Form WRD: Application for a new abstraction licence or a technical variation to an abstraction licence

Application type

Reference number (The number you generated in form WRA). Example: WRNATURALRESOURCESWALES1101
WRENVOLVEINFRASTRUCTURE151123

Are there any applications currently being assessed by us that are linked to this application?
Yes

Is the proposed abstraction going to be aggregated with another existing abstraction?
No

Linked applications

Please confirm how this application is linked to the other application(s) Example: this application could be one of multiple abstractions and/or impoundment licence applications at the same site. The proposal could involve water rights trading, or this application could be linked to another application for a previously exempt activity.
The abstraction contained within this application refers to the WRA application WRENVOLVEINFRASTRUCTURE151123 pertaining to the same site and proposed works.

Linked application numbers
WRENVOLVEINFRASTRUCTURE151123 - - -

Are any applications, at the same site; being assessed by the Environment Agency?
No

Tell us when you want your abstraction licence to end: [DD/MM/YY]
06/04/24

If you require a shorter or longer duration licence, please provide details and your justification
This abstraction license pertains to temporary de-watering works required for the installation of a new raw water main, and is subsequently only required for the duration of the works, planned to be approximately 15 weeks in duration. Following completion of the installation works, the temporary de-watering and associated abstraction licensing will be no longer required, hence the requirement for a shorter duration license.

Abstraction details

Abstraction location name/reference
Deeside - Chester Millennium Greenway

Abstraction point type
Reach

National Grid Reference
SJ 34368 69939

Downstream National Grid Reference (If abstracting from a reach), or corners of the area.
SJ 34316 69907 SJ 34307 69901 SJ 33393 69702 -

Do you have any further points of abstraction?
No

Means of abstraction

Provide full details of the equipment you propose to use to abstract water, such as maximum pump capacity and any relevant dimensions, e.g. pipe diameter. For groundwater abstractions, include details about the borehole (depth and diameter) and details of screening and lining.

The 1150-metre-long extent of the raw water main, will be de-watered and installed through the use of multiple sections of trench excavations with dimensions of 70m Long x 3m Wide x 4m Deep. Three sections will be de-watered, and two sections of trench excavation will be exposed at any one time. The first three sections will have the wellpointing installed and be de-watered, whilst the third section will be in the process of having the wellpointing installed and be undergoing dewatering. The initial exposed trench will enable the raw water main to be installed, whilst the second exposed trench will have preparatory works conducted.
The wellpointing will consist of the installation of 6m long 38mm plastic riser pipe with a 60mm x 600mm cocoa wrapped filter on the bottom of each, installed at most 2.5 metres from the trench centre line, alongside one side of the trench. Three pumps and 210 metres of header main will be used, with the three pumps situated on a purpose made foundation pad approximately 10m long x 3m wide x 4m deep, at NGR: SJ 34347 69929. De-watering of the pad will be conducted on a separate system, using the same wellpointing methodology.
Initial estimates indicate that the three pumps will operate at between 171 - 622 m3/day, with an associated radii of influence of between 35 and 81 metres from the wellpointing. Additional booster pumps are envisaged to be required, with actual flows to be determined by actual flows encountered on site.
The extent of de-watering is displayed in the associated drawings, occurring between NGR points SJ 34368 69939 and SJ 33393 69702.

If necessary, continue on a separate sheet and upload below.

- File: 65201386_8050_I00 - Proposed Dewatering Discharge Location Plan.pdf - Download

Abstraction quantities

Abstraction location name/reference

Deeside - Chester Millennium Greenway

What purpose will the water be used for?

No use - immediate discharge

Period of abstraction Will it be all year?

No

Start Date: [DD/MM/YY]

08/01/24

End Date: [DD/MM/YY]

06/05/24

Maximum quantities (cubic metres)	
Annual	2272,030
Daily	622
Hourly	25.92

Peak abstraction rate (in litres per second)
7.2

Number of hours of abstraction per day
24 hours

Add quantities for another location?
No

Calculations and supporting information

Use this section to show us how you have calculated the amount of water you require. This should include details of your operational regime (for example, number of hours and days you intend to abstract, number of units produced or area to be irrigated). We use this information to determine if the volumes you propose to abstract are appropriate for the purpose. Depending which industry you are in, you may need to provide additional information below.

If your proposal involves the provision of a residual flow via a notch or orifice, provide information on how this is being calculated. This should include details of the equation being used.

Calculated radii of influences were determined using the industry accepted Sichardt equation, and associated groundwater inflows using the Duipuit-Thiem equation, presented in excel spreadsheet form (provided) in association with site data obtained during the Ground Investigation conducted.

Additional document. (Spreadsheet file formats need to be: .xls, .xlsx, or .ods)

- File: Dewatering Calculation Summary rev2.xlsx - Download

Industry-specific requirements

State the length of depleted reach (in metres)
1150

Means of measurement

State how you intend to measure the quantity of water you abstract. You do not need to do this for a temporary or transfer licence.

Meter

Water efficiency

Provide details of what measures you provide or intend to implement, to ensure efficient use of water. This could include water storage, re-use or recirculation, monitoring and checking for leaks, undertaking water audits or other industry specific good practice.

Efficient use, storage and management of abstracted groundwater will be monitored by regular and daily inspection checks of the system to ensure not faults or leaks with would negatively impact on the efficiency of water use.

Discharge details

If you intend to return any of the abstracted water to the environment, provide details below. Details of discharge location(s) should correspond with any maps submitted. Do not include discharges to a public sewage system.

	Discharge location name / reference	National Grid Reference of discharge point (12 digit)	Total volume to be discharged (cubic metres)	Environmental Permit for Water Discharge Activity number (if applicable)
	East Garden City Drain 1	SJ 34299 70232	-	-
	East Garden City Drain 2	SJ 34644 69914	-	-
	West Garden City Drain	SJ 33543 69574	-	-
	-	-	-	-

Provide a description of the structure and equipment involved in discharge.

Abstracted groundwater will be discharged via settlement tanks, then subsequent swales prior to discharge to the Garden City Drain surface watercourse. The settlement tanks and swales will ensure sufficient time to allow sediment settlement and ensure water quality prior to discharge to the watercourse.

Work will begin from the eastern extent with the pumping station foundation pad and initial eastern extent of the de-watering section being discharged from eastern points 1 and 2. The subsequent western extent of de-watering will be discharged to the West Garden City Drain discharge point. Volumes discharged to each discharge location will depend on work progression and subsequent time of de-watering required.

Other abstractors / water users

Provide details of nearby abstractors or users of water who could be affected by your proposal. This should include deregulated users (exempt activities or abstractions < 20 cubic metres per day), anglers and canoeists.
Your local authority's environmental health will hold details of exempt domestic abstractors.

Within the calculated 81 metre radii of influence of the groundwater de-watering abstraction, there are two separate recorded groundwater receptors which may be at risk.

Consented discharge at "Greenfield" residential property (NGR: SJ 34308 69956; - Approximately 27 metres east of the site) consent no. CG0445601 which is active all year round.

Surface water course, the Northern Drain approximately 15 metres north of the proposed site.

Planning application

Have you sought advice on your planning application?

No

Declaration

By signing below, you are declaring that, to the best of your knowledge; the information given in this form, on any map and in any supporting or additional information; is true.

Signed Karen Fitzsimons

Print name Karen Fitzsimons

position Senior Hydrogeologist

If an agent is to sign on behalf of the Licence Holder, a letter of authorisation from the Licence Holder is required.

- File: Dewatering App - Sweco Agent Confirmation.pdf - Download

Date

* 15/11/2023

Would you like a copy of your submission?

Yes

Your email address

ronan.mclachlan@sweco.co.uk