

Cwmrhydyceirw Quarry

We are pleased to provide information with respect to Condition 4.2.1 of Environmental Permit (EP) reference TP3835LV (the permit) for the site. Condition 4.2.1 specifies that: -

‘A report or reports on the performance of the activities over the previous year shall be submitted to the Agency [Natural Resources Wales (NRW)] by 31 January (or other date agreed in writing by the Agency) each year.’

In an email dated 28 January 2021 NRW agreed with the operator a date of 26 February 2021 for the submission in respect of Condition 4.2.1 of the permit.

The site is not accepting and will not accept waste under the permit with the exception of waste needed to complete the restoration of the former landfill. The restoration of the former landfill area as a recovery activity is the subject of a Waste Recovery Plan^[1] (the WRP) which was submitted to NRW pursuant to Pre-Operational Measure J1 of the permit. The WRP was approved by NRW on 18 May 2020^[2].

In January 2018 planning permission was granted to develop housing at and in proximity to Cwmrhydyceirw Quarry. To progress the built development the former landfill area has been capped and partially restored. It is anticipated that restoration works will be completed in the Spring and Summer of 2021 when the weather conditions improve. An application to definitely close the landfill will be submitted to NRW on completion of this work. Partial surrender application number EPR/TP3835LV/S005 was issued by NRW on 23 June 2020. The partial surrender removed from the area of the permit the majority of the areas of the site outside the area where waste was deposited previously and varied Table S1.5 of the permit to specify zero tonnes per year in respect of the disposal of inert and non-hazardous waste at the site.

An updated management report^[3] (the UMR) was provided to NRW on 7 January 2021. The UMR presents details of the leachate, landfill gas, groundwater and surface water management and monitoring infrastructure at the site and details of the monitoring programmes implemented at the site. As the permit was issued in 2008 to reflect the operation of the site as a non-hazardous waste landfill there are many conditions of the permit including those that relate to environmental monitoring which still reflect the proposals in 2008 to operate the site as a non-hazardous landfill. It was agreed with NRW to submit the UMR which reflects the current site circumstances. It is intended that until such time as the application to definitely close the landfill is resubmitted in mid-2021 and then determined by NRW the UMR will provide information against which the site can be regulated. The information provided in this submission pursuant

to Condition 4.2.1 makes reference, where relevant, to the details presented in the UMR, albeit that it is acknowledged that the UMR currently is being reviewed by NRW.

It is specified in Condition 4.2.1 that the report shall present information with respect to 9 areas referenced (a) to (i) inclusive. As you are aware the landfill site has not been developed for the disposal of waste therefore may not and has not received waste for disposal during the reporting period hence there is limited information which can be submitted. Taking each of areas (a) to (i) in turn:-

- (a) *a review of the results of the monitoring and assessment carried out in accordance with this permit against the relevant assumptions, parameters and results in the risk assessments submitted in relation to this installation and any agreed amendments thereto;*

Emissions limits

Variation V003 of the permit which was issued by NRW on 30 April 2015 authorises the direct discharge of groundwater and surface water pumped from the sump in the east of the quarry to the Cwmrhydyceirw Stream. The application for variation V003 included an H1 risk assessment for the discharge to the Cwmrhydyceirw Stream and proposed emission limits relevant to the discharge which are included in Table S4.3 of variation V003 of the permit.

The results of the monthly^[4] analyses undertaken by Decus Research Limited for samples collected from monitoring point CWMS02 in the sump in the east of the quarry are provided with this email. The data show that, with the exception of a naphthalene concentration of 1.1µg/l recorded for a sample collected on 31 March 2020, the emission limits specified in Table S4.3 were not exceeded during 2020.

The naphthalene concentration of 1.1µg/l exceeds the emission limit of 1µg/l. The measurement uncertainty is not specified in the laboratory report. Following detection of the exceedance SI Green UK Limited followed the action plan dated 29 June 2015 agreed with NRW pursuant to Improvement Programme Requirement 6 of the permit. Consistent with the action plan, as there is no short term EQS for naphthalene, the 3 point rolling average concentration for naphthalene of 0.4µg/l was calculated for January, February and March 2020 which did not exceed the emission limit of 1µg/l hence it was not necessary to divert the discharge to sewer and the discharge to Cwmrhydyceirw Stream continued. Following receipt of the Decus report dated 20 April 2020 resampling of the sump for naphthalene analysis was undertaken on 21 April 2020 and the results were provided by Decus in a report dated 22 April 2020. The naphthalene concentration reported for the sample collected on 21 April 2020 was <0.05µg/l which is the limit of detection of the laboratory. The naphthalene results for the monthly samples collected from monitoring point CWMS02 in the sump during the remainder of 2020 were all below the limit of detection of the laboratory.

The volume of groundwater and/or surface water discharged to the Cwmrhydyceirw Stream during the period January 2020 to December 2020 inclusive was 148,766m³. 148,766m³ is equivalent to an average discharge rate of 0.0047m³/sec which is consistent with the effluent flow rate used in the H1 risk assessment for the discharge to the Cwmrhydyceirw Stream.

Leachate, groundwater and surface water quality monitoring

From a review of the data, in general the concentrations of determinants recorded in the leachate, groundwater and surface water during 2020 are consistent with the data for 2015 to 2019.

Ammoniacal nitrogen concentrations in the leachate remain at more than two orders of magnitude greater than those recorded in the groundwater and surface water at the site. Chloride concentrations in the leachate remain one to two orders of magnitude greater than those recorded in the groundwater at the site and up to an order of magnitude greater than those recorded in the surface water at the site.

Concentrations of ammoniacal nitrogen recorded in the groundwater to the west of the site remained similar to the concentrations recorded in the groundwater elsewhere across the site in 2020 consistent with 2019. Groundwater monitoring borehole CWMGW07A has been damaged and groundwater quality to the west of the site is monitored at boreholes CWMGW07B and CWMGW10. Ammoniacal nitrogen concentrations in the groundwater to the north of the site remained below the limit of detection (LOD) of the

analytical method used in 2020 consistent with the fourth quarter of 2019. Groundwater monitoring borehole CMWGW01B has been lost and groundwater monitoring borehole CWMGW06A has been damaged such that it is unserviceable hence groundwater to the north of the site is monitored at boreholes CWMGW11 and CWMGW12. The ammoniacal nitrogen concentration of 0.52mg/l recorded in the groundwater at borehole CWMGW08 in December 2020 was the highest concentration recorded at the borehole since 2012 when a concentration of 1.6mg/l was recorded. Borehole CWMGW08 is located to the east-south east of the groundwater and surface water sump.

In general ammoniacal nitrogen and chloride concentrations recorded in the water in the groundwater and surface water sump are higher than those recorded in the groundwater at the monitoring boreholes at the site with chloride concentrations in the surface water at CWMS02 occasionally exceeding groundwater concentrations at the boreholes by an order of magnitude.

The nickel concentrations recorded in the groundwater at borehole LFG6 to the south of the site recorded in 2020 were similar to the concentrations recorded in the groundwater elsewhere across the site showing that the rising trend recorded in 2018 and 2019 is no longer seen in the groundwater at the borehole. With the exception of a nickel concentration of 0.242mg/l recorded in the groundwater at borehole CWMGW10 to the west of the site in May 2020 the nickel concentrations in the groundwater at borehole CWMGW10 over 2020 were similar to those recorded in the second half of 2019. The nickel concentrations recorded in the groundwater at borehole LFG9 to the south of the site showed a general rising trend in 2020 with a concentration of 0.055mg/l recorded in August 2020 rising to a maximum of 0.325mg/l in December 2020.

The cadmium concentrations recorded in the groundwater at borehole LFG6 in 2020 remained within the ranges recorded prior to September 2019 at the borehole. The cadmium concentration of 0.006mg/l recorded in the groundwater at borehole LFG2 to the south east of the site in December 2020 was the highest concentration recorded at the borehole since 2012 when a concentration of 0.0096mg/l was recorded. Consistent with nickel, the cadmium concentrations recorded in the groundwater at borehole LFG9 showed a general rising trend in 2020 with a concentration of 0.0006mg/l recorded in August 2020 rising to a maximum of 0.0078mg/l in December 2020. The cadmium concentrations recorded in the groundwater to the south of the site in 2020 are within the ranges recorded in this area of the site previously.

In general the concentrations of metals are higher in the groundwater compared with the water in the combined groundwater and surface water sump.

With the exception of a nickel concentration of 0.182mg/l recorded at leachate well L9B/09 on 24 August 2020 the concentrations of parameters in the leachate do not exceed the control level concentrations set in Table HRA 4 of the 2014 Hydrogeological Risk Assessment (HRA). The nickel concentrations recorded in the leachate during the rest of 2020 were below the control level concentration of 0.16mg/l.

As stated in our e-mail of 17 February 2016 comprising the response to CAR ID 6048 in respect of the 2014 HRA for the site and in our e-mail dated 13 June 2016 comprising the response to CAR ID 6126 in respect of the 2014 HRA for the site, the groundwater and surface water sump comprises the monitoring point down hydraulic gradient of the existing landfill area and as such should be the location of the water quality compliance monitoring point. Water from the sump currently is discharged to the Cwmrhydyceirw Stream and the discharge is the subject of variation V003 of the permit. The discharge to the stream is the subject of emission limits specified in Table S4.3 variation V003 of the permit. If the limits specified in variation V003 of the permit are breached, the proposals for the management of the discharge to the stream submitted to NRW by e-mail on 29 June 2015 pursuant to improvement Programme Requirement reference 6 of the permit variation are implemented. On this basis no compliance limits or control levels in respect of the 2014 HRA have been set at the groundwater and surface water sump because the quality of the water in the sump is controlled by the emission limits specified for the discharge to the Cwmrhydyceirw Stream. A comparison of the quality of the discharge to the Cwmrhydyceirw Stream with the emission limits specified in Table S4.3 variation V003 of the permit is presented in the emissions limit section of this email.

As set out in our submissions dated 17 February 2016 and 13 June 2016, and with the occasional omission in 2020 which have been the subject of separate correspondence, the monitoring regime has continued whereby the quality of the water in the groundwater and surface water sump and the quality of the groundwater at monitoring boreholes located round the site are monitored together with the groundwater

level. The data has been reviewed for the purpose of preparing this annual report required by Condition 4.2.1 of the permit.

It is considered that generally there is no evidence of deteriorating groundwater quality over time in the groundwater at the monitoring boreholes round the site as a result of the migration of leachate from the landfill. While across the monitoring record there is a falling trend in concentrations of ammoniacal nitrogen recorded in the water in the groundwater and surface water sump, the concentrations have remained relatively stable over 2015 to 2020 inclusive. The falling trend in concentrations of chloride recorded previously in the water in the groundwater and surface water sump continued during 2020.

Three new groundwater monitoring boreholes (CWMGW10 to CWMGW12) were installed at the site in 2018. The new boreholes were installed primarily to avoid conflict between the built development and existing borehole locations. Groundwater sampling at the newly installed groundwater monitoring boreholes commenced in January 2019 and are included in this annual review. As stated above, groundwater monitoring borehole CMWGW01B has been lost and groundwater monitoring borehole CWMGW06A has been damaged such that it is unserviceable. Groundwater monitoring boreholes CMWGW01B and CWMGW06 have been replaced with boreholes CWMGW11 and CWMGW12 to the north of the site. Groundwater monitoring borehole CWMGW07A has been damaged and replaced with borehole CWMGW10 to the west of the site. As presented in the previous annual monitoring report, in general in 2020 the concentrations of determinands recorded in groundwater sampled from the newly installed groundwater monitoring boreholes was similar to those recorded previously in groundwater sampled from the corresponding old boreholes that they replaced.

Groundwater and leachate level monitoring

The groundwater levels recorded in the monitoring boreholes are all above the groundwater level control level and compliance level set in Table HRA 6 of the 2014 HRA below which the conceptual site model on which the HRA is based may have changed.

The leachate level control level and compliance level are specified in Table HRA 3 of the 2014 HRA. Note 1 to Table HRA 3 specifies *'The compliance and assessment limits are based on the six month moving average of all leachate heads recorded at the site between June 2010 and May 2014'* and the assessment test in Table HRA 3 is *"Six month moving average of all leachate heads exceeds the control level on three consecutive occasions"*. Based on the leachate level monitoring data reported for 2020 the leachate compliance level of 3.0m above the base of the landfill has been exceeded in the latter half of 2020. We attach a graph entitled *'Six month moving average for the leachate level recorded in the leachate monitoring boreholes at Cwmrhydyceirw Quarry Landfill'* which we have updated to include the 2020 leachate level data. As you will see the compliance and control levels comprising moving averages of all leachate heads are shown on the graph both of which have been exceeded in the latter half of 2020 based on the data reported. A Leachate Action Plan was provided to NRW on 12 February 2021 pursuant to Compliance Assessment Reports CAR_NRW0037308 and CAR_NRW0037428. The Leachate Action Plan includes an initial detailed survey of the condition and suitability of the existing landfill gas venting and leachate monitoring wells which currently is scheduled for 26 February 2021 followed by a review of the results of the leachate level monitoring data which it is proposed will be reported to NRW by 12 March 2021.

The groundwater levels are consistent with those recorded previously at the site and confirm the conceptual model in the 2014 HRA which is based on the assumption that groundwater in proximity to the existing landfill area flows to the combined groundwater and surface water sump.

Landfill gas monitoring

The monitoring scheme external to the waste incorporates a series of gas and combined gas and groundwater monitoring boreholes drilled at the site during February and March 2010 and February 2011. A series of new gas monitoring boreholes (LFG17, LFG18, LFG19, LFG20, LFG22, LFG23, LFG24, LFG25, LFG26, LFG27, LFG43, LFG44, LFG45, LFG46, LFG47 and LFG48) were installed at the site between July and September 2018. The new boreholes were installed primarily to avoid conflict between the locations of the proposed built development and the existing borehole locations some of which will be lost. As residential properties will be developed on the sandstone shelf adjacent to and south of the former landfill area, owing to the proximity of the development to the former landfill area gas monitoring boreholes LFG39, LFG40,

LFG41 and LFG42 were drilled and installed at the site in May 2019 to facilitate gas monitoring between the former landfill area and the proposed development on the sandstone shelf. Additional landfill gas monitoring boreholes LFG49, LFG50 and LFG51 will be installed along the northern boundary of the southern shelf in the base of the quarry equidistant between boreholes LFG39, LFG40, LFG41 and LFG42. With the exception of the landfill gas monitoring boreholes which will be decommissioned as part of the built development, the landfill gas monitoring boreholes located round the boundary of the quarry will be retained. The locations of the boreholes which will be decommissioned and the retained and the proposed new boreholes are shown on drawing reference SIG/CW/12-20/22162 a copy of which is attached. CQA plans for the decommissioning the landfill gas monitoring boreholes^[5] and drilling the new landfill gas monitoring boreholes^[6] have been agreed with NRW. The CQA Plan for decommissioning the landfill gas monitoring boreholes also includes several groundwater monitoring boreholes. CQA Verification reports will be prepared and submitted to NRW following the completion of the decommissioning and drilling works.

Landfill gas monitoring undertaken currently at the site is based on the monitoring scheme presented in Table 3a of the UMR and includes monitoring of boreholes external to the waste generally on a monthly basis. The methane concentrations recorded in the boreholes external to the waste during 2020 generally were at or below the limit of detection of 0.1% volume/volume (v/v) of the GA5000 gas monitoring instrument.

No methane concentrations above 1.0% by volume were recorded in any of the boreholes external to the waste during 2020. The highest methane concentration recorded external to the waste in 2020 was a concentration of 0.7% v/v recorded in borehole LFG36 during the June 2020 monitoring visit. This methane concentration is within the range of methane concentrations recorded in borehole LFG36 previously.

Twelve combined leachate monitoring and gas venting wells are located in the former landfill, eight of which are functional. The locations of the wells are shown on drawing reference SIG/CW/12-20/22162. The combined leachate and gas venting wells will be converted to facilitate wind assisted passive gas venting in the Spring/Summer of 2021 following the completion of the placement of restoration soils at the site. Wind assisted passive gas venting will be provided by fitting new headworks with rotating cowls. A CQA plan^[7] for fitting the new headworks with rotating cowls has been agreed with NRW. The four combined leachate monitoring and gas venting wells which are not functional comprise L3/09R, L13/09R, L14/09R (partially) and L21/09R. The wells will be replaced in the Spring/Summer of 2021 following the completion of the placement of the restoration soils. In addition, it is proposed that nine further combined leachate monitoring and gas venting wells are installed, primarily to provide additional landfill gas venting capacity. The proposed wells will be fitted with wind assisted passive gas venting headworks comprising rotating cowls. The locations of the proposed wells are shown on drawing reference SIG/CW/12-20/22162. A CQA plan for the installation of the further combined leachate monitoring and gas venting wells^[8] has been agreed with NRW.

The concentrations of methane recorded internal to the waste between January 2020 and December 2020 generally are lower than the concentrations recorded during 2018 and 2019.

Other reporting requirements

- (b) *where the operator's management system encompasses annual improvement targets, a summary report of the previous year's progress against such targets;*

There are no improvement targets against which to summarise progress. As explained above a Leachate Action Plan was provided to NRW on 12 February 2021 pursuant to Compliance Assessment Reports CAR_NRW0037308 and CAR_NRW0037428. The Leachate Action Plan includes an initial detailed survey of the condition and suitability of the existing landfill gas venting and leachate monitoring wells which currently is scheduled for 26 February 2021 followed by a review of the results of the leachate level monitoring data which it is proposed will be reported to NRW by 12 March 2021.

- (c) *the energy consumed at the site, reported in the format set out in schedule 5 table S5.3*

The landfill currently is not operating hence the energy consumed at the site is minimal. The only mains powered activity at the site is the pump associated with the combined groundwater and surface water sump. The energy usage at the site for the calendar year 2020 was 83,282kWh (83.282MWh) which is an increase in the energy usage at the site compared with the calendar year 2019 43,425kWh (43.425MWh). The pump

for the combined groundwater and surface water sump was replaced during 2020 with a larger capacity pump. This increase in energy usage between 2019 and 2020 is attributed to the greater energy requirement of the larger capacity pump.

(d) *the annual production/treatment set out in schedule 5 table S5.2;*

There was no leachate discharged to sewer in the period January 2020 to December 2020 or during the year 2019. There are no emission limits specified in Table S4.4 of the permit in respect of the discharge of leachate to sewer. The volume of groundwater and/or surface water discharged to the Cwmrhydyceirw Stream during the period January 2020 to December 2020 inclusive was 148,766m³ which is similar to the volume of 142,542m³ discharged in 2019. No discharge rate is specified in Table S4.3 of variation V003 of the permit in respect of the discharge of groundwater and surface water to Cwmrhydyceirw Stream. The comparison of discharge water quality with the emission limits specified in Table S4.3 of variation V003 of the permit in respect of the discharge of groundwater and surface water to Cwmrhydyceirw Stream are presented under item (a).

(e) *details of any contamination or decontamination of the site which has occurred;*

It is understood that there has been no contamination or decontamination of the site undertaken during the reporting period.

(f) *the topographical surveys required by condition 3.6.3 other than those submitted as part of a CQA validation report;*

(g) *the volumetric difference (reported in cubic metres) between the most recent topographical survey and the previous annual topographical survey i.e. the additional volume of the landfill void that is occupied by waste;*

(h) *an assessment of the settlement behaviour of the landfill body based on the difference between the most recent topographical survey and previous annual topographical survey for the areas of the landfill which did not receive waste between the surveys;*

(i) *a calculation of the remaining capacity (reported in cubic metres) derived from the pre-settlement contours and the most recent topographical survey.*

Points f, g, h and i are addressed together. The site is not accepting and will not accept waste under the permit with the exception of waste needed to complete the restoration of the former landfill. Restoration soils were imported to the site in 2020 for deposit as a recovery operation to restore the former landfill site consistent with the WRP approved by NRW. Planning permission was granted in January 2018 to develop housing at and in proximity to the quarry. To progress the built development the former landfill area remains in situ and was capped by SI Green UK Limited in late 2018 and early 2019 in accordance with construction proposals which were agreed by NRW pursuant to conditions of the EP.

Topographical surveys of different areas of the site have been carried out previously and reported to NRW. As the landfill currently is not operating no additional topographic surveys have been undertaken with respect to Condition 3.6.3 in 2020. As the landfill site is not operating no waste has been landfilled at the site during 2020 hence no additional volume of the landfill is occupied by waste. As no waste has been landfilled at the site since the permit was issued in 2008 no assessment of the settlement behaviour of the waste at the site has been carried out. As the site will not be developed as a landfill site and has been capped it is considered that there is no remaining void at the site for waste disposal. The waste input rate for disposal specified in Table S1.5 in the permit is zero. Consistent with the WRP approved by NRW it is proposed that further waste soils will be imported to the site for deposit as a recovery operation in order to complete the restoration of the former landfill site.

Should you have any queries or if you need any further information please do not hesitate to contact us.

Regards



Attachments:
Decus Lab reports x 13
Drawing reference SIG/CW/12-20/22162
Leachate level graph

www.mjca.co.uk
Our ref:
SIG/CW/DFR/1392/01/26250
SIG_CWc26250_FV

Baddesley Colliery Offices
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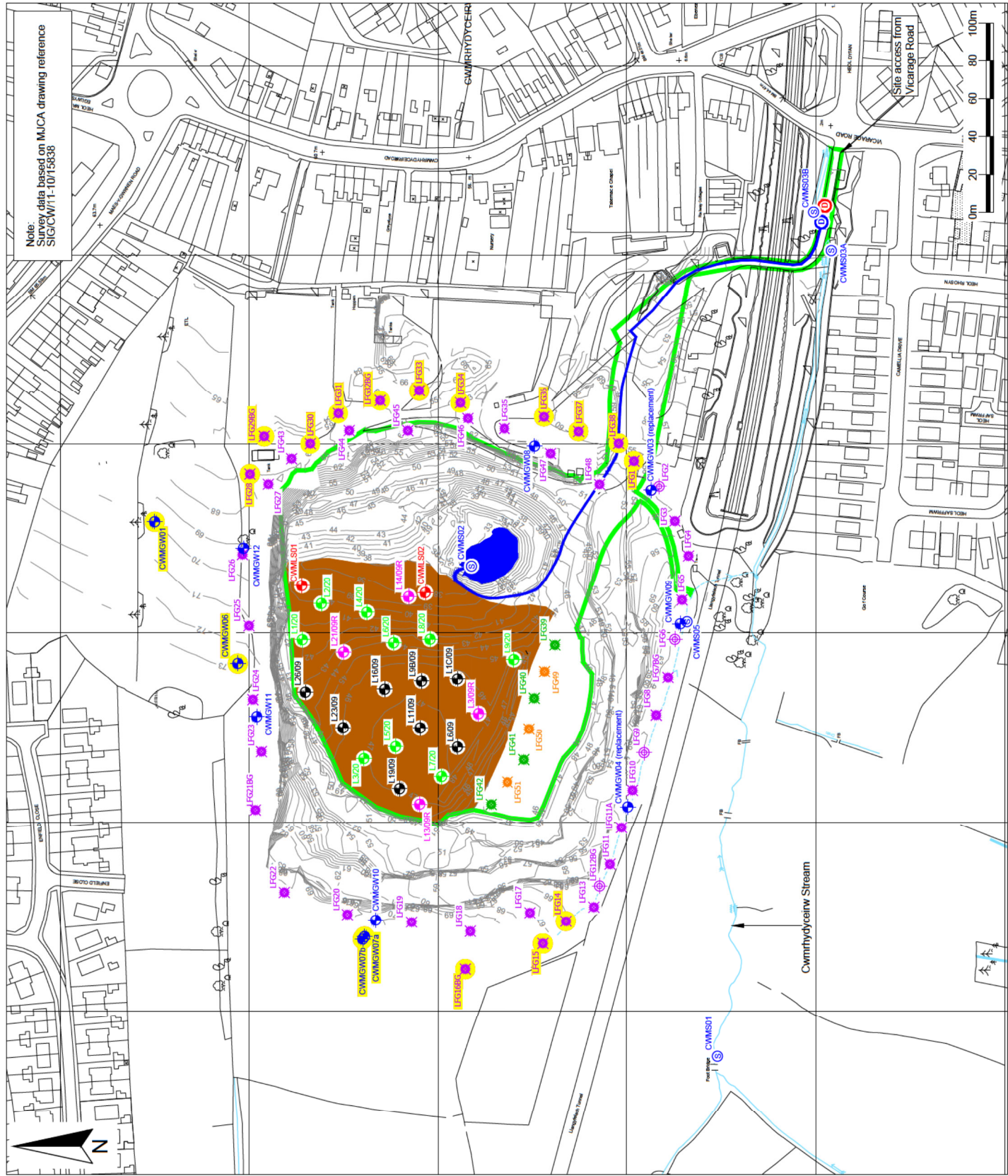
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- [¹] MJCA, March 2020. Waste Recovery Plan for the deposition of waste on land as a recovery activity for the restoration of Cwmrhydyceirw Quarry, Vicarage Road, Morriston, Swansea to public open space. Report reference SIG/CW/DFR/1392/01.
- [²] Email from Neil Herbert of NRW at 12.31pm on 18 May 2020.
- [³] MJCA, January 2021. Cwmrhydyceirw Quarry Landfill the subject of Environmental Permit reference EPR/TP3835LV. Updated Management Report. Report reference SIG/CW/DFR/1392/01/UMR.
- [⁴] Note – the February 2020 monitoring was undertaken on 2 March 2020 and the June 2020 monitoring was undertaken on 6 July 2020.
- [⁵] MJCA, August 2020. Construction Quality Assurance (CQA) Plan for the decommissioning of gas and groundwater monitoring boreholes at Cwmrhydyceirw Quarry Landfill, Morriston, Swansea. Environmental Permit number EPR/TP3835LV. Report reference SIG/CW/JRC/2943/01BHCQADecV2.
- [⁶] MJCA, September 2020. Construction Quality Assurance (CQA) Plan for the installation of additional in-waste landfill gas venting and permitter landfill gas monitoring boreholes at Cwmrhydyceirw Quarry Landfill, Morriston, Swansea. Environmental Permit number EPR/TP3835LV. Report reference SIG/CW/KE/20012/01/BHCQA.
- [⁷] MJCA, August 2020. Specification and Construction Quality Assurance Plan for the installation of gas venting headworks over the gas wells present within the capped landfill area. Report reference SIG/CW/DFR/1392/01.
- [⁸] MJCA, September 2020. Construction Quality Assurance (CQA) Plan for the installation of additional in-waste landfill gas venting and permitter landfill gas monitoring boreholes at Cwmrhydyceirw Quarry Landfill, Morriston, Swansea. Environmental Permit number EPR/TP3835LV. Report reference SIG/CW/KE/20012/01/BHCQA.

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	Final	KR	GT	AW	06/01/21
Rev	Status	Dm	App	Chk	Date

Site	CWMBRHYDCEIRW QUARRY I AND E II
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Client
SJ Green (UK) Ltd

Title
Plan showing the boundary of Environmental Permit reference EPR/TP3835LV and the locations of all current and proposed wells and boreholes

Figure 2

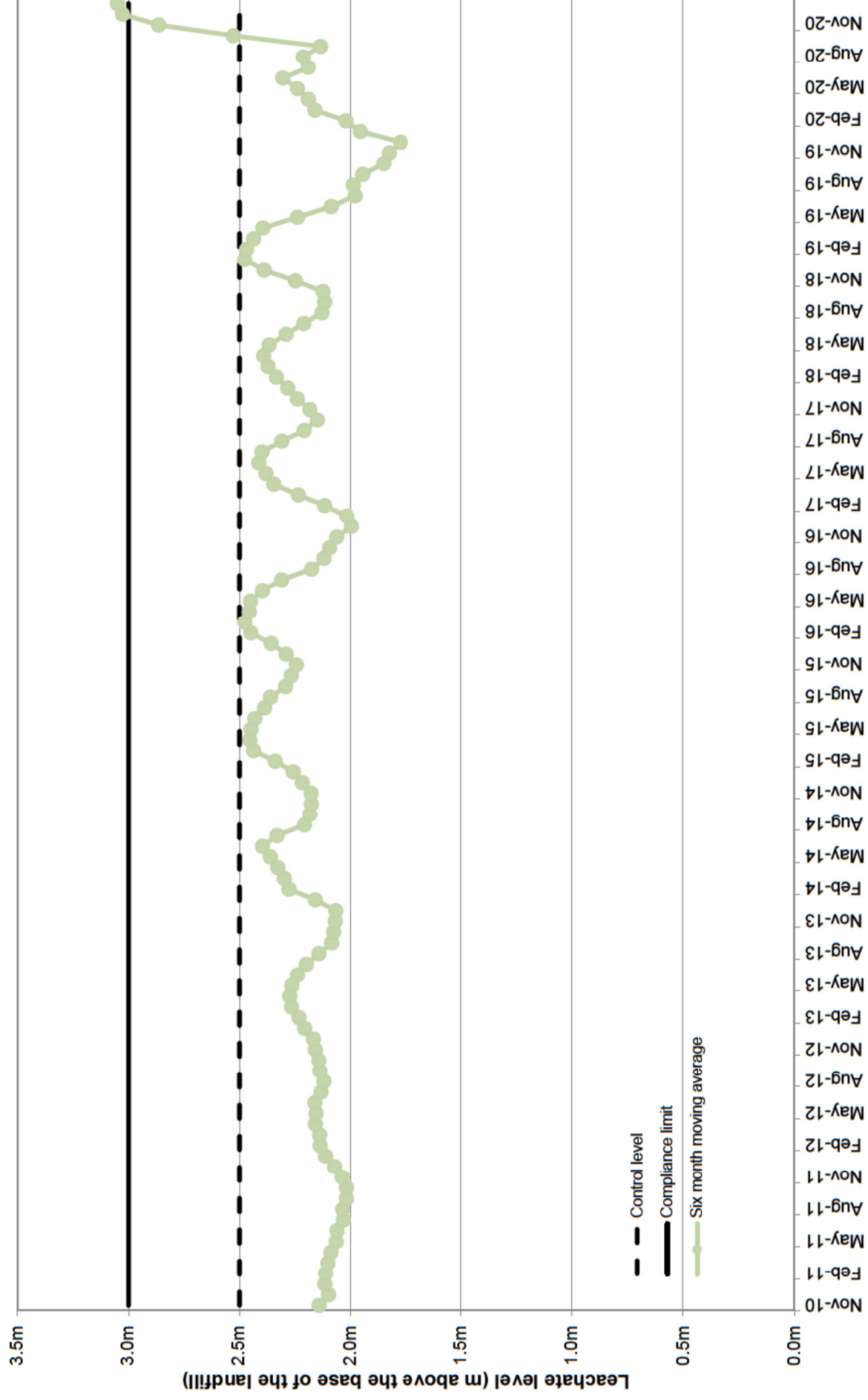
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SI/G/CW/12-20/22162
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Six month moving average for the leachate level recorded in the leachate monitoring boreholes at Cwmrhydyceirw Quarry Landfill



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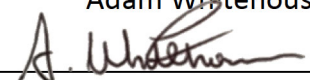
Tel: 01269 844558
Fax: 01269 841867
Email: info@decusuk.co.uk

Certificate of Analysis Number: 3617

Project/Site name:	SI Green	Samples Taken:	30-01-2020
Job Number:	-	Samples Received:	30-01-2020
Order Number:	Signed PAS	Date Instructed:	30-01-2020
Quotation Number:	DS 150606	Analysis Complete:	06-03-2020
Sample Matrix:	Surface Water, Groundwater	Report Issued:	07-04-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3617

Report Date
07th April 2020

Results of analysis of 2 samples received
on the 30/01/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				040220042	040220043	-	-
Client Sample Reference:				CWM S02	CWM S05	-	-
Sample Date:				30/01/20	30/01/20	-	-
Sample Matrix:				Surface Water	Surface Water	-	-
INORG-L01	pH	pH units	A	7.2	7.7	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	588	230	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.64	0.12	-	-
INORG-L13	Chloride	mg.l^{-1}	A	100	19.4	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	2.8	30.4	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	10.1	9.8	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	14.6	<0.02	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	243	99	-	-
INORG-L25	TON	mg.l^{-1}	N	0.4	0.6	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.1	<0.1	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	0.06	<0.02	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
1450	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.080	<0.080	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	<1.5	2.6	-	-
METALS-L	Calcium	mg.l^{-1}	A	92.4	41.6	-	-
METALS-L	Potassium	mg.l^{-1}	A	13.4	4.5	-	-
METALS-L	Magnesium	mg.l^{-1}	A	18.0	3.0	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	308	134	-	-
METALS-L	Sulphate	mg.l^{-1}	A	55.8	26.5	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	406	1,730	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	<1.1	23.6	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	6.4	12.6	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	7.6	9.6	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	1.2	7.3	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	0.61	<0.50	-	-

* Accreditation Status

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Any comments or interpretations are beyond the scope of UKAS accreditation



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3617

Report Date
07th April 2020

Results of analysis of 2 samples received
on the 30/01/20

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3617

Report Date
07th April 2020

Results of analysis of 2 samples received
on the 30/01/20

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

All results only relate to the items tested.

This report supersedes any previous versions issued by the laboratory.

A full list of determinants relating to abbreviations such as PAHs, VOCs, SVOCs, PCBs etc. is available upon request.

Where results have been labelled as deviating for any reason, the data may not be representative of the sample at the point of sampling:

[I/S]: Insufficient Sample

[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

[B]: Sample age exceeds recommended storage time

[C]: Samples not received in appropriate containers

[D]: Broken Container

< "Less Than"

> "Greater Than"

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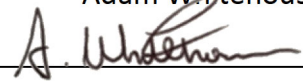
Tel: 01269 844558
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Email: info@decusuk.co.uk

Certificate of Analysis Number: 3693

Project/Site name:	SI Green	Samples Taken:	02-03-2020
Job Number:	-	Samples Received:	02-03-2020
Order Number:	Signed PAS	Date Instructed:	02-03-2020
Quotation Number:	DS 150606	Analysis Complete:	23-03-2020
Sample Matrix:	Surface Water, Groundwater	Report Issued:	08-04-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3693

Report Date
08th April 2020

Results of analysis of 2 samples received
on the 02/03/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				020320005	020320006	-	-
Client Sample Reference:				CWM S02	CWM S05	-	-
Sample Date:				02/03/20	02/03/20	-	-
Sample Matrix:				Surface Water	Surface Water	-	-
INORG-L01	pH	pH units	A	7.6	7.8	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	342	188	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.04	0.01	-	-
INORG-L13	Chloride	mg.l^{-1}	A	42.6	19.4	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	27.2	21.6	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	10.1	10.4	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	<0.02	16.7	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	140	79	-	-
INORG-L25	TON	mg.l^{-1}	N	0.3	1.1	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.1	<0.1	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	<0.02	0.06	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
1450	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.080	<0.080	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	<1.5	2.1	-	-
METALS-L	Calcium	mg.l^{-1}	A	65.2	34.9	-	-
METALS-L	Potassium	mg.l^{-1}	A	8.9	5.5	-	-
METALS-L	Magnesium	mg.l^{-1}	A	12.3	2.5	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	63.7	114	-	-
METALS-L	Sulphate	mg.l^{-1}	A	33.5	17.2	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	366	645	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	28.1	2.9	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	5.5	11.3	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	9.4	8.6	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	4.0	4.5	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	<0.50	-	-

* Accreditation Status

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3693

Report Date
08th April 2020

Results of analysis of 2 samples received
on the 02/03/20

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3693

Report Date
08th April 2020

Results of analysis of 2 samples received
on the 02/03/20

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

All results only relate to the items tested.

This report supersedes any previous versions issued by the laboratory.

A full list of determinants relating to abbreviations such as PAHs, VOCs, SVOCs, PCBs etc. is available upon request.

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[I/S]: Insufficient Sample

[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

[B]: Sample age exceeds recommended storage time

[C]: Samples not received in appropriate containers

[D]: Broken Container

< "Less Than"

> "Greater Than"

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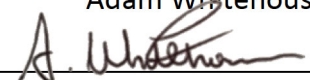
Tel: 01269 844558
Fax: 01269 841867
Email: info@decusuk.co.uk

Certificate of Analysis Number: 3764

Project/Site name:	SI Green	Samples Taken:	31-03-2020
Job Number:	-	Samples Received:	31-03-2020
Order Number:	Signed PAS	Date Instructed:	31-03-2020
Quotation Number:	DS 150606	Analysis Complete:	09-04-2020
Sample Matrix:	Surface Water, Groundwater	Report Issued:	20-04-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3764

Report Date
20th April 2020

Results of analysis of 2 samples received
on the 31/03/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				310320001	310320002	-	-
Client Sample Reference:				CWM S02	CWM S05	-	-
Sample Date:				31/03/20	31/03/20	-	-
Sample Matrix:				Surface Water	Surface Water	-	-
INORG-L01	pH	pH units	A	7.4	8.3	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	414	129	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.86	0.01	-	-
INORG-L13	Chloride	mg.l^{-1}	A	80.1	18.6	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	32.8	8.0	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	10.0	9.7	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	26.9	41.3	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	262	85.8	-	-
INORG-L25	TON	mg.l^{-1}	N	<0.1	0.6	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.1	<0.1	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	0.05	0.13	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	1.1	0.7	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
1450	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.080	<0.080	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	<1.5	<1.5	-	-
METALS-L	Calcium	mg.l^{-1}	A	86.0	28.7	-	-
METALS-L	Potassium	mg.l^{-1}	A	13.1	2.8	-	-
METALS-L	Magnesium	mg.l^{-1}	A	17.7	2.5	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	260	18.1	-	-
METALS-L	Sulphate	mg.l^{-1}	A	46.3	12.4	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	52.8	205	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	<1.1	<1.1	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	7.5	<4.1	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	5.3	9.8	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	3.1	2.9	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	<0.50	-	-

* Accreditation Status

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3764

Report Date
20th April 2020

Results of analysis of 2 samples received
on the 31/03/20

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3764

Report Date
20th April 2020

Results of analysis of 2 samples received
on the 31/03/20

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

All results only relate to the items tested.

This report supersedes any previous versions issued by the laboratory.

A full list of determinants relating to abbreviations such as PAHs, VOCs, SVOCs, PCBs etc. is available upon request.

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[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

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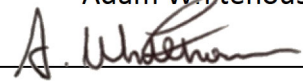
Tel: 01269 844558
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Email: info@decusuk.co.uk

Certificate of Analysis Number: 3786

Project/Site name:	SI Green	Samples Taken:	21-04-2020
Job Number:	-	Samples Received:	21-04-2020
Order Number:	Signed PAS	Date Instructed:	21-04-2020
Quotation Number:	DS 150606	Analysis Complete:	22-04-2020
Sample Matrix:	Surface Water	Report Issued:	22-04-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3786

Report Date
22nd April 2020

Results of analysis of 1 sample received on
the 21/04/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				210420007	-	-	-
Client Sample Reference:				CWM S02	-	-	-
Sample Date:				21/04/20	-	-	-
Sample Matrix:				Surface Water	-	-	-
ORG-L02	Naphthalene	µg.l ⁻¹	A	<0.05	-	-	-

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3786

Report Date
22nd April 2020

Results of analysis of 1 sample received on
the 21/04/20

Analytical Method	Method Code	Accreditation Status
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

All results only relate to the items tested.

This report supersedes any previous versions issued by the laboratory.

A full list of determinants relating to abbreviations such as PAHs, VOCs, SVOCs, PCBs etc. is available upon request.

Where results have been labelled as deviating for any reason, the data may not be representative of the sample at the point of sampling:

[I/S]: Insufficient Sample

[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

[B]: Sample age exceeds recommended storage time

[C]: Samples not received in appropriate containers

[D]: Broken Container

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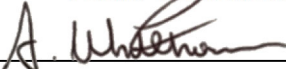
Tel: 01269 844558
Fax: 01269 841867
Email: info@decusuk.co.uk

Certificate of Analysis Number: 3797

Project/Site name:	SI Green	Samples Taken:	28-04-2020
Job Number:	-	Samples Received:	28-04-2020
Order Number:	Signed PAS	Date Instructed:	28-04-2020
Quotation Number:	DS 150606	Analysis Complete:	12-05-2020
Sample Matrix:	Surface Water, Groundwater	Report Issued:	13-05-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3797

Report Date
13th May 2020

Results of analysis of 2 samples received
on the 28/04/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				280420004	280420005	-	-
Client Sample Reference:				CWM S02	CWM S05	-	-
Sample Date:				28/04/20	28/04/20	-	-
Sample Matrix:				Surface Water	Surface Water	-	-
INORG-L01	pH	pH units	A	7.3	7.3	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	612	244	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.62	<0.01	-	-
INORG-L13	Chloride	mg.l^{-1}	A	95.2	18.9	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	2.0	24.4	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	9.7	5.8	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	40.6	24.4	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	253	129	-	-
INORG-L25	TON	mg.l^{-1}	N	0.2	1.0	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.1	<0.1	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	0.06	<0.02	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
1450	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.080	<0.080	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	<1.5	2.5	-	-
METALS-L	Calcium	mg.l^{-1}	A	100	46.5	-	-
METALS-L	Potassium	mg.l^{-1}	A	15.7	4.6	-	-
METALS-L	Magnesium	mg.l^{-1}	A	21.2	4.4	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	314	94.0	-	-
METALS-L	Sulphate	mg.l^{-1}	A	38.7	15.1	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	332	1,138	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	2.0	11.8	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	5.5	7.6	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	9.9	11.8	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	<0.8	6.2	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	<0.50	-	-

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3797

Report Date
13th May 2020

Results of analysis of 2 samples received
on the 28/04/20

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3797

Report Date
13th May 2020

Results of analysis of 2 samples received
on the 28/04/20

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

All results only relate to the items tested.

This report supersedes any previous versions issued by the laboratory.

A full list of determinants relating to abbreviations such as PAHs, VOCs, SVOCs, PCBs etc. is available upon request.

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[I/S]: Insufficient Sample

[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

[B]: Sample age exceeds recommended storage time

[C]: Samples not received in appropriate containers

[D]: Broken Container

< "Less Than"

> "Greater Than"

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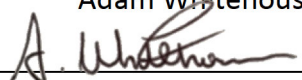
Tel: 01269 844558
Fax: 01269 841867
Email: info@decusuk.co.uk

Certificate of Analysis Number: 3843

Project/Site name:	SI Green	Samples Taken:	28-05-2020
Job Number:	-	Samples Received:	28-05-2020
Order Number:	Signed PAS	Date Instructed:	28-05-2020
Quotation Number:	DS 150606	Analysis Complete:	25-06-2020
Sample Matrix:	Surface Water, Groundwater	Report Issued:	30-06-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3843

Report Date
30th June 2020

Results of analysis of 1 sample received on
the 28/05/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				290520015	-	-	-
Client Sample Reference:				CWM S02	-	-	-
Sample Date:				28/05/20	-	-	-
Sample Matrix:				Surface Water	-	-	-
INORG-L01	pH	pH units	A	7.9	-	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	594	-	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.78	-	-	-
INORG-L13	Chloride	mg.l^{-1}	A	105	-	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	5.2	-	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	10.4	-	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	23.1	-	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	257	-	-	-
INORG-L25	TON	mg.l^{-1}	N	<0.1	-	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.1	-	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	0.04	-	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	-	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	-	-	-
1450	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.080	-	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	1.5	-	-	-
METALS-L	Calcium	mg.l^{-1}	A	94.3	-	-	-
METALS-L	Potassium	mg.l^{-1}	A	15.5	-	-	-
METALS-L	Magnesium	mg.l^{-1}	A	20.2	-	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	111	-	-	-
METALS-L	Sulphate	mg.l^{-1}	A	39.6	-	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	112	-	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	<1.1	-	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	<4.1	-	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	10.3	-	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	3.1	-	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	-	-	-

* Accreditation Status

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3843

Report Date
30th June 2020

Results of analysis of 1 sample received on
the 28/05/20

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3843

Report Date
30th June 2020

Results of analysis of 1 sample received on
the 28/05/20

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

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[I/S]: Insufficient Sample

[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

[B]: Sample age exceeds recommended storage time

[C]: Samples not received in appropriate containers

[D]: Broken Container

< "Less Than"

> "Greater Than"

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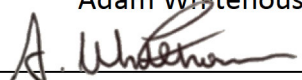
Tel: 01269 844558
Fax: 01269 841867
Email: info@decusuk.co.uk

Certificate of Analysis Number: 3909

Project/Site name:	SI Green	Samples Taken:	06-07-2020
Job Number:	-	Samples Received:	06-07-2020
Order Number:	Signed PAS	Date Instructed:	06-07-2020
Quotation Number:	DS 150606	Analysis Complete:	31-07-2020
Sample Matrix:	Surface Water	Report Issued:	07-08-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3909

Report Date
07th August 2020

Results of analysis of 1 sample received on
the 06/07/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				060720001	-	-	-
Client Sample Reference:				CWM S02	-	-	-
Sample Date:				06/07/20	-	-	-
Sample Matrix:				Surface Water	-	-	-
INORG-L01	pH	pH units	A	7.4	-	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	571	-	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.01	-	-	-
INORG-L13	Chloride	mg.l^{-1}	A	69.2	-	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	6.8	-	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	9.4	-	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	38.4	-	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	218	-	-	-
INORG-L25	TON	mg.l^{-1}	N	0.44	-	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.10	-	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	<0.02	-	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	-	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	-	-	-
1450	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.0080	-	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	<1.5	-	-	-
METALS-L	Calcium	mg.l^{-1}	A	100	-	-	-
METALS-L	Potassium	mg.l^{-1}	A	13.6	-	-	-
METALS-L	Magnesium	mg.l^{-1}	A	19.4	-	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	3.2	-	-	-
METALS-L	Sulphate	mg.l^{-1}	A	80.1	-	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	15.1	-	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	<1.1	-	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	6.9	-	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	10.1	-	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	<0.8	-	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	-	-	-

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3909

Report Date
07th August 2020

Results of analysis of 1 sample received on
the 06/07/20

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3909

Report Date
07th August 2020

Results of analysis of 1 sample received on
the 06/07/20

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

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[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

[B]: Sample age exceeds recommended storage time

[C]: Samples not received in appropriate containers

[D]: Broken Container

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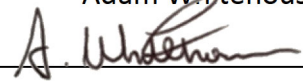
Tel: 01269 844558
Fax: 01269 841867
Email: info@decusuk.co.uk

Certificate of Analysis Number: 3963

Project/Site name:	SI Green	Samples Taken:	31-07-2020
Job Number:	-	Samples Received:	31-07-2020
Order Number:	Signed PAS	Date Instructed:	31-07-2020
Quotation Number:	DS 150606	Analysis Complete:	28-08-2020
Sample Matrix:	Surface Water	Report Issued:	02-09-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3963

Report Date
02nd September 2020

Results of analysis of 1 sample received on
the 31/07/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				310720030	-	-	-
Client Sample Reference:				CWM S02	-	-	-
Sample Date:				31/07/20	-	-	-
Sample Matrix:				Surface Water	-	-	-
INORG-L01	pH	pH units	A	7.7	-	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	551	-	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.23	-	-	-
INORG-L13	Chloride	mg.l^{-1}	A	104	-	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	2.8	-	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	9.7	-	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	23.1	-	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	216	-	-	-
INORG-L25	TON	mg.l^{-1}	N	0.49	-	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.10	-	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	0.31	-	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	-	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	-	-	-
1450	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.080	-	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	<1.5	-	-	-
METALS-L	Calcium	mg.l^{-1}	A	95.4	-	-	-
METALS-L	Potassium	mg.l^{-1}	A	12.4	-	-	-
METALS-L	Magnesium	mg.l^{-1}	A	17.4	-	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	3.0	-	-	-
METALS-L	Sulphate	mg.l^{-1}	A	58.5	-	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	19.4	-	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	<1.1	-	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	<4.1	-	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	11.1	-	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	2.0	-	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	-	-	-

* Accreditation Status

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3963

Report Date
02nd September 2020

Results of analysis of 1 sample received on
the 31/07/20

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 3963

Report Date
02nd September 2020

Results of analysis of 1 sample received on
the 31/07/20

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

All results only relate to the items tested.

This report supersedes any previous versions issued by the laboratory.

A full list of determinants relating to abbreviations such as PAHs, VOCs, SVOCs, PCBs etc. is available upon request.

Where results have been labelled as deviating for any reason, the data may not be representative of the sample at the point of sampling:

[I/S]: Insufficient Sample

[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

[B]: Sample age exceeds recommended storage time

[C]: Samples not received in appropriate containers

[D]: Broken Container

< "Less Than"

> "Greater Than"

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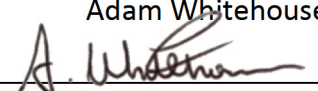
Tel: 01269 844558
Fax: 01269 841867
Email: info@decusuk.co.uk

Certificate of Analysis Number: 4030

Project/Site name:	SI Green	Samples Taken:	28-08-2020
Job Number:	-	Samples Received:	28-08-2020
Order Number:	Signed PAS	Date Instructed:	28-08-2020
Quotation Number:	DS 150606	Analysis Complete:	20-10-2020
Sample Matrix:	Surface Water	Report Issued:	20-10-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4030

Report Date
20th October 2020

Results of analysis of 2 samples received
on the 28/08/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				280820065	280820066	-	-
Client Sample Reference:				CWM S02	CWM S05	-	-
Sample Date:				28/08/20	28/08/20	-	-
Sample Matrix:				Surface Water	Surface Water	-	-
INORG-L01	pH	pH units	A	7.6	7.8	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	470	290	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.09	0.03	-	-
INORG-L13	Chloride	mg.l^{-1}	A	30.8	13.9	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	23.6	3.6	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	9.8	9.6	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	24.0	20.7	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	178	89	-	-
INORG-L25	TON	mg.l^{-1}	N	0.35	0.86	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.1	<0.1	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	<0.02	<0.02	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
METALS-L	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.080	<0.080	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	<1.5	<1.5	-	-
METALS-L	Calcium	mg.l^{-1}	A	91.9	61.1	-	-
METALS-L	Potassium	mg.l^{-1}	A	9.2	4.6	-	-
METALS-L	Magnesium	mg.l^{-1}	A	15.7	6.1	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	24.2	27.6	-	-
METALS-L	Sulphate	mg.l^{-1}	A	67.02	59.89	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	187	178	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	<1.1	<1.1	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	7.7	5.1	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	11.9	8.9	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	4.2	3.3	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	<0.50	-	-

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4030

Report Date
20th October 2020

Results of analysis of 2 samples received
on the 28/08/20

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4030

Report Date
20th October 2020

Results of analysis of 2 samples received
on the 28/08/20

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

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[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

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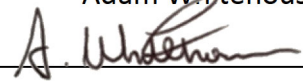
Tel: 01269 844558
Fax: 01269 841867
Email: info@decusuk.co.uk

Certificate of Analysis Number: 4101

Project/Site name:	SI Green	Samples Taken:	29-09-2020
Job Number:	-	Samples Received:	30-09-2020
Order Number:	Signed PAS	Date Instructed:	01-10-2020
Quotation Number:	DS 150606	Analysis Complete:	06-11-2020
Sample Matrix:	Surface Water	Report Issued:	07-17-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4101

Report Date
07th November 2020

Results of analysis of 2 samples received
on the 30/09/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				011020004	011020005	-	-
Client Sample Reference:				CWM S02	CWM S05	-	-
Sample Date:				29/09/20	29/09/20	-	-
Sample Matrix:				Surface Water	Surface Water	-	-
INORG-L01	pH	pH units	A	7.2	7.6	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	645	288	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.04	0.04	-	-
INORG-L13	Chloride	mg.l^{-1}	A	49.6	13.7	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	2.4	<1.5	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	10.2	10.0	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	20.3	9.4	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	284	112	-	-
INORG-L25	TON	mg.l^{-1}	N	0.6	0.4	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.10	<0.10	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	0.05	<0.02	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
1450	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.080	<0.080	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	<1.5	<1.5	-	-
METALS-L	Calcium	mg.l^{-1}	A	86.0	45.3	-	-
METALS-L	Potassium	mg.l^{-1}	A	9.7	2.9	-	-
METALS-L	Magnesium	mg.l^{-1}	A	20.4	4.3	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	315	5.6	-	-
METALS-L	Sulphate	mg.l^{-1}	A	51.4	38.4	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	159	63.4	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	5.7	2.6	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	<4.1	<4.1	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	2.9	9.4	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	1.5	3.7	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	<0.50	-	-

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4101

Results of analysis of 2 samples received
on the 30/09/20

Report Date
07th November 2020

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4101

Results of analysis of 2 samples received
on the 30/09/20

Report Date
07th November 2020

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

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[U/S]: Unsuitable Sample

[A]: Date of Sampling not supplied

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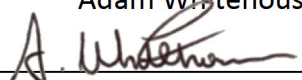
Tel: 01269 844558
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Email: info@decusuk.co.uk

Certificate of Analysis Number: 4174

Project/Site name:	SI Green	Samples Taken:	29-10-2020
Job Number:	-	Samples Received:	29-10-2020
Order Number:	Signed PAS	Date Instructed:	29-10-2020
Quotation Number:	DS 150606	Analysis Complete:	10-11-2020
Sample Matrix:	Surface Water	Report Issued:	12-11-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4174

Results of analysis of 3 samples received
on the 29/10/20

Report Date
12th November 2020

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				301020001	301020001	301020001	-
Client Sample Reference:				CWMS02	CWMS03b	CWMS05	-
Sample Date:				29/10/20	29/10/20	29/10/20	-
Sample Matrix:				Surface Water	Surface Water	Surface Water	-
INORG-L01	pH	pH units	A	7.5	7.4	7.3	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	523	182	229	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.22	0.13	0.18	-
INORG-L13	Chloride	mg.l^{-1}	A	46.9	20.1	23.8	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	18.4	51.2	479	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	9.6	9.8	9.2	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	11.2	8.6	5.3	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	205	73	99	-
INORG-L25	TON	mg.l^{-1}	N	1.1	1.2	0.7	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.1	<0.1	<0.1	-
INORG-L20	Total Phenol	mg.l^{-1}	A	0.04	0.02	<0.02	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	<0.05	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	<0.05	-
METALS-L	Cadmium	$\mu\text{g.l}^{-1}$	S-N	0.083	0.17	<0.080	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	<1.5	6.5	2.7	-
METALS-L	Calcium	mg.l^{-1}	A	74.1	22.1	31.1	-
METALS-L	Potassium	mg.l^{-1}	A	11.0	2.3	2.2	-
METALS-L	Magnesium	mg.l^{-1}	A	13.8	2.5	3.3	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	51.5	30.6	72.9	-
METALS-L	Sulphate	mg.l^{-1}	A	46.6	19.8	27.6	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	203	317	739	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	4.5	33.4	17.0	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	10.3	10.0	15.0	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	10.2	1.9	7.9	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	4.8	26.5	26.2	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	<0.50	<0.50	-

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4174

Results of analysis of 3 samples received
on the 29/10/20

Report Date
12th November 2020

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4174

Results of analysis of 3 samples received
on the 29/10/20

Report Date
12th November 2020

Disposal Times:

All water samples will be retained for a period of two weeks and all soil samples retained for a period of one month following the date of the issued certificate.

All results only relate to the items tested.

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[A]: Date of Sampling not supplied

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> "Greater Than"

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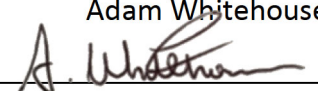
Tel: 01269 844558
Fax: 01269 841867
Email: info@decusuk.co.uk

Certificate of Analysis Number: 4253

Project/Site name:	SI Green	Samples Taken:	30-11-2020
Job Number:	-	Samples Received:	30-11-2020
Order Number:	Signed PAS	Date Instructed:	30-11-2020
Quotation Number:	DS 150606	Analysis Complete:	17-12-2020
Sample Matrix:	Surface Water	Report Issued:	21-12-2020
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4174

Results of analysis of 3 samples received
on the 29/10/20

Report Date
12th November 2020

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				011220001	011220002	-	-
Client Sample Reference:				CWM S02	CWMS05	-	-
Sample Date:				30/11/20	30/11/20	-	-
Sample Matrix:				Surface Water	Surface Water	-	-
INORG-L01	pH	pH units	A	7.3	7.7	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	646	227	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.77	0.04	-	-
INORG-L13	Chloride	mg.l^{-1}	A	54.8	18.4	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	4.8	2.0	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	10.1	10.7	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	24.5	9.2	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	284	93	-	-
INORG-L25	TON	mg.l^{-1}	N	0.1	0.7	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.1	<0.1	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	<0.02	<0.02	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
METALS-L	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.080	<0.080	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	<1.5	<1.5	-	-
METALS-L	Calcium	mg.l^{-1}	A	87.6	34.0	-	-
METALS-L	Potassium	mg.l^{-1}	A	12.6	2.1	-	-
METALS-L	Magnesium	mg.l^{-1}	A	22.0	3.1	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	234	5.2	-	-
METALS-L	Sulphate	mg.l^{-1}	A	52.7	14.7	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	66.4	140	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	<1.1	<1.1	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	<4.1	<4.1	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	1.4	6.4	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	<0.8	2.8	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	<0.50	-	-

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CERTIFICATE OF ANALYSIS 4174

Results of analysis of 3 samples received
on the 29/10/20

Report Date
12th November 2020

Analytical Method	Method Code	Accreditation Status
Determination of pH in waters by electrode probe meter (In-house method)	INORG-L01	ISO 17025
Determination of Suspended Solids in water by gravimetric analysis dried at 105°C (In-house method)	INORG-L10	ISO 17025
Determination of Ammonia in water by colorimetric analysis (In-house method)	INORG-L12	ISO 17025
Determination of chloride in water by colorimetric analysis (In-house method)	INORG-L13	ISO 17025
Determination of metals in water by ICP-OES (In-house method)	METALS-L	ISO 17025
Determination of metals in water by ICP-MS (Sub-contracted method)	1450	None
Determination of TON by summation of Nitrate and Nitrite (In-house method)	INORG-L25	None
Determination of Alkalinity in water by colorimetric analysis (In-house method)	INORG-L09	ISO 17025
Determination of total organic carbon in water by colorimetric analysis (In-house method)	INORG-L18	ISO 17025
Determination of Dissolved Oxygen in water by titration (In-house method)	INORG-L08	ISO 17025
Determination of Conductivity in water by potentiometric probe meter (In-house method)	INORG-L02	ISO 17025
Determination of naphthalene in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Pentachlorophenol in water by GC-MS (Sub-contracted method)	ORG-L02	ISO 17025
Determination of Cyanide in water by colorimetric analysis (In-house method)	INORG-L31	None
Determination of total phenol in water by colorimetric analysis (In-house method)	INORG-L20	ISO 17025

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CERTIFICATE OF ANALYSIS 4174

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on the 29/10/20

Report Date
12th November 2020

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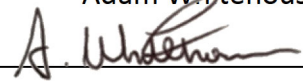
Tel: 01269 844558
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Email: info@decusuk.co.uk

Certificate of Analysis Number: 4308

Project/Site name:	SI Green	Samples Taken:	31-12-2020
Job Number:	-	Samples Received:	31-12-2020
Order Number:	Signed PAS	Date Instructed:	31-12-2020
Quotation Number:	DS 150606	Analysis Complete:	25-01-2021
Sample Matrix:	Surface Water	Report Issued:	25-01-2021
		Sampled By:	Client

Amendment Records:

None

Approved by: Adam Whitehouse
Signature: 
Title: Laboratory Manager



Client: SI Green
FAO: B. Jones

CERTIFICATE OF ANALYSIS 4308

Report Date
25th January 2021

Results of analysis of 2 samples received
on the 31/12/20

Code	Determinand	Units	*	Sample Identification			
Laboratory Sample Number:				040121001	040121002	-	-
Client Sample Reference:				CWM S02	CWMS05	-	-
Sample Date:				31/12/20	31/12/20	-	-
Sample Matrix:				Surface Water	Surface Water	-	-
INORG-L01	pH	pH units	A	7.2	7.6	-	-
INORG-L02	Conductivity	$\mu\text{S.cm}^{-1}$	A	566	213	-	-
INORG-L12	Ammonia	$\text{mg.l}^{-1} \text{NH}_4$	A	0.42	0.06	-	-
INORG-L13	Chloride	mg.l^{-1}	A	40.7	21.7	-	-
INORG-L10	Suspended Solids	mg.l^{-1}	A	8.0	8.4	-	-
INORG-L08	Dissolved Oxygen	$\text{mg.l}^{-1} \text{O}_2$	A	8.7	10.1	-	-
INORG-L18	Total Organic Carbon	$\text{mg.l}^{-1} \text{C}$	A	14.6	73.5	-	-
INORG-L09	Alkalinity	$\text{mg.l}^{-1} \text{HCO}_3$	A	273	77.3	-	-
INORG-L25	TON	mg.l^{-1}	N	0.67	2.1	-	-
INORG-L31	Total Cyanide	mg.l^{-1}	N	<0.05	<0.05	-	-
INORG-L20	Total Phenol	mg.l^{-1}	A	0.02	0.02	-	-
ORG-L02	Naphthalene	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
ORG-L02	Pentachlorophenol	$\mu\text{g.l}^{-1}$	A	<0.05	<0.05	-	-
METALS-L	Cadmium	$\mu\text{g.l}^{-1}$	S-N	<0.080	<0.080	-	-
METALS-L	Nickel	$\mu\text{g.l}^{-1}$	A	1.5	2.4	-	-
METALS-L	Calcium	mg.l^{-1}	A	87.7	33.4	-	-
METALS-L	Potassium	mg.l^{-1}	A	12.1	2.0	-	-
METALS-L	Magnesium	mg.l^{-1}	A	18.7	2.6	-	-
METALS-L	Manganese	$\mu\text{g.l}^{-1}$	A	172	19.4	-	-
METALS-L	Sulphate	mg.l^{-1}	A	61.3	17.0	-	-
METALS-L	Iron	$\mu\text{g.l}^{-1}$	A	48.3	93.6	-	-
METALS-L	Zinc	$\mu\text{g.l}^{-1}$	A	38.6	8.1	-	-
METALS-L	Lead	$\mu\text{g.l}^{-1}$	A	<4.1	5.0	-	-
METALS-L	Chromium	$\mu\text{g.l}^{-1}$	A	2.1	4.7	-	-
METALS-L	Copper	$\mu\text{g.l}^{-1}$	A	<0.8	2.2	-	-
1450	Mercury	$\mu\text{g.l}^{-1}$	S-N	<0.50	<0.50	-	-

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