Raywood, Simon

From: Alistair Wood <alistair.wood@lntconstruction.co.uk>

Sent: 27 February 2024 20:03
To: Cottam Solar Project
Cc: Alan Mugglestone; Philip Raven
Subject: Update re. Blyton Park Driving Centre & Cottam Solar Project
Attachments: Illustrative Site Layout Plan Cottam 3A.pdf; Environmental Statement ES Addendum 21.2 Blyton Park Driving Centre January 2024.pdf; Letter to LNT, Blyton Park, Solar Farm Acoustic Report Initial Response.pdf; BLYTON-RUNOFF AREAS-2B.pdf

Application by Cottam Solar Project Ltd for an Order Granting Development Consent for Cottam Solar Project : Requests for Further Information
Interested Party Reference number: 20037132 : Deadline 5, Tuesday 27 February 2024.

No further site meetings have taken place with the Applicants and their consultants since the last reported site meeting on 19 December. A Teams Meeting was called by the Applicant's on 31 January, involving Mr Dan Carter, Head of Safety at Motorsport UK (MSUK) attended by Alan Mugglestone & Alistair Wood, representatives of Blyton Park Driving Centre on 31 January. In addition, there has been a series of e-mail exchanges between the Applicants and representatives of Blyton Park Driving Centre, since our last update on 30 January.

As far as, Blyton Park Driving Centre is aware, the Applicants have made/offered no changes to their proposed Solar Panel Layout/Scheme, to date (attached for ease of reference), despite Blyton Parks very continuing objections to the scheme. These objections are based on very serious issues and likely adverse impacts on the operational conditions of the established Driving Centre and Circuit. Serious concerns remain from a health & safety perspective in relation to: - proximity of the panels to the driving circuit; impact on the line-of-sight from the central control facility; impact of glint and glare from the panels in relation to drivers on the circuit; and potential reflection/deflection of noise from motor vehicle activity on the circuit, because of the proposed solar panel arrays.

Addendum Environmental Statement submitted by Applicant's

This response is to the Addendum Report prepared by Lanpro Services provided by the Applicant to the last deadline of 30 January and to the limited communication that the Applicants have had with Blyton Park/LNT since the previous deadline submissions Blyton Park Driving Centre/LNT Aviation/LNT Group are **not** in agreement that the submitted Addendum report or any communication that has occurred since "demonstrates that the Applicant has suitably and comprehensively considered and assessed the potential effects of the Scheme on the on-going and future operations of the Blyton Park Driving Centre" (Para 1.1.6). For the purposes of this response our focus will be on the most significant issues of concern to Blyton Park/LNT, as listed above.

Noise Reflection/Deflection

While a Noise Impact Assessment Report prepared by Tetra Tech has been provided for consideration (received 25 January) this report is based on Noise Modelling alone with insufficient details of all specific individual effects that the solar farm will have on sound from Blyton Park, that is needed to enable verification of the model's accuracy. Given that we understand that no such noise research or study of the effect of large-scale solar farms have on propagation of existing noise sources, has ever been carried out in

the UK previously, the outcome of this Noise Modelling Report must be restricted by the limitations of the software employed, the ability of which to analyse the circumstances involved is unclear and untested.

Blyton Park/LNT have commissioned a critique of the submitted Noise Assessment Report from S&D Garritt Ltd, Acoustic Consultants. They have a wealth of experience and expertise and who are highly regarded within the industry. The critique raises queries which unanswered, casts significant doubt over the findings and conclusions of the submitted Noise Assessment Report, that was somewhat hastily prepared between 19 December and 25 January. Please see critique provided by S& D Garritt Ltd attached. We conclude that the Noise Assessment report prepared on behalf of the Applicant cannot be relied upon.

The reliance on the findings of any Noise Assessment Report in relation to Blyton Park must be "suitably and comprehensively considered" because to err in this situation, may have fatal consequences for the long-established Driving Centre business in this location. The future of Blyton Park Driving Centre cannot be jeopardised by the 'Agents of Change' in this instance - the Cottam Solar Project. It is not accepted that the provision of this acoustic modelling, conclusively demonstrates that "the Scheme does not materially alter noise conditions for nearby residential receptors" (Para 1.1.7 of AdEA). In support of this position Blyton Park/LNT have provided the attached critique of the submitted report prepared by S&D Garritt Ltd.

Glint & Glare

Some further summary explanation in relation to the issue of glint and glare has been provided within the submitted EA Addendum Report. The Summary Report itself, prepared by Pager Power Ltd indicates that there is a potential impact at almost every measurement point employed around the circuit. It then indicates that given "proposed screening predicted to remove visibility of potential solar reflections" that there would be "no impact" in every one of the fifty receptor points identified. It has then been indicated by the Applicant that the "proposed screening" would comprise some form of "opaque fencing and planting".

Nonetheless, confirmation of the height, materials, design, or method of construction of this fencing and planting specification has not yet been provided by the Applicant. Blyton Park remain very concerned about the conclusions of this report, having identified that there would be an adverse impact and the casual nature in which the means of mitigation is being proposed to result in "no impact". As before, this is a matter of driver safety and potential fatality, if conclusions are stated that are incorrect or wrong.

Blyton Park/LNT remain very concerned about the impact of glint and glare in these circumstances. Any "opaque fencing and planting" would need to be 4.5 metres high then not only will the solar panels have an adverse visual impact within the setting of the driving circuit and driver-experience, the suggested means of mitigation (fence and planting), if they are to be effective, are also likely to significantly add to this detrimental impact of the proposed development. This also appears to add another necessarily robust element of development, immediately adjacent to the driving circuit that is already considered likely to be harmful, as will be discussed below.

While the detail of the proposed screening/mitigation remains unclear, consideration of its impact and effectiveness cannot be suitably or reasonably considered, Blyton Park/LNT remain unconvinced of that there will be "no anticipated significant effects from the Scheme on the operations of Blyton Park Driving Centre as a result of glint and glare" (Para 1.1.7 of AdEA) or resultant consequent impacts of any proposed mitigation measures.

Safety Run-off Areas

A meeting was held on 31 January organised by the Applicant with the Head of Safety at MSUK and representatives of Blyton Park Driving Centre. MSUK are the Registering Authority in relation to such

driving facilities and ultimately it that permits Blyton Park to operate. MSUK advised that there are two companies that they recognise that are and capable of modelling the circuit, to identify necessary safety run-off areas in relation to the continued operation of Blyton Park, now and into the foreseeable future.

It was hoped that this might agree a course of action from an independent source, to enable progress to be made and provide a reasonable evidential base, on which the Examining Authority would be able to reasonably consider and make judgements on in relation to the proposed Solar Scheme. This meeting concluded in Blyton Park agreeing to obtain quotes for this work but when not able to agree the existence of ant run-off areas around the circuit, the Applicant indicated their intention to independently pursue this on their own.

In the circumstances and in the absence of any response from either recognised circuit modellers, it remains the case that Blyton Park/LNT have provided a plan (attached again for ease of reference) that identifies minimum unrestricted run-off areas in respect of the key parts of the driving circuit. These are believed to be the necessary minimum to preserve the existing operating conditions of the circuit and driver safety. This plan still requires, of course, verification by MSUK, to ensure that operating conditions remain acceptable and that the health and safety of drivers using the circuit is suitably. preserved.

The Applicants have not proposed to altered/amend their layout of Solar Panels in any way from that indicated in the attached Illustrative Layout Cottam 3A drawing. The Solar Panels continue to be proposed in extreme proximity to the established high-speed driving circuit, to make them a clear and unequivocal health & safety risk, were they to be installed. The proposed layout remains, therefore, wholly unacceptable in health & safety terms and wholly unacceptable in planning terms, given the potential impact that the current development proposals are likely to have on the very long-established business activities of Blyton Park and it's recognised and positive contribution to the local economy.

Line of Sight

It also remains very apparent that if the current solar panel layout was to be implemented that the line-of-sight from the circuits central control facility of the southern section of the circuit and associated safety run-off areas would be unacceptably obscured from vision. This would now be even more so, given the high opaque fencing and planting proposed to mitigate against glint and glare, if this can be established. Blyton Park/LNT have previously identified what they thought to be the extent of the essential safety run-off areas and the necessary line-of sight from the central control facility that must be preserved for driver safety reasons.

The current operational conditions must be preserved and the applicant's suggestion of installing some form of camera system in lieu of the current physical line-of-sight has been rejected on grounds of unsuitability to the operation concerned and unreliability. Blyton Park/LNT note the Applicant's reference to Motorsport UK guidelines, but no relevant extract provided, underpinning their assumptions thereafter. Blyton Park operates with a physical line-of-sight from its existing central control facility in relation to all parts of the driving circuit and of the necessary safety run-off areas. They wish to and are entitled to continue to operate in this manner.

The Applicants state at Para 3.5.2 of its AdEA consider that the operation at Blyton Park "would not be adversely impacted by the Scheme if cameras were installed, or if a secondary manned control booth or Marshall Station was installed". While the applicant considers these as reasonable mitigation measures that can be readily adopted, these measures are not agreeable to Blyton Park/LNT that are not prepared to accept these measures being imposed on its operations. It is neither reasonable nor acceptable in any planning sense, for applicants to impose mitigation measures, they might deem reasonable, on the operations of any adjacent land users, and particularly in this instance, involving well-established high-speed motor vehicle activity, important to the local economy and wider economy.

Blyton Park/LNT want to and need to retain the physical line-of-sight from its existing central control facility to all parts of the driving circuit and its associated safety run-off areas. The imposition of mitigation measures that Blyton Park/LNT do not desire or want and that significantly changes the current mode of operation is decidedly disagreeable and unacceptable from any private or public/planning perspective. It is clearly stated here on behalf of Blyton Park/LNT that the obscuring of the line-of-sight to any part of the circuit and its associated safety run-off area, will adversely affect the operation of the Driving Centre/Circuit.

Additionally, it is considered that any discussion of the approved Research & Development Centre and alteration of the central control facility in a development scheme that may or may not yet occur, is immaterial in the context of the current discussion.

Conclusions

Notwithstanding, the Addendum Environmental Statement presented by the Applicant in response to the last deadline, the operators of the Blyton Park Driving Centre remain extremely concerned that the proposed Solar Project will seriously and adversely impact upon their operating conditions and existing business environment. There have been no compromises made by the Applicants, given they did not appreciate or understand the presence or operations of Blyton Park, until brought to their attention last September.

The impact of the current proposed development would significantly and adversely impact the operating conditions of the established Driving Centre and potentially adversely affecting 100% of its business, if its operating conditions are so compromised as it appears they may be that Blyton Park's currently successful business activities, can no longer be sustained, were the proposed development to be implemented. This cannot be permitted to occur, regardless of whether this is a national infrastructure project or in any other circumstances.

While the Applicant state in words, at Para 5.1.1 of its AdEA that they are "committed to ensuring that the development of the Scheme does not adversely impact upon the operational requirements of Blyton Park Driving Centre" their actions to date do not equate to this and the operating condition of the Driving Centre remain at serious risk, as a consequence of the proposed Solar development scheme and as such cannot be viewed as acceptable by the Examining Authority from any reasonable planning perspective.

The Applicant has this afternoon (27 February) sent some form of communication alluding to be "suitable Protective Provisions in relation to Blyton Park Driving Centre", in which they appear to be deferring any outcome for continued negotiation, following the close of the Examination, with a view to reaching agreement, so that they might write to the Secretary Estate at a later date " to request the removal of these protective measures subject to the withdrawal of LNT Group's objection".

Blyton Park/LNT Group would like to make it clear that it is not prepared to accept any measures that are likely to adversely affect its current operational conditions and business environment. As such, given the lack of compromise and amendment to the submitted scheme to date, it appears unlikely that any such negotiation will prove successful. As such, reaching of any agreement, warranting the withdrawal of LNT Group's/Blyton Parks objections, appears highly unlikely, without serious and committed amendment of the proposed Scheme.

Thank you for your attention.

Yours sincerely

Alistair Wood MA DipTP MRTPI
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Blyton Park Driving Centre/ LNT Group/LNT Aviation

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General Legend:

	Order Limits
	Fence
	Potential Development Area
	Mounting Structures and Solar PV Modules
	Conversion Units
	Electrical Substation
	High Voltage Electricity Cable
	Maintenance Tracks
	Gates
	Site Access
	CCTV

Project:	Cottam 3A Solar Project
Project Location:	Land at Kirton Road, Blyton, Gainsborough Lincolnshire, DN21 3QA, England
Ownership:	Cottam Solar Project Ltd
Document Title:	Figure 4.6 Illustrative Site Layout Plan Cottam 3a (APP/C6.4.4.6) (APFP Regulation 5(2)(a))
Sheet format:	A1 *841 x 594*
Scale:	1:5000

Document Amendments				Comments:
v.2	10/04/2022	A.A		Updated Layout
v.3	04/08/2022	A.A		Final Layout
v.4	14/10/2022	A.A		Updated Application Boundary
v.5	20/12/2022	A.A		Layout for Submission
v.6	03/01/2023	A.A		Layout for Submission

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Cottam Solar Project

Environmental Statement

ES Addendum 21.2: Blyton Park Driving Centre

Prepared by: Lanpro Services

January 2024

PINS reference: EN010133

Document reference: EX4/C8.4.21.2

APFP Regulation 5(2)(a)

Cottam
SOLAR PROJECT

Contents

Issue Sheet

Report Prepared for: Cottam Solar Project Ltd.
Examination Deadline 4

Environmental Statement
ES Addendum 21.2: Blyton Park Driving Centre

Prepared by:

Name: Stephen Flynn

Title: Senior Planner

Approved by:

Name: Beccy Rejzek

Title: Associate Director MRTPI

Revision	Date	Prepared by:	Approved by:
original	30 January 2024	SF	BR

1 Introduction

1.1 Purpose of Document

1.1.1 This document is an addendum to the Environmental Statement **[APP-036 to APP-058, REP-010, REP-012, REP-014, REP2-008,** and **REP2-010]** for the Cottam Solar Project DCO Application.

1.1.2 This addendum report provides information on the environmental effects on the Blyton Park Driving Centre, and should be read alongside the following submitted technical ES chapters to which these effects pertain:

- **C6.2.14 ES Chapter 14: Transport and Access [APP-049]**;
- **C6.2.15 ES Chapter 15: Noise and Vibration [APP-050]**;
- **C6.2.16 ES Chapter 16: Glint and Glare [APP-052]**;
- **C8.4.16.1 ES Addendum Appendix 16.1: Solar Photovoltaic Glint and Glare Study [REP-077]**;
- **C6.2.21 ES Chapter 21: Other Environmental Matters [APP-056]** – Section 21.2 Electromagnetic Fields.
- **C6.2.8_A ES Chapter 8: Landscape and Visual Impact Revision A [REP2-008]**;
- **C6.2.18 ES Chapter 18: Socio Economics Tourism and Recreation [APP-053]**; and

1.1.3 This report provides supplementary information to the ES chapters and does not replace them.

1.1.4 This report is furthermore supported by the following technical appendices:

- **Appendix A: Noise Impact Assessment of Reflection of Noise from Blyton Park Driving Centre due to Proposed Solar Panels**; and
- **Appendix B: Summary of Blyton Park Driving Centre Results (Glint and Glare)**.

1.1.5 In response to comments raised by LNT Group on behalf of the Blyton Park Driving Centre, and a request made by the Examining Authority in Issue Specific Hearing 3, as documented at Agenda Item 3A (pg.5) of **C8.1.22 Written Summary of Applicant's Oral Submissions and Responses at Issue Specific Hearing 3 [REP3-034]**, this addendum has been prepared to collate the matters raised and to consider the potential for conflicts of use between the driving centre and solar array areas, and to document the discussion and ongoing correspondence between the Applicant and the operators of the driving centre.

1.1.6 The objective of this addendum is to demonstrate that the Applicant has suitably and comprehensively considered and assessed the potential effects of the Scheme on the ongoing and future proposed operations of the Blyton Park Driving Centre.

1.1.7 Those issues raised by LNT Group and how they have been addressed by the Applicant are as follows:

- Ensuring means of access to Blyton Park Driving Centre are not interrupted by construction traffic accessing the Cottam 3A Site has been addressed through the inclusion of specific mitigation for the racetrack in the Outline Construction Traffic Management Plan **[EN010133/EX4/C6.3.14.2_E]** (see paragraph 3.11);
- Demonstrating that neighbouring residential amenity is not adversely affected by focussing or reflecting of vehicle noise off the solar panels has been addressed through the provision of acoustic modelling to demonstrate that the Scheme does not materially alter noise conditions for nearby residential receptors;
- Ensuring users of the racetrack are not affected by glint and glare has been addressed by providing specific glint and glare modelling assessments and summaries to define which areas of the racetrack may be affected, and resultantly where opaque fencing and screening planting are to be installed as mitigation measures. Specific mitigation to address the potential for glint and glare effects to users of the racetrack is set out in Table 3.5 of the Outline Operational Environmental Management Plan **[EN010133/EX4/ C7.16_C]**;
- Ensuring electromagnetic fields do not cause adverse effects to the health of users, nor to electrical equipment or electric cars at the facility, by demonstrating the low level of EMF emanating from the Scheme in context with international guidance, and the projected EMF from the proposed operations at the Research & Development Centre within the Blyton Park Driving Centre complex;
- Ensuring the racetrack operators are able to monitor the racetrack during events by providing reasonable alternatives to maintaining line of sight with the entirety of the racetrack from their existing control tower; and
- Ensuring racetrack safety and suitable run-off areas for cars are maintained around the perimeter of the racetrack has been considered. The Applicant is committed to meeting with Motorsport UK to agree on suitable run-off areas and, if necessary, provision of safety barriers.

2 Consultation and Communications during Examination

2.1 Correspondence between The Applicant and LNT Group

Pre-Examination

2.1.1 The Cottam Solar Project received a returned Land Ownership Questionnaire (LOQ) from LNT Aviation on the 13 October 2021 confirming that LNT Aviation Ltd are the leaseholders of the land and that they also Occupy the land.

2.1.2 Blyton Park Driving Centre is within the consultation zone for the Scheme, and the following was sent to the Blyton Park Driving Centre's postal address: community consultation materials for phase one (non-statutory) consultation on 03 November 2021; community consultation materials for phase two (statutory) consultation on 14 June 2022; and consultation summary reports for both phases (14 April 2022 and 30 September 2022).

2.1.3 Prior to commencement of the examination, the Applicant notes that LNT Aviation (as the relevant part of LNT Group who are the owners of Blyton Park Driving Centre) were contacted on 15 February 2023 regarding the Scheme prior to communication of Section 56, in compliance with Section 42 and Section 48 of the Planning Act 2008. LNT Aviation were contacted on 14 June 2022 and provided a link to a copy of the PEIR for consultation and a copy of the notice publicising the application under Section 48 of the 2008 Act (including details of the public consultation events and the locations where the consultation documents could be inspected free of charge).

2.1.4 The list of land interests consulted is included in **Appendix 5.8 Section 42 Consultation Materials [APP-031]** and confirms that LNT Aviation were contacted regarding the Scheme ahead of statutory consultation. The Applicant notes that LNT Aviation were also included within the Book of Reference. This is set out in **C4.3_F Book of Reference Revision F [EN010133/EX4/C4.3_F]**.

Representations made to Examination

2.1.5 LNT Group, including the companies LNT Aviation and Blyton Park Driving Centre are registered as Affected Persons and Interested Parties (as applicable) for the Scheme, and have been active in both written and oral representations made to the Examination.

2.1.6 As of January 2024, LNT Group has made four sets of representations to the examination:

- Relevant Representations **[RR-033]**;
- Written representations at Deadline 2 **[REP2-085]**;
- Oral representations at Issue Specific Hearing 3 on 5 December 2923;
- Written summaries of their oral representations at ISH3 **[REP3-076]**; and
- Oral representations at Compulsory Acquisition Hearing 1 on 7 December 2023.

2.1.7 The Applicant has responded respectively to these representations directly in the following documents:

- Responses LNT-01 to LNT-12, pg.322-330, in **C8.1.2 The Applicant's Responses to Relevant Representations [REP-049]**;
- Responses to LNT Group / LNT Aviation / Blyton Park Driving Centre, pg. 152-158, in **C8.1.27 Applicant Response to Deadline 2 Submissions [REP3-039]**;
- Action point 4, pg.8-9, in **C8.1.24 Written Summary of Applicant's Oral Submissions and Responses to Action Points at Compulsory Acquisition Hearing 1 [REP3-036]**;
- Action point 3A, pg.5, in **C8.1.22 Written Summary of Applicant's Oral Submissions and Responses to Action Points at Issue Specific Hearing 3 [REP3-034]**; and
- Responses BPDC-01 to BPDC-06, pg.113-122, in **C8.1.29 Applicant Response to Deadline 3 Submissions [EN010133/EX4/C8.1.29]**.

Additional correspondence during the Examination

2.1.8 The Applicant confirms that meetings and correspondence have been ongoing during the Examination to progress discussions on the matters raised by LNT Group in relation to the Scheme and any potential effects on the operations at Blyton Park Driving Centre.

2.1.9 A meeting took place at Blyton Park Driving Centre between Island Green Power and representatives from LNT Group on 6 September 2023. During that meeting concerns were raised about noise generated by the racetrack being affected by the solar panels, glint and glare impacts from the Scheme, and health and safety in relation to the operation of the racetrack.

2.1.10 On 16 October 2023 LNT Group provided by email a plan showing areas where LNT Group stated that the Scheme conflicted with the Driving Centre's operation, 'run-off' areas that they considered needed to be kept free of any Scheme infrastructure in order to maintain safe operation of their business.

2.1.11 A further onsite meeting to discuss the concerns of LNT Group was held on 19 December 2023, after which it was summarised in an email of 3 January 2024 that the Applicant would:

- Assess the impacts upon the Driving Centre of noise reflection caused by the solar panels;
- Summarise the glint and glare report **[REP-077]** previously produced to make it easier for the Driving Centre to interpret; and
- Analyse the height of the Driving Centre race control room to understand whether lines of sight to the racetrack would be restricted by the installation

of solar panels, and therefore whether any alternative solution may be required in order for the Driving Centre to operate safely.

2.1.12 Blyton Park Driving Centre agreed this summary of actions was correct on 8 January 2024. Regular emails are now being exchanged in order to move these actions forward, as discussed in more detail in the below sections.

2.2 Issues Raised

2.2.1 In their written and oral submissions to the Examination, and as discussed in direct communications with the Applicant, LNT Group have raised a number of issues in relation to the Scheme. These primarily revolve around potential or perceived impacts on the continuing operation of the Blyton Park Driving Centre, and future limitations on their ability to operate a proposed Research & Development facility (West Lindsey District Council [ref: 142855]).

2.2.2 The issues raised by LNT Group include, but are not limited to:

- Ensuring means of access to Blyton Park Driving Centre are not interrupted by construction traffic accessing the Cottam 3A Site;
- Ensuring neighbouring residential amenity is not adversely affected by focussing or reflecting of vehicle noise off the solar panels;
- Ensuring users of the racetrack are not affected by glint and glare;
- Ensuring electromagnetic fields do not cause adverse effects to the health of users, nor to electrical equipment or electric cars at the facility;
- Ensuring the racetrack operators are able to monitor the racetrack during events;
- Ensuring racetrack safety and suitable run-off areas for cars are maintained around the perimeter of the racetrack;
- Assessment of the changes to landscape character and views from the racetrack negatively impacting on its desirability; and
- Ensuring that there are no residual adverse socio-economic effects as a result of limitations to existing operations and future proposals for facilities at the Blyton Park Driving Centre complex.

2.3 Applicant's Responses to Issues Raised

2.3.1 The Applicant has consistently provided responses to the issues raised by LNT Group in their written representations to the Examination and is continuing to work with LNT Group to resolve the outstanding issues to the satisfaction of both parties.

2.3.2 This has been done in writing through the Examination process by means of the response documents listed at paragraph 2.1.7, through provision of additional information pertaining to Blyton Park Driving Centre in relation to key issue areas

such as glint and glare, and finally through this specific document. Section 3 of this document responds to the issues that LNT Group consider to remain outstanding.

3 Considerations of Environmental Effects

3.1 Transport and Access

3.1.1 In specific response to comments raised by LNT Group **[REP2-085]** about the risk of conflicts between vehicle movements associated with the Scheme at the Cottam 3a Site, and the currently unrestricted access to the established Blyton Park Driving Centre complex for operatives and visitors, an update has been provided at Deadline 4 in the **C6.3.14.2_E ES Appendix 14.2 Construction Traffic Management Plan_Revision E [EN010133/EX4/C6.3.14.2_E]**.

3.1.2 Therein at paragraph 3.11, the Applicant commits to the following measures:

"At Access 15, which is shared with Blyton Park Driving Centre, specific management of the access during race days and other events will be put in place in consultation with the operators of Blyton Park Driving Centre, to ensure their operations are not significantly affected by the construction vehicle movements."

3.1.3 Specifically, this refers to measures such as provision of extra banksmen, to support construction vehicle movements, and ensure the safety of other users of the access. Additionally, the consultation with the operators of Blyton Park Driving Centre can be utilised where practicable to reduce specific conflicts, such as reducing the number of HGV movements to and from the Site at the beginning and end of race events when participants and spectators are entering and egressing the Driving Centre complex.

3.1.4 The final provision of the measures set out in the **C6.3.14.2_E ES Appendix 14.2 Construction Traffic Management Plan_Revision E [EN010133/EX4/C6.3.14.2_E]**, will be secured through Requirement 15 of Schedule 2 of **C3.1_F Draft Development Consent Order Revision F [EN010133/EX4/C3.1_F]**.

3.2 Noise and Vibration

3.2.1 LNT Group, in each of their representations to the Examination **[RR-033**, **REP2-085**, and **REP3-076]**, have raised concerns over the extent of the solar arrays adjacent to the racetrack acting as acoustic reflectors, thus potentially increasing perceived noise levels from the racetrack during racing events from nearby sensitive receptors.

3.2.2 The Applicant has therefore produced acoustic modelling of the likely changes in sound levels at sensitive (residential) receptors near to the racetrack based on fixed solar panels, and tracker panels set at three different pitches. The full report, undertaken by TetraTech, is appended to this document at **Appendix A**.

3.2.3 The technical report indicates that noise levels produced by activities at Blyton Park Driving Centre are likely to be influenced by the installation of solar panels nearby, however, the contributions are predicted to be no greater than +1.3 dB and in most cases less than +1 dB. A change of this magnitude is not expected to be noticeable subjectively by any receptors, and so is a negligible effect in EIA terms. For context, for a change (either an increase or decrease) to be noticed by a normal person with

good hearing would need to be at least 3dB. For a perceived doubling or halving of loudness to be perceived a 10dB increase or decrease would be needed.

3.3 Glint and Glare

3.3.1 Concerns over the impacts of glint and glare on the operations at Blyton Park Driving Centre have been raised by LNT Group in each of their representations to the Examination **[RR-033**, **REP2-085**, and **REP3-076]** and during their meeting with the Applicant on 6 September 2023. The concerns raised relate to the potential for glint and glare to cause detrimental effects to drivers, leading to unsafe driving conditions.

3.3.2 In response to these concerns, the Applicant subsequently produced a glint and glare report to establish the impacts of the panels on the Blyton Park Driving Centre. This concluded that with the screening (in the form of planting) already proposed within the ES and the option of opaque fencing to be installed up until screening was established, the impacts would be fully mitigated. The report was issued to Blyton Park Driving Centre on 8 September 2023. This was furthermore published for examination at Deadline 1 in **C8.4.16.1 ES Addendum Appendix 16.1 Solar Photovoltaic Glint and Glare Study [REP-077]**.

3.3.3 In response to further comments made by LNT Group stating difficulty in understanding the results of the published report, an updated, simplified, Blyton Park Driving Centre specific report has been provided to show the potential glint and glare impacts on operations at the racetrack. The simplified report, undertaken by Pager Power, is appended to this document at **Appendix B**.

3.3.4 The technical report indicates that glint and glare may be experienced on the racetrack between 05:51-06:09 GMT throughout March to September, and between 18:01-18:15 GMT throughout March to September for the fixed panel layout. This corresponds with when the sun is aligned with the orientation of the fixed panel rows (due east in mornings, and due west in evenings).

3.3.5 Solar reflections occur along the racetrack at times between 03:34-08:09 GMT from mid-late January, and early February until November, and between 15:39-17:28pm GMT throughout January to February and October to December for the tracking panel layout. These effects correspond with sunrise in the morning, and sunset in the evenings on these days.

3.3.6 In both instances, glint and glare will only be experienced in the same direction as the sun is. Given the racetrack's anti-clockwise layout, the relative position of the panelled area, and the understanding of the Applicant that the operational hours of the racetrack start from approximately 09:00, instances of glint and glare are not likely to be in the driver's main field of view at any point on the racetrack for either fixed or tracker panel arrays. Furthermore, the Applicant has committed to the provision of opaque screening along the edges of the solar arrays as interim mitigation measures until such a time as landscape planting is suitably mature to provide the same level of screening. This is secured through the measures set out

in Table 3.5 of **C7.16 Outline Operational Environmental Management Plan [EN010133/EX4/C7.16_C]**, which is itself secured by Requirements 14 of Schedule 2 of the **Draft Development Consent Order [EN010133/EX4/C3.1_F]**.

3.3.7 As a result of understanding the geometric relationship between the racetrack and solar array areas, the likely directions experiencing glint and glare effects, and the mitigation measures secured through the dDCO, there are no anticipated significant effects from the Scheme on the operations at Blyton Park Driving Centre as a result of glint and glare.

3.4 Electromagnetic Fields

3.4.1 Electromagnetic fields (EMF) have been raised as a concern by LNT Group due to harmful effects on users of the Driving Centre, and on the operations of the proposed Research & Development facility, granted planning permission by West Lindsey District Council in March 2022 [ref: 142855].

3.4.2 The Applicant's response to LNT Group's Relevant Representation **[RR-033]** responds directly to the matter of EMF generated by the Scheme and the level of impact on the operation of Blyton Park Driving Centre's existing and proposed facilities at response LNT-11 (pg. 328) of **C8.1.2 The Applicant's Responses to Relevant Representations [REP-049]**. The Applicant's response states:

"All objects carrying an electrical current will induce electric and magnetic fields. The electromagnetic fields generated by the Scheme are not anticipated to pose any significant risk to human health, nor detrimental impact to nearby infrastructure, as demonstrated by EMF impacts being scoped out of the Environmental Impact Assessment (see section 3.13 of C6.3.2.2 ES Appendix 2.2 EIA Scoping Opinion [APP-064]).

No part of the Scheme at the Cottam 3a Site is anticipated to generate electromagnetic fields above the ICNIRP reference level of 100μT for magnetic fields or 5kVm^{-1} for electric fields (See section 21.2 of C6.2.21 ES Chapter 21 Other Environmental Matters [APP-056]). The greatest source of EMF from the Scheme at the Cottam 3a Site is from the substation, which is more than 800m from the proposed location of the R&D Centre. Low level EMF generated by the panels, cabling, and inverters is not likely to have any detrimental effect on the operations of the R&D centre."

3.4.3 To contextualise the level of EMF generated by the on-site infrastructure with ICNIRP guidance, and EMFs generated by electrical vehicles, the following tables have been produced based on data available from the National Grid's EMF Information website[1].

[1] EMFs.info National Grid (2011). Available at [redacted]

Table 3.1: Context of EMF at Blyton Park Driving Centre

Source	Maximum Magnetic Field Strength (μT (microtesla))	Estimated Magnetic Field Strength at 20m (μT)	Maximum Electric Field Strength (kVm^{-1})	Estimated Electric Field Strength at 20m (kVm^{-1})
ICNIRP Guidance levels	**100**	**n/a**	**5**	**n/a**
Above-ground 400V source (at solar PV panels)	1.2	0.1	0.001	<0.001
Buried 400V cables (from solar PV panels to inverters)	0.5	0.04	0	0
Above-ground 33kV source (at inverters)	25.7	3.1	0.9	0.04
Buried 33kV cables (from to inverters to substation)	1.0	0.07	0	0
Above-ground 132kV source (at substation)	30.4	7.0	3.6	0.3
Buried 132kV cables (from substation at Cottam 3a to substation at Cottam 1)	9.6	0.09	0	0

3.4.4 A distance of 20m has been selected as a reference distance from electrical infrastructure on site as this is the approximate distance between the area available for solar panels and inverters from the adjacent paddock area of Blyton Park Driving Centre, and from the racetrack at "Bunga Bunga" corner (at the southernmost point of the racetrack). 20m is also approximately the distance from the substation area to the nearest parking and mechanics' area for the dirt oval track near the centre of the Cottam 3A Site. This demonstrates that the Scheme poses no adverse effect to the human health of current and future operators, visitors, or users of the facilities in the Blyton Park Driving Centre complex as a result of the placement of the solar panels and associated infrastructure.

3.4.5 With reference to the potential for EMF to impact upon the operations of the proposed Research & Development facility, and on electric cars at the facility, the following exposure levels have been documented in academic studies as reference on the National Grid's EMF information website:

- A. Vassilev et.al. (2015) Magnetic Field Exposure Assessment in Electric Vehicles. *IEEE Transactions on Electromagnetic Compatibility*, vol. 57, no. 1, pp. 35-43.
    - General exposure at electric vehicle batteries: ~20μT
    - Exposure near head-level for occupants: ~2μT
    - General exposure at internal combustion vehicle batteries: ~10μT
- Stankowski, S. et.al. (2006). Low frequency magnetic fields induced by car tire magnetization. *Health physics*, 90(2), 148–153.
    - Maximum measurement adjacent to tyre: ~100μT
    - Exposure for occupants: <10μT
- Tell, R. A. et.al. (2013). ELF magnetic fields in electric and gasoline-powered vehicles. *Bioelectromagnetics*, 34(2), 156–161.
    - Mean exposure for occupants while driving electric vehicles: 0.095 μT
    - Mean exposure for occupants while driving internal combustion vehicles: 0.051 μT

3.4.6 These demonstrate that the electromagnetic fields associated with car batteries are likely to be far greater than those emanating from the Scheme, and that the mean level of exposure for drivers is similar inside vehicles as experienced near to the Scheme infrastructure. As such, it is not considered that there will be any measurable impact upon the operations of the proposed Research & Development facility.

3.4.7 It is also worth noting that the proposed Research & Development facility permission [ref: 142855] includes for the provision of two wind turbines, ground mounted solar panels, and battery storage. These themselves, if constructed, would produce electromagnetic fields, and would be located between the Scheme and the proposed Research & Development facility's main building.

3.5 Operations – Lines of Sight

3.5.1 The ability for the operators of Blyton Park Driving Centre to maintain line of sight with all parts of the racetrack has been raised as a concern in the most recent representations made by LNT Group **[REP3-076]**. Concern has been raised that this could adversely affect racetrack safety as the control tower, located to the east of the racetrack at "Twickers" corner at the pit/paddock entry and exit, may lose direct visual contact with the southern end of the racetrack due to occlusion from solar panels located between the control tower and "Bunga Bunga" corner.

3.5.2 The Applicant notes that the Motorsport UK guidelines, as set out in their 2024 Yearbook, does not require a control tower to have line of sight for the full racetrack at any level of competitive racing operation of the racetrack, subject to sufficient surveillance of any occluded areas. Therefore, the Applicant considers that the operations at Blyton Park Driving Centre would not be adversely impacted by the Scheme if cameras were installed, or if a secondary manned control booth or marshal station was installed in the occluded area (between "Bishops" and "Port Froid"). The Applicant considers that these are reasonable mitigation measures that can be readily adopted by Blyton Park Driving Centre, at the Applicant's cost, so that loss of direct line of sight does not impact upon racetrack safety.

3.5.3 Taking into account these potential mitigation measures, the Applicant does not anticipate that the operation of the racetrack will be adversely affected by the Scheme, however, LNT Group have confirmed that they do not agree with the Applicant's position and so it is an additional topic for discussion in the 'run-off' meeting to be held with LNT Group and Motorsport UK detailed at paragraph 3.6.4 below.

Additional Consideration

3.5.4 Of note, but beyond the considerations made here is that the proposed Research & Development facility permission [ref: 142855] includes a control tower as part of its main building. This would be situated at rooftop level and as such it is estimated from application drawing BLY-03[2], that the approximate eye level for those monitoring conditions on the racetrack would be some 8.5m above ground level. This is a substantially higher vantage point than the current control tower (5.5-6.0m above ground level). Furthermore, the permitted location of the control tower is approximately 100m west of the existing tower location, and as such has a more central location to the racetrack. As a result of the increased height of the proposed control tower, and its proposed location, operators of the racetrack would be able to maintain line of sight with the entirety of the racetrack without any occlusion from the Scheme.

3.6 Operations - Run-Off Areas

3.6.1 LNT Group have raised concerns that the location of the Scheme adjacent to the racetrack at Blyton Park Driving Centre may have detrimental effects on their operations as a result of introducing means of enclosure along the Order Limits where previously there was an open boundary between the racetrack and adjacent fields. LNT Group have in their written representations at Deadlines 2 and 3 **[REP2-085** and **REP3-076]** referred to the land subject to an option agreement for the Scheme being informally used as run-off areas for vehicles that leave the racetrack.

[2] LNT Construction (2021). Proposed Electric Vehicle Research & Development Centre: Elevations & Floor Plans – BLY-03.

As such, LNT Group have objected to the siting of the solar arrays on the basis that these may cause serious harm to drivers in the event of a high-speed crash.

3.6.2 The Applicant was only made aware of the use of the optioned land for vehicle run-off in the meeting with LNT Group representatives on 6 September 2023. The extent of these "run-off" areas was clarified by email on 16 October 2023. The Applicant has since then made efforts to understand the requirements of the racetrack and how these requirements can or cannot be accommodated within the areas demarcated by the lease agreement between LNT Group and the landowner. The Applicant has also been exploring what level of modification to the Scheme design may be needed to accommodate LNT Group's requirements without adversely impacting upon both the existing and future use of the racetrack, and on the viability of the Scheme itself.

3.6.3 Blyton Park Driving Centre has also agreed to consider further the run-off areas required for them to operate safely (both with incorporating safety barrier measures and without), and to consult with Motorsport UK to agree what safety measures would be required or if no measures are used, what the safe setback distance would be.

3.6.4 A meeting between the Applicant, LNT Group and Motorsport UK to discuss appropriate safety measures to allow the Scheme and the Driving Centre to coexist safely is scheduled for 31 January 2024. The Applicant commits to update the Examining Authority as soon as is practicable after the meeting and prior to Deadline 5 in order inform them of the progress being made.

4 Conclusions on Impacts on Operations

4.1.1 The Applicant has set out in Section 3 of this document that LNT Group's concerns regarding the impact of the Scheme on the continuing operations at Blyton Park Driving Centre can be suitably mitigated. The Applicant is therefore confident in its conclusion that there are no significant adverse effects to the operation and future use of the racetrack, driving training facility, and proposed Research & Development facility.

4.1.2 The Applicant considers that there are no further in-combination effects on the socio-economic contributions of Blyton Park Driving Centre to the local employment market and economy. The Applicant is aware that the Centre provides a niche service that is advertised at a regional and national level, and as such, makes a notable contribution to the local and regional tourism and visitor economies as a result of visitor spending, and demand for accommodation services. The Applicant is confident that, subject to the implementation of the proposed mitigation measures set out in Section 3 above, there is not likely to be any secondary adverse effects as a result of reduced economic benefits to the wider tourism and visitor economy.

5 Protective Provisions

5.1.1 The Applicant is committed to ensuring that the development of the Scheme does not adversely impact upon the operational requirements of Blyton Park Driving Centre. To ensure this, the Applicant is committed to the drafting of suitable Protective Provisions in relation to Blyton Park Driving Centre, subject to the outcome of the meeting with LNT Group and Motorsport UK on 31 January 2024. These will be included in a revised Draft Development Consent Order to be submitted at Deadline 5. In the event that it is not possible to reach agreement with Blyton Park Driving Centre by the close of the Examination, these protective provisions would ensure that adequate mitigation measures in respect of lines of sight and run-off areas are secured. The Applicant will continue negotiations with LNT Group following the close of the Examination and, if agreement is reached, write to the Secretary of State to request the removal the protective provisions subject to the withdrawal of LNT Group's objection.

6 Conclusion

6.1.1 This document has been produced in response to comments raised by LNT Group on behalf of the Blyton Park Driving Centre, a request made by the Examining Authority in Issue Specific Hearing 3, as documented at Agenda Item 3A (pg.5) of **C8.1.22 Written Summary of Applicant's Oral Submissions and Responses at Issue Specific Hearing 3 [REP3-034]**. This addendum has been prepared to collate the matters raised and consider potential for conflicts of use between the driving centre and the Scheme.

6.1.2 This document demonstrates that the Applicant has suitably and comprehensively assessed the effects of the Scheme on the ongoing and future proposed operations of the Blyton Park Driving Centre.

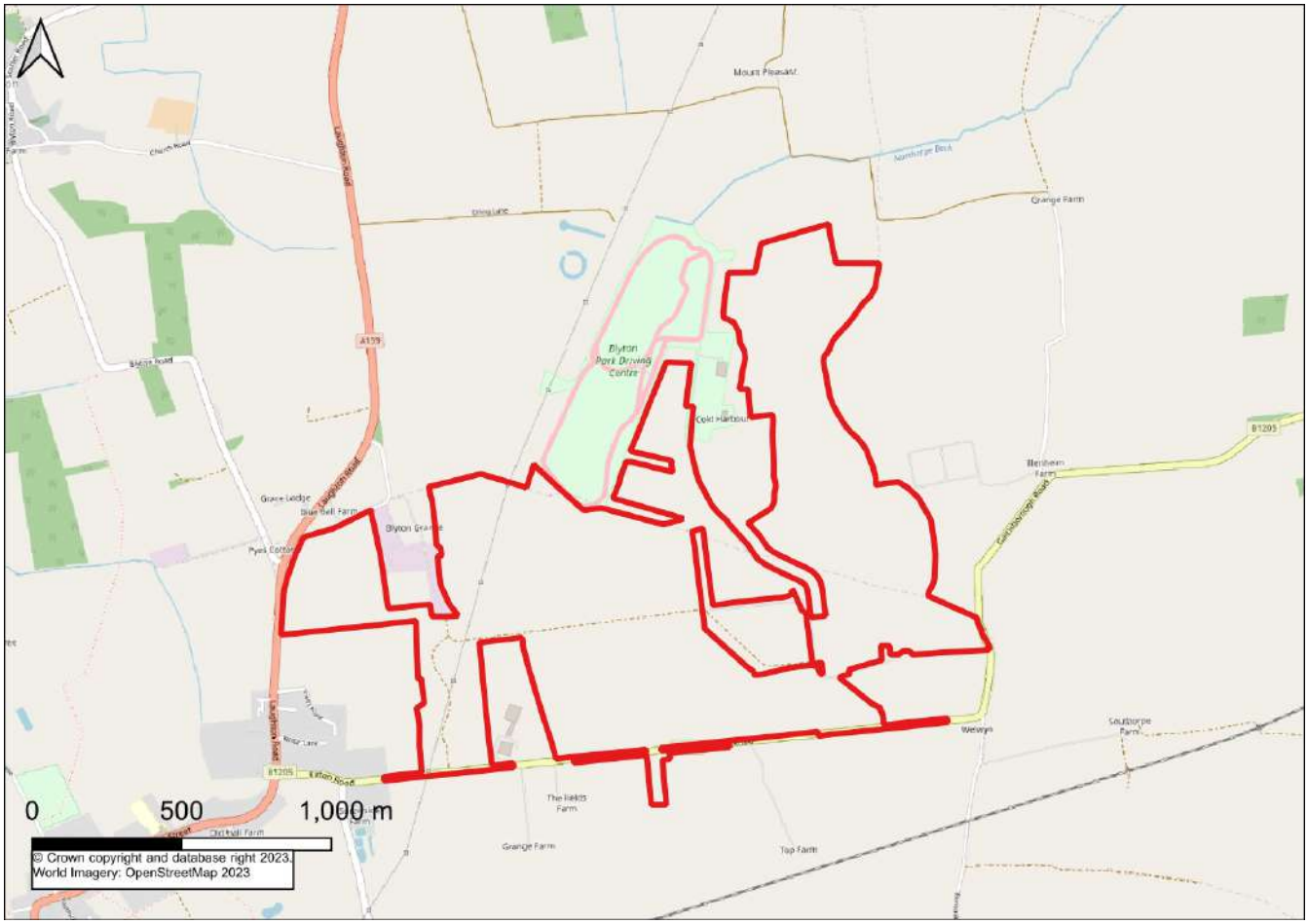
6.1.3 The Applicant is committed to ensuring that the development of the Scheme does not adversely impact upon the operational requirements of Blyton Park Driving Centre.

Appendix A: Noise Impact Assessment of Reflection of Noise from Blyton Park Driving Centre due to Proposed Solar Panels

Cottam Solar Project

Noise Impact Assessment of Reflection of Noise from Blyton Park Driving Centre due to Proposed Solar Panels

784-B031438



Island Green Power Limited

January 2024

TETRA TECH

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DOCUMENT CONTROL

Document:	Noise Impact Assessment of Reflection of Noise from Blyton Park Driving Centre due to Proposed Solar Panels
Project:	Cottam Solar Project
Client:	Island Green Power Limited
Project Number:	784-B031438
File Origin:	\[redacted] & 8 West Burton & Cottam Solar Farms Noise

Revision:	0	**Prepared by:**	Neil Fletcher Environmental Consultant	[redacted]
Date:	24/01/2024	**Checked by:**	Paul Bentley Associate	[redacted]
Status:	First Issue	**Approved By:**	Nigel Mann Environmental Consultant	[redacted]
Description of Revision:				

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1.0 INTRODUCTION

1.1 PURPOSE OF THIS REPORT

This report has been prepared in response to the representations raised by Blyton Park Driving Centre / LNT Group [REP3-076] in the examination of the Cottam Solar Project DCO application.

The noise related section of the representation is detailed below:

> ***"Potential Noise Deflection***
>
> *This is an issue that also has potentially very serious consequences for the Driving Centre's operation, unless it can be offered suitable re-assurance and reliance on an assessment on the part of the Applicants. Noise from the activities on the Driving Circuit has been an on-going and very sensitive issue over the years, however, through positive monitoring and management in recent years, a relatively balanced and agreeable position has been reached with the local community and Authorities.*
>
> *It is not addressed by the Applicants anywhere, as to whether the introduction of the extensive arrays of solar panels (effectively hard surfaces) in lieu of noise absorbent arable crop/land, will result in any reflection or deflection of noise, in a manner to the disadvantage of the Driving Centre and its operation, if this issue is not fully and properly addressed by the Applicants, which to date, as far as we aware, the attention given by the Applicants has been negligible."*

1.1.1 Summary of Blyton Park Driving Centre Noise Policy

A Certificate of Lawful Use governs the noise controls on site. There are no statutory controls that impose noise limits on the use of the circuit. The overarching control on noise is through the Environmental Protection Act 1990 *Section 79 Statutory nuisances and inspections therefore* and *Section 80 Summary proceedings for statutory nuisances*. Paragraph 8 of Section 80 introduces the defence from summary prosecution for a statutory nuisance of best practicable means (BPM). It is up to the person responsible for the nuisance or where this person cannot be found the owner or occupier of the land where the nuisance arises to prove best practicable means were used to prevent, or to counteract the effects of, the nuisance. In pursuit of the BPM the circuit operators have adopted a noise management plan and have implemented trackside noise restrictions to manage noise from events at the circuit.

1.2 STAKEHOLDER CONSULTATION

A telephone conversation was held on 26th September 2023 with David Garritt at S & D Garritt Ltd, the acoustic consultant representing Blyton Park Driving Centre. Concerns were raised around the deflection of noise produced from noise sources at the racetrack due to the proposed solar panels.

Tetra Tech informed Island Green Power (which Cottam Solar Project Limited (the Applicant) is part of) of the contact and their professional opinion that it would be unlikely that the deflection of noise from the solar panels would result in significant increases in noise levels at the nearby receptors.

Following the objection raised, further discussion was undertaken with representatives from the Driving Centre and the Applicant in a meeting held on 19th December 2023 at Blyton Park Driving Centre. It was

agreed that Tetra Tech would undertake an assessment of the impact of noise at the nearby residential receptors from the noise created at the racetrack deflecting off the proposed solar panels.

Various noise measurements were taken of typical track activities which have been used to inform the assessment.

This report presents the results of the investigation.

2.0 ASSESSMENT METHODOLOGY

2.1 NOISE MODELLING METHODOLOGY

Three-dimensional noise modelling has been undertaken to predict noise levels at a number of locations both horizontally and vertically. CadnaA noise modelling software has been used. This model is based on ISO 9613-2 noise propagation methodology and allows for detailed prediction of noise levels to be undertaken for large numbers of receptor points and different noise emission scenarios both horizontally and vertically. The modelling software calculates noise levels based on the emission parameters and spatial settings that are entered. Input data and model settings as given in the table below have been used.

Table 2.1: Modelling Parameters Sources and Input Data

Parameter	Source	Details
Horizontal distances – around site	Ordnance Survey	Ordnance Survey
Ground levels – around site	Ordnance Survey	LIDAR 1m DTM
Building heights – around site	Tetra Tech Observations	8 m height for two storey residential properties, and 4 m for Bungalows.
Receptor positions	Tetra Tech	1 m from façade, height of 1.5 m for ground floor, 4 m for first floor properties. 1.5 m height for model grid and monitoring locations for validation.
Proposed Plans	Island Green Power Limited	File name: Blyton_lines-coordinate-height v2.dwg dated 04/01/2024 Cottam 3A – Blyton – Facing East.dwg Cottam 3A – Blyton – Facing West.dwg
Modelling Methodology	CadnaA	3D noise propagation model ISO 9613-2
Ground Absorption	Tetra Tech	G = 0.8 (Soft ground)
Order of Reflections	Tetra Tech	3 no.

It is acknowledged that a number of the values of parameters chosen will affect the overall noise levels presented in this report. However, it should be noted that the values used, as identified above, are worst-case.

2.2 MODEL INPUT DATA

2.2.1 Track Activity – Vehicle Noise Data

Although the primary objective is to quantify the likely difference in sound levels at the nearby receptors before and after the proposed development rather than the absolute sound levels, measurements were taken of typical track activities as mentioned above.

Noise from cars using the circuit was measured at a track-side location, 10m from the back straight of the circuit of a Ford Fiesta have been used in the noise modelling to determine the influence of the reflection of solar panels in reflecting noise and changing noise levels at receptor locations. The noise data can be found in Appendix A below.

Maximum noise levels $L_{max,f}$ have been input as a linear spectrum and modelled as a line source following the track outline obtained from satellite aerial imagery. The noise source was modelled as a line source with the sound power set for each meter of the line.

2.2.2 Solar Panels

The solar panels are modelled utilising the 3D reflector object available in CadnaA. The reflecting surface is modelled with an absorption coefficient of 0.11 (reflecting barrier) with the non-reflecting surface set to 0.5. An absorption coefficient of zero would represent a perfectly reflecting surface.

There are two options for the orientation of the proposed solar panels: tracker and fixed.

2.2.2.1 Fixed Solar Panels

Fixed solar panels are orientated in rows aligned in the east to west direction at an angle of 25° to the horizontal, tilted towards the south. As shown in Figure 2.1 below.

Figure 2.1: Fixed Solar Panel Details

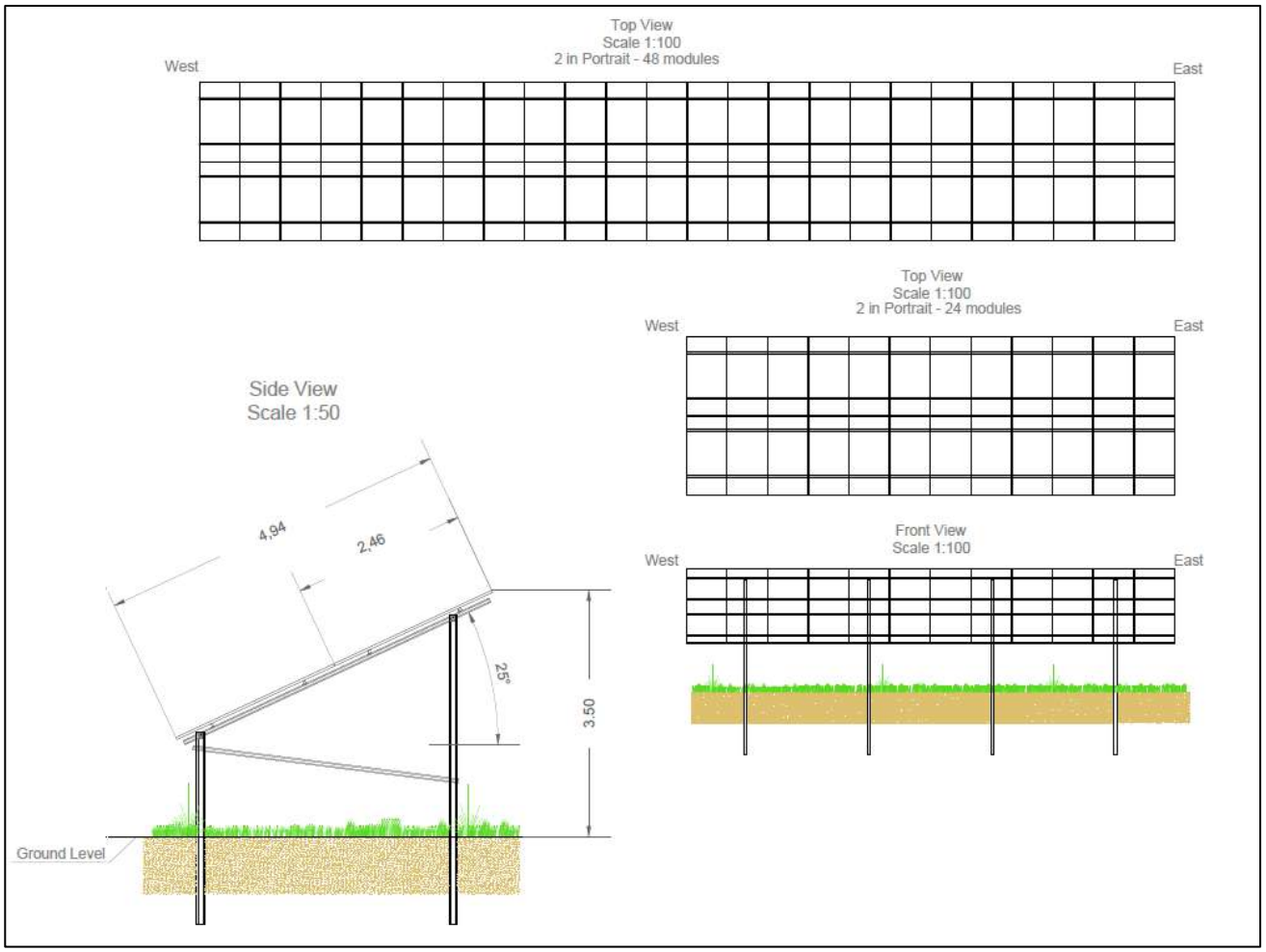


Figure 2.2 below shows the fixed solar panels in the 3D view from the CadnaA model.

Figure 2.2: Fixed Solar Panels – CadnaA Model

2.2.2.2 Tracker Solar Panels

The orientation of tracker solar panels is variable depending on the direction of the sun. Tracker solar panels are arranged in rows aligned in the north to south direction, at angles ranging from 55° to the horizontal

tilted towards the east to 55° tilted towards the west. As shown in Figure 2.3 below. Three different angles have been modelled to represent the extremes of the rotation.

Figure 2.3: Tracker Solar Panel Details

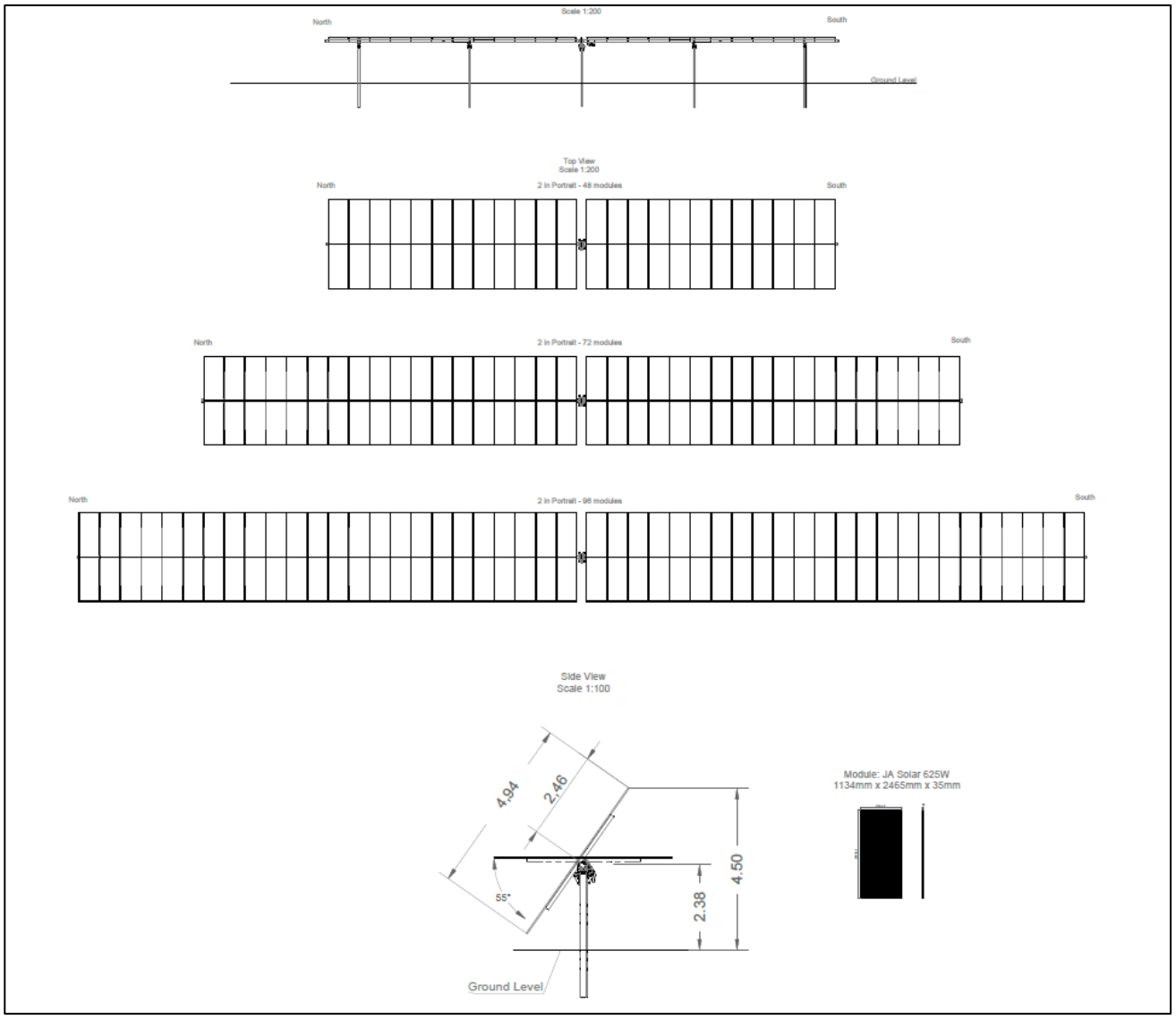


Figure 2.4 below shows the tracker solar panels facing east in the 3D view from the CadnaA model.

Figure 2.4: Tracker Solar Panels facing East – CadnaA Model

Figure 2.5 below shows the tracker solar panels facing west in the 3D view from the CadnaA model.

Figure 2.5: Tracker Solar Panels facing West – CadnaA Model

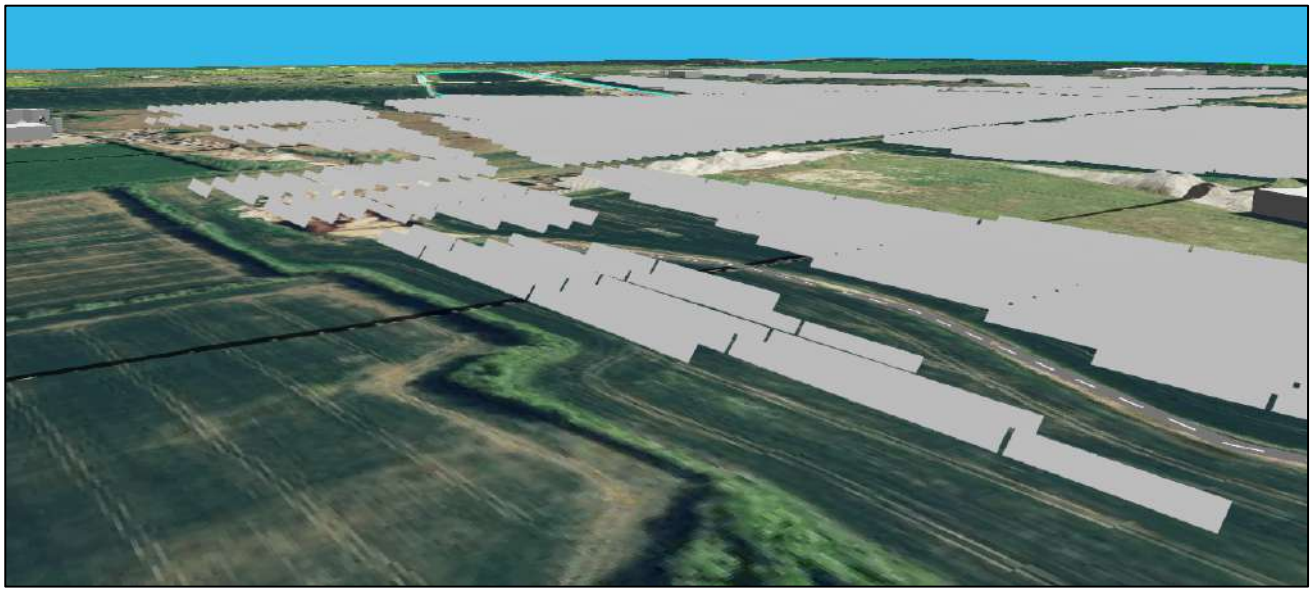


Figure 2.6 below shows the tracker solar panels in the horizontal position in the 3D view from the CadnaA model.

Figure 2.6: Tracker Solar Panels in the Horizontal Position – CadnaA Model

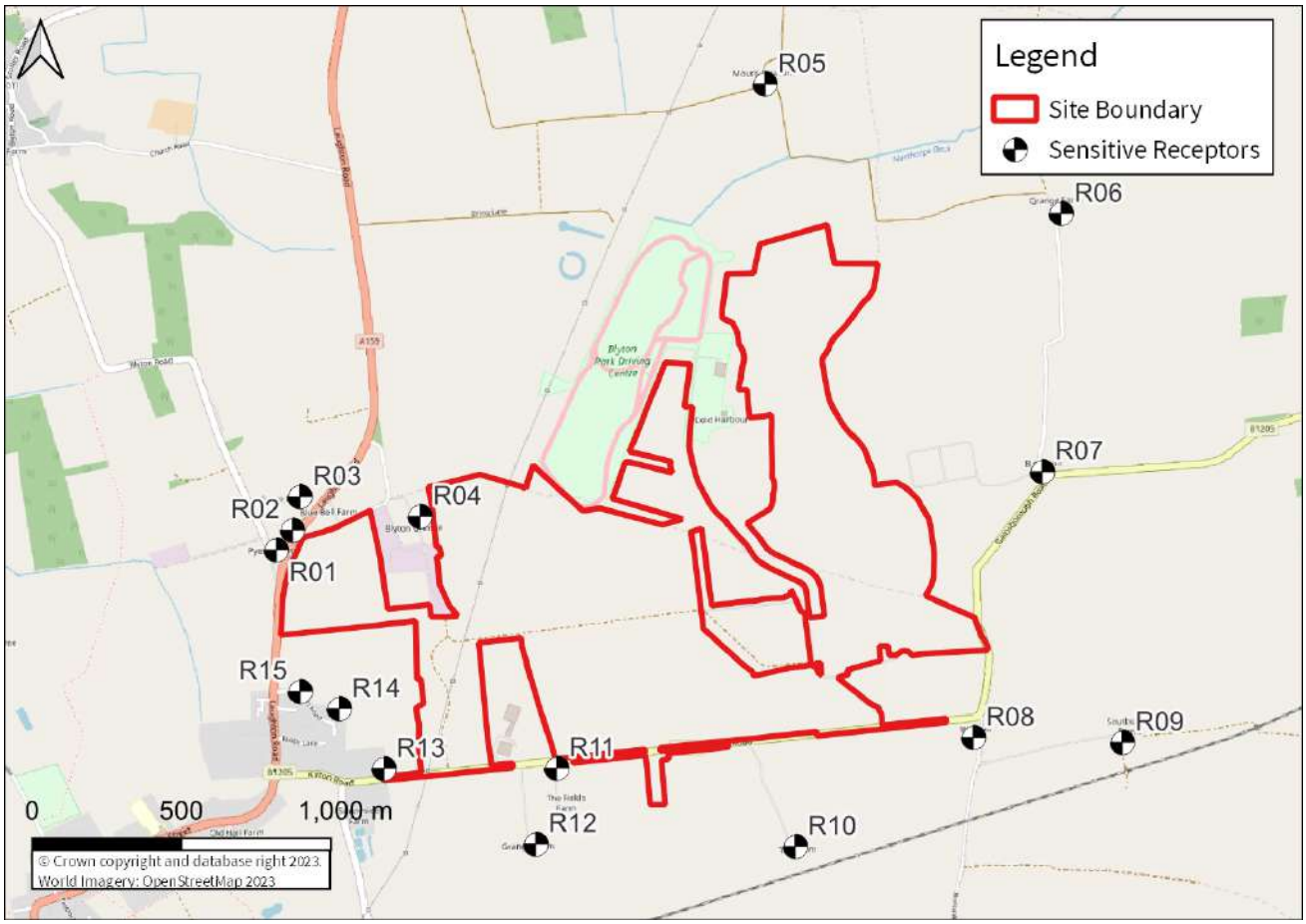
2.3 SENSITIVE RECEPTORS

Table 2.2 below summarises receptor locations that have been selected to represent worst-case sensitive receptors with respect to direct noise from the site. Façades of the nearest noise sensitive properties to the development site have been represented. The locations of the receptors are shown in Figure 2.7 below.

Table 2.2: Existing Receptor Locations

Ref.	Description	Type of Use	Height (m) Daytime
R01	Inglenook	Residential	1.5
R02	Grace Park Managers Residence	Residential	1.5
R03	Grace Park Caravan and Camping Site	Residential	1.5
R04	Blyton Grange	Residential	1.5
R05	Mount Pleasant Farm	Residential	1.5
R06	Grange Farm	Residential	1.5
R07	Blenheim Farm	Residential	1.5
R08	El-Bon	Residential	1.5
R09	Southorpe Farm	Residential	1.5
R10	Top Farm	Residential	1.5
R11	The Fields	Residential	1.5
R12	Grange Farm	Residential	1.5
R13	65 Kirton Road	Residential	1.5
R14	41 Irwin Road	Residential	1.5
R15	3 Irwin Road	Residential	1.5

Figure 2.7: Sensitive Receptor Locations



3.0 ASSESSMENT OF EFFECTS

Five separate scenarios were modelled as follows:

- Scenario A: Without proposed solar panels
- Scenario B: With proposed fixed solar panels, aligned in rows in the direction east to west, tilted at an angle of 25^0 to the horizontal.
- Scenario C: With proposed tracker solar panels, aligned in rows in the direction north to south, tilted at a full-rotation angle of 55^0 to the horizontal, with the panels facing east – representing the sunrise period.
- Scenario D: With proposed tracker solar panels, aligned in rows in the direction north to south, tilted at a full-rotation angle of 55^0 to the horizontal, with the panels facing west – representing the sunset period.
- Scenario E: With proposed tracker solar panels, aligned in rows in the direction north to south, panels are in the horizontal position – representing midday.

The main factors considered in this assessment are as follows:

- Ground between the source and receptor becoming reflective rather than mainly absorptive due to the surface of the solar panels.
- Barrier effect – additional screening provided by the proposed solar panels due to their cross-sectional area.
- Reflections from the solar panels – CadnaA 3D reflector objects used to model the panels.
- Variation in the angle of the tracker panels. Three different angles of tilt modelled for the panels representing the extremes of rotation.

Table 3.1 below, presents the noise levels predicted at each of the nearby sensitive receptors for the five scenarios detailed above. The last four columns in the table indicate the predicted contribution in noise level due to the intervening solar panels for each scenario. A positive value indicates an increase in noise level, a negative value indicates a potential decrease in noise level.

Table 3.1: Predicted Noise Levels at Receptors 'With' and 'Without' Solar Panels

Receptor	Scenario A: Predicted Sound Level $L_{Aeq,}$ (dB) without solar panels	Scenario B: Predicted Sound Level $L_{Aeq,}$ (dB) with fixed solar panels	Scenario C: Predicted Sound Level $L_{Aeq,}$ (dB) with tracker solar panels facing East	Scenario D: Predicted Sound Level $L_{Aeq,}$ (dB) with tracker solar panels facing West	Scenario E: Predicted Sound Level $L_{Aeq,}$ (dB) with tracker solar panels horizontal	Contribution due to fixed solar panels (dB) - Scenario B	Contribution due to tracker solar panels facing East (dB) - Scenario C	Contribution due to tracker solar panels facing West (dB) - Scenario D	Contribution due to tracker solar panels horizontal (dB) - Scenario E
R01	77.9	77.9	77.9	77.9	77.9	0.0	0.0	0.0	0.0
R02	80.7	80.7	80.2	80.2	80.9	0.0	-0.5	-0.5	0.2
R03	80.1	80.1	80.1	80.1	80.5	0.0	0.0	0.0	0.4
R04	84.6	84.6	84.0	84.0	85.7	0.0	-0.6	-0.6	1.1
R05	84.4	84.4	84.4	84.4	84.4	0.0	0.0	0.0	0.0
R06	77.1	77.6	77.3	77.4	77.1	0.5	0.2	0.3	0.0
R07	76.4	76.7	76.5	76.5	76.6	0.3	0.1	0.1	0.2
R08	72.4	72.4	72.9	72.9	72.4	0.0	0.5	0.5	0.0
R09	72.6	73.9	73.4	73.4	72.8	1.3	0.8	0.8	0.2
R10	75.7	75.7	75.7	75.7	75.7	0.0	0.0	0.0	0.0
R11	80.4	80.4	80.9	81.0	80.9	0.0	0.5	0.6	0.5
R12	76.8	76.8	77.1	77.1	76.8	0.0	0.3	0.3	0.0
R13	77.3	77.3	77.3	77.3	77.3	0.0	0.0	0.0	0.0
R14	77.9	77.9	77.9	77.9	77.9	0.0	0.0	0.0	0.0
R15	77.5	77.5	77.5	77.5	77.5	0.0	0.0	0.0	0.0

As indicated above, noise levels are predicted to increase by up to +1.3 dB at the worst-affected receptor (R09 – fixed panel scenario). Most of the contributions for all scenarios are predicted to be below + 1.0 dB, indicating that an increase in noise level will be indistinguishable at each of the receptors following the installation of the solar panels.

Figure 3.1 presents a noise contour plot of the noise level contribution of the deflection of noise from the proposed fixed solar panels, indicating that there is a slight increase of between 1 – 2 dB in certain areas to the east of the racetrack.

Figure 3.1: Contour Plot showing the Noise Level Contribution for the Fixed Panels

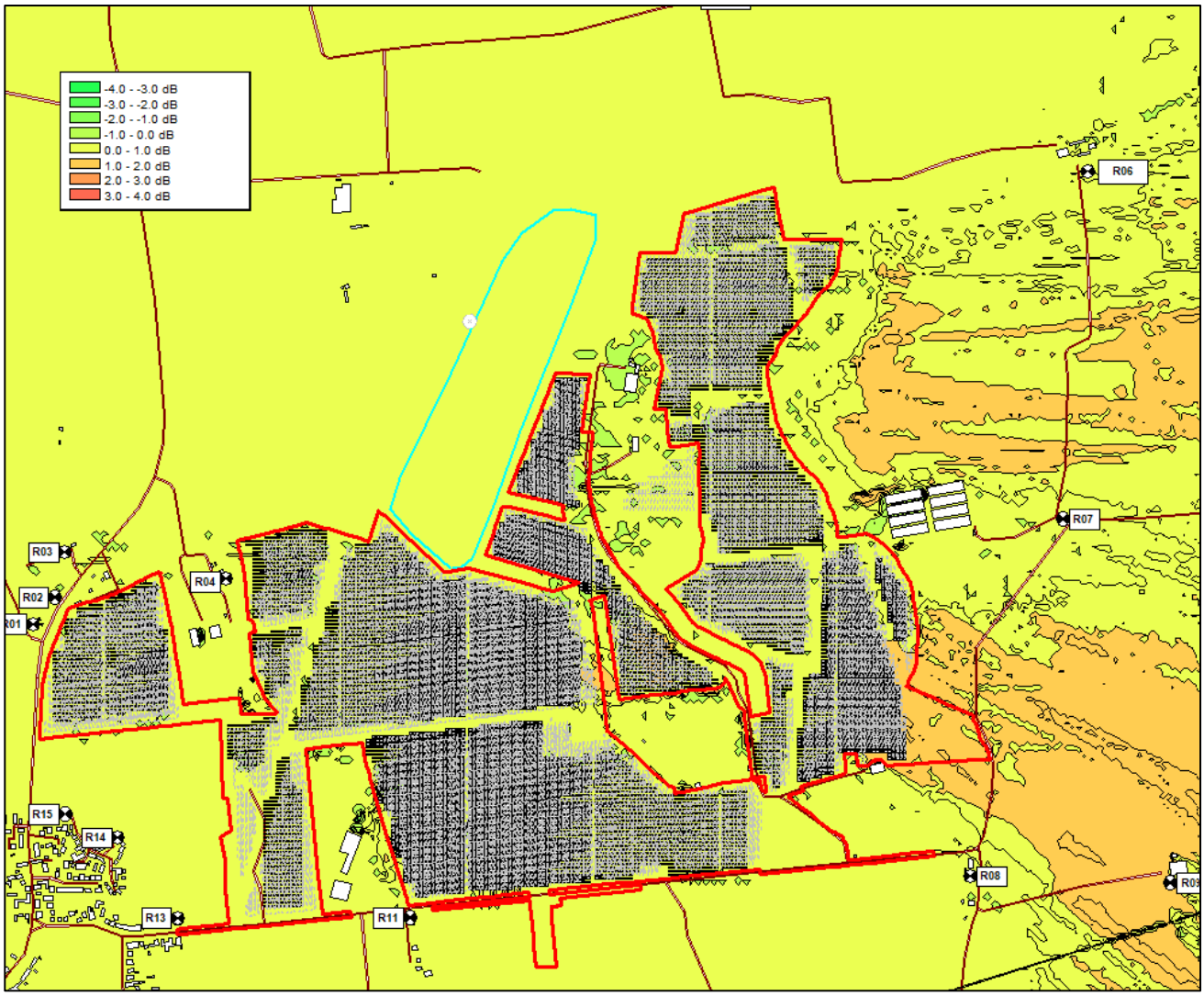


Figure 3.2 presents a noise contour plot of the noise level contribution of the deflection of noise from the proposed tracker solar panels at their maximum rotation position facing east. The figure indicates that there is a slight noise level reduction to the east of the racetrack likely due to the screening effect of the panels. A slight increase in noise levels to the southeast and southwest of the racetrack is also shown.

Figure 3.2: Contour Plot showing the Noise Level Contribution for the Tracker Panels Facing East

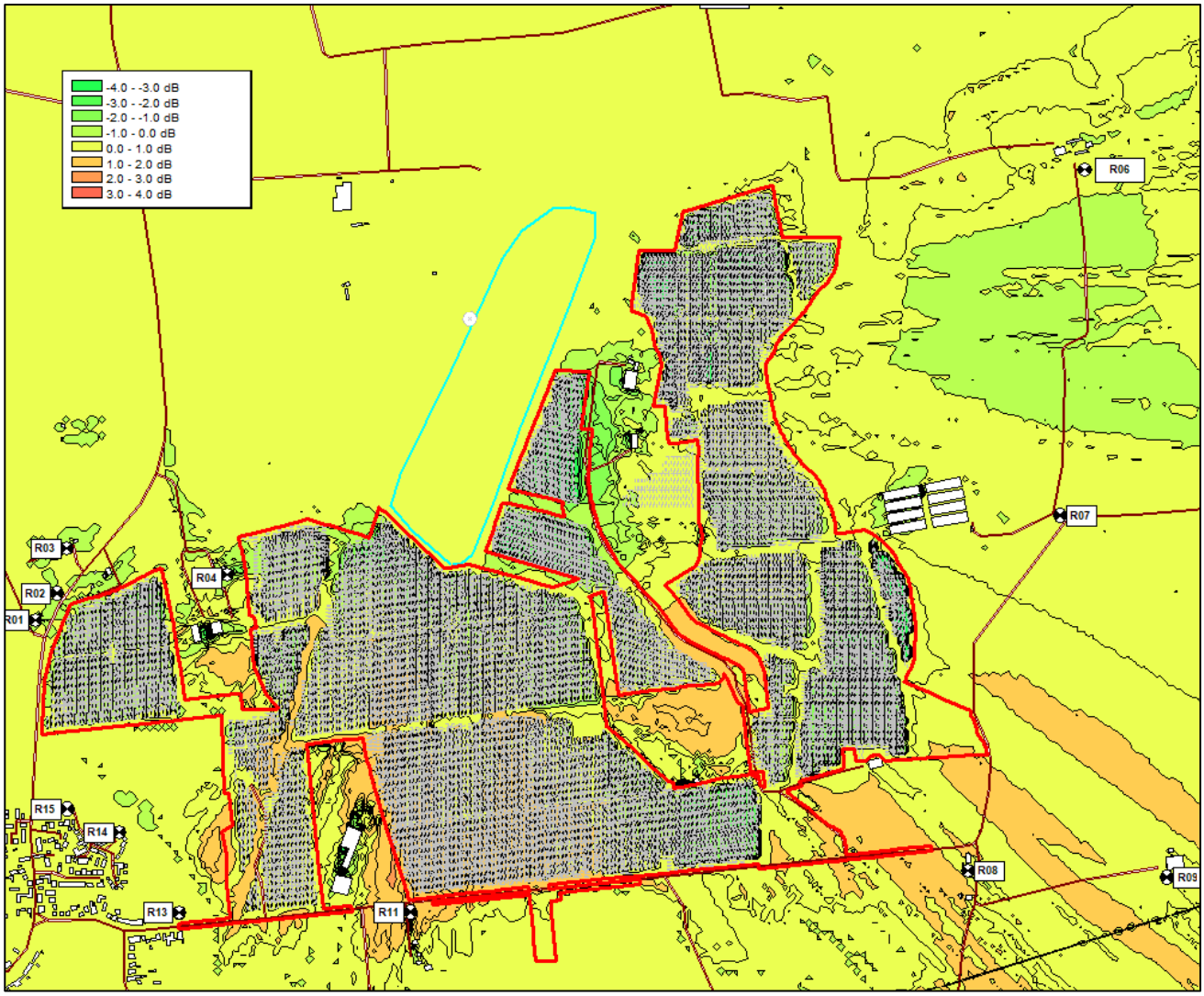


Figure 3.3 presents a noise contour plot of the noise level contribution of the deflection of noise from the proposed tracker panels at their maximum rotation position facing west. Again, the figure indicates a slight improvement in noise levels to the east of the racetrack, likely due to screening and a slight increase in noise levels to the southeast and southwest of the racetrack.

Figure 3.3: Contour Plot showing the Noise Level Contribution for the Tracker Panels Facing West

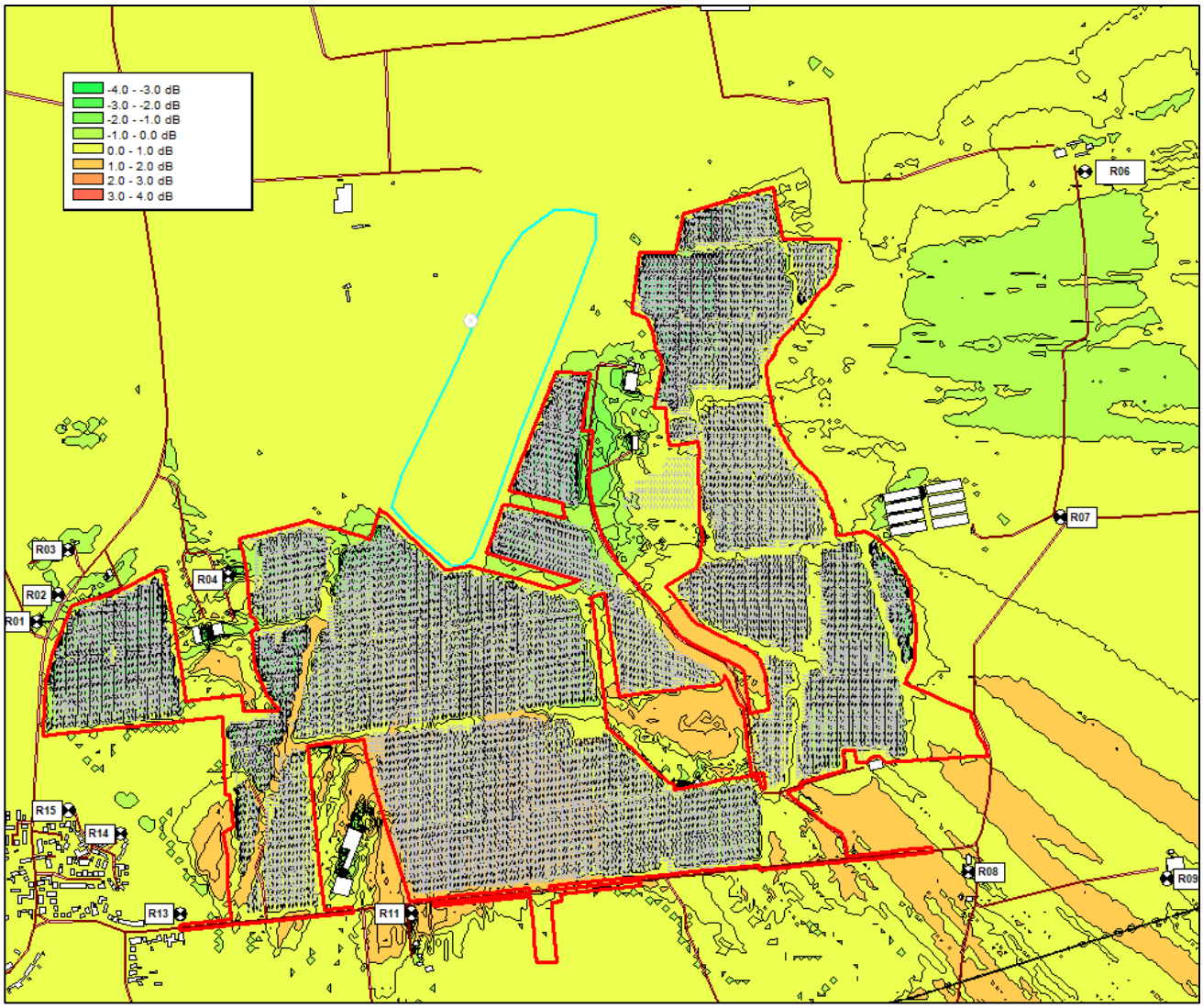
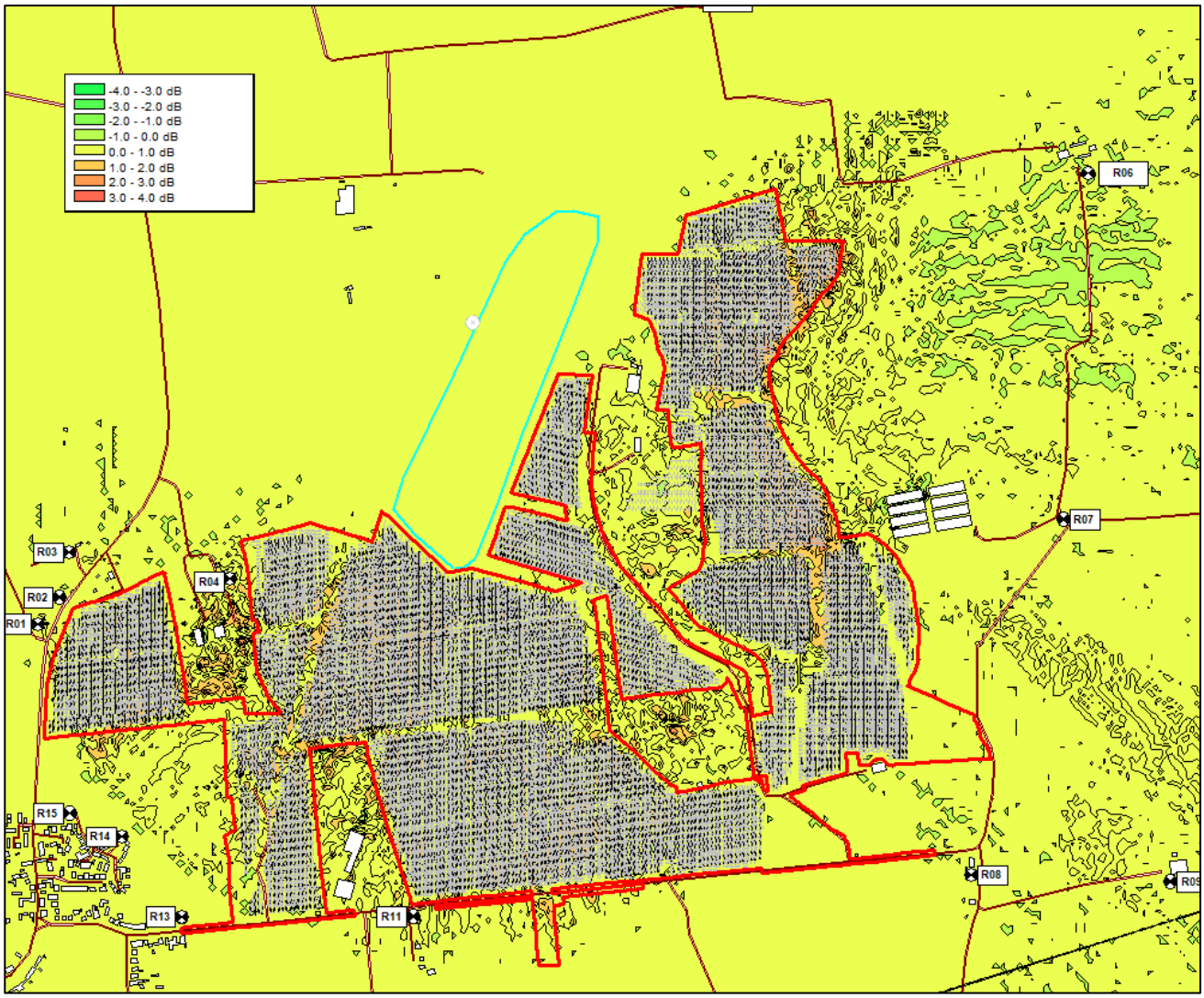


Figure 3.4 presents a noise contour plot of the noise level contribution of the deflection of noise from the proposed tracker panels in their horizontal position. A similar, less pronounced pattern is produced to that for the tilted tracker panels shown in figures 3.2 and 3.3 above.

Figure 3.4: Contour Plot showing the Noise Level Contribution for the Horizontal Tracker Panels



4.0 CONCLUSIONS

Concerns have been raised by the owners of Blyton Park Driving Centre over the potential noise impact of noise produced by activities at Blyton Park Driving Centre being reflected and scattered from the proposed solar panels adjacent to the driving centre and the subsequent potential changes in noise levels at the nearby sensitive receptors.

The report above presents the results of noise assessments undertaken for various solar panel arrangements to determine the changes in the noise levels associated with the solar panel arrangements at at nearby sensitive receptors.

The report indicates that noise levels produced by activities at Blyton Park Driving Centre are likely to be changed by the installation of solar panels nearby, however, the change is predicted to be no greater than +1.3 dB and in most cases less than +1 dB. A change of this magnitude is not expected to be noticeable subjectively by any receptors. For context for a change (either an increase or decrease) to be noticed by a normal person with good hearing would need to be at least 3dB. For a perceived doubling or halving of loudness to be perceived a 10dB increase or decrease would be needed.

APPENDICES

APPENDIX A – ACOUSTIC TERMINOLOGY AND ABBREVIATIONS

Acoustic Terminology

dB — Sound levels from any source can be measured in frequency bands in order to provide detailed information about the spectral content of the noise, i.e. whether it is high-pitched, low-pitched, or with no distinct tonal character. These measurements are usually undertaken in octave or third octave frequency bands. If these values are summed logarithmically, a single dB figure is obtained. This is usually not very helpful as it simply describes the total amount of acoustic energy measured and does not take any account of the ear's ability to hear certain frequencies more readily than others.

dB(A) — Instead, the dBA figure is used, as this is found to relate better to the loudness of the sound heard. The dBA figure is obtained by subtracting an appropriate correction, which represents the variation in the ear's ability to hear different frequencies, from the individual octave or third octave band values, before summing them logarithmically. As a result the single dBA value provides a good representation of how loud a sound is.

L_{Aeq} — Since almost all sounds vary or fluctuate with time it is helpful, instead of having an instantaneous value to describe the noise event, to have an average of the total acoustic energy experienced over its duration. The $L_{Aeq,\ 07:00\ -\ 23:00}$ for example, describes the equivalent continuous noise level over the 16-hour period between 7 am and 11 pm. During this time period the L_{pA} at any particular time is likely to have been either greater or lower that the $L_{Aeq,\ 07:00\ -\ 23:00}$.

L_{Amin} — The L_{Amin} is the quietest instantaneous noise level. This is usually the quietest 125 milliseconds measured during any given period of time.

L_{Amax} — The L_{Amax} is the loudest instantaneous noise level. This is usually the loudest 125 milliseconds measured during any given period of time.

L_n — Another method of describing, with a single value, a noise level which varies over a given time period is, instead of considering the average amount of acoustic energy, to consider the length of time for which a particular noise level is exceeded. If a level of x dBA is exceeded for 6 minutes within one hour, then that level can be described as being exceeded for 10% of the total measurement period. This is denoted as the $L_{A10,\ 1\ hr}$ = x dB.

The L_{A10} index is often used in the description of road traffic noise, whilst the L_{A90}, the noise level exceeded for 90% of the measurement period, is the usual descriptor for underlying background noise. L_{A1} and L_{Amax} are common descriptors of construction noise.

R_w — The *weighted sound reduction index* determined using the above *measurement* procedure, but weighted in accordance with the procedures set down in BS EN ISO 717-1. Partitioning and building board manufacturers commonly use this index to describe the inherent sound insulation performance of their products.

Abbreviations

CadnaA – Computer Aided Noise Abatement

APPENDIX B – NOISE MODELLING DATA

Car	A Weighted Maximum dB $L_{Amax,f}$	Frequency Band (Hz), dB $L_{max,f}$ Linear Unweighted Maximum Spectra																										
		25 Hz	31.5 Hz	40 Hz	50 Hz	63 Hz	80 Hz	100 Hz	125 Hz	160 Hz	200 Hz	250 Hz	315 Hz	400 Hz	500 Hz	630 Hz	800 Hz	1.0 kHz	1.25 kHz	1.6 kHz	2.0 kHz	2.5 kHz	3.15 kHz	4.0 kHz	5.0 kHz	6.3 kHz	8.0 kHz	10.0 kHz
Ford Fiesta	102.0	66.6	68.2	74.6	72.7	72.6	79.5	83.1	86.2	100.8	104.3	89.0	93.4	99.5	95.3	93.6	96.7	91.3	88.1	82.0	80.3	75.9	74.2	70.8	72.2	71.6	63.6	55.9

APPENDIX C – REPORT CONDITIONS

This Report has been prepared using reasonable skill and care for the sole benefit of Island Green Power Limited ("the Client") for the proposed uses stated in the report by [Tetra Tech Limited] ("Tetra Tech"). Tetra Tech exclude all liability for any other uses and to any other party. The report must not be relied on or reproduced in whole or in part by any other party without the copyright holder's permission.

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The whole of the report must be read as other sections of the report may contain information which puts into context the findings in any executive summary.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Tetra Tech accept no liability for issues with performance arising from such factors.

Appendix B: Summary of Blyton Park Driving Centre Results

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Summary of Blyton Park Driving Centre Results

Cottam Solar Project Limited

Cottam Solar Project

January 2024

ADMINISTRATION PAGE

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Issue	Date	Detail of Changes
1	23 January 2024	Initial issue
2	29 January 2024	Minor amendment

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Overview

The purpose of this addendum is to present a summary of the results for Blyton Race Track, as assessed within '10856 – Glint and Glare Cottam Solar Project – Blyton Circuit', in response to the concerns raised by the Blyton Driving Centre operators.

This addendum should be read in conjunction with C8.4.16.1 ES Addendum 16.1 Solar Photovoltaic Glint and Glare Study [REP-077] undertaken for the Cottam Solar Project.

Assessed Receptors

The assessed circuit receptor points are shown below. A height of 1.5 metres above ground level has been taken as typical eye level for a race track user. The distance between road receptors is circa 50m. A total of 50 receptors points has been identified for modelling.

Cottam 3a, Blyton Park Race Track: identified receptors

Geometric Modelling Results

Receptor	Are Solar Reflections Geometrically Possible?		Comment	Overall Impact
	Fixed Panel Layout	Tracking Panel Layout		
1	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
2	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
3	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
4	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
5	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
6	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
7	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact

Receptor	Are Solar Reflections Geometrically Possible?		Comment	Overall Impact
	Fixed Panel Layout	Tracking Panel Layout		
8	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
9	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
10	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
11	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
12	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
13	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
14	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact

Receptor	Are Solar Reflections Geometrically Possible?		Comment	Overall Impact
	Fixed Panel Layout	Tracking Panel Layout		
15	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
16	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
17	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
18	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
19	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
20	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
21	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact

Receptor	Are Solar Reflections Geometrically Possible?		Comment	Overall Impact
	Fixed Panel Layout	Tracking Panel Layout		
22	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
23	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
24	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
25	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
26	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
27	Yes	No	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
28	Yes	No	Proposed screening predicted to remove visibility of potential solar reflections.	No impact

Receptor	Are Solar Reflections Geometrically Possible?		Comment	Overall Impact
	Fixed Panel Layout	Tracking Panel Layout		
29	Yes	No	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
30	Yes	No	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
31	Yes	No	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
32	Yes	No	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
33	Yes	No	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
34	Yes	No	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
35	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact

Receptor	Are Solar Reflections Geometrically Possible?		Comment	Overall Impact
	Fixed Panel Layout	Tracking Panel Layout		
36	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
37	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
38	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
39	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
40	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
41	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
42	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact

Receptor	Are Solar Reflections Geometrically Possible?		Comment	Overall Impact
	Fixed Panel Layout	Tracking Panel Layout		
43	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
44	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
45	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
46	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
47	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
48	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact
49	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact

Receptor	Are Solar Reflections Geometrically Possible?		Comment	Overall Impact
	Fixed Panel Layout	Tracking Panel Layout		
50	Yes	Yes	Proposed screening predicted to remove visibility of potential solar reflections.	No impact

Geometric analysis results for Blyton Park Race Track receptors

Time and Duration of Potential Glare

Solar reflections occur along the circuit between 5:51am – 6:09am GMT throughout March – September, and between 6:01pm – 6:15pm GMT throughout March – September for the fixed panel layout.

Solar reflections occur along the circuit at times between 3:34am – 8:09am GMT throughout mid-late January and early February - November, and between 3:39pm – 5:28pm GMT throughout January – February and October – December for the tracking panel layout.

Conclusions

The results of the analysis have shown that solar reflections from the proposed development (the Cottam 3a site) are geometrically possible towards drivers using the race track.

The proposed screening is predicted to significantly obstruct the visibility of the reflecting panel area towards users of the race track. Details of the screen planting are detailed on Figure 8.16.10 A Landscape and Ecology Mitigation and Enhancement Plan – Cottam 3a[REP-025].

If necessary, the developer will implement an interim mitigation measure (opaque fence) before planting has established, as is set out in the C7.16_C Outline Operational Environmental Management Plan submitted at Deadline 4. The Operational Environmental Management Plan is secured via requirement 14 in the draft Development Consent Order for the Scheme [REP3-004].

Therefore, no impact is predicted upon drivers using the race track following the establishment of mitigation measures, and no further mitigation is required.

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Acoustic Design
Testing & Consultancy

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22nd February 2024

LNT Construction,
Sent via email

For the Attention of Alistair Wood

Dear Alistair,

Blyton Park,
Solar Farm Acoustic Report Initial Response

Thank you for forwarding the acoustic report prepared by Tetratech titled 'Noise Impact Assessment of Reflection of Noise from Blyton Park Driving Centre due to Proposed Solar Panels.' I have pleasure in providing my initial comments.

The primary objective of the exercise is to quantify the likely *difference* in sound levels at nearby receptors with and without the installation of proposed solar panels. This is of more interest than overall/absolute levels, but these overall levels are still worthy of some consideration, as shown later in this letter.

I entirely appreciate the difficulty of the task given to Tetratech, the unusual nature of the exercise and the levels of precision that need to be discussed, so this letter is not intended to form criticism of their work.

The installation of large areas of these sizeable solar panels is a relatively new phenomenon. There has been little or no research conducted into the effect that such solar farms have on existing sound sources affecting existing dwellings.

Blyton Park now represents a very important facility to the motorsport industry and there have been recent complaints, which have been subject to investigation by the Local Planning Authority. There is no margin of comfort in relation to sound levels and the effective operation of Blyton Park.

As you know, we undertook a survey that investigated sound from the racetrack currently being received at the nearest dwellings and also considered any available mitigation measures. The conclusion was that there is little in the way of practicable physical mitigation that can be applied to reduce sound levels, so considerable emphasis was placed on good noise management and the avoidance of certain track activity including open motorbike track days.

I understand that the dominant acoustic concern of all involved with Blyton Park is that the proposed solar development must not cause an increase in sound levels that may lead to increased complaints from surrounding residents, for which there appears to be no further available practicable mitigation.

The lack of available mitigation measures is of particular concern if the 'as built' situation is worse than predicted. The task of accurately predicting this change in sound propagation is extremely complex, with considerable difficulty involved in quantifying the effect that the solar farm will have on many factors relating to this specialised type of sound source. There may even be limitations caused by the capabilities of noise modelling software, for which Tetratech may be able to provide comment.

Modelling Software

Tetratech have correctly identified the requirements and primary objectives of this survey, and have used a well-recognised noise modelling program 'CadnaA' to provide sound level predictions. There are some details given in the report on some of the modelling inputs to the software.

All predictions and commentary are based on source measurements of cars taken at Blyton Park during a meeting between all parties concerned. During that visit, I had a calibrated Type I sound level meter with me, so was happy to undertake the source measurements of cars to provide to Tetratech for their use. The measurements used were taken along the main straight at a distance of around 10m from the cars as they passed the measurement position under full throttle.

The factors that we are primarily concerned with are:

- The ground between the track sources and nearby receiver positions will become reflective solar panels rather than mainly absorptive farmland.

  This changes the formula for sound decay due to distance from being "***25 x log (distance ratio) – 2 dB***" for soft, absorptive ground to being "***20 x log (distance ratio) dB***" for reflective ground. This effect will increase transmission of track sound if the development is built.

- Barrier effect. This is a beneficial effect, caused by the solar panels having the effect of noise barriers to vehicle sound, reducing transmission of sound from the track. I understand the principles of Maekawa have been used in the noise model, which is entirely correct, though the software / report has not produced individual quantities for manual verification of this.

- Reflections from solar panels surrounding the track, which changes the Directivity Index/Factor from being a 'freefield' position except for the ground, to having an additional three reflecting planes. This will increase transmission of track sound to an extent that depends on the relative position of a car on track at any one time to the nearest solar panels in each direction.

- Effect on long distance propagation of the angled nature of panels when in the raised position, for example caused by diffusion. This will be the most difficult aspect to model and there may be large restrictions on what can be modelled, but I anticipate this will also have the least numerical effect.

The report does not contain details of all of the calculations being undertaken by the software with separate details of changes to distance decay, barrier effect, reflections etc at each of the measurement positions. This is likely to be part of the nature of using modelling software, but it means that there are not enough details for me to check through all of the calculation procedures and provide some manual verification on concluded predictions. Tetratech may be able to advise on what detailed outputs are available to enable some manual verification; I am of course happy to take part in further discussions with them.

Overall Predictions

As already mentioned, it is the difference in sound levels with and without development that are of more importance in this exercise than the overall or absolute predictions given.

However, these overall predictions can be of use in trying to determine some of the calculation procedures. There is a large difference between the absolute values given by the Tetratech CadnaA noise model and those contained in the previous report of my investigation into track complaints.

My report contained direct measurements of track sound at dwellings, also predictions using the source of road cars with modified exhausts typical of customer track days, and also predictions that assume a vehicle just complying with the drive by limit imposed at the track. My predictions were in broad agreement with the measured levels when allowing for varying environmental effects.

The 'Drive by Limit' is 95 dBA at the Blyton Park sound meter measurement position, 20m from the tarmac edge near the control tower (approx 22-23m from the source). This corresponds exactly to the 102 dBA at 10m from source used in the Tetratech predictive calculations and measured by us of a track-prepared Ford Fiesta.

The predictive calculations in our report should be directly comparable to the CadnaA predictions included in the Tetratech report and directly measured levels, accepting that there may be some differences due to assumptions, methodology and environmental effects.

The table below shows our predictions, direct measurements at dwellings and the output from the CadnaA noise model:

Sound Pressure Levels at Dwellings, dBA

Dwelling	Our Prediction, Cars with Modified Exhaust	Our Prediction, Drive by Limit	Our Direct measurement at Dwellings	Tetratech / CadnaA Prediction
Farm to North (R05)	49	56	53 - 59	84.4
Northorpe Cottage / Grange Farm, NE (R06)	44	51	43 - 48	77.1
Farm on B1205, East (R07)	36	42	33 - 36	76.4
Farm to South (R11/R12)	34	40	36 - 40	76.8 - 80.4
Irwin Road (R14/R15)	34	40	36 - 40	77.5 - 77.9
Blyton Grange (R04)	50	57	43 - 48	84.6

Clearly there is a large difference between the overall or absolute values of the Tetratech CadnaA model predictions and those measured or predicted by us as part of the consultancy exercise. I understand that this was of some concern to Blyton Park and while there are not the raw details in the report that enable manual verification, I have attempted to analyse the likely procedures in order to offer an explanation. There does appear to be a possible explanation, which may also have some influence on the accuracy of the comparison of 'with development' and 'without development' sound levels.

The Tetratech report states that the modelling has been undertaken assuming that Blyton Park represents a continuous 'line source' following the track outline, with sound power set for each meter of the line.

This may be the reason that there is considerable difference between overall / absolute prediction values and those measured and predicted by us as part of the previous survey that was commissioned to investigate complaints about noise. The assumption of Blyton Park being a continuous 'line source' will absolutely give worst-case overall sound levels, but may bring some additional uncertainty or potential inaccuracy when comparing the 'with' and 'without' development scenarios.

The most likely explanation for the differences is the methods by which sound decay due to distance is calculated and this forms an important subject for discussion and verification.

Sound Decay Due to Distance

In order to understand my query in relation to distance decay, it is necessary to explain some of the principles behind sound propagation outdoors.

A source with major dimension '**x**' will be subject to 'line source' sound decay due to distance equal to **10* log (distance ratio)** at distances of up to **x** / **pi**.

At distances beyond **x** / **pi** the decay due to distance will be as if it were a point source, being:

- Point source over reflecting ground = **20 x log (distance ratio)**, dB
- Point source over soft ground = **25 x log (distance ratio) – 2**, dB.

This is where one of the difficulties of how to model sources on a racetrack becomes apparent.

The method employed by Tetratech for their predictions is to assume the whole circuit is a large line source. The reality is that it is a smaller moving point source (or a series of small moving point sources when there is more than one vehicle on track). This can also be approximated to a series of stationary point sources at positions around the track for a brief time period.

To create a set of predictions based on moving point sources is far more complicated, and may be more complicated than the noise modelling software is able to handle. When undertaking predictions of sound, I use spreadsheets, manual calculations using fundamental principles of acoustics and my own modelling built on Microsoft Excel, so I do not know the exact limitations of CadnaA. Tetratech may be able to advise on whether the software can handle accurate prediction of moving point sources (or more likely simplified to a series of many static point sources with specific brief time interval at each position), without defaulting to the methodology for line sources.

As mentioned earlier, the overall/absolute sound of predictions are not of primary importance because we are concerned with the potential effect of introducing the solar farm. The reason that this discussion on point versus line sources is of importance is that if the modelling software is using the recognised formula for distance decay described above, it may be underestimating the difference of propagation over reflective ground versus soft ground. This is because the software may be assuming that the source dimensions are bigger than they are, thereby applying 'line source' distance decay instead of 'point source' distance decay. This is better explained using an example.

Distance Decay Example

Let us take the predictions at receptor R06 as an example, grid reference SK 88352 97002. The distance between this receptor and the track is a minimum

of 1175m and a maximum of 1920m. To avoid over complication, let us consider the scenario at an approximate average distance of 1500m.

If the track is thought of as one continuous source, it has a major dimension of approximately 950m. This would mean that it would decay as a line source at distances up to 302m (that is 950 / pi).

- The overall distance decay using this method from the 10m source measurements over soft ground would be [10 x log (302/10)] + [25 x log (1500 / 302)] – 2 dB. This equals **30.2 dB** of distance decay.

- If the source of a car on track is considered as being a moving point source, when it is at this average distance of 1500m, the decay over soft ground from the 10m measurement position would be 25 x log(1500/10) – 2 dB. This equals **52.4 dB** of distance decay.

- The difference between these two methods is 22.2 dB and corresponds closely to the 26 dB difference between our predictive methods and those contained in the Tetratech report, especially since I have used an overall average distance for the purpose of this explanation.

As previously mentioned, the overall, absolute values are not a primary concern, but if this explanation is the reason behind the large discrepancy in overall predictions then it may lead to an underestimation of the difference in distance decay that the installation of solar panels will make. Continuing with this example:

- If the circuit is modelled as one large line source with major dimension approximately 950m, then the 'point source' component of the distance decay would be [25 x log (1500 / 302)] – 2 dB = **15.4 dB** over soft ground, eg the existing fields. Over reflective ground such as solar panels, the 'point source' component would be equal to 20 x log (1500 / 302) dB = **13.9 dB**.

- The difference between these two distance decay calculations is **1.5 dB**, and this is the reduction in distance decay that this method predicts solar panels would cause.

- If we consider the track to consist of moving point sources, then the distance decay over soft ground would be 25 x log(1500/10) - 2 = **52.4 dB.** Over hard reflecting ground, the distance decay would be 20 x log(1500/10) = **43.5 dB.**

- The difference between these calculations is **8.9 dB**, and this is the reduction in distance decay with/without development that is predicted if track sources are assumed to be moving point sources.

Using this relatively simple example, there is a difference of 7.4 dB in the calculation of distance decay between methods, the result being worse in terms of propagation of sound from the track (ie. it would be noisier) if it is assumed to consist of moving point sources.

When you consider that this is a simplified example using an average distance at a single receptor, it is easy to see the extremely complex nature of trying to quantify the effect of this proposed development. This also highlights the importance of targeting ultimate accuracy of the 'as built' scenario since there are potential large uncertainties and the consequences for Blyton Park may be highly significant. Tetratech may be able to provide clarification on the exact properties of distance decay calculation undertaken within the CadnaA model to ascertain whether this concern is mitigated for within the modelling methodology.

The other factors identified of barrier effect and reflections are also subject to differences if being considered as a series of stationary points versus a complete line source, depending on the exact location that sources are assumed.

As mentioned, there is not the individual detail available in the report for me to verify exactly how the calculations have been undertaken. It would be ideal to have a breakdown of distance decay with/without development, predictions of barrier effect, predictions of reflections etc at each octave frequency band so that the individual differences of each aspect can be viewed, rather than just the overall results given by CadnaA. Again, this may be a limitation of the software instead of a series of manual calculations using spreadsheets or similar. If suitable outputs can be gained from the software, it is likely to need significant sorting to remain readable – the amount of data involved is very large indeed.

Ideally, the predictions would be undertaken by assuming that there are a series of stationary point sources at evenly split time periods around the track, for example every second, or every few seconds to approximate to a moving point source. The propagation would be calculated separately for each of these positions. There will always be some limitations in predictions of this complexity - and indeed even this method of using point sources ends up assuming that a car is under full throttle for the full lap unless individual levels were available for a car at each point around a lap of the circuit.

I do have some brief questions on technicalities including the absorption coefficients used, which will be simple for Tetratech to answer in the event of the model being able to produce sufficient data for manual verification calculations to be performed. It may be useful to have a meeting between us all to go through some of the modelling methodology, including details that can be outputted from CadnaA and any other technical questions that arise.

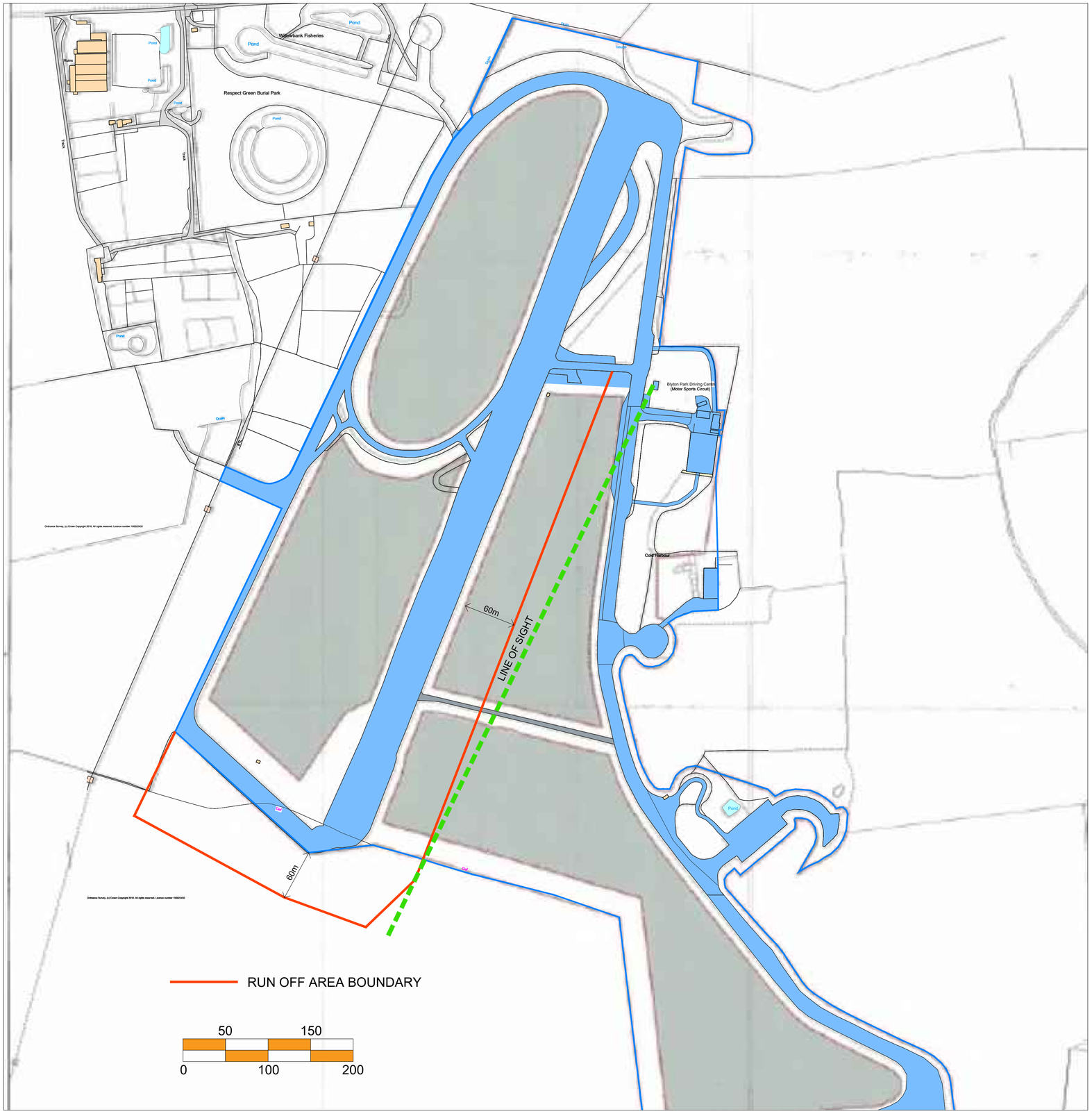
It should be noted that this is not intended to be a criticism of the work undertaken by Tetratech, but used as a starting point for further discussion, clarification and if necessary further calculation and modelling. It is crucial that the final predictions are as accurate as possible given the implications of variances between predictions and the built scheme, and the complete lack of pre-existing research into the effect that solar farms have on the propagation of existing sound sources.

I hope that this provides the initial response required at this stage, but please do not hesitate to contact me for further discussion. I am of course happy to liaise with Tetratech directly and take part in further work so that the mutually beneficial objectives of this exercise are realised to their fullest extent.

Yours sincerely,

David Garritt
Director

Members of the Association of Noise Consultants (ANC) & Institute of Acoustics (IOA)
Originally established as S.F Garritt Ltd in 1981. Company number 4688174



NORTH

REV	DATE	DETAILS OF AMENDMENTS	DRAWN

REVISIONS

ALL MEASUREMENTS IN mm - DO NOT SCALE - IF IN DOUBT ASK

LNT Construction

LNT CONSTRUCTION LTD
UNIT 2, HELIOS 47
ISABELLA ROAD
GARFORTH
LS25 2DY
Tel: 0113 3853858
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CLIENT
LNT AVIATION LTD.

SITE
OLD BLYTON AIRFIELD
KIRTON ROAD, BLYTON,
GAINSBOROUGH

TITLE
TRACK RUN OFF AREAS

SCALE	1:2500@A1	DATE	11-10-23
DRAWN	GB	DWG NO.	BLY-RO-2B

DRAWING STATUS

FEASIBILITY	PLANNING SUBMISSION
PLANNING APPROVAL	REGULATION SUBMISSION
REGULATION APPROVAL	CONSTRUCTION ISSUE

CHECKED BY		DATE	
APPROVED BY		DATE	