Appendix E1

Consultation and baseline noise survey details

Appendix E1: Consultation and baseline noise survey details



East Claydon Greener Grid Park: Noise Impact Assessment consultation

To:	Charlie Robinson, Environmental Health Officer	Planning Authority:	Buckinghamshire Council, Aylesbury Vale Area
Address:	Walton Street		
	Aylesbury		
	HP20 1UA		
Date:	19 December, 2024	TNEI Ref.:	16206-005 R0

Dear Charlie,

Introduction

TNEI Services Ltd (TNEI) have been commissioned by Statkraft to undertake a Noise Impact Assessment to accompany the planning application for the proposed East Claydon Greener Grid Park comprising a Battery Energy Storage System (BESS) up to 500 MW.

In the pre-application advice (ref: 24/01836/COMM), comments on noise indicated that a noise assessment inclusive of a survey and predictions are expected by Buckinghamshire Council to support the planning application, and that cumulative noise impact with nearby other developments will need to be considered. TNEI subsequently prepared the noise section of the Scoping Opinion Request (ref 24/02556/SO) and the Scoping Opinion dated 14th November 2024 includes a Noise and Vibration section stating:

"The LPA welcome the applicant's proposal to scope noise impacts into the EIA for the construction, operation and decommissioning phases of the development. The LPA is especially concerned about the cumulative noise impacts of the development alongside other battery storage facility proposals in the vicinity of the site.

There are concerns that ground-borne vibration from the construction, operation and decommissioning would result from the proposal. The LPA cannot agree to scoping these matters out and the ES should include the likely significant effects associated with these matters."

The noise section of the Scoping Opinion Request provides an outline of the proposed noise assessment methodology, whereas this letter is intended as a direct consultation with the Environmental Health service to provide more detail on the assessment methodology, an update on our noise survey, and to present our proposed approach to considering cumulative schemes.

Figure 1 (appended), is a copy of the noise figure included within the Scoping Opinion Request and illustrates:

- the location of the proposed East Claydon Greener Grid Park (GGP);
- the Noise Monitoring Locations (NMLs) that were used in a baseline sound level survey undertaken by TNEI in 2024, as well as an earlier survey undertaken by RPS in 2021;
- the location of the nearest residential Noise Sensitive Receptors (NSRs) and how the NMLs are used to represent each NSR; and,
- proposed Noise Assessment Locations (NALs) chosen to be representative of the nearest NSRs.

TNEI propose to undertake the operational noise assessment in line with BS 4142:2014+A1-2019 *Methods for Rating and Assessing Industrial and Commercial Sound* (BS 4142), and with due regard to the *BS* 4142:2014+A1:2019 Technical Note published by the Association of Noise Consultants (ANC) in 2020. The below key points outline some of the specific parameters that we would like to agree with you at the earliest opportunity to enable us to complete the noise assessment.

Nearby Schemes to Consider for Cumulative Noise (Operational):

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TNEI is aware there are a number of other BESS or Solar developments proposed in the area. A comprehensive list is shown on a cumulative map in Appendix 1. The nearest developments of interest for noise are :

- Tuckey Solar Farm Approved Solar Farm, reference 19/00983/APP. Located immediately to the east of East Claydon GGP. All pre-commencement conditions are discharged (reference 19/A0983/DIS) and it is assumed the solar farm will be built out during 2025. Due to the proximity of, and common NSRs (Tuckey Farm and Tuckey Barn) between the two developments, Tuckey Solar Farm will be considered within the cumulative noise assessment, which will be based on the noise rating levels presented in the noise report submitted for the discharge of conditions reference 19/A0983/DIS.
- Rookery Farm BESS (up to 500 MW) Live planning application reference 23/03875/APP. Located south of the existing East Claydon National Grid Substation. The submitted Environmental Impact Assessment Report (EIAR) Volume 2 'Noise and Vibration' chapter, considers residential receptors surrounding the development. The nearest assessed NSR to East Claydon GGP is one labelled "NVSR A" at coordinates 474910,225415. This is a farm located at least 600 m south beyond our proposed NAL4 Station House, and is at least 1000 m away from the East Claydon GGP plant area. No cumulative impact is anticipated with Rookery Farm BESS given the distances involved, therefore, this development has been scoped out of the cumulative assessment.
- Rosefield Solar Farm A DCO application for a Solar and BESS development is expected to be submitted to PINS in 2025. It is not possible to assess this development for noise as no relevant details are available and no planning application has been submitted. Furthermore, the majority of this development site would be too far south from East Claydon GGP to need to be considered for noise.
- East Claydon Replacement Substation Application possible in 2025. Again, it is not possible to assess this development for noise, as no relevant details are available and no planning application has been submitted yet.

In light of the above, TNEI advises that the cumulative noise impact assessment will consider Tuckey Solar Farm only. For all other proposed developments, these are either too distant for cumulative impacts to occur or no relevant details are available. Notwithstanding, should one of the above developments submit a Noise Impact Assessment report into Planning prior to the planning application for East Claydon GGP being submitted, then this would be duly reviewed to consider if a cumulative assessment is required.

Baseline Sound Levels

TNEI undertook a baseline noise survey at three NMLs during April and May 2024 and data is available from another two NMLs, from a 2021 survey undertaken by RPS in August and September 2021 for the Tuckey Solar Farm.

The 2024 sound level data analysis is presented in Appendix 2 and a summary of the representative background sound levels from both surveys is shown in Table 1 below. These are the background sound levels that will be used in the BS 4142 assessment.

Figure 1 (Appendix 1) indicates how the baseline sound levels from each NML will be used to represent the NSRs and NALs through colour coding, e.g. the pink NML (NML01) is used to represent all NSRs shown in the pink zone.

NML Id	Location Description	Surveyed by / when / Duration / Purpose	Day	Night
NML1	In the field immediately north of Station House		34	28
NML2	In the field south east of Monkomb Farm	TNEI / April-May 2024 / 13 days / To establish representative baseline levels at	36	28
NML3	In the field at the north of the indicative development area. To represent Verney House and others to the north.	the proposed East Claydon Greener Grid Park.	31	26
NML4	In the field near Tuckey Farm and Tuckey Barn.	RPS / August-September 2021 / 8 days / To establish representative baseline	35	26
NML5	In the field north of Berry Leys Farm	the Tuckey Solar Farm development planning application.	34	24

Table 1 – Representative background sound levels, dB LA90(15mins)

BS4142 Noise Assessment Process

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As part of the BS 4142 noise assessment process, an initial estimate is made by comparing the background sound level with the Rating Level, however, to complete the assessment, BS 4142 Section 11 requires that the context in which the sound occurs is also considered, and as such there is no definitive pass/fail element to the standard.

The initial assumption is that the greater the increase between the Rating Level over the Background Sound Level, the greater the impact may be, however, this can then be modified when considering the context. The initial estimate guidance given by BS 4142 is as follows:

- "A difference of around +10dB or more is likely to be an indication of a 'significant adverse' impact, depending on the context.
- A difference of around +5dB is likely to be an indication of an 'adverse' impact, depending on the context.
- 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 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."

Following the initial estimate of the impact, the context assessment is undertaken. BS 4142 states that all pertinent factors should be taken into consideration, including:

- The absolute level of sound;
- The character and level of the residual sound compared to the character and level of the specific sound;
- The sensitivity of the receptor and whether dwellings or other premises used for residential purposes will already incorporate design measures that secure good internal and/or outdoor acoustic conditions;
- Any other criteria that could be relevant;

Some examples are given for some situations where the findings from the initial estimate is not the most relevant, for example, in a low background environment. In this regard, Section 11 of BS4142 states:

'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.'

In 2020, the Association of Noise Consultants (ANC) produced a Technical note on BS4142 to provide further guidance on the use of BS 4142. The Technical note state:

'There is no theoretical limit to how the context can or should influence the impact assessment, but any alteration of the conclusions of an assessment due to the context should be sufficiently explained and justified for the specific circumstances in question.'

The ANC BS 4142 Technical Note provides additional information to define low background and low ratings and states :

'The note to the Scope of the 1997 version of BS 4142 defined very low background sound levels as being less than about 30 dB LA90, and low rating levels as being less than about 35 dB LAr,Tr.'

It is clear from the values presented in Table 1 above that the background sound levels at all nearby receptors are low in daytime and very low at night and therefore absolute levels will need to be considered in detail in the context assessment, along with any other relevant contextual element such as the residual sound levels (which are also found in Appendix 2 at the end of this letter).

TNEI suggest to undertake a BS4142 assessment and the key objective will be to ensure the development include sufficient noise mitigation to avoid an adverse impact, with consideration of the context. This is also in line with the Noise exposure hierarchy table¹ from the government 'Planning Practice Guidance for Noise' (PPG-Noise) where for the Lowest Observed Adverse Effect Level the action is to "Mitigate and reduce to a minimum".

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¹ https://assets.publishing.service.gov.uk/media/5d39a87ce5274a4010e33fef/noise_exposure_hierarchy.pdf

Ground-borne vibration from construction

As stated in our Scoping Opinion request, based on experience working on BESS projects across the UK, TNEI considers that a detailed construction (and decommission) noise and vibration assessment may not be necessary and that the use of appropriate planning conditions to limit working hours and the use of good practice during construction should be sufficient to mitigate noise and vibration impacts during construction (and decommission). The Scoping Opinion issued on 14th November indicate that Environmental Health would like noise and ground borne vibration from construction to be assessed. As such, TNEI suggest to undertake a qualitative construction noise and vibration assessment to support the application.

Summary

We would like to agree that:

- operational noise cumulative impact with Tuckey Solar Farm should be considered only, based on the noise levels predicted from this development in the noise report found in the discharge of condition reference 19/A0983/DIS. No other developments are relevant.
- the background sound levels from the Table 1 above can be used for the noise assessment.
- the operational noise assessment will need to be undertaken following the full process of BS 4142 to ensure the development include sufficient noise mitigation to avoid an adverse impact, with consideration of the context.
- a qualitative construction noise and vibration assessment will be undertaken in addition to the operational noise assessment.

I would be very grateful if you could confirm your acceptance of this approach, or otherwise. If there is any aspect you would like to discuss in more detail, please do not hesitate to get in touch.

Yours sincerely,

Moise Coulon Principal Consultant TNEI Services Ltd

Appended:

Appendix 1: Figure 1 - Noise Monitoring and Assessment Locations (similar to scoping Figure 6.1, with added proposed development extent area) and Cumulative Map

Appendix 2: Details of Background Noise Survey

Appendix 1 - Figure of Noise Monitoring and Assessment Locations and Cumulative Map





n. At surveys and

Rosefield Solar Farm stage. Application for incl. battery storage DCO expected to be At Pre-application submitted to PINS Applicant: EDF lan-Mar 2025 Renewables (NSIP)





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Appendix 2 - Detail of Background Noise Survey

The purpose of the survey was to determine a representative daytime and night-time existing sound levels, characterising the noise environment at the nearest receptors.

The baseline noise survey from TNEI lasted 13 days between 26th April 2024 and 8th May 2024. The survey from RPS lasted 8 days between 27th August 2021 and 3rd September 2021 and was detailed in the Tuckey Solar Farm noise report for discharge of planning conditions (planning reference 19/A0983/DIS).

The locations and on-site observations are detailed in Table A1.1 below and the locations show in Figure 6.1.

Table A1.1: Noise Monitoring Location (NML) details

NML		Coord	inates	Description / Observations at commission	
ID	Name / Location	Eastings	Northings	and decommission of equipment	
NML1	In the field immediately north of Station House. TNEI survey April-May 2024 for 13 days.	474972	226090	25/04/2024 MR on install day: Road noise from East Claydon Rd. Farm work in distance. Birdsong. Humming from overhead lines, very faint. 08/05/2024 TS on decommission day: Birdsong, occasional road noise to south. Some machinery operating at property to south.	
NML2	In the field south east of Monkomb Farm. TNEI survey April-May 2024 for 13 days.	474392	226228	22/04/2024 MR on install day : Resident to north west trimming a hedge. Road noise audible to south. Birdsong in trees and foliage. Mild breeze. Overcast, oktas 8/8. Farm work in field to the south. 08/05/2024 TS on decommission day: Birdsong dominant, distant road noise audible to the north.	
NML3	In the field to the north end of the indicative development area. To represent Verney House and others to the north. TNEI survey April-May 2024 for 13 days.	474392	226903	22/04/2024 MR on install day: Overcast, 8/8 oktas. Mild breeze. Farm works can be heard in adjacent field, distant. Land has just been worked. Birdsong in trees and shrubbery. Distant road noise is audible. 08/05/2024 TS on decommission day: Birdsong, distant road noise audible to north.	
NML4	In the field near Tuckey Farm and Tuckey Barn. RPS survey August- September 2021.	475344	226541	As per RPS notes: At the time of setting up and collecting the survey the following noise sources were noted as affecting the acoustic environment: distant road traffic movements, distant machinery noise and natural sound (wind in trees, bird calls, insects etc.).	

NML		Coordinates		Description / Observations at commission	
ID	Name / Location	Eastings	Northings	and decommission of equipment	
NML5	In the field north of Berry Leys Farm. RPS survey August- September 2021.	475570	226408	As per RPS notes: At the time of setting up and collecting the survey the following noise sources were noted as affecting the acoustic environment: Local road traffic movements on East Clayton Road, distant road traffic movements, distant machinery noise and natural sound (wind in trees, bird calls, insects etc.).	

The noise monitoring equipment from TNEI consisted of Rion NL-52 Sound Level Meter (SLM) fitted with appropriate environmental wind shield. All noise monitoring equipment (calibrator, SLM and microphones) used for the study are categorised as Class 1, as specified in IEC 61672-1 *'Electroacoustics. Sound level meters. Specifications'* (3). The equipment was calibrated onsite at the beginning and end of the measurement period with no significant deviations noted. The microphone was mounted approximately 1.2 m above the ground and away from nearby reflective surfaces i.e., building façades, fences etc.

Meteorological data was also collected, with a Kestrel portable weather station and a tipping bucket rain gauge installed near the noise monitoring equipment. In regard to weather conditions, BS4142 states:

'Record the weather conditions that could affect measurements. Monitor wind speed at the measurement location, using an anemometer, and record the wind speed together with the wind direction. Exercise caution when making measurements in poor weather conditions such as wind speeds greater than 5 m/s.'

As part of the post-survey data analysis, all noise data recorded during periods of high wind above 5 m/s or periods of precipitation have been removed from the datasets. A series of charts, including time series graphs statistical and distribution analysis charts, is included below which detail the measured meteorological data, measured background sound levels and data points excluded.

BS4142 suggest that representative background levels are selected for an assessment, notably section 8.2 states:

'In using the background sound level in the method for rating and assessing industrial and commercial sound it is important to ensure that values are reliable and suitably represent both the particular circumstances and periods of interest. For this purpose, the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods.'

Table A1.2 presents the representative background sound level selected for daytime and night-time after reviewing all of the data detailed within the series of charts. The residual sound levels are also included as these are also required for the context based assessment.

Table A1.2 - Representative Background and Residual Sound Levels, dB LA90(15min	ns)
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NML	ltem	Daytime	Night-time
	Range of Background Sound Levels (dB $L_{A90,t}$)	24-58	21-44
NML1	Representative Background Sound Levels (dB $L_{A90,t}$)	34	28
	Range of Residual Sound Levels (dB $L_{Aeq,t}$)	27-66	22-58
	Representative Residual Sound Levels (dB LAeq,t)	51	39

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NML	ltem	Daytime	Night-time
	Range of Background Sound Levels (dB LA90,t)	25-47	22-44
NML2	Representative Background Sound Levels (dB $L_{A90,t}$)	36	28
	Range of Residual Sound Levels (dB LAeq,t)	28-69	25-58
	Representative Residual Sound Levels (dB LAeq,t)	45	35
	Range of Background Sound Levels (dB LA90,t)	22-50	19-41
	Representative Background Sound Levels (dB $L_{A90,t}$)	31	26
NIVIL3	Range of Residual Sound Levels (dB L _{Aeq,t})	27-56	20-56
	Representative Residual Sound Levels (dB LAeq,t)	41	32
	Range of Background Sound Levels (dB LA90,t)	25-42	19-36
	Representative Background Sound Levels (dB $L_{A90,t}$)	35	26
NIVIL4	Range of Residual Sound Levels (dB L _{Aeq,t})	33-79	24-57
	Representative Residual Sound Levels (dB LAeq,t)	44	33
	Range of Background Sound Levels (dB $L_{A90,t}$)	23-51	19-37
	Representative Background Sound Levels (dB $L_{A90,t}$)	34	24
NIVILS	Range of Residual Sound Levels (dB LAeq,t)	41-78	22-61
	Representative Residual Sound Levels (dB LAeq,t)	58	40

The series of charts are included below.













Statistical Analysis - NML01

Statistical Analysis - NML01





Statistical Analysis - NML02

Statistical Analysis - NML02





Statistical Analysis - NML03

Statistical Analysis - NML03





Statistical Analysis - NML4(by RSP)

Statistical Analysis - NML4(by RSP)





Statistical Analysis - NML5(by RSP)

Statistical Analysis - NML5(by RSP)



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16206 - East Claydon - Measured Sound Levels:

Relevant Statistics

NML01

		COUNT	MEAN	MEDIAN	RANGE
DAYTIME	LA90 (15 MINS)	640	36	35	24 - 58
	LAEQ (15 MINS)	640	51	51	27 - 66
	LA90 (15 MINS)	334	31	29	21 - 44
NIGHT-TIME	LAEQ (15 MINS)	334	39	39	22 - 58

NML02

		COUNT	MEAN	MEDIAN	RANGE
DAYTIME	LA90 (15 MINS)	640	36	36	25 - 47
	LAEQ (15 MINS)	640	45	46	28 - 69
	LA90 (15 MINS)	334	31	29	22 - 44
NIGHT-TIME	LAEQ (15 MINS)	334	37	35	25 - 58

16206 - East Claydon - Measured Sound Levels:

Relevant Statistics

NML03

		COUNT	MEAN	MEDIAN	RANGE
DAYTIME	LA90 (15 MINS)	640	33	32	22 - 50
	LAEQ (15 MINS)	640	42	41	27 - 56
NIGHT-TIME	LA90 (15 MINS)	334	28	27	19 - 41
	LAEQ (15 MINS)	334	34	32	20 - 56

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16206 - East Claydon - Measured Sound Levels:

Relevant Statistics

NML4(by RSP)

		COUNT	MEAN	MEDIAN	RANGE
DAYTIME	LA90 (15 MINS)	447	35	35	25 - 42
	LAEQ (15 MINS)	447	45	44	33 - 79
	LA90 (15 MINS)	224	27	27	19 - 36
NIGHT-TIME	LAEQ (15 MINS)	224	33	33	24 - 57

NML5(by RSP)

		COUNT	MEAN	MEDIAN	RANGE
DAYTIME	LA90 (15 MINS)	447	34	34	23 - 51
	LAEQ (15 MINS)	447	58	58	41 - 78
	LA90 (15 MINS)	224	26	25	19 - 37
NIGHT-TIME	LAEQ (15 MINS)	224	40	43	22 - 61

From: Nancy Stuart <nancy.stuart@lichfields.uk>
Sent: Monday, December 23, 2024 10:06
To: Zenab Hearn <zenab.hearn@buckinghamshire.gov.uk>; Moise Coulon
<moise.coulon@tneigroup.com>; Charlie Robinson
<Charlie.Robinson@buckinghamshire.gov.uk>
Cc: Ian York <ian.york@lichfields.uk>
Subject: RE: [EXTERNAL] East Claydon Greener Grid Park - Consultation for Noise Impact
Assessment [LICH-DMS.FID733126]

Hi Zenab,

Thanks for your swift response on this. This letter has been issued by TNEI on the basis that we previously discussed and agreed the approach to issuing a direct consultation letter regarding the noise cumulative scope, and have therefore issued to yourself and C Robinson as advised. Hopefully this can be reviewed in the new year and I'd be happy to discuss further if that would be helpful.

Have a great Christmas if we don't catch up beforehand.

Kind regards

Nancy

Nancy Stuart Associate Director

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From: Zenab Hearn <zenab.hearn@buckinghamshire.gov.uk>
Sent: 20 December 2024 09:12
To: 'Moise Coulon' <moise.coulon@tneigroup.com>; Charlie Robinson
<Charlie.Robinson@buckinghamshire.gov.uk>
Cc: Nancy Stuart <nancy.stuart@lichfields.uk>
Subject: RE: [EXTERNAL] East Claydon Greener Grid Park - Consultation for Noise Impact Assessment

Dear Mosie,

The local planning authority is short of resource and inundated with applications. Unless any information is submitted as part of a formal planning performance agreement (which is currently not in place here) or a planning application, officers are unable to engage with consultants on applications that are to be submitted.

Please refrain from contacting specialist officers directly and channel all communication through the planning officer once an application is submitted or PPA is agreed.

Kind regards,

Zenab Hearn MRTPI, MRICS Principal Planner Planning, Growth and Sustainability Directorate Buckinghamshire Council 01296 585166 <u>Zenab.Hearn@buckinghamshire.gov.uk</u> The Gateway, Gatehouse Road, Aylesbury, Bucks, HP19 8FF ---

From: Moise Coulon <moise.coulon@tneigroup.com>
Sent: 19 December 2024 12:27
To: Charlie Robinson <Charlie.Robinson@buckinghamshire.gov.uk>
Cc: Zenab Hearn <zenab.hearn@buckinghamshire.gov.uk>; Nancy Stuart <nancy.stuart@lichfields.uk>
Subject: [EXTERNAL] East Claydon Greener Grid Park - Consultation for Noise Impact Assessment

Good afternoon Charlie,

I am working on the noise assessment for the East Claydon Greener Grid Park, a proposed Energy Storage System (BESS) up to 500 MW for which I believe you already provided some comments in the scoping opinion reference 24/02556/SO. Please find enclosed a consultation letter providing more detail on the proposed methodology for noise and vibration with some key parameters we would like to agree at your earliest convenience.

Zenab - I have cc'd you as I understand from Nancy (also cc'd) that you asked to be copied in direct consultation emails.

Looking forward to hear from you in due time, and feel free to call me as required on the below number or to ask for a video call.

Kind Regards

Moise