

Adran yr Economi a'r Seilwaith
Department for Economy and Infrastructure



Llywodraeth Cymru
Welsh Government

Objection Ref OBJ0268

File Ref WG/REB/OBJ0268.5 – NRW/Poole

Response to Objector's Evidence: Jessica Poole

(Natural Resources Wales – Gwent Levels SSSIs)

1. GROUNDS FOR OBJECTION

1.1. Details

- 1.1.1. Jessica Poole on behalf of Natural Resources Wales has submitted a Statement of Evidence in relation to the draft statutory Orders associated with the Welsh Government's proposals for the M4 Corridor around Newport, which has been received via the Programme Officer.
- 1.1.2. A Statement of Common Ground concerned with water quality and water quantity has been agreed between Welsh Government and National Resources Wales (NRW) such that there are no areas of disagreement between the parties. Matters related to water quality and quantity in Ms Poole's proof of evidence have been addressed to NRW's satisfaction. It is therefore not intended to cover or reiterate those points in this rebuttal.
- 1.1.3. A further Statement of Common Ground concerned with nationally designated sites has been agreed also between Welsh Government and NRW. In that statement many of the points raised by Ms Poole in her evidence in respect of the Gwent Levels Sites of Special Scientific Interest (SSSI) and the River Usk (Lower Usk) SSSI have been addressed to NRW's satisfaction. Similarly the final version of the SSSI Mitigation Strategy (drafts of which were published in the March 2016 Environmental Statement as Appendix 10.35 and in the December 2016 Environmental Statement Supplement as Appendix SR10.35) has been accepted by NRW in an email from Jessica Poole to Dr Keith Jones on 19th April 2017. It is therefore not intended to go over in detail matters covered by the SSSI Mitigation Strategy or those agreed within the Nationally Designated Sites Statement of Common Ground in this rebuttal.
- 1.1.4. However there are a number of matters that are not agreed between Welsh Government and NRW as set out in the Nationally Designated Sites Statement of Common Ground that are the subject of Ms Poole's evidence. They are the following points:
1. NRW consider, for a variety of reasons, that M4CaN would not be in accordance with the statutory duties with respect to SSSI's under Section 28G of Wildlife and Countryside Act 1981 as amended (the 1981 Act) and / or Section 6 of the Environment (Wales) Act 2016 (the 2016 Act). The reasons include the following.
 2. The scale of the permanent loss of SSSI in the Gwent Levels.

3. The location, design and ongoing management of the affected and existing replacement reens as set out in the reen mitigation proposals.
4. The grazing marsh mitigation proposals including ongoing management.
5. The possibility that the proposed mitigation measures will not be able to support the SSSI features, at least initially.

2. REBUTTAL

2.1. Points Raised

2.1.1. Response to **Point 1** (M4CaN would not be in accordance with the statutory duties with respect to SSSI's under Section 28G of Wildlife and Countryside Act 1981 as amended (the 1981 Act) and / or Section 6 of the Environment (Wales) Act 2016 (the 2016 Act).):

1. Section 28G (2) of the 1981 Act imposes a duty on Section 28G authorities, which includes the National Assembly for Wales “*to take reasonable steps, consistent with the proper exercise of the authority's functions, to further the conservation and enhancement of the features by reason of which the site is of special scientific interest*”.
2. John Davies in his proof of evidence (WG 1.23.1) at paragraphs 80 to 85 explains how the duty imposed by Section 28G has been met.
3. Section 6 of the 2016 Act is concerned with biodiversity and ecosystem resilience. Paragraph (1) states:

“A public authority must seek to maintain and enhance biodiversity in the exercise of functions in relation to Wales, and in so doing promote the resilience of ecosystems, so far as it is consistent with the proper exercise of those functions”.

A public authority includes the Welsh Ministers.

4. John Davies in his proof of evidence at paragraph 86 explains how the duty to maintain and enhance biodiversity has been met.

2.1.2. Response to **Point 2** (The scale of the permanent loss of SSSI in the Gwent Levels):

1. NRW have queried whether the Scheme minimises the permanent loss of SSSI land, particularly with regard to the Glan Llyn junction (Proof of Evidence of Jessica Poole at paragraph 4.4.2) and the overbridges at Lighthouse Road, Nash/Meadowes Road and North Row (Clarification requested by Richard Wald).
2. In the early stages of the design of a highway project the required permanent land for all of the components of the road are not known in detail. For example the alternatives shown in the figures in the Objector's

Suggested Alternatives Report are simply lines on an aerial photograph to show the concept rather than any detail. All that is shown is the approximate alignment and the location(s) of major junctions.

Earthworks, water treatment areas and side roads for example, all of which would add to the final permanent land take, are omitted.

3. As the preliminary design progresses more detail is added and greater certainty is provided, but ultimately the greatest level of detail and certainty is only provided at the detailed design stage. With regard to the Scheme, for example, the conceptual or specimen design provided at tender had a rudimentary drainage design, not all the side roads were included, there was no allowance for areas of essential mitigation, and non-viable residual plots of land incorporated into the scheme were also not included.
4. Given these differences in the design stages any comparison of permanent land take should be undertaken with care and caution recognising that one is drawing comparisons between things which are not, in fact, fully comparable.
5. The table below sets out the permanent highway land take (i.e. excluding land required for construction) by individual SSSI (as defined by the earthworks footprint) at the conceptual design (March 2015) and at draft Orders (March 2016).

| SSSI | Conceptual Design | Draft Orders |
|---------------------------------------|--------------------------|---------------------|
| Gwent Levels – St Brides | 30.42 ha | 33.24 ha |
| Gwent Levels – Nash and Goldcliff | 16.48 ha | 18.79 ha |
| Gwent Levels – Redwick and Llandeenny | 35.14 ha | 29.07 ha |
| Gwent Levels – Whitson | 4.04 ha | 4.54 ha |
| River Usk (Lower Usk) | 1.91 ha | 0.41 ha |
| Total | 87.99 ha | 86.05 ha |

6. Throughout the preliminary design process the design team have been very aware of the Gwent Levels SSSIs and have sought to minimise permanent land take. Ben Sibert in his proof of evidence (WG 1.5.1) refers to the following design criteria that reduce the impact on the Gwent Levels SSSIs and more generally at paragraphs 4.93 to 4.99, and 6.4 to 6.16, 6.48 to 6.53:

- i) Departures from cross section standard (paragraph 4.67);

- ii) A low vertical alignment (paragraph 4.94);
- iii) Embankment side slopes of 1(V) :2(H) (paragraph 4.134); and
- iv) WTAs on the north side where practicable (paragraph 4.190).

2.1.3. Response to **Point 3** (The location, design and ongoing management of the affected and existing replacement reens as set out in the reen mitigation proposals):

Location

1. The lengths of replacement reen and ditch proposed at the time of the publication of the draft Orders are set out in the Reen Mitigation Strategy (Appendix 2.3 of the March 2106 ES). The strategy tabulates the lengths of those reens and ditches to be infilled (Tables 1 and 2 respectively) and provides details of new replacement reens and ditches (Tables 3 and 4 respectively). The locations of the reens and ditches referred to in Tables 1 to 4 are shown on the accompanying Highway Drainage and Reen Mitigation plans as Appendix A which are also provided separately as Figure 2.5 in Volume 2 of the March 2106 ES.
2. At the time of the publication of the March 2016 ES and the draft Orders, 2,568 m of reen were to be lost to the Scheme and 2,657m of new replacement reen would have been provided. Similarly 9,136 m of ditch would have been lost and 9,771 m of new replacement ditch provided.
3. The March 2016 ES did not explicitly detail the quantum of loss of reens within each of the four Gwent Levels SSSI s affected, although that quantum can be calculated from the tables in the strategy and by reference to the Highway Drainage and Reen Mitigation plans.
4. An update to the Reen Mitigation Strategy was provided in the September 2016 ES Supplement in which the figures were updated such that 2,755 m of reen would be lost to the Scheme and 2,826m of new replacement reen would have been provided. Similarly 9,373 m of ditch would have been lost and 10,594 m of new replacement ditch provided.
5. The question of reen lengths lost and replaced by individual SSSI and across the Gwent Levels was clarified by Dr Keith Jones in an elucidation to a question raised by Mr Wadrup in correspondence dated 20 February 2017. In that elucidation the following table was provided.

| | Non SSSI | St Brides SSSI | Nash and Goldcliff SSSI | Whitson SSSI | Redwick and Llandevenny SSSI | Total |
|---------------------|----------|----------------|-------------------------|--------------|------------------------------|-------|
| Reens Lost | 53 | 1067 | 775 | 65 | 795 | 2755 |
| New Reens | 0 | 2583 | 0 | 0 | 243 | 2826 |
| Gain/Loss | -53 | 1516 | -775 | -65 | -552 | 71 |
| Ratio | 0.00 | 2.42 | 0.00 | 0.00 | 0.31 | 1.03 |
| | | | | | | |
| Ditches Lost | 1697 | 3762 | 1464 | 659 | 1791 | 9373 |
| New Ditches | 2739 | 3090 | 1536 | 633 | 2596 | 10594 |
| Gain/Loss | 1042 | -672 | 72 | -26 | 805 | 1221 |
| Ratio | 1.61 | 0.82 | 1.05 | 0.96 | 1.45 | 1.13 |

6. Since the issuing of the above elucidation, it has been realised that an additional length of some 619m within the Gwent Levels - Nash and Goldcliff SSSI (in relation to the Ellen Reen Diversion) which was omitted from the Reen Mitigation Strategy figures, should be counted. This is acknowledged at paragraphs 2.3.10 and 2.3.11 of the Nationally Designated Sites Statement of Common Ground. The current position with regard to the location of reens and ditches is tabulated below (changed parameters are shown in bold).

| | Non SSSI | St Brides SSSI | Nash and Goldcliff SSSI | Whitson SSSI | Redwick and Llandevenny SSSI | Total |
|---------------------|----------|----------------|-------------------------|--------------|------------------------------|-------------|
| Reens Lost | 53 | 1067 | 775 | 65 | 795 | 2755 |
| New Reens | 0 | 2583 | 619 | 0 | 243 | 3445 |
| Gain/Loss | -53 | 1516 | -156 | -65 | -552 | 690 |
| Ratio | 0.00 | 2.42 | 0.80 | 0.00 | 0.31 | 1.25 |
| | | | | | | |
| Ditches Lost | 1697 | 3762 | 2083 | 659 | 1791 | 9992 |
| New Ditches | 2739 | 3090 | 1536 | 633 | 2596 | 10594 |
| Gain/Loss | 1042 | -672 | -547 | -26 | 805 | 602 |
| Ratio | 1.61 | 0.82 | 0.74 | 0.96 | 1.45 | 1.06 |

7. In addition, a proposal to convert some 750m of replacement ditch within the Gwent Levels - Redwick and Llandevenny SSSI at Rush Wall to replacement reen has been rejected by NRW on hydrological grounds.

Design

1. Commitment 62 which was originally included in the March ES is concerned with reens. It now states: “*The design of replacement reens will follow that set out in the Reen Mitigation Strategy (March 2016 ES Appendix 2.3; September 2016 ES Supplement Appendix S2.1) to include lateral and vertical variations to provide a variety of habitat conditions*”.
2. The design and connectivity of the drainage system is also described in the Nationally Designated Sites Statement of Common Ground at paragraphs 2.1.18 to 2.1.20 which is agreed with NRW. It says:
 - 2.1.18 “NRW’s experience, gained over 25 years, has shown that it is difficult to replicate the complex drainage system with its niche habitats, even at a small scale. Variation in physical features of the replacement reen and ditch network is required as an important component of seeking to recreate the variety of habitat niches to give a greater chance of enabling the features of interest of the Gwent Levels suites of SSSIs to colonise and flourish. Variation in water depth is an important component; marginal, shallow water areas can support a wide range of aquatic and wetland plants, whereas deep water areas can support a more restricted range of mainly submerged and floating species.
 - 2.1.19 As explained in the Reen Mitigation Strategy (March 2016 ES Appendix 2.3) continuing advice would be sought from NRW on the specification for reen design. Each section of reen would be designed in detail, and the need to provide a range of ecological conditions, by varying depths and alignments (within the constraints of land availability and the need to ensure satisfactory drainage characteristics), would be an important part of the design of each section. Welsh Government will identify areas where there is scope for widening of reens to provide shallow margins, and will also provide an illustrative design. The design of reens as set out on the Reen Mitigation Strategy (as revised) is based on the standard indicative dimensions put forward by NRW which includes a width of 5.7m. The River Corridor Survey (March 2016 ES, Appendix 10.32) sets out, amongst other things, the

dimensions of the reens to be lost to the scheme. The width of the reens being is lost is generally about 4m. There is therefore scope to incorporate shallow areas, particularly on the non-motorway side of the reen which would be open to grazing by cattle (and therefore poaching) alongside the reen. There is thus sufficient flexibility to ensure that the reens have sufficient capacity whilst enabling shallow margins to be provided. It is agreed that it is important to get the hydrology (i.e. the engineering design) right first, and that the biodiversity detail would then be added.

2.1.20 However, NRW consider that there remains the possibility that the reen mitigation proposals will not be able to support the SSSI features, at least initially”.

Ongoing management

1. One of the items in Matt Bajowski’s proof of evidence was concerned with the ongoing maintenance of the reen network should the scheme proceed. All of the concerns raised in Matt Bajowski’s evidence were satisfactorily resolved at a meeting between NRW and the Design Joint Venture on 10th April 2017, bar the wording of two commitments, one of which was concerned with ongoing management.

3. The draft wording for ongoing management is:

“Welsh Government will negotiate with, and agree funding to, NRW to cover the additional costs that NRW may incur with respect to management of the Caldicot and Wentlooge Levels IDD reen network and water level management due to the operation and management of the M4 Scheme”.

4. Issues of appropriate funding are covered in Section 2.2 of the Nationally Designated Sites Statement of Common Ground in the section called “Matters which would be agreed with NRW following assurance of funding.

2.1.4. Response to **Point 4** (The grazing marsh mitigation proposals including ongoing management.):

1. The grazing marsh mitigation proposals are set out in the SSSI Mitigation Strategy which has been agreed with NRW.

2. The ongoing management of the three areas covered by the SSSI Mitigation Strategy, namely Maerdy Farm, Tatton Farm and Caldicot Moor. Commitment 68 states: “*The measures set out in the Gwent Levels SSSI Mitigation Strategy will be agreed with NRW, and once agreed will be implemented in accordance with the strategy*”. The SSSI Mitigation Strategy is agreed with NRW.

2.1.5. Response to **Point 5** (The possibility that the proposed mitigation measures will not be able to support the SSSI features, at least initially).

1. Jessica Poole in her proof of evidence provides some helpful examples of where reed replacements have, and have not, been successful within the Gwent Levels. The key to successful replacement is to have a design and methodology that provide the optimum conditions for success, and to allow sufficient time for the process to work.
2. According to Ms Poole (paragraph 5.4.5) the “important elements in the most successful cases appear to be that the replacement reed or ditch has been constructed in advance of the infilling of the drainage channel to be lost and the two co-exist for a number of months, that the surrounding land use continues to be agricultural grazing and that variation in physical form, including in water depth occurs”. She then illustrates her point (in her Appendix A) by reference to Longcross reed diversion (photo 3) and Waundeiladd reed diversion (photo 10). However, she then states that “none of these examples have been of the scale which would be required for this scheme”. I will address each of the above points in turn.

Construction of replacement watercourse in advance of infilling

3. Annex 7 of the Buildability Report Update (December 2016 ES Supplement, Appendix SR3.1) provides an explanation of how a section of the proposed scheme across the Levels, in this case to the east of North Row within the Gwent Levels – Redwick and Llandevenny SSSI, would be constructed. This was presented to Ms Poole and some of her colleagues at a seminar on 28th November 2016. No written comments have been forthcoming from NRW on that seminar.
4. It is clear from Annex 7, and from the presentation of that annex that Barry Woodman gave to the Inquiry following his evidence in chief, that replacement reeds and ditches will be constructed before the complete

infilling of the drainage channel to be lost. In particular, the second and third notes that accompany Annex 7 Figure 43 state:

2. Inspect redundant ree n silt and soil and agree suitability with NRW for potential use in replacement field ditch or reens.

3. Excavate silt and soil from the redundant ree n channel and place into available replacement lateral ree n or field ditch channels being constructed, as agreed with NRW.

5. The same sequence of events would take place with regard to field ditches (see Annex 7, Figures 24 and 25) and the notes that accompany each figure, i.e.

Figure 24, Note 3: Excavate for replacement field ditch or ree n (where present) parallel to the proposed scheme with localised shallow areas (rough cut)

Figure 25, Note 3: Inspect redundant ditch silt and soil and agree suitability with NRW for use in replacement field ditch or reens.

Figure 25, Note 4: Excavate silt and soil from the redundant field ditch channel and place into replacement lateral ditch as agreed with NRW

6. The only exception to this principle is the infilling of watercourses to enable the 5-10m wide haul road to be constructed.
7. Transfer of silt and vegetation from the reens and ditches to be infilled to the new watercourses will increase the rate of establishment of vegetation in the new reens and ditches, and encourage colonisation by aquatic invertebrates. Once reconnected to the existing ree n system invertebrates will be able to move into the new watercourses from the existing reens.
8. Monitoring of the development of the vegetation in the new watercourses will enable any problems of over dominance by more vigorous plant species to be identified and management carried out to control this.

Coexistence

9. The cutting of new replacement reens and ditches and the infilling of watercourses is closely associated with the construction of culverts designed to convey water under the new section of motorway. As shown by Annex 7 there would be a period of coexistence when the new watercourse (reen or ditch) had been constructed. Before and during the transfer of silt, soil and vegetation at any one location from the watercourse to be infilled to the adjacent replacement reen or ditch discussion with NRW will take place to define the detailed methodology for that location. This will take place on a watercourse by watercourse basis. As described above in Annex 7 Figures 24 and 25 the ideal sequence is to provide a replacement watercourse adjacent, or in close proximity, to the watercourse to be infilled, then pump out the redundant watercourse with water going into the reen system, not the replacement watercourse which remains dry. Once the redundant watercourse is essentially empty of water, silt and vegetation can be transferred to the dry replacement watercourse which would then be filled from the adjoining reen network. Where long lengths of replacement watercourse are required consideration would be given to dividing them into more manageable cells during construction and once complete removing the dividing cell ends to provide a continuous replacement watercourse.
10. The scheduling and timing of new reen and ditch creation is also important. NRW recommends autumn or winter for the creation of new ditches and reens. According to the current construction programme, of the 50 culverts required for the scheme approximately 60% would be constructed between the beginning of October and the end of March in 2018 and 2019. That is not to say however that the nearest replacement watercourse would not have been constructed in advance of the culvert construction, i.e. the replacement watercourse may be available before construction of the culvert commences.

Agricultural grazing

11. Figure 2.15 of the March 2016 ES shows a cross section (Type B1) of the proposed new section of motorway across the Gwent Levels. On the left hand side a replacement reen is shown. On the right hand side a replacement ditch is shown. In both instances the highway boundary

fence is located on the motorway side of the replacement watercourse. This is to facilitate continued agricultural grazing on the far side of the replacement watercourses. Where grazing animals use the reens for drinking shallow wet margins may develop, through poaching for example. In those circumstances I understand that habitat diversity for aquatic plants and aquatic invertebrates would be increased.

12. Shallow wet margins can also be incorporated into the design of replacement reens as described below.

Variation in physical form

13. As Ms Poole acknowledges in her paragraph 4.4.2 the variation in the physical form of watercourses to be lost is described in at least three of the ecological appendices to the March 2016 ES (Appendix 10.14 (Aquatic Macrophyte Survey 2014 report), Appendix 10.30 (Aquatic Macrophyte Survey 2015 report), and Appendix 10.32 (River Corridor Survey 2015)). The detailed design of replacement watercourses will replicate as far as is practicable such variation and this is committed to via Commitment 62 as described in my response to Point 2 (paragraph 2.1.3, Design (1)). The trapezoidal profile referred to by Ms Poole (paragraph 4.4.5) was provided by the IDD section of NRW to inform some of the modelling parameters used in the Flood Consequences Assessment of the Levels. In accordance with Commitment 62 berms and shallow areas will be incorporated into the design of replacement reens. NRW agree that there is sufficient flexibility in the reen parameters to ensure that the reens have sufficient capacity whilst enabling shallow margins to be provided (paragraph 2.1.9 of the agreed Nationally Designated Sites Statement of Common Ground).

Scale

14. I acknowledge NRW's concerns over the scale of the Scheme. However, whilst it is correct that 3,445m of replacement reen would be created this total length should be seen as 13 discrete lengths of new reen which will vary in length from 27m to 775m (Table 3, Supplementary File Note on Reen Mitigation Strategy; September 2016 ES Supplement, Appendix S2.1, plus the Ellen Reen Diversion).