

On behalf of the Environment Agency

Witness: Harriet Ames

OBJECTION REFERENCE NUMBER: ENV/3378112

Dated: 14 July 2026

PROOF OF EVIDENCE OF HARRIET AMES

A. Personal Statement

1. My name is Harriet Ames. I am a Technical Specialist in Hydrology working for the Environment Agency (EA), with a responsibility for the geographical area of Devon, Cornwall and Isles of Scilly (DCIS).
2. I hold a first class honours degree in Geology (BSc) from University of Liverpool (2019).
3. I have worked for the EA for 5 years, including 4 years in the DCIS Hydrology team and one year in a Hydrometry & Telemetry team.
4. I have been working on the Restoring Sustainable Abstraction (RSA) programme since 2025. My role is to provide technical expertise in Hydrology, for example in modelling the impact of current and proposed licence conditions on river flows. I have the required technical competencies to undertake this work, having followed the EA's Hydrology Technical Development Framework, and completed the EA's Hydrology Training Programme which included relevant modules such as:
 - Module 3 – Hydrological processes: Conceptualisation and Quantification
 - Module 4 – Catchment interventions: Conceptualisation and Quantification
 - Module 5 – Hydrological assessments
 - Maths and stats in Hydrology

Aside from my work on the RSA programme, I have 4 years of hydrological modelling experience for determining sustainable abstraction licences for new applications. I have received mentoring and support in this work from my team's Senior Specialist, who has 25 years of experience working as a Hydrologist in the EA covering the Devon area. My hydrological modelling has also been quality assured by another Technical Specialist on my team with 8.5 years' experience in hydrological modelling.

5. This proof of evidence will cover my involvement in the following:
 - Current licence impact modelling
 - Proposed licence impact modelling
6. I refer to a number of documents in this proof of evidence, all of which are contained in the agreed bundle of documents, or annexed and referenced at the end of this document. References to the core documents below are prefaced by 'CD' (Core Documents). Wherever possible, I have tried to adopt the terminology used in the EA's Statement of Case when referring to documents.

7. In relation to each of these issues this proof of evidence will not repeat the relevant paragraphs in the Hydrology report that I wrote (18 June 2025) [CD6]. It will also not repeat relevant paragraphs from the EA's Statement of Case and the EA's response to the Objector's Statement of Case, which I was involved in drafting. I continue to rely on and endorse the content of those documents. Instead, this proof of evidence will provide further information on how I have completed the hydrological modelling and explain the logic behind the decisions that I have made. I will also respond to relevant points made by the licence holder.
8. I am duly authorised by the EA to make this proof of evidence on its behalf.
9. Insofar as the contents of this proof of evidence are within my own knowledge they are true, otherwise they are true to the best of my knowledge, information and belief and are derived from the sources identified herein and EA records. I confirm that the opinions expressed in this document are my true and professional opinions.

B. Current licence impact modelling

10. In 2025, I was tasked with modelling the fully licensed impact of the current abstraction licence on river flow. The fully licensed abstraction represents the greatest impact that the abstraction can have on river flows whilst complying with conditions on the licence in its current form (referred to below as 'the current licence' even though it will remain the same licence if the proposed changes are made).
11. In paragraph 20 of the Response to the EA's Statement of Case, the Objector '*submits that the EA, in its hydrological modelling, has fundamentally misunderstood how the abstraction at Old Walls is controlled in practice*'. In the preceding paragraph he seeks to substantiate this by reference to the fact that our modelling has used the maximum permitted abstraction quantities rather than his weekly data. Regardless of how the abstraction has been operated in the past, operation of the abstraction could be subject to change in the future, conceivably up to the licence limits. I therefore consider that the fully licenced impact is a fair and valid representation of the risk associated with the abstraction licence in the future.
12. Current licence impact modelling (described in Section 3 of the Hydrology report) was completed in an Excel spreadsheet and included the following key steps:
 - Calculation of natural daily mean flows upstream of the abstraction point for the 1991-2022 period based on the best available data and according to standard EA methodology.
 - Calculation of the water available for abstraction each day based on natural daily mean flows and the conditions on the licence (e.g. daily and annual limits and prescribed flow)
 - Calculation of residual flow in the deprived reach by subtracting the water available for abstraction from the natural flow.
 - Analysis of residual flows by comparison to the Environmental Flow Indicator (EFI)

13. I completed the modelling over the 1991-2022 period. This covers both 1991-2020 which is the standard 30-year period for assessing water resources in the EA and a recent dry year. The 30-year period aligns with the standard Met Office period for rainfall. Modelling over a 30-year period means that I have captured a range of flows representative of long-term conditions at the site and hence a range of subsequent impacts that the fully licensed abstraction can have on flows. Assessing impact over a historic 30-year period therefore gives us a good indication of the impact the abstraction has had in the past and is likely to have in the future. I undertook modelling for 2022 as this was a recent dry year.
14. As discussed in section 2 of the Hydrology report, I calculated what the daily mean flows at the abstraction point would have been over the 1991-2022 period in the absence of any abstraction (this is the natural flow). I did this by transposing (scaling) natural flows (1991-2022) from Austins Bridge gauging station, which is approximately 14 km downstream of the abstraction point on the main River Dart. Other gauging stations in the catchment (Believer and Dunnabridge) were also trialled as donor sites in previous RSA work, by previous colleagues, but Austins Bridge was deemed the most appropriate. I therefore decided that Austins Bridge was a good starting point for my modelling.
15. I updated the EA's naturalised sequence for Austins Bridge by downloading the latest gauged data from our hydrometric archive and ensuring that the best available data for upstream reservoir and abstraction impacts was included in the naturalisation.
16. I transposed natural flows from Austins Bridge to the abstraction point using the Qube mean flow ratio between Austins Bridge and the abstraction point to produce a natural time series for the abstraction point. Qube is an industry standard low flow estimation software.
17. To test whether my calculated flow data is an accurate reflection of observed flows upstream of the abstraction point, I looked for an independent data set. The EA's hydrometric archive provides five sets of spot flow measurements taken in 1991, 1997 and 2018. On two of the days, spot flow measurements were taken in the river immediately upstream of the abstraction point. On the other three days, spot flow measurements were taken in the leat and in the river immediately downstream of the leat offtake. On these days I added together the gaugings of these two component parts of the flow to calculate the flow in the river immediately upstream of the abstraction point.
18. The spot flow measurements were taken by the EA's Hydrometry and Telemetry team using specialist techniques. The number of measurements used in my analysis is equivalent to the approach the EA expects applicants for new licences to take. These techniques are described in Section 3.1.3 of our guidance 'Hydrological information needed for your application' [CD25].
19. I plotted the spot gaugings and the natural flow time series on a hydrograph as shown in Appendix A of the Hydrology report, Figures A2-A4. There was a good match between the calculated and gauged flow on the days that spot gaugings took place, which gave me

confidence in using Austins Bridge as an appropriate donor flow site. I therefore considered that the donor gauging station and transposition method were appropriate. Therefore, the calculated natural flow data for the abstraction point was accurate enough for the purposes of determining abstraction impact and determining hands-off flow (HOF) values.

20. In deriving and validating the naturalised flow data for the abstraction point, I have used the methods that the EA expects applicants to use when applying for new licences. This is described in Section 2 of our guidance 'Hydrological information needed for your application' (updated 29 August 2025) [CD24].
21. In paragraph 19 of the Objector's Statement of Case, the licence holder states that the '*EA's reliance on transposed data is not appropriate*'. However, transposition is a standard, recognised technique for deriving flow data for ungauged sites. Whilst there is always uncertainty associated with transposing from one site to another, 14 km is not considered an excessive distance for flow transposition. In this case the two sites are hydrologically connected (one is directly upstream of the other) so a strong relationship would be expected between the flows at the two locations. Transposition, by definition, accounts for the distance between two locations and the difference in catchment size. The good match between spot flow measurements and the transposed flows is evidence of the strong relationship between the flows at the two locations and confirms that transposition from Austins Bridge is a suitable method of flow calculation. Whilst it is likely that there would be some attenuation of the 'flashiness' of flows at Austins Bridge compared to Old Walls, this effect would be more significant at high flows rather than low flows. Therefore, I am confident that the transposed flows for Old Walls are sufficiently reliable for defining the Q95 HOF.
22. As described in Section 3 of the Hydrology report, I used Excel formulae to calculate the water available for abstraction from natural daily mean flows (1991-2022) under the current licence conditions. This meant that on any given day, the licence holder could abstract all the flow in the river except 0.025 m³/s (the current HOF) as long as this volume would not exceed the maximum daily limit. When I calculated the sum of the fully licensed abstraction in each year, there were many years in this period where the sum of the daily abstraction exceeded the annual limit on the licence. The licence would therefore not have allowed this. I therefore reduced the abstraction on the days with the highest flows to ensure compliance with the annual limit.
23. I calculated the residual flows over the same period by subtracting the calculated water available for abstraction under the current licence from the natural flow on each day.
24. I compared residual flows to the EFI, as EFI indicates the flows below which abstraction pressure may cause an undesirable effect on river habitats and species (see section C titled 'Environmental planning and water resources' of Emma Townsend's Proof of Evidence for more information about EFI). I calculated the EFI using the natural flow data I had calculated and the EA's nationally approved EFI calculator tool.
25. I plotted the residual flows on hydrograph for 2022 (a dry recent dry year) for comparison to natural flows and EFI (see Figure 2 of the Hydrology report). As discussed in Section 3

of the Hydrology report, this showed that residual flow under the current licence conditions flat line at 0.025 m³/s for long periods of the year. This means that there is no flow variability and flows are significantly below the EFI.

26. I plotted the same data for 1991-2020 on a flow duration curve (FDC) (see Figure 3 of the Hydrology report). As described in Section 3 of the Hydrology report, this showed that over the 30-year period, residual flows under the current licence conditions would be below the EFI for 92% of the time and would flatline at 0.025 m³/s for 65% of the time.
27. I calculated the current fully licenced abstraction rate as a percentage of the natural flow at each percentile of the FDC (i.e. representing the full range of flows). Results are shown in Table 1 of the Hydrology report.
28. I used a formula to identify days in the 1991-2020 period where the residual flow under the current fully licenced scenario would be at or below the natural Q95 value and to calculate the average number of days per year over the 1991-2020 period. I used the natural Q95 flow value as this flow percentile is a standard metric representing a low flow.
29. I also calculated the average number of days a year that residual flow under the current licence would be below the EFI. This therefore shows the number of days per year where abstraction pressure may cause an undesirable effect on river habitats and species.
30. Results of the modelling are explained fully in Section 3 of the Hydrology report, but are summarised below:
 - The current licence authorises abstraction of a much larger percentage of the natural flow than abstraction allowed by the EFI.
 - Residual flows under the current licence conditions would have been below the natural Q95 threshold for 70% of the time (1991-2020) compared to 5% of the time under natural conditions.
 - Residual flows under the current licence scenario would be below the EFI for 336 days per year on average (1991-2020), equivalent to 92% of the time, and for 339 days in 2022.
31. The results therefore show that abstraction at the current fully licenced rates would have a significant impact on flow in the deprived reach.
32. In paragraph 20 of the Objector's Response to the EA's Statement of Case, it says '*The Objector intends to submit evidence to the Inquiry on the reliability of the EA's hydrological modelling*'. Throughout my involvement with this project, up to the time of writing this Proof of Evidence, I have not yet been provided with any evidence contradicting my approach.
33. For the reasons explained above, I consider that the modelling I have completed represents the best available evidence for assessing the maximum possible impact of the abstraction on the West Webburn river under the current licence.

34. In paragraph 19 of the Objector's Response to EA's Statement of Case, the Objector says that he *'has serious concerns about the EA's approach to assume that abstraction is similar to the fully licensed abstraction rate, and that the weekly readings under-record the volume of water abstracted into the leat at the abstraction point.'*
35. It is not an assumption that abstraction is similar to the fully licenced rate, it is a conclusion I have drawn from analysis of the licence holder's abstraction returns. As described in Section 5 of the Hydrology report, I used the monthly abstraction totals to calculate average actual annual abstraction over the 2000 to 2022 period (the period for which data was available). I also calculated the water that would have been available for abstraction over the same period, based on the natural river flow and the current licence conditions (daily and annual limit, and 0.025 m³/s hands off flow). I used this to calculate the average annual volume that would have been available for abstraction under the current licence. This is equivalent to the annual abstraction possible under the fully licensed scenario.
36. My calculations show that the actual abstraction (from the returns data) was 97% of the fully licensed abstraction on average over the 2000-2022 period. Please note that Section 5 of the Hydrology report shows a figure of 92%, as it had initially been calculated based on the daily fully licenced abstraction data without accounting for the annual licence quantity. Once this was updated in my spreadsheet, the fully licenced abstraction reduced slightly, and therefore the percentage increased slightly. I have not updated the hydrology report to reflect this change, as it does not change the conclusion that actual abstraction volumes have been very close to the maximum possible abstraction under the current licence in the past. It is therefore reasonable to use the fully licensed modelling to establish the impact on the environment that the abstraction could have in the future.
37. In section 5.3 the EA's Statement of Case, I stated that weekly readings under-record the volume of water abstracted into the leat at the abstraction point as I had believed that the abstraction returns were calculated based on power generation. However, I have recently been advised by my colleague Matthew Sleep (Environment Officer), that at the most recent regulatory inspection in 2024, he observed that the quantity of water abstracted was calculated using a look-up Table which converts the turbine opening into a flow value. This is new information provided to me after the filing of the EA's Statement of Case.
38. This minor change to my understanding of the exact mechanism by which the weekly readings are derived does not change my conclusion that weekly readings could under-record the volume of water abstracted into the leat at the abstraction point. I have been advised by Matthew Sleep that from his understanding, when the bywash is opened, it allows water to bypass the turbine. In this instance, and assuming that abstraction returns are calculated from turbine opening, abstraction returns would not account for water abstracted for the bywash. That is why it is reasonable to assume the actual abstraction levels are greater than the weekly readings indicate. I therefore question the Objector's assertion in paragraph 52 of their Response to the EA's Statement of Case, that *'the current measurement of abstraction is capable of accurately measuring the total volume of water abstracted from the river into the leat.'*

39. As explained in paragraph 36 above, actual abstraction (from the returns data) was 97% of the fully licensed abstraction on average over the 2000-2022 period. If the abstraction returns do under-record the volume of water abstracted at the abstraction point, then abstraction could be even more similar to the fully licenced abstraction.
40. To summarise, there is evidence to suggest that historic abstraction is similar to the fully licensed abstraction rate. There is also evidence to suggest that the weekly readings may under-record the volume of water abstracted into the leat at the abstraction point.

C. Proposed licence impact modelling

41. The justification for the EA's decision to use Table A of 'EA Guidance for Run-of River Hydropower Development, December 2017' [CD5] to make the proposed licence changes is explained in Emma Townsend's proof of evidence, section E titled 'Options appraisal and preferred option selection'. I was involved in these discussions. The inclusion of a sweetening flow is a deviation from Table A, as explained in paragraph 73 of Emma Townsend's proof of evidence.
42. I provided information to other technical teams to determine how the required licence changes were selected from Table A. This included providing the natural Q95 and mean flow value for the site. From this data I calculated the Q95:Qmean ratio to be 0.160 which put it in the low-medium baseflow category according to Table A. This means that the river has limited support from groundwater, so river flow is mostly dependent on rainfall. I used the EA's Water Resources GIS software (WRGIS) to find the Abstraction Sensitivity Band (ASB) for the West Webburn River waterbody within which Old Walls is located. The waterbody is ASB3 which is the category for the ecology that is the most sensitive to abstraction pressure. According to page 17 and 18 of our EA internal guidance 'Ram 4 part d – resource management – technical assessments' ASBs are derived using a nationally agreed scoring system from a combination of components for physical catchment, LIFE (Lotic-invertebrate Index for Flow Evaluation) expected scores and fish flow sensitivity typology (see Appendix 1).
43. The licence conditions taken from Table A are explained in Sections 6.10 and 6.11 of the EA's Statement of Case.
44. I modelled the impact of the abstraction on river flow in the deprived reach under the following proposed licence conditions:
- Daily and annual abstraction limits from the current licence
 - Q95 HOF (0.146 m³/s)
 - 35% take
 - Abstraction of a 0.020 m³/s sweetening flow allowed when river flow is below Q95, but must cease when the river flow is below 0.040 m³/s
45. I used natural flow data for the 1991-2022 period (calculated as described in paragraphs 14 to 16 above), along with Excel formulae to calculate the water available for abstraction from natural daily mean flows under the proposed licence conditions. This meant that on any given day, 35% of the flow above the HOF could be abstracted up to

the current licence limit. When the flow was below the HOF, abstraction of a sweetening flow of 0.020 m³/s would be permitted (except when the flow is below 0.040 m³/s).

46. I then calculated the residual flows in the deprived reach over the same period by subtracting the water available for abstraction under the proposed licence from the natural flow on each day.
47. I plotted the residual flows on hydrograph for 2022 (a dry recent dry year) for comparison to natural flows, EFI and residual flows under the current licence (see Figure 4 of the Hydrology report). This showed that residual flow under the proposed licence conditions is generally very similar to the EFI, and there is flow variability throughout the year. These are significant improvements compared to residual flows under the current licence conditions which flat line significantly below the EFI for long periods of the year.
48. I plotted the same data for 1991-2020 on an FDC (see Figure 5 of the Hydrology report). This showed that over the 30-year period, residual flows under the proposed licence conditions would be only marginally below the EFI at certain flow percentiles, and flow variability is maintained across the full flow range. This is a significant improvement compared to residual flows under the current licence conditions which flat line significantly below the EFI for 65% of the time over the 30-year period.
49. I calculated the abstraction under the proposed licence conditions as a percentage of the natural flow at each percentile of the FDC (i.e. representing the full range of flows). Results are shown in Table 3 of the Hydrology report.
50. I used a formula to identify days in the 1991-2020 period where the residual flow under the proposed licence conditions would be at or below the natural Q95 value and to calculate the average number of days per year over the 1991-2020 period. I used the natural Q95 flow value as this flow percentile is a standard metric representing a low flow.
51. I also calculated the average number of days a year that residual flow under the proposed licence conditions would be below the EFI. This therefore shows the number of days per year where abstraction pressure may cause an undesirable effect on river habitats and species. Results are shown in Table 4 of the Hydrology report.
52. Results of the modelling are explained fully in Section 4 of the Hydrology report, but are summarised briefly below:
 - Abstraction under the proposed licence conditions, is a much smaller proportion of natural flow than abstraction under the current licence conditions. Abstraction under the proposed licence conditions is marginally higher than abstraction allowed by EFI.
 - Significant improvement in the number of days where residual flow in the deprived reach would be above the natural Q95 threshold. Flows would be below Q95 only slightly more often than under natural conditions, and this is due to the abstraction of the sweetening flow.
 - Significant improvement in the number of days where residual flow in the deprived reach would be above the EFI (an extra 139 days per year on average over 1991-2020, and an extra 158 days in 2022).

53. I consider that my modelling is a fair representation of both the impact of the current licence and the river flow improvement that could be obtained should the proposed licence changes be implemented.
54. In paragraph 58 of the Objector's Statement of Case it says that '*the EA's evidence indicates that the actual abstraction is already constrained by river flows and is unlikely to reach the current licensed maximum*'. This is a misinterpretation of the EA's evidence. The HOF of 0.025 m³/s on the current licence provided very limited restriction on the water available for abstraction from river flow in the 1991-2020 period. Therefore, it would have been possible for the licence holder to abstract up to the current annual limit authorised by the licence.
55. However, the proposed Q95 HOF and 35% take restrict water available for abstraction on any given day such that it would not have been possible to abstract the current annual limit in any year in the 1991-2020 period under the proposed licence conditions.
56. After discussion with Integrated Environmental Planning (IEP) colleagues, we concluded that we would need to reduce the annual limit in line with our EA internal guidance 'Determining water resources licence applications' [CD30] which states on page 4 that '*...the rates need to be achievable when multiplied up by the periods abstraction will take place*'. The intention was not to further restrict the water available for abstraction, it is an administrative requirement to prevent licensing of water quantities which are not achievable based on the other proposed licence conditions.
57. Initially I calculated the maximum annual abstraction that would be possible under the proposed licence conditions (Q95 HOF, 35% take, daily abstraction limit and sweetening flow) based on the modelling for the 1991-2020 record and suggested this as an amended annual limit.
58. I discussed this with Hydrology and IEP colleagues who pointed out that by using the maximum abstraction possible over the 1991-2020 period, we would not account for future expected changes in climate, in particular wetter winters when the licence holder would be able to generate more power with higher natural flows. We decided that adding a 10% buffer was a reasonable approach.
59. In summary, the proposed reduction in annual volume from the current licence does not further restrict the water available for abstraction (over the restriction imposed by the HOF and percentage take) and therefore I agree that it has no additional ecological benefit. Conversely, there is no benefit to the licence holder of retaining the current annual limit as the full volume could not be used. Reducing the annual volume would be an administrative adjustment to ensure that the EA is not licensing water that cannot be abstracted. Given that there is no benefit to the licence holder of retaining the current annual limit, there is no reason to stray from the guidance.
60. I modelled the impact of the proposed licence change on potential abstraction volumes.

61. Data on the available water for abstraction under the current and proposed licence licence scenarios had already been modelled, as described in paragraphs 21 and 40 above.
62. Using Excel formulae, I calculated the average number of days per year (1991-2020) where a volume of water in excess of the minimum start-up flow of $0.008 \text{ m}^3/\text{s}$ was available for abstraction in the current and proposed licence scenario (the start-up flow was confirmed by Mr Fursdon on 4th April 2019, see Appendix 2). The start-up flow was used as this is when abstraction for hydropower generation would be possible. I did the same calculation for 2022 as this was a recent dry year.
63. I also calculated the number of days per year that abstraction at the maximum instantaneous rate ($0.800 \text{ m}^3/\text{s}$) would be possible under the current and proposed licence conditions.
64. Results of this analysis are explained in Section 5 of the Hydrology report, but a summary is given below:
- On average (1991-2020) there was approximately a 50% reduction in the number of days where abstraction for power generation would be possible because of the proposed licence changes. In the current licence scenario, abstraction for power generation is possible all year.
 - In 2022, there was approximately a 60% reduction in the number of days where abstraction for power generation would be possible. In the current licence scenario, abstraction for power generation is possible all year.
 - Under the current licence conditions, abstraction at the maximum instantaneous rate is possible for 35% of the year on average over 1991-2020 and 32% in 2022. Under the proposed licence conditions this reduces to 7% of the year on average over 1991-2020 and in 2022.
65. I also compared the water available for abstraction under the proposed licence conditions with water actually abstracted over the 2000-2022 period, using the licence holder's abstraction returns data.
66. In excel, I calculated monthly average actual abstraction from the licence holder's abstraction returns data. I also calculated monthly average abstraction possible under the current and proposed licence conditions. Results are shown in Figure 6 of the Hydrology report. This shows that the proposed licence conditions would reduce the water available for abstraction throughout the year compared to actual abstraction and the current fully licenced abstraction.
67. Using the licence holder's monthly abstraction returns data, I calculated the total annual actual abstraction for each year (2000-2022). I also calculated the total annual possible abstraction under the proposed licence conditions for each year in the same period. Then in each year, I subtracted the total annual actual abstraction from the total annual possible abstraction under the proposed licence conditions. This showed the volume of water in each year that the licence holder abstracted historically but would not have been available to abstract under the proposed licence conditions. I calculated the maximum, median and minimum difference in these annual volumes over the 2000

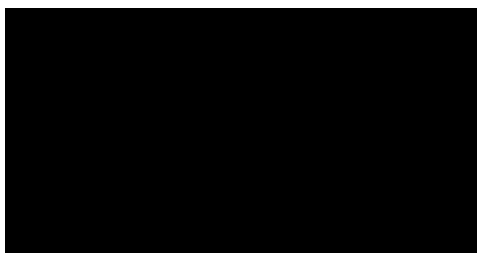
to 2022 period as shown in Table 7 of the Hydrology report. The differences range from 5,214,142 m³/year to 10,283,318 m³/year. Please note as discussed in paragraph 38 above that the abstraction returns may under-record the volume of water abstracted at the abstraction point. In this instance, the actual abstraction volume would be greater, so the difference between the volume of water abstracted historically and the volume of water available to abstract under the proposed licence conditions would also be greater.

D. Summary and conclusion

68. In my professional opinion, the hydrological modelling provides the best available evidence for assessing the current and proposed abstraction licence impacts on river flow. The methods used are consistent with EA guidance and industry-standard practice, and the flow transposition approach has been validated using observed flow measurements. The evidence demonstrates that the current licence has the potential to cause significant flow depletion in the deprived reach (abstraction could cause river flows to flatline at 0.025 for 65% of the time) and that actual abstraction has historically been close to the fully licensed volume. The proposed licence conditions would deliver substantial improvements to river flows and ecological protection (residual flows would be similar to the EFI and flow variability is maintained at all times) while continuing to allow abstraction for hydropower generation. I therefore consider the proposed licence changes to be justified, evidence-based and necessary to restore a more sustainable flow regime within the West Webburn River.

Appendices	
Appendix 1	Ram 4 part d – resource assessment and management – technical assessments
Appendix 2	Email exchange re start up flow

Signed:



Name: Harriet Ames

Dated:14/07/2026

Ram 4 part d – resource assessment and management – technical assessments

Instruction: LIT 11662

Published: 29/04/2026

Audience: Environment Agency

What's this document about?

This document describes the data input requirements for the RAM Ledger.

It includes a chapter for each worksheet. At the end of some chapters is a table summarising the main tasks that you should have completed. This is not a definitive list (as catchments are different) but it should act as 'check list' of the main tasks associated with that worksheet.

Who does this apply to?

This document applies to the whole CAMS project team

Which ledger version does this apply to?

This document applies to all versions of RAM Ledger.

Information that **only** applies to ledger version 4.7.4 and 4.8 is referenced as 'Version 4.7.4 & 4.8 only'.

Information that **only** applies to ledger version 4.8.2 is referenced as 'Version 4.8.2 only'.

Contents

Information and QA worksheets	3
Worksheet A: Title sheet	3
Worksheet B: CAMS info and QA details	7
Worksheet C: Technical audit log	10
Data entry worksheets.....	13
Worksheet D: Assessment unit details	13
Worksheet E: River AP relationships.....	26
Worksheet F: Flow data	28
Worksheet G: Add new abstraction application.....	47
Worksheet H: SWABS.....	50
Worksheet I: GWABS.....	82
Worksheet J: Discharges	116
Worksheet K: Complex impacts	125
Output plots and table worksheets	136
Worksheet L: AP FDC Plots	136
Worksheet M: AP tables.....	142
Worksheet N: AP Time Plots.....	154
Worksheet O: GW body and GWAB tables	157
Impact worksheets	176
Worksheet P – Ups impacts	176
Worksheet Q – LDMU impacts.....	179
Worksheet R – Lakes and Res impacts	181
Calculation Worksheets.....	182
Worksheet S – FDC Calcs	183
Worksheet T – Scen results	185
Worksheet U – Time Calcs.....	187
Related documents	188
Links.....	188

Field name	Data format/ units	Data Source	Role in calculations	Field description
Northing	6-figure northing of grid reference	WRGIS	Not used in calculations	The location is defined by the water body outflow point in the WRGIS.
Total upstream catchment (area km ²)	km ²	WRGIS	Not used in calculations	The total surface water catchment area upstream for each CAMS AP is calculated based on the WFD catchment boundary built into the water bodies in the WRGIS. If you identify an error here contact the HO to address this, as this suggests that there may be the need to change water body boundaries or possibly flow routing within the WRGIS.
Gauging station reference	Number/t ext		Not used in calculations	If the AP is at a gauging station, enter the gauging station reference number here. You should also report this in your Conceptual Report (see Part C).
Abstraction sensitivity band from WRGIS	Integer (1-3)		Not used in calculations	Abstraction Sensitivity Band: from combination of WRGIS based components for physical catchment, LIFE expected scores and fish flow sensitivity typology. This column is exported from the WRGIS and must not be changed.

Field name	Data format/ units	Data Source	Role in calculations	Field description
Abstraction sensitivity band for CAMSLedger	Integer (1-3)	Initially copied from the previous column, but can be changed in the CAMSLedger	Used to determine the Environmental Flow Indicator (green line) at this river AP. 1 = ecology least sensitive to abstraction pressure, 3 = most sensitive	Abstraction Sensitivity Band: from combination of WRGIS based components for physical catchment, LIFE expected scores and fish flow sensitivity typology. This is a nationally agreed scoring system. The Abstraction Sensitivity Band score can be changed in the CAMSLedger to look at 'what if' scenarios for AP results, but you must always change it back. If you make a change the cell will change to a pink colour to highlight the change.
Downstream AP number from WRGIS	Integer (1-20)	WRGIS	Not used in calculations	The next CAMS AP number downstream of this one, based on WRGIS routing. If wrong, suggest WRGIS routing edits to head office, and then edit the numbers in the next column.

Karen Gowlett

From: Karen Gowlett
Sent: 14 July 2026 14:39
To: Karen Gowlett
Subject: Fw: FW: Abstraction Licence - 14/46/04/0685

From: Lockwood, Catherine
Sent: Tuesday, June 11, 2019 14:04
To: Bowers, Kate; Townsend, Emma
Subject: Fw: FW: Abstraction Licence - 14/46/04/0685

Hi Both

Further information received from Mr Fursdon regarding Jordans Leat Hydro scheme as asked for in our last meeting.

Do I need to send this anyone else?

Cheers

Catherine

Catherine Lockwood

Environment Officer

Devon, Cornwall and Isles of Scilly Central Team

 Ext: 07979 530953

 catherine.lockwood@environment-agency.gov.uk

 www.gov.uk/environment-agency

✉ Environment Agency, Manley House, Exeter, Devon, EX2 7LQ

☎ Incident hotline: 0800 80 70 60 (freephone, 24 hour service)

Please note my working days are Tuesday, Wednesday and Thursday

prevention ...intelligence ...enforcement...

From: Waterleat Walks and Talks [REDACTED]
Sent: 04 April 2019 15:29
To: Lockwood, Catherine <catherine.lockwood@environment-agency.gov.uk >
Subject: RE: Abstraction Licence - 14/46/04/0685

Dear Ms Lockwood

Old Walls Hydro

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As far as the Hydrology team and the RSA programme are concerned, the following will be what they are looking for.

The start-up flow for the small turbine is 8 l/s. The plant here has been designed so that the big turbine takes over from the small turbine as the river flow increases. For this reason, there is no start-up flow for the big turbine.

As explained during your site visit, the discharge point at NGR SX 700 747 was moved to NGR SX 700 744. This was 24 years ago - in 1995 and overseen by Nick Prall. The hands-off flow then became 25 l/s, a 5-fold increase, as you witnessed at your inspection. All permissions and licences were obtained and granted from each relevant authority, including the Environment Agency, for this development to go ahead within the Dartmoor National Park.

I trust this answers your questions.

Regards

M Fursdon

From: Lockwood, Catherine <catherine.lockwood@environment-agency.gov.uk>
Sent: 02 April 2019 11:47
To: [REDACTED]
Subject: Abstraction Licence - 14/46/04/0685

Dear Mr and Mrs Fursdon

I hope you are both well.

I just have a few queries regarding your abstraction licence which I hope you will be able to help me with. This is so that our Hydrology team can undertake a number of calculations in relation to the RSA programme.

- * Please could you advise what the start up flow is for each of your turbines.

- * Regarding the hands off flow, there are 2 different values on your licence depending on whether the supply pipe, turbine and draught pipe have been replaced or extended. Please could you advise whether this work has been undertaken or not and whether the hands off flow is 0.005 or 0.025 cubic metres per second. I have written the relevant conditions below. Unfortunately we do not have this information on our records.

10.2 Until such time that replacement or extension of the supply pipe, turbine and draught pipe takes place:

10.2.1 The draught pipe discharge point should remain at NGR SX 700 747.

10.2.2 Notwithstanding the quantity authorised to be abstracted, the Licence Holder shall reduce the abstraction (to nil if necessary) so as to ensure that the flow over the notch on Jordan Weir at NGR SX 700 749 is not less than 0.005 cubic metres per second.

- 10.3 Prior to any works being carried out to replace or extend the supply pipe, turbine and draught pipe, written notification of commencement date for such works should be submitted to the Agency.
- 10.4 When replacement or extension of supply pipe, turbine and draught pipe has been completed:
- 10.4.1 The draught pipe discharge point shall be at NGR SX 700 744.
- 10.4.2 Notwithstanding the quantity authorised to be abstracted, the Licence Holder reduce the abstraction (to nil if necessary) so as to ensure that the flow over the notch on Jordan Weir at NGR SX 700 749 is not less than 0.025 cubic metres per second.
- 10.5 Unless work for the replacement or extension of the supply pipe, turbine and draught pipe was commenced within ten years of the date this licence was originally issued, conditions relating to discharge point and prescribed flow shall be as in Condition 10.2. (1) and (2) above.

If you have any queries regarding this please feel free to contact myself.

Kind Regards

Catherine

Catherine Lockwood

Environment Officer

Devon, Cornwall and Isles of Scilly Central Team

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 catherine.lockwood@environment-agency.gov.uk

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 Incident hotline: 0800 80 70 60 (freephone, 24 hour service)

Please note my working days are Tuesday, Wednesday and Thursday

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