



## **Water Resources LICENCE TO**

### **IMPOUND**

## **WATER**

Water Act 2003  
Environment Act 1995  
Water Resources Act 1991 as amended  
by the Water Act 2003  
Water Resources (Abstraction and  
Impounding) Regulations 2006  
Natural Resources Body for Wales (Functions)  
Order 2012

# IMPORTANT NOTES

## Need for safekeeping

This licence is an important document and you should keep it safe, probably with the deeds to the land.

The impounding works may also be conditional on, or otherwise involve, you entering into a related agreement with Natural Resources Wales. This may be registered and will bind the land. It will therefore affect not only you, as the licence holder, but also your successors in title to the land. This licence and any such Agreement should therefore be disclosed on any change of title or occupation.

## Scope of this licence

This licence has effect only for the purposes of Part II of the Water Resources Act 1991 as amended by the Water Act 2003. In granting this licence, and in considering any drawings submitted, you should assume that Natural Resources Wales has taken into account only considerations relevant to the conservation and proper use of water resources in the area. Grant of this licence does not imply that Natural Resources Wales has approved the details of construction of the impounding works, including whether the proposed construction is adequate or safe. The licence holder is entirely responsible for ensuring compliance with all other requirements. Grant of this licence does not in any way suggest that these have been fulfilled.

## Changes to the impounding works or revocation of this licence

If you want to alter the impounding works and/or the way you operate them, you will need to vary the terms of the licence (and, if applicable, the related agreement). If you want to revoke this licence, you may be required to satisfy certain conditions that Natural Resources Wales may specify for the removal of the works. Contact Natural Resources Wales at the address at the bottom of the front page of this licence if you want to vary or revoke this licence

## Transfer of this licence

If you need to pass this licence to someone else, you must contact Natural Resources Wales and obtain the appropriate application forms. The licence holder remains responsible for compliance with the terms of the licence until it has been transferred.

## Death or bankruptcy of the licence holder

If a licence has been 'vested' in you, as a result of the death or bankruptcy of the licence holder, please contact Natural Resources Wales in writing, telling us the licence number(s) and the date that the licence vested in you as a personal representative or trustee of the licence holder. This is necessary in order to enable you to subsequently transfer the licence.

'Vesting' is the transfer of responsibility and ownership of a licence when an existing licence holder is no longer able to hold the licence either through death or bankruptcy.

You do not have to complete a form, but you must notify us in writing within 15 months of the date of vesting, giving the full names of all personal representatives or trustees and a contact address.

## Other requirements for impoundments

Depending on circumstances, you may also have to comply with other legal requirements, i.e. apart from obtaining this licence, before carrying out or operating the impoundment. These may include:

- obtaining consent from Natural Resources Wales under section 109 Water Resources Act 1991 (relating to structures on main rivers);
- obtaining consent under section 23 Land Drainage Act 1991 from Natural Resources Wales or the relevant internal drainage board (relating to obstructions in watercourses);
- obtaining planning permission from the planning authority;
- complying with requirements of the Reservoirs Act 1975 (in relation to safety of larger raised reservoirs). Natural Resources Wales' predecessor the Environment Agency, became the regulatory body on 1 October 2004.
- obtaining consent from the owner of the other bank of the watercourse to the proposed impoundment;

- not contravening pollution control provisions of the Water Resources Act 1991, particularly in relation to allowing matter to be carried away in suspension when sluices etc. are opened;
- complying with the provisions of the Salmon and Freshwater Fisheries Act 1975 relating to the passage of fish.

Some of these matters are under the control of Natural Resources Wales, but for administrative and legal reasons are kept separate from the issue of this licence. If you require information or assistance about them, contact Natural Resources Wales, and you will be directed to the right person to help you.

For advice about planning permission, contact the appropriate authority. The planning authority will normally be the district, borough or city council.

## Offences

This impounding licence authorises you, the licence holder, to obstruct or impede the flow of a specified inland water at a specified point by means of impounding works.

"Impounding works" means either, any dam, weir or other works by which water may be impounded; or, any works for diverting the flow of waters in connection with the construction or alteration of such dam, weir or other works.

Under the Water Resources Act 1991 it is an offence to construct or alter, or cause or permit any other person to construct or alter, any impounding works in inland waters or cause or permit the flow of any inland waters to be impeded or obstructed at any point by means of impounding works unless:

- an impounding licence is in force;
- the flow of the inland waters is not obstructed or impeded except to the extent and in the manner authorised by a licence;
- any other requirements of the licence, whether as to provision of compensation water or otherwise, are complied with.

It is an offence knowingly to make false statements for the purpose of obtaining a licence.

It may be an offence not to comply with the other legal requirements mentioned above for details, check with Natural Resources Wales or the authority concerned.

## Right of appeal

If you are dissatisfied with our decision on your licence application, you may appeal.

If you are in England, you should write to the Secretary of State for Environment, Food and Rural Affairs, care of The Planning Inspectorate at:

Room 4/19 Eagle Wing, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6PN.

The telephone number is 0117 372 8235.

If you are in Wales, you should write to Welsh Government care of The Planning Inspectorate at:

Crown Buildings, Cathays Park, Cardiff, CF10 3NQ.

The telephone number is 029 2082 3857.

You must serve notice of appeal within 28 days of the date of receipt of this licence (although the Secretary and Welsh Government have power to allow a longer period for serving notice of appeal). See Water Resources Act 1991, section 43.

## Disclosure of Information

Information about this licence is available on the public Register held by Natural Resources Wales. Members of the public are also entitled to ask us for other "environmental information" it holds, including any activities likely to affect "the state of any water" or any "activities or other measures designed to protect it". That would include the information additional to the licence document e.g. any related agreement. In certain restricted circumstances it is possible to claim that information should be kept confidential. If you require more information about keeping information off the public register because it is confidential, please contact us by writing to the address shown at the bottom of the front page of the licence within 28 days of receiving this licence.



## LICENCE TO IMPOUND WATER

The Natural Resources Body for Wales (hereafter referred to as "NRW") grants this licence to:-

Stephen Cochrane ("the Licence Holder")

Glandwr Mill  
Barmouth  
LL42 1TG

This licence authorises the Licence Holder to obstruct or impede the flow of the inland water described in the Schedule of Conditions (to extent and manner authorised by those conditions) to this licence and subject to the provisions of that Schedule.

The licence commences from the effective date shown below and shall remain in force until revoked, subject to Condition 4.6.

Signed:

A handwritten signature in black ink that reads 'H Pearce'.

Date of issue..... 12 May 2022

Date effective.....12 May 2022

Hannah Pearce  
Permitting Team Leader  
Permitting Service  
Natural Resources Wales  
Cambria House  
29 Newport Road  
Cardiff  
CF24 0TP

This licence should be kept safe and its existence disclosed on any sale of the land and the impounding works to which it relates.

Note: References to "the map" are to the map which forms part of this licence.  
References to "NRW" are to the Natural Resources Body for Wales or any successor body.

## **SCHEDULE OF CONDITIONS**

### **1. NAME OF INLAND WATER TO BE IMPOUNDED**

- 1.1 Inland water (river) known as the Afon Dwyntant at Glandwr Mill, Cutiau, Barmouth, Gwynedd.

### **2. POINT OF IMPOUNDMENT**

- 2.1 At National Grid Reference SH 63384 17585 marked 'Point A' on the map.

### **3. MANNER AND EXTENT OF IMPOUNDMENT**

- 3.1 Intake works consisting of modifications to an existing stone weir to include a concrete intake chamber with a Coanda intake screen with spacing no greater than 2 millimetre with a 50 millimetre wide stainless cover strip, a HOF notch, a 24 metre long and 500 millimetre diameter HDPE pipe controlled with a butterfly valve and the existing masonry leat in accordance with the specifications and drawings:

Stephen Cochrane Intake: Front Elevation and Calculations; Drawing No 21072701 Version 3

Stephen Cochrane Intake – Section through Coanda Screen; Drawing No 21072702 Version 3 and,

Stephen Cochrane Intake – General Layout; Drawing No 21072703 Version 3

dated 27/07/2021, copies of which are appended to this licence, or such minor amendments to those documents that are accepted in writing by NRW prior to the date of commencement of construction.

### **4. FURTHER CONDITIONS**

- 4.1 For the purpose of this licence, references to 'intake works' shall mean all works consisting of modifications to an existing stone weir to include a concrete intake chamber with a Coanda intake screen with spacing no greater than 2 millimetre with a 50 millimetre wide stainless cover strip, a HOF notch, a 24 metre long and 500 millimetre diameter HDPE pipe controlled with a butterfly valve and the existing masonry leat.
- 4.2 The Licence Holder shall ensure that during construction works, any subsequent maintenance works to the intake works, and when abstraction for the purpose of power production is not taking place, the flow in the Afon Dwyntant is allowed to pass downstream unchanged in quantity and quality at all times.
- 4.3 Prior to commencement of the works authorised by this licence, the Licence Holder shall give 28 calendar days' notice in writing to NRW of their intention to commence the authorised works.
- 4.4 The Licence Holder shall confirm to NRW in writing that the intake works have been constructed in accordance with the submitted specifications and drawings referred to in Condition 3.1 of this licence 28 calendar days before the scheme is commissioned or becomes operational.

- 4.5 The Licence Holder shall construct, operate and maintain the intake works in accordance with the specifications and drawings referred to in Condition 3.1 of this licence and keep them free from leakage and obstruction at all times.
- 4.6 This licence shall cease to be of any effect if the intake works authorised by it have not commenced within 3 years of the licence issue date.
- 4.7 The intake works authorised by this licence shall not be carried out in the watercourse between 17 October and 15 May in any year.
- 4.8 Prior to the completion of the works authorised by this licence, the Licence Holder shall construct a plunge pool, with a minimum depth of 400 millimetres, immediately downstream of the intake works specified in condition 3.1 to ensure the safe downstream passage of fish.
- 4.9 (i) This licence shall only take effect so as to authorise the abstraction provided that the Licence Holder has constructed an eel passage structure, approved in writing by NRW, under the Eels (England and Wales) Regulations 2009, to allow the passage of elver, yellow and silver eel between National Grid References SH 63384 17585 and SH 63394 17591.
- (ii) The Licence Holder shall maintain, repair or replace the eel passage structure to ensure that it remains effective at all times.
- (iii) The Licence Holder shall keep records of maintenance, repair or replacement of the eel passage structure for 6 years and shall make them available during all reasonable hours for inspection by NRW.

## **ADDITIONAL INFORMATION**

Note: the following information is provided for information only. It does not form part of the licence.

### **REASONS FOR CONDITIONS**

Conditions 4.1, 4.3, 4.4 and 4.5: to ensure the intake works are constructed, operated and maintained in accordance with the drawings and specifications agreed by NRW during the determination of this licence.

Conditions 4.2 and 4.5: to ensure a flow is maintained in the watercourse in order i) to maintain the riverine habitat for the conservation of the flora and fauna of the watercourse, ii) to safeguard existing protected rights, iii) to protect the interests of existing downstream lawful users of water and iv) to ensure that the water environment is not impacted during construction and subsequent maintenance.

Condition 4.3: to start NRW's compliance process.

Condition 4.6: to secure the proper use of water resources and to avoid commitment of water resources to an abstraction right that cannot be exercised.

Condition 4.7: to avoid damage to fish during vulnerable life stages such as spawning, migration, emergence and early maturation.

Condition 4.8: to avoid damage to downstream migrating fish.

Condition 4.9: to ensure compliance with the Eels (England and Wales) Regulations 2009 and allow safe passage of eels and elver within the watercourse.

### **IMPORTANT NOTES**

This impoundment licence facilitates the abstraction of water for a hydropower scheme authorised under licence serial number WA/064/0005/0030.

For the purposes of Conditions 3.1, 4.3 and 4.4, the Licence Holder shall contact:

North West People and Places Team  
Natural Resources Wales  
Maes y Ffynnon  
Penrhosgarnedd  
Bangor  
Gwynedd  
LL57 2DW

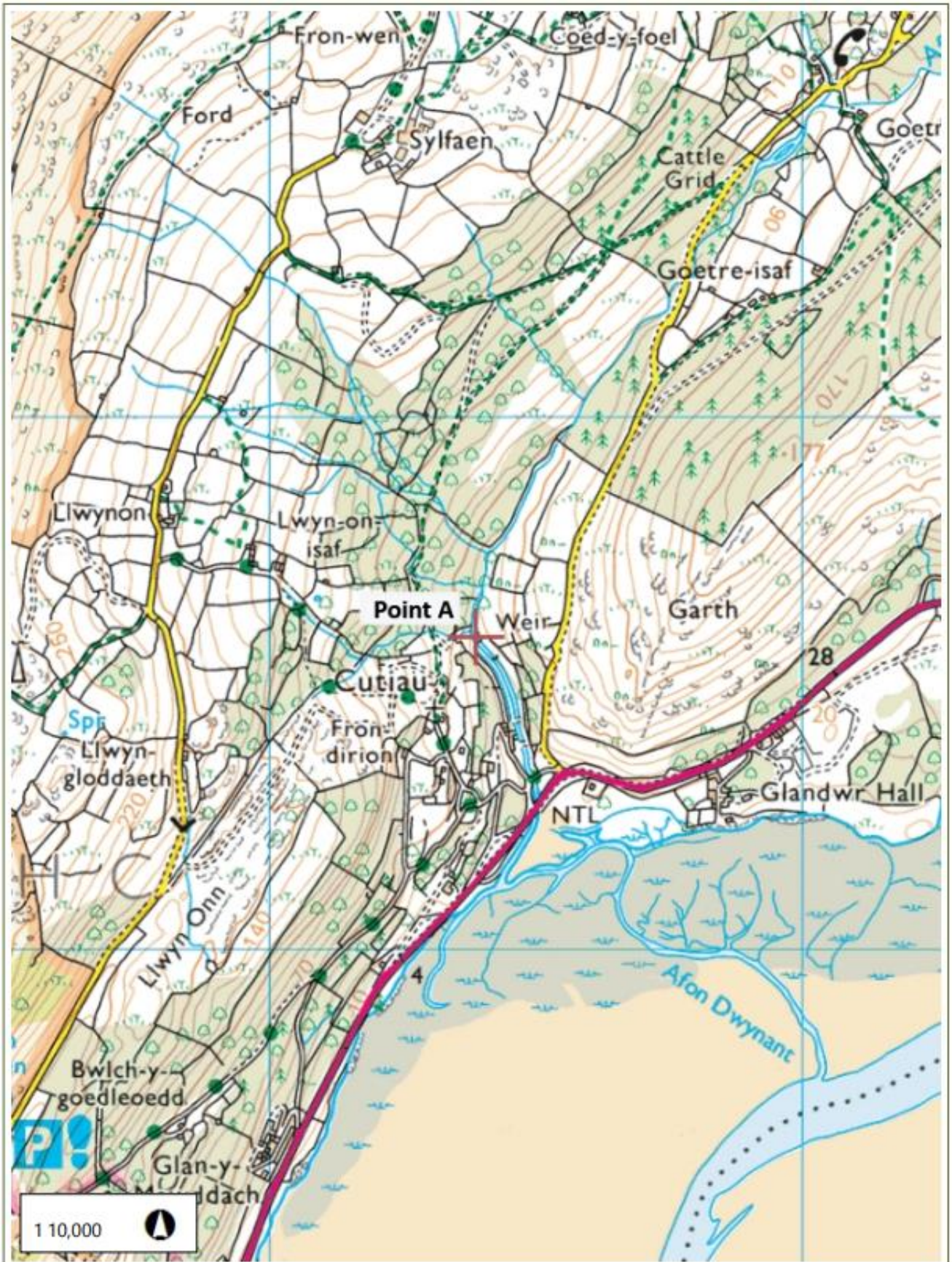
Tel: 0300 065 3000

Email: [NorthWestPeopleandPlacesTeam@cyfoethnaturiolcymru.gov.uk](mailto:NorthWestPeopleandPlacesTeam@cyfoethnaturiolcymru.gov.uk)

### **Eel passage**

NRW may have regard to its Best Practice Guide, the Eel Manual: Elver and Eel Passes (or equivalent guidance) in agreeing where, how and what type of eel pass should be installed and together with the results of any monitoring in determining whether the eel pass is properly effective and maintained, and in judging whether it is necessary to require repair or replacement of the eel pass.





**Cyfoeth  
Naturiol  
Cymru**  
**Natural  
Resources  
Wales**

**MAP ACCOMPANYING LICENCE NUMBER / MAP I GYFEILIO TRWYDDED  
RHIF**

WA/064/0005/0031  
Scale I Graddfa 1:10,000

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Hawlfraint y Goron a hawl cronfa ddata Arolwg Ordans. Cyfoeth Naturiol Cymru, 100019741, 2015.





Hands-off-flow

Calculation of flow over rectangular broad notch in rock:

Discharge coefficient, $C_d = 1.6$	$Q = C_d * w * h^{1.5}$
Notch depth, $h = 0.189\text{m}$	$= 1.6 * 0.321 * 0.189^{1.5}$
Notch width, $w = 0.321\text{m}$	$= 0.0422 \text{ m}^3 / \text{sec}$
	$= 42.2 \text{ lps}$

Calculation of flow over rectangular broad notch in rock:  
Discharge coefficient,  $C_d = 1.6$   
Notch depth,  $h = 0.189\text{m}$   
Notch width,  $w = 0.321\text{m}$

$$\begin{aligned} Q &= Cd * w * h^{1.5} \\ &= 1.6 * 0.321 * 0.189^{1.5} \\ &= 0.0422 \text{ m}^3 / \text{sec} \\ &= 42.2 \text{ lps} \end{aligned}$$

Total Crest Width : 750mm + 321mm = 1071mm  
Screen Width : 750mm  
Take :  $750/1071 = 70\%$

Notch overall depth provides 144mm flow depth over  
Coanda crest required for design flow through screen

Total Crest Width : 750mm + 321mm = 1071mm  
Screen Width : 750mm  
Take :  $750/1071 = 70\%$

Notch overall depth provides 144mm flow depth over Coanda crest required for design flow through screen

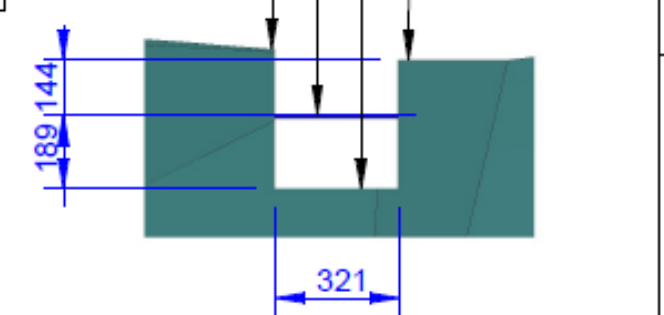
Compensation Notch  
Chiselled from existing weir's stone slab  
Scale 1 : 25

Coanda Crest  
Level 21,993

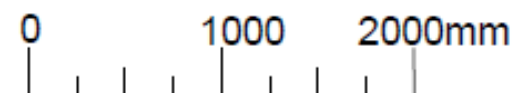
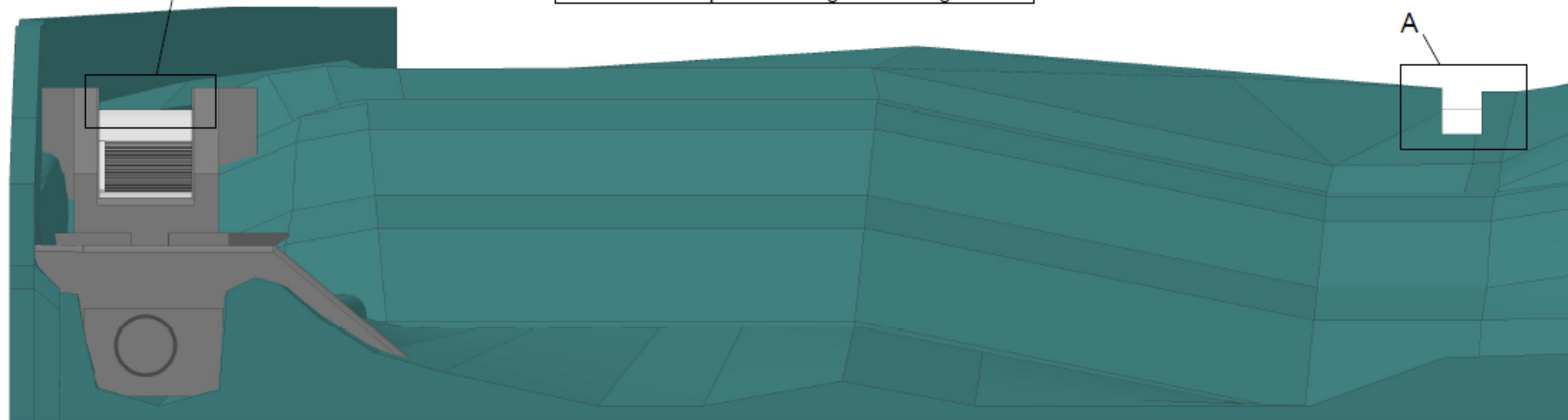
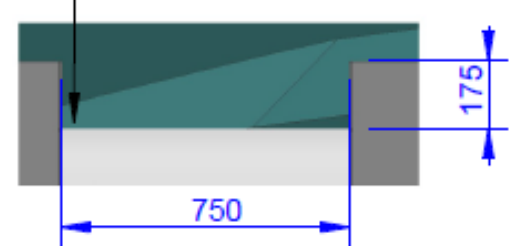
Level 22,165

Level 21,804

Level 22,137




- Coanda Crest Level : 21,993



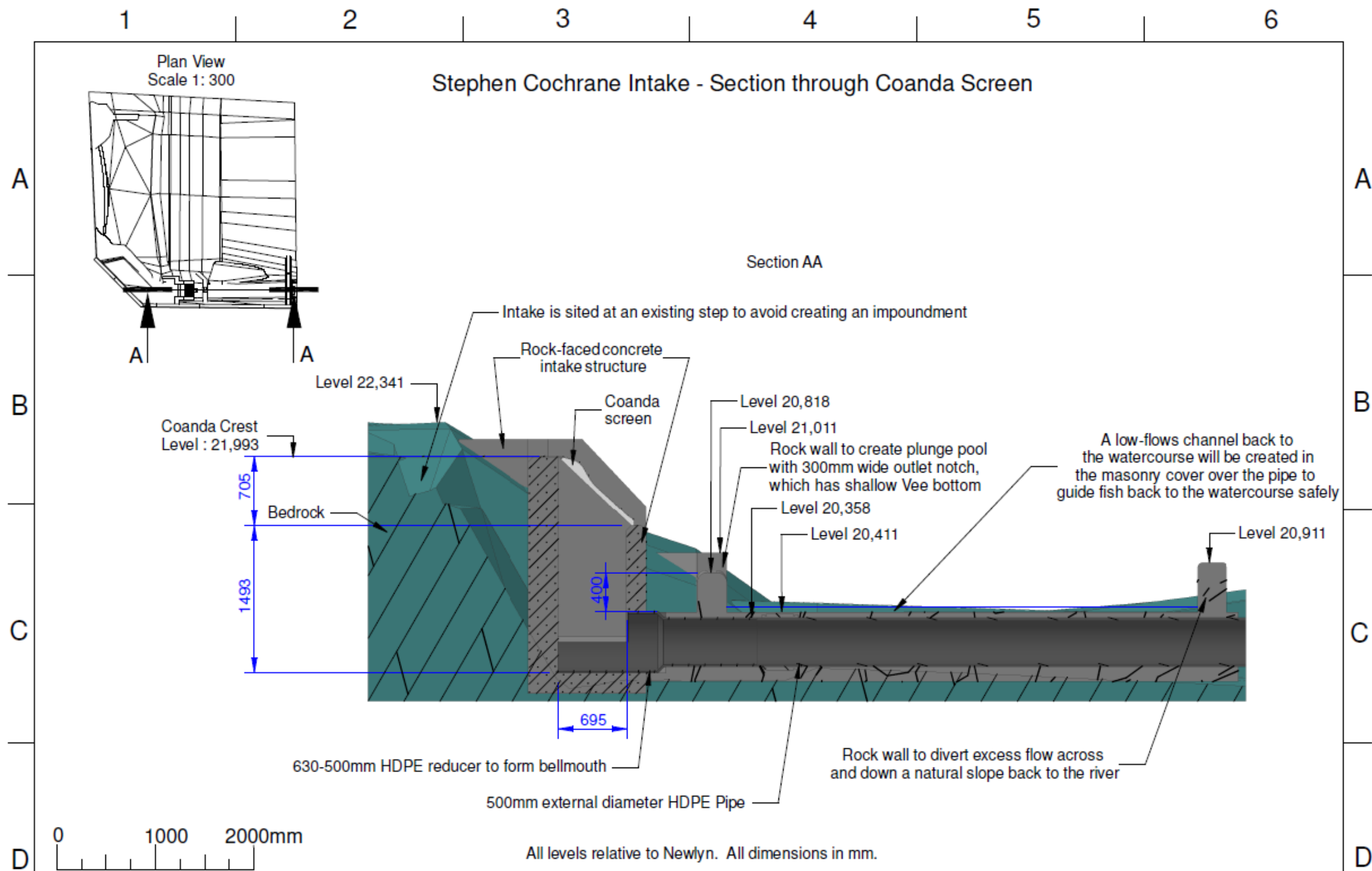
All levels relative to Newlyn. All dimensions in mm.

Revision Details	
v2 :	Levels added
v3 :	HOF notch construction clarified: Does not cut into bedrock

Greenearth  
Hydro 

Greeneearth Hydro Limited  
The Cottage, Rhiw, Pwllheli, LL53 8AE  
Tel: 07980 670046 [www.greeneearthhydro.co.uk](http://www.greeneearthhydro.co.uk)  
Company Registration Number 7417466  
MCS Hydro Transition Installer 123





Client : Stephen Cochrane  
Address : Glandwr Mill  
Gwynedd, LL42 1TG

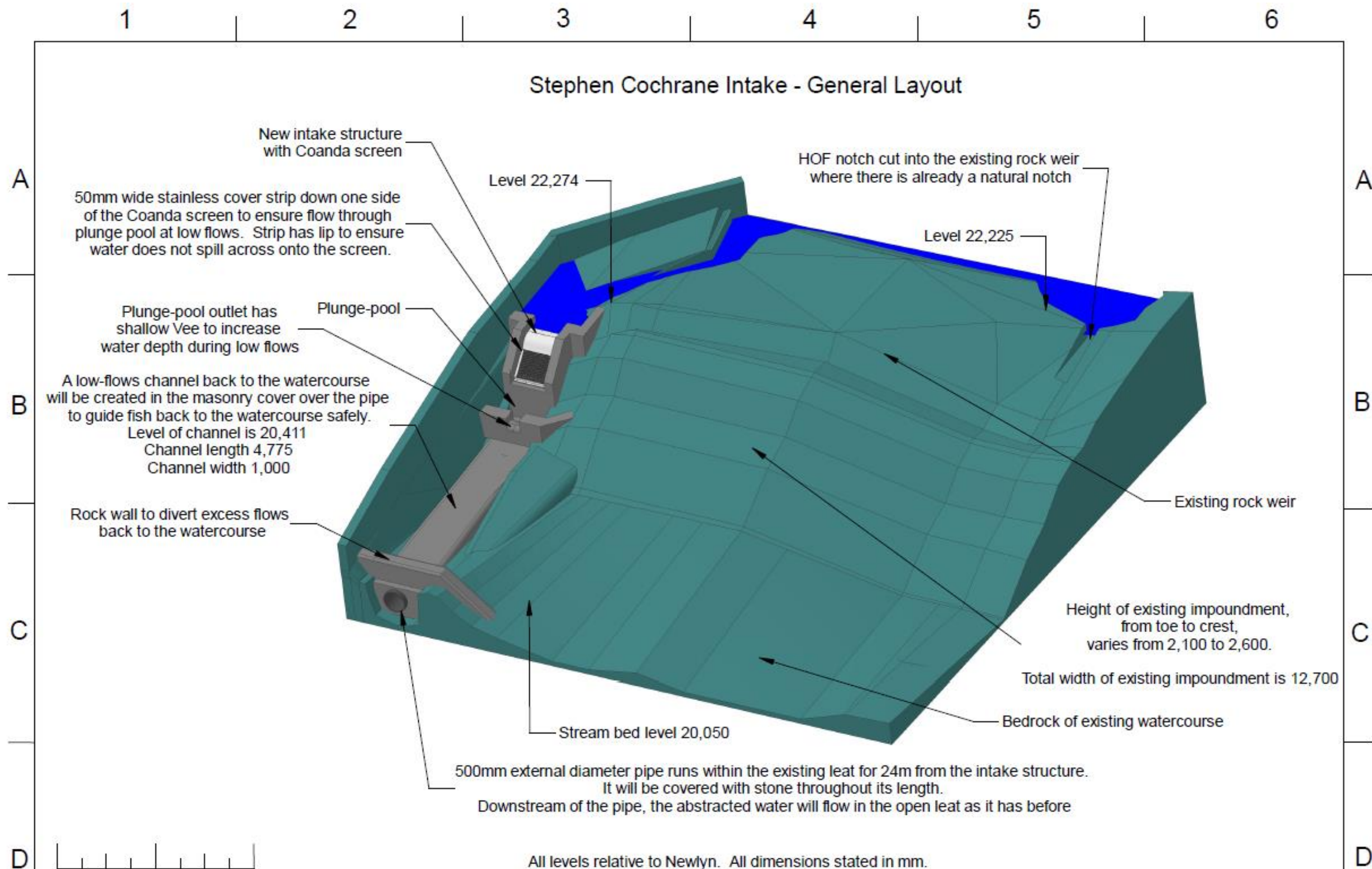
Drawn By : MJP

Date : 27/07/21  
Scale : 1 : 50 @ A4  
Drawing No : 21072702  
Version : 3

Revision Details  
v2 : Levels added  
v3 : Shallow Vee on base of  
Plunge-pool outlet notch

**Greenearth  
Hydro**

Greenearth Hydro Limited  
The Cottage, Rhiw, Pwllheli, LL53 8AE  
Tel: 07980 670046 [www.greenearthhydro.co.uk](http://www.greenearthhydro.co.uk)  
Company Registration Number 7417466  
MCS Hydro Transition Installer 123



Client : Stephen Cochrane  
Address : Glandwr Mill  
Gwynedd, LL42 1TG  
Drawn By : MJP

Date : 27/07/21  
Scale : NTS @ A4  
Drawing No : 21072703  
Version : 3

Revision Details  
v2 : Dimensions added  
v3 : Stainless strip added to side of Coanda and plunge pool outlet given shallow Vee to improve fish passage at low flows

**Greenearth Hydro**

Greenearth Hydro Limited  
The Cottage, Rhiw, Pwllheli, LL53 8AE  
Tel: 07980 670046 [www.greenearthhydro.co.uk](http://www.greenearthhydro.co.uk)  
Company Registration Number 7417466  
MCS Hydro Transition Installer 123



**Would you like to find out more about us,  
or about your environment?**

**Then call us on  
0300 065 3000 (Mon-Fri 9-5)**

**email  
enquiries@naturalresourceswales.gov.uk**

**or visit our website  
[www.naturalresourceswales.gov.uk](http://www.naturalresourceswales.gov.uk)**

**incident hotline 0300 065 3000 (24hrs)  
floodline 0345 988 1188**



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