

Date	NatureScot Comment	Relevant Section	Jacobs Comment	NatureScot comments 21/08/24	Jacobs Comment
Comments on V1.4 of HRA - issued to NS on 06/11/2020					
23/12/2020	As a general comment, there is reference (and discussion) in the submitted docs about potentially having separate HRAs for the reinstatement and maintenance (as per cells E27 and E32). Our advice is that it is preferable to have one HRA which would cover all these elements of the project. It is understood there are some unknowns in relation to what repair work may be required in the future, although there should already be a good idea of what much of the work involves. The ideal situation would be to plan as much of this work as possible the summer months, which is outwith the sensitive time period for the SPA qualifying species.	General comment	Text updated.		
23/12/2020	The reasoning for this conclusion should be included in the documents [in relation to the text 'no potential for LSE is identified during construction or operation with regards to changes in coastal geomorphology']	Section 3.3 Screening in both V.14 and V1.7	Additional text has been added to Section 3.3 and a coastal geomorphology appendix has been produced.		
23/12/2020	The cormorant narrative for Loch Leven reads more like an evidence base for yes to LSE & therefore AA required (and presumably later no AESI demonstrated).	Table 3.2 Screening in both V.14 and V1.7	Text has been updated and Loch Leven SPA/Ramsar site have taken through to AA.		
23/12/2020	Has this observation, which illustrates that understanding of disturbance causation is limited, led to any changes within the HRA? I.e. towards a more precautionary approach? [In relation to the text 'No LSE were identified for BHFP11, however redshank reacted twice during the nine GI-related disturbance events. Ten redshank appeared to be agitated on the ground during low tide, but did not disperse as a result of the disturbance on one occasion, and seven redshank flew approximately 30m along the breakwater, away from the disturbance, on the second occasion']	Section 4.4.3 Results in both V.14 and V1.7	Additional text has been added to Table 4.4 to specify what caused the disturbance events at BHFP11. A precautionary approach already underpinned the HRA.		
23/12/2020	the wording here conflates length of time (duration) and sensitivity of time (e.g. high tide) [in relation to the text 'the length of time the displaced birds are likely to be affected e.g. during the high tide period']	Section 4.8 Assessment of Impacts in V.14 Section 4.9 Assessment of Impacts in V1.7	Text updated to 'the duration of time the displaced birds are likely to be affected at the most sensitive time e.g. during the high tide period'		
23/12/2020	The effectiveness of the compensation should be ensured before a project starts. If you are relying on monitoring to gauge effectiveness then you must also have a whole system set up with monitoring set up so that is anticipates a possible impact before it happens, triggers for taking action, clear responsibilities, understanding of what is needed to be done, and the means; financial, statutory etc. in place to carry them out... ... This section is more problematic whether referring to mitigation or compensation, for the reasons given above. [referring to the text 'The need for further mitigation, if identified as required during monitoring surveys, will be discussed with the ECoW and NatureScot. Further mitigation could include amendments to lighting plans, additional screening, and restrictions on works during severe winter weather']	Section 4.9 Mitigation in V1.4 Section 4.10 Mitigation in V1.7	Compensation proposals are detailed in Section 8 Compensation of V1.7 of the HRA. Text is included which confirms that the compensation will constructed as part of enabling works of the Scheme to ensure that compensatory habitat is in place before the commencement of construction works, and potential disturbance effects. The mitigation section (Section 4.10 in V1.7) has been updated in to include more detail on mitigation.		
23/12/2020	"Post-construction monitoring will be undertaken, in accordance with the LHMP, to determine the effectiveness of the restoration," (again, this bit seems ok, assuming it is only verifying the success of the measures taken) "and inform whether further mitigation or maintenance is required to maintain the conservation status of qualifying species. (This part has the same issues as above.)"	Section 4.9 Mitigation in V1.4 Section 4.10 Mitigation in V1.7	The mitigation section has been updated in to include more detail. Removed from "and inform" from the sentence noted.		
23/12/2020	"Monitoring surveys will be undertaken by the employer's ecologist throughout construction to determine the effectiveness of the mitigation." under a column heading 'Avoidance and Mitigation' of which monitoring is neither. NB This appears multiple times within the table.	Section 4.9 Mitigation in V1.4 Section 4.10 Mitigation in V1.7	Amended text to "In addition to the avoidance and mitigation measures detailed above, monitoring surveys will be undertaken..." Updated throughout table.		

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Comments on V1.7 of HRA - issued to NS on 28/02/2024					
02/04/2024	1. We haven't been able to locate the most recent bird survey data (22/23) in the submitted information, which we will need to see as part of the assessment – apologies if it has been submitted and this is our mistake.	General comment	2022/23 data is provided in Appendix B Ornithological Information, Section 5.	While the bird data for 22/23 have been provided in Appendix B, the survey details (dates/times/weather) still needs to be added.	Date/times/weather was not included for 2015/16 and 2016/17 data and this has not been commented on previously. This information was not included as the appendix is already very large, however, it can be included or provided separately if necessary.
02/04/2024	2."emergency maintenance works may be required during winter months' and 'compensation habitat...will provide alternative habitat....during any maintenance works'. This is fine, as long as there is a commitment to maintaining the compensation areas? This needs to be clarified'	Section 2.5 Operation and Maintenance in both V1.7 and V1.8 (V1.8 issued on 11/07/2024)	Text updated and now reads: 'occasionally emergency maintenance works may be required during winter months, for example as a result of storm damage. Compensation habitat will be created for the Scheme (Section 9: Compensation), which will be maintained throughout the lifespan of the Scheme and provide alternative habitat for qualifying bird species of the Firth of Forth SPA and Ramsar site during any maintenance works. Therefore, the integrity of the European site network will be maintained.' Text also clarified in Section 9 Compensation in V1.7 (Section 8 in V1.8).		
02/04/2024	3. 4.10; says that the CEMP and EMP will be developed prior to construction. These should really be provided in some format prior to consents rather than prior to construction because the competent authorities need to be sure that the mitigation is going to happen (even if in this case it cannot ensure no AESI), and these seem to be the two key documents in being able to ascertain that. It may be that not every single detail can be established and nailed down immediately; but the CEMP and EMP should, prior to consents, give the competent authorities confidence in the mitigation happening at the right time in the right location and at the right scale to be effective. Leaving the production of such documents to after consents but prior to construction, leaves a gap in the certainty that a competent authority needs at the point of giving permission	Section 4.10 Mitigation in both V1.7 and V1.8	The mitigation detailed within the HRA is also provided within the EIAR Environmental Schedule of Commitments, so there should be confidence that these will be implemented. Text added to this effect.		
02/04/2024	4.10. Mitigation – 'the need for further mitigation, if identified as required during monitoring surveys, will be discussed.' This suggests that the mitigation may be insufficient, but this should not be the case. This is maybe just a matter of using more appropriate wording to clarify? Perhaps something like "There should be no need for any additional mitigation but if, because of some exceptional circumstances, it becomes necessary the ECoW will be empowered to make adjustments to instigate further mitigation measures"?	Section 4.10 Mitigation in both V1.7 and V1.8	We are confident that the mitigation is appropriate. The wording has been clarified in line with the suggested amendments		
02/04/2024	5. In general, the assessment doesn't clearly make judgements against the conservation objectives of the SPA, which we think it should do for clarity. The assessment here is not explicitly against the COs of the SPA, but the 'assessment of impacts' column goes some way towards this by having headings and sub-titles which relate back to particular COs. Maybe again a tweak, to insert the wording to the COs that the sub-titles refer to would help with clarity here? And again, some wording that clarifies that there are no impacts to assess other COs against would help to complete this.	Table 4.16 Stage 2 Appropriate Assessment table of impacts for qualifying species in both V1.7 and V1.8	The conservation objectives considered in relation to habitat loss and disturbance have been added to the text at Section 4.9 and additional text has been added to Table 4.16.		
02/04/2024	6. 4.3.5 (and further down, e.g. 4.9) – Cormorant. This is a feature of both the Firth of Forth SPA and the Loch Level SPA, but the approach taken is to only assess against the Firth of Forth SPA population. We think as LSE has been concluded for both sites, then both populations should be assessed. Having that said, we don't expect that there is an issue for cormorant	Section 4.3.5 Bird Surveys in V1.7	Text relating to cormorant and Loch Leven SPA has been added below Tables 4.2 and 4.3.		

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02/04/2024	7. 5.1; There is a cumulative element to the AA which is considered in section 5. As the comment by Roseanna Mooney in the draft HRA highlights, there will need to be a check for any updates prior to submission. E.g. MFPS and Freeports may need to be considered more fully.	Section 5.1 In-Combination Assessment in V1.7. Section 3.4 In Combination Effects and Appendix E In-Combination Assessment in V1.8	Updates have been made to the in-combination assessment, but it is acknowledged that further updates are required.		
02/04/2024	8. 5.4.; The highlighted text says, "There is not considered to be any potential for other plans or projects to increase the scale of effects to a level where there would be an adverse effect on site integrity", but there already is a potential AESI from the GFPS. Therefore this text is not quite right. Might be better to say (with the caveat around MFPS etc. maybe changing matters!), "Although it has already been concluded that there is the potential for an AESI on the Firth of Forth SPA, there will be no cumulative effects to exacerbate this impact".	Section 5.4 in V1.7	In-combination text has been updated.		
02/04/2024	<p>9. Grangemouth FPS (GFPS) and Musselburgh FPS (MFPS) are quite close in terms of timescales of permissions and consenting processes, although until now GFPS have been 'ahead'. Therefore, until now GFPS has not needed to consider the MFPS cumulatively with their own impacts. Now that MFPS are much closer and may be further ahead in these processes, the GFPS project will need to take into account the cumulative effects of the Musselburgh FPS with their own potential impacts on any relevant European sites. The Grangemouth FPS HRA will therefore need to show that it is aware of the impacts from the MFPS on European sites, and assess them in combination with their own (and any other plans and projects') impacts.</p> <p>We consider this to be good practice for both GFPS and MFPS due to their relative positions through the consenting process.</p> <p>However, the GFPS has already concluded a potential AESI on the Firth of Forth SPA, and put in place compensation to make good those impacts such that there is no longer an AESI. So, the compensation in place at Grangemouth should avoid an AESI, but it does not necessarily remove absolutely ALL impacts on the SPA. This means there may be some small residual impacts remaining after the compensation is put in place.</p> <p>The GFPS team will therefore need to consider if there may be some small residual effects on European sites after their compensation is put in place, and if so record whether these residual effects when combined with the potential impacts from MFPS (and any other relevant plans and projects) means that there is now a potential AESI again. I.e. whether the compensation planned at this point in time is still sufficient, or are additional compensatory measures necessary to ensure no AESI due to the greater impacts from the cumulative effects of the GFPS with other plans and projects (most notably MFPS)?</p> <p>This could be boiled down to whether the competent authority is confident that the compensation so far planned is actually 'over-compensation' and will still ensure that there is no AESI even when the cumulative impacts of the GFPS and other plans and projects are considered by the GFPS team. This can be a difficult judgement to make, but one that we think is necessary to ensure the GFPS HRA is properly compliant. As always with HRA it is wise to take a precautionary approach when undertaking these considerations.'</p>	Section 5 In-Combination in V1.7	In-combination relationship with MFPS to be considered further in V1.9		

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02/04/2024	10. Heatmaps - these are useful to visualise the data, but would be much enhanced by including a scale. Noted that scales are being added, although we haven't seen these versions yet.	Heatmap link	Scale bar has been added. However, this should be used with caution as the distribution of the data is represented by the size of the buffer, whilst the concentration and magnitude of the data is represented by the colour. For example, where there are several points close to each other, the buffer will be small and the colour will be yellow-red. If there are only two points but a bit far from each other, the buffer will be larger and the colour will be blue as the concentration is low.		
02/04/2024	11. Bird data. In the current HRA, the full vs the 300m truncated peaks are presented e.g. T4.2 and T4.3. However, everywhere else only the truncated data seem to appear e.g. Appendix B – 5.3, and the heatmaps. That would be ok if we agreed with the 300m but see below	Section 4.3.7 Bird Survey Results in both V1.7 and V1.8	Based on a review of the available literature, and taking a precautionary approach, the assessment has been updated to include a 650m visual Zol for the following nine species: common scoter, curlew, eider, golden plover, pink-footed goose, red-throated diver, scaup, shelduck and wigeon. The heatmaps and figures include all data. Some amendments have been made to the appendix to acknowledge peak counts within the full survey areas.		
02/04/2024	12. '300m is used for all species. Pending any further clarification, we are not aware that we agreed this approach previously. In the current HRA, a review has been done as Sue Haysom had previously suggested, including our latest guidance on this (Goodship & Furness 2022) for the 27 species of the SPA in Table 4.1. which is welcome. After this on p51 however, the HRA says 'From Table 4.1 it is clear the strategic level approach of a 300m ZOI suggested by Cutts et al. (2013) has been proven to be suitable for the purposes of this HRA based on the predicted construction related disturbance impacts.'. We don't agree with this. While we are content with the assessment in the HRA that a 300m ZOI is suitably precautionary for noise disturbance, we are not convinced for visual disturbance. Most of the available literature evidence is for pedestrian or boat disturbance (usually at either extreme of the range of distances given), and this work is neither – so just assuming the more low-key land-based pedestrian disturbance is the best fit is questionable. Of the species present, for curlew, goldeneye, golden plover, red-throated diver, shelduck and wigeon in particular, we think there is a risk that it may not suitably precautionary, with Goodship & Furness having a wider range. Table 4.1 also says e.g. for red-throated diver that 'Therefore, a 300m Zol for disturbance is considered suitable to minimize any FID events.' This implies that any response less than flight initiation is not disturbance, but the case has not been made for this. It is unclear whether extending the ZOI would have much effect on the conclusions though - a comparison for curlew between TB.2 (Appendix B) and the original survey results (EIA Appendix C7.1) shows quite a big difference between the curlew counts in the truncated and untruncated datasets, but with no information about how far away from shore the 'extra' birds were, and therefore how many of them might have been included in the assessment with a wider ZOI. However, AESI has been concluded for curlew, golden plover and wigeon, and compensation proposed. As long as the compensation sufficiency assessment used all the data (we think it did?), and the compensation is much more than needed – then using a more precautionary ZOI would not affect the assessment. Additionally, the other species are not expected to be affected by the loss of high tide roosting habitat. So while we may not agree with the method used to assess the data at 300m, the outcome is probably ok. The HRA should be updated to reflect the above comments where relevant.'	Section 4.3.8 Species within the Zol for Noise and Visual Disturbance in both V1.7 and V1.8	Based on a review of the available literature, and taking a precautionary approach, the assessment has been updated to include a 650m visual Zol for the following nine species: common scoter, curlew, eider, golden plover, pink-footed goose, red-throated diver, scaup, shelduck and wigeon. The compensation measures have also been increased to ensure they can support birds included within the larger Zol.		

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02/04/2024	13. There appear to be some typos/unclear presentation of data, e.g. goldeneye referenced in red-throated diver section p95, Appendix B – Ornithology information – Table B5 – looks like the WeBS column lines up wrong? Eider – T4.1 'only one eider has been recorded during surveys for the Scheme', but T4.2 peak study area count is given as 22, T4.3 the peak ZOI count is 4, and T4.16 'There was only one record of a pair of eider (0.02% of the cited SPA population) recorded within the Zol in January 2017 roosting along the breakwater at high tide, with a single bird recorded in April 2023 also within the Zol in the sheltered bay east of the petrochemical plant.'. Fig 32 seems to show a max of 19 birds. While numbers of eider are not really of a concern, it raises some concern about the accuracy of all other figures presented. All the data should be checked.	General comment	Data has been checked and updated as appropriate, including updated approach to Zol.	There still appear to be a few typos - some are detailed in our latest comments.	Thank you for highlighting these. Document is still in draft form and will be re-checked for typos.
02/04/2024	14. Key mitigation proposed is the temporal splitting of the work for cells 3 and 6, and the 2m screening proposed. On p78, the text says 'It is accepted that this height of screen will not conceal all activities' though – it would be useful to have a bit more detail about what it will/will not conceal to better understand its effectiveness?	Section 4.10 Mitigation in both V1.7 and V1.8	Text updated to note that the top of some construction machinery will be visible, such as piling rigs and excavator arms. Text also added to acknowledge ECoW findings from GI works along the estuary: 'no noise and visual barriers were installed during Phase 5 of the GI works and disturbance recorded was minimal. Noise and visual barriers 2m in height were installed as mitigation during later phases of the Scheme GI works that were conducted adjacent to the estuary in Flood Cells 2 and 6: ecologists on site during works did not observe any potential disturbance events that caused birds to fly away from the area'. However, the Scheme accepts that it cannot be guaranteed that no birds will be disturbed during construction and therefore compensation will be provided.		
02/04/2024	15. this is concluded for 11 species, mainly waders (apart from grey plover & turnstone) for disturbance/displacement of high tide roosts. However, for scaup – p99 peak count of 28 birds, 'Scaup was recorded in relatively small numbers on five occasions' and 'Due to the low number of observations it is unlikely that the distribution or population size of scaup within the site will be significantly affected by the works, and therefore no impacts on scaup are predicted in terms of the conservation objectives for the species.' However, T4.3 shows the counts to be 6.4% of the SPA and higher than the Forth Estuary 5yr average given the population decline, so this does not make sense. I agree no AESI, but rather for the reason that the birds would be on open water	Section 4.11 in V1.7	Text for scaup has been updated in Table 4.16. Approach to Zol has also been updated.		
02/04/2024	16. Sufficiency of compensation. We have previously been provided with memos detailing the compensation proposals (February and November 2020), which included an assessment of bird numbers and the rationale behind the required roosting area to be created. The justifications for the compensation proposals in these memos seem sensible but we have two queries. Firstly, given the date of the notes, the calculations of peak counts that may need to be accommodated do not include the most recent winter (22/23) survey data. If this is included in the assesement, is the outcome the same (i.e. that the compensation sites can accommodate more birds than needed)? Secondly, Sue had previously highlighted that the documents indicate that the two compensation sites are not currently used maximally, which raises the question of what the limiting factors are, and whether these can be resolved. This doesn't appear to have been addressed in the HRA, but we think that this is important if we are to be confident that the provision of additional roosting habitat will be attractive at these sites. Therefore, we feel it is essential that this assessment of compensation proposals is included in the HRA, that it is updated to include the 22/23 data, that what data spatially are used is clear (e.g. in the Nov 2020 document there is reference to the sheltered bay and Kinneil Lagoon – a map would be useful) and that there is sufficient explanation in it to cover these previous comments about what the limiting factors on the two sites currently are and how and why there is confidence that these issues will be overcome.	Section 8 Compensation in V1.7	The most recent survey data has been included in the assessment. Additional text has been added to provide detail on roosting bird numbers and suitability of the size and location of compensatory habitat.	It doesn't appear that the issue highlighted in green has been updated in the latest version of the HRA.	Text within the Kinneil Bird Numbers section will be updated to incorporate the 2022/23 numbers. The data indicates that the outcome will be the same and the compensation proposals are sufficient.

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Comments on V1.8 of HRA - issued to NS on 11/07/2024					
21/08/2024	1. 2.4.5.1 Text describes that flood cells 3 and 6 will not be constructed simultaneously, and there will be at least one winter between – but this is not what is shown then on Diagram 2.		Diagram 2 has been updated to reflect that work adjacent to the Firth of Forth SPA in Floods Cells 3 and 6 will not be constructed simultaneously. The diagram in the Construction Methodology Report has also been updated.		
21/08/2024	2. 4.3.2 – talks about both the 9 and 10 species to be assigned the new 650m ZOI – think should be 9?		Yes, this was a typo - text has been updated to 9 species.		
21/08/2024	3. 4.7.2 - just some slightly wrong wording I think for the COs – ‘ <i>decline in the population of the species as a viable component of the site</i> ’ and ‘ <i>reduction in the distribution of the species within the site</i> ’. The former is about compromising the population – a decline might not necessarily do this, depends on the magnitude. And it’s not just a reduction in the distribution, a change could also mean the CO was not met.		Text has been amended to reflect this comment.		
21/08/2024	4. Discrepancy in shelduck numbers between Figs 20 and 21, and Tables 4.14 and 4.15.		The tables are correct - figures will be updated.		
21/08/2024	5. Table 4.16 Stage 2 AA. While the focus on the COs is much better, the table could still be clearer. Firstly, there seems to have been lots of cutting and pasting – e.g. bar-tailed godwit is frequently mentioned out of place (e.g. for eider, golden plover etc) – all needs checking. Secondly, the avoidance and mitigation column could be improved – habitat loss for all species is no AESI, but with generic mitigation proposed that doesn’t necessarily relate to habitat loss – is an ECOW mitigation? Then for disturbance of foraging birds (also no AESI) either no mitigation is proposed or for some species (e.g. bar-tailed godwit, curlew etc) it says ‘ <i>No mitigation is required; however, mitigation measures that are proposed for other qualifying species would minimise any impacts</i> ’ – what does this mean when no mitigation is suggested for any species for this impact? Some of the generic mitigation proposed for habitat loss would presumably be applicable for this impact too? Just needs to be thought through/clarified. Thirdly, for great-crested grebe and grey plover, should also perhaps cite the viable component CO?		The table will be updated to ensure that these points are addressed.		
21/08/2024	6. Section 5 SASICOM – says ‘ <i>As stated above, it is concluded that the Scheme could potentially compromise the conservation objectives related to significant disturbance</i> ’, but no other COs – what about distribution within the site e.g. as mentioned for oystercatcher in T4.16?		The text within the SASICOM section will be update as appropriate once Table 4.17 (formerly Table 4.16) has been updated.		
21/08/2024	7. 8.3.1.3 Kinneil Bird Numbers – as above, still hasn’t assessed against most recent data from winter 22/23		Text within the Kinneil Bird Numbers section will be updated to incorporate the 2022/23 numbers. The data indicates that the outcome will be the same and the compensation proposals are sufficient.		
21/08/2024	8. Appendix B – Ornithological Information – minor typos p76 – shelduck talks about two winter seasons (shouldn’t it be 3?), and oystercatcher heatmaps, when there isn’t one for this species.		Data was collected over three winters. Wording to be updated for shelduck to reflect this. There was previously a heatmap for oystercatcher, but this was changed to Figure 27. Text has been updated accordingly.		
21/08/2024	9. Appendix C – Construction Methodology Report. We understand that these various documents were probably written at slightly different times, but they should read across. In Fig 16 (which I think is the same as Diagram 2?), it does not temporally separate work in flood cells 3 and 6, despite this being key mitigation mentioned elsewhere. Additionally, section 8.4 Contract Constraints says ‘ <i>Depending on the outcome of the HRA, a restriction of working out-with the over wintering bird season may be applicable for Cells 3, 5 and 6.</i> ’ We’re not quite sure what this means, but if stopping work over winter were possible, the impacts would have been much lessened but I think we were told it was not possible?		Construction Methodology Report has been updated to include a new version of the construction phasing diagram that reflects work adjacent to the Firth of Forth SPA in Floods Cells 3 and 6 will not be constructed simultaneously.		