BEACON River Guardian Project
Volunteer Surveyors

As a volunteer, you have received training from BEACON to undertake water quality tests along waterbodies in the Bollin catchment.

I have therefore put together a pack for each volunteer with all the information and paperwork you will need to carry out your surveys. In each pack you will find:

- An identification badge
- A letter you can show to landowners asking permission to access their land
- BEACON Lone Working Policy
- Risk Assessment
- Volunteer agreement and registration form
- Recording forms to complete
- Map of your survey area
- Guide on how to use GPS units

Before you go out to complete a water quality test, **please make sure you've read the risk assessment and set up lone working procedures!** Please also take with you:

- Map
- Water testing kit
- Recording forms and pencil/pens
- Clipboard
- Badge and permission letter
- Digital camera/ Mobile phone – charged and with lone working buddy's phone number inputted.
- GPS Unit

If you have any further questions or need anything else please do not hesitate to contact me, and good luck with your surveys.

Kind regards

Sal Potts
Volunteer BEACON Project Officer

BEACON River Guardian Water Quality Surveys
Winter and Spring - 2017

Dear Sir/Madam,

What are we doing?
This letter is to advise you of water quality tests that BEACON (Bollin Environmental Action and Conservation) will be carrying out along rivers and streams in the Bollin Catchment over the next few weeks. Whilst delivering the work we may need access to your land. We are undertaking this as part of a programme of work that has been started by Manchester University Students, to gather information that will allow us to improve water quality in rivers and streams. As part of the survey we will be taking small samples of water and testing them. This work is part of a wider initiative to improve the quality of our water environments to meet standards set out in the EU Water Framework Directive.

What will we do during a water quality test?
During a survey, staff and/or trained BEACON volunteers will take small amounts of water from the water course, and using simple chemical test kits, test this water for nitrates, phosphates and pH. These tests will be undertaken on a fortnightly to monthly basis. Please note that if any gross pollution that is having a severe and immediate impact on the watercourse is identified, it will be reported to the Environment Agency to investigate further.

Regular repeat visits will be required to gather more water quality information. We hope this does not cause any inconvenience

What will we do following the water quality tests?
Once the tests have been completed, we are planning to hold an event to discuss the findings of the surveys, and all landowners and land managers will be invited to attend.

How can you help?
If you have any information about polluting or potentially polluting activities please report these to the staff and volunteers undertaking the surveys on the details below, or the Environment Agency on **0800 80 70 60**.

Contact us
If you would like to discuss this work further and to find out more information please do not hesitate to contact

Sally Potts, Volunteer BEACON Project Officer
Email: sally.potts@nationaltrust.org.uk
Tel: 01625 415 199
Norcliffe Farm Barns, Styal Road, Wilmslow , Cheshire.
SK9 4HZ

BEACON is a project hosted by the Healthy Rivers Trust. Healthy Rivers Trust is a registered charity no. 1073152.
Registered office - Riverview
A17 Embankment Business Park
Heaton Mersey, Stockport
SK7 3GN

Site risk assessment form

PROPERTY		**LOCATION**	Waterbodies in the Bollin Catchment	**REF NO.**	
DEPARTMENT		**HEAD OF DEPT.**		**DATE**	14/01/17
ACTIVITY		River Guardian Water Quality Testing			
Relevant Model or Site Risk Assessments					

Nature of hazard	Worst outcome	Groups at risk	Current precautions	Estimation of risk	Further precautions
Falling into the river	Drowning / Death	Surveyors: Staff / Volunteers	• Ensure access to charged up mobile phones in case of an emergency and relevant telephone numbers in memory • Ensure colleagues/family members know of your whereabouts • Follow lone working procedures if working alone	Severity of hazard : Extreme Likelihood of event : Possible Adequacy of controls : Fair	Volunteers and staff trained to follow safe working procedures
Falling down river bank	Broken bones	Surveyors: Staff / Volunteers	• Ensure access to charged up mobile phones in case of an emergency • Ensure colleagues/family members know of your whereabouts • Follow lone working procedures if working alone	Severity of hazard : Serious Likelihood of event : Possible Adequacy of controls : Fair	
Injury from flotsam	Cuts/Bruises/ Scrapes	Surveyors: Staff / Volunteers	• There will be a 'no picking up' rule during surveys • At water treatment works sites gloves will be worn at all times	Severity of hazard : Moderate Likelihood of event : Remote Adequacy of controls : Good	Surveyors to be aware of flotsam if and when encountered. Most of survey to be carried out on river bank and not ***in*** the river.

Site risk assessment form

Injury from livestock	Broken bones / crush injuries	Surveyors: Staff / Volunteers	• Ensure surveyors familiar with the dangers of entering fields with livestock, particularly cows and bulls. • Surveyors use their discretion when taking dogs with them. • Surveyors to remain sensible around livestock, and close gates behind them.	Severity of hazard : Serious Likelihood of event : Remote Adequacy of controls : Good	When asking for landowners permission to survey on their land, will enquire about livestock in fields and when is best to survey to suit their animal movement schedule.
Diseases from animals and livestock	Ill health	Surveyors: Staff / Volunteers	• Few very rare known communicable diseases between animals and humans. • Ensure surveyors wash hands before eating and wash boots and trousers at end of day.	Severity of hazard : Moderate Likelihood of event : Remote Adequacy of controls : Good	Have antibacterial hand wash / wipes accessible for surveyors.
Slips/Trips/Falls whilst walking	Broken bones	Surveyors: Staff / Volunteers	• Warn surveyors that they will be crossing uneven ground the majority of the time. • Recommend that surveyors wear sturdy boots with ankle support. • Ensure colleagues/family members know of your whereabouts • Follow lone working procedures if working alone	Severity of hazard : Serious Likelihood of event : Possible Adequacy of controls : Good	
Extreme weather	Exposure	Surveyors: Staff / Volunteers	• Consideration of forecast and conditions of day. • Provision of suitable clothing, footwear and equipment. • Dry spare clothing in cold weather. • Water, hats and sun cream in	Severity of hazard : Moderate Likelihood of event : Remote Adequacy of controls : Good	Ensure exit routes defined before survey starts if surveyor needs to finish before end of task.

Site risk assessment form

			hot weather. • Do not enter river if rainy weather is forecast as rivers can flood very quickly.		
Exhaustion / Tiredness	Ill health	Surveyors: Staff / Volunteers	• Consideration of forecast and tasks for the day. • Ensure all surveyors have adequate rests and enough food and drink available.	Severity of hazard : Moderate Likelihood of event : Remote Adequacy of controls : Good	Ensure exit routes defined before survey starts if surveyor needs to finish before end of task.
Water borne diseases (e.g. Weil's disease)	Ill health	Surveyors: Staff / Volunteers	• Take sensible hygiene precautions e.g cover wounds, grazes, do not drink river water, wash hands before eating. • At waste water treatment sites gloves will be worn at all times	Severity of hazard : Moderate Likelihood of event : Remote Adequacy of controls : Good	Follow EA and UU guidance if necessary.
Nettle stings / insect bites and stings	Anaphylaxis	Surveyors: Staff / Volunteers	• Warn surveyors of dangers, especially nettles when surveying in agricultural areas. • Ensure staff aware of any health problems volunteers may have. • Those with allergies must have medication with them. • Ensure access to charged up mobile phones in case of an emergency.	Severity of hazard : Serious Likelihood of event : Remote Adequacy of controls : Good	Ensure those with allergies wear bracelet or pendant to identify their health problem. Where person identified as having allergies, staff/survey buddy shown how to deal with this and know where medication is kept.
Getting lost	Exposure / exhaustion	Surveyors: Staff / Volunteers	• Define work area. • Provide time limits where necessary. • Ensure surveyors have told someone where they will be and when they will be back.	Severity of hazard : Moderate Likelihood of event : Possible Adequacy of controls : Good	Follow lone working policy if working alone. Complete surveys in pairs until surveyors build up their confidence.

Site risk assessment form

Giant Hogweed	Allergic reaction/burns	Surveyors: Staff / Volunteers	• Before undertaking work, surveyors to be warned of dangers of Giant Hogweed and how to identify it.	Severity of hazard : Serious Likelihood of event : Remote Adequacy of controls : Good	Ensure arms and legs covered in areas where GHW can be found and avoid working near broken plants where sap is exposed.
Crossing roads / farm tracks	Death	Surveyors: Staff / Volunteers	• Care must be taken when getting into and out of vehicles, and proper observations carried out when crossing the road. • Use proper entrance and exits, such as gates and styles. Do not climb over fences and through hedges.	Severity of hazard : Serious Likelihood of event : Remote Adequacy of controls : Good	
Chemicals in water test kits	Allergic reaction	Surveyors: Staff / Volunteers	• Before undertaking work, surveyors to be instructed how to use test kits properly and with care. • Gloves will be worn when testing.	Severity of hazard : Moderate Likelihood of event : Remote Adequacy of controls : Good	If chemicals spilled on skin, surveyors to wash affected area immediately with clean water. If chemicals ingested seek medical advice immediately.

Assessment carried out by	Sally Potts	**Date of previous assessment**	17/10/14
Job title	Volunteer Project Officer – BEACON	**Date of this assessment**	14/01/17
Signed		**Next assessment before**	14/01/18

Nearest Hospitals:

Altrincham General Hospital (8.4km)
Railway Street
Altrincham
Cheshire
WA14 2RE

0161 934 8300

Minor Injuries Only
Monday to Friday: 8.00am – 8.00pm
Weekends and bank holidays: 10.00am – 6.00pm

Wythenshawe Hospital (8.4km)
Southmoor Road
Floats Road
Manchester
M23 9LT

0161 998 7070

A&E Facilities – open 24 hours

IN REAL EMERGENCIES DO NOT HESITATE TO TELEPHONE 999

BEACON
Bollin Environmental Action & Conservation

BEACON Lone Working Policy

Under the Health and Safety at Work Act 1974, employers are responsible for the health and safety at work of both their employees and those affected by their work. Those responsibilities cannot be transferred to employees and volunteers who work alone or without close supervision. Employees and volunteers have responsibilities to take reasonable care of themselves and other people affected by their work, and to co-operate with their employers in the discharge of their legal obligations, but it is the employers' duty to organise and control solitary workers.

In fulfilment of these duties, and in recognition of the fact that BEACON Volunteer Surveyors are often required to work alone, these guidelines and procedures have been drawn up to control the risks of solitary working.

Procedure for lone working

The aim of this Lone Working Policy is to ensure that there is always someone who knows where you are working so that you can be located and/or contacted in the event of an emergency. It applies to all staff or others working for or on behalf of BEACON (volunteers, etc). BEACON strongly advises you to follow these procedures, but it is up to you to use them appropriately and responsibly.

The Lone Working Procedures need to be applied to situations where a person is working alone. Lone Working should only take place if you are confident that you are safe and able to work alone.

For all Lone Working, a 'Buddy System' needs to be in operation, whereby a Buddy is nominated and informed of:

1. **Location(s) of Lone Working (changes in itinerary need to be reported to the Buddy).**
2. **Reporting-in times or estimated time of arrival of the Lone Worker.**
3. **Contact details of the Lone Worker.**
4. **Travel / vehicle details of the Lone Worker.**
5. **The Emergency Procedure in the event of the Lone Worker not making contact.**

The Lone Worker must communicate changes in itinerary to the Buddy; this may require leaving messages on answerphones or mobile phones (Buddies should check for messages before implementing Emergency Procedures).

The Lone Worker will be responsible for phoning ('reporting in') on time. Take account of possible poor mobile phone reception, phones being lost or damaged, phone batteries

running out, or that your Buddy may be driving or doing some other activity that prevents them from using the mobile phone.

If you live alone or there is no one available to be your buddy please text Sally Potts, BEACON Project Officer on 07920095753 with details in points 1-4 above.

Emergency Procedures

In the event of the Lone Worker not 'reporting in', the Buddy should go through the following Emergency Procedures:

- Between half an hour and an hour after the due 'reporting-in' time, the Buddy should call the Lone Worker on the number(s) given. If there is no response, they should leave a phone message with the time of the call, and state that the Lone Worker is overdue for reporting in.
- Repeat this every 15 minutes, this should not exceed 1 hour if it is already dark, or 2 hours if it is still light. This will give the Lone Worker one to two hours after the deadline to respond. If there is still no response then the Buddy should exhaust all other options.
- If still unable to contact or locate the Lone Worker, the Buddy should call the local police (use 999 only if you are sure there is an emergency, otherwise use 101). The police will want to know where the Lone Worker was planning to work, when they were last heard of, when they were due back, and any other information you feel may be useful. This should be recorded on the Lone Working Form.
- If any other emergency services are involved, the Buddy should also advise them of the details provided by the Lone Worker, notably the areas being visited, travel details, any known risks, reporting-in times and contact details.

Note: Mobile phones should not be used while driving or undertaking certain activities.

BEACON River Guardian Recording Sheet

Survey Date_____ **Survey Time**_____

Site Number (e.g A13 if applicable)	
Location Grid Reference	
Water Body Name	
Description	
Comments	
pH	
Nitrate (N)	
Phosphate (P)	
Ammonia	
Temperature (°C)	

How to Test the Water

Getting Started

Your FreshWater Watch kit contains everything you need to begin collecting data, including:

- A pack of 5 nitrate water quality testing tubes.
- A pack of 5 phosphate water quality testing tubes.
- Colour charts for nitrate and phosphate tests.
- Sample cup for use with testing tubes.
- Secchi tube.

Rinse the sampling device with the same water that you will be testing, and when sampling, make sure that the device is fully submerged to avoid sampling only surface water.

It is vital that you accurately record the location of where you are performing FreshWater Watch research. There are two ways you can do this. When you're at your site you can use the geo-referencing function on your smartphone to determine your latitude and longitude. Alternatively you can use the online map service on thewaterhub.org if you do not have a smartphone.

Testing

Photographs should be taken from the same place on each visit – this makes them more easily comparable over time. A photograph should try to include as much of the following as possible:

- Some part of the waterbody and the immediate surrounding land use.
- Water height with respect to some reference point (bridge, tree, boulder).
- Bank vegetation cover and type.
- Water colour.
- Visible pollution sources (an additional photograph may be taken and uploaded).

Data is collected by a visual assessment of the waterbody and a series of questions to which you respond. These allow you to describe the surrounding land use/vegetation/pollution sources.

Please consider the immediate surroundings (i.e. what you can see), not the larger catchment.

On each visit you'll make a visual assessment of water level and velocity (with an opportunity to note any short or long term changes to the site).

Water flow conditions can be estimated as the speed of the water when it is faster than walking speed (surging), approximately walking speed (steady), slower than walking speed (slow) or with no flow (still).

As you become more familiar with the site, it will be easier for you to estimate water levels but you may find clues by looking at the bank for evidence of past water height.

You will make a quick visual assessment of the water colour and the presence and characteristics of any algae.

Turbidity Test

Turbidity is a measure of the “cloudiness” of the water caused by the presence of particles like micro-organisms and suspended sediment. High turbidity can be an indication of high sediment load or high algal concentrations in the water body. Decreased light availability can influence aquatic plant growth and high particle concentrations will modify fish communities.

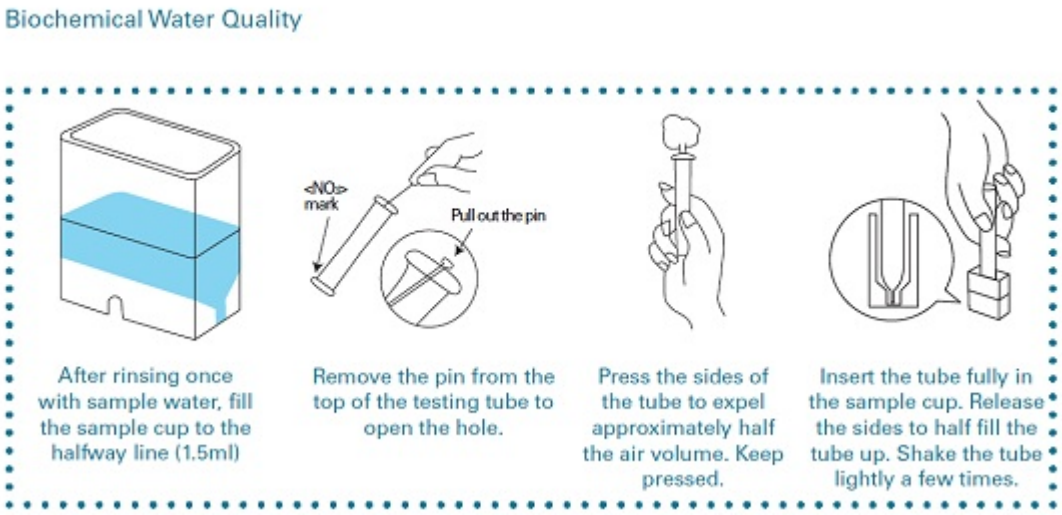
The Secchi tube is a 0.5 metre plastic tube with a Secchi disc at the bottom. The tube has a graduated, non-linear scale of Nephelometric Turbidity Units (NTU) on the side. Measurements are based on the depth of the water at which the Secchi disc is no longer visible to the observer peering into the top of the tube.

The higher the concentration of sediment or phytoplankton in the water sample, the higher the NTU (and the less water is needed for the disc to disappear).

If the sun is out, position yourself so that your shadow is blocking the sun on the tube (to reduce glare and stray light on the side of the tube). Please ensure you are not wearing sunglasses.

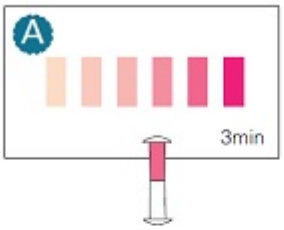
Testing for Nitrates and Phosphates

Instructions on how to test for nitrates and phosphates are provided below:



For Nitrate test (A)

Nitrate test



After 3 minutes, put the tube on the colour chart as shown and compare with the standard colours. Record the range that includes the measured concentration.

Nitrate is a form of nitrogen commonly found in the soil and used by plants for growth. High concentrations of nitrate in freshwater ecosystems often result from agricultural fertiliser use and can lead to eutrophication.

The water quality testing tubes contain a reagent which changes colour in relation to the concentration of nitrate.

(B) For Phosphate test

Phosphate test

After 5 minutes, put the tube on the colour chart as shown and compare with the standard colours. Record the range that includes the measured concentration.

Phosphate is a nutrient required for plant growth. High phosphate concentrations, either from agricultural run-off or domestic wastewater, can favour algal blooms and eutrophication with related damage to the natural flora and fauna of the ecosystem.

The water quality testing tubes contain a reagent which changes colour in relation to the concentration of phosphate.

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