



# The Sizewell C Project

Deed of Obligation, Schedule 12, Annex W:  
Northern Park and Ride Refreshed Noise  
Assessment

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# 1. Introduction

- 1.1 AECOM has been appointed by Sizewell C Limited (SZC) to identify residential buildings that will qualify under the Noise Mitigation Scheme (NMS) (as set out in Annex W of the **Deed of Obligation**<sup>1</sup>) as a result of the construction and operation of the Sizewell C nuclear power station project ('the project'). The project includes the following elements:
- The main development site (MDS) comprising land required for the Sizewell C nuclear power station, offshore works and land used temporarily to support construction, including a temporary accommodation campus and caravan site for the construction workforce. This includes the land east of Eastlands Industrial Estate (LEEIE).
  - Two temporary park and ride sites, one at Darsham (the 'northern park and ride site') and one at Wickham Market (the 'southern park and ride site'), to reduce the amount of traffic generated by the construction workforce on local roads and through local villages.
  - A permanent road to bypass Stratford St Andrew and Farnham (referred to as the 'two village bypass' or TVB), to alleviate traffic and mitigate road safety effects on the A12 through the two villages.
  - A permanent road linking the A12 to west of the Sizewell C main development site (referred to as the 'Sizewell link road' or SLR), to alleviate traffic from the B1122 through Theberton and Middleton Moor.
  - Permanent highway improvements at the junction of the A12 and B1122 east of Yoxford (referred to as the 'Yoxford roundabout') and other road junctions to accommodate Sizewell C construction traffic and mitigate road safety effects.
  - A temporary freight management facility (FMF) at Seven Hills on land to the south-east of the A12/A14 junction to manage the flow of freight to the main development site.
  - A temporary extension of the existing Saxmundham to Leiston branch line into the main development site (referred to as 'the green rail route' or GRR) and other permanent rail improvements on the Saxmundham to Leiston branch line, to transport freight by rail to remove large numbers of lorries from the regional and local road network.
- 1.2 In addition, there will be temporary intensification for approximately 8 to 10 years of the use of the existing East Suffolk line railway between Westerfield Junction, just north of Ipswich and the junction with the Saxmundham to Leiston branch line, just north of Saxmundham, and the Saxmundham to Leiston branch line itself.
- 1.3 The project received development consent on 20 July 2022 under Statutory Instrument 2022 No 853. 'The Sizewell C (Nuclear Generating Station) Order 2022'.
- 1.4 Separate reports have been produced regarding qualification under the NMS due to the construction and operational use of each of the various elements of the project set out in paragraphs 1.1 and 1.2 above, except for the operational use of the power station itself, since the **Development Consent Order (DCO)** (Requirement 40: Operational Noise) precludes the operation of the power station at noise levels that could lead to properties being eligible for noise insulation.
- 1.5 This report focuses on noise insulation qualification and the potential for temporary rehousing under the NMS due to the construction and operation of the northern park and ride site at Darsham.
- 1.6 Figure 1 provides an overview of the preliminary design of the northern park and ride<sup>2</sup>. Only minor changes are anticipated at the detailed design stage.

<sup>1</sup> The Sizewell C Project 8.17/10.4 *Deed of Obligation Engrossment Version – Annexures - Part 3 of 3*, Book 8 Revision: 9.0, Book 10 Revision: 1.0, PINS Reference Number: EN010012, <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/EN010012/EN010012-008256-SZC%20Co.%20-%20Final%20signed%20and%20dated%20s.106,%20final%20s.106%20Explanatory%20Memorandum%20and%20final%20Confirmation%20and%20Compliance%20Document%2017.pdf>

<sup>2</sup> Files: '\_X-AD110(NPR)-GENERAL ARRANGEMENT.dwg', '\_X-AD110(NPR)-KERBS & EDGINGS.dwg' and '\_X-AD110(NPR)-PAVEMENTS.dwg' from SZC 22/12/23 and files: '\_X-AD110(NPR)-S278 Alignment.dwg' and '\_X-AD110(NPR)-S278 PROPOSED SWALES.dwg' from SZC 25/04/24

- 1.7 Works to construct the northern park and ride are currently programmed to start in early 2025 and finish in mid-2026. The northern park and ride site is planned to be removed once all the SZC construction works are complete, currently estimated to be around 2035.

## 2. Criteria

### Construction

- 1.8 The criteria for construction noise insulation and temporary rehousing are set out in the NMS which is detailed in Annex W of the **Deed of Obligation**.
- 1.9 Table 1.1 of the NMS sets out the criteria for eligibility for insulation for construction noise, which are:
- “A Property will be eligible for an offer of insulation where the Property is predicted to experience the following when measured 1 m from the external façade of any Eligible Room:*
- (1) a construction noise level which exceeds the higher of either:*
- (a) the noise insulation trigger levels set out in Table 1.3 for any Associated Development site or in Table 1.4 for the main development site for the corresponding times of the day; or*
- (b) the existing Baseline Ambient Sound Level for the corresponding times of the day; and*
- (2) an exceedance of (1) where:*
- (a) the exceedance is predicted to occur on 10 or more days of working in any 15 consecutive days or on a total number of days exceeding 40 in any 6 consecutive months; or*
- (b) where the exceedance occurs only on a Saturday or Sunday, it is predicted to occur on 2 weekends, or part thereof, in any 15 consecutive days or on 6 weekends, or part thereof, in any 6 consecutive months.”*
- 1.10 The numerical values associated with these criteria are contained in Tables 1.3 and 1.4 of the NMS. Since this report does not consider the construction of the MDS, the values in Table 1.4 of the NMS are not relevant.
- 1.11 Table 1 sets out the NMS insulation trigger levels for construction noise for the associated development sites, which are taken from Table 1.3 of the NMS, but rearranged so that multiple periods are grouped according to their eligibility threshold; the NMS presented the periods chronologically.

**Table 1. Construction noise insulation trigger levels for the Associated Development sites (from Table 1.3 in the NMS)**

Day/Time	Averaging Period, T	Noise Insulation Trigger Level dB L <sub>Aeq,T</sub>
Day:		
Weekdays, 08:00 to 18:00,	10 hr (weekdays)	75
Saturday, 08:00 to 13:00	5 hr (Saturdays)	
Shoulder Periods:		
Weekdays, 07:00 to 08:00	1 hr	70
Weekdays, 18:00 to 19:00		
Saturday, 07:00 to 08:00		
Saturday, 13:00 to 14:00		
Evenings and weekends:		
Weekdays 19:00 to 23:00,	4 hr (weekdays)	65
Saturdays 14:00 to 23:00,	1 hr (Saturdays)	
Sundays 07:00 to 23:00	1 hr (Sundays)	
Nights:		
Every day 23:00 to 07:00	1 hr	55

1.12 Table 1.2 of the NMS sets out the criteria for temporary rehousing due to construction noise, which are:

*“An occupier of a Property will be eligible for an offer of temporary rehousing where a Property is predicted to experience:*

*(1) a construction noise level which exceeds the higher of either:*

*(a) the temporary rehousing trigger levels set out in Table 1.5 for the corresponding times of the day; or*

*(b) the existing Baseline Ambient Sound Level by 10 dB for the corresponding times of the day; and*

*(2) an exceedance of (1) where:*

*(a) the exceedance is predicted to occur on 10 or more days of working in any 15 consecutive days or on a total number of days exceeding 40 in any 6 consecutive months; or*

*(b) where the exceedance occurs only on a Saturday or Sunday, it is predicted to occur on 2 weekends, or part thereof, in any 15 consecutive days or on 6 weekends, or part thereof, in any 6 consecutive months.”*

1.13 The numerical values associated with these criteria are contained in Table 1.5 of the NMS, and these are set out in Table 2.

**Table 2. Construction noise temporary rehousing trigger levels – all sites (Table 1.5 in the NMS)**

Day	Time	Averaging Period, T	Temporary Rehousing Trigger Level dB L <sub>Aeq,T</sub>
Monday to Friday	07:00 to 08:00	1 hr	80
	08:00 to 18:00	10 hr	85
	18:00 to 19:00	1 hr	80
	19:00 to 23:00	4 hr	75
	23:00 to 07:00	1 hr	65
Saturday	07:00 to 08:00	1 hr	80
	08:00 to 13:00	5 hr	85
	13:00 to 14:00	1 hr	80
	14:00 to 23:00	1 hr	75
	23:00 to 07:00	1 hr	65
Sunday and Public Holidays	07:00 to 23:00	1 hr	75
	23:00 to 07:00	1 hr	65

1.14 The trigger levels relate to ‘façade’ noise levels, i.e. 1 metre from the external façade.

1.15 The potential working times for the northern park and ride construction works are Monday to Saturday 07:00 to 19:00. SZC has advised that they may not need to carry out works on Saturday afternoons between 14:00 and 19:00. However, as this will not be confirmed until the construction programme is refined, a conservative approach to the assessment of eligibility for noise insulation has been adopted, whereby receptors that are predicted to meet the Saturday afternoon trigger levels have been identified.

1.16 For temporary rehousing, those properties that are predicted to be eligible based on Saturday afternoon construction works have been identified separately from any that are predicted to be eligible during the ‘core’ working hours, as discussed in paragraph 2.16.

1.17 SZC has confirmed that the one-hour ‘shoulder’ periods of 07:00 to 08:00 Monday to Saturday, 18:00 to 19:00 Monday to Friday, and 13:00 to 14:00 Saturday would be used for activities such as staff briefings, not construction works.

1.18 The NMS trigger levels at which offers of noise insulation or temporary rehousing are to be made are either the higher of the absolute levels set out in Tables 1 and 2, or a level set relative to the baseline

ambient sound levels at a receptor, where the existing ambient sound levels already exceed the absolute trigger levels.

- 1.19 Based on the baseline noise monitoring and modelling completed for the **Environmental Statement (ES)**<sup>3</sup>, the baseline ambient sound levels at the façades of the receptors along the A12 that are closest to that road were generally around 75 dB,  $L_{Aeq,16h}$ , free-field during the day and around 65 dB  $L_{Aeq,8h}$ , free-field at night. These values are potentially close to or above all of the trigger levels in the NMS for insulation due to construction noise. At receptors and façades further away from the A12, baseline ambient sound levels are lower and generally below the trigger levels in the NMS.
- 1.20 Taking a conservative approach, the absolute trigger levels for eligibility for noise insulation set out in Table 1 and the absolute trigger levels for eligibility for temporary rehousing set out in Table 2 have been adopted for all receptors, even where the ambient sound levels are likely to be higher than the trigger levels. This is considered to be a robust application of the NMS.
- 1.21 For the sake of clarity, the daytime shift spans the 'daytime' ten-hour period Monday to Friday and five-hour Saturday morning period defined in the NMS, as well as the Saturday afternoon period. Although it is noted Saturday afternoons may not be needed for construction works, this is not yet confirmed so they have been included to provide a conservative approach.
- 1.22 The relevant noise insulation trigger level will be the most stringent threshold over these periods, which is 65 dB, quantified as a one-hour  $L_{Aeq,T}$  during Saturday afternoons. Even though the contractor may not need to work on Saturday afternoons, the time required to insulate the affected properties means that it is better to make offers to more houses than might ultimately require it, so Saturday afternoon working is possible should it become necessary. If this approach is not adopted, the works may potentially be delayed while the NMS process is implemented.
- 1.23 The time required to organise temporary rehousing is much shorter, and therefore the weekday daytime and Saturday morning trigger level of 85 dB has been adopted, quantified as either a ten-hour  $L_{Aeq,T}$  on Mondays to Fridays between 08:00 and 18:00 or a five-hour  $L_{Aeq,T}$  on Saturday mornings from 08:00 to 13:00. The properties that would be eligible for temporary rehousing if Saturday afternoon working does become necessary have been identified in the text of this report, based on the lower trigger level of 75 dB as a one-hour  $L_{Aeq,T}$ . However, given the short period of time required to organise temporary rehousing, relative to the process of offering and installing insulation, properties predicted to qualify for temporary rehousing on this basis are not identified on any plans.
- 1.24 Some works are required outside of normal daytime hours, these relate to works to tie-in the new roundabout to the existing A12, SZC has confirmed the duration of the night works would be less than ten nights. For the night-time tie-in works, the relevant noise insulation trigger level is 55 dB, and the relevant temporary rehousing trigger level is 65 dB, both quantified as a one-hour  $L_{Aeq,T}$ .

## Operation

- 1.25 The criteria for operational plant and activity noise insulation are set out in the NMS which is detailed in Annex W of the **Deed of Obligation**.
- 1.26 Table 1.1 of the NMS sets out the criteria for eligibility for operational plant noise, which are:
- "A Property will be eligible for an offer for insulation where the total noise from fixed plant or machinery associated with the use of the Development (including any Associated Development Site) exceeds any of the following levels, when measured 1m from the external façade of any Eligible Room:*
- (i) 63 dB  $L_{Aeq,16hrs}$  between 07:00 and 23:00 hours; or*
- (ii) 58 dB  $L_{Aeq,8hrs}$  between 23:00 and 07:00 hours."*
- 1.27 Table 1.1 of the NMS sets out the criteria for eligibility for operational activity noise, which are:

<sup>3</sup> The Sizewell C Project 6.4 Revision, 1.0, Volume 3 Northern Park and Ride *Chapter 4 Noise and Vibration*, May 2020, PINS Reference Number: EN010012, [https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001971-SZC\\_Bk6\\_ES\\_V3\\_Ch4\\_Noise\\_Vibration.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001971-SZC_Bk6_ES_V3_Ch4_Noise_Vibration.pdf)

*“A Property will be eligible for an offer for insulation where the total noise from operational activities at an Associated Development Site excluding fixed plant or machinery exceeds any of the following levels, when measured 1m from the external façade of any Eligible Room:*

- (1) (a) 63 dB  $L_{Aeq,16hrs}$  between 07:00 and 23:00 hours; or
- (b) 58 dB  $L_{Aeq,8hrs}$  between 23:00 and 07:00 hours; or
- (c) maximum sound level  $L_{AFmax}$  70 dB between 23:00 and 07:00 hours; and
- (2) any exceedance of the levels in (1):
  - (a) is predicted to occur on 10 or more days of working in any 15 consecutive days or on a total number of days exceeding 40 in any 6 consecutive months; or
  - (b) where the exceedance occurs only on a Saturday or Sunday, it is predicted to occur on 2 weekends, or part thereof, in any 15 consecutive days or on 6 weekends, or part thereof, in any 6 consecutive months.”

- 1.28 The criteria for operational plant and activity noise insulation relate to ‘façade’ noise levels, i.e. 1 metre from the external façade.

## 3. Methodology

### Construction activities and plant

- 1.29 The prediction method for the construction noise assessment is that contained in BS 5228<sup>4</sup>, as was the case for the northern park and ride construction noise calculations in the **ES**. The calculations use the SoundPLAN noise modelling software (version 8.2).
- 1.30 The construction of the Sizewell C Project will span 9-12 years and involve many different contractors. The construction information set out in the **ES**<sup>5&6</sup> has been reviewed and updated as appropriate. The construction activities and plant from the **ES** have been used as a starting point, however, SZC has provided various updates and additional detail on the construction activities, plant, working times and durations, which have been adopted. The **ES** was based on spreadsheet calculations rather than noise modelling and focussed on the identification of potentially significant effects. Potential qualification under the NMS was considered for construction noise, although the **ES** noted that a refreshed noise assessment would be required once more information on the construction works was available.
- 1.31 Table 3 details the assumed construction activities and durations. The list of plant used in the model for each activity is provided in Appendix A.

**Table 3. Construction activities**

Ref	Activity	Duration
1.1	Build compound (main and temporary)	50 days
1.2	Build haul road	10 days
1.3	High Voltage (HV) cable diversion	30 days
2.1	Fencing/hoarding	20 days
2.2	Swales and infiltration basins	20 days
2.3	Vegetation clearance	20 days
2.4	Topsoil strip	40 days

<sup>4</sup> BS 5228-1:2009+A1:20214 ‘Code of practice for noise and vibration control on construction and open sites’

<sup>5</sup>The Sizewell C Project 6.4 Revision: 1.0 Volume 3 Northern Park and Ride Chapter 4 Noise and Vibration Appendix 4A, May 2020, PINS Reference Number: EN010012 [https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001973-SZC\\_Bk6\\_ES\\_V3\\_Ch4\\_Noise\\_and\\_Vibration\\_Appx4A\\_Construction\\_Operational\\_Noise\\_Assessment.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001973-SZC_Bk6_ES_V3_Ch4_Noise_and_Vibration_Appx4A_Construction_Operational_Noise_Assessment.pdf)

<sup>6</sup> The Sizewell C Project 6.4 Revision: 1.0 Volume 3 Northern Park and Ride Chapter 2 Description of the Northern Park and Ride, May 2020, PINS Reference Number: EN010012, [https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001967-SZC\\_Bk6\\_ES\\_V3\\_Ch2\\_Northern\\_Park\\_and\\_Ride\\_Description\\_of\\_Development.pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-001967-SZC_Bk6_ES_V3_Ch2_Northern_Park_and_Ride_Description_of_Development.pdf)



Ref	Activity	Duration
2.5	Culverts (2 no.)	15 days
3.1	Earthworks	46 days
3.2	Drainage	146 days
4.1	Pavements - Sub base	117 days
4.2	Pavements - Kerbs	98 days
4.3	Pavements - Blacktop	44 days
4.4	Pavements - A12 tie-ins (day and night)	30 days and less than 10 nights
5.1	Install buildings, bus shelters etc.	40 days
6.1	Lighting	70 days
6.2	Signs	70 days
7.1	Compound operation	-
7.2	Haul road operation	-
8.1	Compound removal	10 days
8.2	Remove whole site at completion of all SZC works	30 days

- 1.32 The duration of each of the daytime activities is ten or more days and therefore they have the potential to meet the noise insulation and temporary rehousing criteria. The only night-time activity (Activity 4.4 Pavements – A12 tie-ins) is expected to last less than ten nights, and therefore the night-time works would not trigger qualification for noise insulation or temporary rehousing, irrespective of the predicted noise levels.
- 1.33 Many of the construction activities will progress across the worksite, therefore estimates of the working areas over ten days have been made based on the total area of each activity and the total duration of each activity. The surrounding residential properties have been grouped into ten areas, labelled A to J on Figure 1. The working area over ten days that is closest to each of the ten groups of residential properties has been used to estimate the average construction noise level over those ten days.
- 1.34 Some activities are limited to specific locations, therefore their noise levels are assumed to be constant for the duration of these activities, including the construction (Activity 1.1), operation (Activity 7.1) and removal (Activity 8.1) of the compounds, the two culverts (Activity 2.5), the tie-ins (Activity 4.4) and the installation of the new buildings (Activity 5.1).
- 1.35 The majority of the works by their nature take place sequentially in any one location, e.g. topsoil strip followed by earthworks and drainage, then pavements, kerbs, blacktop, lighting and signs. Therefore, there is little potential for these activities to overlap in any one location. In particular, it is highly unlikely that the worst-case ten days of more than one of these activities will coincide at any one location. However, there is some potential for activities to overlap.
- 1.36 The current programme has been reviewed and a total of nine combinations of daytime activities over the duration of the works have been assessed, and the worst-case combination reported for each receptor.

## Operational activities and plant

### Mechanical Services Plant noise

- 1.37 As identified in the **ES**, there will be some mechanical services plant associated with the amenity and security buildings on site, such as extract fans and heating and cooling systems. Such plant could be in operation 24 hours a day.
- 1.38 As part of the **DCO**, a number of design principles<sup>7</sup> were developed in consultation with the local authorities and other stakeholders and set the framework with which the final detailed design of the associated development sites must comply. This is secured by Requirement 33 of the **DCO**, which requires SZC to demonstrate compliance with the Associated Development Design Principles, to the satisfaction and approval of East Suffolk Council.
- 1.39 Building Design Principle 6 for the northern park and ride states:

<sup>7</sup> The Sizewell C Project 8.3 Revision: 6.0 *Associated Development Design Principles*, October 2021, PINS Reference Number EN010012 [https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008054-Carly%20Vince%20-%20Other-%20Control%20Document%20-%20Associated%20Developments%20Design%20Principles%20\(track%20change%20version\).pdf](https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/EN010012/EN010012-008054-Carly%20Vince%20-%20Other-%20Control%20Document%20-%20Associated%20Developments%20Design%20Principles%20(track%20change%20version).pdf)

*“All mechanical services plant (such as air conditioning condenser units and air handling units) will be designed or selected to achieve a rating level of noise not exceeding 35 dB  $L_{A,r,15mins}$  at the closest off-site residential receptor, when assessed in accordance with British Standard 4142: 2014+A1: 2019<sup>8</sup>.”*

- 1.40 Specific details of the proposed mechanical services plant to be installed are not known at this stage, and therefore mechanical services plant noise levels at receptors cannot be considered as part of this refreshed noise assessment. When specific details of the proposed mechanical services plant are available, an assessment to demonstrate compliance with the design principle will be required.
- 1.41 Notwithstanding the lack of detail at this stage, compliance with Building Design Principle 6, as secured by Requirement 33 of the **DCO**, will ensure that the NMS criteria for noise insulation due to operational mechanical services plant noise will not be exceeded at any receptor, and therefore there is no requirement consider eligibility under the NMS in this report.

## Activity noise

- 1.42 The **ES** considered vehicle movements on the new access road off the A12 and within the site (cars and buses), and cars manoeuvring in the car park areas. The operational information used in the **ES** for these activities has been used as a starting point for this refreshed noise assessment, with some refinements and assumptions to provide a conservative approach. In particular, individual hourly traffic data (cars and buses) over a full 24 hour period for the new access road off the A12 into the site have been provided by WSP. Traffic data on the access road for the ‘later years’ of the construction of the main development site, represented by the year 2028, have been used in the assessment.
- 1.43 The calculations use the SoundPLAN noise modelling software (version 8.2). Source data for vehicle movements on the new access road off the A12 and within the site (cars and buses) is based on data held within the SoundPLAN global library, and for cars manoeuvring in the car park areas is based on the methodology for a park and ride site from the Parking Area Noise study<sup>9</sup> adopted by SoundPLAN. The prediction methodology adopted is that contained in ISO 9613-2<sup>10</sup>. This approach is the same as was the case for the northern park and ride construction noise calculations in the **ES**, although the **ES** did not explicitly mention the Parking Area Noise study.
- 1.44 Further details of the operational activities included in the assessment are provided in Appendix B.

## Ground heights

- 1.45 The noise model contains a 3-dimensional representation of the existing ground heights in the study area. The ground data for the northern park and ride site itself is based on a topographical survey provided by SZC in May 2024<sup>11</sup>.
- 1.46 The ground height data for the wider area is based on 2020 2 m Digital Terrain Model (DTM) LIDAR data downloaded from the Defra website<sup>12</sup> in December 2021, which has been filtered using the standard settings in the SoundPLAN software to reduce the size of the dataset.
- 1.47 Proposed ground heights for the northern park and ride works are incorporated into the noise model for the assessment of the later construction works, once the main earthworks and drainage are complete, and for the operational noise assessment. The proposed ground heights are based on data provided by HaskoningDHV UK Ltd in June 2024<sup>13</sup> and include the proposed earth bund within the site.

## OS datasets

- 1.48 The noise model contains a 3-dimensional representation of residential and non-residential buildings in the surrounding area, and a representation of the existing ground type, for example acoustically hard surfaces such as concrete or water, or acoustically soft surfaces such as vegetation. These data are

<sup>8</sup> BS 4142: 2014+A1:2019 ‘Methods for rating and assessing industrial and commercial sound’

<sup>9</sup> Bayerisches Landesamt für Umwelt, 2007, ‘Parking Area Noise’

<sup>10</sup> ISO 9613-2:1996 ‘Acoustics — Attenuation of sound during propagation outdoors — Part 2: General method of calculation’

<sup>11</sup> File ‘\_X-AD0110(NPR)-TOPO.dwg’ from SZC 24/05/24

<sup>12</sup> <https://environment.data.gov.uk/surveydownloaded/16/12/21> © Environment Agency copyright and/or database right 2021. All rights reserved.

<sup>13</sup> Files: ‘SZC-AD0110-ROH-XXXHML-51XXXX-MD3-HCH-000000 - S278 Surface.xml’ and ‘SZC-AD0120-ROH-XXXHML-54XXXX-MD3-HCH-000000 - NPR Onsite Surface.xml’ from HaskoningDHV UK Ltd 10/06/24

based on OS MasterMap (including the Building Height Attribute dataset) and OS AddressBase Plus data provided by Dalcour Maclaren in December 2021.

## Receptors

- 1.49 The construction and operational noise calculations have been undertaken at 46 no. receptors within the areas shown on Figure 1. Predicting noise levels at every façade of every property is not a reasonable or proportionate approach and therefore, in some locations a single receptor position is used to represent several adjacent properties or façades. Professional judgement has been applied conservatively to identify which façades at a property are likely to qualify. For example, if the façade of one half of a pair of semi-detached properties is just over the relevant criterion and the other half is just under, then both have been identified as qualifying.

## Mitigation

- 1.50 The earth bund included in the proposed ground height data for the site has been included in this assessment. At this stage no additional specific mitigation has been identified for inclusion in this construction or operational noise assessment, so no allowance for any additional mitigation has been made in the calculations presented in this report.

## Assumptions and limitations

- 1.51 As with all construction noise assessments, the predicted construction noise levels can only ever be a best estimate of the actual noise levels due to the large number of variables for which assumptions must be made, including the number, type and on-time of each item of plant, and the location and extent of each activity. Estimating the noise level that is likely to be exceeded for ten days also includes some inherent uncertainty as it is dependent on assumptions on the duration of the activity, the rate of progress across the working area and the manner in which the works progress.
- 1.52 In addition to the HV diversion included in the assessment, some further utility diversion works will be required at the northern park and ride. At this stage there is insufficient detail available on the nature, timing, and duration of these works to quantify noise from them; therefore these further utility diversion works are not included in the construction noise assessment.
- 1.53 There is also some inherent uncertainty in the prediction of operational activity noise levels due to day-to-day variations in vehicle numbers, which parking spaces are used, and the route taken by cars within the car parking areas. The assumptions and methods adopted in this assessment is considered to represent a reasonably worst-case and robust approach.
- 1.54 The eligibility for insulation and/or temporary rehousing under the NMS is based on the predicted noise levels exceeding the relevant criteria. However, for the purposes of this refreshed assessment, eligibility is considered to also occur where the predicted noise levels are equal to the relevant criteria. The results have been rounded to the nearest whole decibel, i.e. 0.5 dB is rounded up. This is considered a reasonable approach given the inherent uncertainties in the noise calculation process.

# 4. Results

## Construction noise

- 1.55 The predicted construction noise levels at the 46 no. selected receptors are provided in Appendix C. A summary is also illustrated on the five sheets of Figure 2, with façades identified as qualifying for noise insulation highlighted.
- 1.56 The highest construction noise levels are generally associated with the earthworks, drainage and pavement works. In addition, the HV diversion works result in high construction noise levels at the closest receptors. The works associated with activities such as fencing, buildings, signs and road lighting require less noisy plant and, therefore, generally result in lower noise levels.

- 1.57 Night-time noise levels during the A12 tie-in works are predicted to equal or exceed the 55 dB criterion at Darsham Cottage (F\_28) and White House Farmhouse (G\_30) to the south of the new junction, and at Oak Hall (H\_33), six properties at Optney Cottages (H\_34 to H\_39) and Holly Tree Cottage (H\_40) to the north of the new junction. At Oak Hall (H\_33) the temporary re-housing criterion of 65 dB is also predicted to be exceeded. However, as detailed in Section 3 of this report, the night-time works cannot trigger noise insulation and temporary-rehousing qualification as the duration does not meet the 'ten or more days' threshold.

## Eligibility for insulation

- 1.58 The results indicate that exceedances of the noise insulation criteria are predicted at 14 no. of the selected receptors close to the site. This includes two buildings at the former Darsham Nurseries site (B\_20 and B\_21) which, as a conservative approach, have been assumed to potentially be residential (should these not be in residential use, the NMS will not apply).
- 1.59 At 13 no. of the 14 no. residential properties (including the two buildings at the former Darsham Nurseries), the exceedances are based on the Saturday afternoon noise insulation trigger level. At one of the residential buildings (Moate Hall: E\_27), the 75 dB weekday daytime and Saturday morning noise insulation trigger level is also exceeded. Although SZC has indicated that construction works may not be needed on Saturday afternoons, it is considered prudent to assume that such works might occur, as the time required for the installation of insulation makes it difficult to insulate properties at short notice should Saturday afternoon working be necessary.

## Eligibility for temporary rehousing

- 1.60 The temporary rehousing trigger level for the weekday daytime and Saturday morning period is not predicted to be exceeded at any residential properties.
- 1.61 The temporary rehousing trigger level for Saturday afternoons is predicted to be exceeded at one residential property, Moate Hall (E\_27), which is in close proximity to the HV diversion works within the site.
- 1.62 SZC has indicated that construction works may not be needed on Saturday afternoons. As the time required to organise temporary rehousing is significantly shorter than for the installation of insulation, and because the contractor will have the ability to manage the works to avoid unnecessarily disrupting people's lives by rehousing them, the potential eligibility for temporary rehousing based on Saturday afternoon working will be reviewed as the works progress. The one residential property that may be eligible for temporary rehousing if construction works become necessary on Saturday afternoons, is therefore not explicitly identified on Figure 2.

## Mitigation

- 1.63 Requirement 2 of the **DCO** requires a Noise Monitoring and Management Plan (NMMP) for the northern park and ride construction works, as part of the Code of Construction Practice for the project, to be submitted to East Suffolk Council for approval, setting out mitigation measures for the construction works.
- 1.64 The benefit of such measures has not been included in the calculations set out in this report, and since their purpose will be to reduce construction noise levels, the assessment of eligibility for noise insulation set out in this report will not need to be revisited.
- 1.65 The implications of any alterations to the proposed timing or durations of the works may require an update of this noise assessment in due course to confirm eligibility for temporary rehousing.

## Operational activity noise

- 1.66 Table 4 sets out the predicted operational activity noise levels due to vehicle movements on the new access road off the A12 and within the site (cars and buses), and cars manoeuvring in the car park areas. Predictions have been completed at the same 46 no. receptors assessed for eligibility under the NMS for the construction phase. The highest result considering each floor/façade of every building in each of the receptor areas (as illustrated on Figure 1) is presented in Table 4.



**Table 4. Operational activity noise levels**

Receptor Area	Day $L_{Aeq,16hrs}$ façade dB	Night $L_{Aeq,8hrs}$ façade dB	Maximum $L_{AFmax}$ dB
A	55	54	62
B	57	56	67
C	54	53	64
D	55	53	64
E	55	53	59
F	50	48	52
G	49	47	54
H	43	42	50
I	42	41	44
J	38	37	44
<b>Criteria</b>	<b>63</b>	<b>58</b>	<b>70</b>

- 1.67 The noise insulation criteria for operational activity noise are not predicted to be exceeded at any of the residential buildings in the vicinity of the northern park and ride site and therefore no eligibility has been identified under the NMS for the operation of the northern park and ride site.

## 5. Conclusion

- 1.68 The results of the construction noise modelling indicate that 14 no. residential properties close to the site (including two buildings at the former Darsham Nurseries that may be residential) are predicted to be eligible for noise insulation under the Noise Mitigation Scheme for the Sizewell C project. At the majority of these properties, this conclusion is based on construction works on a Saturday afternoon being carried out, despite SZC advising that they may not be needed.
- 1.69 The time required to organise the installation of insulation is such that it is considered prudent to assume that Saturday afternoon works could occur, thereby avoiding the need to delay the works in the event that such working is necessary.
- 1.70 No properties are predicted to be eligible for temporary rehousing, assuming working on Saturday afternoons is not needed. The time required to organise temporary rehousing is much shorter than for the installation of insulation, so should Saturday afternoon working prove necessary, the properties likely to be eligible for temporary rehousing can be reviewed closer to the time. Based on the current programme, one residential property may be eligible for temporary rehousing should Saturday afternoon working be necessary.
- 1.71 No properties are predicted to be eligible for noise insulation due to operational activity noise from vehicle movements on the new access road off the A12 and within the site (cars and buses), and cars manoeuvring in the car park areas.
- 1.72 Mechanical services plant associated with the buildings at the northern park and ride site will not trigger eligibility for noise insulation under the NMS, as they must be designed to achieve levels well below the NMS trigger thresholds.

# Appendix A Construction information

**Table 5. Summary of construction information**

Ref	Activity	Plant	% on-time	No. of plant items	L <sub>WA</sub> dB
1.1	Build compound (main and temporary)	Lorry loader crane HIAB	25	1	104
		Diesel / petrol generator	100	1	97
		360° Wheeled / tracked excavator	70	2	107
		5t dumper	70	2	106
		Vibratory tamping roller	50	1	111
1.2	Build haul road	Tracked dozer	75	1	108
		Vibratory tamping roller	50	1	111
		Road tipper wagon	100	2	107
1.3	High Voltage (HV) diversion	Tracked dozer	50	2	108
		Wheeled loading shovel	50	1	107
		360° Tracked excavator	70	2	110
		Motorgrader/scrapper	90	1	108
		Articulated hauler/Dump truck	50	5	108
		Vibratory tamping roller	50	2	111
		Road tipper wagon	50	1	107
2.1	Fencing/hoarding	Lorry loader crane HIAB	25	1	104
		180 Backhoe loader	50	1	107
		Concrete mixer truck	70	1	107
		5t excavator	80	2	93
2.2	Swales and infiltration basins	Tracked dozer	50	3	108
		Wheeled loading shovel	50	1	107
		360° Tracked excavator	70	3	110
		Motorgrader/scrapper	90	2	108
		Articulated hauler/Dump truck	50	12	108
		Vibratory tamping roller	50	3	111
		Road tipper wagon	50	1	107
2.3	Vegetation clearance	Chainsaw	20	1	115
		Brush-cutter	20	1	103
		360° tracked excavator	50	1	110
2.4	Topsoil strip	Lorry loader crane HIAB	25	1	104
		Diesel / petrol generator	100	1	97
		360° Wheeled / tracked excavator	70	2	107
		180° Backhoe loader	50	1	107
		Dump truck 1	70	2	106
		Road tipper wagon	50	1	107
		Tracked dozer	50	1	108
2.5	Culverts (2 no.)	Lorry loader crane HIAB	10	1	104
		Telehandler	50	1	107
		360° Tracked excavator	70	1	110
		Dump truck 2	50	1	108
		Deadweight/vibrating roller	50	1	111
		Compressor and pneumatic hand tool	17	1	118
		Mobile elevating work platform-vehicle mounted or self-propelled	25	1	104
3.1	Earthworks	360 tracked excavator	70	2	110
		Dozer	50	2	110
		Dump truck 2	100	1	108
		Vibratory tamping roller	60	1	111
3.2	Drainage	Lorry loader crane HIAB	25	1	104
		360° Tracked excavator	70	3	110
		180° Backhoe loader	50	3	107

Ref	Activity	Plant	% on-time	No. of plant items	L <sub>WA</sub> dB
		Dump truck 1	70	1	106
		Wheeled loading shovel	50	1	107
		Concrete mixer truck	50	1	107
		Trench rammer	25	3	91
		Road tipper wagon	50	4	107
4.1	Pavements - Sub base	Dump truck 2	50	4	108
		360° Tracked excavator	70	2	110
		180° Backhoe loader	50	1	107
4.2	Pavements - Kerbs	Road sweeper	70	1	107
		Lorry loader crane HIAB	25	1	104
		Telehandler	50	1	107
		Concrete mixer truck	70	1	107
		Compressor and pneumatic hand tool	17	2	118
		5t excavator	25	2	93
4.3	Pavements - Blacktop	Asphalt paver (and tipper lorry)	70	2	109
		Compressor and pneumatic hand tool	17	2	118
		180 Backhoe loader	50	1	107
		Deadweight/vibrating roller	50	4	111
		Vibrating plate compactor	25	2	110
4.4	Pavements - A12 tie ins (day and night)	Dump truck 2	50	1	108
		Cold planer/milling machine	70	1	104
		360° Tracked excavator (with breaker)	10	1	116
		Hand saw	20	1	112
		360° Tracked excavator	60	1	110
		Compressor and pneumatic hand tool	17	1	118
		Deadweight/vibrating roller	50	1	111
		Vibrating plate compactor	25	1	110
5.1	Install buildings, bus shelters etc.	Flat-bed lorry	10	1	110
		Mobile all terrain crane	20	1	101
6.1	Lighting	Lorry loader crane HIAB	25	1	104
		Mini excavator	50	1	100
		Mobile elevating work platform-vehicle mounted or self-propelled	25	1	104
6.2	Signs	Lorry loader crane HIAB	25	1	104
		Tracked excavator 14t	50	1	98
		Mini excavator	50	1	100
		Mobile elevating work platform-vehicle mounted or self-propelled	25	1	104
7.1	Compound operation	Telehandler	50	1	107
		Office generator	100	1	90
		Wheelwash	20	1	90
7.2	Haul road operation	Road tipper wagon	100	3/hr 2 way	107
8.1	Compound removal	Lorry loader crane HIAB	25	1	104
		Diesel / petrol generator	100	1	97
8.2	Remove whole site at completion of all SZC works	360 Tracked excavator	70	2	110
		Dozer	50	2	110
		Dump truck 2	100	1	108
		Mobile all terrain crane	20	1	101
		360° Tracked excavator (with breaker)	20	1	116
		Vibratory tamping roller	50	1	111

## Appendix B Operational information

As set out in the **ES**, the site will be operational for 20 hours per day, between 05:00 and 01:00, with some security personnel on site 24 hours a day.

Noise source data from the SoundPLAN global library have been used for a typical car and bus moving along the new access road and within the site:

- Car travelling on access road and within the site:  $L_{WA}$  101 dB
- Bus travelling on the access road and within the site:  $L_{WA}$  98 dB

Car and bus movements on the access road and within the site are based on the current hourly traffic data provided by WSP in January 2024.

Noise source data for cars manoeuvring in the car park areas are based on the methodology for a park and ride site from the Parking Area Noise study adopted by SoundPLAN. This is based on the number of spaces in each car parking area and the number of movements at each space per hour:

- Pick up and drop off parking area: 12 vehicles in and 12 vehicles out of each space per hour between 05:00 and 01:00, i.e. one vehicle in and one vehicle out every five minutes
- All other parking areas: one vehicle in and one vehicle out of each space per hour between 05:00 and 01:00

These assumptions regarding vehicles manoeuvring in and out of each car parking space are considered to be conservative as the site is assumed to be operating at full capacity between 05:00 and 01:00, however, there will be less busy times of the day in-between shift changeover times at the main development site.

A sound power level of 108 dB  $L_{WAFmax}$  for all vehicles has been assumed for the calculation of the  $L_{AFmax}$  levels at the receptors, as was adopted in the **ES**.



## Appendix C Detailed construction noise results

Table 6 contains a breakdown of the results for the individual or combined construction activities (Activities 1.1 to 8.2) at each receptor location/façade. At receptors with more than one floor, results for the floor with the highest noise level are reported.

The 'Max Day' column contains the construction noise level for the noisiest individual activity or combination of activities during the day. A total of nine combinations of daytime activities over the duration of the works have been assessed. Results that equal or exceed the various NMS daytime trigger levels of 65, 70, 75 and 80 dB  $L_{Aeq,T}$  façade are highlighted as follows:

65 dB $L_{Aeq,T}$ façade	– trigger level to qualify for noise insulation on Saturday afternoon
70 dB $L_{Aeq,T}$ façade	– trigger level to qualify for noise insulation during shoulder hours on weekdays and Saturdays
75 dB $L_{Aeq,T}$ façade	– trigger level to qualify for noise insulation on weekday daytimes and Saturday morning, and temporary rehousing on Saturday afternoon
80 dB $L_{Aeq,T}$ façade	– trigger level to qualify for temporary rehousing during shoulder hours on weekdays and Saturdays

Only a single activity is anticipated to occur at night (Activity 4.4 - Pavements A12 tie-ins). Results that equal or exceed the various NMS night-time trigger levels of 55 and 65 dB  $L_{Aeq,T}$  façade are highlighted as follows:

55 dB $L_{Aeq,T}$ façade	– trigger level to qualify for noise insulation during the night-time
65 dB $L_{Aeq,T}$ façade	– trigger level to qualify for temporary rehousing during the night-time

Note the results are highlighted solely on the basis of the construction noise trigger levels being equalled or exceeded. To qualify under the NMS both the construction noise level and duration criteria must both be met. Where relevant, durations are discussed in Section 4 of this report.

A '-' indicates the receptor is remote from the construction activity and the predicted construction noise level is low (less than 30 dB  $L_{Aeq,T}$  façade).

**Table 6. Detailed construction noise results ( $L_{Aeq,T}$  façade)**

ID	Façade	Max Day	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	4.1	4.2	4.3	4.4 night	5.1	6.1	6.2	7.1	7.2	8.1	8.2
A_01	E(n)	70	48	41	55	56	66	47	62	45	64	69	66	67	68	45	49	53	54	40	50	37	67
A_01	E(s)	69	48	41	55	56	65	46	62	45	64	68	66	66	68	45	49	53	54	40	50	37	67
A_01	N(n)	70	48	41	55	56	66	47	62	46	64	68	66	66	68	45	50	53	54	40	50	37	67
A_01	N(s)	69	48	41	55	56	65	47	62	45	64	68	66	66	68	45	49	53	54	40	50	37	67
A_01	W(n)	60	48	34	49	48	60	37	53	37	54	57	55	51	56	32	40	42	43	39	41	36	56
A_01	W(s)	56	42	33	48	42	55	35	50	36	52	55	54	50	54	32	39	41	42	32	38	32	54
A_02	E	69	48	41	55	55	65	46	61	45	63	68	66	66	67	45	49	53	54	40	50	37	67

ID	Façade	Max Day	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	4.1	4.2	4.3	4.4 night	5.1	6.1	6.2	7.1	7.2	8.1	8.2
A_02	W	56	46	33	48	43	56	37	50	37	52	55	54	50	54	32	38	40	42	37	38	35	54
A_03	E	69	48	41	55	55	65	46	61	45	63	68	66	66	67	45	49	52	54	40	50	37	66
A_03	S	57	39	30	47	44	53	35	51	33	52	57	55	51	54	-	39	42	43	-	38	-	55
A_03	W	59	48	35	48	45	59	38	51	42	53	54	53	48	53	32	39	40	41	39	40	36	53
A_04	E	67	46	40	54	53	62	45	59	45	61	65	63	63	65	45	48	50	51	40	48	36	64
A_04	N(c)	68	47	40	54	54	63	46	60	45	62	67	65	65	66	45	49	51	52	40	49	37	65
A_04	N(e)	67	47	40	54	54	63	46	60	45	62	66	64	64	66	45	49	51	52	40	49	37	65
A_04	N(w)	61	46	39	53	49	61	40	54	42	56	58	56	51	57	36	43	43	44	39	42	36	57
A_04	S	52	38	30	46	39	50	34	47	33	49	51	50	45	50	-	37	37	38	-	34	-	50
A_04	W(c)	56	45	32	48	45	56	36	50	35	52	54	53	48	53	31	38	39	41	35	38	34	53
A_04	W(n)	63	47	32	50	51	63	38	57	35	58	61	60	58	61	31	43	46	47	39	45	36	61
A_04	W(s)	62	46	32	48	49	62	39	55	43	57	57	56	53	58	31	39	42	43	38	44	35	59
A_05	NE(c)	63	47	40	54	51	62	45	56	45	59	62	60	59	62	45	45	47	48	39	45	36	61
A_05	NE(e)	63	47	40	54	51	61	46	56	45	59	62	60	59	61	45	45	47	48	39	45	36	61
A_05	NE(n)	63	47	40	54	50	62	44	56	45	59	62	60	60	62	45	45	47	48	39	45	36	61
A_05	NE(s)	63	47	40	54	49	61	44	56	45	59	63	60	60	62	45	45	47	49	39	45	36	61
A_05	NE(w)	63	47	40	54	50	62	44	57	45	59	63	60	60	62	45	45	47	48	39	46	36	62
A_05	NW(c)	63	47	40	54	49	61	44	56	45	59	63	60	60	62	45	45	47	49	39	45	36	61
A_05	NW(n)	63	47	40	54	50	62	44	56	45	59	63	60	60	62	45	45	47	49	39	46	36	62
A_05	NW(s)	63	46	40	54	48	60	44	55	45	58	62	60	60	62	45	46	47	48	39	44	36	61
A_05	SE(e)	63	46	40	54	50	61	46	56	45	59	63	60	60	62	45	47	48	48	39	45	36	61
A_05	SE(n)	52	41	33	48	41	52	37	48	39	50	52	51	45	50	32	39	38	38	31	36	30	51
A_05	SW(w)	49	38	-	45	36	49	33	44	36	46	48	46	42	46	-	35	33	34	-	32	-	46
A_06	NE	46	35	-	42	33	46	31	41	34	43	45	44	40	43	-	32	31	32	-	-	-	44
A_06	NW	53	45	-	44	39	53	35	44	36	46	48	46	41	46	-	34	33	35	36	34	33	47
A_06	SE	48	33	-	44	36	47	33	43	36	45	47	46	41	46	-	35	33	33	-	32	-	46
A_07	NW	53	45	30	46	39	53	37	46	42	48	49	48	43	48	-	36	34	36	36	36	33	48
A_07	SE	48	33	30	46	37	47	34	44	35	45	48	46	41	46	-	36	34	34	-	31	-	46
A_07	SW	45	33	-	39	32	44	-	40	31	41	45	43	39	43	-	30	30	31	-	-	-	43
A_08	E	63	45	40	53	49	60	45	56	45	58	62	60	60	62	44	46	47	47	39	45	35	61
A_08	NE	63	45	40	53	49	58	46	55	45	58	62	60	60	62	45	46	47	48	39	44	36	61
A_08	NW(n)	62	45	40	53	49	59	46	55	45	57	61	59	59	61	44	46	46	47	38	44	35	60
A_08	NW(s)	61	44	40	53	47	55	44	53	45	56	60	58	58	60	44	45	45	46	36	42	34	59

ID	Façade	Max Day	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	4.1	4.2	4.3	4.4 night	5.1	6.1	6.2	7.1	7.2	8.1	8.2
A_08	SE	56	39	39	53	43	52	39	50	41	53	56	54	51	55	38	43	42	42	32	38	30	54
A_08	SW	49	33	-	44	35	47	31	43	32	45	49	47	43	47	-	34	34	35	-	31	-	47
A_08	W	52	39	31	46	38	50	33	46	34	48	51	50	46	50	30	36	37	38	-	34	-	50
A_09	NE(n)	55	42	38	52	44	53	43	50	43	52	55	53	49	54	44	43	41	41	34	38	32	54
A_09	NE(s)	59	43	40	52	45	55	43	52	44	55	58	56	55	58	44	44	44	44	36	41	34	57
A_09	NW	53	43	38	51	42	53	40	48	41	51	52	51	46	52	37	41	39	39	35	37	33	52
A_09	SE	60	40	40	52	45	55	43	52	44	55	59	57	56	58	44	44	44	44	35	42	32	57
A_10	NW	55	44	39	52	43	54	41	50	43	52	54	52	48	53	38	41	40	40	37	39	34	53
A_10	SE	53	39	36	51	42	51	41	48	39	50	52	50	46	51	35	41	38	38	31	36	-	51
A_10	SW	45	33	-	40	32	45	-	40	31	41	44	43	38	43	-	30	-	30	-	-	-	43
A_11	NE	48	37	33	44	37	48	34	43	35	45	48	46	41	46	31	35	33	34	-	31	-	46
A_11	NW	56	45	37	50	42	55	38	49	42	52	54	53	50	54	35	39	39	41	37	39	34	53
A_11	SE	57	43	40	52	44	54	43	51	44	53	56	54	52	56	44	43	42	42	36	40	33	55
A_12	NW	57	45	40	52	44	56	41	51	44	54	57	55	54	57	38	43	42	43	37	41	34	56
A_12	SE	54	41	38	52	42	53	41	49	42	52	53	51	48	53	36	42	39	39	34	38	31	52
A_12	SW	45	33	-	40	32	45	-	39	31	41	44	42	38	42	-	-	-	30	-	-	-	42
A_13	NE	51	40	36	47	39	51	37	45	39	48	50	48	44	49	33	37	36	36	31	34	-	49
A_13	NW	58	45	40	52	45	57	42	51	44	54	57	55	55	57	42	43	42	43	37	41	34	56
A_13	SE	55	44	39	52	43	55	42	50	43	53	55	53	50	55	37	43	41	41	36	39	34	54
A_14	NW	58	45	40	52	45	57	42	51	44	54	57	55	55	57	43	43	42	43	37	41	34	56
A_14	SE	54	39	39	52	42	52	41	49	43	52	54	52	49	54	36	42	40	40	31	39	-	53
A_14	SW	45	33	-	43	33	45	-	40	31	43	44	43	39	43	-	32	30	31	-	-	-	43
A_15	NE	52	41	37	50	40	52	38	47	40	50	51	50	46	51	34	40	38	38	32	36	31	51
A_15	NW	58	45	40	52	45	57	42	51	44	54	57	55	54	57	44	43	42	43	37	41	34	56
A_15	SE	56	44	39	52	43	55	42	50	44	53	55	53	52	55	44	43	41	41	36	40	33	54
A_16	NW	58	45	40	52	45	57	43	51	44	54	57	55	55	57	44	42	43	43	37	41	34	56
A_16	SE	56	42	39	52	43	53	42	50	44	53	55	53	51	55	44	43	41	41	35	39	32	54
A_16	SW	47	33	-	44	33	45	30	41	31	44	46	45	41	45	-	33	32	34	-	-	-	45
A_17	NE	57	45	40	52	43	56	40	51	44	54	56	54	54	56	43	42	42	42	37	40	34	55
A_17	NW	57	45	40	52	44	56	41	51	44	54	56	54	54	56	43	42	42	42	37	40	34	55
A_17	SE	47	32	-	45	34	45	32	42	33	44	47	45	41	46	-	34	33	34	-	30	-	45
A_18	NW	57	45	39	52	44	56	41	51	44	53	56	54	54	56	43	42	41	42	37	40	34	55
A_18	SE	47	38	32	44	35	47	32	42	35	44	46	45	40	45	31	33	32	33	-	30	-	45

ID	Façade	Max Day	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	4.1	4.2	4.3	4.4 night	5.1	6.1	6.2	7.1	7.2	8.1	8.2
A_18	SW	45	32	-	43	32	45	-	39	31	41	43	41	37	41	-	-	-	-	-	-	-	41
B_19	E(n)	69	47	43	58	55	63	52	61	47	64	68	66	66	68	46	51	54	53	41	50	38	67
B_19	E(s)	66	47	43	58	53	61	51	59	47	62	64	63	62	65	46	50	51	50	41	48	38	64
B_19	N(e)	69	47	43	58	55	63	52	61	47	64	68	66	66	68	46	51	54	53	41	50	38	67
B_19	N(w)	74	47	43	58	61	65	53	66	47	68	73	71	71	72	46	52	58	58	41	54	38	71
B_19	S(e)	58	38	31	49	54	53	38	56	37	54	58	56	51	55	30	39	44	44	-	39	-	57
B_19	S(w)	67	38	31	48	57	58	36	61	37	61	67	64	62	63	30	39	52	52	-	47	-	65
B_19	W(n)	74	47	42	58	61	65	53	66	47	68	73	71	70	71	46	52	58	58	41	54	38	71
B_19	W(s)	73	47	32	53	60	65	43	65	39	67	72	70	70	71	31	49	57	58	40	53	37	71
B_20	N(c)	69	45	39	55	56	61	44	61	43	62	68	66	66	65	38	45	53	53	36	49	34	66
B_20	N(e)	67	45	34	51	54	59	41	59	38	60	66	64	64	63	34	42	51	52	36	47	34	64
B_20	N(w)	70	46	39	55	57	63	45	62	44	64	69	67	67	67	38	45	54	54	38	50	36	67
B_20	S(c)	56	36	30	44	42	51	34	49	34	51	56	55	49	53	30	36	42	42	-	37	-	54
B_20	S(e)	55	35	30	44	41	50	34	49	34	50	55	53	48	51	-	35	40	41	-	36	-	52
B_20	S(w)	64	39	31	45	48	55	34	55	33	57	64	62	59	61	30	37	49	50	-	44	-	61
B_20	W	71	47	40	56	57	63	46	62	45	65	70	67	68	68	40	47	55	55	40	51	37	68
B_21	E	58	43	43	58	47	54	50	53	48	55	54	52	47	54	46	48	41	40	36	41	34	54
B_21	N	68	47	41	58	55	63	50	61	47	63	68	66	65	66	46	49	53	53	40	49	37	66
B_21	S	59	37	31	48	46	53	35	53	37	54	59	57	52	55	30	37	44	44	-	39	-	57
B_22	E	46	37	37	46	34	44	37	39	41	41	41	39	35	40	40	32	-	-	-	31	-	40
B_22	N	56	44	42	53	44	55	43	50	45	53	55	53	53	56	43	43	41	41	37	40	34	54
B_22	S	46	34	31	43	36	46	34	42	34	44	46	43	38	44	33	31	31	30	-	-	-	45
B_22	W(c)	56	43	37	53	44	55	42	50	42	53	55	53	53	56	41	43	41	41	36	40	33	54
B_22	W(n)	56	43	42	53	44	55	43	50	45	53	55	53	53	56	43	43	41	41	37	40	34	54
B_22	W(s)	56	43	-	53	44	55	41	50	32	53	55	53	52	55	33	43	40	41	35	40	32	54
B_23	E	48	42	42	47	35	44	39	39	45	41	42	40	36	41	43	35	-	-	33	32	30	41
B_23	N(c)	56	43	42	54	44	56	43	51	46	53	55	53	53	56	43	43	41	41	37	40	34	54
B_23	N(e)	56	43	42	54	44	56	43	51	45	53	55	53	53	55	43	43	40	41	37	40	34	54
B_23	N(w)	56	43	42	54	44	56	43	51	46	53	55	53	53	56	43	43	41	41	37	40	34	54
B_23	S	44	32	-	43	32	43	31	39	35	41	43	41	37	41	33	31	-	-	-	-	-	42
C_24	E(n)	61	45	45	60	51	54	45	56	49	58	58	57	52	56	46	49	44	43	36	40	34	61
C_24	E(s)	57	40	36	55	45	53	45	52	40	55	57	55	50	54	36	45	42	43	-	38	-	57
C_24	NE	71	50	45	65	58	66	44	63	49	67	71	66	67	67	45	57	52	51	42	49	39	69



ID	Façade	Max Day	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	4.1	4.2	4.3	4.4 night	5.1	6.1	6.2	7.1	7.2	8.1	8.2
C_24	NW(n)	70	50	46	65	59	63	57	64	50	67	69	66	66	67	48	58	54	53	43	50	40	70
C_24	NW(s)	72	48	38	64	58	66	57	64	40	68	72	68	68	69	37	57	55	56	39	51	36	70
C_24	S(n)	71	42	33	58	57	65	57	63	35	67	71	67	67	68	32	55	54	55	-	50	-	69
C_24	S(s)	69	39	33	54	55	64	58	62	35	65	69	66	66	68	32	52	53	54	-	49	-	67
D_25	NE(n)	71	51	47	69	60	64	44	65	51	68	66	64	63	64	49	58	51	50	43	46	40	71
D_25	NE(s)	58	42	37	57	46	55	39	53	44	56	57	55	50	53	37	47	42	41	31	38	31	58
D_25	NW	74	51	47	69	63	67	54	67	50	71	72	68	70	70	49	61	55	54	43	51	40	74
D_25	SE(c)	57	40	36	56	45	53	38	52	42	54	56	54	49	52	35	46	41	40	-	37	-	57
D_25	SE(n)	60	47	47	60	52	53	44	56	50	58	56	55	49	53	46	46	42	42	38	40	35	59
D_25	SE(s)	59	39	37	55	50	54	52	54	43	57	58	57	52	56	43	47	43	45	-	42	-	58
D_25	SW(e)	68	41	33	57	55	63	53	61	38	65	68	66	64	66	33	55	52	52	-	48	-	66
D_25	SW(n)	58	42	33	56	46	55	39	53	40	55	57	55	50	54	33	47	42	42	-	38	-	58
D_25	SW(w)	70	45	33	65	57	63	44	63	37	67	68	66	63	65	33	60	53	52	-	46	-	70
D_26	NE(e)	62	47	47	62	49	53	45	54	51	55	54	52	47	51	50	44	39	39	39	41	36	57
D_26	NE(w)	68	47	47	68	58	57	45	62	51	63	57	54	50	56	49	47	42	41	41	45	38	65
D_26	NW	71	50	47	69	62	65	51	66	51	69	68	64	65	66	50	57	51	51	43	49	40	71
D_26	SE(e)	57	43	43	56	46	53	46	52	48	54	57	55	50	54	49	46	41	41	35	38	32	57
D_26	SE(w)	57	47	47	57	45	52	43	51	48	53	54	52	47	51	50	44	39	39	39	37	36	55
D_26	SW	69	42	34	65	57	65	45	63	38	67	68	64	65	65	36	56	51	51	-	47	-	69
E_27	NE(n)	74	54	47	74	57	59	46	63	52	65	63	57	57	61	50	42	46	45	46	49	43	66
E_27	NE(s)	63	46	43	63	50	54	44	56	47	56	55	52	48	53	49	42	40	40	37	39	36	57
E_27	NW(c)	80	54	47	80	63	67	46	68	51	70	70	64	63	67	50	54	52	53	46	52	43	71
E_27	NW(n)	78	54	47	78	61	65	46	67	52	68	68	62	61	65	51	46	50	51	46	52	43	70
E_27	NW(s)	77	52	37	77	62	67	46	68	40	70	70	64	63	66	35	56	52	52	43	51	41	72
E_27	SE(e)	62	43	39	62	55	56	38	58	43	57	56	52	48	53	38	45	40	39	33	39	33	59
E_27	SE(w)	70	41	39	67	62	62	46	66	42	67	64	59	59	61	39	56	47	39	32	44	32	70
E_27	SW(n)	78	52	37	78	63	67	46	69	40	71	70	64	63	66	35	56	52	52	44	51	41	72
E_27	SW(s)	78	54	36	78	66	67	47	70	39	71	70	65	64	67	35	56	52	52	45	52	41	73
F_28	NE(c)	69	54	52	69	53	57	49	60	55	64	64	60	59	62	53	42	46	51	47	47	44	65
F_28	NE(n)	68	54	52	68	52	56	49	59	56	62	62	57	57	60	55	42	44	51	47	46	44	64
F_28	NE(s)	69	54	52	69	53	56	49	60	55	63	64	59	58	61	53	42	46	50	47	47	44	65
F_28	NW(c)	70	54	52	70	54	58	49	61	55	64	65	60	60	62	53	43	47	51	47	47	44	66
F_28	NW(n)	69	54	52	69	53	57	49	60	55	64	64	60	59	62	54	43	46	51	47	47	44	65

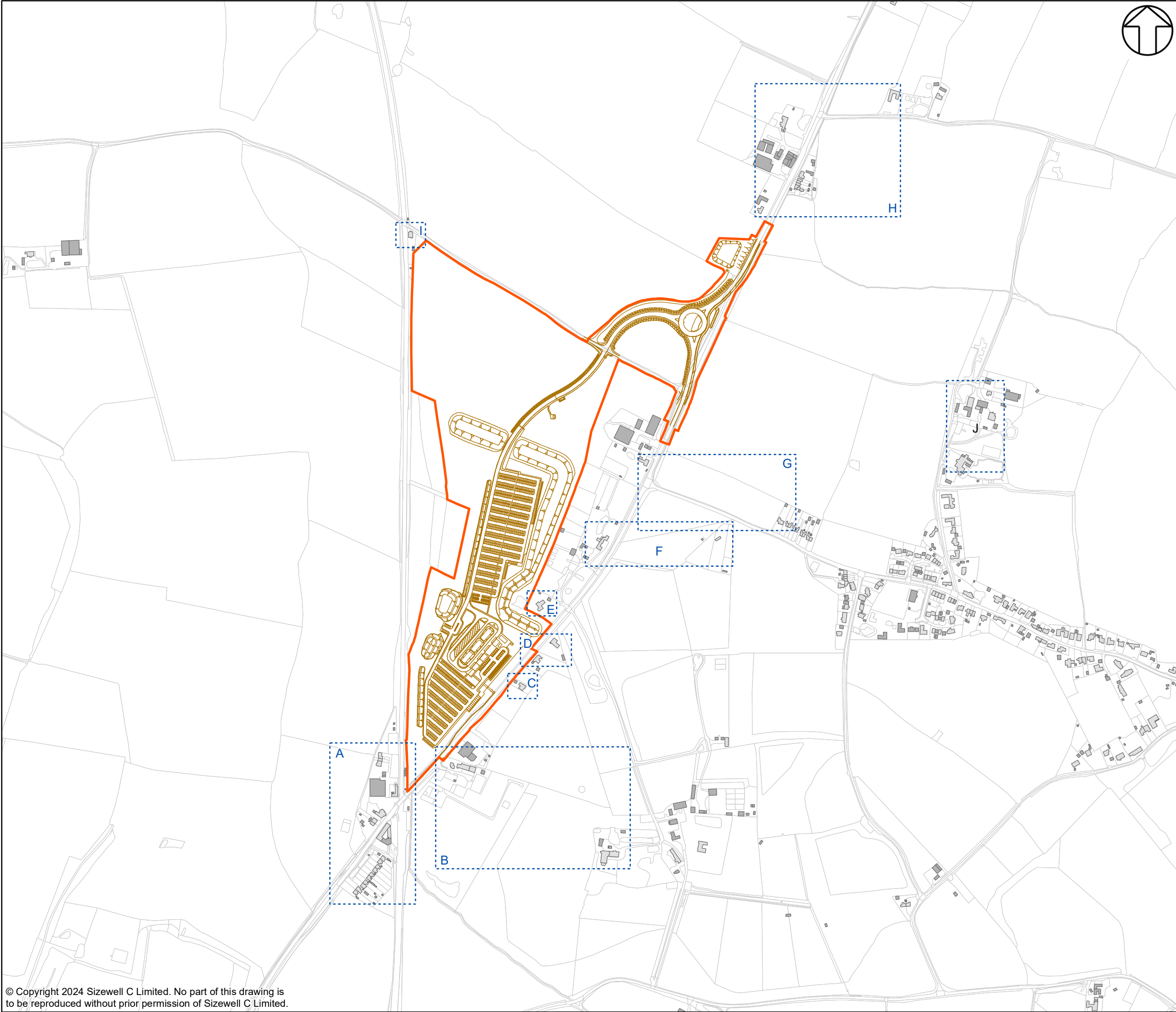
ID	Façade	Max Day	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	4.1	4.2	4.3	4.4 night	5.1	6.1	6.2	7.1	7.2	8.1	8.2
F_28	NW(s)	70	54	44	70	55	61	45	61	50	65	65	61	60	63	44	46	48	48	45	48	42	67
F_28	NW(w)	71	54	52	71	55	61	50	62	55	65	66	61	61	63	53	46	48	51	47	49	44	67
F_28	SE(c)	55	44	44	55	41	51	39	48	45	50	50	47	43	47	44	38	34	40	34	36	34	50
F_28	SE(n)	56	52	52	56	46	50	48	49	52	51	50	46	42	47	55	37	34	50	43	39	40	51
F_28	SE(s)	57	46	46	57	47	54	44	51	48	52	52	47	43	47	51	44	34	47	36	40	35	52
F_28	SW(c)	70	54	38	70	53	61	42	61	42	64	65	61	60	63	37	44	48	48	45	48	42	66
F_28	SW(n)	57	44	38	57	42	52	38	50	42	52	53	49	45	50	38	38	37	39	33	38	33	53
F_28	SW(s)	69	54	38	69	53	61	42	60	41	63	65	60	60	63	37	44	47	47	45	48	42	65
F_29	NE	55	51	51	50	44	48	49	44	54	46	45	40	36	41	53	39	-	36	42	39	39	46
F_29	NW	59	51	51	58	47	55	49	52	54	54	55	52	51	55	53	43	39	43	43	42	40	55
F_29	SE	49	41	41	49	39	49	39	44	41	45	44	40	36	41	43	42	-	32	30	35	31	45
F_29	SW	58	51	51	58	47	56	48	52	53	54	55	52	51	55	52	43	39	43	43	43	40	56
G_30	E	62	48	48	54	52	57	54	54	53	53	56	55	55	56	61	35	47	53	37	42	37	54
G_30	N(e)	65	57	57	65	55	60	56	57	59	58	60	59	59	60	61	45	48	49	48	46	45	59
G_30	N(w)	65	57	57	65	54	60	57	57	60	58	61	59	59	60	61	46	48	49	48	46	45	59
G_30	S(e)	67	52	44	67	51	56	40	57	45	60	59	56	56	59	45	47	44	52	44	45	41	62
G_30	S(w)	67	52	45	67	51	56	40	57	46	60	59	56	56	59	44	44	44	51	44	45	41	62
G_30	W(n)	65	57	57	65	55	60	57	57	60	58	61	59	59	60	61	45	48	50	48	46	45	59
G_30	W(s)	67	52	46	67	51	56	41	57	47	60	59	56	56	59	45	44	44	51	44	45	41	62
G_30	W(w)	69	57	57	69	55	61	55	59	59	62	62	60	60	62	60	48	48	50	50	48	47	64
G_31	N	57	50	50	56	45	55	49	50	53	52	54	52	52	54	54	37	40	41	43	39	39	54
G_31	S	56	50	50	56	45	54	48	50	51	52	53	52	52	54	52	41	40	41	42	41	39	54
G_31	W	57	50	50	56	46	55	49	50	53	52	54	52	52	54	54	41	40	41	43	41	39	54
G_32	N	57	50	50	55	45	55	49	50	53	51	53	51	50	52	54	37	39	40	42	39	39	52
G_32	S	54	46	40	54	42	51	40	47	48	51	50	48	47	52	41	40	36	39	38	39	35	52
G_32	W(n)	56	50	50	50	44	54	49	48	53	48	51	50	49	51	54	34	38	39	41	38	38	49
G_32	W(s)	53	46	46	49	41	53	43	46	51	47	48	46	41	47	51	40	34	35	36	37	35	48
H_33	E	67	50	50	50	58	65	57	58	65	59	63	59	58	59	66	36	50	53	41	37	39	63
H_33	N(e)	54	41	41	43	43	54	41	46	49	47	49	46	41	44	50	-	36	44	-	-	31	49
H_33	N(w)	56	42	42	44	42	56	42	47	50	48	50	47	42	45	49	-	36	41	31	-	32	51
H_33	S	69	53	53	54	60	69	57	60	65	62	64	60	60	60	67	39	50	53	45	40	42	66
H_33	W(c)	69	52	52	54	56	69	57	59	65	61	63	60	60	60	66	39	49	51	45	39	42	65
H_33	W(n)	58	46	46	48	44	58	44	49	53	51	53	50	45	49	51	31	39	43	35	32	35	53

ID	Façade	Max Day	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	4.1	4.2	4.3	4.4 night	5.1	6.1	6.2	7.1	7.2	8.1	8.2
H_33	W(s)	69	53	53	54	57	69	57	59	65	61	63	60	60	60	66	39	50	52	45	39	42	65
H_34	E(n)	52	42	42	45	39	52	40	44	48	46	48	45	40	45	47	-	34	38	31	-	32	48
H_34	E(s)	63	51	51	52	51	63	54	55	61	57	59	57	57	58	61	38	46	47	43	38	40	60
H_34	S(e)	63	51	51	52	51	63	54	55	61	57	59	57	57	58	61	38	46	47	43	38	40	60
H_34	S(w)	64	51	51	52	52	64	54	55	61	57	60	57	57	58	62	38	46	47	43	38	40	61
H_34	W	63	51	51	52	51	63	54	55	61	57	60	57	57	58	61	38	46	50	43	38	40	60
H_35	E	52	42	42	45	39	52	41	45	49	47	49	46	41	45	48	-	35	41	31	-	32	48
H_35	N	50	40	40	44	37	50	38	42	46	44	46	44	39	43	45	-	32	37	-	-	-	46
H_35	S(e)	63	50	50	52	51	63	54	54	61	57	59	57	57	57	61	38	46	47	43	38	40	60
H_35	S(w)	63	50	50	52	51	63	54	54	61	57	59	57	57	57	61	38	46	47	43	38	40	60
H_35	W	63	50	50	52	51	63	54	54	61	57	59	57	57	57	61	38	46	47	43	38	40	60
H_36	E	62	50	50	52	50	61	53	53	60	56	59	56	56	57	61	37	45	50	42	38	39	59
H_36	N(e)	52	42	42	45	38	52	40	44	48	46	48	46	42	45	47	-	35	49	32	-	31	48
H_36	N(w)	51	42	42	44	38	51	39	43	47	45	47	45	41	44	46	-	33	44	31	-	31	47
H_36	S(c)	63	50	50	52	51	63	53	54	60	56	59	57	57	57	61	38	45	46	43	38	40	60
H_36	S(e)	63	50	50	52	51	63	53	54	60	56	59	57	56	57	61	37	45	46	43	38	40	60
H_36	S(w)	63	50	50	52	51	63	54	54	61	57	59	57	57	57	61	38	45	46	43	38	40	60
H_37	E	55	46	46	50	43	55	44	48	52	50	52	50	45	49	51	32	38	42	36	34	35	51
H_37	W	63	51	51	52	51	63	54	54	61	57	60	57	57	58	61	38	46	51	43	38	40	60
H_38	E	52	42	42	46	38	51	40	44	48	46	48	46	41	45	47	-	34	39	31	-	31	47
H_38	W	63	50	50	52	51	63	54	54	61	57	59	57	57	58	61	38	46	52	43	38	40	60
H_39	E	54	46	46	49	42	53	45	47	50	49	51	49	45	48	52	-	38	44	35	32	35	51
H_39	N	50	40	40	43	37	50	38	42	46	44	46	44	39	42	45	-	32	40	-	-	-	46
H_39	W	63	50	50	52	51	62	54	54	61	57	59	57	57	57	61	38	46	54	43	38	40	60
H_40	E(n)	55	42	42	45	38	51	39	43	47	45	47	45	40	44	46	-	33	54	31	-	31	47
H_40	E(s)	57	44	44	47	42	53	45	47	50	49	51	49	45	49	53	31	38	54	34	33	34	50
H_40	N(n)	58	39	39	44	36	49	37	41	45	43	45	43	38	41	44	-	31	58	-	-	-	45
H_40	N(s)	51	38	38	41	34	48	36	40	44	42	44	42	37	40	43	-	30	50	-	-	-	44
H_40	S(e)	50	40	40	44	36	50	38	42	46	44	46	44	39	43	45	-	32	39	-	-	-	46
H_40	S(w)	53	42	42	45	39	53	40	44	48	46	48	46	41	45	47	-	34	40	31	-	32	49
H_40	W	62	50	50	52	50	62	54	54	60	56	59	57	57	57	61	38	45	56	43	38	40	59
H_41	E(n)	50	39	39	40	36	49	39	41	45	43	46	45	40	43	47	-	33	46	-	-	-	46
H_41	E(s)	55	47	47	50	43	55	46	48	52	50	52	51	48	51	52	33	39	48	38	35	36	52

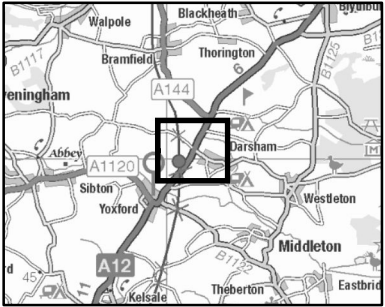
ID	Façade	Max Day	1.1	1.2	1.3	2.1	2.2	2.3	2.4	2.5	3.1	3.2	4.1	4.2	4.3	4.4 night	5.1	6.1	6.2	7.1	7.2	8.1	8.2
H_41	N(n)	43	33	33	36	-	43	31	35	39	37	39	37	34	36	38	-	-	33	-	-	-	39
H_41	N(s)	43	33	33	37	-	43	31	35	39	37	39	37	34	36	38	-	-	-	-	-	-	39
H_41	S(c)	54	45	45	49	42	53	45	47	51	49	51	49	46	50	51	32	38	39	35	34	34	50
H_41	S(e)	54	47	47	50	42	54	45	47	50	49	52	50	47	50	52	31	39	48	38	34	36	51
H_41	S(n)	51	39	39	49	38	50	35	44	48	46	44	43	39	47	41	32	31	34	30	33	-	45
H_41	S(w)	53	45	45	49	41	52	43	46	50	48	50	48	44	48	49	32	36	38	36	33	34	49
H_41	W(c)	46	37	37	40	32	45	33	38	41	40	41	40	35	39	40	-	-	31	-	-	-	41
H_41	W(n)	54	47	47	50	41	54	44	47	51	50	51	50	46	50	47	33	37	37	38	35	36	51
H_41	W(s)	54	44	44	48	42	53	45	46	51	49	51	50	46	49	51	31	38	39	34	34	33	50
H_41	W(w)	53	45	45	49	41	53	42	46	49	48	50	48	44	49	49	32	36	38	36	34	35	49
H_42	S	56	46	46	49	43	55	47	48	53	50	53	51	50	52	52	35	38	40	39	35	36	53
H_42	W	56	46	46	49	43	55	46	48	53	50	52	50	50	52	52	35	38	40	39	35	35	53
I_43	E	57	48	47	53	44	54	51	50	53	52	53	51	51	54	49	40	39	42	42	40	39	54
I_43	N	54	47	47	49	40	53	49	45	52	48	49	48	46	48	48	32	35	38	39	34	36	48
I_43	S(e)	57	49	47	53	44	54	51	50	53	52	53	51	51	54	48	40	39	41	42	40	39	54
I_43	S(w)	57	49	47	53	44	54	51	50	53	52	53	51	51	54	47	40	39	41	42	40	39	54
I_43	W	53	49	40	48	42	49	40	48	44	50	50	48	47	52	38	38	36	36	40	38	37	52
J_44	E	45	38	38	41	32	44	34	38	41	40	42	41	37	41	39	-	-	-	-	-	-	41
J_44	N	54	45	45	46	41	53	45	46	51	49	51	49	49	50	50	-	37	36	36	31	34	51
J_44	S	54	45	45	48	41	53	45	46	51	49	51	49	49	50	51	33	37	37	37	34	34	51
J_44	W	54	45	45	49	41	53	45	46	51	49	51	49	49	51	51	33	37	37	38	35	35	51
J_45	E	45	39	39	41	32	44	34	38	40	40	42	41	37	41	39	-	-	-	-	-	-	41
J_45	N	54	46	46	47	41	53	46	47	52	49	52	50	50	50	51	30	37	37	37	33	34	51
J_45	S	53	46	46	49	41	52	44	46	49	48	51	49	49	51	48	35	37	36	38	35	35	50
J_45	W	54	46	46	49	42	53	46	47	52	49	52	50	50	51	51	35	37	37	38	35	35	51
J_46	NE	54	45	45	46	40	52	45	46	51	48	51	49	49	50	50	-	36	36	36	32	33	50
J_46	NW(c)	54	46	46	50	41	53	45	46	51	49	51	49	49	51	50	36	37	37	38	36	35	51
J_46	NW(n)	54	46	46	50	41	53	45	46	51	49	51	49	49	51	51	36	37	37	38	36	35	51
J_46	NW(s)	54	46	46	50	41	53	45	46	51	49	51	49	49	51	50	36	37	37	38	36	35	51
J_46	SW(n)	54	46	46	50	41	53	45	46	51	49	51	49	49	51	50	36	37	37	38	36	35	51
J_46	SW(s)	54	45	45	50	41	52	45	46	51	48	51	49	49	50	50	35	37	36	38	36	35	50



### Figure 1. Northern Park and Ride Location Plan



- KEY:
- Construction Noise Receptor Clusters
  - Residential building
  - Non-residential building
  - Red Line Planning Boundary
  - Scheme design



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LOCATION PLAN  
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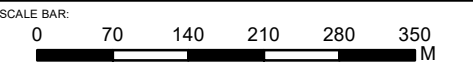
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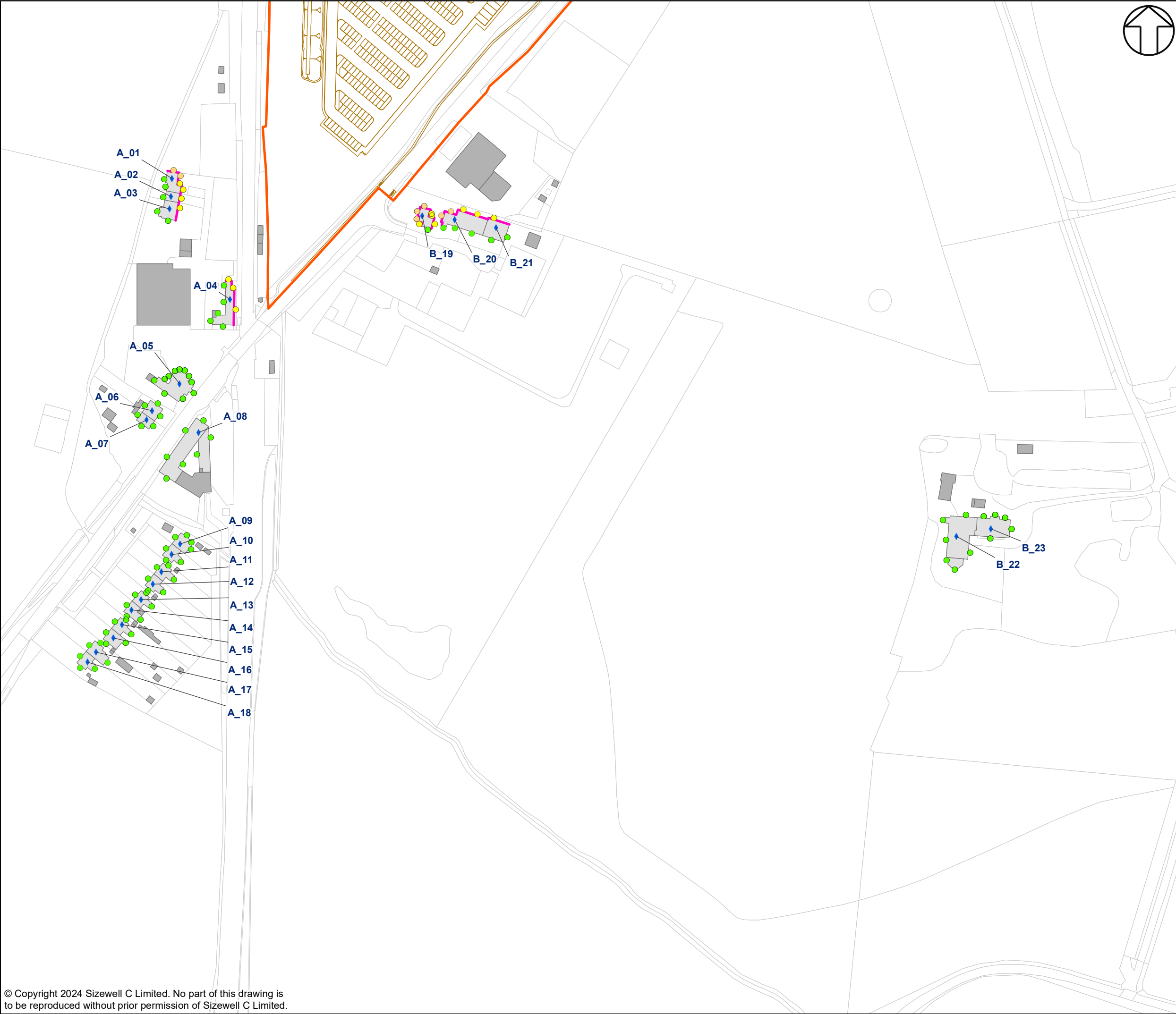
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## Figure 2. Northern Park and Ride Construction NMS Qualification



- KEY:
- Daytime Construction Noise Level**  
**L<sub>Aeq</sub>, T dB facade**
- 79.5-84.4 Shoulder hours threshold for temporary re-housing
  - 74.5-79.4 Weekday and Sat am threshold for noise insulation and Sat pm temporary re-housing
  - 69.5-74.4 Shoulder hours threshold for noise insulation
  - 64.5-69.4 Sat pm threshold for noise insulation
  - <64.5 No Qualification
  - Construction noise receptors (with label)
  - Façade qualifying for noise insulation
  - Residential building
  - Non-residential building
  - Red Line Planning Boundary
  - Scheme design



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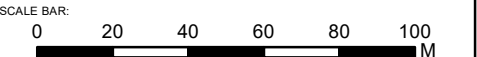
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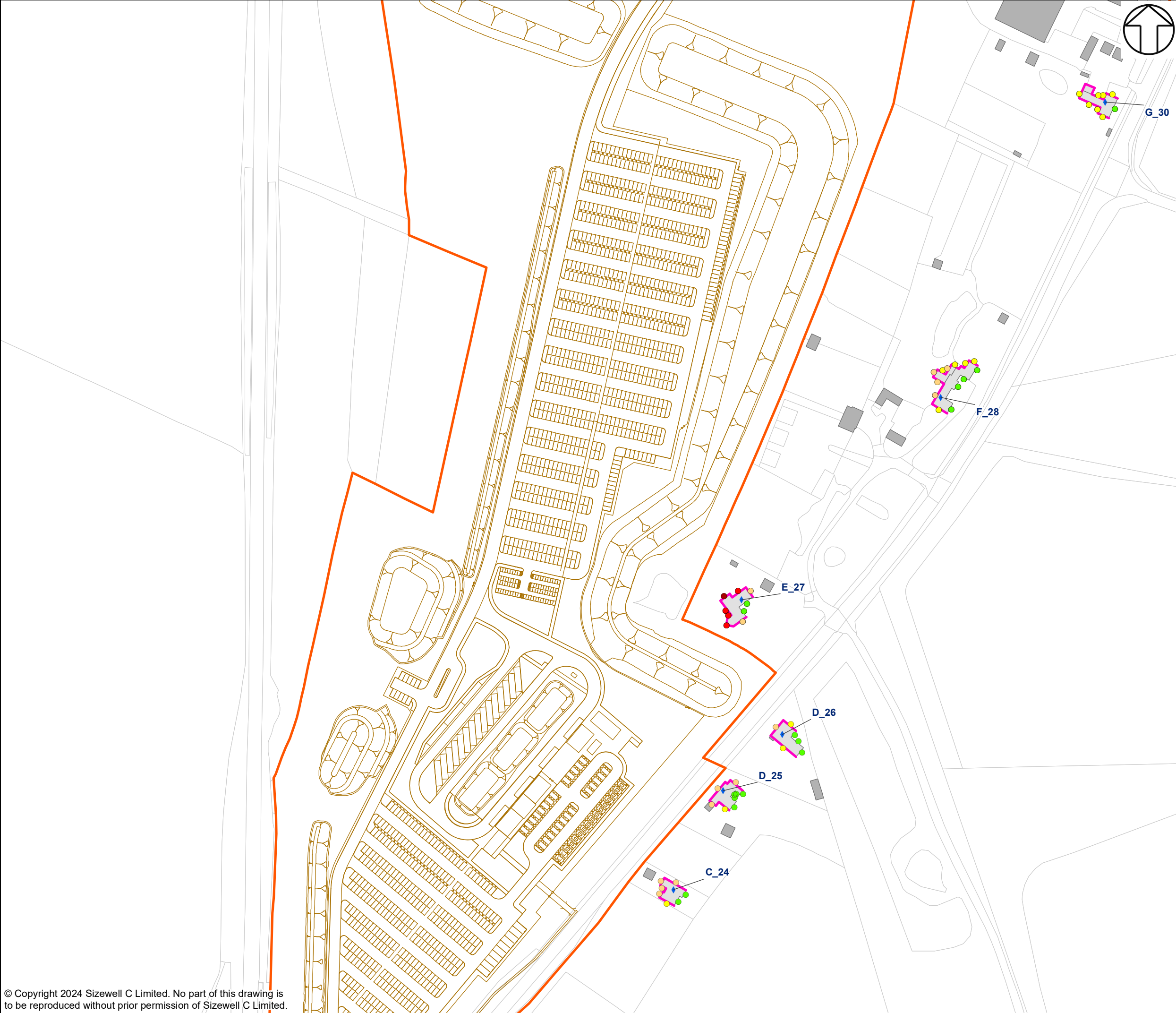
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- KEY:**
- Daytime Construction Noise Level**  
**L<sub>Aeq</sub>, T dB facade**
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CONSTRUCTION NMS QUALIFICATION  
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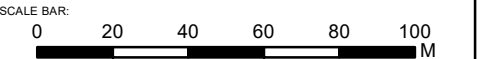
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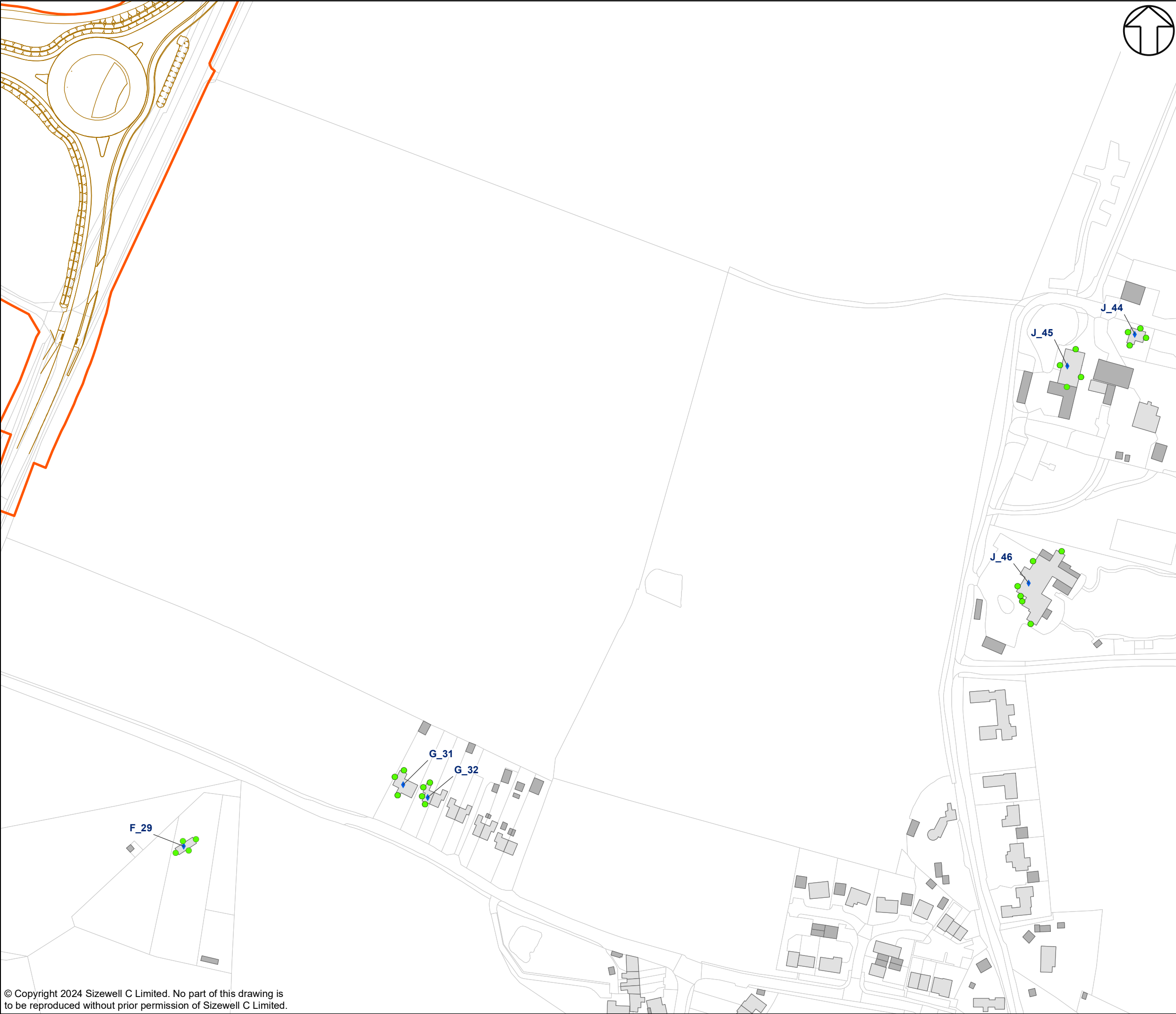
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SCALE:  
1:2,000 @A3





**KEY:**

**Daytime Construction Noise Level**  
**LAeq, T dB facade**

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- <64.5 No Qualification

Construction noise receptors (with label)

Façade qualifying for noise insulation

Residential building

Non-residential building

Red Line Planning Boundary

Scheme design



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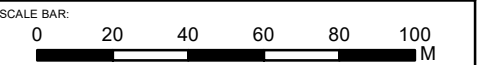
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FIGURE 2

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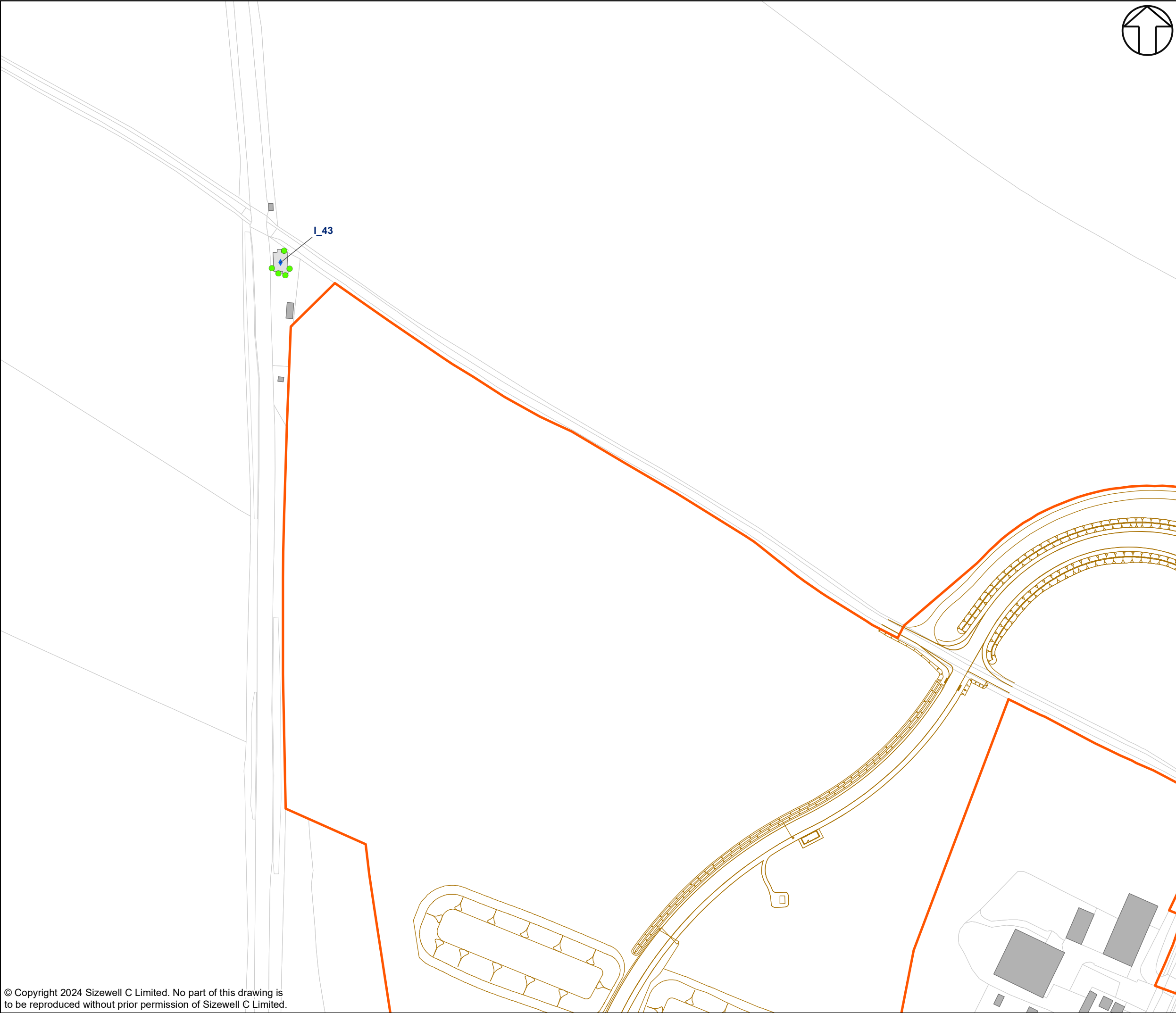
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CONSTRUCTION NMS QUALIFICATION  
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**KEY:**

**Daytime Construction Noise Level**  
**L<sub>Aeq</sub>, T dB facade**

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