



REPORT

Sandsfield Gravel Company Ltd

Surface Water Management and Monitoring Plan - Milegate Eastern Extension Landfill

Submitted to:

Sandsfield Gravel Company Ltd

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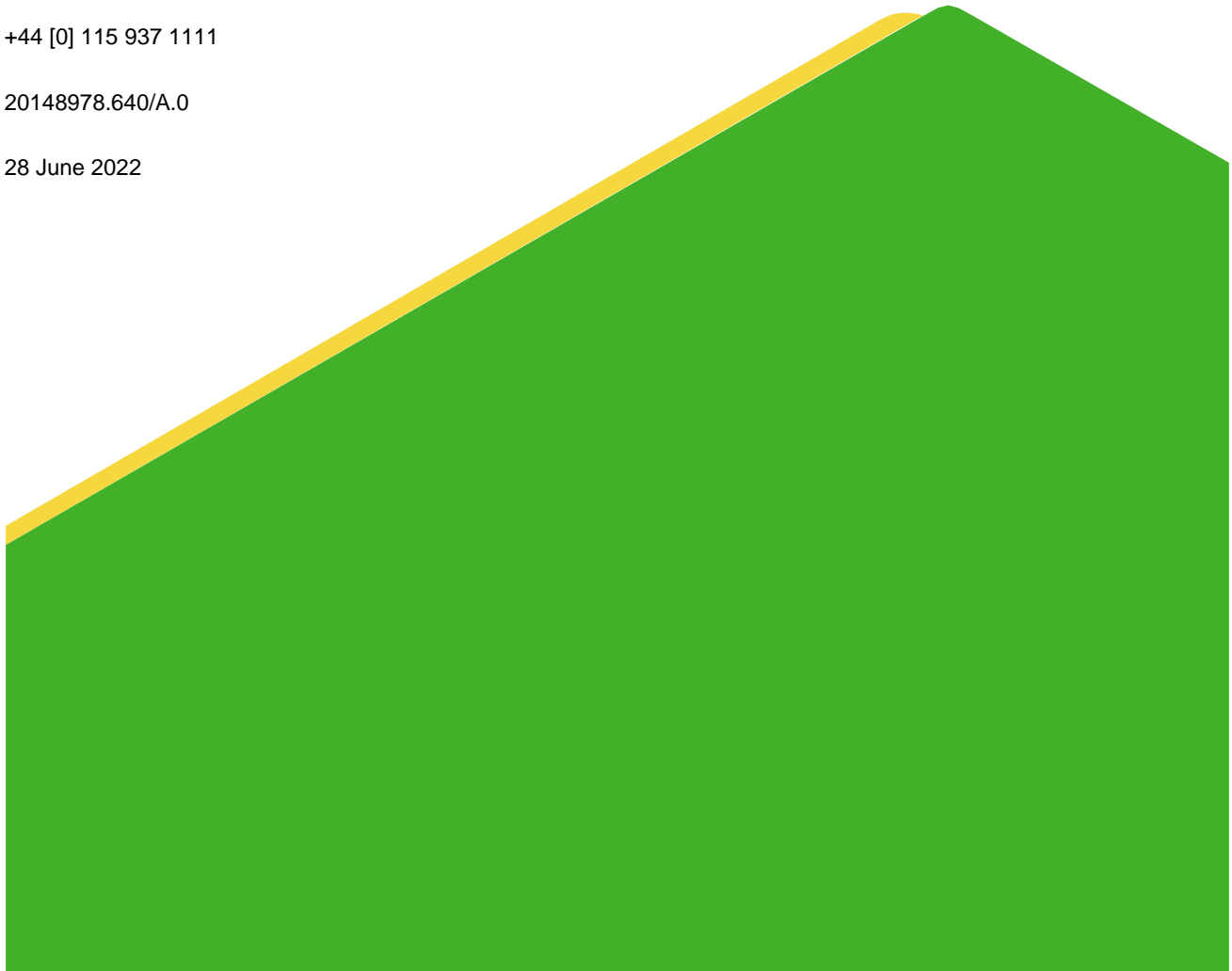
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Distribution List

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Environment Agency -1 copy (pdf)

Golder Associates (UK) Ltd - 1 copy (pdf)

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1.0 REPORT CONTEXT

Sandsfield Gravel Company Ltd ('Sandsfield') has requested Golder Associates (UK) Ltd ('Golder') develops a Surface Water Management and Monitoring Plan at Milegate Extension Landfill Site ('Milegate Extension Landfill') and its planned extension to the east ('Eastern Extension') collectively referred to as the 'Site'. A location plan for the Site is provided in **Drawing ESID1 - Site Location Plan**. The Milegate Extension Landfill is operated by Sandsfield under Environmental Permit (EP) BX1942IX issued on 3 March 2006 which was subsequently varied several times with the most recent variation notice EPR/BX1942IX/V003 dated 17 February 2020 (the 'Permit').

2.0 SURFACE WATER MANAGEMENT

The landform slopes in the final restoration have been designed to shed surface water to the perimeter of the Site and towards the Milldam Beck and the Moor Main Drain. Perimeter surface water drainage ditches will be installed progressively at the site and will be unlined where constructed into virgin ground. Surface water contained in the ditches will infiltrate directly into the underlying sand and gravel and flow towards the Milldam Beck and the Moor Main Drain.

3.0 SURFACE WATER MONITORING

3.1 Monitoring Locations

The surface water monitoring locations are shown on **Drawing HRA1 – Monitoring and Extraction Point Plan**. Surface water has been sampled immediately upstream and downstream of the site at SW1 and SW2, accordingly, and at the surface water settlement pond, SW3. Upon expansion of the Site to the east, SW1 will no longer be located upstream of the site and as such will subsequently be monitored as a downstream monitoring point along with SW2. Two new monitoring points will be established on Milldam Beck (SW5) and on Moor Main Drain (SW4).

3.2 Surface Water Quality Monitoring

The surface water monitoring programme has been updated to include the Eastern Extension. Monitoring will continue in accordance with Table S3.10 of the Permit. The monitoring programme is reproduced in Table SWMP1.

Table SWMP1: Updated Surface Water Monitoring Programme

Table S3.10 Surface water – other monitoring requirements				
Monitoring point Ref./Description	Parameter	Monitoring Frequency	Monitoring Standard or Method	Other specifications
MEPP	Ammoniacal nitrogen Chloride Suspended Solids Visual Oil and Grease pH electrical conductivity BOD	Monthly	Spot sample	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency

Samples of leachate discharges to sewer are also to be obtained. Sample frequencies and analytical determinands are not specified in the Permit but are specified in the Trade Effluent Discharge Consent granted by Yorkshire Water Services Limited.

3.3 Surface Water Quality Emissions Limits

Table SWMP2 shows the emission limits that are proposed for the varied Permit. SW4 and SW5 do not require emission limits as they are located upgradient.

Table SWMP2: Updated Emissions Limits

Table S3.3 Point source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point Ref. & Location	Parameter	Source	Limit (incl. unit)	Reference Period	Monitoring Frequency	Monitoring Standard or Method
SW2 – Milldam Beck	BOD	Surface water	20 mg/l*	Spot sample	Monthly	As specified in Environment Agency Guidance TGN02 'Monitoring of Landfill Leachate, Groundwater and Surface Water' (February 2003), risk assessments for your environmental permit (www.gov.uk) or such other subsequent guidance as may be agreed in writing with the Environment Agency
	pH		<9 >6			
	Chloride		250 mg/l			
	Ammoniacal Nitrogen		1.0 mg/l*			
	Suspended solids		50 mg/l*			
SW3 – Surface Water Settlement Pond	BOD		20 mg/l			
	pH		<9 >6			
	Chloride		250 mg/l			
	Ammoniacal Nitrogen		5.4 mg/l			
	Suspended solids		125 mg/l			
SW1 – Milldam Beck As identified on the MEPP	BOD		20 mg/l*			
	pH		<9 >6			
	Chloride		250 mg/l			
	Ammoniacal Nitrogen		1.0 mg/l*			
	Suspended solids		50 mg/l*			

* Emission limits for BOD, ammoniacal nitrogen and suspended solids are applicable only where concentrations at SW1 and SW2 exceed those concentrations within SW4 and SW5 – as identified on the MEPP.

4.0 SURFACE WATER ACTION PLAN

If surface water emission limits are exceeded the action plan described in Table SWMP3 shall be undertaken.

Table SWMP3: Action Plan in the Event of a Breach Surface Water Emission Limit

Contingency Action	Emission Limit
Advise site management, environmental manager of landfill operating company and EA.	✓
All surface water monitoring points should be resampled within two weeks of the breach to confirm the measurement. If repeat analysis confirms breach, then review existing leachate level and quality, and surface water quality monitoring information. Data will be reviewed by use of statistics and graphical presentation to establish the presence of any trends or patterns. If review of existing monitoring data indicates an increasing trend, review site management and operations, and implement actions such as leachate pumping to reduce level to prevent a future breach. Continue monitoring monthly until concentration reduces to below the emission limit.	✓
The assumptions incorporated into the conceptual site model will be reviewed, along with the existing risk assessment, and emission limits. If the laboratory results from the monthly monitoring show no indications of decline over the four-month period, and the evidence indicates that the site is the most likely cause of the increase in levels, then the proposals for the implementation of mitigation measures shall be submitted to the EA, and emission limits for surface water quality should be set.	✓

The Site Manager (or his deputy) conduct a detailed visual assessment of the operational and restored areas, including inspection of:

- Waste placement operations, areas of recently deposited waste;
- Any three stage oil interceptors and silt traps;
- Any signs of damage to the containment system of the landfill;
- Any signs of leachate break-out from restored areas;
- Any deposit, litter or unusual matter in the stream;
- Any unusual activity or occurrence on the site that could account for the increase in the parameter exceeding the emission limit; and
- Any unusual activity or occurrence (including agricultural activity) in areas adjacent to the site including the other side of the stream that could account for the increase in the parameter exceeding the emission limit.

The results of the inspection are included in the site diary and address all the above points by way of a checklist. All on-site defects identified by the inspection are repaired as soon as possible and, in any case, where possible, within one week of the inspection. All defects are notified to the Environment Agency (EA) together with a description of all repairs to defects or changes to operational or management procedures.

5.0 QUALITY ASSURANCE OF MONITORING AND SAMPLING

5.1 Monitoring Personnel

Sampling is undertaken by staff appropriately trained in environmental monitoring procedures, and who are familiar with the equipment and its limitations. Sandsfield ensures that the personnel engaged in monitoring activities are trained to undertake the task. These comprise the company's own technical personnel, the Landfill Manager or nominated deputy, following appropriate training by technical personnel. All monitoring staff undergo a period of job training and in addition external courses are used to supplement internal training. Results are validated by the sampling personnel detailed above.

5.2 Monitoring procedures

Surface water is sampled using a bailer and the following procedure is adhered to:

- Prior to use, the Teflon bailer is rinsed with deionised/distilled water;
- Bailers used for surface water monitoring are not to be used for leachate sampling to eliminate the risk of cross contamination from leachate;
- The bottom filling bailer is then lowered into the surface water and allowed to fill; and
- The first sample retrieved is discarded, having been used to rinse the bailer.

All samples are unfiltered but are filtered at the laboratory prior to analysis. Samples are collected in bottles, containing preservatives where required, supplied by the laboratory, and appropriate to the analysis to be undertaken. Bottles are normally one litre PET, filled to exclude all air, and fitted with an airtight PTFE cap.

All samples taken are labelled with the time and date of sampling, sampling locations and any other relevant information. Alternatively bar-coded sample bottles are used which detail in bar coded form the above information and additionally details of analysis required.

All samples are delivered to the analytical laboratory within 24 hours of sampling, using refrigerated courier vehicles supplied by the laboratory. Analyses are undertaken by a laboratory under UKAS accreditation (equivalent to EN45001). Because of the large batches of samples that are processed by laboratories, the QA/QC checks implemented are efficient in identifying any quality control analytical failures. Accordingly, it is not proposed to submit additional QC samples (sampling duplicates, field standards, or field blanks) from the site.

The range of determinands detailed above includes an ionic balance for all samples taken for the full range of determinands at annual intervals. Samples which attain an ionic balance within $\pm 15\%$ will be deemed satisfactory. Where the ionic balance falls outside this range, the laboratory will be requested to repeat the analysis or to investigate the results provided for errors.

6.0 MAKING AND SUBMISSION OF RECORDS

Records are kept on-site of determinands and sampling points analysed, date of sampling, sampler, results, units and any repeat analysis or laboratory comment, or internal assessment, on the validity of the results.

A copy of the results of sampling and analysis of surface water is forwarded to the EA in accordance with the Permit, along with details of any parameters which have been identified as being in excess of emission limits.

An annual report will be provided to the EA by 31st January each year (or other date agreed in writing by the EA) in accordance with Environmental Permit BX19421X Condition 4.2.2, detailing a review of the environmental monitoring results obtained from the Site during the previous year. This review includes an interpretation of the accuracy and validity of results of monitoring along with an interpretation of the trend of the results against emission limits.

Signature Page

Golder Associates (UK) Ltd



Aniela Adamus
Hydrogeologist



Nicola White
Project Manager

Date: 28 June 2022

AA/DD/NW/ab

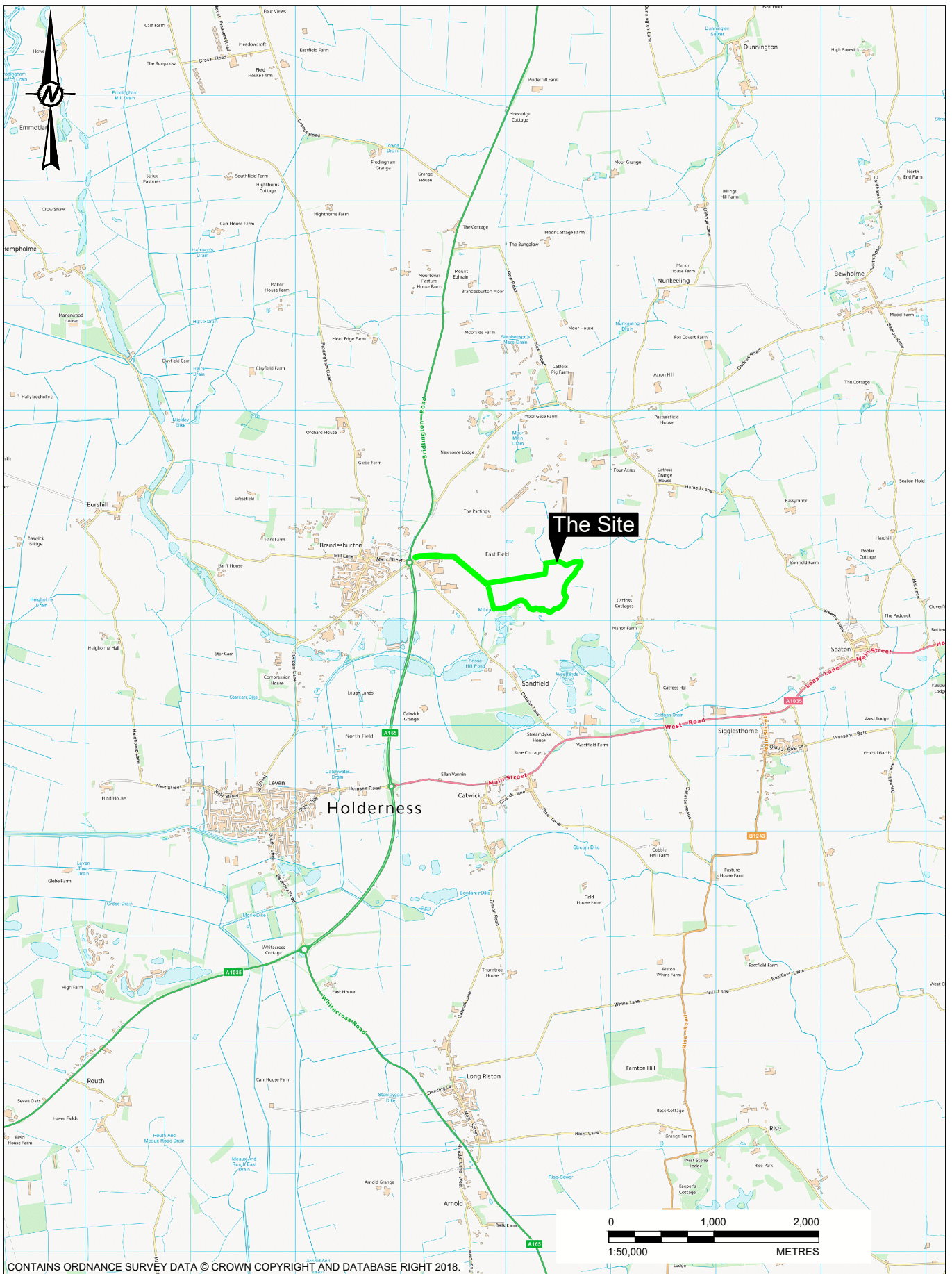
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At WSP House, 70 Chancery Lane, London, WC2A 1AF
VAT No. 905054942

DRAWINGS

ESID1 - Site Location Plan

HRA1 - Monitoring and Extraction Point Plan

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CLIENT
SANDSFIELD GRAVEL COMPANY LTD

PROJECT
EASTERN EXTENSION PERMIT VARIATION APPLICATION

CONSULTANT



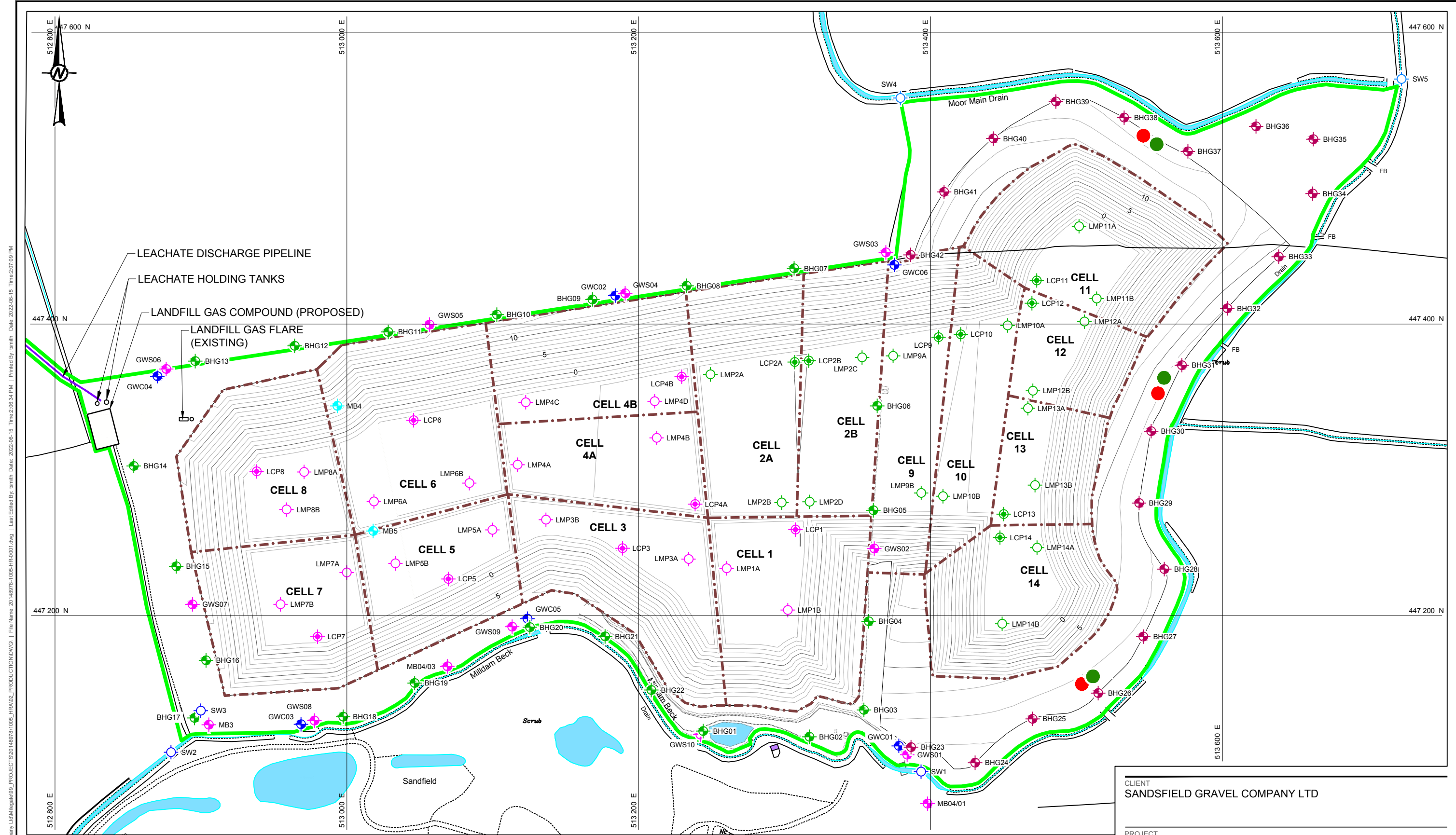
YYYY-MM-DD 2021-10-14
DESIGNED AA
PREPARED ECS
REVIEWED DD
APPROVED DD

TITLE
SITE LOCATION PLAN

PROJECT NO. 20148978 CONTROL 1002-PA-0001 REV. A DRAWING ESID1

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM ISO A4

25 mm



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LEGEND

- PERMIT BOUNDARY
- - - - CELL BOUNDARY
- CLAY LINER CONTOUR
- ◆ EXISTING SURFACE WATER MONITORING BOREHOLE - DEEP
- ◆ EXISTING SURFACE WATER MONITORING BOREHOLE - SHALLOW
- ◆ EXISTING GROUNDWATER MONITORING BOREHOLE
- EXISTING SURFACE WATER MONITORING POINT
- PROPOSED SURFACE WATER MONITORING POINT
- PROPOSED SAND AND GRAVEL MONITORING BOREHOLE
- PROPOSED CHALK MONITORING BOREHOLE
- EXISTING PERIMETER GAS MONITORING WELL
- PROPOSED PERIMETER GAS MONITORING WELL
- EXISTING LEACHATE EXTRACTION WELL
- EXISTING LEACHATE MONITORING WELL
- PROPOSED LEACHATE EXTRACTION WELL
- PROPOSED LEACHATE MONITORING WELL

NOTES

1. ALL LEVELS RELATIVE TO NEWLYN ORDNANCE DATUM.
2. GENERALISED LAYOUT OF EXISTING INFRASTRUCTURE SHOWN.

REFERENCE(S)

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CLIENT
SANDSFIELD GRAVEL COMPANY LTD

PROJECT
EASTERN EXTENSION PERMIT VARIATION APPLICATION

TITLE
MONITORING AND EXTRACTION POINT PLAN

CONSULTANT	YYYY-MM-DD	2022-06-15
wsp GOLDER	DESIGNED	AA
	PREPARED	ECS
	REVIEWED	AA
	APPROVED	CM

PROJECT NO. 20148978 CONTROL 1005-HR-001 REV. B DRAWING HRA1

25 mm IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ISO A3



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