

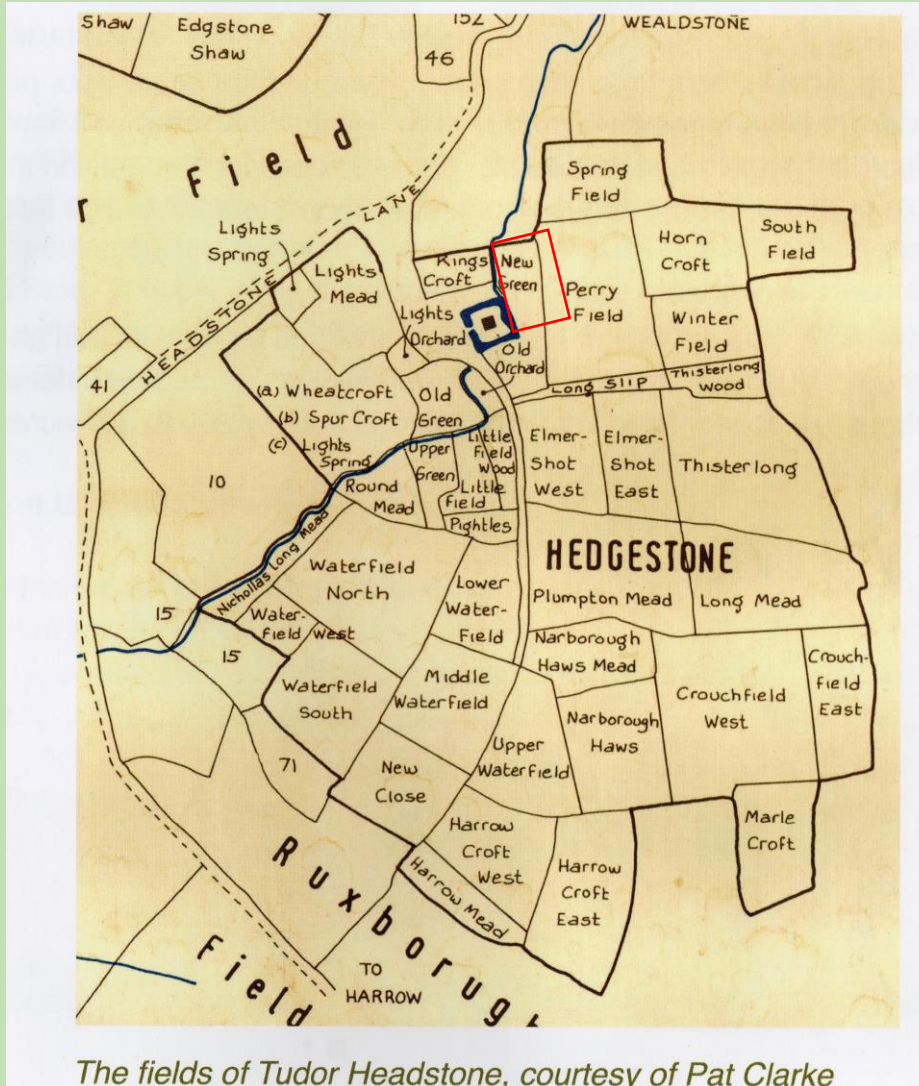


The Wetlands at Headstone Manor Park





Background



The area now occupied by the Wetland was originally an open section of Headstone Manor Park designated as the "New Green"

The fields of Tudor Headstone, courtesy of Pat Clarke



Successful Bid

Harrow Council achieved a successful grant of £1.1m grant under the jointly funded National Lottery Heritage Fund and National Lottery Community Fund Parks for People programme to rejuvenate the park.



The grant represented 52% of the project costs of £2.165m with the balance funded by Harrow Council, GLA Mayor of London's Green Capital Grants fund and Thames Water Smarter Catchment Fund.



Enabling Works



1



2



3



4



5



6



7

Prior to the Construction of the Wetlands the following enabling works were undertaken to "New Green", the existing vegetation was stripped and a series of archaeological test trenches were dug to check for any archaeological evidence due to the proximity to Headstone Manor & Museum: there were no significant finds.

The Moat was dredged and 1000m³ of silt was removed and deposited in the North West corner of the "New Green" this formed the first section of landscaping to the Wetland area.



Design Team Review



Headstone Manor Park

INSPECTION

Stephen Mills | Headstone Manor Park Inspection | August 2018



HNLF Bid Drawing Review

Stephen Mills | Drawing Review | August 2018

This report is based on the general arrangement drawings as detailed on page 2 of this report. Further observations will need to be added when the full set of drawings become available.



HNLF Draft Tender Drawing Review

Stephen Mills | Drawing Review | January 2019

This report is based on the Drawings as detailed on page 2 of this report. These Drawings have been produced following Design Team Meetings held in November & December 2018.

Further observations may need to be added when the full set of drawings become available.



HNLF Drawing Review

Stephen Mills | Drawing Review | September 2019 Rev A

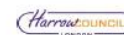
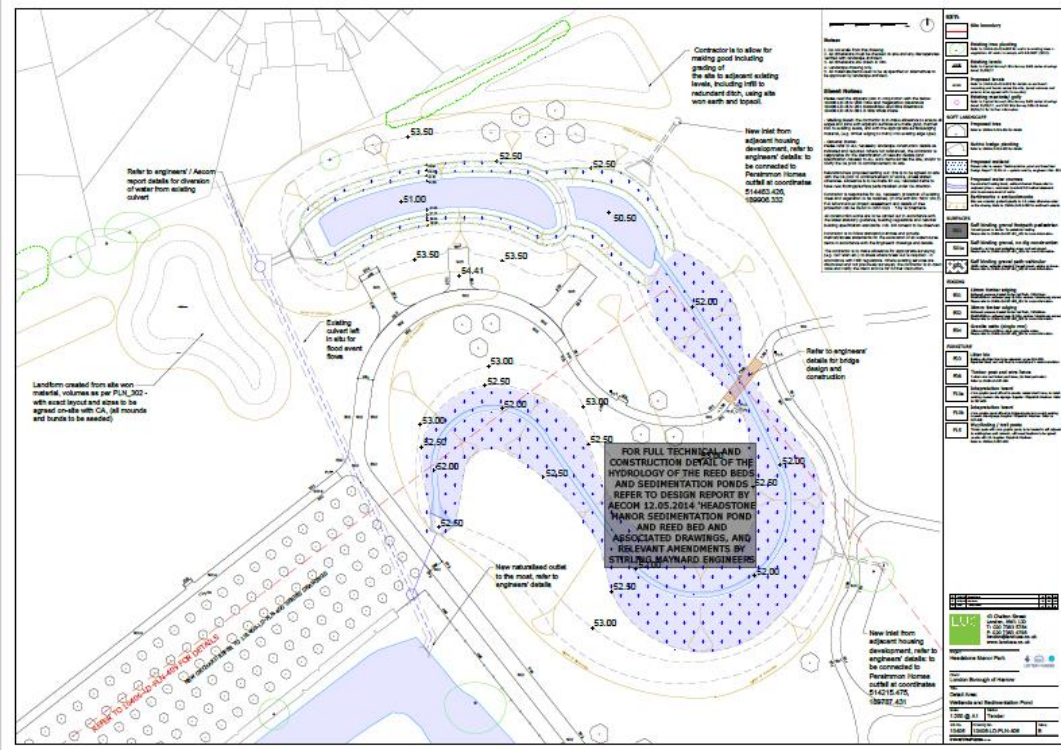
This report is based on the Drawings as detailed on page 2 of this report. These Drawings are marked as Tender Issues (April 2019). Further observations may need to be added when the further drawings / reports are issued as indicated on page 3 of this report.

The Friends of Headstone Manor Park undertook a full Park inspection and produced several reports as part of their involvement with the Design Team and Harrow Council between September 2018 till January 2019.



Construction Work Commences

Construction works commenced in January 2019 with completion anticipated in April 2020



SUPPORTED BY MAYOR OF LONDON



World Wetland Day February 2020



1



2



3



4



5



6



7



8

Our first look at the wetlands

Here is a video link to a YouTube presentation

<https://youtu.be/78bv0IL1OQ0>



Project Delays

Headstone Manor Park 20th January 2021

National Lottery and Heritage Fund (NLHF), and North Harrow Flood Alleviation Scheme (FAS)

Update
Both projects are nearing completion however; you may have noticed October (49mm of rainfall and wettest since 1797), November and December have been exceptionally wet with rainfall above UK average across London and many parts of Harrow reporting flooding.

This wet weather has continued through January and is preventing final landscaping works on both projects to be completed so a joint decision by the Council and Contractor has been taken to suspend further work from **Friday 22nd January 2021**.

The Contractor will be leaving some equipment on site and make daily visits to ensure the site and fencing is secure, on the areas marked on the park plan. The Contractor plans to recommence in March / April 2021.

These areas remain a construction site and under **no circumstances** should the public enter as they are subject to the Health and Safety Regulations within the Health and Safety at Work Act 1974.

This list is not exhaustive, but outlines works still incomplete

NLHF

- Headstone Lane vehicle incursion bund final shaping, topsoil and seeding
- Sedimentation pond and wetlands topsoil, seeding, floating aquatic planting, trees and hedge planting
- Event field levelling, topsoil and seeding
- Final orchard planting
- Overflow car park surfacing, topsoil, seeding and trees
- Main car park resetting block paving
- Pinner View resurfacing and replace iron rail fence c/w gate
- Parkside Way entrance improvement and landscaping

FAS

- Seeding of all areas
- Sand banding of football pitches
- Replacement hedge on allotment boundary

For further information refer to <https://headstonemanor.org/about/headstone-manor-park-project/> or the details below

INVESTORS IN PEOPLE address Harrow Council, Civic Centre, PO Box 39, Station Road, Harrow, HA1 2XA
web www.harrow.gov.uk t: 020 8424 1595 i: infrastructure@harrow.gov.uk

Headstone Manor Park
UPDATE March 25th

In line with Government Directive in relation to Covid-19.

Our contractor, Ground Control, has ceased operations on the Park improvement project for the foreseeable future. The site has been secured and a Ground Control employee will carry out a daily security check.

In addition all organised activities in the Park are postponed until further notice.



The project was due to be finished in April 2022.

However, after an extremely wet winter in 2019/20, 2 periods of lockdown and a very wet autumn in 2021, delays were unavoidable.

(The UK Met Office reported that October 31st was the single wettest day for the country as a whole since daily record keeping began nationally in 1891)



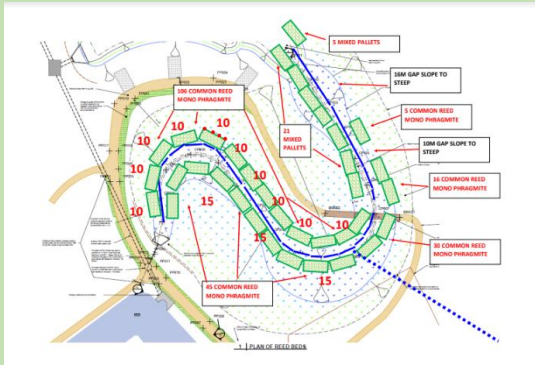
Wetlands Margins and Reed Planting



The Friends of Headstone Manor Park participated with the planting of Wetland marginals and Reeds in October 2020



Completion of Landscaping May 2021



Wetland Aerial view & Reed Pallet locations



1



2



3



4



5



6



7



8

The final stages of Landscaping are completed and the Reed pallets installed, grass seeding will commence in May 2021

Here is a You TUBE video link

<https://www.youtube.com/watch?v=cqaduguoQLk>



Community Celebration September 2021

The Friends of Headstone Manor Park in conjunction with Harrow Council facilitated the Launch Event following the completion of the Heritage National Lottery Fund (Park for People's Project).

Here are some You TUBE video links

<https://youtu.be/SVL7 JsNt e0>

<https://youtu.be/qmqHjbXsL 3I>

Headstone Manor Park
Saturday 11th September 10.30am – 3pm
Community Celebration

Join Harrow Council, Thames21 and the Friends of Headstone Manor Park to celebrate the completion of the park project. Come and join in the activities!

Activities throughout the day include:

- Guided tours of the new wetland
- Photography workshops
- Sport & fitness taster sessions
- Craft activities
- Storytelling walks
- Water explorers activity
- Nature walks

Exhibitors include:

- Harrow Nature Conservation Forum
- Harrow Nature Heroes
- 6th Harrow Scouts
- Lions Club
- Thames21
- Pinner RSPB
- Crane Valley Partnership
- North Harrow Community Library

For further info - www.thames21.org.uk/headstone-manor-park-events/
@headstonepark / @FohMRG
The Friends of Headstone Manor Park / www.headstonemanorpark.org

Getting There: Headstone Manor Park, Pinner View, Harrow HA2 6PX
Car parking is very limited Bus Routes: H9, H10, H14, H18 & H19
Trains: Harrow & Wealdstone, North Harrow (both 20 min walk). Bike parking available





The Wetland Tour



**The Friends of Headstone Manor Park –
Wetland Guided Walks**



The Friends of
Headstone Manor
Park regularly hold
Wetland Walks as
part of
their Wednesday
Wander programme.



Wetland Monitoring July 2022 – January 2023





Wetland Monitoring Volunteers



VOLUNTEERS NEEDED TO HELP WITH THE MONITORING OF HEADSTONE MANOR PARK WETLANDS

As part of the Crane Smarter Water Catchments Initiative, the Zoological Society of London (ZSL) will be working with volunteers from the Friends of Headstone Manor Park to start monitoring and evidencing the impact of the constructed wetlands.

Over the next year, starting in July 2022, we hope to involve citizen scientists in a number of sampling events and monitoring activities to help gather data to feed into our investigation. These will range from regular water quality sampling activities to one off WaterBlitz Wetland sampling days, biodiversity surveys and more - Plenty to get involved with!

If you are interested in taking part, please join us for an **online webinar** where we will be introducing the project, talking through the various volunteering opportunities and setting out our monitoring plans, training sessions, sampling dates and protocols!

Date: Thursday 23rd June at 6pm

Location: Online via Zoom

If you are interested in joining this event - please email: fohmr@gmail.com



The Friends of Headstone Manor Park and the Zoological Society of London (ZSL) reached out to members of the Public to assist with the Wetland Monitoring Project.



Sondes



View across the Wetlands



Hand - Held



Sensors record and transmit



Inlet



Outlet

Headstone Manor Wetlands: Sondes Monitoring Project

- Two Multi-parameter instruments, known as Sondes, have recently been installed in two wetland areas to collect scientific data every 20 minutes throughout July and August.
- Probes are suspended in running water and send data directly to remote computers for analysis.
- They measure a range of specifications including electrical conductivity, the clarity of the water, dissolved oxygen, temperature, pH and ammonium levels.
- These will help to provide additional information on water quality along with weekly sampling data which will inform us about how the wetland is functioning.



Sampling

Sampling sheets and procedures



Headstone Manor Wetlands Monitoring Project Weekly Sampling July 2022

- Two water samples were taken every Thursday morning from the wetland, one from the inlet and one from the outlet.
- Areas were chosen based on safe access, water availability and a need to know about a specific location.
- Water samples were collected using long reach poles with sample containers.
- The containers were decanted into special bottles and delivered by courier to a scientific laboratory in Watford for analysis.
- Additional information including air temperature, general weather, water observation and any other concerns which may affect the water quality (i.e. rubbish in the collection area) are also noted on a special APP.
- Combined with the results from the Sondes, this will be invaluable in helping understand the chemical composition, dissolved oxygen and other indicators of water quality and the potential impact on the local environment and biodiversity.





Fixed Point Photography



July

July



August



September

Headstone Manor Wetlands
Monitoring Project.

Fixed Point Photographs:
Looking East -
Sedimentation Pond.

- As part of the wetland monitoring project, Key images from 'fixed-points' will be taken to visually monitor changes to the wetland over time.



October



November



December



Fixed Point Photography



July



August



September



October



November



December

Headstone Manor Wetlands
Monitoring Project.

Fixed Point Photographs:
Looking South – Reed Beds

- As part of the wetland monitoring project, Key images from 'fixed-points' will be taken to visually monitor changes to the wetland over time.



Fixed Point Photography



July



August



September



October



November



December

Headstone Manor Wetlands
Monitoring Project.

Fixed Point Photographs:
Looking West – Reed Beds

As part of the wetland
monitoring project, key
images from 'fixed-
points' will be taken to
visually monitor
changes to the wetland
over time.



Birds



Moorhen



Tufted duck



Coot



Grey Heron



Mallard

Headstone Manor Wetlands Monitoring Project.

Bird Monitoring: Common sightings

- As part of the wetland monitoring project, Bird monitoring will be undertaken to determine the range of species.
- This can help us with other projects regarding general habitats and biodiversity of the site.
- This poster shows the birds which we have currently identified



Birds



Egyptian Geese



Little Egret



Red Kite



Greylag Goose



Grey Wagtail

Headstone Manor Wetlands Monitoring Project.

Bird Monitoring: Uncommon Sightings

- As part of the wetland monitoring project, Bird monitoring will be undertaken to identify the range of species.
- This can help us with other projects regarding general habitats and biodiversity of the site.
- This poster shown the birds which we have currently identified.



Wildflowers at the Wetland Margins



Common Reed



Watercress



Water Speedwell

Headstone Manor Wetlands Monitoring Project: Wildflowers at the Wetland Margins

- This poster shows the wildflowers which were found during a survey of the wetlands, specifically at the margin.



Reed Canary Grass



Yellow Flag Iris



Celery Leaf Buttercup



Purple Loosetrife



Wildflowers at the Wetland Margins

Wetland margins	
Celery-leaved buttercup	<i>Ranunculus sceleratus</i>
Common reed	<i>Phragmites australis</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Reed Canary-grass	<i>Phalaris arundinacea</i>
Water speedwell	<i>Veronica anagallis-aquatica</i>
Watercress	<i>Rorippa nasturtium-aquaticum</i>
Yellow flag iris	<i>Iris pseudacorus</i>

Headstone Manor

Wetland Monitoring Project

Wetland Wildflowers



Water Blitz

Headstone Manor Park Wetlands

WATER BLITZ

JOIN US TO LEARN ABOUT HOW WETLANDS HELP RIVER CATCHMENTS

The session will include:

- Hands on activities and talks
- A short talk on how the Headstone Manor's wetlands were built
- Water quality and biodiversity sampling with ZSL biologists



Thursday 6th October

11am - 1pm

Headstone Manor Park, Pinner View, Harrow HA2 6PX

Spaces are limited and registration is required - Scan the QR code or follow the link to sign-up: <https://www.eventbrite.com/e/headstone-manor-water-blitz-tickets-419653564107>

For more info, contact: azra.glover@zsl.org



A selection of images showing sampling with members of ZSL and FoHMP





Dragonflies and Damselflies



Common Darter (M)



Common Blue Damselfly (F)



Common Darter (F)



Common Blue Damselfly (M)

Headstone Manor Wetlands Monitoring Project: Insect Monitoring: Dragonflies and Damselflies

- As part of the wetland monitoring project, along with Bird monitoring, insects will be identified to understand the range of species.
- This poster shows some of the dragonfly sightings which have been spotted since the wetland was created.



Mating Common Darter



Blue Tailed Damselfly (M)



Azure Damselfly (M)



Aquatic Invertebrates



Headstone Manor Wetlands Monitoring Project: Aquatic Invertebrates Reed Bed Sampling

- This slide shows some work undertaken by members of Zoological Society of London alongside volunteers from the Friends of Headstone Manor Park to collect and identify insects from two locations.
- Insects were identified by family and work is still underway to make sure they are correctly classified.
- Results from both locations will be compared to help understand the effectiveness of the system.
- There will be further posters showing insects which have been identified.



Aquatic Invertebrates Inlet



Culicidae

Headstone Manor
Wetlands
Monitoring Project
Water Sampling
Invertebrate Insects
INLET



Erpodellidae
Worm



Oligochaeta



Chironimidae



Asellidae



Corixidae
Water
Boatman



Chaboridae



Syripidae



Gammeridae Fresh Water Shrimp



Baetadie Blue Winged Olive



Aquatic Animals Inlet



Physidae snails

Headstone Manor Wetlands
Monitoring Project
Sampling the Wetlands
INLET



Planorbis snail



Coleoptera

A total of 12 taxa were identified in the Inlet
as apposed to 19 Taxa found in the Outlet



Aquatic Invertebrates Outlet



Chironimidae



Coenagrulidae Damselfly

Headstone Manor Wetlands
Monitoring Project
Water Sampling
Invertebrate Insects
OUTLET



Asellidae



Baetidae Blue Winged Olive



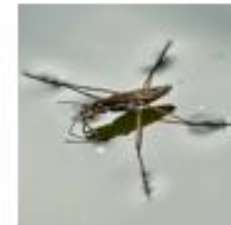
Culicidae



Aeshinidae Dragon Fly nymph



Trichoptera Caddisfly



Gerridae water strider



Corixidae
Water
Boatman



Glossiphoniidae Leach



Gammaridae
Fresh Water Shrimp



Erpodelellidae
Worm



Dugesillidae



Aquatic Animals Outlet



Stickleback



Common Newt

Headstone Manor Wetlands
Monitoring Project
Sampling the Wetlands
OUTLET

A total of
19 taxa
were
identified
in the
Outlet
as
apposed to
12 Taxa
found in
the Inlet



Coleoptera



Lymnaeidae snails



Physidae snails



Planorbis snail



Evidencing the Impact of Constructed Wetlands: Headstone Manor Park River Crane Smarter Water Catchments Project



Executive Summary

This investigation was carried out as part of the Smarter Water Catchments (SWC) initiative for the Crane catchment.

The aim of the study was to work collaboratively with local volunteers to assess and report on the water quality and biodiversity impact of the newly created Headstone Manor wetland.

Data on the wetland was gathered using multiparameter sondes, water and sediment spot samples as well as biodiversity monitoring.

Monitoring, with the assistance of citizen scientists, commenced in June 2022 and finished in January 2023.

Conclusions and lessons learnt were used to make recommendations and inform continued monitoring and maintenance of the site.

Here is a weblink to the report (over 90 pages!) which is summarised on the next few slides

<https://www.cran valley.org.uk/wp-content/uploads/2023/04/Evidencing-the-Impact-of-Constructed-Wetlands-Headstone-Manor-Park-March-2023.pdf>



Evidencing the Impact of Constructed Wetlands: Headstone Manor Park River Crane Smarter Water Catchments Project



Water quality

Dissolved oxygen, ammonium, nitrogen, phosphorus and heavy metals indicate that high amounts of pollutants are entering the wetland system from a range of sources upstream

NOTE: Plumbing misconnections, cross connections, road runoff and urban runoff are likely to be the main sources.

Sediment

High concentrations of heavy metals are present (particularly copper, lead, zinc, nickel and cadmium), polycyclic aromatic hydrocarbons (PAHs) and petroleum hydrocarbons (PHCs) are entering the wetland system from upstream.

NOTE: The wetland is functioning successfully in storing these pollutants within sediments and preventing contaminants from being transported downstream.

Invertebrates

The type and occurrence of invertebrates corresponded with water quality and different taxa were present at the inlet compared to the outlet, with the outlet containing more pollution sensitive taxa.

NOTE: The biodiversity potential of the wetland is being compromised by the input water quality.



Evidencing the Impact of Constructed Wetlands: Headstone Manor Park River Crane Smarter Water Catchments Project



Biological Oxygen Demand (BOD) which determines the quality of the water, between the inlet and the outlet was decreasing, as well as an improvement in nitrogen and phosphorus concentrations, which is expected of a constructed wetland.

NOTE: The water is generally purer as we move through the wetlands system.

As a result of the extremely hot and dry weather last summer (2022) , pollution levels created exceptional conditions in the wetland that promoted algae to grow, as well as a large spread of duck weed which caused the dissolved oxygen to drop to concentrations that caused a 'die-off'.

NOTE: This is a potential concern that ability of the wetlands, constructed as natural solution to cope with the pollution they have to cope with in London, many not be as effective as predicted.

Ongoing monitoring is required to help separate the relative impact of input pollution load, wetland maturity, wetland design, and the extreme weather conditions experienced during the summer monitoring.

NOTE: As the wetland matures it is anticipated that it will be able to process more nutrient pollutants, increasing its resilience to potential future 'die offs' (due to extreme weather conditions).



Summary of Survey Results

Taxa	BMWP Score	
	Inlet	Outlet
Aeshnidae	-	8
Trichoptera sp.	-	8
Gammaridae	6	6
Coenagriidae	-	6
Gerridae	-	5
Corixidae	5	5
Baetidae	4	4
Lymnaeidae	-	3
Physidae	3	3
Planorbidae	3	3
Glossiphoniidae	-	3
Erpodellidae	3	3
Asellidae	3	3
Chironimidae	1	1
Total No. of Listed PSYM Taxa	8	14
ASPT score	3.5	4.4

Survey results showed a difference in both number of taxa and ASPT scores between the inlet and outlet sample locations. The ASPT score was highest at the outlet, with a score of 4.4, compared to 3.5 seen at the inflow

This is useful information in determining water quality

Non PSYM Taxa	Inlet	Outlet
Other invertebrates	Culicidae	Hydrachnidia
	Oligochaeta	Dugsiidae
	Chaoboridae	Coleoptera Sp.
	Syrphidae	-
Other vertebrates	-	Stickleback
	-	common newt eft
Total No. of Taxa	12	19

Including all the taxa identified during the surveys, vertebrates and invertebrates, a total of 12 were identified at the inlet and 19 at the outlet

The [biological monitoring working party \(BMWP\)](#) is a procedure for measuring [water quality](#) using families of [macroinvertebrates](#) as [biological indicators](#)



Questions and Answers



Name
Stephen Mills

Chair



Name
Adrian (Adie)
Doyle

Website Editor