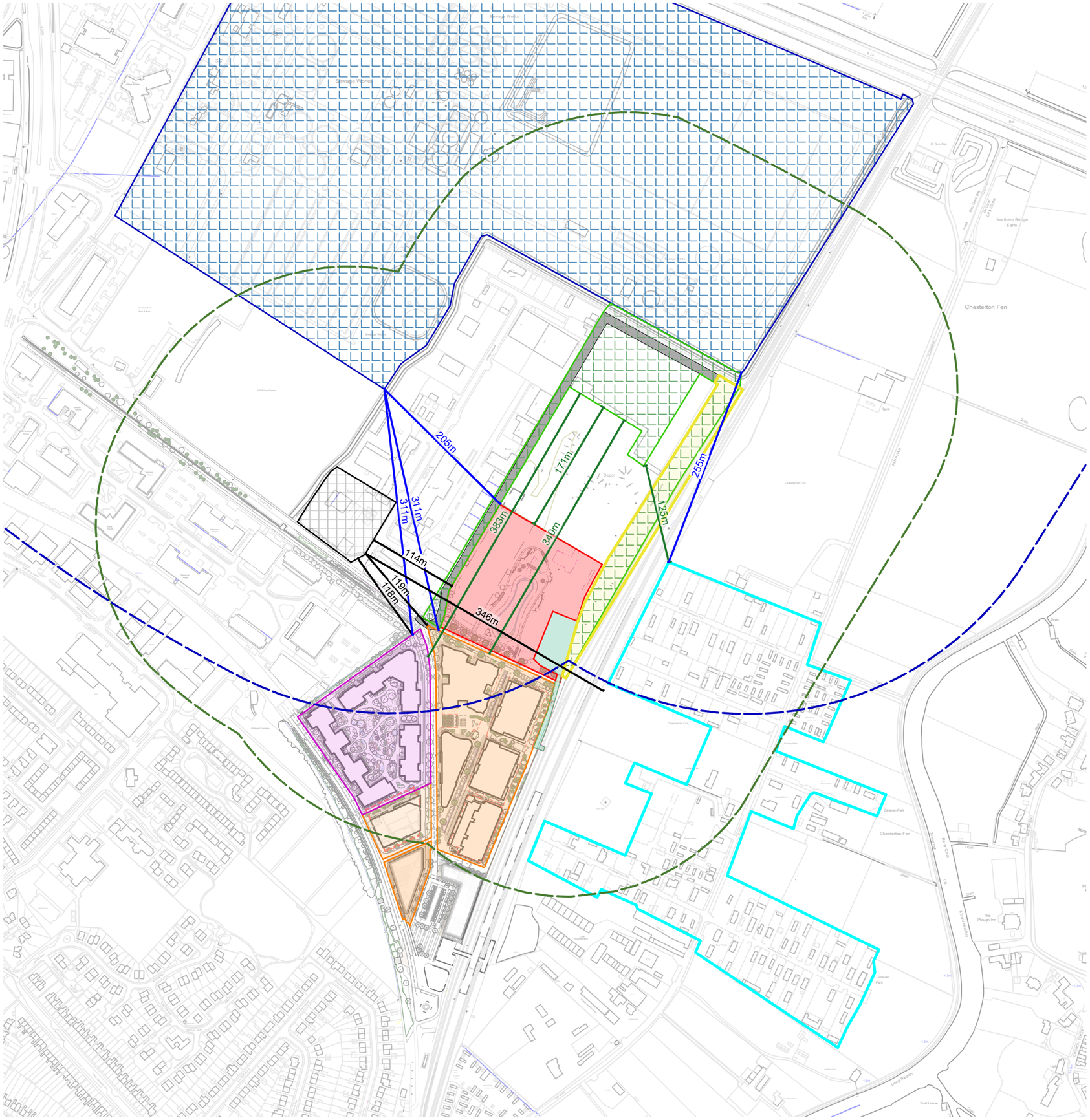

P-1 Proximity to Mineral Safeguarded areas

Scale 1:5000 @ A3

NOTES

TO BE READ IN COLOUR
DO NOT SCALE FROM THIS DRAWING
Contractors, sub-contractors and suppliers are to verify any critical dimensions on site prior to commencing work, fabrication or construction of any elements.
Any discrepancies or errors must be brought to the attention of Robert Myers Associates.
All structural elements are shown indicatively. For all elements of structure, refer to structural engineers' and specialist sub-contractor/fabricators' design, detail and specification.
The drawings are to be read in conjunction with all relevant landscape architect, consultant and specialist drawings.

LEGEND

- Cambridge Water Recycling Centre
- Cambridge Northern Fringe Aggregates Railheads (Transport Infrastructure Area)
- Cowley Road Waste Management Area
- Consultation Areas
- Access Rights
- Lease Demise
- Existing Residential Edge
- Naturalistic Park / Informal recreation
- Commercial Area
- Residential Area
- Rail Infrastructure

PURPOSE OF ISSUE

Rev:	Date:	Drawing Status:
I1	12.08.22	For information
I2	20.09.22	For information
P1	21.09.22	For planning

REVISIONS

Rev:	Date:	Description:
I2	20.09.22	Existing residential edge added
P1	21.09.22	To client comments

CAMBRIDGE NORTH

Client:	Brookgate		
Drawing:	Proximity to Mineral Safeguarded areas		
Project No:	630.01		
Drawing No:	630.01(MP)020		
Scale:	1:5000 @ A3	Rev:	P1
Date:	August 2022	Drawn:	EL
Checked:	JB	PM Checked:	RM

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APPENDIX D
CAMBRIDGE NORTH INDUSTRIAL NOISE ASSESSMENT

Brookgate Plc

Industrial and Commercial Noise Desktop Assessment
Cambridge North Development

05 October 2022

FURTHER ACOUSTIC CONSULTANCY SUPPORT FOR CAMBRIDGE NORTH DEVELOPMENT IN RESPONSE TO OBJECTIONS – INDUSTRIAL AND COMMERCIAL NOISE DESKTOP ASSESSMENT

temple

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Document Control

Version No.	Date	Author	Reviewed	Approved
1.0	28/09/2022	Norbert Skopinski	John Fisk	John Fisk
2.0	05/10/2022	Norbert Skopinski	John Fisk	John Fisk

Table of Contents

1 Introduction

1.1.1 Temple Group Limited (Temple) has completed the noise and vibration assessment as part of the Environmental Statement (ES) Noise and Vibration Chapter for the Cambridge North development (22/02771/OUT) 'the Proposed Development'. The assessment has been based on environmental surveys, prediction and calculation undertaken for the Site. The assessment established that the main sources of noise incident on the Site and surrounding receptors are road traffic noise (including the Cambridgeshire Guided Busway) and rail noise. The Site could potentially experience industrial noise from the Aggregates Railhead (AR) facility, and Cowley Road Industrial estate including the Waste Transfer Station (WTS). The noise from these facilities was not prevalent during the attended survey however, it has been concluded that sound insulation measures which will be implemented to control road and rail traffic noise at the Proposed Development, would also have the effect of minimising the impact of the industrial noise. Further surveys and assessment related to these sources were not deemed necessary.

1.1.2 On the 8th August 2022, Temple were provided with a document containing objections for the Cambridge North development from Cambridgeshire County Council (CCC) in its role as Minerals and Waste Planning Authority (MWPA). There are three main topics on which the objections have been made relating to the nearby Waste Management Area and Safeguarded Aggregates Railhead. These are noise and vibration from both sites, odour from the Waste Management area and dust risk from the Aggregates Railhead.

1.1.3 The Aggregates Railhead is protected under Policy 16 (Consultation Areas) of the Cambridgeshire and Peterborough Minerals and Waste Local Plan (2021) which states that *"development within a Consultation Area (CA) will only be permitted where it is demonstrated that the development will: c) not prejudice the existing or future use of the area [...] for which the CA has been designated; and d) not result in unacceptable amenity issues or adverse impacts to human health for the occupiers or users of such new development, due to the ongoing or future use of the area for which the CA has been designated."*

1.1.4 Due to the proximity of both the AR and the WTS to the Proposed Development, there is concern that the future users of the Site could be at risk of noise and vibration impacts from these sites, which could give rise to complaints, which could then lead to further constraints on the operation of these facilities. This assessment provides further detail on noise incident on the Site when these sites operate, in support of discharging of the above objections placed on the Proposed Development.

1.1.5 To address the concerns, Temple has undertaken an assessment of noise emissions from both sites to assess the risk they pose to future users of the Proposed Development and, where required, to provide outline mitigation measures for further noise attenuation. Further noise monitoring of noise emissions from these sites was considered; however, due to constraints imposed by unknown AR delivery dates/times it was not possible to carry out. However, sufficient information is available on operational noise from these facilities in reports by others (see section 4 for details).

1.1.6 In addition, the suitability of the use of outdoor amenity spaces within the Proposed Development has been assessed when these sites operate.

1.1.7 The assessment has been carried out in line with relevant guidance and national standards.

1.1.8 Heavy road traffic would only be expected to lead to significant vibration levels if it is within a 5 to 10m distance from the sensitive receptor and the roads are in poor condition. The roads surrounding the Site are in good condition. Therefore, road traffic is not expected to give rise to significant vibration effects due to the propagation distances and road surface conditions required to maintain significant levels of vibration at the receptor. Vibration exposure was also measured during an attended survey at the Proposed Development in February 2022. The resultant vibration levels indicate that adverse comments are not expected and the risk of disturbance from environmental vibration is considered to be sufficiently low so as to omit the need for a further assessment. The detailed survey methodology, equipment used, and vibration assessment can be found in the ES Noise and Vibration Chapter for the Cambridge North Development (22/02771/OUT).

1.1.9 The following sections of the report describe criteria for industrial and commercial sound and outdoor amenity spaces, assessment methodology along with results of the assessment from the AR and WTS site operations.

1.1.10 The acoustic terminology used in this report is explained in **Appendix A**.

2 Policy Standards and Guidance

2.1 Standards and Guidance

British Standard 4142:2014+A1:2019 - Methods for rating and assessing industrial and commercial sound

2.1.1 British Standard 4142 (BS 4142)[1] describes methods for rating and assessing sound of an industrial and/or commercial nature. The method uses outdoor sound levels to assess the likely effects of sound on people who might be inside or outside a dwelling or premises used for residential purposes upon which sound is incident. The method is suitable for the purpose of assessing sound at proposed new dwellings or premises used for residential purposes.

2.1.2 The standard requires determination of the following:

- Rating level - $L_{Aeq,Tr}$ sound level produced by the specific sound source at the assessment location with any adjustment added to the specific sound level if a tone, impulse or other acoustic characteristic occurs, or is expected to be present.
- Background sound level, $L_{A90,T}$ – A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T.
- T_r is the reference time interval over which the specific sound level is determined. This is 1-hour for daytime (07:00-23:00 h) and 15-minutes for night-time (23:00-07:00 h).

2.1.3 An estimate of the impact of the specific sound generated can be obtained by subtracting the measured background sound level from the rating level, and the following is considered:

a) Typically, the greater this difference, the greater the magnitude of the impact.

b) A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.

c) A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact

[1] British Standards Institute (BSI), (2014+A1:2019): 'BS 4142 – Methods for rating and assessing industrial and commercial sound

or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

2.1.4 The assessment methodology considers the Specific Sound Level, as measured or calculated at a potential noise sensitive receptor, due to the sound under investigation. A correction factor is added to this level to account for the acoustic character of the sound as follows:

- Tonality – A correction of up to 6dB depending on the prominence of tones;
- Impulsivity – A correction of up to 9dB depending on the prominence of impulsivity;
- Other sound characteristics – A 3dB correction may be applied where a distinctive acoustic character is present that is neither tonal nor impulsive;
- Intermittency – A 3dB correction may be applied where the specific sound has identifiable on-off conditions.

2.1.5 All pertinent factors should be taken into consideration when assessing the impact, including the following:

- Where background sound levels and rating levels are low, absolute levels might be as, or more, relevant than the margin by which the rating level exceeds the background. This is especially true at night.
- The character and level of the residual sound compared to the character and level of the specific sound.
- The sensitivity of the receptor

British Standard 8233:2014 - Guidance on sound insulation and noise reduction for buildings

2.1.6 The suitability of the use of outdoor amenity spaces within the Proposed Development has been assessed using British Standard 8233:2014 (BS 8233)[2] criteria. BS 8233 states:

"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB LAeq,T with an upper guideline value of 55 dB LAeq,T which would be acceptable in noisier environments. However, it is also recognised that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the

[2] British Standard BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings'. BSI, London

convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces but should not be prohibited."

"Other locations, such as balconies, roof gardens and terraces, are also important in residential buildings where normal external amenity space might be limited or not available, i.e. in flats, apartment blocks, etc. In these locations, specification of noise limits is not necessarily appropriate. Small balconies may be included for uses such as drying washing or growing pot plants, and noise limits should not be necessary for these uses. However, the general guidance on noise in amenity space is still appropriate for larger balconies, roof gardens and terraces, which might be intended to be used for relaxation. In high-noise areas, consideration should be given to protecting these areas by screening or building design to achieve the lowest practicable levels. Achieving levels of 55 dB LAeq,T or less might not be possible at the outer edge of these areas but should be achievable in some areas of the space."

3 The Site and its Surroundings

3.1.1 The Proposed Development plot lies on the land to the north of Cambridge North Station, to the west of the railway, off Milton Avenue & Cowley Road.

1.1.1 The proposal is to develop 6 new buildings intended for business use and 3 new buildings, consisting of 10 blocks, for residential use.

1.1.2 The AR is located to the northeast of the Proposed Development. The closest existing residential receptors are beyond the main railway line to the east and south (Sunningdale Caravan Park, Dwellings in Southgates and Dwellings on Grange Park / Sandy Lane, circa 60 – 300m). To the southwest are the future residents of the Residential Quarter of the Proposed Development, circa 280m. It should be noted that the Proposed Development would not introduce residential receptors any closer to the AR site than the existing residential receptors.

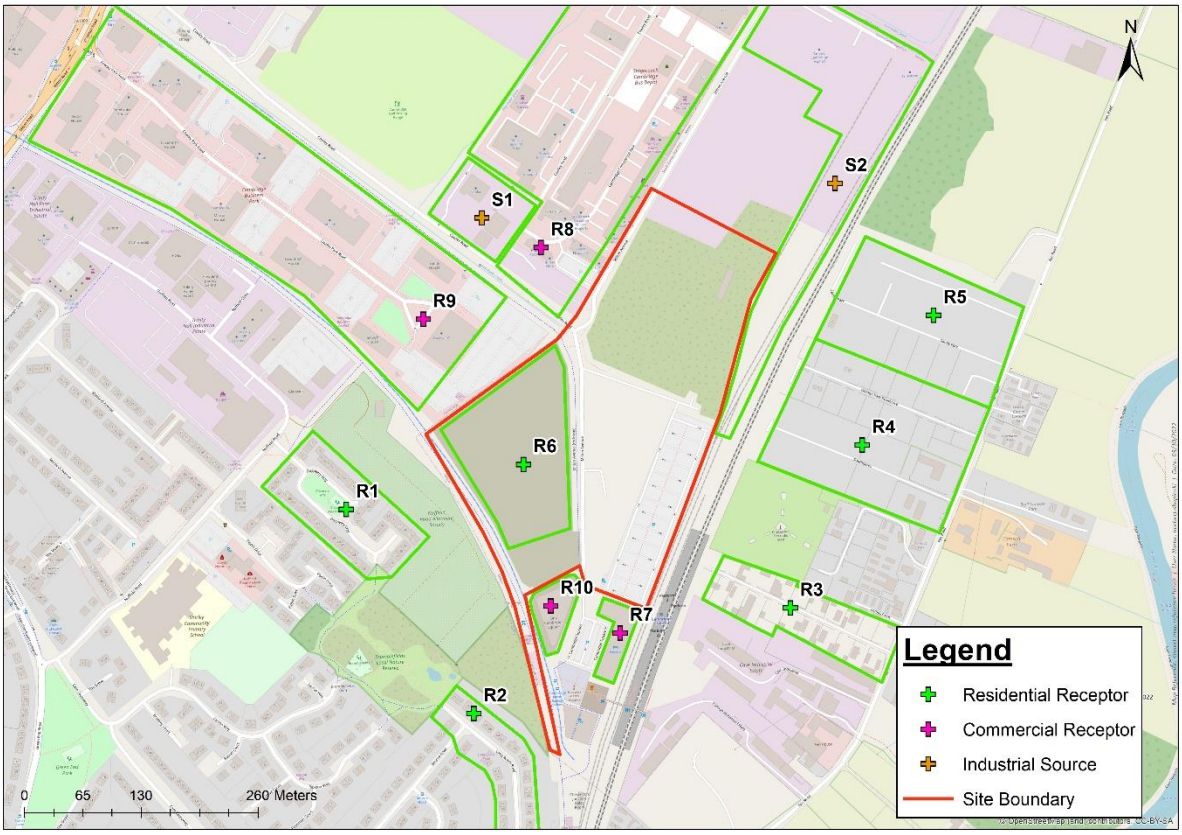
3.1.2 The WTS is located to the north of the Proposed Development. The closest existing residential receptors are dwellings on Discovery Way to the west of the site, circa 280m and future residents of the Residential Quarter of the Proposed Development to the south circa 120m.

3.1.3 The existing and future receptors and type of receptor as well as the sites of industrial noise are presented in **Table 1**; their locations are shown in **Figure 1.**

Table 1 Noise Sensitive Receptors and Industrial Noise Sources

Receptor/ Source ID	Receptor / Source	Type
R1	Dwellings on Discovery Way	Residential Receptor
R2	Dwellings on Long Reach / Bourne / Fairbairn Road	Residential Receptor
R3	Sunningdale Caravan Park	Residential Receptor
R4	Dwellings in Southgates	Residential Receptor
R5	Dwellings on Grange Park / Sandy Lane	Residential Receptor
R6	Future residents of the Residential Quarter of the Proposed Development	Residential Receptor
R7	Novotel Hotel	Commercial Receptor
R8	Cambridge Commercial Park	Commercial Receptor
R9	Cambridge Business Park	Commercial Receptor
R10	One Cambridge Square	Commercial Receptor
S1	Waste Transfer Station	Commercial Noise Source
S2	Aggregates Railhead	Commercial Noise Source

Figure 1 Map Showing Nearby Sensitive Receptors and Industrial Sources



3.2 Baseline Survey and Results

3.2.1 **Table 2** presents a summary of the results from the long-term unattended noise measurements captured at the Proposed Development during the February 2022 survey undertaken by Temple, their locations are shown in **Figure 2.** The noise levels presented are representative of free field conditions. The detailed survey methodology, weather conditions, and equipment used can be found in the ES Noise and Vibration Chapter for the Cambridge North Development (22/02771/OUT).

Table 2 Summary of Noise Levels Derived for each Receptor from Unattended Survey Results

Receptor IDs represented	Relevant Monitoring Position	Ambient Noise Level $L_{Aeq,T}$ dB		10th Highest L_{Amax} dB		Typical Lowest L_{A90} dB	
		Day	Night	Day	Night	Day	Night
		07:00-23:00	23:00-07:00	07:00-23:00	23:00-07:00	07:00-23:00	23:00-07:00
R3, R4, R5, R7, R12	UN1	52	48	79	74	42	37
R1, R2, R6, R8, R9, R10, R11	UN2	51	44	73	64	42	37

Figure 2 Map Showing Unattended Noise Survey Locations

4 Methodology

4.1.1 The level of noise impact on future occupiers of the Proposed Development has been assessed based on the predicted noise levels from the Safeguarded Aggregates Railhead presented in *Chesterton Sidings Noise Impact Assessment – Addendum II* (December 2014)[3] and the noise limits set by CCC Joint Development Control Committee for the Cambridge Fringes on Veolia ES (UK) Ltd, Cowley Road Waste Transfer Station Site (December 2019)[4].

4.1.2 The AR is operated by the Tarmac Roadstone Coatings Facility / Freightliner / DB Cargo / Network Rail. The Tarmac operations located to the northeast of the AR site are restricted by the operating hours set out in the planning consent Condition 12 and 13 of the CCC Joint Development Control Committee Report Ref. No. S/0467/13/CM[3]. These conditions limit the operating hours of the Tarmac site to daytime only, with the exception of routine maintenance.

4.1.3 Condition 12 states that:

"With the exception of routine maintenance, the coated roadstone plant and mineral transfer facility shall not be operated and no heavy commercial vehicles shall enter or leave the site except during the hours of 0630 to 1700 Mondays to Fridays and 0630 to 1300 on Saturdays."

4.1.4 And Condition 13 states that:

"No delivery of materials by train to the site shall take place outside the hours of 0700 to 2200, Mondays to Fridays. No such deliveries shall take place at any time on Saturdays, Sundays, Bank Holidays and Public Holidays."

4.1.5 The AR Freightliner operations (operated by DB Cargo) located adjacent to the mainline Fen Line are not included within this planning consent and are not impacted by any planning-related restrictions in relation to the operating hours.

4.1.6 It should be noted however, that the DB Cargo are responsible for land to the north of the Proposed Development area, which contains freight aggregate operations. Based on recent communications, it is understood that Freightliner site is no longer moving any freight traffic into the site, and the traffic is being

[3] S/0467/13/CM | Proposed reconfiguration and consolidation of the existing minerals processing and transfer operation including the installation of covered mineral storage bays, alterations and extensions to existing feeder unit. New office, welfare and workshop buildings, reconfiguration of site circulation and parking area, new boundary fencing and other works associated with relocating rail sidings to serve the mineral processing site. | Chesterton Rail Freight Sidings Chesterton Junction Cowley Road Cambridge CB4 0DL (cambridgeshire.gov.uk)

[4] C/5000/19/CW | Erection of pre-fabricated building for use as a waste transfer station; new weighbridge and storage bays; alterations to existing vehicular access and 8 no. additional vehicle parking spaces. Informative: Section 73 planning application to continue the development without compliance with conditions 5 (hours) and 7 (noise limit) of planning permission reference C/05004/12/CC to enable 24 hour operation of the Waste Transfer Station (WTS) including maintenance depot. | Veolia Es (UK) Limited Cowley Road Cambridge CB4 0DN (cambridgeshire.gov.uk)

moved by the Great British Rail Freight instead, circa one train delivery per week. The layout of the AR Tarmac and Freightliner sites relative to the Proposed Development are shown in **Appendix B**.

4.1.7 The WTS is operated by the Veolia ES (UK) Ltd. The WTS operations are restricted by the operating hours and noise limits set out in the planning consent Condition 5 and 7 of the CCC Joint Development Control Committee Report Ref. No. C/5000/19/CW[4]. The permitted hours of operation except unloading, loading and despatch of glass are Monday 05:00 to 00:00 (midnight), Tuesday to Friday unrestricted, Saturday 00:00 to 23:00 and Sunday 07:00 to 23;00. The permitted hours of operation for the receipt, unloading, loading and despatch of glass are Monday to Friday 07:00 to 18:00 (except bank or public holidays).

4.2 AR Calculation Methodology

4.2.1 To calculate the level of impact from the AR operations on the nearest residential properties of the Proposed Development, a noise model was developed within the Datakustik CadnaA software with calculations carried out in accordance with the international standard ISO 9613-2:1996 based on the reference noise levels for each noise emitting item during the train delivery during Tarmac operations.

4.2.2 A summary of delivery train noise levels derived from the Chesterton Sidings Noise Impact Assessment – Addendum II (December 2014)[3] are shown in **Table 3.**

Table 3 Summary of Delivery Train Noise derived from the Chesterton Sidings Noise Impact Assessment – Addendum II (December 2014) Table 6.2

Description	Distance from source (m)	Measurement duration (minutes)	$L_{Aeq,T}$ dB
Static conveyor (discharge unit)	5m	1:00	87
Wagon-mounted conveyor engine	4m	1:00	86
Moving conveyor under waggons	6m	1:00	81
Rail locomotive idling	5m	1:00	79

4.2.3 A scenario of a typical rail delivery was modelled based on the Chesterton Sidings Noise Impact Assessment – Addendum II (December 2014)[3] assumptions, as follows:

- Deliveries will take place 40 wagons at a time;
- Deliveries last 3 to 4 hours, with a frequency of 2 to 3 per week depending on demand;
- The train is split into two with half the train stabled in the eastern siding while the other half is unloaded;
- The locomotive is situated at the southern end of the train and reverses into the siding adjacent to the AR site;
- The discharge unit is located at the northern end of the train adjacent to the proposed storage bays on the AR site;
- A delivery train with 20 wagons would be 204m long from end-to-end, including a 20m long locomotive and 20m long discharge unit; and
- The static conveyor (the discharge unit) at the far end of the train, the locomotive engine, and the waggon- mounted conveyor motors have been modelled as point sources. The moving conveyor (under the entire length of the train) has been modelled as a line source.

4.3 WTS Calculation Methodology

4.3.1 To calculate the level of impact from the WTS operations on the nearest residential properties of the Proposed Development the noise limits set out in the planning consent CCC Joint Development Control Committee for the Cambridge Fringes on Veolia ES (UK) Ltd, Cowley Road Waste Transfer Station Site (December 2019) Ref. No. C/5000/19/CW[4] has been used in noise model.

4.3.2 The following WTS site boundary noise limit condition was modelled:

4.3.3 *"The free-field equivalent continuous noise level, measured as a $LAeq_{1hr}$, (dBA Equivalent Continuous Sound Level, 1 hour) from operations carried out at the site shall not exceed 60dB when measured at the boundary of the site. Measurements shall be taken from a position 1.2 – 1.5 metres above ground and at least 3.5 metres away from any façade."*

5 Assessment

5.1.1 This assessment has considered the impact of the AR and WTS operations and the effect it may have on existing background noise levels. The assessment has predicted the noise levels at the nearest residential properties of the Proposed Development and compared the results with the existing representative background noise levels. Screenshots from the model are shown in **Appendix C.**

5.2 AR Operations Noise Assessment

5.2.1 The total noise level from a typical rail delivery at AR was calculated at 1m from the facades of the nearest residential properties of the Proposed Development. The results are summarised in **Table 1**.

Table 1 BS 4142 assessment of the AR operations on the nearest residential properties of the Proposed Development based on representative baseline noise levels.

Results		dB (day)	dB (night)	
Background Sound Level	$L_{A90,15mins}$	42	37	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, 15 minutes.
Distance Attenuation	N/A			Considered in noise modelling software
On Time Correction	N/A			Considered in noise modelling software
Specific Sound Level	$L_{Aeq,T}$	39	39	Specific sound level at the nearest residential properties of the Proposed Development calculated in CadnaA.
Acoustic feature correction	Tonality			Based on the assessment in the Chesterton Sidings Noise Impact Assessment – Addendum II (December 2014) the level differences between adjacent 1/3rd Octave bands that identify a tone are not exceeded, therefore no tonal correction applied.
	Intermittency	0	0	In line with the Chesterton Sidings Noise Impact Assessment – Addendum II (December 2014) it is assumed that correction is not required.
	Impulsivity	0	0	In line with the Chesterton Sidings Noise Impact Assessment – Addendum II (December 2014) it is assumed that correction is not required.
	Other Sound Characteristics	3	3	In line with the Chesterton Sidings Noise Impact Assessment – Addendum II (December 2014), where the specific sound features characteristics that are neither tonal nor impulsive, though are otherwise readily distinctive against the residual acoustic environment, a 3dB has been applied.

Results		**dB (day)**	**dB (night)**	
Rating Level		42	42	Rating level including acoustic feature corrections
Excess of rating level over background sound level		0	5	The rating level is at the background sound level during the day and 5dB above the night background sound level. The assessment indicates that the specific sound source is likely to have a low impact, depending on the context during the day and an adverse impact depending on the context during the night.

5.2.2 The assessment indicates a rating level equal to background for day and 5dB above the background sound level $L_{A90,15mins}$ for night. Therefore, a difference of 5dB is likely to be an indication of an adverse impact when the AR operate at night.

5.2.3 Based on the above, the specific sound source is likely to have a low impact, in the context of prevailing road and rail noise at the Proposed Development site during daytime operations but is likely to have adverse impact depending on the context (described below) during the night. Although the night impact is predicted to be adverse, it is not considered to be a significant adverse impact.

5.2.4 The AR Freightliner site is no longer moving any freight traffic into the site, and the traffic is being moved by the Great British Rail Freight instead, circa one train delivery per week. This indicates that the night impact will be limited to circa one train delivery per week.

5.2.5 It should be noted that there are existing residential receptors (Southgates / Grange Park / Sandy Lane) substantially closer to the loading and unloading of freight at the railway sidings, circa 60m at closest point, than the Residential Quarter of the Proposed Development, circa 280m, so are likely to be more exposed to AR operational noise than the nearest residential properties at the Proposed Development.

5.2.6 The typical lowest background level was used in the assessment and the impact is likely to be less for the majority of the time; and therefore, background noise levels may be marginally higher than indicated in the assessment when the AR is operating, given it wouldn't operate through the whole night time period. Where the predicted noise levels from the noise model are compared against the measured survey L_{Aeq} noise levels, the predicted levels are below the existing noise levels at the nearest residential properties of the Proposed Development.

5.2.7 In addition, the ES chapter states that "windows would need to be closed to achieve the guideline indoor noise levels" for the facades exposed to the

prevailing road and rail noise. Therefore, if the noise from the AR Freightliner night operations is prevalent at times, the mitigation proposed to minimise the road and rail noise, as stated in the ES chapter, will also reduce impact when the AR operate.

5.2.8 Based on the above-described context, the assessment indicates that the operations of the AR are likely to have a low impact on the nearest residential properties of the Proposed Development and no further mitigation is likely to be required.

5.3 WTS Operations Noise Assessment

5.3.1 The total noise level based on the permitted noise limit on WTS site was calculated at 1m from the facades of the nearest residential properties of the Proposed Development. The results are summarised in **Table 5**.

Table 5 BS 4142 assessment of the WTS operations on the nearest residential properties of the Proposed Development based on representative baseline noise levels.

Results		**dB (day)**	**dB (night)**	
Background Sound Level	$L_{A90,15mins}$	42	37	A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, 15 minutes.
Distance Attenuation	N/A			Considered in noise modelling software
On Time Correction	N/A			Considered in noise modelling software
Specific Sound Level	$L_{Aeq,T}$	31	31	Specific sound level at the nearest residential properties of the Proposed Development calculated in CadnaA.
Acoustic feature correction	Tonality			1/3rd Octave band data not available.
	Intermittency	0	0	No intermittency sound features are known at this stage of the assessment It is assumed that correction is not required.
	Impulsivity	0	0	No impulsive sound features are known at this stage of the assessment. It is assumed that correction is not required.
	Other Sound Characteristics	0	0	No other sound characteristics are known at this stage of the assessment.
Rating Level		31	31	Rating level including acoustic feature corrections
Excess of rating level over background sound level		-11	-6	The rating level is 11dB and 6dB below the day and night background sound levels respectively. The assessment indicates that the specific sound source is likely to have a low impact depending on the context during the day and night.
It should be noted that the above assessment assumes no correction for tonality, impulsivity, other distinctive acoustic character, or intermittency. Consequently, all sources should be controlled so that these issues are not present at noise sensitive locations or else corrections will need to be applied.				

5.3.2 The assessment indicates a rating level of 11dB for day and 6dB for night below the background sound level $L_{A90,15mins}$. The lower the rating level is relative to the measured background sound level, the less likely that it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the

context. In this case, in context of prevalent road and rail noise sources at the Proposed Development site.

5.3.3 Based on the permitted noise limit on WTS site operations, the assessment indicates the specific sound source having a low impact, in context of prevailing road and rail noise, on the nearest residential properties of the Proposed Development, and no further mitigation is likely to be required.

5.4 External Amenity Areas Noise Levels

5.4.1 It is desirable that the external noise level in amenity spaces such as private gardens does not exceed 50dB $L_{Aeq,16hr}$, with an upper guideline value of 55dB $L_{Aeq,16hr}$, which would be acceptable in noisier environments. **Figure 3** shows the modelled daytime noise levels including the AR, WTS and local road and rail noise sources for external amenity areas at a height of 1.5m.

Figure 3 Noise Levels in External Amenity Areas

5.4.2 The assessment of external noise levels to BS 8233 indicates that the guideline level of 50dB $L_{Aeq,16hr}$ would be achieved for the majority of the Residential Quarter, with the spaces between the blocks facing Milton Avenue and facades facing Cambridgeshire guided busway achieving the upper guideline value, as they have a direct line of sight to Milton Avenue and the busway, and do not benefit from any screening. External facing facades on Milton Avenue are unlikely to achieve guideline noise levels for external amenity areas.

5.4.3 The proposed Wild Park amenity space, to the northeast of the Proposed Development is likely to be exposed to the noise levels below the guideline levels of 50dB $L_{Aeq,16hr}$ in the majority of the area. However, the northeast and northwest area of the park will be above this guideline level but below the upper guideline value of 55dB $L_{Aeq,16hr}$, as it has a direct line of sight to the AR access road and to the sidings where train deliveries are taking place. The park does not benefit from any acoustic screening. The small area of the park in within approximately 25m of the AR access road is likely to exceed the upper guideline noise level for external amenity spaces.

5.4.4 However, it should be noted that these levels are only expected when the AR is operational; otherwise, the guideline level of 50dB $L_{Aeq,16hr}$ would be achieved in the majority of the park.

5.4.5 As described above, while some facades and amenity areas are likely to be exposed to noise levels above the 55dB $L_{Aeq,16hr}$ upper guideline limit, BS 8233 recognises that although these are ideal target levels, they are not always achievable in noisier areas (such as built-up urban areas adjoining the strategic transport network) where development is desirable. Higher noise levels need to be balanced against other considerations such as the benefit of living in these central areas.

5.4.6 Furthermore, the Planning Practice Guidance advises that noise impacts may be partially off-set if the residents of those dwellings affected by high noise levels have access to:

- a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwellings, and/or;
- a relatively quiet, protected, external publicly accessible amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minutes walking distance).

5.4.7 There are relatively quieter outdoor amenity spaces within the Proposed Development in the courtyards which are screened from the road, rail noise, other operations and are available to all residents.

6 Conclusion

6.1.1 On the 8th August 2022, Temple were provided with a document containing objections for the Cambridge North development from CCC in its role as MWPA. There are three main topics on which the objections have been made relating to the nearby WTS and Safeguarded AR. Due to the proximity of both the AR and the WTS to the Proposed Development, there is concern that the future users of the Proposed Development could be at risk of noise and vibration impacts.

6.1.2 Further to above, Temple has been appointed by Brookgate to undertake a desktop assessment of noise emissions from both sites to assess the risk they pose to future users of the Proposed Development, and where required, to provide outline mitigation measures for further noise attenuation.

6.1.3 Temple has undertaken calculations of the rating noise level of noise emissions from AR and WTS sites and assessed the effects of the operations of these sites on the future residential users of the Proposed Development. This has been assessed in line with the relevant guidance and national standards.

6.1.4 For the WTS operations, the assessment indicates that the predicted rating noise level will be 11dB and 6dB below the representative background sound level at the nearest residential properties of the Proposed Development. This complies with the relevant requirements during the day and at night.

6.1.5 For the AR operations, the assessment indicates that the predicted rating noise level will be equal to typical background for day and 5dB above the representative background sound level for night at the nearest residential properties of the Proposed Development. Although the night impact is predicted to be adverse, it is not considered to be a significant adverse impact. The typical lowest background level was used in the assessment and the impact is likely to be less for the majority of the time. Also, if the noise from the AR night operations is prevalent at times, the mitigation proposed to minimise the road and rail noise, as stated in the ES chapter, will also reduce impact when the AR site operate at night. It may therefore be concluded that the AR operations are likely to have a low impact on the nearest residential properties of the Proposed Development and no further mitigation is likely to be required.

6.1.6 Guideline external noise levels are likely to be met for most of residential amenity areas within the Proposed Development such as Courtyards. External balconies and Wild Park amenity space overlooking the access roads will be exposed to noise levels above the upper guideline of 55dB $L_{Aeq,T}$. Where the noise level requirements are not met, suitable alternative quieter areas are available.

Appendix A Acoustic Glossary

Noise/Sound

Noise and sound need to be carefully distinguished. Sound is a term used to describe wave-like variations in air pressure that occur at frequencies that can stimulate receptors in the inner ear and, if sufficiently powerful, be appreciated at a conscious level. Noise implies the presence of sound but also implies a response to sound: noise is often defined as unwanted sound.

Decibel, dB

The unit used to describe the magnitude of sound is the decibel (dB) and the quantity measured is the sound pressure level. The decibel scale is logarithmic, and it ascribes equal values to proportional changes in sound pressure, which is a characteristic of the ear. Use of a logarithmic scale has the added advantage that it compresses the very wide range of sound pressures to which the ear may typically be exposed to a more manageable range of numbers. The threshold of hearing occurs at approximately 0dB (which corresponds to a reference sound pressure of 20 µPa) and the threshold of pain is around 120dB.

Frequency, Hz

Frequency is the number of occurrences of a repeating event per unit second or Hertz (Hz). The human ear is sensitive to sound in the range 20 Hz to 20,000 Hz (20 kHz). For acoustic engineering purposes, the frequency range is usually divided up into octave bands, in which the upper limiting frequency for any band is twice the lower limiting frequency. The bands are described by their centre frequency value. In environmental acoustics the ranges typically used are from 63 Hz to 8 kHz.

A-weighting

The sensitivity of the ear is frequency dependent. Sound level meters are fitted with a weighting network which approximates to this response and allows sound levels to be expressed as an overall single figure value, in dB(A).

Ambient sound

Totally encompassing sound in a given situation at a given time, usually composed of sound from many sources near and far.

Ambient sound level ($L_{Aeq,T}$)

Equivalent continuous A-weighted sound pressure level of the totally encompassing sound in a given situation at a given time, usually from many sources near and far, at the assessment location over a given time interval, T.

Background sound level ($L_{A90,T}$)

A-weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90 % of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of decibels.

Rating level

Specific sound level plus any adjustment for the characteristic features of the sound.

Reference time interval

Specified interval over which the specific sound level is determined. This is 1 h during the day from 07:00 h to 23:00 h and a shorter period of 15 min at night from 23:00 h to 07:00 h.

Residual sound

Ambient sound remaining at the assessment location when the specific sound source is suppressed to such a degree that it does not contribute to the ambient sound.

Residual sound level ($L_{Aeq,T}$)

Equivalent continuous A-weighted sound pressure level of the residual sound at the assessment location over a given time interval, T.

Specific sound level

Equivalent continuous A-weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval.

Specific sound source

Sound source being assessed.

Appendix B Layout of AR Tarmac and Freightliner sites relative to the Proposed Development

Figure B1 - Lease Demise (Blue line) for the Tarmac site with access rights over the road shaded brown

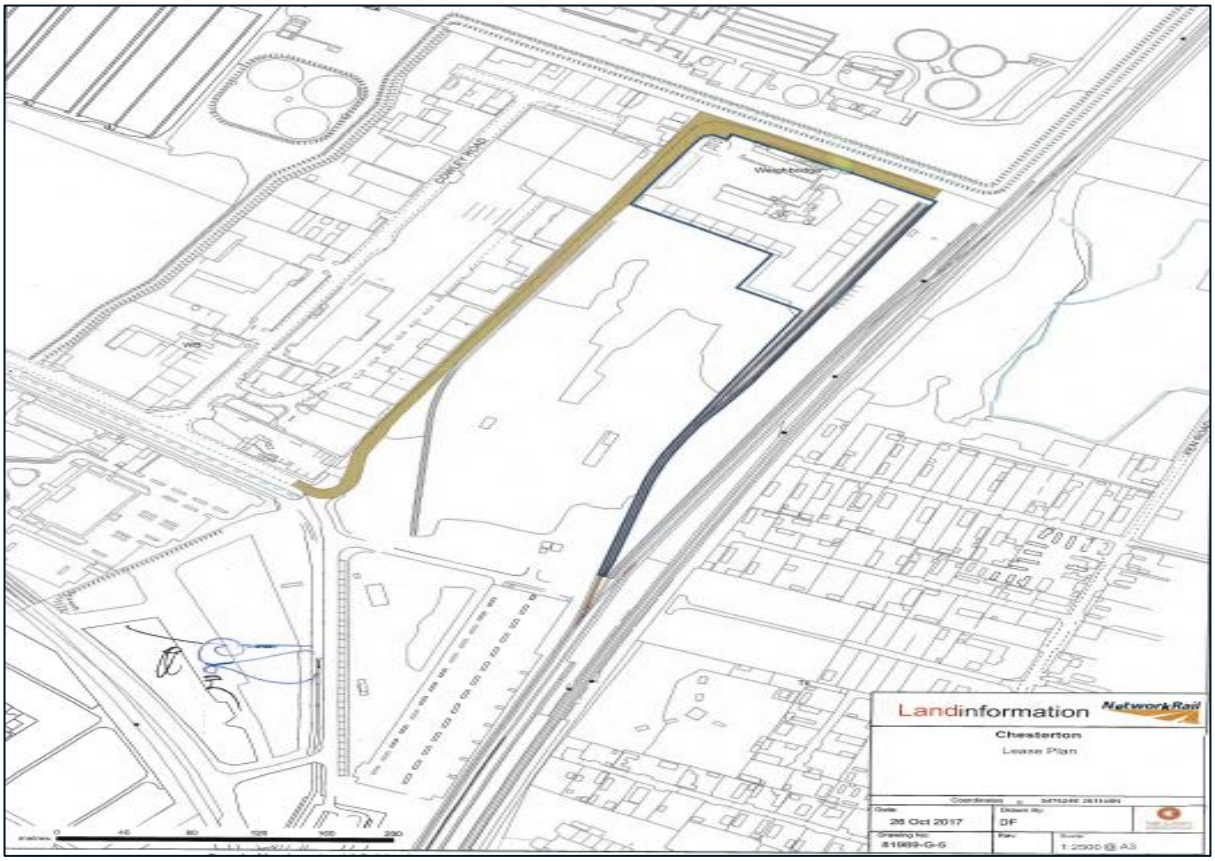
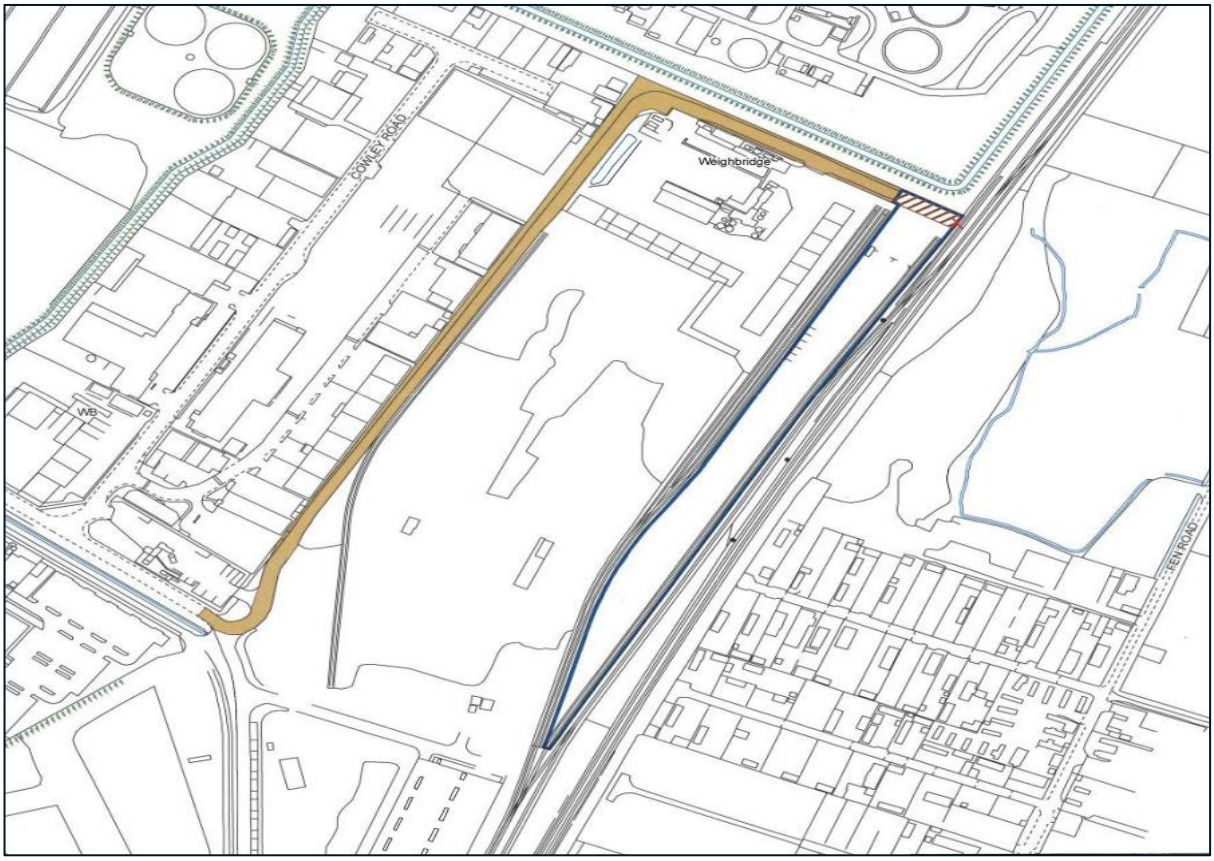


Figure B2 - Lease Demise (Blue line) for the Freightliner site with access rights over the road shaded brown



Appendix C CadnaA Model

Figure C1 - AR Operations Predicted Noise levels, $L_{Aeq,T}$, dB

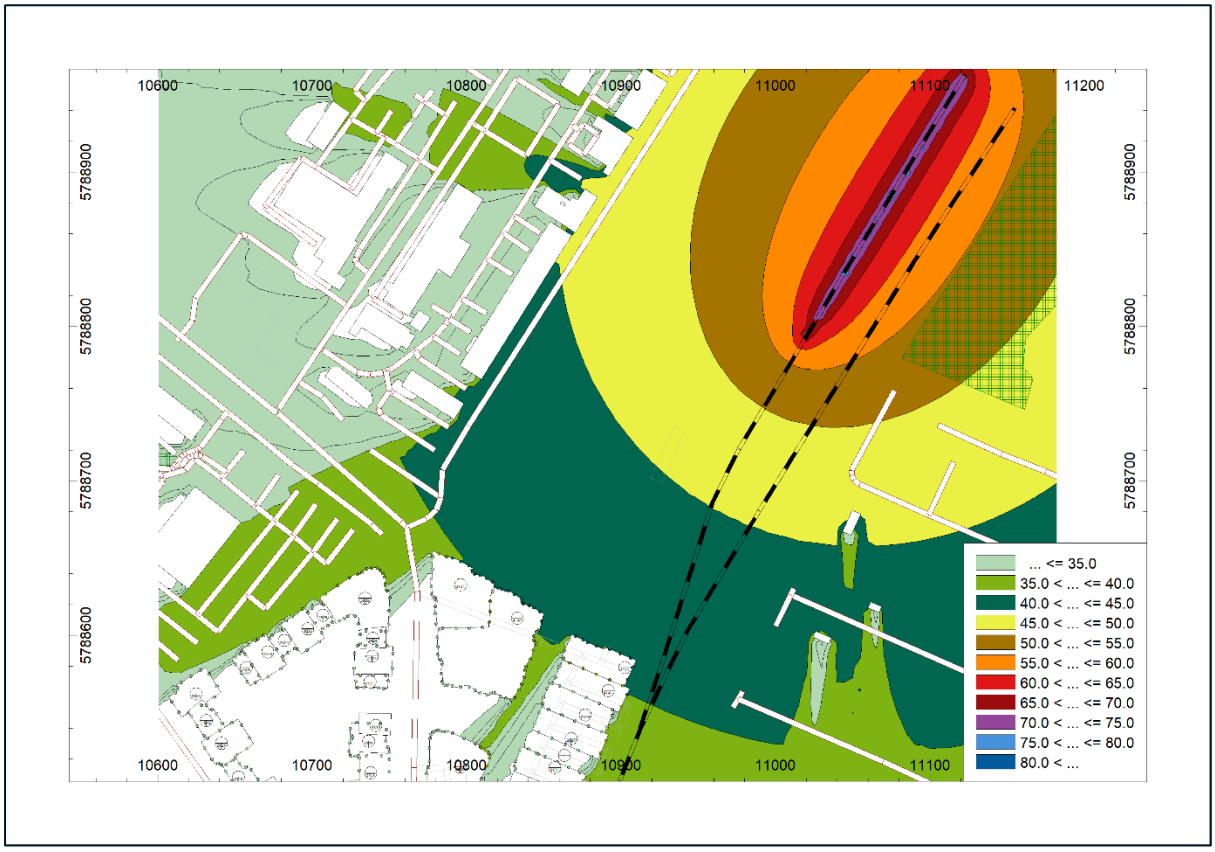
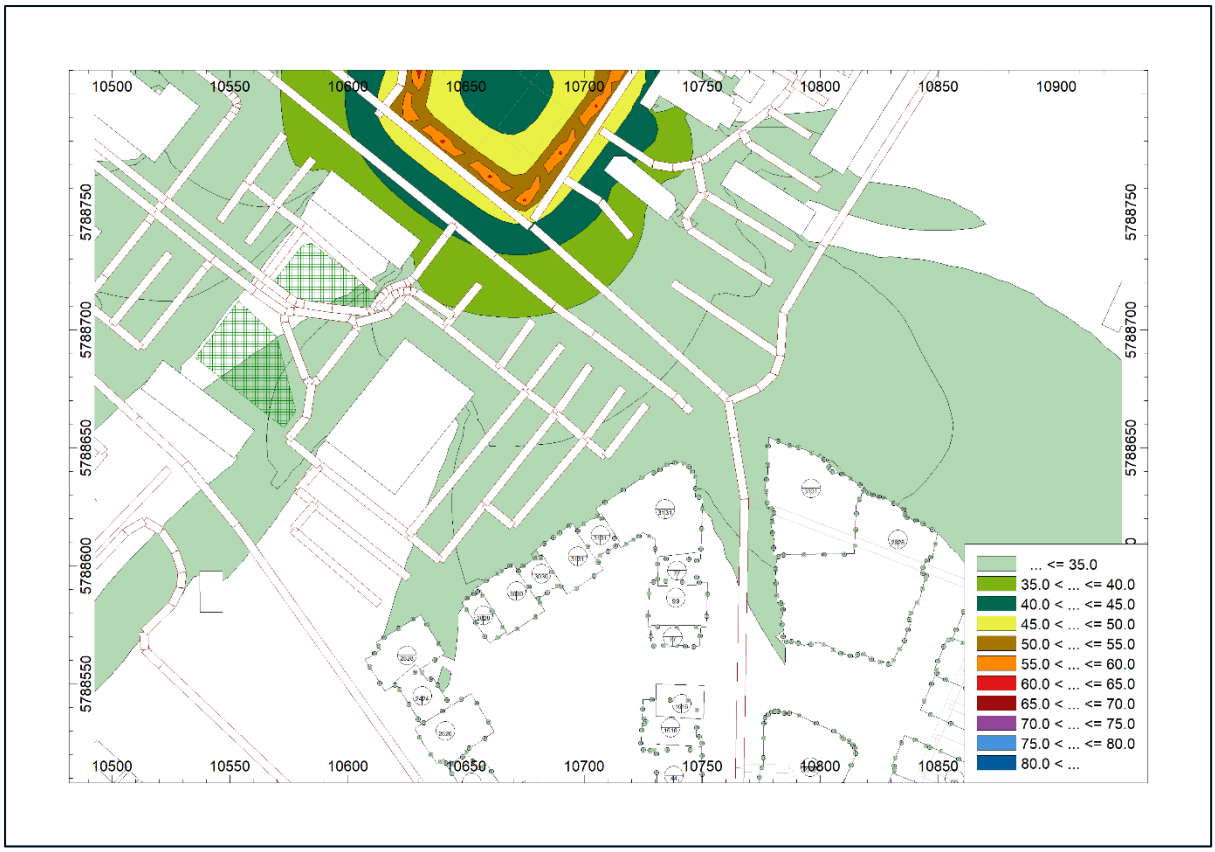


Figure C2 - WTS Operations Predicted Noise levels, $L_{Aeq,T}$, dB



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APPENDIX E
T6118 DUST ASSESSMENT WASTE AND INDUSTRIAL SITES

Brookgate Plc

Qualitative Dust Risk Assessment
Cambridge North Development
21st September 2022

CAMBRIDGE NORTH
QUALITATIVE DUST RISK ASSESSMENT

temple

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Document Control

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1.0	22/09/2022	Paddy Nolan	Daniel Mullick	Dr Xiangyu Sheng	-
2.0	28/09/2022	Daniel Mullick	Dr Xiangyu Sheng	Dr Xiangyu Sheng	Changes to address client comments and update assessment of railhead

Contents

List of Appendices

1 Introduction

Temple Group Limited (Temple) has undertaken a qualitative dust risk assessment for the Cambridge North development (22/02771/OUT) 'the Proposed Development'. The assessment has been prepared in response to comments made by Cambridgeshire County Council, acting in its role as Minerals and Waste Planning Authority (MWPA), regarding consideration of the potential for offsite dust generation from local 'Consultation Area' sites to affect future sensitive users of the Proposed Development. The Proposed Development comprises *"A hybrid planning application for:*

a) An outline application (all matters reserved apart from access and landscaping) for the construction of: three new residential blocks providing for up to 425 residential units and providing flexible Class E and Class F uses on the ground floor (excluding Class E (g) (iii)); and two commercial buildings for Use Classes E(g) i(offices), ii (research and development) providing flexible Class E and Class F uses on the ground floor (excluding Class E (g) (iii)),together with the construction of basements for parking and building services, car and cycle parking and infrastructure works; and,

b) A full application for the construction of three commercial buildings for Use Classes E(g) i (offices) ii (research and development), providing flexible Class E and Class F uses on the ground floor (excluding Class E (g) (iii)) with associated car and cycle parking, the construction of a multi storey car and cycle park building, together with the construction of basements for parking and building services, car and cycle parking and associated landscaping, infrastructure works and demolition of existing structures."

The Transport and Waste Sites considered within this assessment, those located within the Consultation Area, are:

- The Tarmac Roadstone Coatings Facility, the railhead supplying the Tarmac Facility and the Freightliner railhead (operated by DB Cargo), which form a Transport Infrastructure Area (TIA) under Policy 16 (Consultation Areas) of the Cambridgeshire and Peterborough Minerals and Waste Local Plan (2021); and,
- The Cowley Road Waste Transfer Station, which forms part of a Waste Management Area under Policy 16 (Consultation Areas) of the Cambridgeshire and Peterborough Minerals and Waste Local Plan (2021).

Policy 16 seeks to protect Transport Infrastructure Areas, and states that development within a consultation area:

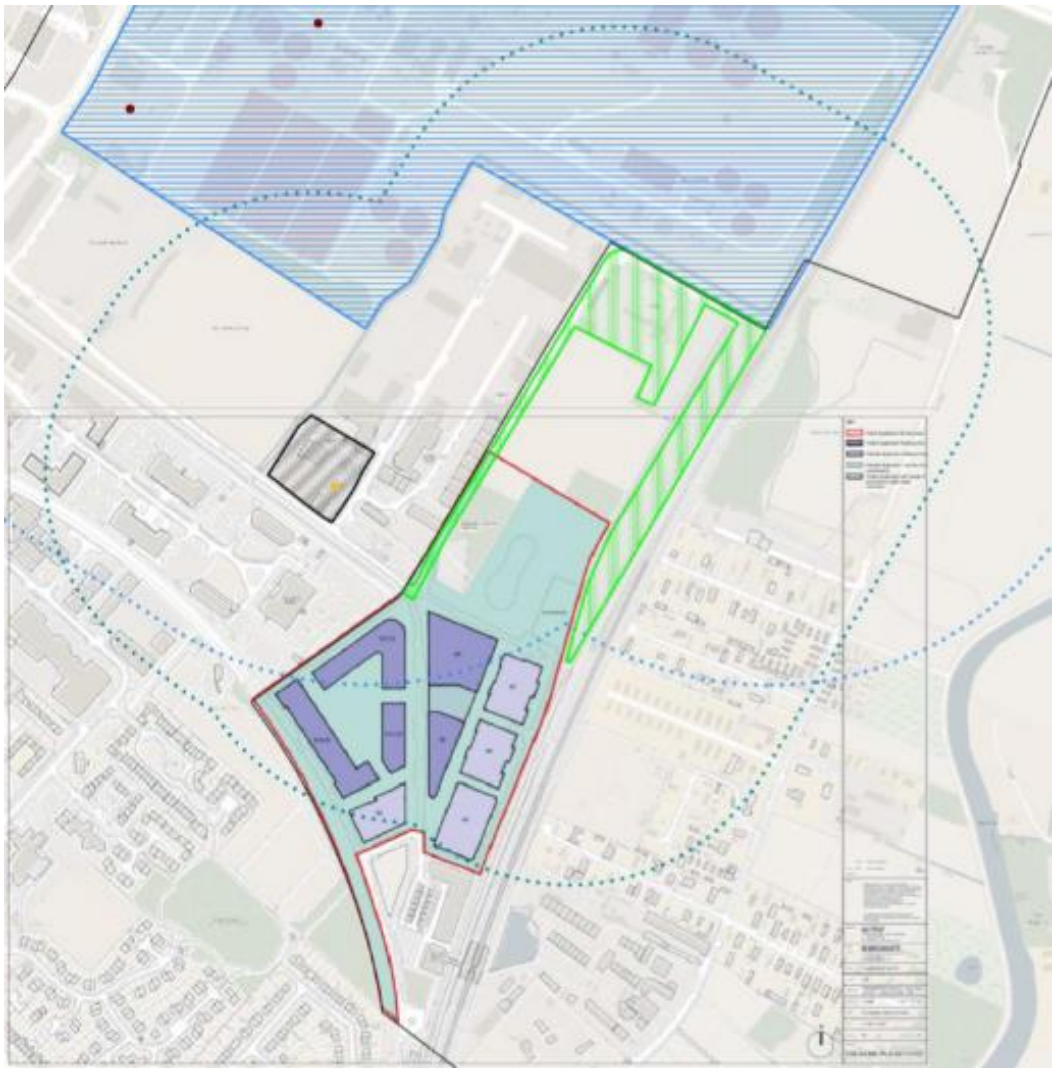
"will only be permitted where it is demonstrated that the development will: (C) not prejudice the existing or futures use of the area [...] for which the consultation area has been designated; and (d) not result in unacceptable amenity issues or adverse impacts to human health for the occupiers or users of such new development, due to the ongoing or future use of the area for which the consultation area has been designated."

Figure 1.1, below, shows the Proposed Development location plan. The Roadstone Coatings site (hatched light green) is located (aside from a strip located within the western boundary of the Proposed Development Site, forming an access road) directly to the north and northeast of the Proposed Development, denoted by the redline Site boundary. The railway siding (also hatched green), which is used to temporarily store aggregates before being taken to the main Railhead site, abuts the north-eastern boundary of the North Cambridge Development Area. The Cowley Road Waste Management Area is hatched grey. The hatched blue area represents a sewage treatment works, which is not expected to result in effects on the Site.

This assessment evaluates the potential for the safeguarded aggregates, waste and transport sites to cause dust impacts on the Proposed Development and includes a review of current air quality baseline levels at the Site and in the surrounding areas.

This report includes a baseline assessment of local air quality, a qualitative dust risk assessment of the waste sites and reaches a conclusion as to the potential risk to amenity for future users of the Proposed Development.

Figure 1.1: Site location plan



2 Air Quality Assessment Method

2.1 Overall Assessment Approach

The approach taken for assessing the potential dust impacts on the Proposed Development is as follows:

- baseline characterisation of local air quality;
- qualitative impact assessment of dust and emissions generated by activities related to the Transport Infrastructure and Waste Management areas;
- review of existing mitigation measures used by the Transport Infrastructure and Waste Management areas to minimise offsite dust generation; and,
- recommendation of mitigation measures, where appropriate, to ensure residual impacts on air quality are minimised.

2.2 Baseline and Site Suitability Assessment

Existing or baseline air quality refers to the concentrations of relevant substances that are already present in ambient air, including from road traffic and industrial sources.

A study has been undertaken using data obtained from continuous monitoring stations maintained by Cambridge City Council (CCC) and South Cambridgeshire District Council (SCDC) and estimated background from the United Kingdom Air Information Resource (UK-AIR) website maintained by the Department for Environment, Food and Rural Affairs (Defra); the aim being to ascertain ambient PM_{10} and $PM_{2.5}$ concentrations to enable adequate consideration within the Dust Risk Assessment.

The baseline assessment has considered air quality against the Air Quality Objectives (AQOs), as explained in Appendix B.

2.3 Qualitative Dust Risk Assessment

Potential air emissions from industrial activities, particularly in the form of dust, have the potential to cause a loss of amenity (due to dust soiling). The finer fraction of dust, in the form of PM_{10} and particulates of finer fractions, have the potential to affect human health.

A dust risk assessment has therefore been prepared, with reference to the principles identified in the 'Guidance on the assessment of dust from demolition and construction' (Institute of Air Quality Management, 2014), replicated in Appendix A. This has incorporated consideration of the dust emissions magnitude from the waste sites; an assessment of receptor sensitivity; and a review of the overall likelihood of risk from each waste Site.

As this assessment focuses on the implications of dust from the existing waste and transport sites on the Proposed Development, it is considered appropriate to consider

embedded mitigation measures adopted by existing waste and transport site operators in the assessment of dust emissions magnitude.

Emissions from trackout, which occurs when vehicles move to and from a Site, has not been assessed. Correspondence from the client has indicated that wheel washing facilities have been used at the Roadstone Coatings d site, which should prevent emissions affecting land at the Proposed Development site. Trackout from the Waste Transfer Station would affect existing receptors equally to proposed receptors, meaning that these emissions should be controlled from the Waste Facility. Many vehicles using the Waste Transfer Station can also be reasonably assumed to be enclosed as to prevent fallout on route.

3 Baseline Conditions and Air Quality Assessment

3.1 Local Authority review and assessment information

Each year and is iterated in the main ES Chapter, Cambridge City Council (CCC) and South Cambridgeshire District Council (SCDC) produce an Air Quality Annual Status Report (ASR)[12] summarising the results of monitoring undertaken in their area, progress made on improving air quality, and consequently on whether AQMAs should be maintained.

The most recent ASRs available at the time of this assessment (the 2022 report, reviewing 2021 for CCC, and the 2021 report reviewing 2020 for SCDC) have been reviewed and the results presented below.

3.2 Particulate Matter (PM) monitoring

Particulate Matter (PM) is an airborne pollutant measured by Local Authorities that can be made up of all airborne particles, including dust. As such, baseline PM levels in an area can be used to determine how likely the area is to be affected by dust impacts. If an area has high baseline PM levels, it is more at risk of being impacted by dust episodes.

CCC and SCDC undertake continuous monitoring of PM_{10} at 6 locations within 5km of the Proposed Development site, and of $PM_{2.5}$ at 2 locations. **Table 3.1** and **Table 3.2**, below, outline the annual mean PM_{10} and $PM_{2.5}$ concentrations monitored at these sites over the last five years.

The ASRs indicate that the annual mean PM_{10} AQO has been met at both busy roadside and urban background locations. At each of the monitoring sites presented, annual mean PM_{10} concentrations have remained very low over the last 5 years, with marked reductions in the last 2 years, which could be due to the impact of the Pandemic on travel behaviours.

[1] Cambridge City Council Air Quality Annual Status Report 2022 (2022). Cambridge City Council. https://www.cambridge.gov.uk/media/11277/air-quality-annual-status-report-2022.pdf

[2] South Cambridge District Council Air Quality Annual Status Report 2021 (2021). South Cambridge District Council. https://www.scambs.gov.uk/media/18620/2021-air-quality-annual-status-report.pdf

Table 3.1 Annual mean PM_{10} concentrations monitored by CCC and SCDC automatic monitors

Site ID	Site Name	Site Type	Distance from Proposed Devt. site (km)	Annual mean NO_2 concentration (µg/m^3)				
				2017	2018	2019	2020	2021
CM2	Montague Road	Roadside	1.8	20	21	22	19	15
ORCH	Orchard Park Primary School (A14)	Urban Background	3.0	14	14	14	12	-
CM4	Parker Street	Roadside	3.1	21	23	21	17	18
CM1	Gonville Place	Roadside	3.5	18	19	19	15	14
IMP	Impington (A14)	Roadside	3.8	16	17	16	15	-
GIRT	Girton	Roadside	4.7	17	17	17	14	-
Objective				**40**				

Note: Site IDs starting with CM are locations in CCC. Site IDs without CM at the beginning are in SCDC, as labelled in their respective ASRs. At the time of writing 2021 data for sites in SCDC are not yet available.

Table 3.2 below outlines the annual mean $PM_{2.5}$ monitoring locations monitored at these sites from 2017 - 2021.

Table 3.2 Annual mean $PM_{2.5}$ concentrations monitored by CCC automatic monitors

Site ID	Site Name	Site Type	Distance from Proposed Devt. site (km)	Annual mean NO_2 concentration (µg/m^3)				
				2017	2018	2019	2020	2021
CM3	Newmarket Road	Roadside	2.1	11	10	10	8	8
CM1	Gonville Road	Roadside	3.5	15	15	14	11	12
Objective				**25**				

The results show that in the five years from 2015 to 2019, there have been no exceedances of the annual mean $PM_{2.5}$ objective, even at these busy roadside monitoring locations within Cambridge city centre.

3.3 Pollutant Background Concentrations

Background concentrations of PM_{10} and $PM_{2.5}$ were obtained from maps downloaded in 2022 from the UK-AIR website[3] maintained by Defra. The maps present annual mean pollutant concentrations on a 1km^2 basis for the years 2018 (the base mapping year) to 2030. The concentrations for the 1km x 1km grid square centred on OS coordinates 547500, 260500, corresponding to the location of the Proposed Development, for 2019, 2022 (the current year), 2023 and 2027 (the year the Proposed Development is expected to become operational) are shown in **Table 3.3**. The data show that annual mean pollutant concentrations are expected to be a long way below the annual mean PM_{10} or $PM_{2.5}$ AQOs in any of the presented years.

Table 3.3: Background pollutant concentrations at the Proposed Development from the UK-AIR website

Pollutant	2019 (µg/m^3)	2022 (µg/m^3)	2023 (µg/m^3)	2027 (µg/m^3)	Objective
PM_{10}	14.88	14.21	14.03	13.67	40.0
$PM_{2.5}$	9.88	9.36	9.22	8.93	25.0

3.4 Current Baseline

Data collected by CCC and SCDC, and predictions from UK-AIR, indicate that annual mean PM_{10} and $PM_{2.5}$ concentrations area unlikely to exceed the respective objective levels even at busy roadside locations. As concentrations reduce with distance from sources, this is considered an indication that baseline PM levels across the site will be well below the AQOs.

Thus, based on the monitored and estimated background data presented above, it is considered that the Proposed Development site is located in an area where the PM_{10} and $PM_{2.5}$ AQOs are likely to be very low. Consequently, PM_{10} and $PM_{2.5}$ can be considered as <24µg/m^3 for the purposes of the dust risk assessment without the need to undertake site-specific monitoring for ground truthing.

[3] Department for Environment, Food and Rural Affairs, 2020. UK Air Information Resource. [online] Available at: http://uk-air.defra.gov.uk

4 Qualitative Dust Risk Assessment

4.1 Dust Emissions Magnitude

Dust Emissions Magnitude attributable to the Roadstone Coatings Facility

In 2013, an Air Quality Assessment was carried out by Mott MacDonald[4] in relation to the Air Quality Assessment for a planning application at and around the roadstone coatings and Railheads Site (planning reference: S/0467/13/CM) which is now predominantly operated by Tarmac. The assessment identified the activities summarised in Table 4.1, below have the potential to generate dust.

Table 4.1: Potential for dust emissions and parameters affecting dust risk associated with the Roadstone Coatings Plant

Activity	Duration of Activity	Potential Dust Emission	Parameters which may affect Dust Risk
Handling activities	Varies but generally ongoing	Can be significant but varies depending on nature of material, whether wet or dry, volumes handled and equipment used.	Frequency of unloading operations and corresponding meteorological conditions. Primarily by conveyor/ front-end loading shovel and HGV.
Loading and unloading activities	Ongoing during deliveries (3-5 times per week for 5 hours per day)	Can be significant but varies depending on nature of material, whether wet or dry, volumes handled and equipment used.	Frequency of unloading operations and corresponding meteorological conditions. Primarily by open conveyor.
Storage of materials within the site	Ongoing	Varies depending on volume of stored material, whether wet or dry and exposure to wind.	Some existing storage bays are roofed. All new storage bays to be enclosed on three sides and have roofs to prevent wind blowing. Dust suppression water sprays already operational all around the site.

[4] Lafarge Site, Chesterton Sidings. Mott Macdonald (2013). Microsoft Word - Air Quality Report - Final (cambridgeshire.gov.uk)

Activity	Duration of Activity	Potential Dust Emission	Parameters which may affect Dust Risk
Transport of materials within the site	Varies but generally ongoing	Varies depending on the type of transport. If road transported, then the type of vehicle and nature of roads (surfaced or unmade) are important factors.	Transport is usually by front-end loading shovel. Re-suspension of dust by vehicles on site minimised by surfaced (asphalt) roads and concreted areas around the asphalt plant. Areas around the storage bays are hard standing. Wheel wash facility available. Dust suppression water sprays already operational around the site.
Loading of hoppers	Varies but generally ongoing	Varies depending on the volume of material, frequency or operations, whether wet or dry and exposure to wind.	
Transport offsite	Ongoing	Mainly by road. Not generally significant (except near site exits).	Wheel-wash is already in place for all HGVs leaving the site.

The above table shows that the Roadstone Coatings plant regularly carries out potentially significantly dusty activities that are ongoing. These are day to day activities and highlight that, in the absence of mitigation, this site could pose a potential dust risk to the surrounding area.

The Mott MacDonald assessment considered mitigation measures to be implemented during the operation of the Aggregates site to ensure that offsite dust risk is reduced to a minimum. These are summarised in **Appendix C**.

The Application for this Site was consented, subject to conditions.

In 2015, Mott MacDonald produced a Dust Suppression and Monitoring report to discharge Condition 18[5]. This report also outlines existing Dust Suppression Infrastructure used at the site that dampens dusty areas. This is explained further below:

- **Borehole** – The site contains a borehole from which water is drawn to supply the dust suppression system. Water is stored in the adjacent storage tank.
- **Storage Tank** – A storage tank, of approximately 22.5 cubic meters in volume, is used to store water pumped from the borehole to be used in the dust suppression system. When water from the tank is used by the system, is it automatically topped up with water from the borehole.

[5] Planning Condition 18 – Dust Suppression and Monitoring. (2015). Mott MacDonald. S_0467_13_CM_C2-Dust_Suppression_Monitoring-18158.pdf (cambridgeshire.gov.uk)

- **Sprinklers** – A number of M10 360° rotary sprinklers are located throughout the site to disperse water in order to dampen areas with the objective of keeping dust levels as low as reasonably possible. The degree of rotation of the sprinklers located on site has been limited in order to only dampen certain areas.

The use of dust suppression would effectively contain emissions where applied. The dust emissions magnitude, considering mitigation measures already then proposed at this Site, would not be expected to exceed a 'not significant' (generally negligible or low) dust emissions magnitude.

It is assumed that a similar dust suppression system will have remained in-situ or reconfigured similarly in further, subsequent non-material amendment applications; and/or in the Environmental Permit for the Site.

Dust Emissions Magnitude attributable to the Veolia Waste Transfer Station

Emissions from the waste transfer station are considered likely to be 'not significant' (assumed to be generally negligible or low). This is because:

- Following consultation with Veolia, it is understood that no waste *"which could generate dust or dirt is handled externally each day;"*
- All bulking, transfer or treatment facilities are required to take place inside the on-site buildings, according to the Standard Rules Environmental Permit which it is understood apply to the Waste Transfer Station in question.
- The Standard Rules Environmental Permit requires that: *"Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this rule if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions. The operator shall: (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan; (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency."* Considering there are commercial buildings closer to the Waste Transfer Station than the Proposed Development, the Environment Agency are already obliged to regulate pollution from the Waste Transfer Station appropriately regardless of whether the Proposed Development is consented. It is however acknowledged that the Proposed Development would increase the number of receptors around the facility.

Dust Emissions Magnitude attributable to the Aggregates Railheads

The planning consent for the aggregates railhead (planning reference S/0245/17/CM) indicates that it will principally accept deliveries of hard stone/ rock (presumably sized as gravel or cobbles) and occasionally sand. However, smaller aggregates are understood be stored in bays towards the north of the railhead, further from sensitive receptors.

It is understood that Freightliner are no longer moving any traffic to Site. The new operator is expected to accept circa one train delivery per week.

Moreover, Tarmac have moved their roadstone coating operations to another Site, due to restrictions on the operating regime posed by planning conditions. As of mid-September 2022, this meant that there would be no more trains for a two-month period. It is assumed that the frequency of trains would not increase for as long as restrictions on activities at the Roadstone Coating Facility remain in place.

It is anticipated that materials unloaded from either rail operation would be stored at the Roadstone Coatings Facility, for which dust suppression and mitigation is in place; or in the area between both sidings.

It is anticipated that the dust emissions magnitude associated with any storage between the railheads may have a 'medium' dust emissions magnitude; considering the extent to which dust suppression measures are used is unknown, but also acknowledging the limited frequency and size of aggregates imported would limit their dust generating potential. This is considered conservative as it has not considered the use of dust suppression which the Planning Statement for the railheads has stated is in place.

4.2 Receptor Sensitivity

Using the IAQM 2014 guidance process outlined in Appendix A, the area sensitivity was defined (insofar as it applies to the Proposed Development site). The findings of this assessment are shown in Table 4.2, below.

The sensitivity of receptors at the Proposed Development to activities occurring at the Waste Management Facility, Roadstone Coating Plant and Railhead are assessed as low.

Table 4.2: Sensitivity of receptors at Site to dust and emissions associated with each of the Proposed types of activity

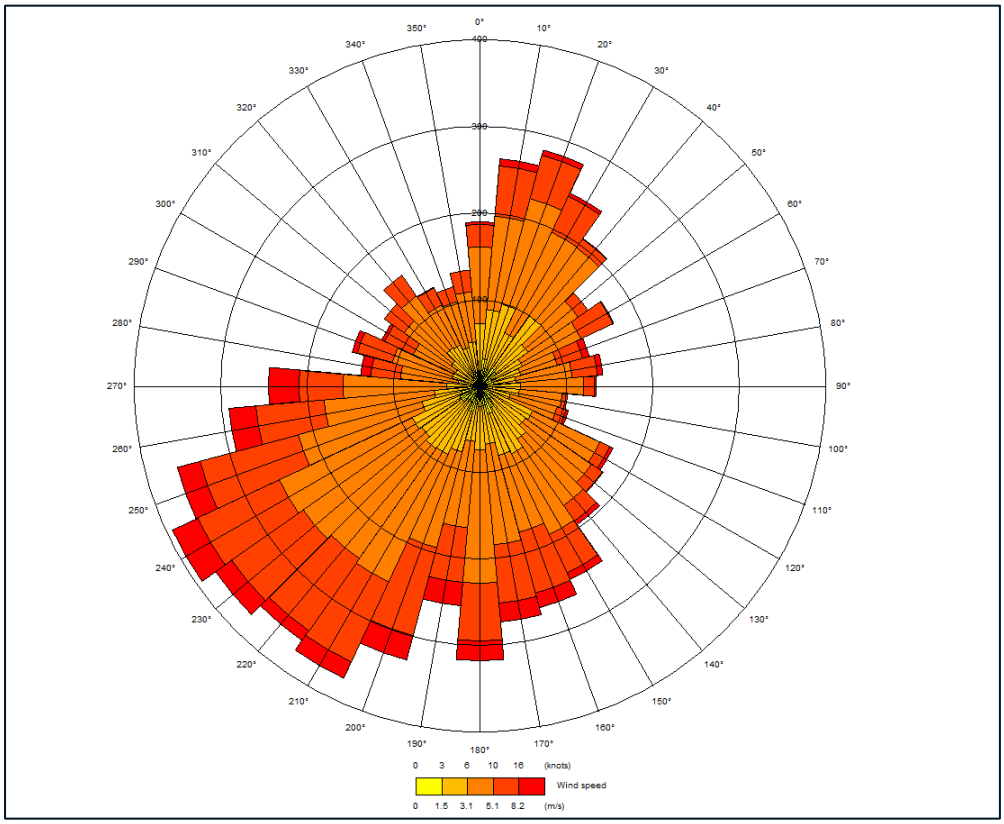
Type of work	Waste Management Facility	Roadstone Coating Plant	Railheads
Dust soiling	**Low:** No proposed buildings (containing all high and most low/ medium sensitivity receptors) within 100m of the facility boundary. The closest space within the Site is located 120 metres southeast of the facility. The closest building facades are located circa 135 metres southeast of the facility – with residential (high sensitivity) facades a greater distance.	**Low:** No proposed buildings (containing all high and most low/ medium sensitivity receptors) within 100m of the Site boundary. The closest space within the site boundary is located 140 metres southwest of the facility. The closest building facades (assumed to be residential) are located circa 318 metres southwest of the facility.	**Low:** There is >1 medium sensitivity receptor within the Proposed Development site within 20-50m (24m) of the closest part of the Railhead. The nearest residential façade is located 175m southwest of the boundary of the railhead.

Type of work	Waste Management Facility	Roadstone Coating Plant	Railheads
Human health impacts	**Low:** There are not >100 high sensitivity Proposed Development receptors within 50 metres of the facility. Baseline annual mean PM_{10} concentrations are likely to be below 24µg/m^3 the vicinity of the Application Site (see Section 3).	**Low:** There are not >100 high sensitivity Proposed Development receptors within 50 metres of the facility. Baseline annual mean PM_{10} concentrations are likely to be below 24µg/m^3 the vicinity of the Application Site (see Section 3).	**Low:** There are not >100 high sensitivity Proposed Development receptors within 50 metres of the facility. Baseline annual mean PM_{10} concentrations are likely to be below 24µg/m^3 the vicinity of the Application Site (see Section 3).
Ecological	**Negligible:** According to the MAGIC Maps website, there are no SACs, SPAs, Ramsar sites, SSSIs, National Nature Reserves or Ancient Woodlands at Site.		

Local Meteorological Impacts

The Aggregates site is located on the north-eastern boundary of the Proposed Development site and the prevailing wind direction in the area is predominantly south-westerly. This is outlined in **Figure 4.1**, below, which shows the predominant south-westerly wind direction and occasionally north-easterly winds. Based on a review of wind directions, the Site is expected to be downwind of the railheads and Roadstone Coatings facility c20% of the year.

Figure 4.1 Windrose from Cambridge Airport meteorological station during 2019



4.3 Risk of Dust Effects

Using the IAQM 2014 guidance process outlined in Appendix A (using categories for 'earthworks'), the risk of dust impacts derived from the different on-site activities is shown in Table 4.3. A negligible risk has been assessed (in relation to the waste management facility and roadstone coating plant). A low risk has been assessed in connection with the railheads.

Considering that dust suppression measures are understood to be used at the Railheads, it is considered likely in practice that the dust risk attributable to the railheads may be lower than has been assessed.

Considering each facility has been assessed as having a negligible to low risk on future site users, it is anticipated that the overall dust risk would be 'not significant'.

Table 4.3: Summary of the dust risk from site activities

Potential Impact	Dust Risk Summary		
	Waste Management Facility	Roadstone Coating Plant	Railheads
Dust Soiling	Negligible risk	Negligible risk	Low risk
Health Effects	Negligible risk	Negligible risk	Low risk
Ecological	Negligible Risk – none expected		

5 Conclusions

This qualitative dust risk assessment looking at the potential for Roadstone Coatings, Railhead and Waste sites to cause dust impacts on the proposed Cambridge North residential Proposed Development has determined:

- The dust risk assessment has identified that the Facilities would have a small or medium dust emissions magnitude of impacting on-site receptors, after accounting for embedded mitigation.
- The sensitivity of receptors at site to dust from all three activities is low.
- The overall dust risk on future site users is considered to be negligible (not significant).

Appendix A Construction Phase Assessment

Construction Phase Dust Assessment Methodology

The qualitative construction dust and PM_{10} risk assessment method outlined in the IAQM 2014 guidance is summarised below.

Step 1: Identify the need for a detailed assessment

An assessment would normally be required where there is:

- A human receptor within 350 metres of the proposed scheme; and/or within 50 metres of the access route(s) used by the construction vehicles on the public highway up to 500 metres from the study area site entrance(s); and/or
- An ecological receptor within 50 metres of the proposed scheme and/or within 50 metres of the access route(s) used by construction vehicles on the public highway up to 500 metres from the entrance(s).

A human receptor refers to any location where a person or property may experience the adverse effects of airborne dust or dust-soiling, or exposure to PM_{10} over a period relevant to the ambient AQOs.

An ecological receptor refers to any sensitive habitat affected by dust soiling. For habitats with a statutory designation, such as a National Nature Reserve, Ramsar site, Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC) or Special Protection Areas (SPA), consideration should be given as to whether the particular site is sensitive to dust. Some non-statutory sites may also be considered if appropriate, such as a Site of Importance for Nature Conservation.

Where the need for a more detailed assessment is screened out, it can be concluded the level of risk is 'negligible' and any effects would be 'not significant'.

Step 2: Assess the risk of dust impacts

A site is allocated a risk category on the basis of the scale and nature of the works (Step 2A) and the sensitivity of the area to dust impacts (Step 2B). These two factors are combined in Step 2C to determine the risk of dust impacts before the allocation of mitigation measures. Risks are described as low, medium or high for each of the four17itigatee activities (demolition, construction, earthworks and trackout). Site-specific mitigation is required, proportionate to the level of risk.

Step 2A: Define the potential dust emission magnitude

The potential dust emission magnitude is based on the scale of the anticipated works and should be classified as small, medium or large. Table A-1 presents the dust emission criteria outlined for each construction activity.