is assumed that the foul water upgrades will be:
- Short term i.e. be completed in less than 1 year;
 - Are expected to be linear works and will be limited to highways controlled land;
 - Construction activities will be limited to daytime i.e. no nighttime working; and
 - Standard construction practices similar to those detailed within **Volume 3: EMP** will be implemented.

^m Cumulative Project 2: Land at the junction of Hollins Brook Way / Pilsworth Road, Cumulative Project 9: Shaw Distribution Centre; Cumulative Project 12: Pilsworth Lake/Fisheries and Cumulative Project 15: Trub Farm (see **Figure 19.1** and **Table 19.1**).

- 19.38 As a result of works remaining within highways controlled land, which is assumed to have limited ecological/landscape value and is on land previously disturbed, likely significant effects associated with habitat loss, landscape character, archaeology, and hydrology are limited.
- 19.39 Temporary construction related effects are limited to potential disruption from driver delay, vehicle emissions and construction noise, in combination with other identified Cumulative Projects. As the timescales for completion of the off-site foul water upgrades are not known it is possible that there will be in-combination effects during both the construction and operational stages of the Project for Assessment and other Cumulative Projects that may affect residential receptors and users of the local road network. However, given the likely scale of the construction activities associated with these works, and standard construction practices, similar to those set out within **Volume 3: Environmental Management Plan**, it is considered that in-combination effects are unlikely to be greater than that identified for the Project for Assessment.
- 19.40 The nature of the works is that following construction, disturbed land will be restored to the previous condition, thereby limited all operational effects.
- 19.41 It is worth noting that the foul water network upgrades are those upon which the Project Assessment and other, relevant Cumulative Projects require to accommodate the increase in demand on the foul water network and Waste Water Treatment Works.

Table 19.1: List of Cumulative Projects

Map ID	Application reference	Address	Summary of Description	Status	Distance from Site	EIA
1	16/01399/HY BR (RBC)	South Heywood Land Bound By Manchester Road, Hareshill Road And Pilsworth Road West Of Junction 19 Of The M62 Rochdale	Part full/part outline planning application for the development of land at South Heywood, including the demolition of a number of existing on-site buildings and structures, construction of a new link road between Junction 19 of the M62 and Pilsworth Road, and the widening of part of Pilsworth Road, together with associated junction improvements. Outline consent for residential uses comprising up to 1000 dwellings (Class C3); employment uses (Classes B2/B8) comprising up to 135,460m2 Gross Internal Area(GIA); a new primary school (Class D1); Class A1/A2/A3/A5 uses comprising up to 2500m2 GIA which includes no more than 499m2 of A1 uses; together with associated landscaping, open space and sports pitches, drainage, ecological enhancements, cycleway and footpath linkages, infrastructure and other works ancillary thereto.	Approved	Adjacent, to the north-east	EIA
2	68530 (BC)	Land at the junction of Hollins Brook Way and Pilsworth Road, Bury, BL9 8RR	Hybrid application - Full application: Zone 1 development of Commercial building No1 (Creche, Use Class E), car parking and internal site roads, a new site access junction to Pilsworth Road, highway improvement works, use of an existing car park exit to Aviation Road for emergency purposes only, and Zone 2 development of Commercial building No.2 (Hub building, Use Class E) car parking and internal site roads and a multi-purpose all-weather sports pitch.	Approved – under construction	300m west	Not EIA
3	68368 (BC)	Land at York Street/Bury Road, Radcliffe,	Full planning permission for 211 dwellings and associated works.	Under construction	2.1km west	Not EIA

Map ID	Application reference	Address	Summary of Description	Status	Distance from Site	EIA
		Manchester, M26 2GL				
4	22/00588/FUL (RBC)	Crimble Mill Crimble Lane Heywood OL10 4DJ	The restoration of the existing mill, change of use of the upper floors to dwellings and ground floor commercial floorspace (Classes E, F1 or F2), the replacement of the existing road bridge and the removal of the existing footbridge, restoration of the mill pond and leat, the construction of flood alleviation measures; t associated road works and landscaping the construction of 31 dwellings and associated works and engineering operations; and the construction of 150 dwellings associated engineering/retention works.	Pending consideration	2.2km north	EIA Development
5	23/00431/HY BR (RBC) (Part of the RCHD766 Allocation)	Castleton Sidings Heywood Road Rochdale	Hybrid planning application (part outline and full) for operational works to facilitate the East Lancashire Railway (ELR) extension; and for Residential development for 191 dwellings including access, landscaping, open space together with erection of sub-station and foul water pump station	Pending consideration	1.5km north-east	Not EIA Development
6	22/01190/FUL (RBC)	Land South Of Cowm Top Lane Castleton Rochdale	Residential development comprising 495 dwellings with associated access, car parking, landscaping and infrastructure	Pending consideration	2.6km north-east	Not EIA Development
7	62969 (BC)	East Lancs Paper Mill, Church Street East, Radcliffe,	Outline application for up to 400 residential dwellings including access and associated works including relocation of cricket pitch, including demolition of existing building and structures	Approved	2.4km west	Not EIA

Map ID	Application reference	Address	Summary of Description	Status	Distance from Site	EIA
		Manchester, M26 9PG				
8	21/00744/FUL (RBC)	Land Off Don Street, Middleton	Residential development of 311 dwellings (Use Class C3) with associated infrastructure, landscaping and access	Approved	4.1km south-east	Not EIA
9	OUT/345898/20 (OC)	Shaw Distribution Centre Linney Lane Shaw Oldham OL2 8HF	Outline planning permission for residential development (use class C3), with associated landscaping, de-culverting of the River Beal, surface water drainage infrastructure, car parking and other necessary works with access from Linney Lane and Beal Lane following the demolition of existing buildings and structures	Under construction	3.3km north-east	EIA
10	23/00650/HY BR (RBC)	Land At Stakehill, Off Rochdale Road, Middleton	Hybrid planning application (EIA development) for a residential development of 233 dwellings (Use Class C3) with associated landscaping and access, and Outline planning permission with access for residential development of up to 1147 dwellings (Use Class C3), mixed-use development, land for primary school extension, local centre and MUGA, landscaping, and supporting infrastructure.	Pending consideration	2km east	EIA
11	23/01294/FUL (RBC)	Land At Waterfold Business Park Bury BL9 7BJ	Redevelopment of existing premises, comprising full demolition; erection of new building for Class B8 purposes with ancillary offices; external plant, and associated works for hardstanding for servicing and parking, and landscaping	Pending consideration	800m north	Not EIA
12	70697 (BC)	Pilsworth Lake/Fisheries, Moss Hall	Erection of café/shop (Use Class E), rebuilding of existing boathouse and associated access road, parking & landscaping	Pending consideration	Adjacent, to the north	Not EIA

Map ID	Application reference	Address	Summary of Description	Status	Distance from Site	EIA
		Road, Bury, OL10 2RF				
13	Proposed PFE site allocation (JPA 1.2) (BC)	Simister and Bowlee (Northern Gateway)	Allocation for 1,500 homes, two form entry primary school, local centre (including retail, health and community facilities), open space and supporting infrastructure.	Pre-application stage	600m south	EIA
14	24/00805/OUT (RBC)	Plot H4 Heywood Distribution Park Pilsworth Rd Heywood	Outline application with all matters reserved for the development of land within Use Classes E(g)(iii) (industrial processes), B2 (general industrial), B8 (storage and distribution) and removal of existing structures and hard standing and associated works	Pending consideration	165m north	Not EIA
15	24/01007/FUL (RBC)	Trub Farm Manchester Road Rochdale OL11 2XG	Erection of 162 affordable dwellings with associated access, car parking, private gardens, open space, play facilities, and landscaping, together with new pedestrian to Rochdale Canal towpath	Pending consideration	1.9km east	Not EIA
<i>Nationally significant infrastructure project (NSIP)</i>						
16	M60/M62/M66 Simister Island	M60 Junction 18, three miles south of Bury.	Construction of a new free-flow link (northern loop) from the M60 eastbound to M60 southbound carriageways. Realignment of the M66 southbound carriageway on the approach to the junction. Construction of a new two-lane free-flow road from the M60 northbound to the M60 westbound to replace the existing single-lane, and widen the M66 southbound to four lanes through junction 18. Conversion of the hard shoulder into a permanent traffic lane between M60 junctions 17 and 18, providing five lanes in both directions. Other works will include improvements to signage, signalling and drainage.	Accepted for examination	Adjacent to the Site	EIA

Step 2: Assessment of In-Combination Effects

- 19.42 Whilst Cumulative Projects have been identified, it does not necessarily follow that there will be in-combination effects with the Project for Assessment. As outlined above, there needs to be an effect on the same receptor occurring at the same time.
- 19.43 The assessment stage comprises a review of the available environmental information that supported the applications for development consent to understand the exact receptors identified and therefore any commonality with the receptors considered in the relevant residual effects reported in **Technical Chapters 7 – 18**.
- 19.44 Where available, consideration has also been given to whether there is a concurrent construction or operational stage with the Project for Assessment. Where there are Cumulative Projects under construction, it has been assumed that there is the potential for in-combination effects during construction and operation as a 'worst-case'.
- 19.45 The assessment of in-combination effects has differed between the technical topics due to the nature of the technical assessments, the data utilised, etc. However, the evaluation undertaken at the receptor level has considered the following for all technical topics:
- Combined magnitude of change;
 - Sensitivity/value/importance of the receptor/receiving environment to change; and/or
 - Duration and reversibility of effect.
- 19.46 Through a combination of the evaluation and mitigation presented in this ES, conclusions have been drawn as to the likelihood for in-combination environmental effects, their nature (i.e. adverse or beneficial) and conclusions have been made in terms of the following:
- How is the in-combination effect different to the project-level effectⁿ?
 - Is there an increase or decrease in the in-combination effect when compared against the project-level effect?
 - Is the in-combination effect significant and does the Project for Assessment create the 'tipping point'?
- 19.47 The assessment of in-combination effects has considered each relevant Cumulative Project with the Project for Assessment and / or the collective in-combination effect arising from all Cumulative Projects with the Project for Assessment, where appropriate.

ⁿ The project level effect relates to the residual effect levels for the Project for Assessment as detailed within **Technical Chapter 7 to 18**.

Assessment of Effect Interactions

- 19.48 The matrices for the construction and operational stages of the Project for Assessment are provided in **Tables 19.2** and **19.3**, respectively. These inform the assessment and are followed by an evaluation of the effect interactions related to the receptor categories identified.
- 19.49 Where the residual effects are 'Significant' in **Technical Chapters 7 – 18**, these are shown in **Tables 19.2** and **19.3** in **bold** and shaded in grey.

Construction Stage

- 19.50 The matrix of residual effects from the Project for Assessment during the construction stage is provided in **Table 19.2**.

Table 19.2: Matrix for the construction stage

Effect	Population and Human Health	Biodiversity	Land / Soil	Cultural Heritage*	Landscape	Climate
Chapter 7: Socio-Economics and Human Health						
Employment generation	Moderate Beneficial					
Access to Work and Training	Moderate Beneficial					
Chapter 8: Transport and Access						
Increase in Severance	Moderate Adverse					
Increase in Driver Delay	Moderate Adverse					
Increase in Non-motorised User Delay	Moderate Adverse					
Reduction in Non-motorised User Amenity	Moderate Adverse					
Increase in fear and intimidation	Moderate Adverse					
Impact to Public right of Way (PRoW) Network	Minor Beneficial					
Increased Demand on Public Transport	Moderate Beneficial					

Effect	Population and Human Health	Biodiversity	Land / Soil	Cultural Heritage*	Landscape	Climate
Chapter 9: Noise and Vibration						
Noise from construction works	Major adverse ^o					
Vibration from construction works	Major adverse ^p					
Construction traffic noise on the road network	Major adverse ^q					
Chapter 10: Air Quality						
Road Vehicle Exhaust Emissions	Minor adverse					
Chapter 11: Biodiversity						
Overall loss of habitat and degradation to retained habitats		Minor to negligible beneficial				
Risk of killing/ injury/ loss of habitat and disturbance to populations of wildlife		Minor beneficial ^r				
Chapter 12: Hydrology, Flood Risk and Water Quality				N/A		
Chapter 13: Ground Conditions				N/A		
Chapter 14: Agriculture and Soils						

^o Major adverse effect relevant to residential receptors. Moderate adverse (and not significant) effects are reported for the Proposed Scheme.

^p Major adverse effect relevant to residential receptors. Moderate adverse (and not significant) effects are reported for the Proposed Scheme.

^q Major adverse effect relevant to residential receptors. Minor adverse (and not significant) effects are reported for the Proposed Scheme.

^r Minor beneficial effects relevant to amphibians, bats and fauna. Negligible effects concluded for all other species.

Effect	Population and Human Health	Biodiversity	Land / Soil	Cultural Heritage*	Landscape	Climate
Loss of agricultural land			Moderate adverse ^s			
Loss of or damage to soil resources			Minor adverse ^t			
Reduction in farmable area and business viability	Moderate adverse ^u					
Chapter 15: Archaeology						
Direct effects including the truncation, disturbance, or removal of known and unknown archaeological remains				Moderate-Major Adverse ^v		
Chapter 16: Built Heritage						
Impact on the significance (character and appearance) of Birch Village Conservation Area, as a result of direct impacts and change within its setting				Major adverse ^w		

^s For BMV agricultural land only (Project for Assessment). Minor adverse (and Not Significant) effects are reported for the Proposed Scheme.

^t For Soil (heavy clay loam and clay textures) only.

^u For tenant farmers.

^v For Non-Designated Archaeological Assets. Moderate adverse effects for Castle Brook (although this is not relevant to Proposed Scheme). Moderate adverse effects for Meadowcroft Fold Medieval Settlement and Iron Smelting Site and Whittle Brook medieval iron smelting site, which are also considered Significant.

^w Negligible adverse (and not significant) effects are reported for the Proposed Scheme.

Effect	Population and Human Health	Biodiversity	Land / Soil	Cultural Heritage*	Landscape	Climate
Impact on the significance (special architectural and historic interest) of listed buildings and Registered Parks and Gardens (RP&Gs), as a result of change within their setting				Moderate adverse ^x		
Impact on the significance of non-designated heritage assets as a result of their demolition				Minor adverse		
Chapter 17: Landscape and Visual						
Changes to Landscape Character					Major / Moderate Adverse^y	
Changes to the character and amenity of views	Major / Moderate Adverse^z					

^x Moderate adverse effect is relevant for Brick Farmhouse (grade II listed building, HAP 3) for the Project for Assessment only. Minor adverse residual effects reported at Brick Farmhouse for the Proposed Scheme. Minor adverse or negligible effects on all receptors (Heaton Park (grade II RP&G) Temple to the north east of Heaton Hall (grade II* listed building) (HAP 1), Alkington Hall (grade II* listed building) (HAP 2) and Lower Whittle Farmhouse (grade II listed building) (HAP 4).

^y Relevant to LCT Urban Fringe Farmland; LCA 26 Prettywood, Pilsworth and Unsworth Moss; LCA No 27 Simister, Slattoks and Healds Green; and the Character and Features of the Assessment and Application Boundary.

^z Users of footpaths and roads within the western extents of the Assessment Site (Photoviewpoints 1, 2, 3 and 4); Users of Unsworth Academy Playing Fields (Photoviewpoint 2); Users of footpath BY/12WHI / Pole Lane (Photoviewpoint 5); Users of footpath BY/9WHI / Egypt Lane (Photoviewpoint 6) Users of footpaths BY/8WHI and BY/46WHI (Photoviewpoints 7 and 8); Users of footpath BY/3WHI (Photoviewpoint 11); Users of Rochdale Way Promoted Long Distance Footpath (Photoviewpoints 12, 13 and 14); Users of footpaths RD/Hey/Fp72, RD/Hey/Fp75 and RD/Hey/Fp74 (Photoviewpoints 16, 17 and 18); and Users of footpath BY/1WHI (along the south-eastern edge of Pilsworth Quarry) to the north (Photoviewpoints 19 and 20).

Effect	Population and Human Health	Biodiversity	Land / Soil	Cultural Heritage*	Landscape	Climate
Chapter 18: Climate Change						
GHG emissions						Minor Adverse
Effect Interactions	YES	YES	YES	YES	NO	NO

*Including architectural and archaeological aspects.

19.51 From **Table 19.2**, potential effect interactions were identified for the population and human health; biodiversity; land and soil and cultural heritage receptor categories. The appraisal of these potential effect interactions during the construction stage is presented below.

Population and Human Health

19.52 The residual effects relevant to population and human health that are considered within **Table 19.2** comprise:

- Adverse effects to drivers and Non-Motorised Users (NMUs) due to increased road vehicles and beneficial effects on PRow and public transport;
- Beneficial effects from employment generation of construction related jobs and training opportunities;
- Temporary adverse noise and vibration effects from construction works affecting nearby residential receptors;
- Temporary adverse effects on noise and air quality (road vehicles exhaust emissions) from construction vehicles on residential receptors along the surrounding road network;
- Permanent adverse effects due to the reduction in farmable area and business viability; and
- Temporary adverse effects due to changes to the character and amenity of views from PRow and playing fields.

19.53 Effect interactions are most relevant to residential receptors, which may experience both noise and air quality effects from construction vehicles as well as noise from construction activities. Effect interactions are likely to be most intensified for residential receptors in close proximity to both construction access routes and construction activities along Moss Hall Road. Significant effects are identified at residential receptors for the Project for Assessment for the above noise related effects; therefore given the addition of air quality effects the effect interaction for population and human health is also considered Significant. Local residents are also likely to use the local road and PRow network and are therefore also likely to experience driver delay and disruption along affected routes. Effect interactions on residential receptors are considered to be adverse and Significant.

19.54 The temporary beneficial effects relating to employment generation and training opportunities are anticipated to come from the local area (as well as the wider/regional area). There is therefore potential for the local labour force to also be affected by noise and vehicle emissions from construction road traffic and to a lesser extent from noise generated by construction activities given these effects will be limited to close proximity to the noise source. However, any in-combination effect is limited and would not influence the beneficial effects which are Significant.

19.55 Temporary adverse visual effects relating to users of the Unsworth playing fields may also experience an increase in noise from construction activities during periods where

construction activities are in close proximity. However, recreational facilities are considered to be of low sensitivity (see **Table 9.5**) and Unsworth Moss Playing Fields already experience relatively high levels of noise associated with the M66 and were not considered sensitive to construction noise (**Chapter 9: Noise and Vibration**). An effect interaction is therefore considered to be limited.

- 19.56 Temporary adverse visual effects relating to users of PRow are likely to also be affected by noise from construction activities in close proximity to the PRow and noise and vehicle emissions from construction road traffic along the local network where they are adjacent to / bisect a PRow (e.g. Users of footpath BY/1WHI). This will result in an effect interaction (assuming that PRow remain open during the construction stage). Significant adverse effects have been identified for construction visual effects and therefore the effect interaction for PRow is also considered to be adverse and Significant. Given the limited use of PRow within the Assessment Boundary as detailed in **Chapter 8: Transport and Access**, effect interactions are more likely to occur outside of the Assessment Boundary.
- 19.57 The loss of agricultural land is assumed to occur during the construction stage. However, it is possible that some agricultural land not under construction within the initial phases of development may still be operational. There is therefore a potential interaction with increased road vehicles (and associated noise and air quality effects), reduced accessibility within the Assessment Boundary to agricultural fields as well as construction noise.
- 19.58 As outlined in the methodology above, beneficial effects do not outweigh adverse effects, therefore, considering the worst case, the effect interaction to population and human health is considered to be **Significant** and adverse.

Biodiversity

- 19.59 The residual effects relevant to biodiversity that are considered within **Table 19.2** comprise of beneficial effects associated with habitats (broadleaved woodland, hedgerows, neutral grassland, standing water/ponds and scattered trees) and populations of wildlife (amphibians, bats and fauna). Whilst both are related to habitat the receptors are different and therefore there is an effect interaction but the effect would be in line with that reported in **Chapter 11: Biodiversity** (minor beneficial and **Not Significant**).

Land and Soil

- 19.60 The residual effects relevant to land and soil that are considered within **Table 19.2** comprise of adverse effects associated with loss of agricultural land and damage to soil resources. Whilst both effects are related to land and soil, the specific effects relate to distinct receptors, one relates to the loss of potentially agriculturally productive land and the other to the loss of or damage of soil itself within the Assessment Boundary. Therefore, there is no effect interaction.

Cultural Heritage

- 19.61 The residual effects relevant to cultural heritage that are considered within **Table 19.2** comprise:

- Adverse effects associated with the truncation, disturbance, or removal of known and unknown archaeological remains;
- Adverse effects due to direct impacts and change in setting of Birch Village Conservation Area;
- Adverse impacts on the significance (special architectural and historic interest) of listed buildings and Registered Parks and Gardens (RP&Gs), as a result of change within their setting; and
- Adverse impact on the significance of non-designated heritage assets as a result of their demolition.

19.62 In the case of cultural heritage, the effects on below-ground archaeology are separate from those associated with the demolition and setting of designated heritage assets and therefore an effect interaction on below ground archaeology is not considered occur.

19.63 As outlined in **Chapter 16: Built Heritage**, the effects on the collective loss of historic farmsteads within the Assessment Boundary was considered Not Significant.

19.64 However, there remains an effect interaction to the above ground heritage assets, which is considered to be adverse and **Significant**. However, this is driven by the impact on the significance (character and appearance) of Birch Village Conservation Area, as a result of direct impacts and change within its setting. However, this effect interaction is **Not Significant** for the Proposed Scheme.

19.65 The level of effect interaction would be in line with the individual levels of effect as reported in **Table 19.2**.

Operational Stage

19.66 The matrix of residual effects from the Project for Assessment during the operational stage is provided in **Table 19.3**.

Table 19.3: Matrix for the operational stage

Effect	Population and Human Health	Cultural Heritage*	Landscape	Climate
Chapter 7: Socio-Economics and Human Health				
Employment generation	Major Beneficial			
Access to Work and Training	Major Beneficial			
Chapter 8: Transport and Access				
Increase in Severance	Moderate Adverse			
Increase in Driver Delay	Moderate Adverse			
Increase in Non-motorised User Delay	Moderate Adverse			
Reduction in Non-motorised User Amenity	Moderate Adverse			
Increase in fear and intimidation	Moderate Adverse			
Impact to Public right of Way (PRoW) Network	Minor Beneficial			
Increased Demand on Public Transport	Moderate Beneficial			
Chapter 9: Noise and Vibration				
Noise from proposed commercial and industrial uses	Minor adverse ^{aa}			
Noise from proposed energy infrastructure	Minor adverse ^{bb}			

^{aa} Relevant to residential, and educational receptors. Negligible for recreational facilities.

^{bb} Relevant to residential receptors and to the Proposed Scheme only.

Effect	Population and Human Health	Cultural Heritage*	Landscape	Climate
General Activities (Vehicle movements On The Internal Access Roads and Car Parking)	Moderate adverse ^{cc}			
Noise from development generated road traffic and new highway infrastructure	Moderate adverse			
Noise from existing and reasonably foreseeable future noise sources	Moderate adverse ^{dd}			
Chapter 10: Air Quality				
Road Vehicle Exhaust Emissions	Minor adverse			
Chapter 11: Biodiversity			N/A	
Chapter 12: Hydrology, Flood Risk and Water Quality			N/A	
Chapter 13: Ground Conditions and Contamination			N/A	
Chapter 14: Agriculture and Soils			N/A	
Chapter 15: Archaeology			N/A	
Chapter 16: Built Heritage			N/A	
Impact on the significance (character and appearance) of Birch Village Conservation Area, as a result of direct impacts and change within its setting		Moderate adverse^{ee}		

^{cc} Moderate adverse effects for residential (R1 to R5 and R7, R9 to R17) and educational receptors (R19) for the Project for Assessment and residential receptors (R1, R4 to R11 and R13) for the Proposed Scheme.

^{dd} Relevant for Project for Assessment only.

^{ee} Minor adverse (and not significant) effects are reported for the Proposed Scheme.

Effect	Population and Human Health	Cultural Heritage*	Landscape	Climate
Impact on the significance (special architectural and historic interest) of listed buildings and Registered Parks and Gardens (RP&Gs), as a result of change within their setting		Minor adverse ^{ff}		
Chapter 17: Landscape and Visual				
Changes to Landscape Character			Major / Moderate Adverse ^{gg}	
Changes to the character and amenity of views	Major / Moderate Adverse ^{hh}			
Chapter 18: Climate Change				
GHG Emissions – Buildings				Minor Adverse

^{ff} Minor adverse effects are reported for the Project for Assessment and Proposed Scheme at all receptors.

^{gg} Relevant to LCT Urban Fringe Farmland; LCA 26 Prettywood, Pilsworth and Unsworth Moss; LCA No 27 Simister, Slattoks and Healds Green; and the Character and Features of the Assessment and Application Boundary. For LCT Mosslands and Lowland Farmland the effect is lower (moderate adverse) for the Proposed Scheme, and Not Significant. For LCA No 26 the effect reduces to Moderate Adverse in Year 15 for the Proposed Scheme and Not Significant.

^{hh} Relevant to Users of footpaths and roads within the western extents of the Assessment Site (Photoviewpoints 1, 2, 3 and 4); Users of Unsworth Academy Playing Fields (Photoviewpoint 2); Users of BY/12WHI / Pole Lane (Photoviewpoint 5); Users of BY/9WHI / Egypt Lane (Photoviewpoint 6); Users of footpath BY/3WHI (Photoviewpoint 11); Users of Rochdale Way Promoted Long Distance Footpath (Photoviewpoints 12, 13 and 14); Users of footpaths RD/Hey/Fp72, RD/Hey/Fp75 and RD/Hey/Fp74 (Photoviewpoints 16, 17 and 18); Users of footpath BY/1WHI (along the south-eastern edge of Pilsworth Quarry) to the north (Photoviewpoints 19 and 20) and Users of footpaths BY/8WHI and BY/46WHI (Photoviewpoints 7 and 8). For Users of footpaths BY/8WHI and BY/46WHI this effect reduces in Year 15 to moderate adverse which is considered Not Significant.

Effect	Population and Human Health	Cultural Heritage*	Landscape	Climate
GHG Emissions – Transport				Minor Adverse
Effect Interactions	YES	YES	NO	NO

*Including architectural and archaeological aspects.

19.67 From **Table 19.3**, potential effect interactions were identified for population and human health and cultural heritage receptor categories. The appraisal of these potential effect interactions during the operational stage is presented below.

Population and Human Health

19.68 The residual effects relevant to population and human health that are considered within **Table 19.3** comprise:

- Beneficial effects from employment generation of construction related jobs and training opportunities;
- Adverse effects to drivers and Non-Motorised Users (NMUs) due to increased road vehicles and beneficial effects on PRow and public transport;
- Adverse effects on residential receptors from noise generated from the Project for Assessment;
- Adverse effects on noise and air quality (road vehicles exhaust emissions) from operational traffic on residential receptors along the surrounding road network; and
- Adverse effects due to changes to the character and amenity of views from PRow and playing fields.

19.69 Effect interactions will occur at residential receptors. They may experience both noise and air quality effects from increases in traffic as well as noise from operational activities. Effect interactions are likely to be most intensified for residential receptors in close proximity to both access routes and operational activities within the Assessment Boundary (for example, residential properties along Pilsworth Road and Moss Hall Road). Significant effects are identified at residential receptors for the Project for Assessment in relation to traffic noise effects; therefore given the addition of air quality effects the effect interaction for population and human health is also considered Significant for traffic-related effects. Local residents are also likely to use the local road and PRow network and are therefore also likely to experience driver delay and disruption along affected routes. Effect interactions on residential receptors are considered to be adverse and Significant.

19.70 The long term, permanent beneficial effects (which are considered Significant) relating to employment generation and training opportunities are anticipated to come from the local area (as well as the wider/regional area). The local labour force may also be affected by noise and vehicle emissions from operational road traffic. However, any in-combination effect is limited and would not influence the beneficial effects which are Significant.

19.71 Given the limited potential for an effect interaction, the effect on residential receptors remains adverse and Significant.

19.72 Adverse visual effects relating to users of PRow are likely to also be affected by noise from operational activities in close proximity to the PRow and noise and vehicle emissions from operational road traffic along the local network where they are

adjacent to / bisect a PRoW (e.g. Users of footpath BY/1WHI). This will result in an effect interaction. Significant adverse effects have been identified for visual effects and therefore the effect interaction for PRoW is also considered to be adverse and Significant. However, users of PRoW will also experience an improved and more accessible network of PRoW across the Assessment Boundary during the operational stage. Given the limited use of PRoW within the Assessment Boundary as detailed in **Chapter 8: Transport and Access**, effect interactions are more likely to occur outside of the Assessment Boundary.

- 19.73 As outlined in the methodology above, beneficial effects do not outweigh adverse effects, therefore, considering the worst case, the effect interaction to population and human health is considered to be **Significant** and adverse.

Cultural Heritage

- 19.74 The residual effects relevant to cultural heritage that are considered within **Table 19.3** comprise the direct impact and change in setting to Birch Village Conservation Area and the impact on the significance of Brick Farmhouse (grade II listed building, HAP 3). Given the presence of the M62 and the distance between the Birch Village Conservation Area and Brick Farmhouse there is unlikely to be an effect interaction.

Assessment of In-combination Effects

- 19.75 As set out under 'Assessment Methodology', a shortlist of Cumulative Projects were identified for consideration. These have been considered in conjunction with / alongside the Project for Assessment with respect to in-combination effects. The Cumulative Projects are listed in **Table 19.1** and their locations are presented in **Figure 19.1**.
- 19.76 The assessment of in-combination effects has been set out in line with **Technical Chapters 7 – 18**.

Socio-Economics and Human Health

Construction stage

- 19.77 The construction stage of all Cumulative Projects may overlap with the Project for Assessment in terms of timescales. In-combination effects with the relevant construction stage receptors (labour force in the local and wider impact areas) are therefore likely, as outlined below:
- **Employment generated (high sensitivity):** All Cumulative Projects will generate employment in the construction sector. In-combination effects with the relevant construction stage receptor (labour force in the local and wider impact areas) are therefore likely as a result of employment generated. The combined magnitude of change is anticipated to be large. This cumulative beneficial effect is considered to be direct and indirect, temporary, long term, and Major, exceeding the Moderate conclusion at the project level. The in-combination effect is **Significant**, as it is at the project level.
 - **Access to Skills and Training (high sensitivity):** All Cumulative Projects will generate opportunity for local residents in terms of skills and training (such as

apprenticeships). In-combination effects with the relevant construction stage receptor (labour force in the local and wider impact areas) are therefore likely, as a result of construction employment generated. The combined magnitude of change is anticipated to be large. The cumulative beneficial effect is considered to be temporary, long term and major, which will exceed the level considered at project level (Moderate). The in-combination effect is **Significant**, as it is at the project level.

Operational Stage

19.78 The operational stage of all Cumulative Projects will overlap with the Project for Assessment and Proposed Scheme in terms of timescales. In-combination effects with the relevant operational stage receptors (labour force in the local and wider impact areas) are therefore likely, as outlined below:

- **Employment generated (high sensitivity):** A number of Cumulative Projects will also generate employment opportunities for local residents. In combination effects with the relevant operational stage receptor (labour force in the local and wider impact areas) are therefore likely as a result of employment generated. The combined magnitude of change is anticipated to be large. This cumulative beneficial effect is considered to be direct and indirect, permanent, long term and Major, the same conclusion as the project level. The in-combination effect is **Significant**, as it is at the project level.
- **Access to Skills and Training (high sensitivity):** A number of Cumulative Projects will also generate opportunities for local residents in terms of skills and training placements (such as apprenticeships). In-combination effects with the relevant operational stage receptor (labour force in the local and wider impact areas) are therefore likely, as a result of operational employment opportunities generated. The combined magnitude of change is anticipated to be large. The cumulative beneficial effect is considered to be permanent, long term and major, the same conclusion as the project level. This in-combination effect is **Significant**, as it is at project level. However, it is worth noting that whilst the in-combination magnitude of change does increase substantially, the conclusions at the project level are already at or in close proximity to the greatest level of beneficial effect.

Transport and Access

19.79 There have been multiple scenarios considered and assessed within the **Transport Assessment** and this is further discussed in **Chapter 2: Approach to EIA**.

19.80 As outlined above, the **Transport Assessment** considers a 'development log' which is based on assumptions about when such projects will happen and when. The data which has informed the ES also represents this development log within the scenarios considered and therefore in-combination effects are an inherent part of **Chapter 8: Traffic and Access**, **Chapter 9: Noise and Vibration**; and **Chapter 10: Air Quality**.

19.81 The only exception is Cumulative Project 13 which has been assessed separately for transparency. A detailed assessment has been provided as part of **Appendix 8.14**. This concluded that there were the following additional in-combination effects:

- **Severance on Pilsworth Road, between Moss Hall Road and M66** – moderate, adverse and Significant;
- **Non-motorised User (NMU) amenity on Moss Hall Road, between Pilsworth Road and Whittle Lane** – moderate, adverse and Significant; and
- **Driver delay on the M62 Westbound Off-Slip and Hollins Brow, between Hollins Lane and Manchester Road** – moderate, adverse and Significant.

Noise and Vibration

Construction Stage

19.82 The vast majority of Cumulative Projects are located at distances of greater than 300m away from the Assessment Boundary or from common receptors. At projects within this distance (Cumulative Projects 1, 12 and 16), the implementation of Best Practicable Means (BPM) on all construction sites would aid in reducing the noise arising from each Cumulative Project and therefore the cumulative levels arising at common receptors. Whilst there could be a cumulative increase in noise, the effects of construction noise are localised. In-combination effects are considered unlikely to arise as either works from the Project for Assessment or Cumulative Projects would represent the primary noise source at the receptor. With regard to vibration, there are considered to be no common receptors due to separation distances of greater than 100m from where vibration generating works would occur within either the Assessment Boundary or Cumulative Project boundaries. In the case of Cumulative Project 1, this is relevant with respect to areas outside of those where ground works have already been completed.

19.83 Construction traffic noise is primarily represented by the operational traffic noise assessment, which is further discussed below. With respect to Cumulative Project 16, the proposed opening year of 2029 is prior to the assumed 2032 opening year of the M62 MAM (Proposed Infrastructure Area BBB). As there could be an overlap between infrastructure works there could be an combined increase in traffic on the local road network. Primary and secondary access corridors for works associated within the M62 MAM will be determined when site construction management and programming plans are developed and compound locations fixed as part of planning applications undertaken by 3rd parties. Minimising effects can be addressed through the respective CEMP and include traffic management plans, informed by liaison between relevant contractors, particularly with respect to any night-time diversion routes.

19.84 Therefore, it is considered that there would not be an increase in the in-combination magnitude and level of effect to that identified at the project level, which is upto major adverse and significant for the Project for Assessment and upto moderate adverse but Not Significant for the Proposed Scheme.

Operational Stage

19.85 Similar to the construction stage, noise effects from the operational stage are localised and only have a cumulative effect if they are in proximity and affect the same receptors.

- 19.86 Cumulative projects are generally over 600m from the Assessment Boundary. At such distances it is considered reasonable to conclude that there would not be an increase in the in-combination magnitude and level of effect associated with on-site noise generating activities. In-combination effects that require further consideration are Cumulative Projects 1, 2, 12 and 14.
- 19.87 Cumulative Project 2 is located to the west of the M66 with closer receptors representing control points. A noise assessment accompanied a Reserved Matters planning application with an assessment undertaken of the impact of the development at existing residential receptors which are located adjacent to the boundary of this Cumulative Project. These receptors are located over 1km from the Assessment Plots where on-site commercial / industrial noise generating activities are proposed to occur. Therefore, there are considered to be no common receptors with respect to Cumulative Project 2.
- 19.88 Cumulative Project 12 includes a small scale café / shop and would represent a development where no more than low levels of noise would be expected. Cumulative Project 14 is located within the Heywood Distribution Park beyond existing industrial premises. A noise assessment that was submitted to accompany the respective planning applicationⁱⁱ. The suitability of Cumulative Project 14 was based on defined noise levels not being exceeded at the now demolished Three Arrows pub. Dwellings represented by R7 are located 200m further to the south of the Three Arrows and thus it is considered that there would be no increase in the in-combination magnitude and effect from what has been established at the project level for R7.
- 19.89 Proposed commercial and industrial uses associated with Cumulative Project 1 are located within the wider part of the JPA 1.1 allocation to the east of the Assessment Boundary. Common receptors are considered to include residential receptors at R1 and R7. These receptors are located at distances of approximately 300m or greater from the boundaries associated with areas designated for industrial use within Cumulative Project 1. In addition to the large separation distance, future buildings within the Proposed Scheme and Project for Assessment would be likely to provide some degree of screening to these receptors whilst the implementation of separate mitigation measures would be controlled through the planning conditions associated with this Cumulative Project.
- 19.90 Therefore, with regard to on-site noise, it is considered that there is no increase in the in-combination magnitude and level of effect to that identified at the project level, which is up to moderate adverse and Not Significant).
- 19.91 The traffic data used in the operational road traffic noise assessment has taken into account other schemes as well as future predicted traffic growth (the 'development log' as detailed in **Chapter 2: Approach to EIA**). Therefore, the cumulative effects are an inherent part of the traffic noise assessment presented in **Chapter 9: Noise and Vibration**.
- 19.92 A further scenario has been undertaken which compares the 2024 Baseline with the 2047 DS. The 2047 DS includes traffic associated with committed developments,

ⁱⁱ Rochdale Council, Planning Application Reference: 24/00805/OUT

population growth and development traffic associated with the Project for Assessment. Providing such a comparison over-states the outcome when compared to standard assessment scenarios including the temporal difference between assessment years and incorporation of traffic associated with population growth. Therefore a worst-case is presented in this regard. As detailed in **Appendix 9.2**, there is no increase in the worst-case magnitude or level of effect at assessed links / receptors identified for other assessment scenarios associated with the Project for Assessment. Therefore, with regard to operational road traffic, it is considered that there is no increase in the in-combination magnitude and level of effect to that identified at the project level, which is upto moderate adverse and Significant).

Air Quality

- 19.93 As for noise, traffic related effects, the baseline traffic flows have included for schemes and future predicted traffic growth as part of the development log.
- 19.94 The only additional site included in the in-combination scenario was JPA 1.2 (**Figure 19.1**, Cumulative Project 13). A further assessment of in-combination air quality effects at human receptors was undertaken utilising the methodology previously summarised for the Project for Assessment in **Chapter 10: Air Quality** which includes assessment of JPA 1.2. The details of the in-combination assessment with JPA 1.2 are included in **Appendix 19.1**).
- 19.95 The results of this assessment conclude that there would be no increase in the effect level at identified receptors reported at the project level, which was negligible to minor adverse and Not Significant). This is representative of both construction and operational effects.

Biodiversity

- 19.96 The Cumulative Projects have been reviewed and with the exception of Cumulative Project 1 and 16, no common receptors have been identified. All have a number of similar reasons as to why in-combination effects are unlikely. This includes there being no common receptor for an in-combination effect to occur to; the distance of the Cumulative Project from the Assessment Boundary (or/and the barriers between the two); and the habitats within the Cumulative Projects being of negligible value/ecological importance.
- 19.97 The majority of habitats across Cumulative Project 1 and the Project for Assessment are considered to be of low or negligible ecological importance. The creation of habitats could provide a minor beneficial change and the requirements of the Statutory Biodiversity Metric (SBM) mandate that lost habitats are compensated for on a like-for-like basis, which will ensure that replacement is at a larger quantum than that to be lost to development. It is therefore considered that there should be no in-combination magnitude with respect to overall habitat loss.
- 19.98 Cumulative Project 1 was found to be of largely negligible ecological importance for fauna. This Project has planning conditions attached to it for nesting birds checks prior to vegetation clearance, invasive species eradication and pre-commencement badger survey. Both Cumulative Project 1 and the Project for Assessment have/ will provide appropriate buffers and green infrastructure to ensure the long-term viability and permeability of fauna through the wide landscape.

- 19.99 Cumulative Project 16 is adjacent to the Assessment Boundary, to the south and therefore will have similar potential impact pathways on non-statutory sites within the Zone of Influence. Cumulative Project 16 comprises highways works in the form of motorway and junction improvements.
- 19.100 Cumulative Project 16 was found to contain habitats to be widespread and common within the local area, and considered to be a continuation of habitats found within the south of the Assessment Boundary. CEMP's will be conditioned for both Cumulative Project 16 and the Project for Assessment. This will include specific measures for the protection of retained and created habitats, which includes the protection of buffers which are shared between the two schemes. The above mentioned buffer would also be maintained and protected through the operational phase.
- 19.101 Cumulative Project 16 is considered to be largely of negligible ecological importance for fauna, considering much of the works comprise motorway and hardstanding. The key in-combination effects on priority and protected fauna is considered to be GCN. GCN were found to be present within the Zone of Influence for both schemes. District Level Licencing Scheme will be adopted by both schemes and pond creation (in addition to SuDS) should be created at a ratio of 2:1.
- 19.102 Therefore in-combination effects on the non-statutory sites, habitats and fauna are considered unlikely to change the effect level as assessed at the project level (upto minor adverse and Not Significant).

Hydrology, Flood Risk and Water Quality

- 19.103 The Assessment Boundary sits within the Hollins Brook catchment. Cumulative Projects 3 to 11 and 15 have been discounted on the basis that they do not sit within this catchment and the local topography will cause these to drain to other watercourses. As these do not share the same hydrological catchment there is no potential for in-combination effects. The catchments are defined in **Figure 12.3**.
- 19.104 Whilst the Pilsworth Clough is a common receptor, effects from Cumulative Project 1 and the Project for Assessment are unlikely to create any combined magnitude of change due to the distance of Pilsworth Clough from Cumulative Project 1. In-combination effects with Cumulative Project 1 has been discounted on this basis.
- 19.105 Where there are receptors in common (which include Pilsworth Clough, Hollins Vale, Pilsworth Fisheries and Brightley Brook and more vulnerable infrastructure), it is expected that the Cumulative Projects considered (Cumulative Projects 2, and 12 – 14 and 16) will provide separate mitigation measures controlled through the planning conditions such as off-site flood risk mitigation, a CEMP, and a surface water drainage strategy that follows the drainage hierarchy, has an appropriate discharge rate and location and provides appropriate pollution mitigation indices. It is assumed that planning conditions will be in place for each Cumulative Project to mitigate any impact related to flood risk and water quality off-site. The Project for Assessment also contains mitigation to limit the off-site impacts.
- 19.106 There is the potential for in-combination effects with Cumulative Projects 2 and 12 – 14 and 16 and the Project for Assessment; however, the combined magnitude is unlikely to be any greater than that set out in **Chapter 12: Hydrology, Flood Risk and**

Water Quality. Therefore, the residual in-combination effects are considered to be as assessed at the project level (negligible).

Ground Conditions and Contamination

19.107 Following the implementation of mitigation measures to fully address the potential risk of mining and ground collapse across the Project for Assessment, the residual effect is considered to be negligible. It is assumed that similar mitigation will be implemented at South Heywood (Cumulative Project 1) which will also reduce any residual effect to negligible. It is also worth noting that common receptors are unlikely due to the presence of faults which means that coal does not extend directly between the Project for Assessment and Cumulative Project 1. On this basis, it is considered that there is no in-combination effect with respect to potential risk of mining and ground collapse.

Agriculture and Soils

19.108 The following cumulative projects have been excluded from further analysis as the land is non-agricultural, thereby there is no in-combination effect for the following Cumulative Projects: 2-3; 5-9; and 11, 12, 14 and 15.

19.109 However, for Cumulative Projects 1, 4, 10, 13 and 16, there is anticipated additional loss of over 200ha of agricultural land, most of which is provisionally mapped as Grade 4. However, there is some additional best and most versatile land, potentially up to approximately 75 hectares^{jj}. There is an in-combination effect with the Project for Assessment, with an overall loss of approximately 525ha of agricultural land.

19.110 The sensitivity of Cumulative Projects 1, 4, 10, 13 and 16 are the same when considered alongside the Project for Assessment due to the land being of similar quality. However, there is an increase in the magnitude of change for best and most versatile agricultural land as the magnitude at the project level was medium (Project for Assessment) and small (Proposed Scheme).

19.111 For agricultural land this remains as assessed at the project level (minor adverse and Not Significant) largely due to the nature of the land loss, i.e. Grade 4 agricultural land. For best and most versatile agricultural land, the in-combination magnitude is considered to be large, albeit the sensitivity would not change. Therefore, the in-combination effect is as assessed at the project level (moderate adverse for the Project for Assessment). However, the in-combination effect for the Proposed Scheme will increase from minor to moderate adverse. This still remains Not Significant.

19.112 Effects on soil resources do not occur cumulatively as the resource on each cumulative project is managed as a discrete unit that does not affect the function or availability of services across other soils elsewhere. Each cumulative project will also manage soil resources responsibly with appropriate mitigation measures to ensure no significant adverse effects occur. There is no in-combination effect.

19.113 There is a potential for in-combination effects on farm holdings to arise, should the same tenants affected also tenant land that would be lost to development of Cumulative Projects 1, 4, 10, 13 and 16. From a review of these Cumulative Projects

^{jj} Best and most versatile agricultural land is recorded at Cumulative Project 1, but the area is not provided so this has been excluded.

there is currently no assessment of effects on farm holdings. This information is not known/available at this stage and would not be known until a similar farm holdings assessment was undertaken for each of the cumulative projects. Therefore, we have assumed that there is an in-combination effect which is moderate, adverse and Significant, which is the same as was considered at the project level.

Archaeology

19.114 Cumulative Project 1 overlaps with Infrastructure Areas AAAA and CCC, however, these Areas have been scoped out of **Chapter 15: Archaeology** as any archaeological assets within these Spatial Zones will either have been removed through past impacts or would survive in a truncated state. The access road for Cumulative Project 12 overlaps with Application Plot B. However, the access road will utilise an existing access route which will have likely removed or truncated any archaeological deposits. No other Cumulative Projects are noted to have common receptors with the Project for Assessment.

19.115 As such, it is concluded that there is no in-combination effects on archaeological receptors identified as a result of the Project for Assessment.

Built Heritage

19.116 There are only common receptors between the Project for Assessment and Cumulative Projects 13 and 16 which are considered further below. Cumulative Projects 1 – 12 and 14-15 are identified to have no common receptors with the Project for Assessment and are therefore not considered further within the assessment below.

19.117 Due to the urbanising effect of Cumulative Projects 13 and 14 on the setting of Heaton Park, there is likely to be an in-combination effect at this receptor and an increased magnitude of change when compared against the magnitude of change at the project level^{kk}. Cumulative Project 13 relates to an allocation for residential development which is assumed to be relatively low-rise and have a limited visual impact on the setting of Heaton Park. Cumulative Project 14 relates to highways infrastructure and the effect will be slight^{ll}. Taking into account the extensive and varied setting of Heaton Park, it is concluded that the in-combination effect will not change the conclusions made at the project level (minor and adverse and Not Significant). The in-combination effect is similarly contributed to by the Project for Assessment and Cumulative Project 14.

19.118 Due to the urbanising effect of the construction stages of Cumulative Project 14 and the Project for Assessment, there is likely to be an in-combination effect at Brick Farmhouse (grade II listed building) and an increased magnitude of change when compared against the magnitude of change at the project level^{mm}. The construction phases are unlikely to run concurrently and, should they do so, the effects of the

^{kk} Effect: Impact on the significance (special architectural and historic interest) of listed buildings and Registered Parks and Gardens (RP&Gs), as a result of change within their setting.

^{ll} Slight is the level of effect within the ES for Simister Island. Slight is defined by the Design Manual for Roads and Bridges (DMRB) as '*Effects at this level are not material in the decision-making process*' (DMRB LA 104).

^{mm} Effect: Impact on the significance (special architectural and historic interest) of listed buildings and Registered Parks and Gardens (RP&Gs), as a result of change within their setting.

Project for Assessment would subsume rather increase the effects, given the Assessment Boundary surrounds the asset with Cumulative Project 14 located beyond. It is concluded that the in-combination effect will not change the conclusions made at the project level (minor and adverse and Not Significant). The in-combination effect is predominately a result of the Project for Assessment.

Landscape and Visual

19.119 Four Cumulative Projects (1, 12, 13 and 16) were taken forward for further consideration, with the remaining Cumulative Projects discounted on the basis of there being either no common receptor or no in-combination effect. A detailed assessment of in-combination landscape and visual effects are detailed in **Appendix 19.1**).

19.120 As set out on **Chapter 17: Landscape and Visual**, impacts are associated with changes to landscape character or changes to the character and amenity of views, during the construction and operational stages. Change to local landscape character will be greater as a result of a combined loss to greenfield land for built development, albeit the Cumulative Projects and Project for Assessment introduce new landscape features and elements in keeping with the character of the local area.

19.121 It is therefore concluded that changes to the following character areas will not change the conclusions at the project level:

- In-combination effects of the Project for Assessment and Cumulative Project 1, 13 on Urban Fringe Farmlands LCT and LCA 27 Simister, Slattocks and Healds Green (major / moderate adverse and Significant); and
- In-combination effects of the Project for Assessment and Cumulative Project 16 on Lowland Farmland LCT and LCA 26 Prettywood, Pilsworth & Unsworth (major / moderate adverse and Significant).

19.122 There are in-combination effects to a number of views as the built form is extended further to the east.

19.123 It is therefore concluded that changes to the views will not change the conclusions at the project level:

- In-combination effects of the Project for Assessment and Cumulative Project 1, on PRow RD/Hey/72 and RD/Hey/Fp74 (Photoviewpoints 16, 17 and 18), (major / moderate adverse and Significant);
- In-combination effects of the Project for Assessment and Cumulative Project 1, 12 on Users of footpath BY/1WHI (along the south-eastern edge of Pilsworth Quarry) to the north (Photoviewpoints 19 and 20), (major / moderate adverse and Significant); and
- In-combination effects of the Project for Assessment and Cumulative Project 13 and 16 on Users of Rochdale Way Promoted Long Distance Footpath (Photoviewpoints 12, 13 and 14), (major / moderate adverse and Significant).

Climate Change

- 19.124 The atmospheric concentration of GHGs and resulting effect on climate change is affected by all sources and sinks globally, anthropogenic and otherwise. As GHG emissions impacts and resulting effects are global rather than affecting one localised area, the approach to cumulative effects assessment for GHGs differs from that for many EIA topics where only projects within a geographically bounded study area would be included.
- 19.125 For example, air pollutants are dispersed and diluted after being emitted and only the cumulative contributions of other relatively nearby sources contribute materially to the pollutant concentration, and hence effect, at a particular sensitive receptor in the study area. Due to the persistence of GHGs in the atmosphere, that same dispersion effect contributes to the global atmospheric GHG emissions balance. There is no greater local climate change effect from a localised impact of GHG emission sources (or vice versa).
- 19.126 Cumulatively the effects of GHG emissions on the Global Climatic System have the potential to be significant. However, as noted above, as GHG emissions are a global issue, and to assess effects cumulatively all GHG emissions would need to be considered. This is not proportionate, nor possible given the uncertainty in other third party approaches to emissions and mitigation.
- 19.127 For this reason, IEMA's GHG Assessment Guidance states that effects of GHG emissions from specific cumulative projects should not in general be assessed. Instead, the assessment within **Chapter 18: Climate Change** utilises the contextualisation of GHG emissions from the Project for Assessment and Proposed Scheme within the context of current and future baseline GHG emissions at various specific geographical levels (i.e. local authority, region and UK). The conclusions also consider the use mitigation to demonstrate alignment with available good, or best practice guidance to support the UK's Net Zero trajectory.
- 19.128 The contextualisation of GHG emissions and consideration of mitigate inherently considers cumulative contributions from other GHG sources as the carbon budgets set the trajectory for mitigating all GHG emissions over time.
- 19.129 In this context. GHG contextualisation has been provided in **Chapter 18: Climate Change** and the conclusions were that effects on climate change were not Significant.

Summary

- 19.130 An assessment of cumulative effects has been completed considering both effect interactions and in-combination cumulative effects. A summary of the outputs of the assessment for each type of cumulative effect is set out below.

Assessment of Effect Interactions

- 1.131 Effect interactions consider multiple effects generated by the Project for Assessment impacting upon the same receptor / receptor category. These are assessed under 'factors', which is essentially broad environmental topics in accordance with the EIA Regulations.

19.132 During construction, there are two effect interactions which are considered to be Significant.

- **Population and human health (local residents and tenant farmer)** – associated with the interaction of adverse effects associated with an increase in traffic, traffic noise, traffic emissions and views experienced by users of the public rights of way; and
- **Cultural heritage** – there is an effect interaction, albeit this is driven by Birch Village Conservation Area, as a result of direct impacts and change within its setting from the potential highways infrastructure. However, this is considered to be Not Significant for the Proposed Scheme.

19.133 During operation, there is one effect interaction which is considered to be Significant, very similar to those considered at the construction stage.

- **Population and human health (local residents)** – associated with the interaction of adverse effects associated with an increase in traffic, operational noise (including traffic noise), small changes in air quality (from traffic emissions) and views experienced by users of the public rights of way.

19.134 For both the construction and operational stages, there are also Significant beneficial effects from employment generation and training opportunities, although these cannot balance or outweigh the adverse effects set out above.

Assessment of In-Combination Effects

19.135 The assessment of in-combination effects considered 16 Cumulative Projects on a technical topic-by-topic basis.

19.136 The purpose of the in-combination assessment is to understand whether there are in-combination effects (in which case there needs to be a common receptor); how the in-combination effect differs from that considered at the project level and whether there are any in-combination effects that are significant (particularly if they were not considered significant at the project level).

19.137 From the in-combination assessment completed, the following topics have concluded that there are no-in-combination effects: archaeology; and ground conditions. Whilst there are in-combination effects across the following topics, the conclusions at the project level do not changeⁿⁿ: transport and access; noise and vibration; air quality; biodiversity; hydrology, flood risk and water quality; built heritage and landscape and visual.

19.138 The assessment of in-combination effects in relation to socio-economics and human health, concluded that construction related effects were greater (even more beneficial), with both effects concluding an effect of major beneficial as opposed to moderate beneficial at the project level, although both effects remain Significant as they were at the project level. Operational effects remained the same as assessed at

ⁿⁿ i.e. the in-combination effect is no better or worse than that reported at the project level.

the project level, albeit only because conclusions at the project level were already major beneficial and significant.

19.139 The assessment of agriculture and soils concluded that there were no in-combination effects in relation to soil resources and that the effects on farm business viability was the same as that considered at the project level. There is an increase in the loss of agricultural land (including best and most versatile land), however, the conclusions at the project level remained the same (up to moderate adverse and Not Significant) for Project for Assessment. However, the in-combination effect for the Proposed Scheme will increase from minor to moderate adverse. This still remains Not Significant.

Limitations and Assumptions

19.140 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

- Information on farm holdings is not included in any of the available application documents for relevant Cumulative Projects. As it is unknown whether tenants are affected by more than one Cumulative Project, there is assumed to be no cumulative effect on farm holdings;
- The anticipated additional loss of over 200ha of agricultural land, is assumed to be Grade 4 and therefore not best and most versatile agricultural land; and
- Traffic related effects in the EIA are based on a greater number of Cumulative Projects than those specifically required as part of the EIA. Four of the Cumulative Projects^{oo} included for assessment in the EIA are not included in the development log but are likely to be accounted for within the network growth included in the traffic flows.

^{oo} Cumulative Project 2: Land at the junction of Hollins Brook Way / Pilsworth Road, Cumulative Project 9: Shaw Distribution Centre; Cumulative Project 12: Pilsworth Lake/Fisheries and Cumulative Project 15: Trub Farm (see **Figure 19.1** and **Table 19.1**).

References

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- ¹ Her Majesty's Stationery Office (2017) The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 SI 2017/517 (as amended by The Town and Country Planning and Infrastructure Planning (Environmental Impact Assessment) (Amendment) Regulations 2018, SI 2018/695). Available at:
<http://www.legislation.gov.uk/uksi/2017/517/contents> and
<https://www.legislation.gov.uk/uksi/2018/695/contents/made> [Accessed: 17/07/2024].
- ² Planning Practice Guidance (PPG) – Guidance: Environmental Impact Assessment. Available at: <https://www.gov.uk/guidance/environmental-impact-assessment> [Accessed: 17/07/2024].
- ³ <https://planning.bury.gov.uk/online-applications/search.do?action=simple&searchType=Application>
- ⁴ <https://publicaccess.rochdale.gov.uk/online-applications/>
- ⁵ <https://pa.manchester.gov.uk/online-applications/search.do?action=simple&searchType=Application>
- ⁶ https://www.oldham.gov.uk/info/200351/planning/1866/search_for_an_application
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- ⁸ <https://www.gov.uk/government/collections/twa-inspector-reports-and-decision-letters>.
- ⁹ <https://www.parliament.uk/business/bills-and-legislation/current-bills/hybrid-bills/>.