Restoring Sustainable Abstraction Licence Change Proposal Report (LCPR)

Site Name	Old Walls - Waterleat Lodge
Area	Devon Cornwall and Isles of Scilly
Driver	Local
Licence Holder(s)	Mr M R Fursdon
Licence Number(s)	14/46/004/0685
LCPR Author	Carole Brennan & Debbie Peareth (Integrated Environment Planning team)
Date (Month/Year)	November 2025

Approval:

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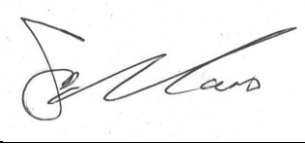
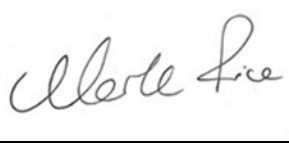
Signature		**Signature**	
Date	20 November 2025	**Date**	26 November 2025

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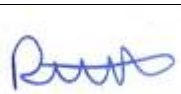
Signature	
Date	2 December 2025

Restoring Sustainable Abstraction – Summary Document

Site Name: Old Walls Hydro-electric Power Scheme
Driver: Local
Licence Number: 14/46/004/0685
Licence Holder: Mr M Fursdon

Background

The scheme was originally developed for power generation in 1936 due to the farm having no mains electricity. The licence was first issued on 21 July 1992 as a Licence of Entitlement (LoE) for an existing abstraction for domestic power generation following changes introduced by the Water Act 1989 removing the licensing exemption. Licences of Entitlement were granted to reflect their existing operation.

The abstraction licence allows the holder to take water from the West Webburn River, for Power Generation at NGR SX 700 749.

Water is abstracted by gravity to a sluiced leat, leaving a deprived reach of approximately 600m in the river. There was an agreement in 1992 between the National Rivers Authority and Licence Holder for fish screening at the turbine, rather than at the head of the leat as specified by the licence. The site has been on the Restoring Sustainable Abstraction (RSA) programme since 2009.

Image 1: Water through the notch leaving the rest of the weir exposed (May 2018)

Image 2: West Webburn River below abstraction point. Note the exposed surfaces of the boulders showing moss growth. (May 2018)

The Environment Agency (EA) considers the current abstraction licence unsustainable based upon the impact to the West Webburn River. This includes insufficient flows remaining in the deprived reach during low flows when the licence allows the abstraction of all the river flow apart from a very small flow of 25l/s.

The current screening arrangements do not meet current best practice and therefore there is an increased risk of fish entrainment, injury or death.

The current licence authorises:

- An extremely low Hands Off Flow (HoF) to remain in the river below the abstraction of 25l/s (<1/3 of Q99.9). This equates to less than a third of the lowest flow that would only be experienced for 0.1% of the time in an average year.
- A maximum instantaneous abstraction of 0.80m^3/s. This equates to the flow that would only be exceeded for 35% of the time in an average year (Q35).When combined with the 25l/s HoF, this allows >99.9% of the rivers flow to be abstracted for 65% of the time in an average year.
- In the fully licensed scenario, the residual flow in the 600m deprived reach would be below the EFI target flow for 336 days a year (on average over 1991 – 2020), equivalent to 92% of the time and for 339 days in a dry year (2022), equivalent to 92.8%.

There is also currently:

- No provision to maintain any flow variability through a proportioned take.
- Inadaquate fish screening, with ad-hoc manual bywash.

- A voluntary arrangement by the licence holder to deploy a rotating drum screen on the leat tail race during the upstream salmon migration season.

The current licence is not sustainable due to:

- The impediment of upstream and downstream movement of migratory fish species over the existing weir which diverts the river water to the leat offtake. In addition, the deprived reach may become impassable due to reduced water depth when the majority of the river flow is diverted to the leat. .
- Lack of flow variability hindering fish migration which can lead to a decline in fish numbers and diversity, favouring certain species, while reducing populations of others.
- The informal agreement to deploy tail race screening is not sufficient or robust enough to ensure upstream migrating fish are prevented from entering the leat and remain in the main river channel.

What do we want to do to solve the problem?

We propose to change the abstraction licence to include the following conditions:

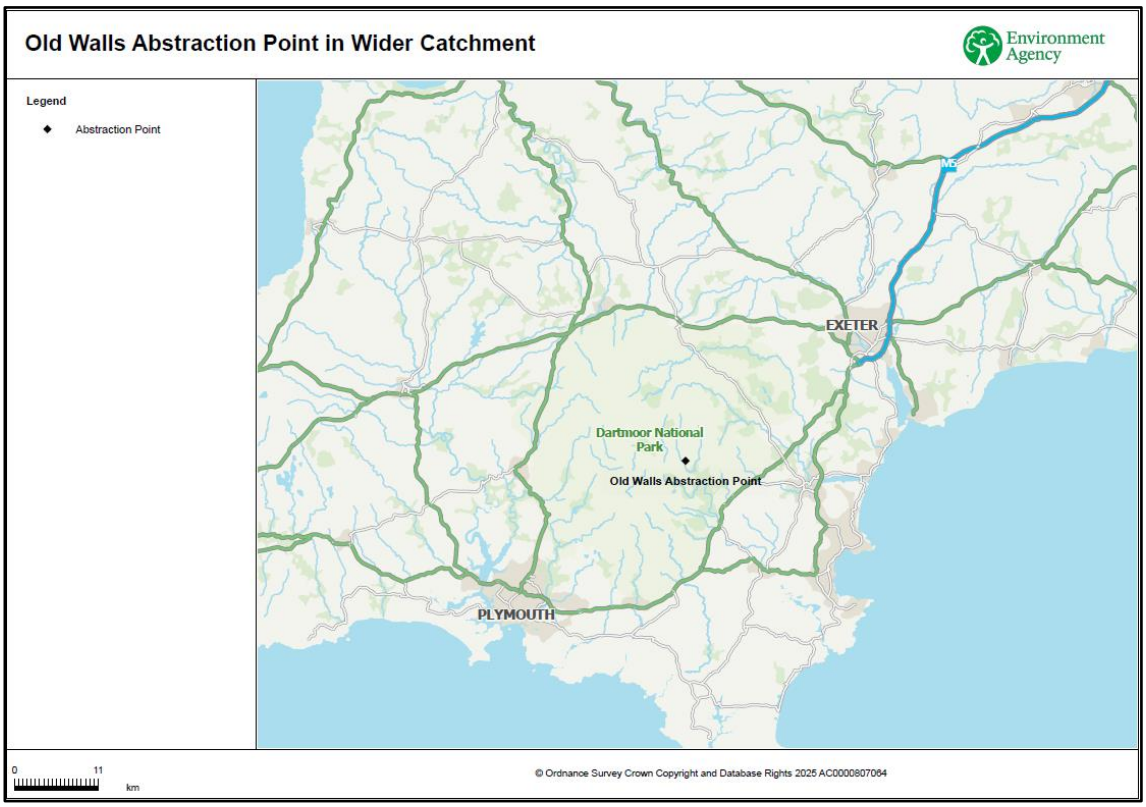
- Introduce a Q95 Hands off Flow to protect low flows
- Introduce a % Take above the HoF to provide flow variability
- Introduce a sweetening flow to protect the ecology of the leat
- Means of controlling and measuring the water abstracted from the river at the head of the leat
- Appropriately sized fish screen at head of leat*
- Formalise the deployment of the tail race screen

*Appropriately sized fish screen installed at true head of leat as directed by the EA, this will negate the need for a leat bywash.

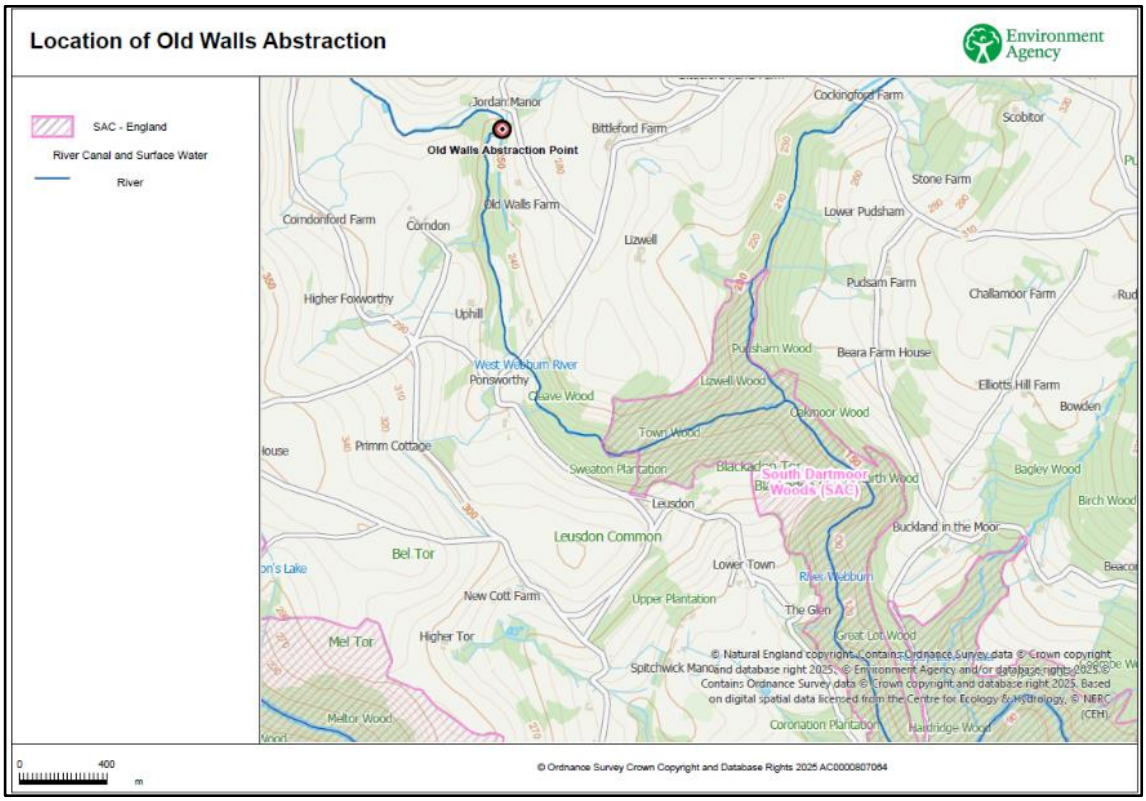
What will this proposed licence change achieve?

The EA proposes to vary this licence to protect the deprived reach through an increased hands off flow (HoF) condition. Fish migration will also be improved through the river by adding a percentage take condition (above HoF) to provide flow variability. Improved screening will reduce the risk of fish entrainment in the leat preventing damage and death. This would be in line with our current best practice guidance, the guidance for run-of-river hydropower development December 2017 (Appendix 6).

The addition of a sweetening flow will ensure the leat does not dry out to protect its habitat, however ceasing all abstraction when river flows fall below 40l/s will prioritise the protection of the deprived reach.



Map 1: Location of Old Walls abstraction, wider area



Map 2: Location of Old Walls abstraction, detailed view

End of Summary Document

1. RSA Driver

1.1. Local sites

The RSA driver for this site is Local. This recognises the severity of the local impact which the non-consumptive abstraction, in line with its current licence conditions, causes in terms of the deprived reach created. Flow monitoring transposed from a nearby gauging station and modelling shows this impact (see section 2.2.3).

Local sites can contribute to supporting the delivery of Water Environment (Water Framework Directive) Regulations 2017 (WFDR 2017) environmental objectives but may be of a scale or location that doesn't reflect our reporting obligations at water body level, so the driver is one of local importance. Biodiversity 2020 does not set specific targets and actions for local sites. However, it recognises that local people and organisations are best placed to decide how to implement the strategy in the most appropriate way for their area or situation. This site has no statutory designation but the abstraction is upstream of the South Dartmoor Woods Special Area of Conservation (SAC). Addressing the unsustainable licence and restoring a fairer share of water to the environment will support the SAC and its designated features.

The West Webburn River flows south from its source on Hameldown Ridge, Dartmoor. It passes Widecombe-in-the-Moor before joining the East Webburn River at Lizwell Meet. The combined river then flows into the River Dart.

1.2. The case for Licence Change

Old Walls HEP on the West Webburn River is listed on the EA's RSA programme in the Devon, Cornwall and Isles of Scilly Area.

Restoring Sustainable Abstraction (RSA) is an EA programme of work to identify, investigate and resolve environmental risks or problems caused by unsustainable licensed water abstraction throughout England.

This report relates to proposed changes to the licence under section 52 of the Water Resources Act 1991.

2. Introduction

The licence (Licence no.14/46/004/0685) allows the holder to abstract 69,120m^3 per day and 16,054,984m^3 per year from the West Webburn River for Power Generation. The West Webburn starts on the eastern side of Dartmoor, flows past Widecombe-in-the-Moor and joins the East Webburn River at Lizwell Meet in Oakmoor Wood. These rivers then feed into the River Dart near Buckland Bridge (South Dartmoor Woods SAC) and flows through Buckfastleigh and onto Totnes. The catchment is mainly agricultural and home to traditional Dartmoor farms. The Old Walls site sits near a geological transition zone, where granite meets metamorphic country rock – this boundary adds complexity to the local landscape and biodiversity.

The abstraction was authorised as a 'Licence of Entitlement' on 21 July 1992 following the introduction of the Water Act 1989. The legislation change brought previously exempt abstractions into licence restriction under paragraph 30 of Schedule 26 to this Act.

These licences were typically granted without restriction due to the constraints of the legislation without an assessment of environmental impacts.

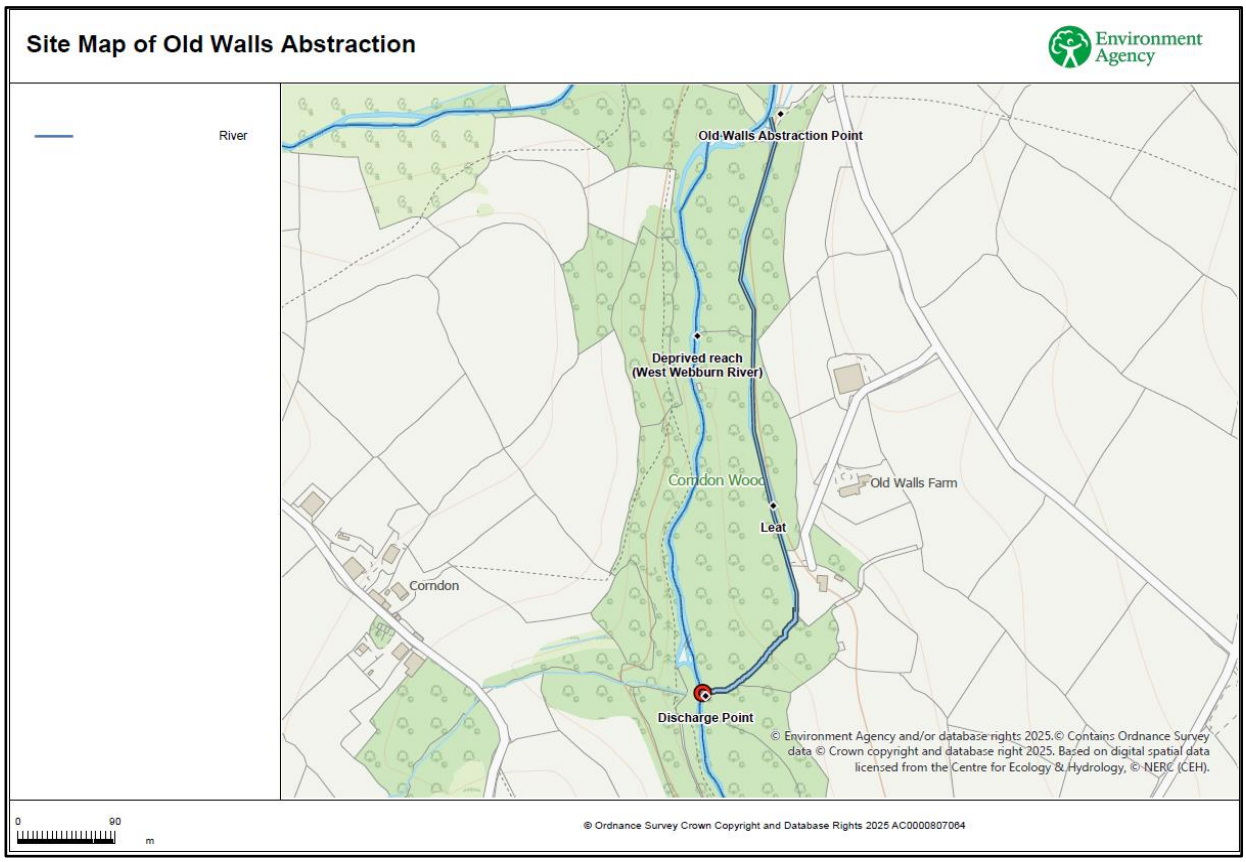
2.1 Summary of Issues

The Old Walls abstraction licence (14/46/004/0685) authorises abstraction by gravity from the West Webburn River at NGR SX 700 749 for the purpose of power generation.

The current issues for this site are:

- An extremely low Hands Off Flow (HoF) to remain in the river below the abstraction of 25l/s (< 1/3 of Q99.9). This equates to less than a third of the lowest flow that would only be experienced for 0.1% of the time in an average year.
- A maximum instantaneous abstraction of 0.80m^3/s. This equates to the flow that would only be exceeded for 35% of the time in an average year (Q35). When combined with the 25l/s HoF, this allows >99.9% of the rivers flow to be abstracted for 65% of the time in an average year.
- No provision to maintain any flow variability through a proportioned take.
- Inadaquate fish screening, with ad-hoc manual bywash.
- A voluntary arrangement by the licence holder to deploy a rotating drum screen on the leat tail race during the upstream salmon migration season.

Water is abstracted at SX 700 749 via a concrete lined leat and discharged back to the main River Webburn at SX 699 744 (see Map 3). The abstraction is not consumptive but creates a deprived reach of approximately 600m in the River Webburn. Water can be abstracted from the river up to the instantaneous rate of 0.80m^3/second. The existing HoF of 25l/s represents a flow that is lower than Q99.9. The current licence allows this to be the only flow remaining in the river below the abstraction for 65% of the time in an average year.



Map 3: Site Map of Old Walls Abstraction

Current screening at the intake of the turbine rather than offtake from the river, with an inadequate bypass channel, together with ad hoc deployment of the tail race screen, puts fish at harm, particularly downstream and upstream migrating salmonids.

2.2 Current Situation

2.2.1 Turbine

The turbine operated by the licence holder is a cross flow turbine.

Cross flow turbines, while compact and efficient, are known to have high mortality rates for fish due to:

- **Blade strike**: Fish can be hit multiple times as they pass through the rotor.
- **Shear forces and pressure changes**: These can cause internal injuries or disorientation.
- **Turbulence and cavitation***: Particularly harmful to smolts and eels during downstream migration.

Fish passing through turbines are at risk of severe injury or death, especially where screening and bypass systems are inadequate.

*Cavitation is where vapor bubbles form and collapse violently in a liquid in response to rapid changes in pressure – a bit like boiling but triggered by low pressure rather than high temperature.

2.2.2 Fish Screening

There is currently no screen stopping fish entering the leat. The screen required by the licence was relocated in 1992 with the knowledge of the EA, further down the leat to the forebay tank*, due to stones and grit causing wear and tear on the screen.

The reasoning behind this was that the Licence Holder at the time (current Licence Holder's father) was elderly and removing the stones and grit was proving difficult.

Whilst the EA felt that this was understandable at the time, it is no longer considered acceptable under current operational and environmental standards.

The current fish screening guidance was not in place at the time of this agreement (Screening for intake and outfalls: a best practice guide. Environment Agency. Science Group. Jacobs Babtie Aquatic, O'Keeffe, N: Turnpenny, A W H – Bristol: Environment Agency 2005) (Appendix 7).

*A forebay tank is a key component in hydropower schemes and acts like a buffer zone between the water body and the turbine. It helps transition water from the river to a pressurised flow, ensuring a stable supply to the turbine.

Image 3: Looking downstream to the leat, sluice gate and weir (May 2018)

Image 4: Looking upstream to the weir on the River Webburn (May 2018)

Image 5: bywash channel returning to the main river (May 2018)

Image 6: Deprived reach (May 2018)

A bywash is present in the form of a 10” pipe from the head of turbine and is operated manually by the site operator when they believe it is required (see Image 7).
The bywash design does not meet current best practice standards. This pipe (when used) can by itself cause damage to smolts. The bywash design lacks a deep plunge pool which increases the physical trauma of fish, including scale loss, fin damage and shock or disorientation.

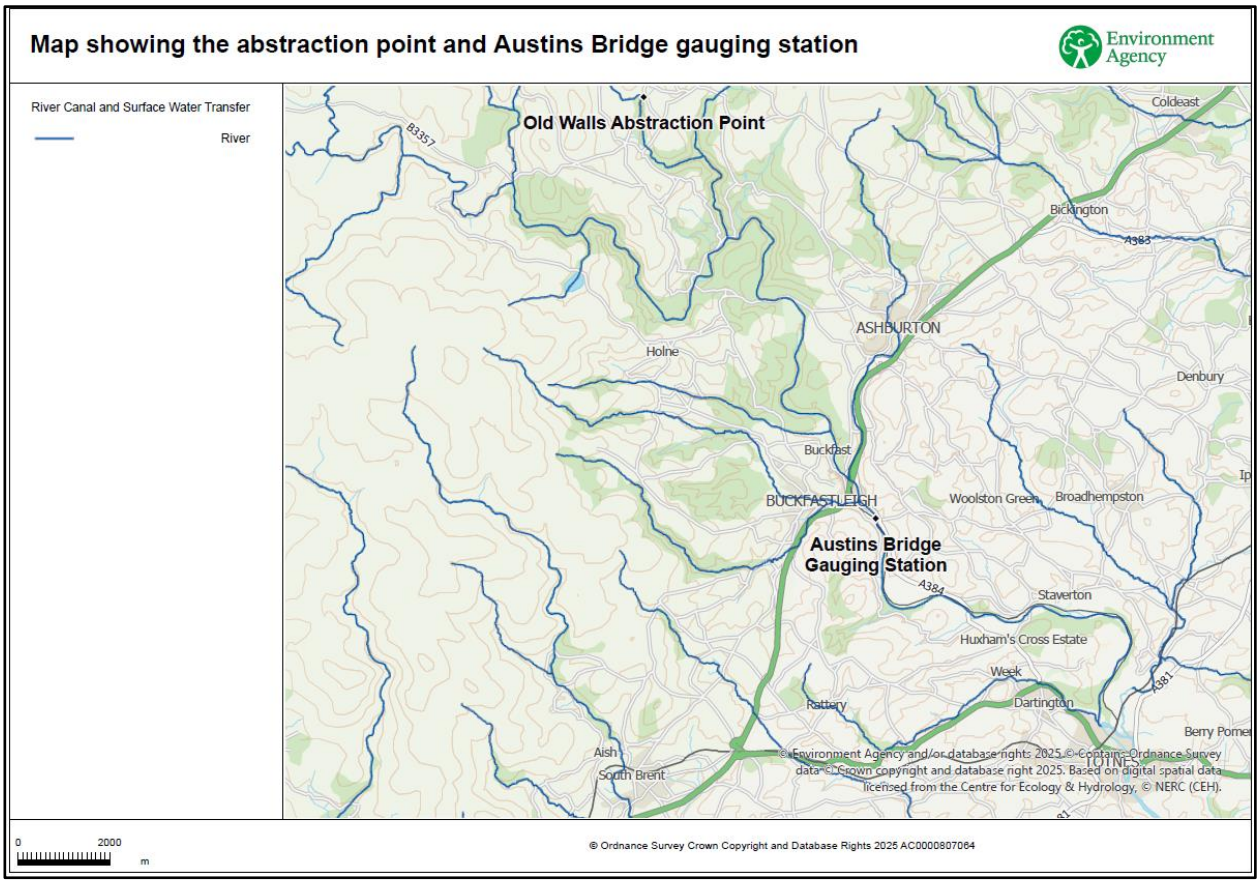
Image 7: Bywash pipe (May 2018)

Downstream of the turbine there is a short tail race that returns flow to the river. This tail race is screened seasonally with a rotating drum screen (see Image 8) to prevent the ingress of migrating fish. The screen is deployed voluntarily by the licence holder at their discretion during undefined high risk periods.

Image 8: Rotating drum screen sitting on the bank (June 2024)

2.2.3 Hydrological Evidence of impact

There is no continuous measurement of flow on the West Webburn River at the abstraction location. In this situation, it is standard hydrological practice to estimate flows using data from a nearby gauging station and transposing it to the required location. This assumes the catchments of both locations share similar rainfall and river response. For this site, the nearest appropriate gauging station is at Austins Bridge on the River Dart, around 14km downstream of the abstraction point (Map 4).



Map 4: Map showing the abstraction point (top left) and Austins Bridge gauging station on the River Dart (bottom right).

The natural flow in the West Webburn River at the point of abstraction has been transposed from Austins Bridge gauging station* and validated with spot gaugings**. Hydrographs showing estimated natural flows and spot gaugings for the West Webburn River are available in the Hydrology Full Report June 2025 (Appendix 5).

The graphs contained in Appendix 5 show that the modelled flows are a good fit to the spot flow measurements. This assures the modelled natural flow data is an accurate representation of the flow at the abstraction point and is suitable for use in the assessment.

Daily mean flow data for the period 01/01/1991 to 31/12/2020 has been used to derive long term Flow Duration Curves (see Hydrology Full Report June 2025 – (Appendix 5)). Additionally, data for 01/01/2022 to 31/12/2022 has been used to represent a recent dry year. The 30-year period from 1991 to 2020 is the standard period used for assessment of water resources availability by the EA and is equivalent to the standard long-term average period used for rainfall by the Met Office.

*The gauged flow data recorded at Austins Bridge has been naturalised to take account of the abstractions, discharges and reservoirs in the catchment. This generates a natural flow sequence, which represents the flow that would have been observed in the absence of artificial influences on flow (such as abstraction). This natural flow sequence is then scaled to the abstraction location in a process known as transposition.

**Spot gaugings are instantaneous measurements of the flow taken using a current meter or other portable equipment, rather than using a permanent gauging station.

Fully Licensed Scenario

The current licence quantities are as follows:

- Daily licence quantity: 69,120 cubic metres per day (m^3/daily)
- Annual licence quantity: 16,054,984 cubic metres per year (m^3/year)
- Maximum instantaneous rate: 0.80 cubic metres per second (m^3/second)
- Authorised months: All year

Additionally, the licence includes a prescribed flow of 0.025m^3/second which applies to the flow over the notch of the Jordan Weir at NGR SX 700 749.

The EA has modelled the potential impact of the abstraction using Excel formulae that calculate the maximum volume of water that could have been abstracted on each day, given the flow in the river and the abstraction licence conditions. This theoretical maximum abstraction is then subtracted from the natural flow to calculate the flow that would have remained in the river in the deprived reach downstream of the abstraction point in this scenario. This is known as the residual flow.

Recent Actual Scenario

Weekly abstraction returns have been submitted by the licence holder in line with their current licence conditions. These have been used to calculate monthly average abstraction rates over the period 2016-2021 for comparison with the water available under the current and proposed licence scenarios.

Flow targets

The EA uses the Environmental Flow Indicator (EFI) as a baseline to assess where abstraction pressures may start to cause an undesirable effect on river habitat and species.

Allowable abstraction (under EFI) as a percentage of flow is as follows:

- 10% of natural at Q95
- 17% of natural at Q70
- 25% of natural at Q50
- 23% of natural atQ30

Results

Modelled residual flows under the fully licensed scenario described above, along with the 'natural' flow (the flow in the absence of abstraction) and the EFI target flow, are shown on the hydrograph in Figure 9 below. It can be seen that residual flows (red line) flatline. This means that there is only 25l/s left in the river (current HoF) which is below the EFI for most of the year during 2022, chosen as a recent dry year, at times of low flow. There is no variability in flow during this time.

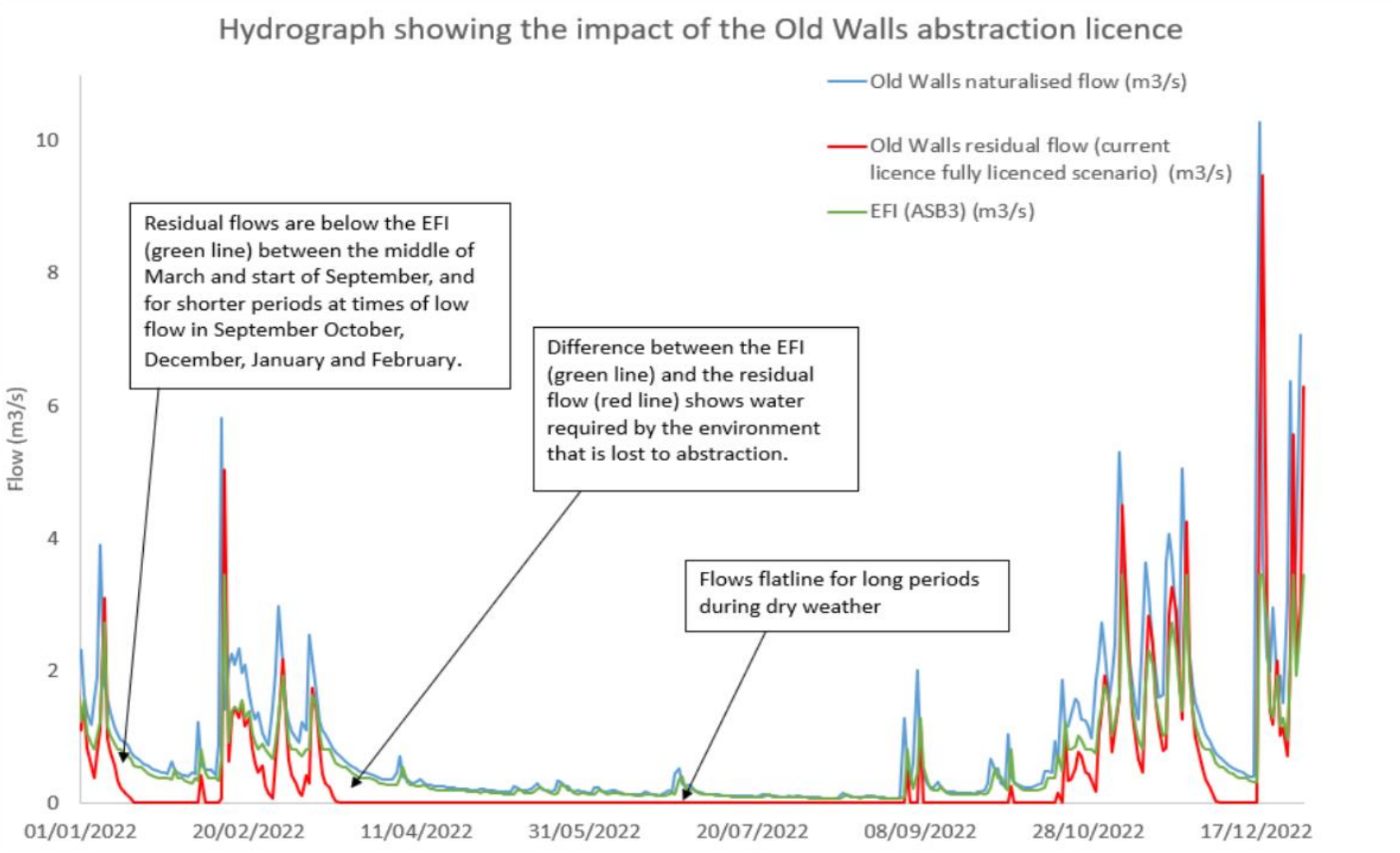


Figure 9: Hydrograph showing natural flow, EFI flow target and modelled scenario flows for the Old Walls abstraction in 2022.

The Hydrograph in figure 9 also shows that the EFI flow targets are close to the natural flow and therefore only allows for relatively small abstraction volumes, especially at low flows. The red line shows the current licensed residual flow that would remain in the deprived reach (downstream of the abstraction).

The current licence has a significant detrimental effect on flow. The current abstraction is a large percentage of the flow across the whole flow range.

In the fully licensed scenario, the residual flow in the 600m deprived reach would be below the EFI target flow for 336 days a year (on average over 1991 – 2020), equivalent to 92% of the time and for 339 days in a dry year (2022), equivalent to 92.8%.

2.2.4 Fisheries Assessment of Impact of Abstraction Licence

It is the expert opinion of the EA Fisheries Technical Specialists, that the scheme has a local impact on fish migration and improvements to fish screening are required. Salmonid fish (migratory sea trout and Atlantic salmon, resident brown trout) and European eel will all migrate through this watercourse.
Current screening at the intake of the turbine, rather than offtake from the river, with an inadequate bypass channel, together with ad hoc deployment of the tail race screen, puts fish at harm, particularly downstream and upstream migrating salmonids.
If the abstraction licence was operated to maximum authorised quantities the following impacts would be observed:

- Reduction of juvenile production of salmonids (Atlantic salmon and brown/sea trout) in the deprived reach (approximately 600m) due to a reduction in flow which results in decreased available habitat area and hence carrying capacity. Reduced flow also increases accretion of fine sediments which degrades viable spawning gravels and increase the likelihood of salmonid egg and juvenile mortality.
- Impediment of upstream and downstream movement of migratory salmonids over the existing weir that diverts the river flow to the leat offtake. In addition, the deprived reach may become impassable due to reduced water depth when the majority of the river flow is diverted to the leat.
- Entrainment of Atlantic salmon, European eel and brown/sea trout parr and smolt into the leat with potential for migration delay, damage and/or loss within the leat and bywash.

Abstraction at the licensed maximum poses unacceptable risk to salmonid and European eel populations in the West Webburn, given current stock status and life stage vulnerabilities. Our data show that the Atlantic salmon population in the West Webburn, once an important spawning tributary, has been in decline for several years and this is symptomatic of the wider River Dart population which is currently assessed as “At Risk” of failing conservation targets. This data has been taken from the Salmon Stocks and Fisheries in England and Wales in 2023 report (Appendix 8). The status of the Dart salmon population is currently highly vulnerable to

any additional pressures so the potential for loss or delay to salmon smolts is of significant concern.

The West Webburn water body (GB108046008410) has been classified as Moderate for 2022 under the Water Environment (Water Framework Directive) Regulations 2017 (WFDR 2017). The failing element is Fish.
The 2025 interim WFDR 2017 classification indicates no change from the 2022 classification.

The Dart Fisheries Association has made repeated contact with the EA to request information regarding the current abstraction licence on the West Webburn River. Their concerns stem from observed declines in Atlantic salmon stocks, which are currently classified as *"At Risk"* of failing to meet conservation targets.

The Association has highlighted the following issues:

- **Potential ecological impacts** of abstraction during sensitive life stages, particularly smolt out migration and adult return.
- **Insufficient mitigation measures**, including screening, flow protection, and monitoring infrastructure.
- **Cumulative pressures** on salmon populations, including low flows, sedimentation, and turbine-related mortality.

3.0 RSA Objectives

The EA identified several aspects of the licence that need to be resolved:

- Flows protected by compliance with Table A in the guidance for run-of-river hydropower development (December 2017) for a ASB3* water body with low/moderate baseflow.
- Increase HoF to Q95 and add 35% take above the HoF to licence conditions
- Control structure and means of measuring abstraction at head of the leat.
- A small sweetening flow (20l/s) into the leat to protect its habitat. Once the flow in the river falls below 40l/s all abstraction must cease (including the sweetening flow). This prioritises flow to remain in the river.
- Add the existing voluntary tail race screening to the licence conditions.
- Improve fish screening to meet current best practice. This will include installing an appropriately sized screen at the head of the leat.

*Each water body in England is assigned an Abstraction Sensitivity Band (ASB), High (ASB3); Medium (ASB2); Low (ASB1). A scheme will be allowed to abstract more water at sites of lower sensitivity, than in highly sensitive areas. The West Webburn River is assigned ASB3.

In order to achieve these objectives, the following four options were appraised and documented in the Options Appraisal report:

1. **No change to licence -** This option was discounted as it does not deliver any improvements.
2. **Revoke licence** – This option would return the deprived reach to a natural state**.** It is however unnecessary to deliver the desired environmental improvements that can be achieved by changing the licence to provide a balance between the needs of the licence holder and environment.
3. **Environment Flow Indicator (EFI) target for support of Good Environmental Status (GES) –** This option was discounted on the basis that, although Table A of the run-of-river hydropower guidance permits the licence holder to abstract a greater volume of water—resulting in an increased number of days where flows fall below the Environmental Flow Indicator (EFI)—the deviation from the EFI is considered marginal. As such, it was concluded that the potential ecological benefit does not justify the additional restriction in water available to the licence holder.
4. **Requirement in line with Table A in the guidance for run-of-river hydropower development (December 2017) -** This is the preferred option. It delivers the environmental improvements for the site and is consistent with our approach and would also allow the site to continue to operate and generate HEP.

The preferred option chosen was option 4 - Requirement in line with Table A in the guidance for run-of-river hydropower development (December 2017).

The EA attended a site visit with the licence holder on 17 April 2025.

Particular effort was made to encourage the Licence Holder to consider making their own proposal to meet the RSA objectives*. It was emphasised that this would be considered.

The Licence Holder chose not submit their own proposal, however, the Licence Holder has expressed a preference for our preferred screening option (head of leat 6mm screening) rather than the alternative option (set back screening which would require a redesigned bywash channel as directed by the EA resulting in less water for power generation).

*RSA objectives are to deliver measurable environmental improvements at this site, through licence changes that reflect current best practice.

4.0 Options Appraisal

4.1 Flow options appraisal

Option appraisal for the HoF included consideration of relevant drivers and compliance with environmental legislation. The EA uses the guidance for run-of-river hydropower development December 2017 to determine new applications for licences for hydropower. Table A (below) is used as a starting point for flow management for hydro-power schemes.

Table A sets out the starting point for flow management for hydropower schemes. The EA starts with these flow allocations for all schemes. However, the EA may also need to set a more protective flow if:

- the scheme could affect a weir pool that is highly important to the status of the water body or wider catchment.
- reducing flow is likely to have an impact on fish passage.

TABLE A DESIGN FLOWS FOR HYDROPOWER SCHEMES						
	High sensitivity ASB3		Medium sensitivity ASB2		Low sensitivity ASB1	
River type Q95 / Qmean value	Low/med base flow Below 0.2	High base flow 0.2 & above	Low/med base flow Below 0.2	High base flow 0.2 & above	Low/med base flow Below 0.2	High base flow 0.2 & above
HOF	Q95	Q97	Q95	Q97	Q95	Q97
Maximum abstraction	1.3 x Qmean	Qmean	1.3 x Qmean		1.3 x Qmean	
% take above HOF	35%		40%		45%	

Table 1: Table A from Environment Agency Guidance for run-of-river hydropower development December 2017

The guidance details how the best available evidence is used to assess how abstraction, impoundment, flow modifications and flow diversions will affect river-based habitats and the associated ecology.

The EA manages water resources using the ASB to determine the degree of deviation from natural flows. Table 2 shows that the site is on the West Webburn River which has the highest abstraction sensitivity band (ASB) of 3.

Based on ASB 3 and the low to medium baseflow, table 2 below provides the site-specific character of the West Webburn River and therefore the HoF, maximum abstraction and percentage abstraction according to Table A guidance for run-of-river hydropower development December 2017

Old Walls Flow Characteristics based on Table A guidance	
ASB	3
Q95: Qmean ratio	0.160
River type	Low/med baseflow
HOF	Q95 = 0.146 m^3/s
Max abstraction	1.3*mean = 1.3*0.908 = 1.18 m^3/s
%take	35%

Table 2: Hydrological flow characteristics of Old Walls

The Q95: Qmean ratio is 0.160 which is in the low/medium base flow category.

Table A of guidance for run-of-river hydropower development guidance indicates the following:

- The maximum abstraction rate calculated, based on the run-of-river guidance of 1.18m^3/s for Old Walls is higher than the current instantaneous rate of 0.80m^3/s.
- The current licence has a very low HoF (below Q99), no percentage take and a licence maximum below 1.3*mean flow.

Hydrological modelling to calculate residual (deprived reach) flows under the Table A option was undertaken as follows:
Q95 HoF, 35% take, current licence maximum. We also included a 20l/s sweetening flow, which ceases when flows in the river reach <40l/s.

The hydrological modelling showed that the Q95 HoF protects the lowest flows. Residual flows in the mid-range flows are most sensitive to the chosen percentage take. At the highest flows the residual flow is determined by the maximum take.

As the critical flows to protect at this site are the mid-range flows for fish migration, it is considered that a 35% take is the most appropriate option. There is scope to increase the maximum abstraction rate without further detriment to the river, so a maximum abstraction rate of 1.3*mean flow (in line with Table A) is acceptable. However, the Licence Holder has advised that they are not able to utilise any more than the current maximum instantaneous flow, therefore only the current licence maximum has been modelled.

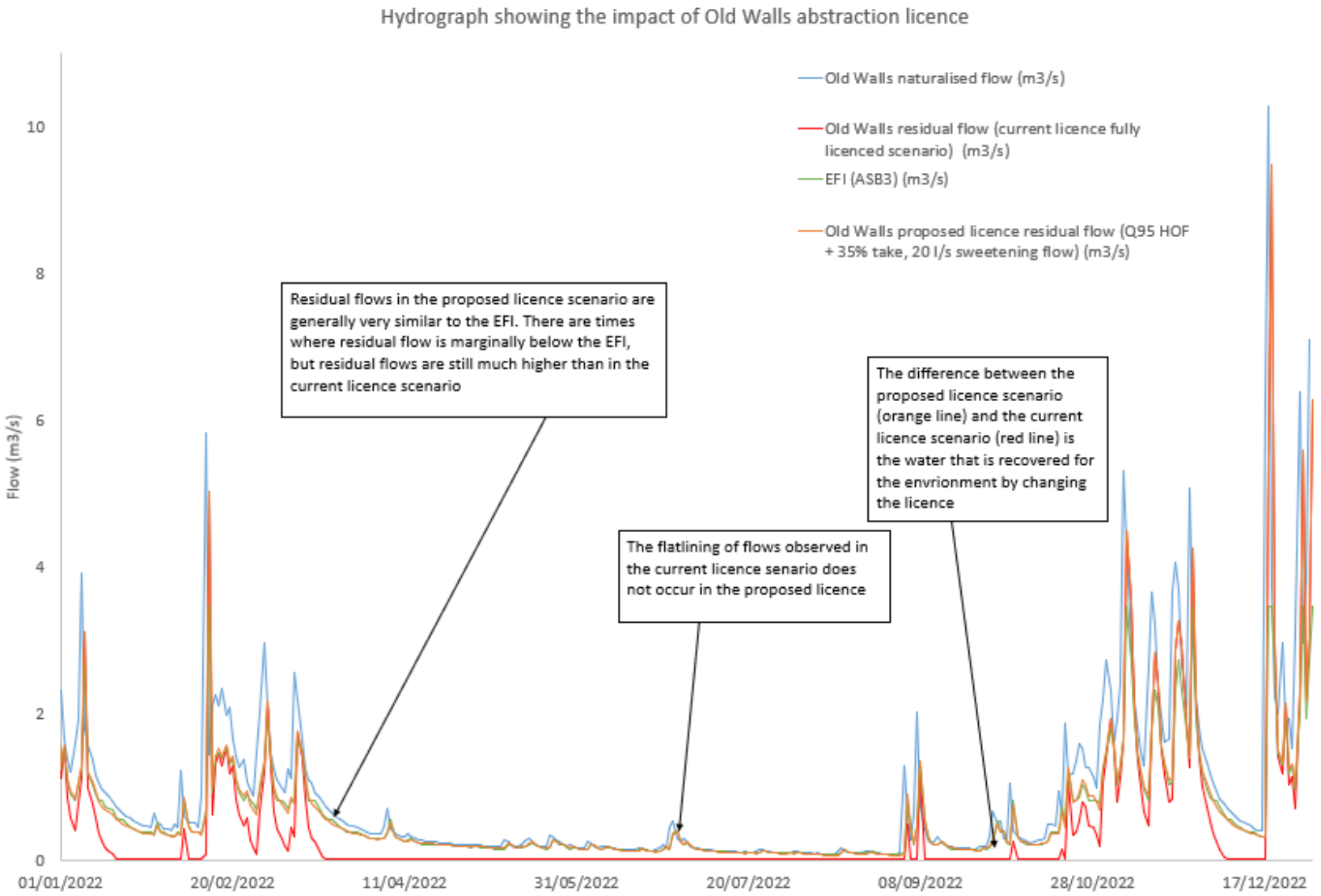


Figure 10 – hydrograph showing natural flow, EFI flow target and modelled scenario flows for Old Walls abstraction in 2022

The hydrograph in figure 10 shows that residual flows in the proposed licence scenario (orange line) are generally very similar to the EFI. There are times where the residual flow is marginally below the EFI, but residual flows are still higher than in the current licence scenario.

Although Table A of the run-of-river hydropower guidance permits the licence holder to abstract a greater volume of water—resulting in an increased number of days where flows fall below the Environmental Flow Indicator (EFI)—the deviation from the EFI is considered marginal.

The new 35% take condition ensures flow variability is maintained at all flows.
The difference between the proposed licence scenario (orange line) and the current licence scenario (red line) is the water that the environment will gain by introducing the proposed licence conditions.

Based on the hydrological analysis , the EA is proposing licence conditions as below:

- Daily licence quantity: 69,120m^3/daily (propose to remain unchanged)
- Annual licence quantity: 10,502,497m^3/year (proposal to reduce)
- Instantaneous rate: 0.80m^3/s (propose to remain unchanged)
- Authorised months: All year (propose to remain unchanged)
- HoF: 0.146m^3/s (proposal to increase)
- Percentage take: 35% (proposal for a new condition)

We are proposing to reduce the annual licensed quantity to 10,502,497m3/year. Based on 1991 – 2020 records the licence holder would not have been able to abstract the current annual quantity of 16,054,984m3/year, as water draining from the catchment (flow in the river) would have limited abstraction to 9,547,725m3/year. Therefore, the Environment Agency proposes a reduced annual quantity of 10,502,497m3/year. This is 9,547,725m3/year plus a 10% buffer to allow the licence holder to benefit from additional flows that may be available in future due to changes in rainfall patterns. The proposed annual quantity is considered sustainable as the potential for environmental impact by the abstraction is mitigated by the HoF, percentage take and daily licence quantity.

To control the abstraction the Licence Holder is likely to require improvements to the existing infrastructure currently on site.

The full Hydrology report is detailed in Appendix 5.

4.2 Sweetening Flow Options Appraisal

A sweetening flow of 20l/s will protect aquatic life and habitats within the leat once HoF is reached. At extreme low flows, the river should be prioritised. Therefore, if the river flow falls to < 40l/s, it should all remain in the river. This assumes a head of leat screen is in place to exclude the majority of aquatic life from the leat.

4.3 Screening Options Appraisal

Figure 9: Existing screen and bywash entrance (at low leat flows) June 2024

Old Walls currently has a crossflow turbine. EA screening guidance (Environment Agency Guidance for run-of-river hydropower development) suggests this type of turbine is likely to cause a high mortality rate if fish entered it. Therefore, year-round screening is required. Within the guidance the suggested screen mesh spacing for sites where juvenile salmonids are present is 6mm.

The best practice location for screening this site would be to screen at the intake (head of leat). Screening at the intake (head of leat) and tail race ensures that all life stages of fish are excluded from entering the leat, minimising entrainment causing injury or death.

- An automated 6mm screen at the head of leat is likely to be the most practical option – a manual screen would need additional space (to account for partial blinding*).
- If the screen is truly at head of leat then no bywash is needed, as fish can migrate downstream using the main river channel.
- If the screen is situated in the forebay area (setback screen), then a permanently wet bywash will be required to return fish to the river (design to be agreed with the EA). This water would form part of the abstraction volume but cannot be used for power generation.

- The tail race screening should be formalised by adding it as a condition on the licence (max 25mm bar spacing).

*Partial blinding in the context of fish screens, especially those with fine meshes required to protect small fish and eels, refer to clogging up of the mesh with sediment, vegetation and other organic matter. This blockage, or 'blinding' reduces the screens effectiveness allowing fish to become entrained or impinged and negatively affects the flow through.

4.4 Preferred Option Summary

FLOW			
	Preferred Option	**Notes**	
Hands off Flow	Q95 HoF of 0.146m^3/s	This is an increase from 0.025m^3/s	
Maximum quantity	Maintain instantaneous flow at 0.80m^3/s. Annual maximum abstraction quantity of 10,502,497m^3/year*	Annual maximum abstraction quantity has been reduced to 10,502,497m^3 annually. River flows restrict the abstraction.	
Proportional take	35% Abstraction above HoF	The mid-range flows are protected because the Licence Holder has to leave 65% of water in the river at all times when flows are below the maximum instantaneous value.	
Sweetening flow to leat (NGR SX 700 749)	Sweetening flow of 20l/s	This takes effect when the flow upstream of the weir is below the HoF and so abstraction for HEP has ceased	
SCREENING			
	Preferred Option	**Alternate Option**	**Notes**
Intake Screening	6mm permanent screen at head of leat (to protect juvenile salmonids as well as smolts).	Set back 6mm permanent screen (This relies on an improved bywash to return fish to the river, current bywash does not	A 6mm head of leat screen, will be sufficient to bring the site into compliance with the Eel Regulations.

		meet best practice).	
Tail Race Discharge Point	Rotating Tail Race screening (currently installed by local agreement)		This should form part of the licence conditions.

5. Licence Change

1. A hands-off flow of (HoF) of 0.146m^3/s (Q95) added to the licence.
2. A 35% take condition above HoF added to the licence.
3. Maximum instantaneous abstraction remains at 0.80m^3/s.
4. When the flow upstream of the weir is below the HoF of 0.146m^3/s, abstraction is restricted to a sweetening flow of 20l/s.
5. When the flow upstream of the weir is < 40l/s, all flow should remain in the river
6. Means of controlling and measuring the abstraction at the head of the leat.
7. 6mm permanent screen at head of leat condition added.
8. Tail race screen (max 25mm bar spacing) to be added as a licence condition.
9. Addition of a time limit to the licence in line with the Catchment Assessment Management Strategies Common End Date (CAMS CED)*.The time limit for Teign, Torbay and South Hams CAMS area is 31 March 2038.

*Catchment Abstraction Management Strategies (CAMS) set out how we manage the water resources of a catchment.

Table 4 below shows the details of the existing abstraction licence (Appendix 2)

Licence Number	**Licence Holder Details (name and address)**	**Location (NGR)**	**Maximum abstraction quantities (m^3)**	**Purpose**
14/46/004/0685	Mr Miles Fursdon Waterleat Lodge Widecombe-in-the-Moor Newton Abbot Devon TQ13 7PN	SX 700 749	69,120m^3/day and 16,054,094 m^3/year and an instantaneous maximum rate of 0.80m^3/s.	Hydro-electric power generation

Table 4 - Details of the existing licence

Table 5 below shows the details of the proposed changes to abstraction licence 14/46/004/0685 Appendix 3:

Proposed licence change(s)	**Effective date of changes (immediately or specify date)**
1. A hands off flow of (HoF) of 0.146m^3/s (Q95) added	Within 18 Months of the issue of the varied abstraction licence. 18 months has been given taking into account flood flows, weather conditions and restricted access during fish migration.
2. A new 35% take condition	Within 18 Months of the issue of the varied abstraction licence. 18 months has been given taking into account flood flows, weather conditions and restricted access during fish migration.
3.Maximum instantaneous abstraction remains at 0.80m^3/s.	Immediately
4.When HoF in force, abstraction is restricted to a sweetening flow of 20l/s	Within 18 Months of the issue of the varied abstraction licence. 18 months has been given taking into account flood flows, weather conditions and restricted access during fish migration.
5.When the flow upstream of the weir is below 40l/s, all flow should be directed to the river.	Within 18 Months of the issue of the varied abstraction licence. 18 months has been given taking into account flood flows, weather conditions and restricted access during fish migration.
6. Means of controlling and measuring the abstraction at the head of the leat	Within 18 Months of the issue of the varied abstraction licence. 18 months has been given taking into account flood flows, weather conditions and restricted access during fish migration.
7.A new condition for a 6mm permanent screen at the head of leat.	Within 18 Months of the issue of the varied abstraction licence. 18 months has been given taking into account flood flows, weather conditions and restricted access during fish migration.
8.A new condition requiring a tail race screen.	Immediately

9.Add time limit in line with Catchment Abstraction Management Strategy common end date for Teign, Torbay & South Hams CAMS area – 31 March 2038.	Immediately

Table 5 - Details of the proposed licence changes for Licence 14/46/004/0685.

6. Serious Damage

6.1 We have had regard to the criteria for serious damage, published by Defra in its response to its consultation on the principles to be used in determining whether a water abstraction may cause serious damage (November 2012).

6.2 The evidence indicates that the proposed licence changes are not necessary to protect the water environment from serious damage (section 27, Water Act 2003). The EA recommends these licence changes based on local impact.

7. Cost Benefit/Cost Effective Analysis

We have taken account of financial and environmental costs and benefits of our licence change proposals a under our duty in section 39 of the Environment Act 1995 when deciding how to exercise our powers.

8. Communication

Table 6 – Communications with the licence holder

Date	Type of communication	Content and actions
06/09/2007	Licence Holder (LH) to EA - Letter	Request for information on Review of Consents work under the Habitats Directive: Dartmoor Special Area of Conservation.
07/09/2007	EA to LH - Letter	Response to request for information on Review of Consents.
12/09/2007	EA to LH - Email	Provision of information leaflet on Review of consents
28/02/2008	EA to LH - Letter	Response to letter from LH dated 22/02/08 about smolt monitoring, screening for kelts and RSA
01/06/2010	LH to EA - Email	Minor variation to licence to request address change
22/10/2014	EA to LH	Eel Screen Exemption notice
22/06/2016	EA to LH	Copy of site inspection report – Site visit date 21/06/2016
21/06/2017	EA to LH	Copy of site inspection report – Site visit date 21/06/2017
22/08/2018	EA to LH	Copy of site inspection report – Site visit date 22/08/2018
02/04/2019	EA to LH - Email	Requesting information on turbine start up flow and discharge point location
04/04/2019	LH to EA - Email	Reply to email supplying requested information on turbine start up flow and discharge point location
07/05/2019	EA to LH - Letter	Request for daily returns after 2008 if available
17/05/2019	LH to EA - Letter	Reply to request for daily returns stating daily returns not available.
11/02/2020	EA to LH - Letter	Notification of proposed changes to current abstraction licence under the RSA programme.

16/02/2020	LH to EA – Letter	Confirmation of land agent, technical advisor and solicitor
16/02/2020	LH to EA - Email	FOI Request Number 163225
20/02/2020	EA to LH – Email	Acknowledging letter from LH (16/02/2020), noting that LH has declined to meet to discuss proposed changes.
21/02/2020	EA to LH - Email	Clarification of RSA licence change timetable – s52 notice period.
04/03/2020	LH to EA – Email	FOI request for records from 1990.
04/03/2020	LH to EA - Letter	Request to refer to site using Old Walls rather than Jordans Leat.
05/03/2020	EA to LH - Letter	Delay to serving s52 notice from 31 March 2020 to at least 31 October 202.
18/04/2020	EA to LH – Email	Information sent relating to FOI 163225 • Information regarding Hands off flow • Information regarding Abstraction quantities • Information regarding Sweetening flows • Information regarding Screening upstream of the plant • Information regarding Screening downstream of the plant • Information regarding monitoring of river levels • Any records relating to the Restoring Sustainable Abstraction or Review of Consents processes in relation to this site.
28/04/2020	EA to LH - Letter	Letter explaining delay in RSA process due to the Covid Pandemic.
29/07/2020	MP to EA - Email	Letter from MP (Mel Stride) in connection with the RSA process.
05/08/2020	EA to MP – Letter	Letter responding to MP (Mel Stride) with regard to the RSA process and the preferred option.
01/04/2021	EA to LH - Email	Letter detailing the way forward for the RSA programme.

01/04/2021	LH to EA -Email	Confirmation of receipt of letter detailing the way forward for the RSA programme.
05/06/2024	EA to LH	Copy of site inspection report – Site visit date 05/06/2024
06/02/2025	EA to LH - Email	Letter to re-engage with LH re RSA programme.
21/02/2025	LH to EA - Letter	FOI Request – FOI/EIR 399794.
27/02/2025	EA to LH - Email	Request confirmation of the requirements of the FOI/EIR 399794.
01/03/2025	LH to EA - Email	Confirmation of all information dated after previous FOI/EIR.
21/03/2025	EA to LH – Letter	Information sent relating to FOI 399794 • Any records relating to the Restoring Sustainable Abstraction process in relation to this site after the date of previous FOI (163225 February 2020).
24/03/2025	EA to LH - Email	Requesting a date/time for a telephone call to arrange a site visit.
03/04/2025	LH to EA - Email	Offer of three dates for site meeting to take place for initial RSA discussions.
04/04/2025	LH to EA - Email	Confirming date of site visit of 17 April 2025 and who would be attending from the EA – these included Hydrology and Fisheries.
07/04/2025	LH to EA - Email	Requirement of meeting in person to include Mrs Fursdon and Chris Elliot with no need for other EA attendees – Hydrology and Fisheries.
08/04/2025	EA to LH - Email	Ensuring the LH is aware of 2 EA attendees to site visit
08/04/2025	LH to EA - Email	Confirmation of site attendees and site visit date.
17/04/2025	Site Visit	Site Visit attended by EA (Steve Marks (EPE Manager and Carole Brennan IEP WR Tech Spec), LH Miles Fursdon and Mrs G Fursdon, Chris Elliot (Technical Advisor).

21/04/2025	LH to EA - Email	LH notes from site meeting held on 17/04/2025. LH confirmed that they will consider the various possibilities EA outlined at site visit. Also confirmed that LH will respond by 2nd May 2025.
22/04/2025	Email from C Elliott technical advisor to EA	Requesting hydrology figures for Old Walls site, including a brief description of how figures were arrived at.
23/04/2025	Email to C Elliott technical advisor from EA	Enclosing requested hydrology figures. Summary of the figures being based on the naturalised flow transposed from the Austins Bridge gauging station supported by spot gaugings.
23/04/2025	Email from C Elliott (On Stream Energy Ltd) to EA	Requesting the natural flow that had been transposed from Austins Bridge gauging station.
28/04/2025	EA to LH – Email	Clarification of one point from site visit notes. Clarification that the collection of evidence for an unsustainable impact for sites in the RSA programme where there is such a large deviation from current practice would be unnecessary.
02/05/2025	LH to EA – Email	Requesting extension of time for licence proposals from 02 May – 16 May 2025. Request to send the RSA compensation leaflet Appendix 9.
02/05/2025	EA to LH – Email	Confirmation of 16 May extension and enclosed the RSA compensation leaflet.
15/05/2025	LH to EA - Email	LH confirmed that they think it is best the EA puts preferred option in writing with the understanding that this will later lead to the EA serving a s52 notice. LH stated this is the only route for compensation. LH confirmed receipt of 2 RSA leaflets (Changing Water Abstraction & Impoundment Licences leaflet, Appendix 10 and RSA compensation leaflet).
20/05/2025	Email to LH - Email	Confirmation of proceeding to s52 proposal to vary licence. Confirmation that EA finalising the proposals. Clarification to LH of eligibility of

		compensation if LH were to come up with any proposal.
04/06/2025	EA to LH – Email	2 x fish screening options in addition to flows and abstraction quantities sent to LH. LH asked which screening option would be the preferred option.
11/06/2025	LH to EA - Email	LH considered 2 options given re fish screening and confirmed preferred option, although preferred option for LH would have been to 'maintain the status quo'.
17/06/2025	EA to LH - Email	Responding to LH re preferred option. Clarified to LH that s51 was declined by them and confirmed that EA will start the s52 process.
21/07/2025	Land Agent to EA - Email	Letter attached stating that Mr Neason will be representing Mr Fursdon (LH). Requesting further information re s52 process/timeline and to confirm if specialist advice costs can be reclaimed via the compensation route.
18/08/2025	EA to Land Agent - Email	Email confirming s52 process/timeline and what the 'next steps' would be. Also confirmed that if eligible specialist advice can be reclaimed via compensation.
20/08/2025	Land Agent to EA - Email	Asking for clarification of the email sent 18/08/2025.
21/08/2025	Land Agent to EA – telephone call	Clarification of costs. Why is EA not waiting for 2028 as no compensation payout required. Mr Neason stated that site is not causing damage and the EA know this. EA confirmed reason for pursing licence change is based on how much water is abstracted from the river (local impact). Mr Neason mentioned that he previously held a role as a consultant and worked with the EA Estates team on compensation.

9.0 Compensation

9.1 The Regional EIUC balance has been checked and currently there are sufficient funds available to cover any potential compensation liability.

10.0 Conclusion

10.1 This report proposes that changes to the licence are required to protect a 600m deprived reach of the West Webburn River and improve salmonid survival and fish passage.

10.2 The hydrological modelling shows that under the current abstraction quantities the licence has the potential to leave the deprived reach below the EFI target flow for 336 days a year (on average over 1991 – 2020), equivalent to 92% of the time.

10.3 The hydrological modelling shows that under the proposed licence flows would be below the EFI for 197 days of the year on average, equivalent to 54% of the time.

10.4 Under the proposed licence, when the residual flows are below the EFI, they are only marginally below, whereas residual flows are significantly below the EFI in the current fully licensed

10.5 The proposed changes to Licence 14/46/004/0685 include:

- adding an increased Hands off Flow
- a percentage take
- altering the sweetening flow to prioritise the river over the leat
- cease all flows into the leat when flows upstream of the weir are <40l/s
- means of measuring and controlling the abstraction at the head of the leat
- bringing the screening in line with current best practice
- conditioning the deployment of the tail race screen on the licence
- addition of a time limit of 31 March 2038.

10.6 The Licence Holder is aware of the proposed licence changes.

10.7 The licence holder was informed the EA would be willing to consider any proposal that balanced their needs with the RSA objectives. As the Licence Holder chose not to submit their own proposal, the preferred option is based on the current guidance and best practice.

10.8 The Licence Holder has been supplied with the compensation leaflet and is aware of the compensation process

10. Appendices

Appendix 1	Serious Damage Assessment Form
Appendix 2	Copy of the existing abstraction licence
Appendix 3	Copy of the proposed licence
Appendix 4	Old Walls Options Appraisal Report 2025 FINAL
Appendix 5	Old Walls RSA Hydrology Full Report June 2025
Appendix 6	Guidance for run-of-river hydropower development December 2017 Guidance for run-of-river hydropower development December 2017
Appendix 7	Screening for intake and outfalls: a best practice guide. Environment Agency. Science Group. Jacobs Babtie Aquatic, O'Keeffe, N:Turnpenny, A W H – Bristol Environment Agency 2005 https://www.gov.uk/government/publications/screening-for-intake-and-outfalls-a-best-practice-guide
Appendix 8	Salmon Stocks and Fisheries in England and Wales in 2023 report Salmon Stocks and Fisheries in England and Wales 2023
Appendix 9	RSA Compensation Leaflet
Appendix 10	Changing water abstraction and impoundment licences
Appendix 11	WR51 05/06/2024 Water Resources inspection visit report

Appendix 3– Serious Damage Assessment Form

Actual	If you have actual evidence that current damage meets (or has met) the serious damage example.
Potential	If you have actual evidence that damage COULD meet the serious damage example (e.g. under fully licensed conditions or in certain flow conditions) but damage is not currently occurring.
No evidence	If you have no actual evidence of any damage that meets the serious damage example.
No {serious} damage	If you have actual evidence to prove that the level of damage has not and/or will not meet the serious damage example.

Principle 1 - Establish the qualitative nature of the damage		
1a	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Deterioration in WFD water body classified status which is caused by an abstraction pressure.
Reasoning for decision		
Evidence		

1b	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Deterioration in WFD groundwater body status overall to poor.
Reasoning for decision		
Evidence		

1c	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Damage to flora and fauna notified under Section 28 of the Wildlife and Countryside Act 1981 or protected by the Habitats Regulations where the level of damage has an adverse effect on the integrity of the protected flora/fauna and/or site.
Reasoning for decision		
Evidence		

1d	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Destruction or major damage to part of a statutory protected site.
Reasoning for decision		
Evidence		

1e	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Extinction of a protected species or habitat from a specific area.
Reasoning for decision		
Evidence		

1f	☐ Actual ☐ Potential ☒ No evidence	Extensive damage to habitat, or death of native flora or fauna typical to that habitat.

	☐ No damage	
Reasoning for decision		
Evidence		

1g	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Extensive damage to Biodiversity Action Plan (BAP) species (on any stage of the life cycle) or habitat.
Reasoning for decision		
Evidence		

Principle 2 - Establish the extent and magnitude of the damage		
2a	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Complete loss of flow in any river caused by abstraction.
Reasoning for decision		
Evidence		

2b	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Substantial reduction in flows e.g. over 60 per cent lower than natural flows and over more than one km of river.
Reasoning for decision		
Evidence		

2c	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Substantial loss of habitat (e.g. more than 10 per cent of a site).
Reasoning for decision		
Evidence		

2d	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Loss of main groundwater supply to a wetland indicated through cessations of springs and seepages.
Reasoning for decision		
Evidence		

2e	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Substantial change in habitat type (e.g. more than 30 per cent of a defined site).
Reasoning for decision		

Evidence	

2f	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Substantial loss of flow which is visible outside of drought periods.
Reasoning for decision		
Evidence		

2g	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Substantial loss of individuals (e.g. 100 dead juvenile fish, 100 dead crayfish) or large adverse effects on a wildlife population (e.g. more than 10 per cent of a local population).
Reasoning for decision		
Evidence		

Principle 3 - Establish whether the damage is reversible and how long recovery may take		
3a	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Reduction of flow outside of drought periods which restricts fish movement during key life stages – for example upstream / downstream migration or loss of juvenile holding areas
Reasoning for decision		
Evidence		

3b	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Permanent loss of native species or habitat.
Reasoning for decision		
Evidence		

3c	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Short term loss of habitat during key life stages not caused by drought. For example, drying out of pools during amphibian spawning or lowering of water levels and drying of marginal river habitat during or after fish spawning.
Reasoning for decision		
Evidence		

3d	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Reduced long term distribution and abundance of populations.
Reasoning for decision		
Evidence		

3e	☐ Actual ☐ Potential ☒ No evidence ☐ No damage	Reduced capacity for natural regeneration.
Reasoning for decision		
Evidence		