INDEPENDENT REVIEW OF SHADOW HRA AND RELEVANT APPENDICES

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1. INTRODUCTION

The November 2018 ruling by the Court of Justice of the European Union (CJEU), referred to as the Dutch Nitrogen Case or Dutch Case, ruled that increased atmospheric nitrogen deposition to Dutch European sites resulting from new plans and projects may pose a risk to "site integrity", due to the link between nutrient enrichment and eutrophication. Natural England now considers that the CJEU judgement applies to increased nutrient loading to European sites in England and therefore, Competent Authorities need to consider the risk of likely significant effects that could arise from plans or projects that increase nutrient inputs to European sites. Without mitigation measures in place, new developments that increase nutrient loading to a European site will no longer be compliant with the Conservation of Habitats and Species Regulations 2017 (as amended), referred to as Habitats Regulations. Therefore, there is now demand for nutrient mitigation schemes to offset the impacts of new residential developments within the relevant catchment areas.

Natural England's legal advice on Nutrient Neutrality made clear that nutrient loading impact pathways would need to be screened into a Habitats Regulations Assessment (HRA) for new developments that could increase nutrient discharge to European sites. Each new development that increases the number of overnight stays and thus increases the production of wastewater and associated nutrient loading, by *any amount* to European sites already in unfavourable condition due to nutrient loading, may not be legally consented.

In addition, following the People Over Wind ruling of the CJEU, mitigation measures cannot be incorporated at the screening stage of an HRA (Stage 1) and so, if likely significant effects on European sites are identified at screening due to increases in nutrient loads from new developments, the plan or project will need to progress to Stage 2 Appropriate Assessment (AA). An AA can incorporate mitigation measures into its assessment of adverse effects on site integrity. To assess whether a housing development requires the implementation of mitigation measures to prevent adverse effects from nutrient loading, Natural England requires developers/ Local Planning Authorities (LPAs) to produce a nutrient budget for the development. If the nutrient budget shows that the development will result in an increase in nutrients coming from the development compared with the current land use, mitigation will be required to ensure the development is "nutrient neutral".

In August 2021, an applicant submitted a planning application for a residential development of 210 dwellings at Long Copse Lane, Emsworth, Havant. The site falls within the Chichester Harbour fluvial catchment and without proper mitigation is likely to have an adverse effect on the site integrity of the Chichester and Langstone Harbours Special Protection Area (SPA) and other European sites. The site is largely in unfavourable condition, in part due to excess nitrogen levels. Thus, in accordance with the Dutch Nitrogen case, the applicant has needed to a) ascertain if the development will result in adverse effects on site integrity due to causing a net increase in nutrient loading to the site; b) provide mitigation of any net increase in nutrient loading to the site, in order to demonstrate nutrient neutrality and prevent adverse effects on site integrity.

To support the planning application, Pegasus has produced the main Shadow HRA (sHRA) report. Ricardo Energy & Environment (Ricardo) was commissioned by Havant Borough Council to undertake an independent review of the sHRA and relevant appendices, to ensure that they are compliant with the HRA requirements. The list of documents to be reviewed is as follows:

All sections pertaining to water quality within the sHRA report;
sHRA – Appendix 3, Draft S106 Agreement;
sHRA - Appendix 4, Nutrient Balancing Assessment; and
sHRA - Appendix 4B, Hydrogeological Appraisal of Nutrient Neutrality Offset Land

These will be considered to ensure that the documentation has been prepared in accordance with the HRA requirements and Natural England guidelines.

2. REVIEW OF DOCUMENTATION

2.1 WATER QUALITY SECTIONS OF MAIN SHADOW HRA

2.1.1 Summary of document

2.1.1.1 Stage 1: Screening Assessment

The sHRA assessed the potential effects of the proposed residential development at Land north of Long Copse Lane, Emsworth (Planning Application Reference: APP/21/00893), known hereafter, as the 'proposed development'. The proposed development is comprised of 210 dwellings and associated works include, but are not limited to: road and pedestrian access, landscaping and supporting infrastructure.

The Stage 1 Screening Assessment has been conducted on European sites within 10 km of the proposed development. Five European sites were identified in the Stage 1 Screening Assessment: Chichester and Langstone Harbour SPA and Ramsar site, Solent Maritime SAC, Kingley Vale SAC and Solent & Isle of Wight Lagoons SAC. In addition to the five sites listed above, Singleton Cocking Tunnels SAC has been included in the screening assessment as per consultations with Natural England and Hampshire County Council. Conservation Objectives have been included for Chichester and Langstone Harbour SPA (not included for the Ramsar site), Solent Maritime SAC, Kingley Vale SAC, Solent & Isle of Wight Lagoons SAC and Singleton Cocking Tunnels SAC. Qualifying features for each site have not been included in the assessment.

Likely significant effects were identified due to potential changes in water quality within the Chichester and Langstone Harbours SPA and Ramsar site. All other European sites were screened out regarding water quality.

2.1.1.2 Stage 2: Appropriate Assessment

The sHRA Stage 1 Screening Assessment identified the potential for likely significant effects due to changes in water quality within the Chichester and Langstone Harbours SPA and Ramsar site and therefore, the proposed development progressed to Stage 2 AA. Specifically, surface and ground water pollution through construction and operation of the proposed development had the potential to cause an adverse effect on the Chichester and Langstone Harbours SPA and Ramsar site. It was proposed that the wastewater for the proposed development is to be treated at Thornham Wastewater Treatment Works (WwTW) and discharged to Chichester Harbour.

The mitigation strategies discussed in the sHRA relating to surface water quality include a surface water strategy, Sustainable Drainage System (SuDS) using petrol and oil interceptors and enhancements to basins. Open space has been incorporated into the proposed design to include SuDS on the proposed development site. It is anticipated that by using oil and petrol interceptors along with the SuDS, nitrogen, excess sediment and other pollutants can be mitigated.

To mitigate for nutrient loading, the abovementioned SuDS has been proposed. In addition to this, the decommissioning of a cereal crop for the planting of 8 ha of woodland has been proposed at the Stanstead Estate. It is stated that the off-site mitigation land is located in the same catchment as the Chichester and Langstone Harbours SPA and Ramsar site. The mitigation is estimated to result in a net reduction in nitrogen to the European sites as shown in Appendix 4 of the sHRA.

Using the mitigation measures mentioned above, the sHRA concludes that there will be no adverse effects to the site integrity of the Chichester and Langstone Harbours SPA and Ramsar site alone or in combination.

2.1.2 Has the documentation followed the correct HRA process?

2.1.2.1 Stage 1: Screening Assessment

A Stage 1 Screening summary table is recommended as it is unclear how the impact of water quality on European sites have been screened in or out (*para 6.3*). Specifically, clarification is recommended for the Solent Maritime SAC and the Solent & Isle of Wight Lagoons SAC as pollution to groundwater, changes in abiotic conditions and changes in biotic conditions are listed as pressures for the sites in *Table 3.3 (page 22-23).* A short reasoning as to why sites were screened in or out would be beneficial. In addition to this, the qualifying features (habitats and species for which the site is designated) of the European sites have not been included or assessed independently. As per Section D.2 *European site 'qualifying features'* of the DTA

Handbook (Tyldesley and Chapman, 2013), potential impact pathways to each qualifying feature must be assessed during the Stage 1 Screening Assessment and screened out as appropriate.

It was noted that the Stage 1 Screening Assessment of Chichester and Langstone Harbour SPA (UK0017073) and the Chichester and Langstone Ramsar Site (UK11013) were combined. It is recommended that these European sites are assessed separately, as the qualifying features and Conservation Objectives for the SPA and Ramsar Site are not the same and the potential impact pathway for changes in water quality must be assessed for each qualifying feature of each European site. In addition to this, the Solent and Dorset Coast SPA (Marine Components GB; UK9020330) was not included in the screening assessment. As the site falls within the 10 km search radius, the Solent and Dorset Coast SPA should be included in the Stage 1 Screening Assessment. In addition, a georeferenced map showing the locations of the European sites in relation to the proposed development is recommended, to provide visual evidence of the European sites included in the screening.

2.1.2.2 Stage 2: Appropriate Assessment

The Stage 2 AA requires more detail and must use scientific evidence to inform the conclusion that there will be no adverse effect on the site integrity of European sites. Mitigation measures identified at Stage 2 AA must go through an integrity test where there are “complete, precise and definitive findings” (DTA Handbook Section D.7; Tyldesley and Chapman, 2013). At present, there is not sufficient information to inform the Competent Authority about the quantity and rate (net increase) of nitrogen loading into the catchment from the proposed development. The estimated efficiency of each mitigation measure proposed should be stated, by quantifying how much excess nitrogen produced by the proposed development will be processed by each mitigation strategy. In addition, the duration of implementation and how success will be measured for each mitigation measure should also be provided. This will reduce uncertainty regarding the efficacy of the mitigation strategy proposed in preventing the net gain increase in nitrogen loading and avoidance of adverse effects on site integrity.

Information about the locations of the off-site mitigation and the WwTW should be included. This can be shown with a georeferenced map confirming that the off-site mitigation land and the proposed development land are within the same catchment. If the off-site mitigation and proposed development land is not within the same catchment, then Natural England must be consulted to gain their consent as per the Natural England’s ‘*Advice on Achieving Nutrient Neutrality for New Development in the Solent Region for Local Planning Authorities’* (2020).

2.1.3 Conclusion

The Stage 1 Screening Assessment of the sHRA is missing the qualifying features for each of the European sites. These qualifying features are required for the assessment as they relate to the Conservation Objectives. These include species and habitats for which the sites are designated and can be found in the respective citations for each site. In addition to this, a summary table of the sites and the impact pathways leading to likely significant effect should be included. A short description as to why a site has been screened in or out is recommended.

The Stage 2 AA of the sHRA has not followed the correct HRA process and is missing key details to confidently inform the Competent Authority. More information regarding water quality mitigation and nutrient neutrality mitigation strategies is required to accept the sHRA.

It is recommended by Ricardo that until such information is provided, the Competent Authority rejects this sHRA.

2.2 SHADOW HRA – APPENDIX 3, DRAFT S106 AGREEMENT

2.2.1 Summary of document

The Section 106 of the Town and Country Planning Act 1990 for the land to the north of Long Copse Lane, Emsworth and land at Standsted Park, Rowlands Castle, Hampshire.

An agreement between Havant Borough Council, South Downs National Park Authority (the Mitigation Land Authority), Janice Mary Soloway and Philip Roger Smith (First Owner), Adrian David Williams and Deborah Ann Williams (Second Owner), Colman Investments Limited (Third Owner), Andrew Turner and Michael

Hackman (Fourth Owner), Land & Partners Limited (the Developer) and Stansted Park Foundation (the Mitigation Land Owner).

The S106 sets out an agreement for the Mitigation Land to be used for the purpose of nitrate mitigation between Land & Partners Limited and Stansted Park Foundation. No agricultural land use or fertiliser inputs are permitted on the Mitigation Land from the Operative Date of the proposed development. This condition remains true for the lifetime of the proposed development. The following practices are permitted: the harvest of an existing crop at the Operative date, as long as no fertiliser is used, the planting and management of trees as per the conditions set in the Woodland Planting Scheme, leaving the Mitigation Land to naturally regenerate, planting and maintaining greensward, creating and maintaining open space and forestry rides and maintenance approved by Natural England, the Forestry Commission, or other responsible authorities.

Monitoring will be implemented annually from the Operative Date until the 20 Year Date and every 5 years post 20 Year Date until the End Date, with written reports produced after each visit by the Mitigation Land Authority.

Woodland planting scheme must be provided to Natural England for approval as well as Havant Borough Council.

2.2.2 Has the documentation followed the correct HRA process?

Documentation will need to provide agreements that the new land will be secured in perpetuity. Currently the S106 secures the land for a 20-year period. According to the UK Forestry Standard (2017), broadleaved woodland can take at least 60 years to establish. Natural England Guidance for nutrient neutrality states: "*Mitigation must be in place for the lifetime of the proposed development so in most cases this will be in perpetuity. We generally define in perpetuity between 80-125 years; however, it does not follow that mitigation is not needed after that period*". At present, the document does not follow the advice set out by Natural England and the Forestry Commission. Documentation will also need to ensure that Natural England Woodland Planting guidelines are followed.

Woodland planting scheme must be provided to Natural England for approval as well as Havant Borough Council prior to the commencement of the proposed development. The creation of greensward, open space, and forestry rides should be limited to ensure that a minimum reduction of 263.23 kg/Total Nitrogen(TN)/yr is maintained.

All environmental surveys must be conducted before commencement of the proposed development. The Mitigation Land should be taken out of agricultural use and begin woodland planting as soon as possible. The process for commencing the mitigation strategy should not wait until the commencement of the proposed development as per Natural England recommendations.

2.2.3 Conclusion

Ricardo finds that the Section 106 agreement produced requires specific conditions outlining that the Mitigation Land is to be secured permanently as woodland.

2.3 SHADOW HRA – APPENDIX 4, NUTRIENT BALANCING ASSESSMENT

2.3.1 Summary of document

2.3.1.1 Proposed Development

The nutrient balancing assessment was prepared by Tetra Tech to determine the changes in nitrogen outputs from existing to future land uses associated with the proposed development. The assessment was conducted using the following development design parameters:

- 210 residential dwellings;
- 8.1 ha urban land use;
- 0.065 ha open urban land;
- 5.755 ha greenspace;
- 0.55 ha retained woodland; and
- 0.10 ha of community food growing.

2.3.1.2 Nutrient Budget Calculator

The assumptions used to conduct the nutrient balancing assessment can be found in Table 1.

Table 1 Summary of nutrient budget calculator assumptions

Number of proposed units	210 residential dwellings
Average occupancy rate:	2.40 (2.23 was calculated using Havant Borough Council occupancy rates calculator although using the precautionary principle, the higher value was used for the assessment).
The total site area	14.57 ha
Current land use:	12.94 ha lowland grazing; 0.72 ha greenspace; 0.55 ha woodland; and 0.36 ha residential urban.
Future land use:	8.1 ha urban residential; 0.065 ha open urban; 5.755 ha greenspace; 0.55 ha woodland; and 0.1 ha community food growing.
Wastewater Treatment Works (WwTW)	Thornham WwTW with a consent limit of 8 mg/l. 8 mg/l was used in place of 10 mg/l as it assumed that deductible loading applies to the proposed development.
Surface Water Catchment	Arun and Western Streams
Standard annual average rain fall	750.1 – 800 mm
Soilscape category:	Impeded Drainage (Slowly permeable, seasonally wet slightly acidic but base rich loamy and clayey soils.
Nitrate Vulnerable Zone	Yes

The calculator used to determine the nutrient concentrations was the Nutrient Neutrality Budget Calculator Solent (Natural England and Ricardo Energy and Environment, April 2022). The results from the calculator showed that the total load from the development wastewater was 159.05 kg/TN/yr, the current land use load was 77.72 kg/TN/yr, the future land use load was 138.03 kg/TN/yr. The net change resulting from the proposed development was 219.36 kg/TN/yr. After applying the 20 % precautionary buffer, the total load was **263.23 kg/TN/yr.** As the results of the Nutrient Budget Calculator indicated an increase in TN to the Solent Catchment Area, a mitigation strategy was required. The document states that there is hydrological connectivity from Thornham WwTW and the Chichester and Langstone harbours SPA via the Chichester Harbour Fluvial Catchment.

2.3.1.3 *Mitigation Strategy*

The mitigation strategy outlined in the nutrient balancing assessment consists of off-site mitigation. The off-site mitigation is located to the north of the proposed development site at Stansted Park and is owned by the Stansted Estate. Nutrient neutrality will be achieved through the conversion of cereal crops to woodland to achieve a net decrease in TN to the catchment. The mitigation land is located on the Stansted Estate and will comprise 16.0 ha. The conversion of cereal crops to woodland would result in a net decrease in TN, as the total capacity of the mitigation land was 301.54 kg/TN/yr. The woodland is to be secured in perpetuity through planning obligation.

2.3.2 Has the documentation followed the correct HRA process?

The mitigation proposed in the Nutrient Balancing Assessment is feasible and follows Natural England Nutrient Neutrality Guidelines. Ricardo finds the assumptions listed in Table 1 agreeable as evidence has been provided to validate the claims. The results from the Nutrient Budget Calculator have been validated by Ricardo and the nitrogen load resulting from the proposed development (263.23 kg/TN/yr) is accurate.

There is the requirement for the consent of off-site mitigation land to be outside the WwTW catchment by Natural England and the Local Planning Authority (Havant Borough Council). Catchment data included in the document (Appendix D) show that some of the mitigation land sits outside of the Arun and Western Streams catchment. For the mitigation to be acceptable, consent from Natural England must be acquired through consultation. Although this is stated as having been agreed via Natural England's Discretionary Advice Service (DAS), there is no detail or evidence of what is included in that discussion. Evidence is however, provided regarding the water source for the proposed development relative to the deductible loading.

If the aforementioned items are provided, then the proposed mitigation scheme provided in the nutrient balancing assessment is acceptable. If there are changes to the proposed development design, the Nutrient Budget Calculator and nutrient balancing assessment will need to be revisited.

2.3.3 Conclusion

Information confirming the source of water for proposed development has been provided as within the Walderton supply zone[1] which is entirely within the Solent catchment. The off-site mitigation land location must be agreed by Natural England as well as Havant Borough Council, as a portion of the mitigation site falls outside the Arun and Western Streams Catchment (where the WwTW is located). The DAS process may provide evidence but the detail has not been provided.

Based on the information provided, the mitigation strategy is acceptable to mitigate the total of 263 kg/TN/yr that would otherwise cause adverse effects to the Chichester and Langstone harbours SPA and Chichester and Langstone Harbours Ramsar site. The implementation of the woodland planting at Stansted Park will lead to no adverse effects on the aforementioned European sites as the Nutrient Budget Calculator showed a total of 301.54 kg/TN/yr resulting in a net negative nitrogen load to the Solent Catchment.

2.4 SHADOW HRA – APPENDIX 4B, HYDROGEOLOGICAL APPRAISAL OF NUTRIENT NEUTRALITY OFFSET LAND

2.4.1 Summary of document

The Hydrogeological Appraisal indicates that the proposed mitigation land is situated on Chalk Formation, with some areas situated on the Lambeth Group.

A detailed assessment regarding the validity of the assumptions can be found in Ricardo's *Independent Review of Nutrient Mitigation Proposed at Stansted Park* (2022).

The land use change resulting from the woodland planting will result in a reduction of nitrates entering the surface water runoff and groundwater (as per the documents assumptions). The reduction would be seen within one year.

2.4.2 Has the documentation followed the correct HRA process?

Due to the level of uncertainty regarding the lack of site-specific baseline data relating to local stratigraphy, groundwater regime and water levels within the proposed mitigation site, additional information and further assessment is required. If evidence cannot be provided to validate the assumptions made in the report, nitrogen level monitoring downstream must be implemented in order to comply with HRA guidelines (Tyldesley and Chapman, 2013). As monitoring is required, an alternative mitigation strategy will need to be prepared if monitoring shows the potential for adverse effects. It is recommended that on site assessments are completed prior to the commencement of the proposed development.

2.4.3 Conclusion

There is uncertainty associated with the assumptions of the underlying hydrogeology of the mitigation land. If these uncertainties cannot be addressed, monitoring must occur to ensure that there are no adverse effects to the qualifying features of the Chichester and Langstone Harbours SPA and the Chichester and Langstone

[1] The Walderton Supply Zone sits entirely within the Solent catchment, as shown in Natural England Technical Information Note TIN211 (http://publications.naturalengland.org.uk/publication/6522945605468160)

Harbours Ramsar site. An additional mitigation plan should be prepared if the monitoring shows the potential for adverse effects to occur.

3. CONCLUSIONS

Is the documentation in line with the HRA principles?

Ricardo finds that the sHRA was not in line with HRA principles. Specifically, the Stage 1 Screening Assessment did not provide enough detail regarding the qualifying features of the European sites or how likely significant effects were screened for each impact pathway. The Chichester and Langstone Harbours SPA and the Chichester and Langstone Harbours Ramsar site must be assessed as individual European sites. At present they are treated as one entity. This does not follow HRA guidelines. Additionally, the Stage 2 AA did not provide the necessary detail to conduct a robust integrity test of the proposed mitigation strategies. The nutrient balancing assessment is in line with HRA principles. As highlighted above to comply with Natural England guidelines, evidence of discussion regarding the off-site mitigation land location with Natural England is required. We understand that this has been confirmed via the DAS process but have not seen the details. The Section 106 is in line with the HRA guidelines, although clarification on how the mitigation land will be secured in perpetuity is required. Given the uncertainty surrounding the assumptions provided in the hydrogeological appraisal, a localised assessment and associated reports should be presented to validate said assumptions. If assumptions cannot be validated, additional monitoring measures and alternative mitigation strategies are required.

Is all of the documentation required (re. WQ) provided?

Documentation showing qualifying features of designated sites (i.e., citations or reference to citations) is required to complete a sHRA. Qualifying features include the habitats or species for which a site is designated. A summary table providing which European sites have been screened in or out and the reasoning behind the screening decision is recommended. Ricardo understands that there has been consultation with Natural England and Havant Borough Council to agree on the location of the off-site mitigation land but have not seen the details via the DAS process. It is key that evidence of discussion with Natural England is provided, however Havant Borough Council as the competent authority is permitted to reject Natural England's advice, if desired.

Does further work need to be done in any area: provision or more documents, further modelling, etc?

The Stage 1 Screening Assessment of the sHRA should include a summary table showing all of the European sites being considered, their qualifying features and which impact pathway may lead to likely significant effects. A map showing the location of the European sites in relation to the proposed development is recommended. The AA needs more detail in order to complete the integrity test and evidence that no adverse effect will occur on the Chichester and Langstone Harbour SPA and the Chichester and Langstone Ramsar site. Further information and assessment are required to validate assumptions made in the hydrogeological appraisal. If this cannot be completed, additional monitoring and mitigation plans are required.

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