

13. Cumulative Effects Assessment

Introduction

- 13.1 This Chapter reports the assessment of cumulative effects arising from the Proposed Scheme, in line with Schedule 4, Paragraph 5(e) of the EIA Regulations, which 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’.

- 13.2 To accord with the EIA Regulations, in terms of providing an assessment of cumulative effects, this assessment has considered the following types of cumulative effects:

- **Effect interactions:** the interaction of environmental effects of the Proposed Scheme affecting the same receptor either within the Site or in the local area; and
- **In-combination interactions:** the combination of environmental effects of the Proposed Scheme with existing or approved projects affecting the same receptor.

Legislative Framework and Guidance

- 13.3 Planning Practice Guidance (PPG) refers to the need for cumulative effects to be assessed as part of an ES, but at present, there is no widely accepted current methodology or best practice for the assessment of cumulative effects. As such, the methodology has been based on previous experience and knowledge at Turley, the types of receptors being assessed and the nature of the Proposed Scheme.

Assessment Methodology

- 13.4 The assessment of cumulative effects, for both effect interactions and in-combination effects, is largely qualitative in nature. The assessment of effect interactions is based on information contained within the ES, whilst the assessment of in-combination effects is also based on publically available information (i.e. the planning applications submitted for the projects considered for in-combination effects). The approach to the assessment of both effect and in-combination interactions is set out in the following sections.

Effect Interactions

- 13.5 Following the completion of the **Technical Chapters 6 – 12**, the residual effects have been collated into a matrix so that effect interactions on common receptors¹ can be identified. Where a residual effect is concluded in **Technical Chapters 6 – 12** to be neither adverse nor beneficial, i.e. negligible, then this was excluded from the matrix (**Table 13.2** and **13.3**).
- 13.6 Where residual effects have been considered to be ‘minor’ or greater, receptors have been categorised into receptor categories, defined by the ‘factors’ categories outlined in Schedule 4, Paragraph 4 of the EIA Regulations. The threshold has been set at ‘minor’ as this is

¹ The common sensitive receptors considered within this assessment are those which are assessed within two or more of the technical assessments within the ES.

considered to address the potential for a number of not significant effects to a receptor becoming significant when they are considered together.

- 13.7 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:
- Combined magnitude of change;
 - Sensitivity/value/importance of the receptor/receiving environment to change; or/and
 - Duration and reversibility of effect.
- 13.8 This process has been document within the **Assessment of Effect Interactions** section of this Chapter.

In-Combination Effects

Identification and Evaluation of Projects for further Consideration

- 13.9 A high level review of planning applications submitted to LCC was undertaken in order to identify potential projects that could give rise to in-combination interactions with the Proposed Scheme.
- 13.10 Applicable projects for consideration of in-combination effects were determined using the following criteria:
- Projects within a relevant geographical boundary, assumed to be the within 1km of the Proposed Scheme;
 - Projects submitted and approved application(s) not yet implemented, but validated within the last 3 years (to capture approved or soon to be approved projects that have a likelihood of being implemented);
 - Project of a relevant scale – the threshold for consideration has been the Schedule 2 criteria in the EIA Regulations 2017, at which there is a potential for ‘likely significant effects’, however, this needs to be applied with a caution;
 - A concurrent construction / operational phase with the Proposed Scheme; and
 - Projects with a common sensitive receptors to the Proposed Scheme.
- 13.11 Following review and liaison with LCC this list was expanded at the request of officers and the final list is detailed in **Table 13.1** and on **Figure 13.1**. Identified projects are hereafter referred to as ‘Approved Project(s)’.
- 13.12 The sensitive receptors identified for the Approved Projects were then cross checked against the receptors identified for the Proposed Scheme. In order for there to be a potential in-combination effect, there needs to be an effect on the same receptor within the same timeframe as the Proposed Scheme. There may be effects at the project level (i.e. specific to the Approved Project), which are not applicable to the Proposed Scheme, which require due consideration and management as part of the identified Approved Projects and not

cumulatively, but these effects have not been reconsidered as part of the cumulative assessment.

13.13 Following the identification and evaluation of projects for further consideration, the assessment of in-combination effects has been informed by a qualitative evaluation at the receptor level with consideration of the following:

- Combined magnitude of change;
- Sensitivity/value/importance of the receptor/receiving environment to change; or/and;
- Duration and reversibility of effect.

13.14 Through a combination of the qualitative evaluation and mitigation presented in the EIA, conclusions have been drawn as to the likelihood for significant in-combination environmental effects from the Proposed Scheme with the projects set out in **Table 13.1** and on detailed on **Figure 13.1**.

Table 13.1: List of Approved Projects for In-Combination Assessment

Project no	Application Number	Address	Description	Status
1	15RM/1499	Land bounded by Oakfield Road, St Domingo Vale, Glaisher Street and Hartnup Street	To erect 108 no. two and three storey dwellings with associated parking, landscaping and ancillary works.	Approve with conditions
2	18F/0313	Land bounded by Venmore Street Anfield Liverpool 4	To erect 86 no. dwellinghouses with associated works.	Approve with conditions
3	18F/0127	Venmore Street / Hartnup Street Liverpool	To demolish short term residential care facility and erect 3 storey, 60 bed health care facility with associated parking and landscaping	Approve with conditions
4	15F/2122	Former Notre Dame School Site Everton Valley Liverpool L5 ORS	To erect three storey block comprising 12 no. flats, two storey block comprising 12 no. flats, 4 no. bungalows and 48 no. two storey dwellinghouses with associated works.	Approve with conditions
5	17F/0060	Land bounded by Whittle Street to the north, Smith Street to the west and Kirkdale Road to the east Liverpool 5	To vary condition 2 attached to planning approval no. 15F/2122, so as to change all 12 no. apartments into one bedroom units and increase height of units facing onto Everton Valley and Walton Breck Road.	Approve with conditions
6	18F/0417	Former Edinburgh Park Dockers Club Townsend Lane Liverpool L6 0BB	To erect two linked blocks of 5 storeys and 6 storeys comprising 177 flats with ground floor commercial unit (for uses within Classes A1, A2, A3, A4 and/or B1) together with associated landscaping and ancillary works.	Registered
7	18F/0111	Land Bounded by Walton Lane, Bullens Road and Diana Street, Liverpool, L4 5RH	To erect 232 dwelling houses with associated parking and access.	Registered
8	20F/0398	Land at the corner of Walton Breck Road and Burleigh Road South	To erect a four storey block comprising 48 no. flats and 2 no. commercial units (for use as shop (A1), cafe/restaurant (A3), pub (A4),	Approve with conditions

Project no	Application Number	Address	Description	Status
			offices (B1) or non-residential institution (D1)) with associated access, landscaping and other works.	
9	20F/1243	Land bounded by Kirkdale Road, Netherfield Road North and Everton Valley	To demolish existing structures and erect 3-8 storey building, creating 52 residential (C3) apartments, ground floor commercial (flexible A1,A2,A3,A4,B1 Use Class) with associated access and car parking	Registered
10	200/0997	Goodison Park, Goodison Road, Liverpool L4 4EL	To demolish existing buildings and redevelop the site for a mix of uses, comprising residential units (Use Class C3); residential institution (Use Class C2); shops (Use Class A1); financial & professional services (Use Class A2); food and drink use (Use Class A3); drinking establishments (Use Class A4); hot food takeaways (Use Class A5); business use (Use Class B1); non-residential institutions (Use Class D1); and open space, with associated access, servicing, parking and landscaping. (Outline application with all matters (Access, Appearance, Landscaping, Layout and Scale) reserved)	Registered
11	20F/0001	Bramley Moore Dock, Regent Road, Liverpool	Application for Full Planning Permission in accordance with submitted drawings for the demolition of existing buildings/structures on site (listed in the schedule); remediation works; foundation/piling works; infill of the Bramley-Moore Dock, alteration to dock walls and dock isolation works with vehicular and pedestrian links above; and other associated	Registered

Project no	Application Number	Address	Description	Status
			<p>engineering works to accommodate the development of a stadium (Use Class D2) predominantly for football use, with the ability to host other events, with ancillary offices (Use Class B1a); Club Shop and retail concessions (internal and external to the stadium) (Use Class A1); exhibition and conference facilities (Use Class D1); food and drink concessions (internal and external to the stadium) (Use Classes A3 / A4 / A5); betting shop concessions (Sui Generis); and associated infrastructure including: electric substation, creation of a water channel, outside broadcast compound, photo-voltaic panels, storage areas/compound, security booth, external concourse / fan zone including performance stage, vehicular and pedestrian access and circulation areas, hard and soft landscaping (including stepped plaza, canopies, lighting, wind mitigation structures, public art, tree planting and boundary treatments), cycle parking structures and vehicle parking (external at grade) and change of use of the Hydraulic Tower structure to an exhibition / cultural centre (Use Class D1) with ancillary food and drink concession (Use Class A3).</p>	

Assessment of Effect Interactions

13.15 **Table 11.2** and **11.3** set out the assessment of effect interactions.

Table 13.2: Matrix of Effect Interactions (Demolition and Construction Phase)

	Population and Human Health	Landscape and material assets	Cultural heritage	Air and climate
Chapter 6 – Socio-Economics and Human Health				
Creation of direct, indirect and induced employment opportunities	Moderate Beneficial*			
Economic productivity generated, measured in gross value added	Minor Beneficial			
Chapter 7 – Townscape and Visual				
Changes to townscape (landscape character, tree cover, scale, massing and height, movement and linkages, public open space, site character)		Minor Adverse		
Changes to townscape (built/landscape heritage assets)		Moderate Adverse*		
Effects on views		Moderate* to Minor Adverse		
Chapter 8 – Built Heritage				
Change in the setting of heritage assets outside the Site.			Moderate* to Minor Adverse	
Physical change or alteration of heritage assets within the Site.			Minor Adverse to Negligible	

	Population and Human Health	Landscape and material assets	Cultural heritage	Air and climate
Chapter 10 – Transport				
Driver severance and journey delay associated with the temporary closure of part of Anfield Road	Minor Adverse			
Temporary closure of part of Anfield Road leading to increased flows on alternative/diversion routes affecting highway safety and accidents	Minor Adverse			
Chapter 11 – Noise and Vibration				
Construction Noise	Potentially Significant ⁺			

* identified as a significant effects alone within the corresponding ES Chapter.

⁺Note that terminology used within Chapter 11 Noise and Vibration differs from that used elsewhere.

13.16 As is evident from **Table 13.2**, the following Chapters did not identify residual effects greater than negligible during the demolition and construction phase;

- **Chapter 9: Biodiversity;** and
- **Chapter 12: Climatic Effects (Wind Microclimate).**

13.17 From the residual effects identified, effect interactions were identified during the demolition and construction phase in relation to Population and Human Health receptors. It is anticipated that whilst the locale will benefit from increased employment opportunities and economic productivity effects, this will be alongside adverse effects in relation to diversions whilst Anfield Road is closed and from construction noise. All effects are considered to be temporary and linked with the construction of the Proposed Scheme.

Table 13.3: Matrix of Effect Interactions (Operation Phase)

	Population and Human Health	Landscape and material assets	Cultural heritage	Air and climate
Chapter 6 – Socio-Economics and Human Health				
Creation of direct, indirect and induced employment opportunities	Moderate Beneficial*			
Economic productivity generated, measured in gross value added	Minor Beneficial			
Expenditure of visitors in the local and wider economy	Moderate Beneficial*			
Chapter 7 – Townscape and Visual				
Changes to townscape elements(townscape and landscape character of site, movement and linkages, public open space, site character)		Moderate to Major Beneficial*		
Changes to townscape elements (heritage assets as townscape receptors, tree cover, scale, massing and height)		Minor Beneficial		
Effects on Views		Moderate Adverse* to Negligible		
Chapter 8 – Built Heritage				
Change in the setting of heritage assets outside the Site.			Moderate Adverse* to Negligible	

	Population and Human Health	Landscape and material assets	Cultural heritage	Air and climate
Chapter 11 – Noise and Vibration				
Road traffic noise	Potentially Significant ⁺			
Chapter 12 - Climatic Effects (Wind Microclimate)^				
Entrances to the Proposed Scheme and to the stadium with strolling use wind conditions or calmer during the windiest season (Configuration 4)	Major beneficial to major adverse			Major beneficial to major adverse

* identified as a significant effects alone within the corresponding ES Chapter.

⁺ Note that terminology used within Chapter 11 Noise and Vibration differs from that used elsewhere.

[^]For wind effects, given these are localised to the Site, this has focussed on just significant effects

13.18 As is evident from **Table 13.3**, the following Chapters did not identify residual effects greater than negligible during the operation of the Proposed Scheme;

- **Chapter 9: Biodiversity;** and
- **Chapter 10: Transport.**

13.19 From the residual effects identified, effect interactions were only identified for Population and Human Health receptor group (as shaded in **Table 13.2**).

13.20 This shows that, in common with the construction phase, beneficial socioeconomic effects would occur. Increased employment opportunities, economic productivity and expenditure by increased visitor levels all result in beneficial effects to receptors in the locale. Potentially significant effects may occur to a single property (73 Anfield Road).

13.21 Effects identified in relation to wind microclimate would be experienced by visitors to the Stadium and thus it is unlikely that common receptors would apply, except to local visitors.

Assessment of In-Combination Effects

- 13.22 Approved Projects identified for the assessment of in-combination effects are detailed in **Table 13.1**. The assessment of in-combination effects is set out below.

Socio-Economics and Human Health

- 13.23 A review of each Approved Project in relation to socioeconomic and human health effects is set out below. This has been done in a high level manner in accordance with the level of information available in relation to each project.

Approved Projects	In-combination Assessment
Project 1	This Approved Project is now complete. No employment or visitor expenditure effect upon completion, although 108 new homes will have likely grown the size of the labour force.
Project 2	The labour force is capable of supporting schemes' construction simultaneously. No employment or visitor expenditure effect upon completion, although 86 new homes would likely grow the size of the labour force.
Project 3	The labour force is capable of supporting schemes' construction simultaneously. Application form suggests that the replacement of the existing facility will create only one additional full-time job, bringing the total to 27 jobs. Capacity appears to exist in the local area to service this demand for labour alongside the Proposed Scheme.
Project 4	The labour force is capable of supporting schemes' construction simultaneously. No employment or visitor expenditure effect upon completion, although 76 new homes would likely grow the size of the labour force.
Project 5	The labour force is capable of supporting schemes' construction simultaneously. Modest employment effect likely upon completion, linked to ground floor commercial unit, although 177 new homes would simultaneously grow the size of the labour force.
Project 6	The labour force is capable of supporting schemes' construction simultaneously. No employment or visitor expenditure effect upon completion, although 232 new homes would likely grow the size of the labour force.
Project 7	The labour force is capable of supporting schemes' construction simultaneously. No employment or visitor expenditure effect upon completion, although 106 new homes would likely grow the size of the labour force.
Project 8	The labour force is capable of supporting schemes' construction simultaneously. Modest employment effect likely upon completion, linked to commercial units, although 48 new homes would simultaneously grow the size of the labour force.

Approved Projects	In-combination Assessment
Project 9	The labour force is capable of supporting schemes' construction simultaneously. Modest employment effect likely upon completion, linked to ground floor commercial unit, although 52 new homes would simultaneously grow the size of the labour force.
Project 10	The labour force is capable of supporting schemes' construction simultaneously. Documentation submitted with the planning application suggests that 450 net additional jobs could be generated through the provision of new commercial space, but the labour force is also likely to grow through the provision of 173 new homes and there appears sufficient capacity in the local labour force to service the residual demand for labour.
Project 11	Documentation submitted with the planning application suggests that over 5,600 jobs could be created during construction, creating a demand for labour that could be partially met by specialists based elsewhere. A net additional 93 full time jobs are expected throughout the Liverpool City Region upon completion, which could be comfortably filled through existing surplus capacity in the labour force. Additional visitor expenditure is also expected to have a beneficial effect.
All Schemes	<p>Construction of schemes simultaneously would require sufficient labour, albeit there is no evidence of a particular shortage in this area and the profiles of both the Proposed Scheme and Approved Project 11 are likely to require a specialist external contractor thus reducing their draw on the local labour force.</p> <p>Provision of new dwellings would likely grow the local population, and increase the size of the local labour force. This will ensure that employment-generating schemes, such as the Anfield Road Stand project, are able to draw upon local labour where possible.</p> <p>Significant in-combination effects are not considered above those reported at the project level for the Proposed Scheme.</p>

Townscape and Visual

- 13.24 A review of each Approved Project in relation to townscape and visual effects is set out below.

Approved Projects	In-combination Assessment
Project 1	This Approved Project has now been completed and thus effects are already experienced in the baseline, against which the proposed Scheme has been assessed.
Project 2	<p>No in-combination townscape effects due to separation from the Proposed Scheme and lack of shared townscape receptors.</p> <p>View 10 – The Approved Project is for new housing and is therefore predicted to be incorporated into the existing residential townscape without any additional in combination effects.</p>

Approved Projects	In-combination Assessment
Project 3	No in-combination townscape effects due to separation from the Proposed Scheme and lack of shared townscape receptors. View 10 – The Approved Project is for new housing and is therefore predicted to be incorporated into the existing residential townscape without any additional in combination effects.
Project 4	The Approved Project is considered to be too distant from the Site to include shared views or to effect common townscape receptors.
Project 5	The Approved Project is considered to be too distant from the Site to include shared views or to effect common townscape receptors.
Project 6	The Approved Project is considered to be too distant from the Site to include shared views or to effect common townscape receptors.
Project 7	The Approved Project is considered to be too distant from the Site to include shared views or to effect common townscape receptors.
Project 8	The Approved Project is considered to be too distant from the Site to include shared views or to effect common townscape receptors.
Project 9	View 10 – The Approved Project is for new housing and is therefore predicted to be incorporated into the existing residential townscape without any additional in combination effects.
Project 10	The Approved Project is considered to be too distant from the Site to include shared views or to effect common townscape receptors.
Project 11	The Approved Project is considered to be too distant from the Site to include shared views or to effect common townscape receptors.
All Projects	<p>The Approved Projects propose primarily residential use with associated ancillary uses. A number of these Approved Projects will infill areas of previous demolition. The Approved Projects will therefore serve to consolidate and reinforce the existing residential townscape character around the Stadium. There are not predicted to be any cumulative townscape effects when considering all relevant Approved Projects as a whole.</p> <p>There are no identified viewpoints which would allow visual receptors to view identified Approved Projects together. There are therefore not predicted to be any cumulative visual effects when considering all relevant Approved Projects as a whole.</p>

Built Heritage

13.25 A review of each Approved Project in relation to built heritage effects is set out below.

Approved Projects	In-combination Assessment
Project 1	<p>It is believed that this Approved Project is now complete.</p> <p>The Approved Project is located to the south of Walton Breck Road, on the opposite side of Anfield Stadium. Given the minor nature and</p>

Approved Projects	In-combination Assessment
	scale of the Approved Project (houses at two to three storeys), it is not considered to result in any adverse impacts on nearby heritage assets. Furthermore, the extent of intervening development between the site and nearby heritage assets limits any potential impacts. There are therefore are no in-combination built heritage effects.
Project 2	The Approved Project does is located to the south of Walton Breck Road, on the opposite side of Anfield Stadium. Given the minor nature and scale of the project (houses at two to three storeys), it is not considered to result in any adverse impacts on nearby heritage assets. Furthermore, the extent of intervening development between the site and nearby heritage assets limits any potential impacts. There are therefore are no in-combination built heritage effects.
Project 3	The Approved Project is located to the south of Walton Breck Road, on the opposite side of Anfield Stadium. Given the minor nature and scale of the project (replacement new build care facility), it is not considered to result in any adverse impacts on nearby heritage assets. Furthermore, the extent of intervening development between the site and nearby heritage assets limits any potential impacts. There are therefore are no in-combination built heritage effects.
Project 4	The Approved Project is sufficiently distanced from the Site and does not result in any adverse impacts on nearby heritage assets. There are therefore are no in-combination built heritage effects.
Project 5	The Approved Project is sufficiently distanced from the Site and does not result in any adverse impacts on nearby heritage assets. There are therefore are no in-combination built heritage effects.
Project 6	The Approved Project is sufficiently distanced from the Site and does not result in any adverse impacts on nearby heritage assets. There are therefore are no in-combination built heritage effects.
Project 7	The Approved Project is proximate to the grade II* Stanley Park Registered Park and Garden and grade II* Anfield Cemetery Registered Park and Garden. Whilst proximate, the accompanying reports and assessment work do not identify any adverse impacts on these heritage assets. Furthermore, the Approved Project involves reinstating built form on a previously developed site. There are therefore are no in-combination built heritage effects.
Project 8	The Approved Project is located to the south west of Walton Breck Road, on the opposite side of Anfield Stadium. Given the minor nature and scale of the Approved Project (approximately 4 storeys), it is not considered to result in any adverse impacts on nearby heritage assets. Furthermore, the extent of intervening development between the site and nearby heritage assets limits any

Approved Projects	In-combination Assessment
	potential impacts. There are therefore are no in-combination built heritage effects.
Project 9	The Approved Project is sufficiently distanced from the Site and does not result in any adverse impacts on nearby heritage assets. There are therefore are no in-combination built heritage effects.
Project 10	The Approved Project is located to the north west of Stanley Park and west of Anfield Cemetery, both Grade II* Registered Parks and Gardens. The accompanying Heritage Assessment assesses the impact of the Approved Project on these heritage assets and others in the surrounding area. It concludes that the Approved Project will either result in a negligible impact or minor beneficial impact on the significance of nearby heritage assets. No adverse impacts have been identified and there are therefore are no in-combination built heritage effects.
Project 11	The Approved Project is sufficiently distanced from the Site and does not result in any adverse impacts on nearby heritage assets. There are therefore are no in-combination built heritage effects.
All Projects	The Approved Project's propose primarily residential use with associated ancillary uses. A number of these Approved Projects will infill areas of previous demolition. Some of the projects are either sufficiently distanced from the Site and or do not result in any adverse impacts on nearby heritage assets. There are not predicted to be any cumulative built heritage effects when considering all relevant Approved Projects.

Biodiversity

- 13.26 A review of each Approved Project in relation to biodiversity is set out below. As other common receptors are not present, this focuses on bats.

Approved Projects	In-combination Assessment
Project 1	<p>This Approved Project is now complete. No ecological assessment was provided as part of the planning application for Approved Project 1. However, the landscape masterplan (2015)¹, shows the removal of several trees as part of the development. Without any detail of the status of these trees, it is difficult to determine whether this could impact any potential bat roosts within the site. However, given that the application was approved, and there are no details of ecological assessment, it is assumed these trees did not have bat roosting potential. In addition, the landscape masterplan does show considerable tree replanting.</p> <p>Construction</p> <p>Sensitivity of receptor: Bats require a variety of roosts throughout the year. Some bats even move daily if the conditions in the roost are unsuitable. Bats are habitual to the same roost sites, returning when certain conditions are required during their life cycle. Bats can</p>

Approved Projects	In-combination Assessment
	<p>travel up to several kilometres for a roost site, depending on the species (Bat Conservation Trust (2016))ⁱⁱ.</p> <p>Combined effect: Worst case scenario, potential loss of bat roosts with Project 1, combined with potential loss of bat roosts at the Proposed Scheme could have a minor effect on bat species within the area.</p> <p>Duration and reversibility of effect: Provision of bat boxes at a 2:1 ratio to compensate the direct permanent loss of a roost of a common species at the Proposed Scheme, will provide an instant solution to the combined loss of potential roosts.</p> <p>Operation</p> <p>Combined effect: Minor beneficial.</p> <p>Duration and reversibility of effect: Native tree planting at both Sites, once matured, could provide suitable roosting features in the future for bat species.</p>
Project 2	<p>An Ecological Appraisal was submitted as part of the planning application (EuanKellie property solutions (2018))ⁱⁱⁱ. It describes the area as being an area of hardstanding, with poor semi-improved grassland, ephemeral short perennial and tall ruderal vegetation. No trees or buildings are present on this site and is stated to have low potential for foraging and commuting bats.</p> <p>The Approved Project has included two bat boxes and bat bricks into the design and landscaping including the planting of 31 new trees.</p> <p>Construction</p> <p>Sensitivity of receptor: As discuss under Approved Project 1, please refer to this information.</p> <p>Combined magnitude of change: Minor beneficial effect for bats in the area with the instant addition of new roosts sites in the form of bat boxes and bricks.</p> <p>Duration and reversibility of effect:</p> <p><u>N/A</u></p> <p>Operation</p> <p>Combined magnitude of change: Minor beneficial. The addition of new trees and landscaping with Approved Project 2 and with the Proposed Scheme, once matured, could provide suitable roosting features in the future for bat species.</p> <p>Duration and reversibility of effect:</p> <p><u>N/A</u></p>
Project 3	<p>An ecological assessment (TEP 2016)^{iv} was submitted as part of the planning application. The site comprises of buildings, areas of hardstanding, amenity grasslands, broad-leafed trees and ornamental shrubs. A preliminary bat assessment was carried out on three buildings to be demolished, which found them to have negligible potential for bats. Two trees were found to have</p>

Approved Projects	In-combination Assessment
	<p>low/negligible bat potential, which will be removed as part of the development.</p> <p>To compensate for potential loss of roosts, bat boxes will be provided on retained trees around the site. Tree planting and landscaping will also be incorporated into the design.</p> <p><u>Construction</u></p> <p>Sensitivity of receptor: As discuss under Approved Project 1, please refer to this information.</p> <p>Combined magnitude of change: A preliminary bat assessment at Project 3, demonstrates that buildings and trees have low/negligible potential for bat roosts. It is considered that there is a negligible combined effect on bats with the Proposed Scheme.</p> <p>Duration and reversibility of effect: N/A</p> <p><u>Operation</u></p> <p>Combined magnitude of change: A minor combined beneficial effect is considered likely, with the addition of bat boxes at Approved Project 3 and the Proposed Scheme.</p> <p>Duration and reversibility of effect: The addition of new trees and landscaping with Approved Project 3 and with the Proposed Scheme, once matured, could provide additional suitable roosting features in the future for bat species. This will increase the beneficial effect.</p>
Project 4	<p>The existing site comprises of the former Notre Dame School site that is being demolished. An ecological assessment (JW Ecological Ltd. 2009)^v was submitted as part of the planning application. The site comprises of a number of buildings of varying ages, scattered broadleaved and conifer trees, two small hedgerows, amenity grassland and hard standing. A preliminary bat assessment was carried out on the buildings (including Notre Dame School) and trees. The trees were found to have negligible bat potential. No signs of bats were found during the bat surveys of several of the Notre Dame College buildings. However, only one internal inspection of a building was carried out and due to the complexity of the roof structure, further detailed bat activity surveys were recommended prior to demolition or any activities to cause significant disturbance.</p> <p>It is unclear whether any bat box installation will take place.</p> <p>Thirty-three trees will be felled as part of the development (Mulberry 2015)^{vi} and compensatory tree planting is planned.</p> <p><u>Construction</u></p> <p>Sensitivity of receptor: As discuss under Approved Project 1, please refer to this information.</p> <p>Combined magnitude of change: Potential loss of bat roosts with Approved Project 4 (further surveys required to confirm presence),</p>

Approved Projects	In-combination Assessment
	<p>combined with potential loss of bat roosts at the Proposed Scheme, could have a minor effect on bat species within the area.</p> <p>Duration and reversibility of effect: Provision of bat boxes at a 2:1 ratio to compensate the direct permanent loss of a roost of a common species at the Proposed Scheme, will provide an instant solution to the combined loss of potential roosts.</p> <p>Operation</p> <p>Combined magnitude of change: Minor beneficial.</p> <p>Duration and reversibility of effect: Native tree planting at both Sites, once matured, could provide suitable roosting features in the future for bat species.</p>
Project 5	<p>The application seeks to secure detailed planning approval for the demolition of existing building and erection of a mixed-use part 6 / part 5 storey building. The site consists of scattered trees, amenity grassland, a building (substation to be demolished) and hard standings.</p> <p>A preliminary ecological appraisal was produced as part of the planning application (Amenity Tree Care Ltd 2018)^{vii}, which states there is bat potential in the building and surrounding trees, however further surveys are required to determine extent.</p> <p>Construction</p> <p>Sensitivity of receptor: As discuss under Approved Project 1, please refer to this information.</p> <p>Combined magnitude of change: Worst case scenario, potential loss of bat roosts with Approved Project 5, combined with potential loss of bat roosts at the Proposed Scheme, could have a minor effect on bat species within the area.</p> <p>Duration and reversibility of effect: Provision of bat boxes at a 2:1 ratio to compensate the direct permanent loss of a roost of a common species at the Proposed Scheme, will provide an instant solution to the combined loss of potential roosts at both sites.</p> <p>Operation</p> <p>Combined magnitude of change: Negligible.</p> <p>Duration and reversibility of effect: Native tree planting at the Proposed Scheme, once matured, could provide suitable roosting features in the future for bat species.</p>
Project 6	<p>The main habitat types within the Site include amenity grassland, scrub and scattered trees and hedgerows with limited ecological value. No evidence of bats was found, and the likelihood of bats being affected by the development was deemed to be negligible. The assessment concludes that no further bat surveys are required. A series of ecological enhancements are identified, including the addition of new trees and planting (Turley 2017)^{viii}.</p> <p>Construction</p>

Approved Projects	In-combination Assessment
	<p>Sensitivity of receptor: Habitats on site are homogenous, are of very low importance and rarity, offering limited opportunities for foraging and commuting bats. The sensitivity of this receptor is considered to be negligible.</p> <p>Combined magnitude of change: A bat assessment at Approved Project 6, concluded that buildings/trees and habitat had no potential for bat roosts. It is considered that there is a negligible combined effect on bats with the Proposed Scheme.</p> <p>Duration and reversibility of effect: N/A</p> <p>Operation</p> <p>Combined magnitude of change: Negligible</p> <p>Duration and reversibility of effect: The addition of new trees and landscaping with Approved Project 6 and with the Proposed Scheme, once matured, could provide additional suitable roosting features in the future for bat species.</p>
Project 7	<p>The site consists of hardstanding, a building and amenity grassland. No trees, bushes or large shrubs exist on site. The building on site was classed as negligible for bats (Tyer Ecological Consultants LTD 2018)^{ix}.</p> <p>Construction</p> <p>Sensitivity of receptor: Habitats on site are homogenous, are of very low importance and rarity, offering no opportunities for roosting, foraging or commuting bats. The sensitivity of this receptor is considered to be negligible.</p> <p>Combined magnitude of change: A bat assessment at Approved Project 7, concluded that buildings/trees and habitat had no potential for bat roosts. It is considered that there is a negligible combined effect on bats.</p> <p>Duration and reversibility of effect: N/A</p> <p>Operation</p> <p>Combined magnitude of change: Negligible</p> <p>Duration and reversibility of effect: The addition of new trees and landscaping with Approved Project 7 and with the Proposed Scheme, once matured, could provide additional suitable roosting features in the future for bat species.</p>
Project 8	<p>The Ecological Assessment (Ecology Services Ltd. 2019)^x submitted as part of the planning application did not identify any habitat suitable for roosting or foraging bats; the site comprises of predominantly hard standing with small areas of unmanaged amenity grassland and ephemeral/short perennial vegetation. No evidence of bats was found, and the assessment concludes that no further bat surveys are required. The development is considered to</p>

Approved Projects	In-combination Assessment
	<p>have a negligible impact on bats in the surrounding area following a sensitive lighting design to minimise artificial light spill.</p> <p><u>Construction</u></p> <p>Sensitivity of receptor: Habitats on site offer no opportunities for roosting or foraging bats. The sensitivity of this receptor is considered to be negligible.</p> <p>Combined magnitude of change: A bat assessment at Approved Project 8, concluded that habitat on site had no potential for bat roosts or foraging. It is considered that there is a negligible combined effect on bats.</p> <p>Duration and reversibility of effect:</p> <p><u>N/A</u></p> <p><u>Operation</u></p> <p>Combined magnitude of change: Minor beneficial. The installation of bat boxes within the building and planting schemes for Approved Project 8 could provide suitable roosting features and foraging habitat in the future for bat species.</p> <p>Duration and reversibility of effect:</p> <p>Addition of any new trees planted as part of the landscaping for Approved Project 8, could provide suitable roosting features in the future for bat species, once matured.</p>
Project 9	<p>The Ecological Appraisal (Penny Anderson Associates Ltd. 2019)^{xi} submitted as part of the planning application identified habitats on-site are of negligible suitability for foraging and commuting bats; the site comprises of predominantly unmanaged semi-improved grassland and broadleaved scattered trees. The majority of trees were semi-mature, with many saplings scattered through the grassland. However, no trees within the site boundary were assessed as having bat roosting potential. The existing building on-site had features suitable for roosting bats, but no evidence of bats was found. The building was considered to have an overall negligible potential for roosting bats and no further bat surveys were recommended. The Ecological Appraisal recommends that a pre-demolition check of the building for bats is conducted by a suitably qualified bat licenced ecologist.</p> <p><u>Construction</u></p> <p>Sensitivity of receptor: The existing building on-site had features suitable for roosting bats, but no bats were found, so it was considered to have an overall negligible potential for roosting bats. As discussed under Approved Project 1, please refer to this information.</p> <p>Combined magnitude of change: Negligible effect on bats, as the loss of an existing building with suitable roosting features is deemed as having negligible potential for roosting bats. The installation of bat boxes within the building will provide instant roost sites.</p>

Approved Projects	In-combination Assessment
	<p>However, intermittent disturbance (daytime works) will likely deter bats from utilising these features until post-construction.</p> <p>Duration and reversibility of effect:</p> <p><u>N/A</u></p> <p><u>Operation</u></p> <p>Combined magnitude of change: Minor beneficial. Incorporation of roosting features with the structure of the new building (for example, self-contained bat bricks in the walls) and bat boxes mounted to buildings or trees. The site is located adjacent the B5432 which is well lit by tall lighting columns. Approved Project 9 proposes adoption of a sensitive lighting scheme to increase the likelihood of roosting bats using the newly installed features (for example, time and or motion sensors to limit periods of illumination to essential times only.</p> <p>Duration and reversibility of effect:</p> <p><u>N/A</u></p>
Project 10	<p>The Ecological Assessment (WYG 2020)^{xii} submitted as part of the planning application states the site consists of hardstanding, amenity grassland, the stadium building (consisting of four large stands) and nine ancillary structures (ranging from metal portacabins to small brick structures). The site was identified as having negligible potential for roosting and foraging bats. The assessment concludes that no further bat surveys are required.</p> <p><u>Construction</u></p> <p>Sensitivity of receptor: Habitats and buildings on site offer no opportunities for roosting or foraging bats. The sensitivity of this receptor is considered to be negligible.</p> <p>Combined magnitude of change: The Ecological Assessment of Approved Project 10, concluded that the site had negligible potential for roosting bats and foraging. It is considered that there is a negligible combined effect on bats.</p> <p>Duration and reversibility of effect: N/A</p> <p><u>Operation</u></p> <p>Combined magnitude of change: Minor benefit. Biodiversity net gain from the planting design could provide pockets of suitable habitat for foraging bats and roosting features, once trees mature in the future. However, opportunities for bats on the site post-development will be limited due to lighting and disturbance due to noise and vibration.</p> <p>Duration and reversibility of effect: The addition of new trees and landscaping with Approved Project 10 and with the Proposed Scheme, once matured, could provide additional suitable roosting features in the future for bat species as well as foraging habitat.</p>

Approved Projects	In-combination Assessment
Project 11	<p>The Environmental Statement (WYG)^{xiii} submitted as part of the planning application states the site comprises scattered scrub, tall ruderal vegetation, ephemeral/short perennial vegetation, introduced scrub, bare ground – hard standing and open water. One building (hydraulic engine house) out of a total of nine buildings, was assessed as having moderate potential for roosting bats. Further surveys identified a day roost in the hydraulic tower, where common pipistrelle bats were observed emerging and entering. A further three tunnel structures within Approved Project 11's site and a large brick sea wall (the River Mersey wall which forms the site's western boundary) were assessed as having negligible ecological value.</p> <p><u>Construction</u></p> <p>Sensitivity of receptor: Common pipistrelle were recorded emerging from and entering a day roost in the hydraulic tower.</p> <p>Combined magnitude of change: Permanent loss of a day roost occupied by low numbers of a single species of common bat as part of refurbishment works to the hydraulic tower. It is considered that Approved Project 11 will result in a significant impact at local level only. It is considered that there is a negligible combined effect on bats, due to provision of an alternative roost prior to construction and that there is no habitat connectivity between Approved Project 11 and the Proposed Scheme.</p> <p>Duration and reversibility of effect: N/A</p> <p><u>Operation</u></p> <p>Combined magnitude of change: A negligible effect is considered likely, due to the provision of an alternative bat box at Approved Project 11 and the Proposed Scheme.</p> <p>Duration and reversibility of effect: N/A</p>
All Projects	<p><u>Construction and Operation</u></p> <p>Combined magnitude of change: Worst case scenario, potential loss of bat roosts with the majority of projects 1-11 listed, combined with potential loss of bat roosts at the Proposed Scheme, could have a minor effect on bat species within the area as a whole.</p> <p>Duration and reversibility of effect:</p> <p>Short term: Some sites are suggesting providing instant mitigation for this in the form of bat boxes, as proposed at the Proposed Scheme, however some are not.</p> <p>Long term: Most projects, along with Anfield, are incorporating tree planting within the projects. Once these trees mature, this could provide suitable roosting features in the future for bat species. Cumulative effects would be not significant.</p>

Transport

- 13.27 From a transport perspective, the in-combination assessment has focussed on how additional trips generated by the Approved Projects will increase future flows on the network, which when combined with flows associated with the temporary closure of Anfield Road during the construction phase may lead to increased driver severance, delay or affect accidents and safety. There are no significant effects from the operation phase for transport for the Proposed Scheme, however consideration is given to the operation phase in combination with the Approved Projects in the final line of the following table.

Approved Projects	In-combination Assessment
Project 1	This site is now operational and therefore any movements associated with this Approved Project will already be captured within the baseline assessed. Therefore, no separate assessment is required. The in-combination effect is no greater than the effect considered at the project level for the Proposed Scheme.
Project 2	No information is provided in relation to expected trip generation from the proposed 86 properties. The Approved Project is well located to make use of local bus services to reduce the need for private car journeys. Given the scale of the development and the surrounding route choice for journeys, the uplift of vehicles associated with this development is not expected to be great enough to cause a change in significance in relation to driver severance, journey delay or road safety. The in-combination effect is no greater than the effect considered at the project level.
Project 3	The Transport Statement suggests this Approved Project will generate 12 vehicle movements per hour. This site however will be a re-provision of an existing facility and as such, some of these vehicles movements are likely to already be accommodated within the baseline flows. The uplift of vehicles associated with this Approved Project is not considered great enough to cause a change in significance in relation to driver severance, journey delay or road safety. The in-combination effect is no greater than the effect considered at the project level.
Project 4	No information is provided in relation to expected trip generation from the Approved Project, however the access is located off St Domingo's Road and therefore does not connect directly with the study area and allows trips associated with the site to dissipate across the surrounding network. The Approved Project is well located to make use of local bus services to reduce the need for private car journeys. The uplift of vehicles associated with this Approved Project is not expected to be great enough to cause a change in significance in relation to driver severance, journey delay or road safety. The in-combination effect is no greater than the effect considered at the project level.
Project 5	This site is located some distance from the Study area, and therefore not considered likely to have a noticeable effect upon

Approved Projects	In-combination Assessment
	baseline flows in the study area. The in-combination effect is no greater than the effect considered at the project level.
Project 6	This site is located some distance from the Study area, and therefore not considered likely to have a noticeable effect upon baseline flows in the study area. The in-combination effect is no greater than the effect considered at the project level.
Project 7	This Approved Project is not encouraging private car trips by limiting parking on site, and promoting use of adjacent bus services. The in-combination effect is no greater than the effect considered at the project level.
Project 8	This Approved Project is not encouraging private car trips by limiting parking on site, and promoting use of adjacent bus services. The in-combination effect is no greater than the effect considered at the project level.
Project 9	This site is located some distance from the Study area, and therefore not considered likely to have a noticeable effect upon baseline flows in the study area. The in-combination effect is no greater than the effect considered at the project level.
Project 10	The site is located just outside of the Study area, however the Transport Assessment for this Approved Project suggests that trips may dissipate onto Walton Lane which is within the study area for the Site. The assessment concludes that spare capacity remains on Walton Lane and therefore associated change in traffic flows are not expected to be great enough to cause a change in significance in relation to driver severance, journey delay or road safety. Therefore given the distance from the Site and the opportunity for route choice, the in-combination effect is no greater than the effect considered at the project level.
Project 11	Match or event days at this proposed stadium and the Site are not permitted to take place on the same day, therefore there is no in-combination effect on match days. On non-match days, this site is located some distance from the Study area, and therefore not considered likely to have a noticeable effect upon baseline flows in the study area. The in-combination effect is no greater than the effect considered at the project level.
All Projects	<p>Cumulatively, the Approved Projects will generate an increase in trips upon the highway network, however these will be dissipated across the local area and not necessarily concentrated upon the links within the study area.</p> <p>Construction phase: As part of determining flows for the future assessment years for assessing the impact of the Proposed Scheme during the construction phase, the baseline flows were uplifted using a DfT standard uplift factor to account for growth and development in the local area. This therefore captures increases in</p>

Approved Projects	In-combination Assessment
	trips from the Approved Projects. The in-combination effect is no greater than the effect considered at the project level.
	Operation phase: No significant effects for transport have been noted for the operation phase. On non-match and non-event days, the Proposed Scheme will have little to no impact upon the baseline position. On match and event days, restrictions on the highway network in relation to road closures and the implementation of the Transport Strategy will mean movements from other Approved Projects will be managed by default, as they become part of trips on the surrounding network. There is therefore not anticipated to be any significant cumulative effect during the operation phase.

Noise and Vibration

- 13.28 A review of each Approved Project in relation to noise and vibration is set out below. It is anticipated that due to the nature of the Approved Projects, significant operational noise will not be generated and thus this has not been considered. Further, it is assumed that during the construction phase, each contractor will control construction noise through best practicable means.

Approved Projects	In-combination Assessment
Project 1	It is understood that this Project is now complete and operational, as such no cumulative effects are anticipated.
Project 2	Cumulative effects are considered unlikely due to the extended distance (260m) of Approved Project 2 from the Proposed Scheme.
Project 3	Cumulative effects are considered unlikely due to the extended distance (240m) of Approved Project 3 from the Proposed Scheme.
Project 4	Cumulative effects are considered unlikely due to the extended distance (600m) of Approved Project 4 from the Proposed Scheme.
Project 5	Cumulative effects are considered unlikely due to the extended distance (1000m) of Approved Project 5 from the Proposed Scheme.
Project 6	Cumulative effects are considered unlikely due to the extended distance (1000m) of Approved Project 6 from the Proposed Scheme.
Project 7	Cumulative effects are considered unlikely due to the extended distance (720m) of Approved Project 7 from the Proposed Scheme.
Project 8	Cumulative effects are considered unlikely due to the extended distance (260m) of Approved Project 8 from the Proposed Scheme.
Project 9	Cumulative effects are considered unlikely due to the extended distance (1050m) of Approved Project 9 from the Proposed Scheme.
Project 10	Cumulative effects are considered unlikely due to the extended distance (650m) of Approved Project 10 from the Proposed Scheme.

Approved Projects	In-combination Assessment
Project 11	Cumulative effects are considered unlikely due to the extended distance (2600m) of Approved Project 11 from the Proposed Scheme.
All Schemes	It is considered that, due to the distance from the Site, that noise effects will not be experienced by common receptors and thus effects are unlikely to be greater than those reported at a project level for the Proposed Scheme.

Climatic Effects (Wind Microclimate)

- 13.29 As set out within **Chapter 12: Climatic Effects (Wind Microclimate)** the wind tunnel test for 'Configuration 5: Proposed Scheme with Cumulative Surrounding Buildings, Existing and Proposed Landscaping Scheme and Proposed Mitigation Measures' covers the cumulative scenario.
- 13.30 Approved Projects identified within the 360m radius of the Site assessed in the wind tunnel in March 2020 model are:
- The Parks (ref. 18/F0313); and
 - Venmore Street (ref. 18/F0127).
- 13.31 Following the wind tunnel tests of Configuration 5 conducted in March 2020, an updated list of Approved Projects have been provided in October 2020. RWDI reviewed the Approved Projects listed in **Table 13.1**, and concluded that Approved Projects 9-11 (not included in the tests) would be located too far from the Site to have a significant impact on the wind conditions at and in the immediate surrounding of the Site.
- 13.32 Approved Project 8 (not included in the test) in **Table 13.1** (Land at the corner of Walton Breck Road and Burleigh Road South, ref. 20F/0398) would be located to the west, approximately 100m from the Site. This Approved Project will consist of a mixed use four storey block of a comparable height with the surrounding buildings. The Approved Project will be built along the prevailing westerly wind directions; however, the western area of the Site would remain well exposed to the oncoming winds, and no significant shelter is expected from this Approved Project. Therefore, based on professional judgement, it is not expected that the erection of this Approved Project would have any significant impact on the wind conditions at and in the immediate surroundings of the Site, and the wind microclimate assessment conducted in March 2020 remains valid.
- 13.33 Configuration 5 included the proposed landscaping scheme in addition to the existing landscaping in the surrounding of the Stadium; these features are shown in **12.40- 12.43 of Appendix 12.2**.
- 13.34 Wind conditions for Configuration 5 are presented in **Figures 12.26 and 12.27** respectively at ground level, and on the Main Stand podium and on the stands of the stadium during the windiest season. **Figures 12.28 and 12.29** depict the wind conditions at ground level, podium level and on the stands during the summer season, while **Figures 12.30 and 12.31** report the strong winds exceedances throughout the year.

Pedestrian Comfort

- 13.35 In this configuration wind conditions at and surrounding the Proposed Scheme in the context of the cumulative schemes and with the proposed landscaping scheme in place would be largely consistent with those in Configuration 1 (Baseline), with calmer wind conditions at the northern corner of the Main Stand and at the north-western corner of the Proposed Scheme. Wind conditions would generally range from suitable for sitting use to walking use during the windiest season, with walking use wind conditions to the north of the Stadium and at the southern corner of the Main Stand; wind conditions during the summer season would be generally one category calmer at and surrounding the Site.

Thoroughfares

- 13.36 Wind conditions at all thoroughfare locations would range from suitable for sitting use to walking use during the windiest season, as shown in **Figure 12.26**. Instances of walking use wind conditions would be at measurement locations 80, 112, and 134 during the windiest season. Walking use wind conditions at these locations would be one category windier than required; however, these wind conditions are already existing in the baseline scenario (Configuration 1), therefore wind mitigation measures would not be required at any of these locations as this represents a **negligible** (Not Significant) effect.
- 13.37 Generally, one category calmer wind conditions occur during the summer season, ranging from suitable for sitting use to walking use (**Figure 12.28**); the windiest area would be the northern corner of the Main Stand and the north-western corner of the Proposed Scheme.

Crossings

- 13.38 Wind conditions at all crossing locations 88, 259-262, and 265 would be suitable for standing use or calmer during the windiest season in this configuration representing a **major beneficial** (Not Significant) to **moderate beneficial** effect (Not Significant), as shown in **Figure 12.26**.

Entrances

- 13.39 Entrances to the surrounding buildings represented by measurement locations 59, 61, 256, 258, 361, and 364 would have wind conditions suitable for standing use or calmer during the windiest season in this configuration (**Figure 12.26**). This represents a **negligible** (Not Significant) to **minor beneficial** (Not Significant) effect and mitigation would not be required at these locations.
- 13.40 Entrances to the Proposed Scheme and to the Stadium (measurement locations 18-20, 22, 27, 30, 34-36, 38, 44-47, 68, 69, 71-74, 76, 77, 85, 86, 90, 91, 95, 99, 119, 135, 136, 138-140, 144, 164, 166-171, 173, 175, 176, 185-189, 209-211, 213, 214, 224-226, 232-234, 238, 248-250, 268-270, 287, 289, 298, 308, 310, 312, 315, and 317) would have wind conditions suitable for sitting use to strolling use during the windiest season, representing a **minor beneficial** (Not Significant) to **minor adverse** (Significant) effect (**Figures 12.26 and 12.28**). Strolling use wind conditions would occur at entrance locations 85, 164, 173, 175, and 232. Strolling use wind conditions at the secondary entrance 85 would be acceptable, representing a **negligible** (Not Significant) effect. However, entrance locations 164, 173, 175, and 232 would have one category windier than required conditions representing a **minor adverse** (Significant) effect. These locations would require wind mitigation measures.

Bus Stops

- 13.41 Wind conditions at all the bus stops in the surrounding of the Site represented by measurement locations 29, 37, 56, 243, 255 would remain suitable for standing use or calmer wind conditions during the windiest season (**Figure 12.26**). This represents a **negligible** (Not Significant) to **minor beneficial** (Not Significant) effect, and no mitigation would be required at any of these locations.

Pitch and Stands

- 13.42 Wind conditions on the pitch during the windiest season would be suitable for sitting use to standing use (**Figure 12.26**). This represents a **minor beneficial** (Not Significant) to **negligible** (Not Significant) effect, and no wind mitigation would be required.
- 13.43 Wind conditions on the pitch during the summer season would be suitable for standing use representing a **negligible** (Not Significant) effect (**Figure 12.28**).
- 13.44 Wind conditions on the stands would range from suitable for sitting use to standing use during the windiest season. This represents a **minor beneficial** (Not Significant) to **negligible** (Not Significant) effect (**Figure 12.27**).
- 13.45 Wind conditions at podium level of the Main Stand would range from suitable for standing use to strolling use during the windiest season, representing a **minor beneficial** (Not Significant) to **minor adverse** (Significant) effect.
- 13.46 Generally, one category calmer conditions occur at both the podium of the Main Stand and within the stands during the summer season (**Figure 12.29**).

Ground Level Amenity Spaces

- 13.47 Ground level amenity spaces within the surroundings represented by measurement locations 26, 264, 266, 272, 273, 275, 277, 283, 285, 286, 292, and 295 would have sitting use wind conditions during the summer season (**Figure 12.28**), representing a **negligible** (Not Significant) effect.
- 13.48 Wind conditions within Stanley Park to the north (measurement locations 148-150, 153-156, 195, 384-391, and 393-410), would remain suitable for standing use to strolling use during the summer season (**Figure 12.28**). Strolling use wind conditions would occur at measurement location 404 and 408-410; however, these wind conditions are already existing in the baseline scenario and would not be made worse with the inclusion of the Proposed Scheme in this configuration, therefore this represents a **negligible** (Not Significant).

Strong Winds

- 13.49 With the proposed landscaping scheme in place the extent of the strong winds would be substantially reduced along Anfield Road and in Stanley Park, with 12 instances of strong winds exceeding 15 m/s for more than 2.2 hours per year at measurement locations 80, 112, 133, 134, 164, 173, 177, 345, 347, 350, 355, and 356 (Figures 12.30 and 12.31).
- 13.50 Wind mitigation measures would be required at measurement locations 80, 164, 173, 177, and 345, as wind conditions would be made worse compared to Configuration 1 (in terms of hours of exceedance) with the inclusion of the Proposed Scheme or the intended use has changed (measurement locations 164 and 173 were thoroughfares in Configuration 1, while in Configuration 4 represent entrances).

- 13.51 Strong winds at all the other locations are already existing in the baseline scenario (Configuration 1) and represent a safety concern, and wind mitigation is highly recommended at these locations.

Summary

- 13.52 This Chapter reports the assessment of likely cumulative effects. The assessment has considered effect interactions as well as in-combination effects with 11 other Approved Projects.
- 13.53 The assessment of effect interactions identified that interactions were limited to a single receptor group: *Population and Human Health*, as a result of increased employment and economic activity during both the construction and operation of the Proposed Scheme. This is alongside adverse noise effects from construction activities and as a result of the realignment of Anfield Road (limited to a single property) during operation. It should be noted that due to the broad category of the receptor group, this includes receptors which may not experience all effects stated. For instance, the occupants of the single property effected by noise may not benefit from increased employment opportunities, potentially not falling with the appropriate employee profile.
- 13.54 The assessment of in-combination effects identified that, overall where common receptors are evident, in-combination effects were generally considered to be no greater than that reported at the project level (i.e. the Proposed Scheme in isolation). Effects were not considered to be significant (beyond those at a project level) for all topics and at all receptors.

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