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Subject:	Wylfa Newydd DCO [PM-AC.FID1867548]
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Attachments:	Land and Lakes Deadline 6 Submissions [FINAL].PDF L&L D_L 6 SUBMISSIONS - APPENDIX 3 (NOISE AND VIBRATION).PDF

Dear Sirs

Please find attached Land and Lakes' Deadline 6 submissions.

Kind regards

Beth

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LAND AND LAKES (ANGLESEY) LIMITED

DEADLINE 6 SUBMISSIONS

relating to

Wylfa Newydd Nuclear Power Station
Development Consent Order Application

Pinsent Masons

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1. INTRODUCTION

1.1 Land and Lakes (Anglesey) Limited ("**L&L**") has considered the response of Horizon Nuclear Power Limited ("**HNP**") [REP 5-248] ("**HNP's Response**") to L&L's Deadline 4 submissions [REP4-036].

1.2 For ease of reference, L&L sets out its comments using the headings from the HNP Response.

1.3 In addition:

1.3.1 appendix 1 deals with HNP's note in respect of the Langley Park School case; and

1.3.2 appendix 2 sets out L&L's responses to certain of HNP's Deadline 5 ("**DL**") responses to the Examining Authority's written questions dated 30 January 2019 [REP5-057]. For the avoidance of doubt, this appendix does not set out the full set of responses provided by L&L at DL5 which can be found at [REP5-079].

1.3.3 appendix 3 contains a report prepared by Watermans on behalf of L&L setting out their detailed response to the points made by HNP in relation to noise and vibration in its DL4 submission [REP4-007] and subsequently in its response to the Examining Authority's written questions dated 30 January 2019 [REP5-057].

2. EVIDENCE SUBMITTED BY L&L

2.1 As set out within L&L's comments on HNP's Answers to the ExA's Further Written Questions, submitted alongside this document at Appendix 2 to these DL6 submissions, HNP has failed to respond to a number of material issues raised by L&L and where a response has been provided, HNP's response displays errors in its consideration of L&L's evidence:

2.1.1 HNP's Site Selection evidence [APP-439] and [REP3-036] does not provide adequate reasoning for the onsite Campus to be selected as an environmentally preferable option to the L&L Site for all of the reasons contained in L&L's evidence submitted at DL2 [REP2-219- REP2-263]. In particular, HNP continue to rely upon a RAG analysis which has been shown to be flawed [see REP2-244].

2.1.2 HNP's responses at DL4 in relation to noise and transport [REP4-007 and 008] are partial responses. It has still not been demonstrated how HNP can achieve acceptable noise levels in external amenity areas. Further, it will add a cost and complexity which will diminish further its viability arguments. Even if HNP can achieve acceptable internal levels (which is not accepted), workers will be unable to gain any respite from construction noise when outside their rooms and seeking to decompress at the end of a day or over a weekend.

2.1.3 Even on HNP's methodology (which is not accepted as being correct), HNP predict external daytime noise levels to be 54-70dB LAeq,16-hours. This is averaged over a 16 hour period which L&L consider to be an incorrectly lengthy timeframe which naturally has the effect of providing a lower average figure and underestimating the effect. The correct noise levels for the assessment are as shown on HNP's Figure D6-5 and reproduced in L&L's evidence, which are up to 85dB in some areas of the Site Campus.

2.1.4 L&L consider that measures to mitigate these noise levels must be defined in the application, it is little comfort to suggest merely that 'design principles' will be met without any meaningful demonstration as to how acceptable internal and external noise levels that meet WHO guidelines can be achieved. It is incumbent upon HNP to demonstrate how acceptable levels can be delivered.

2.1.5 A clear error has been made by HNP in their reading of L&L's transport evidence by Curtins. As explained within L&L's response to the ExA's Further Written Questions [REP5-079], HNP have misread this report as addressing only part of the trips required. Properly understood, Mr York has assessed all of the trips generated by the L&L proposals and has reached a robust conclusion that the ES that accompanied the planning application for the L&L scheme remains a robust worst case analysis of impacts. In short, the legacy use creates greater transport impact than the TWA use and the effects are acceptable and not significant. Mr York's updated note takes account of the most up to date evidence from HNP about their own additional vehicle trips associated with the Wylfa project and again concludes that even based upon the most up to date evidence, the ES conclusions are sound and do not require amendment [REP4-036].

3. SITE CAMPUS AND DECOMMISSIONING

3.1 L&L have carefully set out detailed evidence as to the deliverability of the scheme and costings [REP2-249]. HNP's criticisms are not based on evidence and no reference is made to any consideration of L&L's detailed evidence on this point. For example, the L&L scheme demonstrably will deliver the units in a shorter timeframe than the HNP proposed phases (see appendix at REP5-071).

3.2 HNP's references to the need for a commercial agreement need to be seen in light of the terms of L&L's planning permission [REP2-230], s.106 agreement [RE2-246 & 247] and representations made to the ExA on this point [REP4-036]. In short, L&L cannot build out the scheme without first entering into a commercial agreement with HNP / project promoter. L&L have sunk considerable funds into obtaining planning permission and promoting the scheme to date. Permanent staff have been hired on this basis and L&L are financially and practically committed to the scheme. However, in order for any benefit to be derived, an agreement needs to be entered into with HNP/ project promoter and indeed L&L were willing to proceed on terms agreed with HNP in May 2016 until these were withdrawn following a change in management. It is therefore not correct that L&L are in any sort of 'ransom' position. L&L need the agreement in order to obtain any value from this site into which considerable funds have already been committed. There is therefore every incentive to enter into a mutually beneficial agreement with HNP/ project promoter.

3.3 HNP continue to assert, without basis, that the L&L scheme is "not fit for purpose". Such points were first made within the Site Selection evidence and have been reiterated throughout, notwithstanding that L&L have addressed each and every purported concern within the detailed evidence submitted at DL2 [REP2-218 and REP2-229]. It is a matter of some frustration and surprise to L&L that such points are still pursued by HNP without apparent consideration of the detailed evidence submitted to demonstrate their inaccuracy. For example, paragraph 1.3.3 of [REP5-048] continues to assert that a flaw in the L&L scheme is a lack of bus terminal when the planning approval specifically requires bus pick up for the workers travelling to and from Wylfa site adjacent to the Central hub facility and requires in the s106 that full details of bus size, routes and frequency of service are secured for the Wylfa bus service. The Arcadis delivery report (REP2-249) clearly shows how the bus terminus can be provided

3.4 Even if amendments are required to L&L's scheme necessitating further planning applications (which is not accepted)these should be straightforward given that the principle of the scheme is already established. Further, we note that HNP itself relies on development for which new planning permission will need to be obtained in the form of the new visitor centre.

3.5 As regards the requirements of the Office for Nuclear Regulation ("**ONR**"), L&L note that the TWA must be decommissioned prior to the operational phases. This reinforces the point made by L&L that HNP will be restricted in respect of the occupancy of the TWA, whereas L&L's offsite TWA will have no such restrictions. IACC and Welsh Government indicated a desire for the TWA to be available both earlier and later in the construction process than

proposed by HNP. L&L's evidence is that these are not concerns which arise in connection with the L&L scheme which can be both delivered faster and retained longer than the Site Campus.

3.6 HNP has confirmed that it can resolve ONR's issues with a clear commitment to remove its TWA site campus following construction and in accordance with the Decommissioning Scheme. L&L would highlight that this would likely incur additional costs which would not be incurred in relation to the L&L proposals which, instead of requiring decommissioning, provide legacy benefits.

4. CONSIDERATION OF ALTERNATIVES

4.1 L&L have already provided detailed evidence to the acceptability of impacts of the L&L scheme on matters such as the Welsh Language and transport. These are not repeated here. Further, as set out above, the lack of commercial agreement is an issue which both parties are incentivised to remedy and L&L is not in any ransom position, being wholly reliant on the agreement to bring forward the scheme.

4.2 L&L's response to the requirement to assess alternatives is set out in Appendix 1 "Langley Park School".

5. MODIFYING A DCO POST-APPLICATION

5.1 HNP's response fails to recognise that removing an element of associated development from the scheme, especially when that element causes a range of significant negative effects, is not in the nature of an objectionable amendment to the scheme. L&L does not seek for its development to become part of the project or part of the promoted scheme. The removal of an element which causes unacceptable environmental effects can only make the scheme more, not less, acceptable and cannot rationally cause prejudice to potential consultees as less is being proposed, not more.

5.2 Paragraph 1.5.5 of HNP's response wrongly characterises L&L's case as seeking "a modification to include the proposals put forward by Land and Lakes". There is no need to consult separately on the "DCO plus L&L" proposal as it is not proposed to bring the L&L scheme within the DCO, but merely retain its status as associated development dealt with under the TCPA regime which was the case for all DCOs in Wales prior to the recent amendment within s.43 of the Wales Act 2017.

6. GRAMPIAN CONDITION

6.1 The main basis for HNP's objection appears to be the lack of commercial agreement. As set out above, this is based on a lack of understanding of the constraints of L&L's planning permission and a failure to appreciate that L&L require a commercial agreement and have every incentive to enter into one with HNP (as was proved when terms were provisionally agreed in May 2016).

6.2 HNP's second basis for rejecting the proposed Grampian condition appears to be the assertion once again that amendments are required to the L&L scheme. As considered within L&L's evidence at length, this is demonstrably not the case and, even if it were, the scheme has outline permission and amendments within the envelope of that consent could readily be achieved.

6.3 The reasons provided by HNP for rejecting a Grampian-style condition are therefore not compelling and it remains L&L's case that it is open to the ExA to achieve this improvement to the scheme.

APPENDIX 1

LANGLEY PARK SCHOOL

1. In paragraph 1.3.3. of Appendix 1-2 to HNP's Response to Deadline 5 Issue Specific Hearing Actions on 7 January 2019 [REP5-053], HNP provide a partial quote from the judgment of Ouseley J in R(Thames Blue Green Economy Ltd) v Secretary of State [2015] EWHC 727 (Admin). The ExA is encouraged to read the judgment fully. It is regrettable that HNP have provided only a very small selection of the text as the transcript in this case is not widely available and the selective quotation provided to the ExA could be easily misinterpreted as being of relevance. Instead, it is clear from paragraphs 39 and 40, immediately prior to the partial quotation provided by HNP which begins at paragraph 41, that the issues for the determination of the Court in Thames Blue Green Economy were very different to those now in issue between L&L and HNP in the context of this DCO application.

2. It is clear from the context surrounding the partial quotation supplied that Ouseley J was concerned with the 2008 Act regime's treatment of *strategic* alternatives. Ouseley J held that a feature of the 2008 Act regime is that strategic alternatives are assessed through the production of NPSs and, in the context of the Thames Tideway Tunnel, the strategic decision that a tunnel was the appropriate solution and that there was no better strategic alternative was not to be revisited.

3. That is very different from the situation here where L&L do not seek to argue that no power station should be built, or even that a different power station should be built, or in a different position. Instead, L&L's case is wholly concerned with the location of temporary worker accommodation which is not a necessary part of the infrastructure project itself but is merely associated development. L&L are supportive of, and indeed reliant upon, the strategic decision to construct a nuclear power station at Wylfa coming to fruition and do not challenge any strategic decision that falls properly within the remit of the NPS.

4. Paragraph 1.3.4 again provides only a partial quotation of the relevant document, EN-1. Whilst HNP are correct to state that EN-1 sets out policy guidance on the relevance of alternatives, EN-1 is also very clear that consideration of alternatives is primarily a matter of law, not policy:

> "*As in any planning case, the relevance or otherwise to the decision-making process of the existence (or alleged existence) of alternatives to the proposed development is in the first instance a matter of law, detailed guidance on which falls outside the scope of this NPS*".

5. It would therefore not be correct to look to the NPS in the first instance for guidance as to whether a decision-maker must take alternatives into account. That is instead a matter of law.

6. In a given scenario, a requirement to assess alternatives may derive not only from case law such as Langley Park School but also from the EIA regime and the Habitats Directive. A free-standing requirement to consider alternatives may arise under the Habitats regime where, as here, there is evidence to suggest that there may be a relevant effect on protected species and areas so that a developer is required to demonstrate the absence of alternative solutions. For example, NRW state at paragraph 3.11.2 of [REP4-039] that their consistent advice has been that all reasonable alternatives should be considered in relation to impact on the Tre'r Gof SSSI. NRW also remain concerned that a significant impact on the Anglesey Terns SPA so that Stages 3 and 4 are required i.e. the assessment of alternatives and demonstration of IROPI are required

[REP5-081]. Therefore, quite aside from L&L's case, there is a free-standing requirement for HNP to consider alternatives.

7. The guidance within EN-1 that alternatives are not generally required to be assessed needs to be seen in the same light as the comments of Ouseley J in Blue Green Economy; both are concerned primarily with the lack of need to consider the strategic decision to build a nuclear power station at Wylfa Newydd. Neither are intended to cover the current situation where an alternative, less environmentally harmful, solution may be provided.

8. Finally, it is somewhat incredible that HNP would argue that there are no clear planning objections to the Site Campus when all main parties to the DCO examination including the local planning authority, NW Police, Gwynedd Council, Welsh Government, NRW and the NWWT all raise various objections to the Site Campus in its current form and location.

9. In summary, there is a requirement for HNP and the ExA to consider alternatives, especially in light of the significant adverse effects caused by the Site Campus.

APPENDIX 2

L&L'S COMMENTS ON HNP'S ANSWERS TO THE EXA'S FURTHER WRITTEN QUESTIONS

Response to HNP's Deadline 5 response to the relevant Written Questions and Requests for Information issued by Examining Authority on 30 January 2019

Ref	Question	HNP DL5 Response	L&L DL5 Response	LL Comments on HNP DL5 Response
Q2.9.2	Respond to matters raised within the Land and Lakes representation [REP2-261] regarding noise impacts, or alternatively, highlight where you consider the matters to be already addressed within your evidence.	In their Deadline 1 Submission - Chapter 16 – Noise [REP2-261], Land and Lakes Limited (L&L) raise several concerns relating to the assessment of site suitability for the Site Campus in relation to construction noise. Horizon has responded to key elements of their submission in Deadline 4 Submission - Response to Action Points set in Issue Specific Hearing on the 7 January 2019 [REP4-007], but further detail is included in this response. Baseline noise environment In relation to the baseline noise environment, at section 2.6 of their Deadline 1 submission [REP2-261] L&L consider that: "Given the proposed use of the Site Campus as a residential institution, and given the evidence showing that properties significantly further away have experienced noise from the Existing Power Station transformers to a degree that complaints have been made, our view is that a more robust assessment of the baseline noise environment at the Site Campus location is required in order to confirm its suitability for the proposed use, regardless of the potential construction related noise." According to the results of historical measurements, the absolute level of National Grid transformer noise at existing Noise Sensitive Receptors is low (i.e. <25 dB(A)), a level which would not normally be expected to give rise to adverse community response. The historical adverse community response has therefore related primarily to the character of transformer noise in the context of the baseline noise environment, rather than its absolute noise level. A key part of this context are the very low baseline noise levels measured during Horizon's noise surveys. The absolute level of noise from the National Grid transformers at the majority of the Site Campus buildings is estimated to be 35 dB(A) or less. Some of the closest buildings to the transformers may be exposed to slightly higher levels of transformer noise. However, a major difference from the current situation will be the character of the future noise environment during the construction period, which will be influenced by various sources, including the operation of many heavy plant items. The noise levels caused by the construction plant and equipment will generally be well above 35 dB(A), and therefore the transformer noise is unlikely to be a dominant part of the construction phase soundscape. Furthermore, the ventilation strategy for the Site Campus will be Mechanical Ventilation with Heat Recovery [REP2-029], which does not rely upon open windows or trickle vents to provide adequate ventilation and temperature control in rooms. This contrasts with the off-site receptors from which complaints about transformer noise have originated, which rely on open windows for ventilation. Given the future context, the character of the National Grid transformers is not considered likely to be readily perceptible, or to result in annoyance at	L&L looks forward to receiving HNP's comments on its Deadline 2 submissions [REP2-261] and we would welcome the opportunity to respond in turn at future deadlines.	See appendix 3

Ref	Question	HNP DL5 Response	L&L DL5 Response	LL Comments on HNP DL5 Response
		the Site Campus buildings. Construction noise assessment methodology At section 2.7 of their submission [REP2-261], L&L consider the assessment of the Site Campus in relation to construction noise, and question why the ES uses a different assessment methodology for the Site Campus to off-site noise sensitive receptors. The reason for this is simply that establishing potential noise impacts at existing off-site noise sensitive receptors is quite different to assessing the site suitability for proposed new buildings. Unlike the off-site receptors, Horizon has control over the Site Campus design and management, including aspects which are of particular importance in relation to the ingress of construction noise as follows. • The proposed building materials and constructions, particularly the external facades, windows, and roofs which will be selected to ensure that internal noise levels meet those set out in the building design principles of the Design and Access Statement [REP4-018]. • The building ventilation strategy, which for the accommodation blocks will be mechanical. Unlike many off-site receptors occupants of the accommodation blocks will not be reliant on opening windows to achieve suitable internal air flow rates or summertime cooling. • The orientations and positions of the blocks within the Site Campus, will minimise noise ingress and provide protected outdoor spaces; accommodation blocks located near the perimeter will function as noise barriers for the blocks and amenity spaces located closer to the centre of the Site Campus and near the shoreline. • Where possible the rooms will be allocated to workers on a basis which allows those workin g ni ght shifts to be located in central blocks which are protected from the highest daytime noise levels. In contrast, the assessment of off-site properties assumes that the properties do not incorporate any design features specifically intended to reduce noise. At section 2.14 of their submission [REP2-261], L&L note that TAN11 NEC's do not apply to construction noise, and therefore question why the Site Campus has been assessed in this way. Annex A of TAN11 states: "A1. When assessing a proposal for residential development near a source of noise, local planning authorities should determine into which of the four noise exposure categories (NECs) (Table 1) the proposed site falls, taking account of both day and night-time noise levels." As can be seen from the above quotation, there is no specific exemption from this methodology for construction noise. The Site Campus noise assessment contained in Chapter D6 therefore considers the noise exposure categories, using the 'mixed sources' noise levels as these are the most conservative of those set out in Table 2 of TAN11. L&L are however correct in noting that in relation to construction noise,		

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		TAN11 advises that detailed guidance on assessing noise from construction sites can be found in BS 5228. However, this fails to acknowledge that BS5228-1:2009+A1:2014 does not provide any advice on the suitability of a site for proposed new buildings in relation to construction noise. BS5228-1:2009+A1:2014 provides example criteria for the assessment of the potential significance of noise effects, within the context of offering guidance "that might be useful in the implementation of discretionary powers for the provision of off-site mitigation of construction noise arising from major highways and railway developments". Such guidance is clearly aimed at existing noise sensitive receptors. As noted above, Horizon controls the Site Campus design, and has committed to incorporate high levels of noise insulation. It is therefore difficult to see how the BS5228-1:2009+A1:2014 example significance criteria to identify potential significant effects at dwellings without specific noise insulation measures, or for triggering the provision of retrofitted noise insulation measures, are of relevance to the Site Campus as assessment criteria. At paragraph 2.14 of their submission [REP2-261], L&L assert that in relation to the assessment methodology "A more appropriate strategy would be to calculate noise levels using the calculation methodology provided in BS5228-1:2009+A1:2014 to determine likely internal and external noise levels within the Campus". The methodology adopted by Horizon is summarised in ES Volume B - Introduction to the environmental assessments Appendix B6-2 - Noise and Vibration Modelling and Assessment Methodology Report [APP-086]. This methodology has been agreed with IACC, and uses BS 5228-1:2009+A1:2014 to predict external construction noise levels as recommended by L&L. Horizon is therefore unclear why this issue has been raised as a point of difference. However, for completeness it should be noted that BS 5228-1:2009+A1:2014 does not provide a methodology for predicting internal noise levels as is suggested by L&L. Instead, construction noise ingress to the Site Campus has been calculated using the methods from BS 8233:2014 and BS EN ISO 12354-3:2017 which both provide methods to predict the internal noise levels from the external noise levels, the proposed building constructions, the surface areas of glazing and other building elements, noise transmission through ventilation paths and key receiving room characteristics (size, surface finishes and furnishings). Construction noise levels At section 2.10 of their submission [REP2-261], L&L raise concerns that construction noise		

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		levels at the Site Campus will be greater than those used by Horizon to assess the required sound insulation: "Figure D6-5, reproduced as Figure 2 below, shows the noise mapping for months 31 to 33, which indicates that the construction noise levels during the daytime at the Site Campus are 70dB – 85dB LAeq,1 hour". Figure D6-5 illustrates potential construction noise levels at off-site receptors. Reviewing this figure it can be seen that the outfall tunnelling works in construction zone 11 (shown on figure D6-2 in ES Volume D - WNDA Development Figure Booklet - Volume D (Part 1 of 2) [APP237]) are the activity which generates the highest noise levels at the Site Campus. However, this figure is based on noise modelling undertaken to provide a conservative assessment of the number of off-site receptors at which potential adverse effects may occur, which has necessarily been conducted using worst-case inputs. One key area where the model inputs are very conservative is in relation to the outfall tunnel works. The noise model places all of the plant and equipment associated with this work at 3m above the ground surface, whereas in reality much of the equipment will be situated in the tunnels, and so noise from these items will not have a direct airborne transmission path to the Site Campus. This especially relates to the Sandvik Roadheader MT720 (or equivalent) and the Sandvik DT820 tunnelling jumbos (or equivalent) which are items of tunnel cutting equipment and which exhibit very high sound power levels. Other items of equipment which will be situated underground within the tunnel include tunnel excavators (e.g. Terex Shaeff ITC 312 or similar), articulated dump trucks, shotcrete robots, concrete remixer trucks, concrete pumps, and tunnel ventilation fans. The noise modelling also includes equipment associated with the construction of the Site Campus, which gives rise to the higher noise levels to the north east of Tre'r Gof. The noise modelling does not include any localised screening around equipment associated with either the Site Campus or outfall construction. BS 5228-1:2009+A1:2014 provides guidance on various measures which may be used to control noise at source, and the following measures are relevant to the tunnelling and Site Campus construction works, but are not included in the noise modelling which underpins figure D6-5 [APP-237]: • acoustically dampening sheet steel piles (expected to give 5 to 10 dB(A) reduction in noise from this activity), • using super silenced dozers, excavators, and dump trucks (also expected to give 5 to 10 dB(A) reduction in noise compared to normal versions of this plant) • and fitting suitably designed mufflers or sound reduction equipment on		

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		rock drills and tools (up to 15 dB(A) reduction compared to normal versions) • use of acoustic screens around static equipment and material drop zones (up to 15 dB(A) reduction) For these reasons Horizon is confident that the noise levels presented on figure D6-5 at the Site Campus are overestimates, and it is not appropriate to use figure D6-5 [APP-237] to directly infer noise levels at the Site Campus for design purposes. By contrast, the noise modelling undertaken specifically to assess construction noise levels at the Site Campus as quoted in ES Chapter D6 [APP-125] at paragraph 6.5.49 include many of the mitigation measures detailed above, and is far more appropriate to use as a basis for the Site Campus design. Site Campus noise insulation Sections 2.19 to 2.26 of the L&L submission [REP2-261] focus on the design measures needed to prevent excessive ingress of noise to the Site Campus. It has always been Horizon's intent to provide a high degree of sound insulation for the Site Campus accommodation blocks, and the RIBA Stage 2 Acoustic Statement for the Site Campus examines this issue in detail. The sound insulation performance of the proposed external wall construction for the Premier Modular system has been modelled using INSUL, which is a software program for the prediction of the acoustic performance of building elements. The results of the calculations are R w 55dB (-3;-11). For triple leaf constructions the calculation has a tolerance of ± 5dB, therefore we must assume that the likely sound insulation performance is R w 50dB. Calculations have also been undertaken to determine the required sound insulation performance for the glazing within the Accommodation Blocks given the window areas, room dimensions and likely internal surface finishes. The recommended minimum sound insulation performance of R w (C;Ctr) 35 (-2;-5) dB, which applies to the whole window unit including the frame, although it is noted that this performance specification is indicative only and will be reviewed as the design progresses. In their submission [REP2- 261], L&L claim that a performance of 40 to 55dB R w+Ctr, would be required, however that this is based on noise levels taken from figure D6-5 which, as previously noted, is not appropriate for this purpose and leads to an overestimation of the design requirements. The RIBA Stage 2 Acoustic Statement also advises that a full mechanical ventilation system		

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		is implemented for the accommodation buildings which would allow windows to remain closed. Provided that the accommodation building's external walls/roof were to have sufficient sound insulation, and the noise from the mechanical ventilation units is controlled via low noise plant and/or duct silencers, the report concludes that the recommended Indoor Ambient Noise Level targets within bedrooms are likely be achieved. In respect of LAF,max criteria, the most recent 2018 WHO Environmental Noise Guidelines for the European Region notes that the assessment of the relationship between different types of single-event noise indicators and long-term health outcomes at the population level remains tentative. The guidelines therefore make no recommendations for single-event noise indicators. Notwithstanding this, as a precautionary measure the Site Campus design principle at paragraph 3.4.40 of the Design and Access Statement requires that "Acoustic mitigation measures will be provided as part of the building design of the Site Campus to achieve the requirements and guidance provided in BS 8233:2014 'Sound insulation and noise reduction for buildings – Code of practice', World Health Organisation Guidelines (1999) for LAmax levels". Horizon will revisit the glazing specification for the accommodation blocks as the designs progress, and the construction programme, methodologies and equipment selection develop to ensure these internal acoustic criteria are met. Night shift workers At section 2.24 of their submission [REP2-261], L&L raise the issue of protecting night-shift workers. Horizon accepts that noise levels at the Site Campus will be higher than at alternative locations by virtue of being within the WNDA and therefore closer to construction noise sources. However, as noted above, Horizon is able to specify the design and layout of the Site Campus to minimise noise ingress, is able to control the building construction sequence, and also the allocation of rooms depending on the shifts that staff are working. Due to the scale of the Accommodation Blocks and given the indicative layout, noise levels at blocks near the centre of the Site Campus or close to the shoreline will be significantly lower than for at the most exposed blocks at the west and south boundaries of Work Area No. 3A. Horizon will also strive to minimise the overlap between the outfall tunnelling works and occupation of the Site Campus. The worst-case construction noise levels are expected to last for a relatively short period of time (circa 18 months) and that after this noise		

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		levels at the Site Campus will be reduced. Finally, it should also be noted that having the Site Campus on-site will reduce the need to transport up to 4,000 workers to site each day, thus reducing the potential road traffic noise impacts of shift-changes at off-site receptors near to the A5025. External noise levels At section 2.25 of their submission [REP2-261], L&L raise external noise levels at the Site Campus, and the "apparent omission of mitigation such as large scale acoustic barriers". The Site Campus blocks are substantial, in some cases being up to seven stories tall. The indicative layout on the Site Campus Parameter Plan (drawing WN0902-HZDCO-SCA-DRG00001 [APP-016]) shows the blocks arranged three/four deep around the perimeter of Work Area No. 3A, with the majority of the open spaces near the shoreline. Due to their scale (up to 32m tall), the accommodation blocks will provide high levels of noise attenuation, more so than could be provided by noise barriers (which typically do not exceed 4m height). The final layout of the Site Campus will be developed to provide protection to the associated outdoor amenity areas. Construction vibration Sections 2.28 to 2.30 of their submission [REP2-261], L&L consider potential construction vibration impacts at the Site Campus and conclude that "It is highly unlikely that any mitigation measures could reduce an impact of major significance to negligible on a receptor that is just 13m away from the source of the vibration". The distance of 13m quoted is the minimum separation distance from the outfall tunnelling (construction zone 11 shown on figure D6-2 [APP-237]) and the perimeter of the Site Campus (shown as Work Area No. 3A on drawing WN0902-HZDCO-SCA-DRG-00001 [APP-016]). Whilst it is possible that works generating high levels of vibration could be undertaken at the closest point within construction zone 11 to the Site Campus, it is unlikely; most of the time the works will be further from the accommodation blocks. There are a range of vibration reduction measures that Horizon could implement if the risk assessment shows it necessary, such as using lower vibration equipment, but it is Horizon's preference to manage this situation by completing the section of outfall tunnelling works which runs past the Site Campus before the closest accommodation blocks are built, thus avoiding the issue entirely. If this is not possible, and it is necessary to undertake work generating high levels of vibration at locations very close to the Site Campus, then Horizon would arrange for the closest blocks		

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		to these works to be unoccupied for short periods. This would ensure that there are no significant vibration impacts to the workers.		
Q2.10.2	Provide further evidence of how high quality accommodation at the TWA would be provided, in particular, reference to how concerns regarding noise and smell would be managed.	Horizon's Deadline 4 Responses to Actions set in Issue Specific Hearing 7th January 2019 [REP4-007] addresses the initial concerns raised regarding noise and odour at the Site Campus. Noise A full assessment of noise and vibration has been included in chapter D6 of the Environmental Statement [APP-125] and the National Grid transformer noise, deemed to be the most significant noise source, has been included as part of the baseline within the noise modelling which is portrayed in the noise propagation plans in figures D6-3 to D6-10 of the WNDA Development Figure Booklet - Volume D [APP-237]. The absolute level of noise from the National Grid transformers, at the majority of the Site Campus buildings is estimated to be 35 dB(A) or less. Some of the closest buildings to the transformers may be exposed to slightly higher levels of transformer noise, but the character of the noise environment during the construction period when those parts of the Site Campus will be occupied will also be influenced by various sources, including the operation of multiple diesel engines. The ventilation strategy for the Site Campus will be Mechanical Ventilation with Heat Recovery [REP2-029], which does not rely upon open windows or trickle vents to provide adequate ventilation and temperature control in rooms. In this context, the character of the National Grid transformers or any other noise source are not considered likely to result in annoyance at the Site Campus buildings. The Section 61 application under COPA will ensure that noise levels at the campus are sufficiently low to prevent health effects from Noise at the Site Campus' Air Quality Chapter D5 (Air Quality) [APP-124] of the Environmental Statement includes embedded mitigation to prevent effects from Odour at the Site Campus. These measures include: • Raising the requirement for the extension of the DCWW Cemaes WWTW to be designed in a manner to minimise potential odour impacts to residents of the Site Campus. Progress has been made with DCWW since submission of the application through the Statement of Common Ground process. It is agreed that Horizon will be consulted upon during the detailed design of the extension to the Cemaes WWTW to ensure it is designed to minimise the releases of odour which could affect workers residing in the Site Campus. The package sewage treatment plant for Main Construction would be a modularised system that would be predominately enclosed. The processes with the highest potential to emit odours, such as the preliminary treatment (screens), balance tanks, primary treatment, sludge storage and sludge treatment, would be covered with active extraction to maintain a slight negative pressure within the process units. The extracted air would be treated to reduce the odour concentrations. These measures are secured in Main Power Station Site subCoCP [REP2-032].The Site Campus would be designed to reduce the exposure of residents to odour emissions. Site Campus buildings within 70m of the Cemaes WWTW will have central heating, ventilation, and air conditioning (HVAC) system on the building with a roof mounted intake (or similar) to minimise odour effects. These measures are secured in the Design Access Statement Vol 3, Appendix 1-2 Site Campus [REP2-029] through design principle 3.4.39. Horizon concludes Wylfa Newydd Power Station Temporary Workers Accommodation Position paper Development Consent Order including noise and vibration Horizon consider that with the proposed mitigation measures in place, there will be no significant effects from odour or noise at the Site campus and therefore odour or noise will not be a reason to make the Site Campus un-attractive to workers	Once again we would draw the ExA's attention to the noise and vibration report submitted at appendix 9 to Land and Lakes' Deadline 2 submissions [REP2-261] and our response to Q2.9.1 above	See appendix 3

Ref	Question	HNP DL5 Response	L&L DL5 Response	LL Comments on HNP DL5 Response
Q2.10.3	How would the TWA become the accommodation of choice for the majority of the construction workforce	The Wylfa Newydd DCO Project needs to be able to attract and retain a diverse and highly skilled workforce. A key component of that is ensuring that there is enough accommodation that is: • attractive to workers; • affordable to workers; • has a good range of facilities for day to day living and to socialise; and, • most importantly provides good access to their place of work. • As part of its accommodation package, Horizon is proposing that majority of the workforce (4,000) will reside in the Site Campus, immediately adjacent to the Main Construction Site. This will ensure that the local housing supply is not adversely affected by the influx of the workforce to the island. • In order to ensure that the majority of the workforce resides at the Site Campus, and to ensure that Horizon remains within its ES, which is based on no more than 3,000 workers residing in the community, Horizon is proposing the following measure to ensure that the Site Campus is the "accommodation of choice" for the workforce: • Location: The Site Campus has been located within the WNDA and in close proximity to the Main Site. This close proximity to the Main Site, offers workers the benefit of reduced travel time making their journey to work as simple as possible. This will be a key attraction for all non-home based construction workers (approximately 7,000) who do not want to spend unnecessary time and money travelling to and from rented accommodation on Anglesey or on mainland Wales. • Design: Horizon will ensure that the design of the Site Campus results in purpose built high-quality accommodation and a range of on-site facilities and amenities (such as an amenity building with, café, reception area, gym, bar, retail services, a medical centre and other social space, and outdoor recreation, including two multi-use games areas, outdoor seating and informal public spaces.) Delivery of these proposals are secured through the design principles in the Design and Access Statement (Volume 3). • Alignment with other Projects: In developing the Site Campus proposals, Horizon considered accommodation offerings for other Projects such as Hinkley Point C. Horizon considers that the Site Campus is similar to other Project offerings and will provide an equivalent to 3-star hotel-type accommodation and is likely to include the following features: • Serviced accommodation • Circa 15 square metres of lockable living space per occupant with 3.5 metre head space • All en-suite with power shower • Bed sized at 1.5 single bed size • Broadband and television connections • Catered meals available in amenity building • Laundry points • Occupancy commitments: Horizon has committed to an average occupancy target of 85% within the draft s.106 agreement to ensure that the majority of the workforce reside at the Site Campus. • The WAMS: The Workforce Accommodation Management Service includes a portal which will assist Horizon in directing workers to accommodation options at the Site Campus, rather than in other areas of the island. This is secured under the section 106 agreement and will enable Horizon to monitor occupancy rates a the Site Campus and undertake such necessary remedial measures (such as financial incentives) to achieve the target. • Attracting and retaining a quality workforce in a vital part of the Wylfa Newydd DCO Project's success. The accommodation workers stay in when they are away from home is an important part of retaining their services. High quality facilities at a price acceptable to the workers and viable to the Project can only be achieved with quality design and careful consideration of location and accessibility. The proposed Site Campus meets all three of these needs and Horizon is confident the campus will become the accommodation of choice to the majority of workers working away from home	We would draw the ExA's attention to the report prepared by David Seaton submitted as appendix 7 to the Land and Lakes Deadline 2 submissions [REP2-254]. The report sets out a number of observations drawn by Mr Seaton from his extensive experience managing similar facilities. In particular, the report notes the following points of relevance: - Workers find on-site accommodation proposals generally less attractive due to having a strong desire to compartmentalise work from their social lives - as evidenced by the slow uptake of on-site accommodation at Hinkley; - Very large facilities bring significant logistical challenges which are further exacerbated when the facility is situated in a remote location; - By contrast off-site facilities near a main conurbation can be delivered at a lower cost and run more efficiently through the use of off-site security screening. Such facilities offer the benefit of enabling integration by workers as well as access to a winder range of existing facilities in the nearby settlement. In addition to the above, the serious adverse noise impacts that will be suffered by residents of the Site Campus will almost certainly act as a deterrent. The likelihood is that this will either put workers off from the outset, coupled with the "behind the fence" location. Alternatively, once workers have had experience of the Site Campus they are likely to look for alternative accommodation quickly. If no other TWA exists, this will push workers into the private rented sector or into tourist accommodation to the detriment of those sectors.	L&L do not consider that HNP's response is satisfactory. In addition to L&L's original response L&L make the following two observations: 1) no evidence has been provided that a worker would choose to live in noisy 5/7 storey blocks of accommodation which offer no social cohesion; and 2) at Hinkley Point C 510 bedspaces were provided on site for a peak of 5600 workers. This equates to less than 10% on-site accommodation whereas HNP proposes 45% on-site accommodation. There is no precedent for such significant take-up of onsite provision

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Q2.10.4	Given the cost of accommodation on Ynys Mon, how would the TWA be priced to ensure that it would be affordable and the first choice for the majority of workers?	Schedule 5 of the revised draft DCO s.106 agreement sets out Horizon's commitment to target an average occupancy rate of the Site Campus of 85%. If necessary, measures will be used to incentivise increased occupancy. Paragraph 4.3 of the revised draft DCO s.106 agreement states: If monitoring undertaken by the Developer indicates that occupancy of the Site Campus is below 85% for more than 1 three month period then the Developer will act to incentivise take up of the Site Campus through measures such as pricing and marketing or other incentives agreed with the Council. This wording is being agreed with the Council currently, although Horizon understands the principle is agreed.	It should be noted that the Land and Lakes scheme has always been costed as equivalent to the prevailing NAECI subsistence rate[1] for *a fully serviced bed night* (subject to receiving a contract for minimum number of bed nights across the project). In practice this means that the cost to workers is nil as their received NAECI allowance would be equivalent to the cost of their accommodation at L&L. No information has been provided by HNP as to the cost to workers of residing at the Site Campus. The cost to HNP remains static, save for transport, as all non-home workers are entitled to the same NAECI rate.	L&L question the enforceability of the 85% target and, given the general concerns regarding the likelihood of onsite take-up, whether this is even remotely achievable. As stated in L&L's response to Q2.10.4, the L&L scheme has been costed based on the NAECI rate. Financially incentivising workers by discounting the subsidence rate is not straightforward as any discount on the subsistence rate would become taxable in the hands of the employee. L&L consider that the Site Campus accommodation would have to be so heavily discounted that this cost will far outweigh any excess cost that HNP purportedly incur by utilising Cae Glas and Kingsland.
Q.2.10.7	What should the minimum occupancy levels for the TWA be and how should they be secured?	The revised draft s.106 agreement sets out the target occupancy rate for the TWA of 85%. The occupancy rate in respect of each phase (as defined in the Phasing Strategy) will start to be calculated 6 months from the opening of that phase, and then be calculated over a 3- month rolling period thereafter. If monitoring undertaken by the Developer indicates that occupancy of the Site Campus is below 85% for more than 1 three month period then the Developer will act to incentivise take up of the Site Campus through measures such as pricing and marketing or other incentives agreed with the Council.	L&L has always been concerned that occupancy levels are critical to manage impact on existing tourist & PRS accommodation. A more attractive landscaped housing / lodge accommodation that is permanent and near the main conurbation will always be more attractive than 5 & 7 storey temporary blocks of accommodation on Wylfa site itself.	L&L question what level of incentives are proposed to ensure that the target occupancy will ever be achieved. During the 6 month period it is unclear what impact it will have on existing Anglesey accommodation and the subsequent issues it will cause to the tourist industry. This reinforces the need for alternative accommodation to ensure that the risk is mitigated.
WQ.2.10.11	At the ISH in October you indicated that the provision of TWA on-site would save HNP £30 million per 1,000 workers per year. Provide a further breakdown of how this figure was reached and the effect of this in relation to the financial viability of the application.	The provision of the Temporary Workers Accommodation on the WNDA Site, as opposed to alternative locations, has two significant main commercial benefits: Firstly the provision of the onsite facility removes significant costs associated with transporting 3500 workers on daily basis from an offsite facility to the WNDA site. In line with NAECI requirements it is expected that the provision of a facility some 17miles from the WNDA site would result in a demand from the Trade Unions to pay excess travel time (note - transport provided (busses) hence no travel cost would be payable, however travel time in line with NAECI at £7-65 per day would be payable to every worker residing at the offsite facility as this would not be the workers preferred choice). It is also possible that enhanced payments may be demanded by the Trade Unions hence the maximum provision detailed in the attached calculation. The cost of providing buses, including drivers, maintenance, running costs , insurance required to transport he workers form the offsite TWA to the WNDA must also be considered. The numbers involved and the timing of shift patterns means that the buses have to be designated for the sole use of transporting TWA workers to site. This is a significant cost, as detailed in the attached calculation. Secondly the potential risk impact of operating an offsite facility, managed by third parties who may not accept performance guarantees, must also be taken into consideration. The impact of the facility not being available on time, failure to deliver an acceptable standard of accommodation and welfare combined with the risk that the daily bus commute will add significant risk to the project which Horizon considers is unacceptable and would certainly be challenged by investors, particularly as Horizon has a perfectly acceptable onsite TWA solution. Additionally the onsite TWA has been assessed as providing the lowest cost solution in terms of meeting the Government CD&V expectations. Cost Table 1.1 below.	L&L would also welcome this information and, indeed, this is something that was requested in Section 2 of the Report prepared by Arcadis and submitted as appendix 5 to the Land and Lakes Deadline 2 submissions [REP2-249]. We would also note that no consideration appears to have been given to the potential for additional costs arising out of HNP's on-site TWA proposals, for example additional costs associated with as yet unknown and un-costed sound attenuation works to attempt to mitigate adverse noise impacts on residents of the Site Campus; the potential need for habitats mitigation required as a result of the impacts caused by the Campus and costs incurred as a result of increased churn (see paragraph 4.10 of the report prepared by David Seaton at appendix 7 to L&L's Deadline 2 Submissions [REP2-254])..	The ExA is referred to [RE2-245] for L&L's assessment of bus transfer costs. The additional transport costs of the L&L scheme cannot be viewed in isolation. L&L's evidence demonstrates that the Site Campus will incur additional expenditure over and above that assessed by HNP due to the need for additional acoustic treatments and mitigation, the need to decommission, the costs associated with a high churn of dissatisfied workers and the cost of discounting the accommodation in order to attract workers willing to reside in the accommodation. Therefore, the additional costs of transport do not mean that the L&L scheme would, overall, be more costly to HNP. In relation to transport costs, HNP's response needs to be corrected to reflect: (1) that both of L&L sites are less than 17 miles from site and would sit in a lower radius allowance bracket than HNP assert. HNP quote £7.65 per day but this should be £5.84 per day and so provision should be reduced by a minimum of £1.81 day.

[1] An employee who, by agreement with his/her employer, lives away from home shall be entitled to an accommodation allowance as set by NAECI (National Agreement for the Engineering Construction Industry), subject to satisfactory completion of the approved application form which may be found on the NJC website (www.njceci.org.uk). This daily / weekly tax free sum shall cover board & lodging and include breakfast and evening meal.

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Travel Allowance	On Site Campus	Land and
Item		Min provisioning
Worker Numbers	3500	3500
Travel Distance (miles)	0	17
NAECI Daily Allowance	£ -	£ 8
Total Daily Cost	£ -	£ 26,775
Cost per Fortnight (11days)	£ -	£ 294,525
Cost per year	£ -	£ 7,657,650
Total Allowance 7 year Build		**£ 53,603,550**

Bus and Fuel Costs	On Site Campus	Land and
Item		Min provisioning
3500 workers	3500	3500
Day Shift	2450	
Night Shift	1050	
Number Busees Requiers (Day Shift)	0	49
Number Buses per shift (Night Shift)		21
Optimisation (reduction) oppoertuntoiy	£ -	£ 34
Max Number of Buses (Min case)	£ -	£ 34
Cost of Buses (Purchase)/vehicle	£ -	
Running costs/year/bus	£ -	
Purchase costs	£ -	£ 6,800,000
Running Coss/Drivers	£ -	£ 47,600,000
Total Bussing Costs	£ -	£ 54,400,000
Total Aditional Costs	£ -	£ 108,003,550
Total Aditional Costs p/a	£ -	£ 15,429,079

In addition to the above it should be noted a during the examination of the proposal presented by Land and Lakes for the site at Holyhead, further exceptional issues totalling circa £200m had been identified. These have been outlined a report issued by Mace in November 2016 and a summary is included below in table (2).

A.4 RADIUS ALLOWANCE (NAECI 9.1)
From Monday 8th January 2018

BRACKET MILES		Scale 1			Scale 2
Over	Not exceeding	Taxed	Tax Free	TOTAL	
2	8	£0.00	£0.00	£0.00	£0.00
8	11	£2.74	£0.00	£2.74	£1.80
11	14	£4.48	£1.07	£5.55	£3.61
14	17	£7.25	£1.55	£8.79	£5.84
17	20	£8.07	£3.51	£11.57	£7.65
20	25	£9.31	£4.76	£14.06	£9.33
25	30	£10.31	£5.74	£16.05	£10.56
30	35	£11.13	£6.56	£17.69	£11.80
Over 35		£11.90	£7.33	£19.23	£12.89

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(2) that no account has been taken for residual value of 34 busses after worker use.

Accordingly, the total extra cost could be assessed at circa £13 pppn which we consider would be far less than would be required to persuade workers to live on the WNDA.

HNP refer to the MACE report which they commissioned to review L&L's scheme and which revealed that the cost of bedspaces in low rise houses & lodges was actually no more than the cost of providing bedspaces in blocks of accommodation on the Wylfa site.

The Mace report also asserted that there were £200m of extraordinary costs associated with L&L scheme. This report was issued to L&L in February 2017 and L&L sent their rebuttal response in March 2017. The conclusion of L&L's rebuttal, prepared by Edmond Shipway Construction Consultants, was that £10m of excess costs was more appropriate. No response to that rebuttal was ever received. Since that time, the emerging information on the HNP onsite campus suggests that mitigation measures for odour, noise and vibration would further reduce HNP's claim that the L&L scheme is more expensive.

HNP refer to the risk of an offsite facility being operated by a 3rd party but the terms originally proposed (in May 2016) was that HNP would lease the land and develop the site for their workforce so that HNP retained control until the properties were returned to L&L for refurbishment for legacy use. Arcadis have assessed the deliverability of the scheme and Sodexo assessed the operation viability to ensure this would be the accommodation of choice.

In terms of the second benefit which HNP assert (risk impact availability on time) the L&L commercial return is on achieving maximum occupation for the maximum duration. Therefore, delays would be harmful to L&L's business objectives and there is a large incentive to deliver the project quickly. In addition, the fact that L&L is developing two sites further reduces the risk of delivery and ultimately the L&L current programme of delivery is shorter than HNP's therefore the

Ref	Question	HNP DL5 Response	L&L DL5 Response	LL Comments on HNP DL5 Response
		<table><tr><th>Item</th><th>Finding</th></tr><tr><td>1</td><td>Architectural Master plans have been prepared to demonstrate ho developed to meet the Horizon requirements</td></tr><tr><td>2</td><td>Exceptional issues have been identified with a cost of up to £200m £210m to build the facility, rendering the scheme unaffordable</td></tr><tr><td>3</td><td>We do not believe the completed facilities will be fully occupied, v the project or live elsewhere</td></tr><tr><td>4</td><td>We are unable to recommend that a safe design for the Cae Glas s by nuclear construction workers based upon the existing Land and alternative has been developed</td></tr><tr><td>5</td><td>A risk remains that a modified Land and Lakes scheme for Kingsla deliver the required 3500 bedrooms</td></tr><tr><td>6</td><td>Land and Lakes have not demonstrated how they will deliver 3500 their house types since consent was obtained and a number of hou</td></tr><tr><td>7</td><td>An independent study has been undertaken by Jones Lang Lasalle v project is currently not fundable via traditional methods.</td></tr><tr><td>8</td><td>The above item will present an issue when the government's due di delivering the scheme is audited, it is likely that funding costs will</td></tr></table>		accommodation is therefore planned to be available before HNP's further mitigating the risk of delays. L&L had understood that the Mace report was confidential but have no issue in its disclosure nor its rebuttal prepared by Edmond Shipway (as referred to above) should the ExA find this informative. In the meantime, the following points apply in response to the summary: 1. *Arcadis have carried out extensive parametric modelling on both sites and proved that low rise houses and lodges can comfortably meet Horizon requirements within the constraints of the approved planning consent. See Arcadis report – REP2-249* 2. *These £200m exceptional issues were assessed by cost consultants Edmond Shipways and rebuttal document sent back to Horizon in March 2017 showing reasonable exception costs of £10m.* Emerging information on HNP's proposal with regards to mitigating vibration, odour and noise will add cost to the proposed onsite TWA. L&L do not have these costs. 3. *This is purely subjective. In fact, it is far more likely that a worker would choose to live in a low rise house / lodge set in a landscaped village setting close to main conurbation and excellent transport infrastructure, that is equally only 30minutes bus journey to place of work. This compares more favourably than a 5 or 7 storey accommodation block in a noisy environment within a remote nuclear secure compound with no social cohesion.* 4. *See response to point 1 above and Arcadis report – REP2-249. In addition,* L&L note that its proposal has outline planning permission and will be built to all appropriate building standards and quality codes, furthermore the development will have a longer design life than the HNP proposal for TWA due to its legacy use, therefore on what basis is this statement made 5. *See response to first point and Arcadis report –REP2-249 Arcadis have reviewed and confirmed L&L can delivery 3500 beds and in a shorter programme than HNP propose. We would also suggest that the L&L delivery proposal on 2 sites away from the main construction site provides risk mitigation in terms of delays to delivery.*

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				6. *The consent is in outline form with set parameters that allows sufficient flexibility to deliver the required 3500 bedspaces in an attractive form. The delivery is set out in Arcadis report –REP2-249. Furthermore, Arcadis have modelled the house types and configurations and confirm 3500 beds can be delivered part of the modelling parameters were the current outline planning permission to ensure we were compliant.* 7. *The project is fundable on the back of a contract with Horizon or any other body promoting the DCO for the provision of Nuclear Worker accommodation on the land.* 8. *A deal can be structured to ensure funding costs would be no different from those attributed to Horizon's proposed 'on-site' accommodation*
Q2.10.14	At the ISH on 7 January 2019 it was suggested that a portal monitoring where workers lived would be needed/. Can you provide further detail of how this would operate, how often it would need to be updated, how it could be secured and what it would enable.	Horizon is required to deliver the Worker Accommodation Portal, and all NHB workers will be required to register with the Worker Accommodation Portal. this is secured in schedule 5 of the DCO s.106 agreement. The portal will enable: accommodation providers to register available and suitable accommodation (which includes the Site Campus); the Workforce to search for accommodation that meets their needs; the Workforce to be put in contact with the accommodation providers or their agents. The portal will be open prior to Implementation. Horizon will work with an appointed Agent to ensure the operation of the Portal in accordance with the WAMS, for the duration of the Construction Period. The Portal will allow the monitoring of worker accommodation choices including location, and type of accommodation. Data will be made available to the WAMS Oversight Board on a quarterly basis or other such agreed period. This will enable monitoring of the take up of PRS accommodation by the workforce and trigger the release of the Accommodation Contingency Fund should thresholds be exceeded and the Council supplies evidence that such exceedance is causing an increase in homelessness and/or PRS rent increases.	L&L awaits details of how the Portal monitoring would operate but considers that its scheme will be very suited to the portal. In particular, the L&L scheme can be delivered in 5 distinct phases as opposed to HNP's 3 phases. If the L&L scheme is linked to the portal it would give the Authorities greater confidence in the delivery of accommodation to meet demand and HNP prefunding accommodation which would remain vacant in the earlier stages of the project. Conversely after the peak demand for the workers' accommodation, the L&L sites lend themselves to a phased conversion to their legacy uses, therefore delivering the legacy benefits in a staged, managed programme, whilst ensuring availability of accommodation should HNP experience delays on the second reactor when the first reactor is operational. We can provide a further note on how the L&L scheme fits in with the Portal once the detail is provided by HNP. We would also note in respect of HNP's Phasing of the TWA that they appear to be triggering the Phases prior to the exceedance of non-home based worker numbers. On this basis, it raises questions as to how it can be accurately tracked and more importantly be responded to through the TWA construction process to provide the required beds	L&L notes that only brief information is provided regarding the Worker Accommodation Portal. On the basis of the information provided L&L reiterates its previous position that its scheme can link into the portal.
Q2.11.19	Would the additional buses needed to transport workers from Cae Glas and Kingsland affect the outputs of the Transport Assessment/traffic modelling?	'This question is for Land and Lakes, however Horizon makes the following comment: The Land and Lakes site does not form part of the Wylfa Newdd DCO Project. As stated in Horizon's Response to Action Points set in the Issue Specific Hearing on the 8 January 2019 [REP4-008], submitted at Deadline 4 (17 January 2019) locating workers at Cae Glas and	L&L have fully assessed the transport impacts of the L&L scheme in combination with the DCO proposals and there is no material worsening of effects. The ExA is referred to L&L's assessment by Curtins at [REP2-248] and most recent explanatory note by Curtins at [REP4-036 Technical Note 01 dated 17 January 2019].	A clear error has been made by HNP in their reading of L&L's transport evidence by Curtins. As explained in our previous response, HNP have misread this report as addressing only part of the trips required when, properly understood, Mr York has assessed all of the trips generated by the L&L proposals. Mr York's robust conclusion is that the ES that accompanied the

Ref	Question	HNP DL5 Response	L&L DL5 Response	LL Comments on HNP DL5 Response
		Kingsland would affect the results of the traffic modelling provided in the DCO Transport Assessment. This is because locating workers at Cae Glas and Kingsland (rather than at the Temporary Worker Accommodation) would require workers to travel each day in shuttle buses from these locations to the Wylfa Newydd Development Area (and other locations) rather than the construction workers travelling within the WNDA to/from the Temporary Worker Accommodation, as proposed in the submitted Wylda Newydd DCO Project, resulting in no traffic imapcts on the local highway network. As explained in [REP4-008], the analysis provided by Land and Lakes in the Curtins report [REP2-248] on transport planning matters is inaccurate and flawed.	HNP's response to L&L's transport case is inaccurate and is based upon an obvious misreading of L&L's report. Section 1.2.3 of appendix 1-3 to the HNP's Response to actions set in the ISH on 8 Januarys 2019 [REP4-008] states: *'Transport analysis provided in the Curtins report at paragraph 1.5.6 states that a total of 21 coaches would be required to move the construction workers each day from the Land and Lakes sites on Holy Island to the WNDA.'* This is not correct. Para 1.56 of appendix 4 to the Land and Lakes Deadline 2 submissions [REP2-249] states: *'Morning Peak Hour Impacts: The HNP forecast per 1000 workers is for 230 staff to attend each morning shift. If using a 45 seater coach, this equates to 21 coaches per morning shift for a TWA facility comprising 4000 workers.'* *'Evening Peak Hour Impacts: The HNP forecast per 1000 workers is for 103 staff to attend each night shift. If using a 45 seater coach, this equates to 10 coaches per night shift for at TWA facility comprising 4000 workers.'* Curtins has no reason to doubt the accuracy of the above statements as the calculations are based on information provided by HNP. It is clear from the above HNP has misinterpreted the relevant bullet at paragraph 1.56 of Curtins' report. The reference to 21 coaches is a reference to the number of coaches required for each morning shift, of which there are three. It is therefore wholly incorrect to state that L&L estimated that only 21 coaches would be required for the entire day, this is a simple mistake made by HNP. The following bullet point within the Curtins report (also set out above) sets out the potential movements associated with the night shift. This information sets out how 945 workers could be accommodated in the AM and circa 412 during the night shift, potentially travelling in the PM. The response from HNP goes on to state in Section 1.2.8 that: *'If a bus or coach carries 45 people then this means that 54 buses would be required to transport all the workers from Holy Island to the WNDA every day at the start of the day shift and 54 buses would be needed again at the end of*	planning application for the L&L scheme remains an accurate worst case analysis of impacts. In short, the legacy use creates more of a transport impact than the TWA use and the effects are acceptable and not significant. Mr York's updated note takes account of the most up to date evidence from HNP about their own additional vehicle trips associated with the Wylfa project and again concludes that even based upon the most up to date evidence, the ES conclusions are sound and do not require amendment [REP4-036].

Ref	Question	HNP DL5 Response	L&L DL5 Response	LL Comments on HNP DL5 Response
			the day shift.' It is not clear what the basis for these numbers is and we are therefore unable to confirm their accuracy. However, in response to the ExA's question, an increase of 33 coaches is not considered to be significant for the reasons already set out in Para 1.5.7 to 1.5.15 of appendix 4 to the Land and Lakes Deadline 2 submissions [REP2-249].	
Q2.17.1	Confirm the status of Wylfa Newydd Supplementary Planning Guidance, May 2018 and whether it is to be submitted into the Examination.	The Wylfa Newydd Supplementary Planning Guidance (SPG) was adopted by the IACC on 15 May 2018. 2 The Wylfa Newydd DCO Project as a whole is compliant with the NPS policy and any relevant national and local policy including the SPG as set out in Horizon's Written Representation submitted at Deadline 2 [REP2-003] paragraphs 3.3.121 to 3.3.127.	Not applicable	The Wylfa Newydd Supplementary Planning Guidance (SPG) contains a number of guiding principles which are relevant to Wylfa Newydd and the DCO process. These guiding principles are intended to supplement the policies of the JLDP. The Wylfa Newydd DCO Project, specifically the proposals for the Site Campus, do not comply with the SPG for the following reasons: **GP9a - Maintaining and Creating Cohesive Communities** states that the County Council will expect all proposals to avoid large concentrations of construction worker accommodation unless significant socio-economic benefits can be delivered to the host community and states that all proposals must include measures to promote integration with the local community. As fully demonstrated in Land and Lakes' Deadline 2 Submission - Appendix 2 – Planning Report (REF: 002591), the proposed Site Campus will concentrate up to 4,000 workers an isolated and unsustainable location which will likely be secured with controlled access due to its proximity to the nuclear facility and will be inaccessible to local residents. Furthermore, there are no nearby facilities that are accessible by foot or public transport and even the nearest settlement of Cemaes has very limited facilities. There will therefore be very limited cohesion with the local community and very little socio-economic benefit to the host community. As such, the DCO fails to comply with GP9a of the SPG. **GP9b Maintaining and Creating Cohesive Communities – Campus Style Temporary Accommodation for Construction Workers located outwith the main Wylfa Newydd site**; **GP10a - Permanent Housing** and **GP10b - Campus Style Temporary Construction Worker Accommodation outwith the main Wylfa Newydd site** require TWA to be located in accordance with the sequential approach to preferred development locations and other provisions set out in JLDP Policies PS9 and PS10. **GP33 Holyhead** and Environs also states that the project promoter should fully assess the suitability of the permitted Land at Cae Glas and Kingsland development to accommodate construction workers. It clearly states that should an alternative approach to

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				the accommodation be preferred by the project promoter, then the County Council will expect the project promoter to provide strong reasoned justification for the rejection of the scheme and selection of the alternative site(s). As fully demonstrated in Land and Lakes' Deadline 2 Submission - Appendix 2 – Planning Report (REF: 002591), neither Horizon's Planning Statement (Ref: APP-406) nor Horizon's Site Selection Report Volume 4 – Temporary Workers Accommodation (Ref: APP-439) contain clear application or consideration of the sequential approach and contain a number of factually incorrect 'justifications' for ruling out the Land and Lakes scheme in favour of the Site Campus. It is clear that no robust evidence or strong reasoned justification is provided that the accommodation "cannot be provided" at Cae Glas or Kingsland, rather they are simply are not the preferred location for Horizon. On this basis, the DCO fails to comply with GP9b, GP10a, GP10b and GP33 of the SPG. **GP10a - Permanent Housing** also expects proposals for housing for construction workers to include clear consideration of the long-term legacy impacts, and proposals for providing long term legacy benefits, at the earliest planning stages. The Site Campus proposed as part of the DCO submission, is proposed for decommissioning following the construction phase, therefore provides no physical legacy use nor does it provide any long-term legacy benefits. Horizon's proposed 'Housing Fund' and a 'Community Impact Fund' do not provide a sufficient legacy benefit to the Island, particularly when compared to the significant community and legacy benefits (see Section 6 of Land and Lakes' Deadline 2 Submission - Appendix 2 – Planning Report - REF: 002591) that would be realised through provision of workers accommodation at Kingsland and Cae Glas. In addition to the Guiding Principles, the SPG recognises the Land and Lakes scheme as IACC's preferred option at Paragraph 5.2.26 which states: *"It remains the County Council's view that the* ***consented Land and Lakes development is a preferred opportunity to deliver construction worker accommodation that provides a lasting legacy benefit beyond the construction period of Wylfa Newydd*** *(in the form of housing, major tourism development, employment and community facilities and services)."* On this basis, the Site Campus is proposed through the DCO directly conflicts with the SPG with regards to IACC's position on its preferred option for TWA. At the 7 January ISH, Counsel for IACC stated that

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				there were 4 advantages with Land and Lakes scheme over and above Horizon's 'on site' temporary accommodation, namely that the L&L scheme: 1. Delivers new tourist and housing stock, 2. Is environmentally assessed and acceptable, 3. Has a significant legacy benefit, and 4. Has no other adverse impacts on the host region.

APPENDIX 3

REPORT PREPARED BY WATERMANS IN RELATION TO NOISE AND VIBRATION

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Wylfa Newydd Project

Response to Horizons Response to ExAs Further Written Response

Date: 18th February 2019

Client Name: Land & Lakes Limited

Document Reference: WIE15454-100-TN-2.1.4

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS OHSAS 18001:2007)

Issue	Prepared by
	Mark Maclagan Technical Director [redacted]

1. Introduction

1.1. This document sets out a response to Horizons' response to matters raised within the Land and Lakes (L&L) representation (REP2-261) regarding noise and vibration impacts. Each comment has been addressed in turn throughout the following sections.

1.2. The review has been completed by Mark Maclagan a Technical Director with Waterman Infrastructure & Environment Limited (hereafter Waterman). Waterman is a major multi-disciplinary consultancy with a strong track record of helping to deliver large scale projects throughout the United Kingdom (UK).

1.3. Mark's academic qualifications include a BSc (hons) in Environmental Science from Nottingham Trent University and a Post Graduate Diploma in Acoustics and Noise Control. Mark is a member of the Institute of Acoustics and has over 14 years' experience in the measurement, analysis and assessment of noise and vibration in relation to large scale regeneration projects throughout the UK.

Baseline Noise Environment

1.4. Within REP2-261 concerns were raised by L&L with regards to the potential impacts of the Existing Power Station Transformers. This concern was raised as it is understood that complaints have been received from residents as a result of noise associated with the Existing Power Station Transformers. The residents in question are located some 1.25 km from the Existing Power Station Transformers compared to circa 150m for the proposed Site Campus.

1.5. In their response Horizon have stated that *"according to the results of existing measurements, the absolute level of National Grid transformer noise at the existing Noise Sensitive Receptors is low (i.e. 25dB(A))"* However, the response continues to state that the reason for complaints from existing residents is the character of the noise in question, which in this case is the frequency content of the noise source described in paragraph 6.3.5 of the ES as a "tonal hum".

1.6. Horizon continue in their response that noise associated with the Existing Power Station Transformers is expected to be in the region of 35dB for the majority of the Site Campus buildings. Further justification of this statement is required, allowing for a basic distance attenuation correction and based upon the stated 25dB at existing sensitive receptors some 1.25km away a noise level of closer to 43dB $L_{Aeq, T}$ would be expected. Further to this, given that the "tonal hum" from the Existing Power Station Transformers was noted as being clearly audible at 1.25km from the equipment in question, the tones would be significantly louder at the closest units within the Site Campus. It is widely recognized that tonal noise such as that identified can lead to significant disturbance and through long term exposure can lead to adverse health impacts.

1.7. Horizon surmise that the reason for complaints by residents is not the overall noise levels as such but rather the very low noise levels during the Horizon baseline noise surveys. They go on to state that on the Site Campus baseline noise levels would for the most part be louder than 35dB and as such the transformer noise is unlikely to be a dominant part of the construction phase soundscape.

1.8. Although Waterman agree that where construction noise levels are significantly louder than the Existing Power Station Transformers, the transformers are unlikely to be a dominant noise source, there is a strong probability that the "tonal hum" would remain audible and intrusive throughout. Further, although it is understood that construction would have the potential to take place 24/7 there would be periods when construction noise does not dominate the noise climate. Under such situations noise from the Existing Power Station Transformers may become dominant and give rise to disturbance for residents of the Site Campus.

1.9. Although it would theoretically be possible to control noise ingress from both construction noise and the Existing Power Station Transformers into the Site Campus buildings through careful design of the building façade and Mechanical Ventilation with Heat Recovery, where noise is particularly tonal in nature, in particular in the low frequency range, this becomes very difficult and would require very high performing glazing and an acoustically robust façade system.

1.10. The proposed solution would not provide protection to any outdoor areas provided for use of occupants of the Site Campus during periods when they are off shift.

CONSTRUCTION NOISE METHODOLOGY

1.11. Although it is accepted that the assessment methodologies adopted to assess impacts from construction noise and those adopted to assess the suitability of the site for residential development do differ, this does not alter the fact that during the construction works the Site Campus will be occupied and as such for the purpose of the ES should be treated as a noise sensitive receptor for assessment purposes.

1.12. With regards to the suitability of the site for residential development, Horizon has assessed the suitability of the site in line with the guidance provided in Technical Advice Note 11 'Noise' (TAN 11). This approach is considered wholly inappropriate. The guidance provided in this document is designed to address sources of anonymous noise only although it does state that where industrial noise is present but not dominant the TAN methodology can be adopted.

1.13. Given the tonal and intermittent nature of noise associated with construction activities, it is considered to be closer in nature to industrial noise than anonymous transportation noise. The above statement is considered applicable to construction noise as well as industrial noise. When considering industrial noise TAN 11 states that:

"NEC noise levels should not be used to asses the impact of industrial noise on proposed residential development because of the nature of this type of noise"

1.14. Notwithstanding the above, it is noted that the site falls into NEC C. The guidance provided in TAN 11 states that where a site falls into NEC C:

Planning permission should not normally be granted. Where it is considered that permission should be given, for example, because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.

1.15. In this instance, quieter alternative sites are available and as such planning permission for the Site Campus should not be granted.

CONSTRUCTION NOISE LEVELS

1.16. In response to comments raised by L&L with regards to predicted construction noise levels Horizon states that

"Figure D6-5 illustrates potential construction noise levels at off site receptors. Reviewing this figure it can be seen that the outfall tunnelling works in construction zone 11…are the activity which generates the highest levels of noise at the Site Campus. However, this figure is based on noise modelling undertaken to provide a conservative assessment of the number of off-site receptors at which potential adverse effects may occur, which has necessarily been conducted using worst case impacts. One key area where model inputs are very conservative is in relation to the tunnel outfall works. The noise model places all of the plant and equipment associated with this work at 3m above the ground surface, whereas in reality much of the equipment will be located in tunnels"

1.17. Notwithstanding the obvious flaws in the approach adopted in assessing construction noise impacts from this area in relation to the assumed plant located and heights, we would assume that the conservative worst-case approach applied to the construction noise assessment should be carried over to the site suitability assessment. In light of this, the above response does not sufficiently explain the discrepancy between the noise levels presented in Figure D6-5 and those adopted for the assessment of site suitability for residential development.

SITE CAMPUS NOISE INSULATION

1.18. With regards to the insulation of the Site Campus, it is understood that the building façade is to be constructed from a Premier Modular System. Although it has not been possible to review the make up of the proposed façade experience suggests that when considering lightweight modular construction there is limited scope to control low frequency noise due to the lack of mass in the construction.

1.19. Horizon have suggested a performance of 50dB R_w for the façade system. However, when considering the design of such a light-weight system it is important that the C_{tr} correction, that is a correction for the low frequency performance of the façade system, is allowed for. Allowing for this correction the overall performance of the non-glazed elements of the façade based upon information provided by Horizon would be 39dB R_{w+ctr}. This would be coupled with a glazing unity which provides a performance of 30dB R_{w+ctr}. Taking both elements in conjunction and assuming a standard 2m^2 window opening, the façade as a whole would provide a composite R_{w+ctr} of 35dB.

1.20. Based upon the external noise levels quoted by Horizon in their ES of between 54 and 70dB L_{Aeq} during the daytime and 43 and 54dB during the night-time and using the calculation procedures set out in BS8233:2014, such a façade construction would result in internal noise levels in the region of 24 to 40 dB L_{Aeq} during the daytime and 13 to 24dB L_{Aeq} during the night-time. Considering previous comments with regards to the appropriateness of the adopted internal design criteria and

taking 30dB L_{Aeq} , the night-time bedroom criteria, set out in BS8233:2014 as appropriate for both the daytime and night-time period given the nature of the shift patterns proposed, it can be seen that for the noisiest façades the proposed façade system would be insufficient to control noise break-in from construction noise during the daytime period albeit based upon the available information night-time noise levels would be achieved. Repeating these calculations with noise levels presented on Figure D6-5 results in much higher internal noise levels.

1.21. Further to the above, given the low frequency tonal content of construction noise it is imperative that design of the façade takes into account noise in each frequency band. If low frequency noise is not accounted for, there is a strong possibility that internal noise levels would be significantly higher than those presented above and that the BS8233:2014 criteria would not be achieved.

1.22. With regards to the $L_{AF,max}$ criteria Horizon suggests that the 2018 WHO Environmental Noise Guidelines for the European Region notes that the assessment of the relationship between different types of single-event noise indicators and long term health impacts is tentative. This statement although technically correct is out of context, the statement as provided in the 2018 WHO guidelines reads:

"In many situations, average noise levels like the L_{den} or L_{night} indicators may not be the best to explain a particular noise effect. Single-event noise indicators – such as the maximum sound pressure level (L_{Amax}) and its frequency distribution – are warranted in specific situations, such as in the context of night-time railway or aircraft noise events that can clearly elicit awakenings and other physiological reactions that are mostly determined by L_{Amax}. Nevertheless, the assessment of the relationship between different types of single-event noise indicators and long-term health outcomes at the population level remains tentative. The guidelines therefore make no recommendations for single-event noise indicators."

1.23. In this context given construction noise, which is intermittent in nature, would have the potential to generate individual events of high noise levels which in turn may elicit wakening the use of the L_{Amax} criteria. In this instance it would be considered appropriate.

NIGHT SHIFT WORKERS

1.24. Although it is recognised that Horizon would take every effort to ensure that night workers occupy only the quietest residential blocks in light of previous comments, it is considered that the information provided in the ES is insufficient to allow these areas to be identified. It should also be confirmed if noise related to boat traffic has been considered for those units located close to the shoreline.

1.25. Horizon also state that having the Site Campus on-site will reduce the need to transport up to 4000 workers to site each day thus reducing the potential road traffic noise impacts of shift changes at off-site receptors near the A5025. This statement only stands true if the accommodation is of sufficient quality that workers wish to stay on the Site Campus. Should occupants be exposed to high levels of noise and vibration to a point where it is having a detrimental impact on their sleeping patterns, they may choose to live elsewhere.

CONSTRUCTION VIBRATION

1.26. It is noted that Horizon has made a commitment to complete vibration intensive tunnelling works prior to occupation of the closest buildings to the Site Campus or where this is not possible to arrange for the closest blocks to these works to be unoccupied for short periods.

1.27. As set out in the previous submission (REP2-261) *"It is highly unlikely that any mitigation measures could reduce the impact of major significance to negligible on a receptor that is just 13m away from the source of vibration"*

1.28. Of key importance here is that the ES defines an impact of major significance as when vibration levels are above 10mm/s Peak Particle Velocity, a level at which it is commonly accepted as the point at which the onset of cosmetic damage may arise to structures. When considering human perception guidance provided in BS5228:2009 Part 2 states:

"Human beings are known to be very sensitive to vibration, the threshold of perception being typically in the PPV range of 0.14 mm/s to 0.3mm/s. Vibration above these values can disturb, startle cause annoyance or interfere with work activities. At higher levels they can be described as unpleasant or even painful. In residential accommodation, vibrations can promote anxiety lest some structural mishap may occur"

1.29. Further to the above, the guidance provided in BS5228:2009 Part 2 is intended for guidance only and to allow the assessment of impacts of construction vibration upon existing noise sensitive receptors. When considering the impacts of vibration upon new residential receptors, the primary source of guidance is BS6472:2008. This document allows the assessment of vibration at the point at which it enters the body against a criterion which more accurately represents the response of human beings to vibration, that is the Vibration Dose Value.

1.30. The guidance provided in this document required vibration levels external to the building to be corrected for both damping and amplification through the building structure. This is of particular importance when considering light-weight structures such as those proposed for the Site Campus. Furthermore, given the residential nature of the development some consideration of structure-borne noise would be required.

1.31. In light of the above it is considered that the impacts of vibration upon the Site Campus have not been fully considered in the ES and that there would be the potential for disturbance to future residents as a result of on-site construction related vibration.

SUMMARY

1.1. In summary, it is maintained that the ES does not adequately assess the impacts of noise and vibration upon the proposed Site Campus. Based upon the information provided noise and vibration levels on areas of the Site Campus would fall above those which are commonly acceptable for residential development and would not be conducive to a good standard living. Given that alternative accommodation sites proximate to the works but without the associated noise and vibration constraints are available, it is considered that further justification for the inclusion of a Site Campus on the Wylfa Newydd site is required.