

Application No:	7620N	Licence Serial No:	NW/071/0302/001
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Please quote the serial number in all correspondence about this licence

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## FULL LICENCE TO ABSTRACT WATER

The Environment Agency ("the Agency") grants this licence to:-

Settle Hydro Ltd ("the licence holder")  
2 Gars Lane  
Grassington  
Skipton  
BD23 5AT  
Registered Company No: IP30503

This licence authorises the licence holder to abstract water from the source of supply described in the Schedule of Conditions to this licence and subject to the provisions of that Schedule. Subject to conditions 11.2 & 11.5 the licence becomes effective on the relevant date shown below and shall remain in force until the date of expiry shown below.

<b>Signed</b>	<b>Date of issue</b>	13 March 2009
Rob McHale Permitting Team Leader National Permitting	<b>Date effective</b>	
	<b>Date of expiry</b>	31 March 2016

Environment Agency  
Permitting Support Centre  
Water Resources  
PO Box 4209  
Sheffield  
S9 9BS

The licence should be kept safe and its existence disclosed on any sale of the property to which it relates. Please read the 'important notes' on the cover to this licence.

Note: References to "the maps" are to the maps, which are attached to this licence.  
References to "the Agency" are to the Environment Agency or any successor body.

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## SCHEDULE OF CONDITIONS

**1. SOURCE OF SUPPLY**

Inland water known as the River Ribble in Settle, North Yorkshire.

**2. POINT OF ABSTRACTION**

At National Grid Reference SD 81754 64129, at the point marked "Abstraction Point A" on the maps 'Map "A" Accompanying Licence Number NW/071/0302/001' and 'Map "B" Accompanying Licence Number NW/071/0302/001'.

**3. MEANS OF ABSTRACTION**

Gravity flow to an open channel controlled by an intake sluice of internal dimensions not exceeding 2600mm wide. The sill level of the intake to be set no lower than 1020mm below the crest of the weir.

**4. PURPOSES OF ABSTRACTION**

- 4.1 Hydro-electric power generation by means of an Archimedean screw.
- 4.2 Water wheel (Not used for power).

**5. PERIOD OF ABSTRACTION**

All Year.

**6. MAXIMUM QUANTITY OF WATER TO BE ABSTRACTED DURING THE SPECIFIED PERIOD**

10,296 cubic metres per hour  
247,104 cubic metres per day  
60,000,000 cubic metres per year

At an instantaneous rate not exceeding 2860 litres per second.

Note: an hour means any period of 60 consecutive minutes, a day means any period of 24 consecutive hours and a year means the 12 month period beginning on 1 April and ending on 31 March.

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## SCHEDULE OF CONDITIONS

### 7. MEANS OF ASSESSMENT OF WATER ABSTRACTED

The licence holder shall assess the quantity of water abstracted under Condition 4.1 by reference to the number of hours of operation of the Archimedean screw generator multiplied by the actual output of the said generator during those hours.

The licence holder shall also retain supporting documentation, including details of the control curve and calculations used to convert electricity generated to the quantities abstracted and otherwise in accordance with any written direction given by the Agency. The formula used to convert electricity generated to flow shall be approved in writing from time to time by the Agency.

To achieve the required accuracy of abstraction measurement, the Agency may have regard to its *Abstraction Metering Good Practice Manual* (or equivalent guidance) in directing the detail and nature of such supporting documentation.

The licence holder shall assess the quantity of water abstracted under Condition 4.2 by reference to the number of hours of operation of the water wheel or such other means of measurement or assessment as may be at any time agreed in writing between the licence holder and the Agency.

### 8. RESIDUAL FLOW CONDITIONS

No water shall be abstracted unless the rate of flow in the River Ribble immediately downstream of the authorised point of abstraction, point "A" as specified in Condition 2 above, is (i) equal to or greater than 900 litres per second and (ii) the abstraction hereby licensed does not cause the flow immediately downstream of point "A" to fall below such rate. This shall be known as the 'residual flow'.

The residual flow shall be delivered via the fish pass at National Grid Reference SD 81745 64144 and the weir at National Grid Reference SD 81738 64152. A minimum of 800 litres per second must pass via the fish pass and a minimum of 100 litres per second must pass via the remainder of the weir.

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## SCHEDULE OF CONDITIONS

### 9. MEANS OF MEASUREMENT OF RESIDUAL FLOW

A level transducer shall be used to measure the residual flow in the River Ribble as specified in Condition 8. The location of the level transducer shall be agreed with the Agency.

The licence holder shall provide and install (to British Standard 3680/ISO 1100 or other specification/standard) the level transducer, before any abstraction takes place.

The level transducer must be set up and working at all times when abstraction is likely to take place.

The licence holder shall maintain the level transducer in such a condition, and if necessary replace it, so that it measures levels and flow derived accurately and efficiently to the satisfaction of the Agency.

A staff gauge shall be used to measure the residual flow in the River Ribble as specified in Condition 8. The location of the staff gauge shall be agreed with the Agency.

The licence holder shall provide and install (to British Standard 3680/ISO 1100 or other specification/standard) the staff gauge, before any abstraction takes place.

The staff gauge must be set up and working at all times when abstraction is likely to take place.

The licence holder shall maintain the staff gauge in such a condition, and if necessary replace it, so that it measures levels and flow derived accurately and efficiently to the satisfaction of the Agency.

A suitable marker shall be used to measure the residual flow in the fish pass at National Grid Reference SD 81745 64144 as specified in Condition 8. The location of the marker shall be agreed with the Agency.

The licence holder shall provide and install (to British Standard 3680/ISO 1100 or other specification/standard) the marker, before any abstraction takes place.

The marker must be in place at all times when abstraction is likely to take place.

The licence holder shall maintain the marker in such a condition, and if necessary replace it, so that the residual flow in the fish pass is measured accurately and efficiently to the satisfaction of the Agency.

The licence holder shall produce and maintain the stage discharge relationships to derive the flow at each location, to the satisfaction of the Agency.

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## SCHEDULE OF CONDITIONS

**10. RECORDS**

Quantities of water calculated by the means specified in Condition 7 above shall be recorded by the licence holder at the same time each day during the whole period during which abstraction is authorised or as otherwise approved in writing by the Agency.

The level transducer specified in Condition 9 shall also be connected to a logger which will accurately record the residual flow every 15 minutes during the whole of the period during which abstraction is authorised or as otherwise approved in writing by the Agency.

A copy of the records or summary data from them in both paper and electronic format shall be sent to the Agency within 28 days after 31 March in each year or within 28 days of being so directed in writing by the Agency. The format of the electronic data shall be agreed from time to time by the Agency.

Each record shall be kept and be made available during all reasonable hours for inspection by the Agency for at least 7 years.

**11. FURTHER CONDITIONS**

**11.1 POINT AT WHICH WATER MUST BE RETURNED**

Water abstracted for the purpose as described in Condition 4.1 shall be returned to the River Ribble at National Grid Reference SD 81730 64125 at the point marked "Point of Return B" on the maps 'Map "A" Accompanying Licence Number NW/071/0302/001' and 'Map "B" Accompanying Licence Number NW/071/0302/001'. The water exiting the Archimedean screw shall not exceed a velocity of 0.5m/s.

Water abstracted for the purpose as described in Condition 4.2 shall be returned to the River Ribble at National Grid Reference SD 81673 64088 at the point marked "Point of Return C" on the maps 'Map "A" Accompanying Licence Number NW/071/0302/001' and 'Map "B" Accompanying Licence Number NW/071/0302/001'.

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**SCHEDULE OF CONDITIONS**

**11.2 TIME LIMIT ON STARTING ABSTRACTION**

**11.2.1** Although the licence may otherwise remain in force until 31 March 2016 this licence shall cease to be of any effect if the abstraction it authorises has not commenced within three years of the date of grant of this licence.

**11.2.2** This licence shall not take effect to authorise abstraction until the licence holder has entered into a Memorandum of Understanding with the Agency under Section 39 of the Water Resources Act 1991 (As amended).

**11.2.3** This licence shall not take effect to authorise abstraction until the Agency has received a request in writing from the licence holder of Licence to Abstract Water No. 26/71/302/039 to revoke Licence to Abstract Water No. 26/71/302/039.

**11.3 OPERATION OF EMERGENCY STOP SLUICE**

The licence holder shall test the operation of the emergency stop sluice gate by simulating the following scenarios:-

- (i) A rate of flow in the River Ribble of equal to or less than 900 litres per second.
- (ii) A power failure.

The licence holder shall perform this test in accordance with the recommendations of the manufacturer or at any time when required by the Agency.

The licence holder shall retain evidence of current certification for inspection by the Agency.

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## **SCHEDULE OF CONDITIONS**

**.4 FISH SCREEN**

At any time prior to 31 March 2016 the Agency may by notice in writing request that the licence holder install to the satisfaction of the Agency a fish screen to prevent the entrapment, entrainment or impingement of fish at the point of abstraction.

At any time prior to 31 March 2016 the Agency may by notice in writing request that the licence holder install to the satisfaction of the Agency a fish screen to prevent the entrapment, entrainment or impingement of fish at the point of discharge.

The licence holder shall maintain the fish screens and records of any maintenance carried out to the satisfaction of the Agency.

Note: the Agency will have regard to its Screening for Intakes and Outfalls: a Best Practice Guide (or equivalent guidance) in agreeing where, how and what type of fish screens should be installed and together with the results of any monitoring in determining whether the fish screens are properly effective and maintained, and in judging whether it is necessary to require repair or replacement of the fish screens.

**.5 MODIFICATION**

No abstraction shall take place until the licence holder has made any necessary modifications to the leading edge and fitted rubber extrusions along the leading edge of the Archimedean screw blades, as detailed in the report 'Fish Monitoring and Live Fish Trials. Archimedes Screw Turbine, River Dart. Phase 1 Report: Live Fish Trials, Smolts, Leading Edge Assessment, Disorientation Study, Outflow Monitoring, September 07, by Fishtek Consulting Ltd'.

**11.6 MAXIMUM ROTATIONAL SPEED**

The tip speed of the end of the Archimedean screw blade shall not exceed 4m/s.

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**SCHEDULE OF CONDITIONS**

**11.7 MONITORING CONDITIONS**

**11.7.1** If in the opinion of the Environment Agency (at any point in the first 10 years of operations pursuant to this licence and not limited to one occasion) survey results from juvenile salmonid surveys at salmonid spawning sites above and below Settle Weir indicate that a decline in the numbers of juvenile salmonids is attributable to the operation of the Archimedean screw, the licence holder will contribute 50 per cent of the cost of an investigation into fish passage at Settle Weir and the interaction between the Archimedean screw and the fish pass. The investigation will be carried out by an independent expert to be appointed jointly by the Environment

Agency and the licence holder or, in default of agreement, by the Environment Agency. The expert will be required to report and make recommendations to improve conditions for fish passage within 3 months of appointment. Unless otherwise agreed by the Environment Agency the licence holder will implement all such recommendations to a timetable to be agreed with the Environment Agency or, in default, to be set by the expert. In the event that the expert is unable to recommend improvements but determines that the decline in numbers is attributable to the operation of the Archimedean screw, the licence holder shall immediately cease abstraction pursuant to this licence.

- 11.7.2. The licence holder will install, at its cost, a fisheries counter on the River Ribble at Locks Weir (National Grid Reference SD 81760 65421). The Environment Agency will be responsible for the cost of maintenance and monitoring this fish counter.

If it appears to the Environment Agency that fish movement, as recorded at Locks Weir, is being impeded to an extent that could lead to a deterioration in the performance of the River Ribble migratory fishery (recorded as the salmon egg deposition calculated for the latest complete calendar year) and no cause can be determined other than the operation of the Archimedean screw, the licence holder will contribute 50 per cent of the cost of an investigation into fish passage at Settle Weir and the interaction between the Archimedean screw and the fish pass. The investigation will be carried out by an independent expert to be appointed jointly by the Environment Agency and the licence holder or, in default of agreement, by the Environment Agency. The expert will be required to report and make recommendations to improve conditions for fish passage within 3 months of appointment. Unless otherwise agreed by the Environment Agency the licence holder will implement all such recommendations to a timetable to be agreed with the Environment Agency or, in default, to be set by the expert. In the event that the expert is unable to recommend improvements but determines that the decline in numbers is attributable to the operation of the Archimedean screw, the licence holder shall immediately cease abstraction pursuant to this licence.

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## REASONS FOR CONDITIONS

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

The residual flow condition specified in Condition 8 is required in order to safeguard the amenity of the River Ribble.

The point at which water must be returned specified in Condition 11.1 is to protect the amenity, fisheries and other lawful users of the River Ribble.



The time limit on starting abstraction specified in Condition 11.2.1 is to permit the Agency to undertake its statutory duty to manage the water resource in England and Wales.

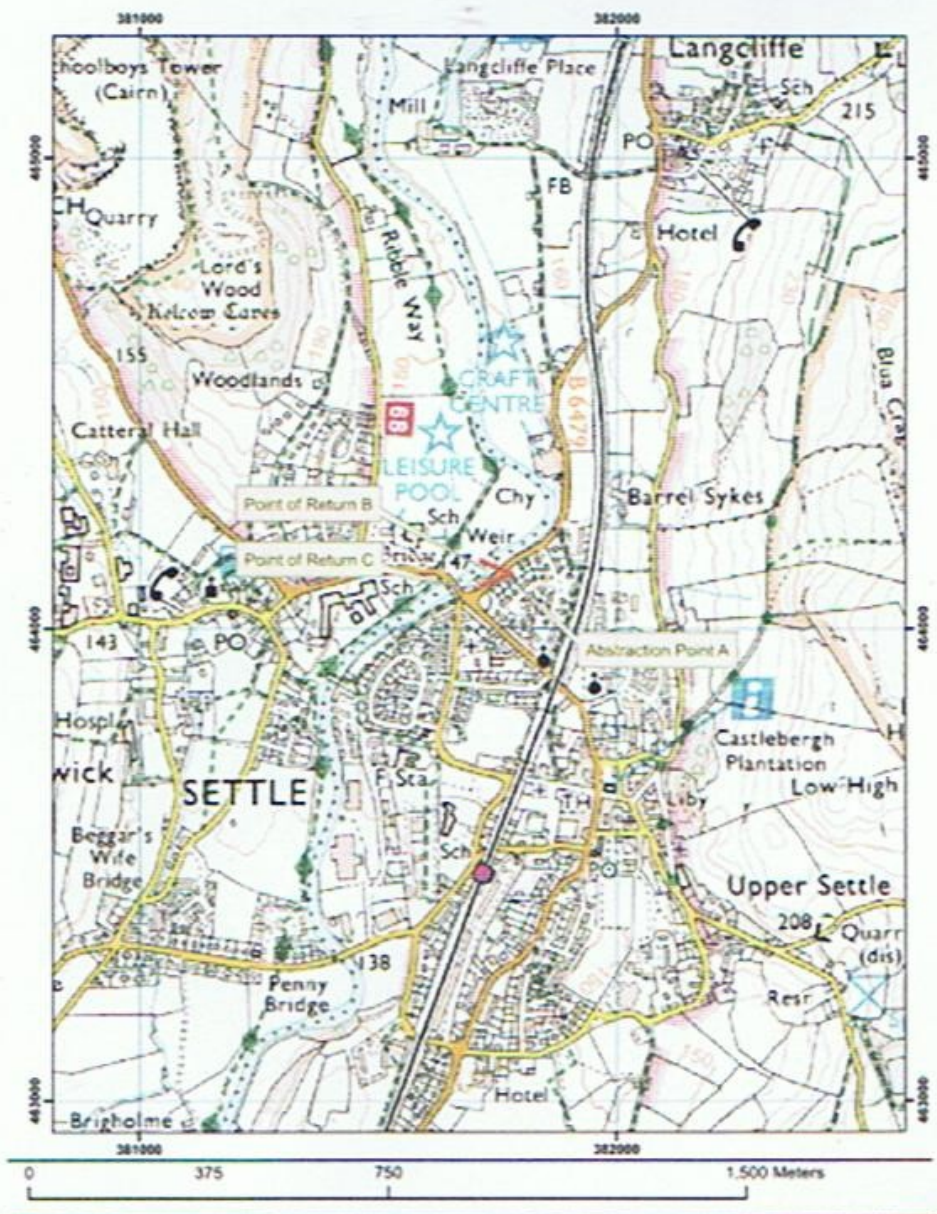
The limit on starting abstraction specified in Condition 11.2.2 is to permit the Agency to undertake its statutory duty not to derogate protected abstraction rights (section 39 of the Water Resources Act 1991 (As amended)) and its duty to secure the proper use of water resources (section 19(1) of the Water Resources Act (As amended)). This is achieved by means of a Memorandum of Understanding between the Agency and the licence holder. This agreement has been sought with the applicant to allow the Agency to continue granting water abstraction licences upstream of the point of abstraction mentioned in Condition 2 as Section 19(1) of the Water Resources Act 1991 (As amended) places a duty on the Agency to take all such action as it may from time to time consider necessary or expedient for the purpose of conserving, redistributing or otherwise augmenting and securing proper use of water resources in England and Wales, and shall take into account the possible future requirements for new or varied licences pursuant to the 1991 Act (As amended).

The limit on starting abstraction specified in Condition 11.2.3 is to permit the Agency to undertake its statutory duty not to derogate protected abstraction rights (section 39 of the Water Resources Act 1991 (As amended)).

The fish screens specified in Condition 11.4 are to protect the fish population of the River Ribble.

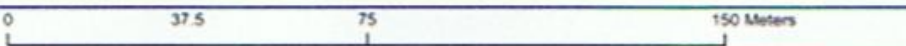
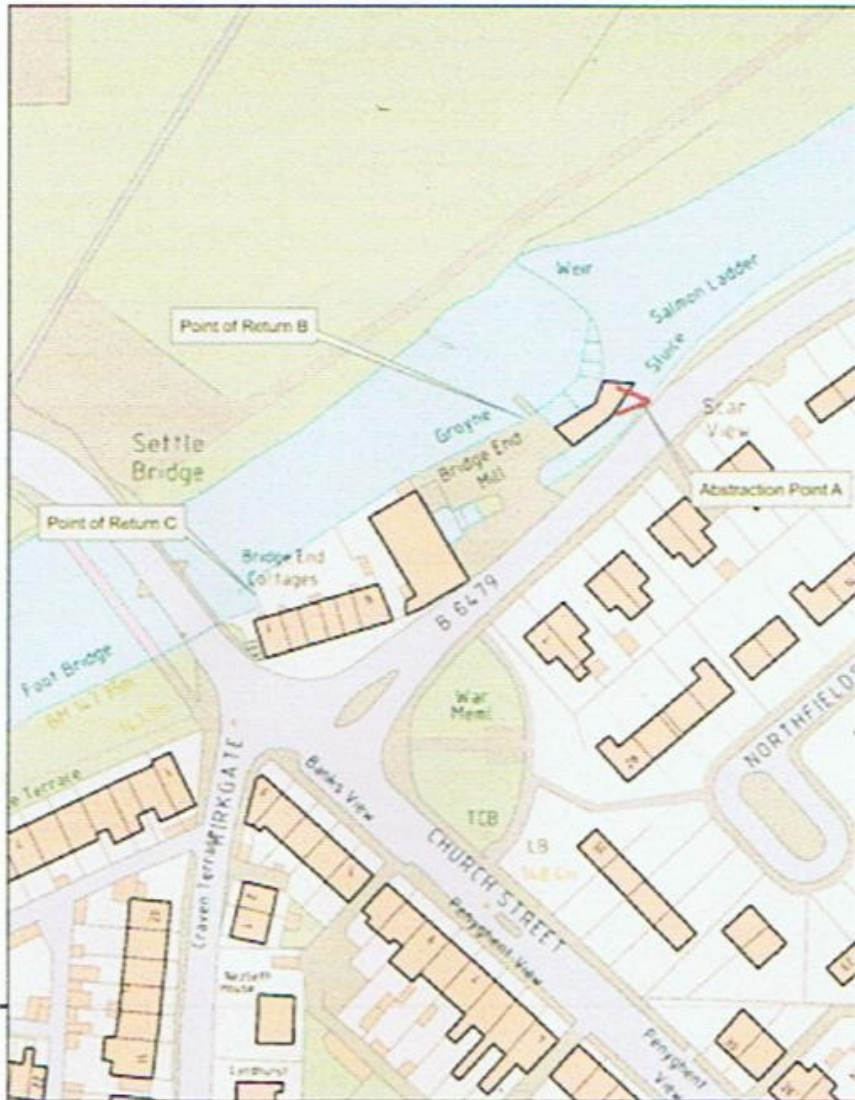
The modification detailed in Condition 11.5 and 11.6 is to prevent damage to fish that may enter the Archimedean screw.

The monitoring detailed in Condition 11.7.1 & 11.7.2 is to identify, control and ultimately eradicate any adverse impacts on fish migration through the fish pass at Settle as a result of Archimedean screw operation and ensure that appropriate remedial measures are undertaken.



MAP "A" ACCOMPANYING LICENCE NUMBER  
 NW/071/0302/001  
 1:10,000  
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**MAP "B" ACCOMPANYING LICENCE NUMBER**  
**NW/071/0302/001**  
 1:1,000  
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