Weaverthorpe Wellsite

Surface Water Management Plan

Environmental Permitting (England and Wales) Regulations 2016

- **Application for a Bespoke Mining Waste Operation with Flare**
- **Application for a Bespoke Installation**

ISSUE No.	Description
250530	Draft for Client Review
250814	Initial issue for an application for a Mining Waste Operation with Flare >10 Tonnes per day
251029	Revised to include Soakaway NGR

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1. PURPOSE AND CONTEXT

This Surface Water Management Plan forms part of an application to the Environment Agency to authorise the undertaking of specific 'permitted activities' at the proposed Weaverthorpe Wellsite (herein referred to as the 'Wellsite'). In the context of onshore oil and gas operations, a number of activities are considered applicable to the environmental permitting regime.

The Wellsite within which the 'permitted activities' are undertaken is considered a 'regulated facility' under The Environmental Permitting (England and Wales) Regulations 2016, as amended (EPR2016) [Ref.1]. Throughout the life of the Wellsite, this Surface Water Management Plan shall be considered a live 'operating technique' and must be complied with as it forms part of the environmental permit.

The purpose of the Surface Water Management Plan is to set out the operations proposed to be conducted at the Wellsite for the management of surface water within the Wellsite.

Egdon Resources U.K. Limited is the 'Operator' as defined under EPR2016 and shall herein be referred to as the Operator within this Surface Water Management Plan.

The Operator is proposing to construct a wellsite ~850m to the east of the village of Foxholes located within the administrative boundary of North Yorkshire Council and within Foxholes with Butterwick parish. The boundary with the East Riding of Yorkshire lies approximately 350m to the east.

The Wellsite is located ~2 Km to the west of Wold Newton, ~15 Km south of Scarborough and ~16 Km northwest of Bridlington.

The Wellsite will be constructed to accommodate the drilling of an exploratory borehole to evaluate the potential for natural gas accumulations within the Sherwood Sandstone target formation.

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2. SCOPE

This Surface Water Management Plan is applicable to the Weaverthorpe Wellsite and all operations conducted therein. It is applicable to the Operator, its contractors and subcontractors and can be used to support an application to the Environment Agency for an environmental permit under EPR2016, where there is a requirement to provide a Surface Water Management Plan.

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3. Abbreviations and Definitions

~:	Approximately
c400m:	Circa 400m
CQA:	Construction Quality Assurance
EPR2016:	The Environmental Permitting (England and Wales) Regulations 2016, as amended
Groundwater Activity:	Has the meaning given within Regulation 2 of EPR2016
ha:	Hectare – A unit of square measurement equal to 10,000 square metres
Km:	Kilometre – A unit of measurement of length equal to one thousand metres
m:	Metre – A unit of measurement of length equal to one hundred centimetres
Mining Waste Operation:	Has the meaning given within Regulation 2 of EPR2016
NSTA:	North Sea Transition Authority
NGR:	National Grid Reference
Operating Technique:	Documents approved by the regulator to ensure compliance with the issued permit
Operator:	Has the meaning given within Regulation 7 of EPR2016
Permitted Activities:	Any activity or operation defined within Schedule 1 to 29 of EPR2016
Regulated Facility:	Has the meaning given within Regulation 8 of EPR2016
UK:	United Kingdom
Water Discharge Activity:	Has the meaning given within Regulation 2 of EPR2016

Table 1: Abbreviations and Definitions

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4. REGULATED FACILITY

The 'regulated facility' is located in the countryside in the county of North Yorkshire. It is centred on National Grid Reference (NGR) TA 02308 73142 and is located at the following address.

Weaverthorpe Wellsite

Land North of Butt Lane

Foxholes

North Yorkshire

YO25 3HY

Figure 1: Weaverthorpe Wellsite – Current (Source: Google Earth 17/12/2024)

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5. Environmental Permitting (England and Wales) Regulations 2016

5.1 Permitted Activities

The Wellsite has yet to be constructed and does not currently hold an environmental permit. No permitted activities are authorised under EPR2016.

5.2 Current Operational Status (Pre-Application)

The Wellsite is located on agricultural land to the north of Butt Lane, near Foxholes, and is currently used for growing a potato crop.

The Wellsite is located ~850m to the east of the village of Foxholes, ~2 Km to the west of Wold Newton, ~15 Km south of Scarborough and ~16 Km northwest of Bridlington and covers an area of approximately 1.3 ha including the access track.

The Wellsite is located within the administrative boundary of North Yorkshire Council and within Foxholes with Butterwick parish.

The closest residential receptors are:

- West Field House – 570m; and
- Foxholes – 870m.

The proposal is to construct a temporary Wellsite within an enclosed and secure compound to drill an exploratory borehole. Should natural gas be encountered as predicated, the drilling rig will be demobilised from the Wellsite and the intention is then to undertake a short term well test. If natural gas is not encountered during the drilling phase, the exploratory borehole will be decommissioned (abandoned) in accordance with industry guidance. The Wellsite will then be restored to its former condition.

5.3 Proposed Development

The Operator is proposing to undertake four (4) phases of development as illustrated within Table 2.

Phase	Description	Approximate Timescale
Phase 1	**Construction of Site Access and the Wellsite** a) Access track civils from Butt Lane; construct access track along field boundary b) Install water monitoring boreholes c) Earthworks on well pad; install fencing and gates d) Create perimeter containment system e) Install liner/tertiary containment f) Construct well cellar g) Install temporary matting as usable surface platform	5 weeks
Phase 2	**Drilling of the Weaverthorpe-1 Well.** a) Set conductor b) Mobilise rig and services c) Drill Weaverthorpe-1 well d) Log well to evaluate reservoir e) Rig down equipment and release drilling rig	8 weeks

Phase	Description	Approximate Timescale
Phase 3	**Testing – Dependent on the outcome of Phase 2** a) Mobilise test spread b) 5–7 days operational well test (short term well test), with shut-in periods to gather downhole data c) Gas management via approved ground flare system d) Suspend well to evaluate results e) Remove equipment and facilities	4 weeks
Phase 4a	**Site Suspension** a) Success case (proven gas from test evaluation): with well suspended, reduce site area size, remove temporary matting, install aggregate to create smaller working platform b) Install a surface water interceptor to manage clean surface water run-off	4 weeks
Phase 4b	**Site Restoration** a) Failure case (no gas encountered during drilling, or insufficient gas following test evaluation): plug wellbore with cement plugs to surface, cut conductor below ground level and remove well cellar, remove matting and liner, backfill perimeter ditches and restore site to agricultural land	6 weeks

Table 2: Phases of Development

Phase 1 – Wellsite Construction

Construction of the Wellsite will be undertaken during Phase 1 and will include the construction of an access and working site area with a well cellar, perimeter containment ditch and tertiary containment system.

The perimeter containment ditch system will be installed to facilitate easy reduction in site area in the testing success case. The design and installation of the well cellar, together with the design of the tertiary containment system will be subject to review and verification by the Environment Agency, and installed under a Construction Quality Assurance (CQA) Plan.

Groundwater monitoring boreholes will be installed at the onset of this phase.

The tertiary containment system and perimeter containment ditch ensures that any accidental spillages that may occur during the subsequent phases of operation are contained within the Wellsite.

Security fencing will be installed.

Phase 2 – Drilling Operation

The second phase of the development will include the drilling of an exploratory borehole (Weaverthorpe-1 Well). Following mobilisation of the drilling rig to the site, the Weaverthorpe-1 Well will be drilled including a c400m deviated section in a north-westerly direction.

If drilling results are positive then the Weaverthorpe-1 Well will be cased and completed for testing as set out in Phase 4a. If not, then operations will move to abandonment and restoration as detailed in Phase 4b.

Phase 3 – Well Testing

The third phase of the development will include testing of the Weaverthorpe-1 Well. Following demobilisation of the drilling rig, a well test spread will be mobilised to site and will include a Shrouded Ground Flare, a 3-phase separator, waste storage tanks, a slick line unit and a coiled tubing unit.

The test will follow a standard short-term well test permitted under the well test regulations provided by the North Sea Transition Authority (NSTA). This will limit flare activity to a maximum of 96 hours over the full test period. Following the testing period, the Weaverthorpe-1 Well will be suspended to evaluate the results.

Phase 4a – Site Suspension

In a success case, the Weaverthorpe-1 Well will remain suspended and the well head and well cellar left in place, whilst regulatory approvals for production are progressed, developed and submitted.

The temporary matting will be removed, and the site working platform reduced; aggregate will be brought in to facilitate this. A surface water interceptor will be installed during this phase to manage clean surface waters.

The Wellsite will be maintained on a care and maintenance basis until such point as all regulatory approvals for production are progressed or if such approvals are not forthcoming then operations will move to abandonment and restoration as detailed in phase 4b.

Phase 4b – Site Restoration

In a failure case following testing (or failure to gain regulatory approvals as per phase 4a above) the well will be fully abandoned by setting cement plugs in the casing to surface, cutting the conductor below ground level and capping the casing with a welded plate. The well cellar will be removed, as will the perimeter/tertiary containment systems, groundwater borehole systems and the temporary matting (or aggregate). The site will be restored to its original land condition and contours.

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6. ENVIRONMENTAL SETTING

The Wellsite is located on agricultural land to the north of Butt Lane, near Foxholes, and is currently used for growing a potato crop.

The Wellsite is located ~850m to the east of the village of Foxholes, ~2 Km to the west of Wold Newton, ~15 Km south of Scarborough and ~16 Km northwest of Bridlington and covers an area of approximately 1.3 ha including the access track.

The Wellsite is located within the administrative boundary of North Yorkshire Council and within Foxholes with Butterwick parish.

The closest residential receptors are:

- West Field House – 570m; and
- Foxholes – 870m.

The proposal is to construct a temporary Wellsite within an enclosed and secure compound to drill an exploratory borehole. Should natural gas be encountered as predicated, the drilling rig will be demobilised from the Wellsite and the intention is then to undertake a short term well test. If natural gas is not encountered during the drilling phase, the exploratory borehole will be decommissioned (abandoned) in accordance with industry guidance. The Wellsite will then be restored to its former condition.

Details of receptors identified within 2 Km and 10 Km of the Wellsite are provided within Receptors (14 – Receptors) provided in support of the environmental permit application.

6.1 Flood Zone Setting

An assessment of the flood risks has been undertaken and documented within the Hydrogeological Risk Assessment (HRA) undertaken the Operator's Hydrogeological Consultant.

The Wellsite is situated on the southern flank of a hill which rises to ~125 mAOD around 1.2 km to the north of the Wellsite in the location of the dry valley feature associated with 'West Dale' at Gantondale.

The Wellsite elevation is from 79 mAOD along the northern boundary to 72 mAOD on the southern boundary, with the elevation decreasing to ~53 mAOD at the southern extent of the Wellsite access track.

The Wellsite is located within a Flood Zone 1 (i.e. a very low likelihood of flooding), although immediately to the south of the access road entrance from Butt Lane and some 12 m topographically lower than the Wellsite itself there is the Gypsey Race, a small Chalk stream, where the race and surrounding valley bottom area are designated as being within Flood Zone 2 / Flood Zone 3.

6.1.1 Risk of Flooding from the Rivers and Sea

A map of the Environment Agency's Risk of Flooding from Rivers and Seas is provided in Figure 2.

The Wellsite is situated entirely within Flood Zone 1 and is therefore at a 'Very Low' risk of flooding from rivers and sea. There is an area of elevated fluvial flood risk on the far side of Butt Lane, associated with the Gypsey Race watercourse.

Neither the NYC Strategic Flood Risk Assessment (SFRA) (NYC, 2016) nor the Environment Agency's database of historical flooding contains any evidence of fluvial flooding having occurred in this area or its vicinity.

The Environment Agency's definitions of each Flood Zone are provided in Table 2.

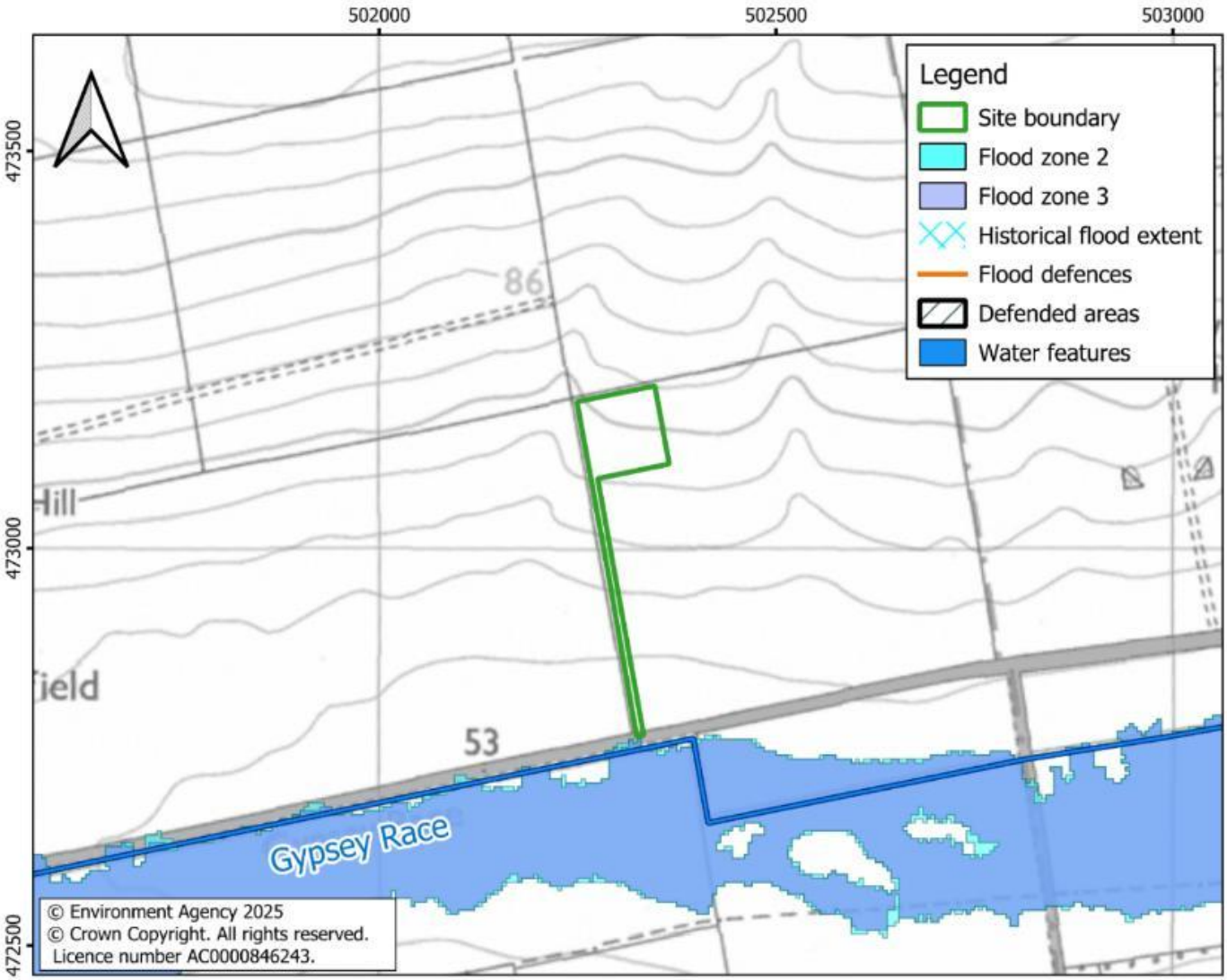

Figure 2: Flood Risk from Rivers and Seas

Flood Zone	Definition
Zone 1 Low Probability	Land having a less than 1 in 1,000 annual probability of river or sea flooding. (Shown as 'clear' on the Flood Map – all land outside Zones 2 and 3).
Zone 2 Medium Probability	Land having between a 1 in 100 and 1 in 1,000 annual probability of river flooding; or land having between a 1 in 200 and 1 in 1,000 annual probability of sea flooding. (Land shown in light blue on the Flood Map).
Zone 3a High Probability	Land having a 1 in 100 or greater annual probability of river flooding; or Land having a 1 in 200 or greater annual probability of sea flooding.(Land shown in dark blue on the Flood Map).
Zone 3b The Functional Floodplain	This zone comprises land where water has to flow or be stored in times of flood. Local planning authorities should identify in their Strategic Flood Risk Assessments areas of functional floodplain and its boundaries accordingly, in agreement with the Environment Agency.

Table 3: Environment Agency Flood Zone Definitions

6.1.2 Risk of Flooding from Surface Water

A map of the Environment Agency's Risk of Flooding from Rivers and Seas is provided in Figure 3.

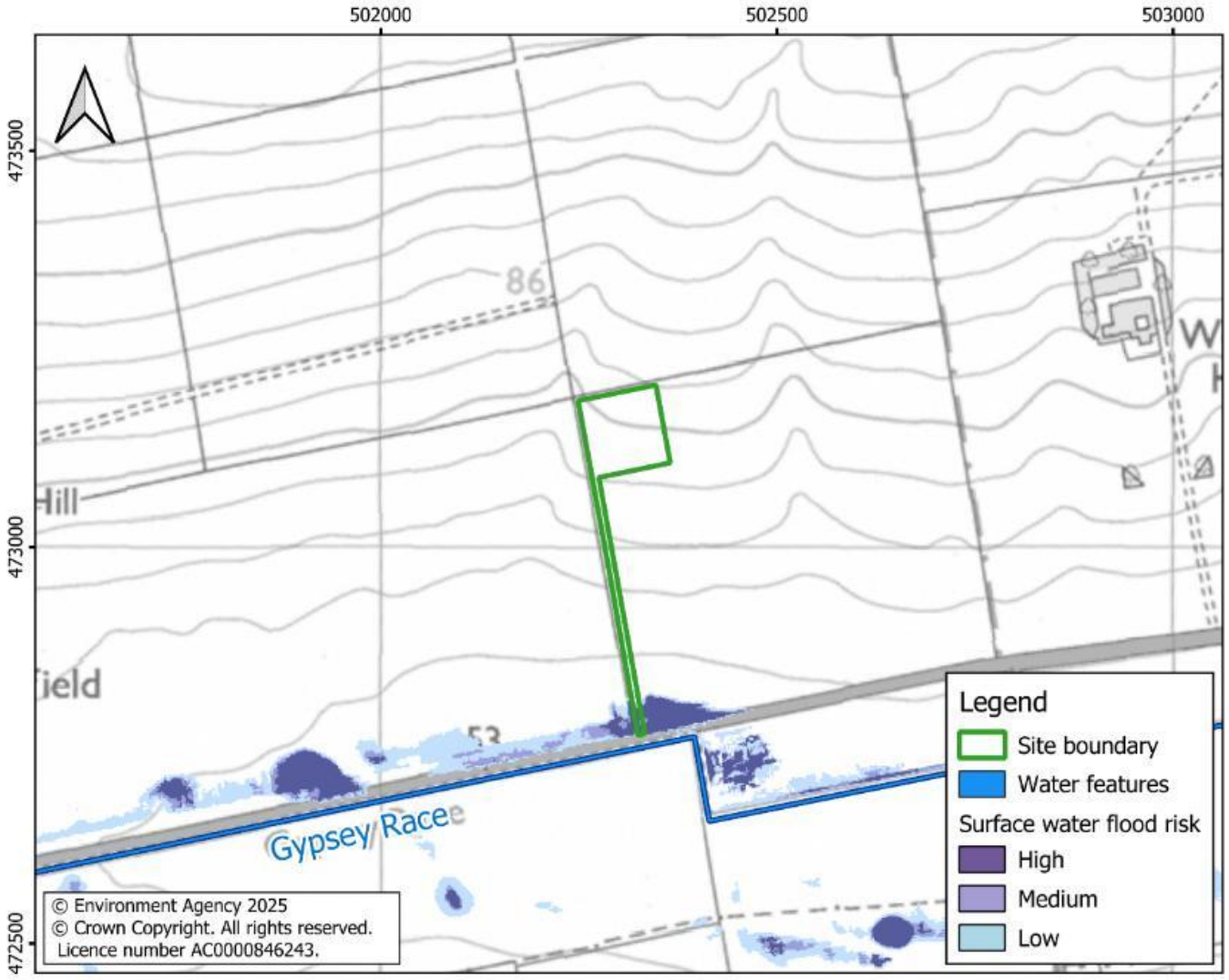

Figure 3: Flood Risk from Surface Water (with Climate Change Allowance)

The risk of surface water flooding reaching or exceeding a depth of 0.3 m is shown in Figure 4. This data includes the 'Central' climate change allowance for the 2050s epoch (2040-2060). The Environment Agency classifies the risk from surface water flooding using the following four categories:

- High – Greater than a 3.3% probability of occurrence in any given year;
- Medium – Between a 1%-3.3% probability of occurrence in any given year;
- Low – Between a 0.1%-1% probability of occurrence in any given year; and
- Very Low – Less than a 0.1% probability of occurrence in any given year.

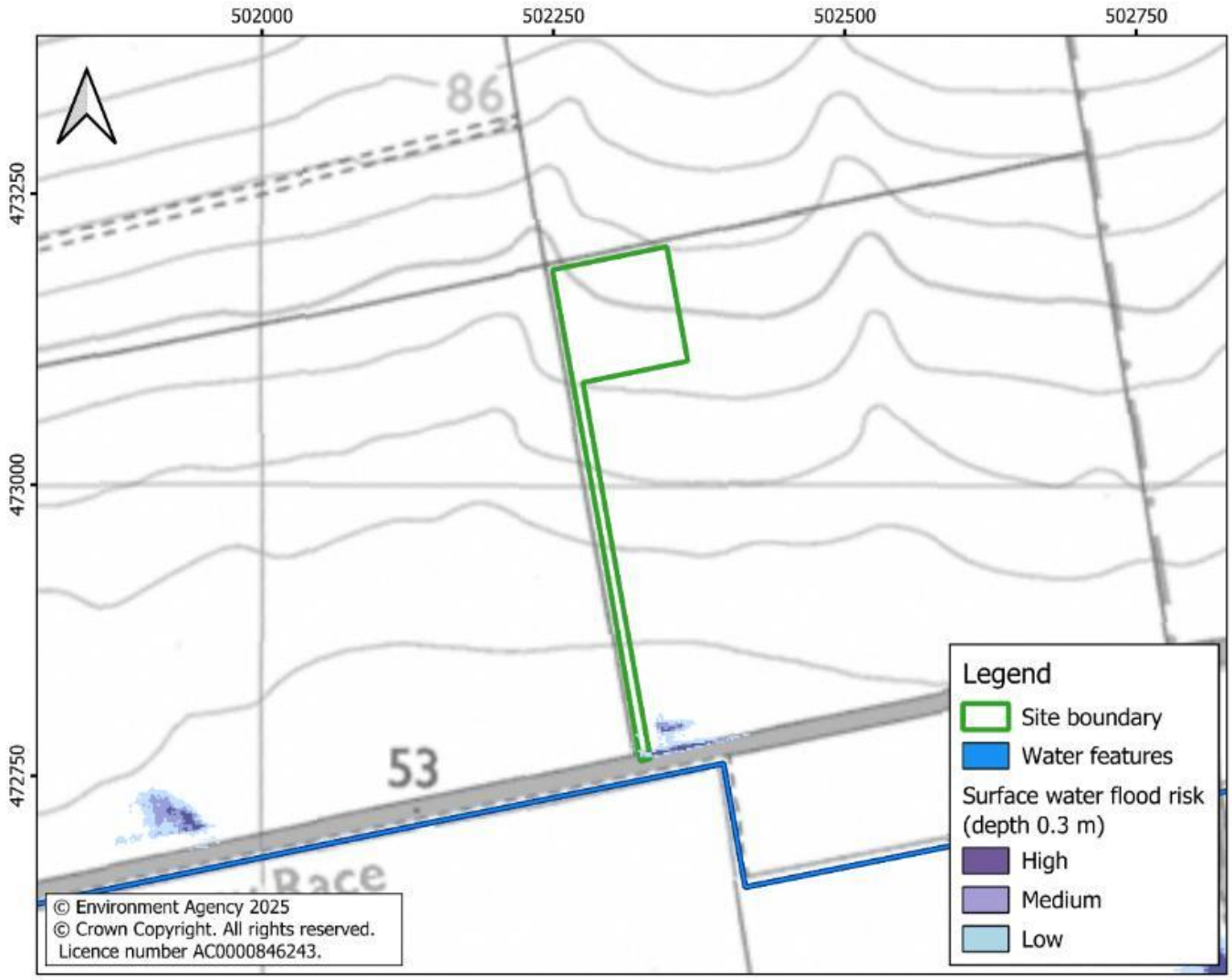

Figure 4: Surface Water Flood Depth Risk (0.3 m; with Climate Change Allowance)

Most of the Wellsite, including all of the working area at the northern section of the Wellsite, has a 'Very Low' risk of surface water flooding. The only exception is a small area where the access road joins Butt Lane, which has a 'High' surface water flood risk, with a 'Low' risk of reaching or exceeding flood depths of 0.3 m. A depth of <0.30 m is unlikely to present a significant hazard to site staff, and will be the same risk as road users on Butt Lane.

The SFRA (NYC, 2016) does not confirm the locations of Critical Drainage Areas (CDA). However, given the Wellsite's topographically elevated location, the generally very low risks of flooding, and no evidence of historical flooding, it is assumed the Wellsite is not located within a CDA.

Following the implementation of the water drainage strategy (see Section 6), the overall risk of offsite surface water flooding from the Wellsite will be low.

6.1.3 Risk of Flooding from Groundwater

Groundwater flooding is caused by the natural emergence of water at surface level originating from underlying permeable sediments or rocks (aquifers). The groundwater may emerge as one or more point discharges (springs) or as diffuse upwelling of water over an extended area. Groundwater flooding tends to be more persistent than other sources of flooding, typically lasting for weeks or months rather than hours or days.

The NYC's SFRA (NYC, 2016) data indicates that the Wellsite is in an area with a 'Very Low' susceptibility of groundwater flooding.

6.1.4 Risk of Flooding from Reservoirs

The risk of reservoir flooding is related to the failure of a large water storage reservoir. The risk of failure is considered to be extremely low (DEFRA, 2010). The Wellsite is not at risk of flooding in the event of reservoir failure, and the nearest reservoir posing a risk in the event of failure is located in a separate catchment c. 22 km south of the Wellsite. There are no other large water bearing features in the area of interest which may impact flood risk at the Wellsite.

Therefore, the risk of flooding from reservoirs is considered 'Very Low'.

6.1.5 Risk of Flooding from Sewers

Sewer flooding can occur during periods of intense rainfall and/or if a sewer becomes blocked with debris.

There are no proposed connections from the Proposed Development to a public sewer.

The NYC's SFRA (NYC, 2016) does not provide assessment of flood risks from sewers. However, based on the rural location of the Wellsite, it is understood that there are no public or private sewers in the vicinity.

The overall risk of flooding to and from public sewers is therefore considered ‘Very Low'.

6.1.6 Risk of Flooding Post-Development

The Wellsite's condition post-development will vary depending on the outcome of the exploratory borehole's investigation results.

In the event that the development is a success case, the Wellsite's working area will be reduced and maintained while a new planning application is produced and submitted. The flood risks at the Wellsite in this instance are expected to remain the same as during the development phase.

In the event that the development is a failure case (or failure to gain regulatory approvals after success case), the Wellsite will be dismantled and returned to its pre-development (agricultural) condition.

In this instance, the risk of flooding post-restoration of the Wellsite will be the same as pre-development i.e. 'Very Low'.

6.1.7 Risk of Flooding from the Proposed Development

To reduce the risk of flooding from the Proposed Development, the Wellsite has been designed to be fully sealed through the construction of the tertiary containment system and which contains incident rainfall and releases it to the environment if it is safe to do so. The design in effect acts as a Sustainable Urban Drainage Systems (SuDS) system. All new developments mitigate the risk of increasing flooding using SuDS systems, these systems work by storing rainfall runoff and releasing them slowly into the ground or to local water courses. This should act as a proxy for a natural system.

As such, the Wellsite does not increase the risk of off-site flooding and if necessary, can hold and slowly release the volumes of water generated from an extreme storm.

6.1.8 Water Discharge Activity

Schedule 21 of EPR2016 relates to water discharge activities, including the discharge or entry to inland freshwaters, coastal waters or relevant territorial waters of any trade effluent.

For clarity, the Environment Agency has provided the following response with regards to surface water discharges in their pre-application response:

> *‘Please note that with regards to the water discharge activity, providing that the water discharged from the site is only unpolluted rainwater and you are taking necessary measures to prevent pollution we would not regulate this as a Schedule 21 water discharge activity. We may put additional restrictions on discharge to the site during well workover or testing phases.‘*

The Operator is proposing to discharge only ‘clean’ surface run-off water from the Wellsite and therefore a surface water discharge permit will not be applied for.

The discharge of ‘clean’ surface run-off water from the Wellsite will be subject to this Surface Water Management Plan provided in support of the environmental permit application.

For clarity, the Operator is not proposing to discharge surface run-off water during Phase 2 and Phase 3 operations. Surface run-off water collected within the perimeter ditch during Phase 2 (drilling operations) and Phase 3 (short term well test) will be transferred off site by an Environment Agency licenced waste contractor to an Environment Agency licensed waste treatment facility.

In the event that the Weaverthorpe-1 Well is a success case, 'clean' surface run-off water will be discharged to surface through a Class 1 Interceptor which will be installed following a successful short term well test phase of operations.

7. MEASURES TAKEN TO PROTECT THE LAND

7.1 Impermeable Liner and Containment Systems

The Operator is proposing to construct a temporary Wellsite within an enclosed and secure compound to drill an exploratory borehole. Whilst the surface construction activities are not considered 'permitted activities' under EPR2016, it is important to outline how the Wellsite has been designed to ensure environmental containment should an onsite pollution event occur.

The Wellsite will be constructed by initially removing topsoil and subsoil and relocating it to the western boundary in a separate soil bund which provides mitigation against visual impact to any nearby receptors whilst also storing the soil which will be utilised during remediation of the Wellsite.

If required, the subsoil may be the subject of a 'cut to fill' method which involves the excavation of subsoil from the higher areas of the site and relocating it to the lower areas of the site to create a level plateau.

A well cellar will be constructed in the centre of the Wellsite to facilitate drilling of the exploratory borehole. The well cellar will be 2.4m internal diameter with a minimum depth of 2.75m. The well cellar will be with large diameter casings (precast concrete rings) being installed, encased with a minimum 200mm concrete surround (jacket).

A reinforced concrete drilling pad will be constructed at surface, immediately surrounding the well cellar. The concrete pad will be designed and constructed in accordance with the proposed drilling rig loading requirements.

A perimeter containment ditch and containment system (French drain) will be excavated around the perimeter of the Wellsite which will form part of the Wellsite's containment measures ensuring that any surface run-off water and surface spillages are contained within the Wellsite.

A High Density Polyethylene (HDPE) impermeable membrane will be installed across the Wellsite to provide a tertiary containment system which will ensure any surface run-off water and spillages flow to the perimeter containment ditch for subsequent collection by road tanker.

The HDPE impermeable membrane will be protected by two layers of non-woven geo-textile matting which will be placed above and below the HDPE impermeable membrane to provide protection from the underlying ground and from the site surface, reinforcing the site integrity.

The HDPE impermeable membrane will be installed in accordance with a Construction Quality Assurance (CQA) Plan and will be integrity tested during installation overseen by an independent third party CQA inspector.

The HDPE impermeable membrane is incorporated into the well cellar construction to maintain environmental integrity of the Wellsite.

Following the installation of the well cellar and tertiary containment system, temporary track matting will be installed across the Wellsite to provide a working surface. The temporary track matting will be Dura-Base 102mm thick HDPE interlocking matting or similar.

In the event that the development is a success case, the Wellsite's working area will be reduced and maintained while a new planning application is produced and submitted. The temporary track matting will be removed and stone aggregate will be installed across the reduced area of the wellsite. A surface water interceptor will be installed to manage clean surface water run-off.

In the event that the development is a failure case (or failure to gain regulatory approvals after success case), the Wellsite will be dismantled and returned to its pre-development (agricultural) condition.

A Site Plan detailing the cross section of the proposed wellsite containment structure (04H - ZG-ER-WRP1-FH-EPR-04-08 Indicative Section Plan - Covered Ditch Construction 25 Scale A3) can be found within the Site Plans document (04 – Site Plans) provided in support of the environmental permit application.

7.2 Well Cellar Integrity Testing

The construction of the well cellar within the centre of the 'active area' of the Wellsite, forms a containment area from which the well will be drilled, whilst also housing the wellhead. A concrete drilling pad will be constructed at surface, immediately surrounding the well cellar.

Once the well cellar has been completed an integrity test will be carried out to confirm its integrity. The test consists of filling the cellar with water and monitoring water loss over a period of 24 hours. The water level is marked on the side wall of the cellar using marker dye to provide a reference point. The cellar is then covered to avoid both water fill (precipitation) and water loss through evaporation.

If no water loss within the drilling cellar is observed, the well cellar will be considered integral. This test will be repeated in line with the Operators procedures.

7.3 Secondary Containment Systems

Surface run-off water from precipitation will accumulate within the secondary containment systems and within the perimeter containment ditch located within the Wellsite. The level of surface run-off water will be monitored to ensure bund overtop / release of surface water does not occur.

During Phase 2 and Phase 3 operations, surface run-off water collected within the Wellsite will be transferred off site by an Environment Agency licenced waste contractor to an Environment Agency licensed waste treatment facility.

7.4 Materials and Storage

Where required, temporary bunds will be installed to act as secondary containment for the storage and handling of substances, in particular hazardous materials and produced water.

Spill kits will be available on site and close to identified pollution sources (e.g. fuel storage areas).

All oil containers, secondary containers and vehicles will be visually inspected on a daily basis to check for signs of damage, corrosion, bulging, leaks or unauthorised use.

No refuelling of plant and equipment will take place without the use of a drip tray and where practicable undertaken in close proximity to spill kits.

Emergency response plans for the site will also be established whilst also considering plans to manage any spills.

8. SURFACE WATER DISCHARGE SYSTEM

The Wellsite has been designed so that any materials falling onto the site are contained prior to going off site. This allows for the containment of any hazardous substances and non-hazardous substances which could cause surface water pollution. For clarity, there will be no discharge of retained surface waters during phases 1, 2 and 3; if flow testing is successful and the intent is to retain the (reduced-size) site, a surface water interceptor will be installed as the mechanism to manage surface waters.

8.1 Greenfield Runoff Rate

The Greenfield Runoff Rate has been calculated to be 2.55 l/s. The maximum permissible rate of discharge may therefore be set at 5 l/s to prevent blockages in the outfall structure.

8.2 Class 1 SPEL Oil-water Separator

A Class 1 SPEL Oil-water Separator (herein referred to as an interceptor) shall be installed prior to the surface water discharge point from the Wellsite. Surface run-off water shall flow into the interceptor. Isolation valves shall be installed prior to the interceptor.

A hydrobrake shall be installed prior to the interceptor to ensure that the interceptor is not flooded and only the maximum allowable run off rate can be flowed through the discharge system.

8.2.1 Surface Water Discharge Point

Surface run-off water will be processed through the interceptor and discharged to a soakaway located on the south west boundary of the site.

The rate of discharge to the field drain will be limited by the hydrobrake installed prior to the interceptor set at 5 l/s to prevent blockages in the outfall structure. The discharge rate will be controlled using a hydrobrake installed upstream of the interceptor.

The discharge point is identified as ‘Soakaway’ on Site Plan 04F - ZG-ER-WRP1-FH-EPR-04-06 Indicative Site Layout Plan - Retention Phase 500 Scale A2.

The National Grid Reference of the centre of the soakaway is: TA 02276 73104.

A copy of Site Plan 04F - ZG-ER-WRP1-FH-EPR-04-06 Indicative Site Layout Plan - Retention Phase 500 Scale A2 is provided within Site Plans (04 – Site Plans) provided in support of the environmental permit application.

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9. MANAGEMENT OF SURFACE RUN-OFF WATER

Low Risk Activities include activities where the Wellsite is inactive as the potential for contamination is reduced significantly by hazardous substances and/or a non-hazardous substance which could cause surface water pollution not being stored within the Wellsite.

Low risk activities identified within the Wellsite during Phase 4a operations include:

- Suspension Operations (Phase 4a Operations);
- When potentially polluting substances are not stored on site (with the exception of fuel stored to enable power supply to the site); and
- When mining waste or fuels are not stored on site (with the exception of fuel stored to enable power supply to the site).

During 'Low Risk' activities, isolation valves installed within the discharge system shall be 'locked open' permitting continuous discharges to the soakaway.

During 'Low Risk' activities where the isolation valves are open, the surface run-off water shall be sampled and analysed in accordance with the frequencies set out within the Environmental Permit.

9.1 Phase 2 and Phase 3 Operations

During Phase 2 and Phase 3 operations surface run-off water collected within the perimeter ditch will be transferred off site by an Environment Agency licenced waste contractor to an Environment Agency licensed waste treatment facility.

9.2 Phase 4a Operations

The interceptor and the soakaway system will be installed following Phase 3 (short term well test), subject to the successful outcome of flow testing.

During Phase 4a – Site Suspension, the interceptor shall remain 'open' so as to allow surface water (rainfall) on the site to discharge to the soakaway, preventing the build-up of levels within the containment system and preventing flooding of the site when it is unmanned.

Water will be discharged from the internal perimeter containment ditch (French Drain) to the soakaway located in the south west corner of the Wellsite via the interceptor.

The discharge of surface run-off water during Phase 4a means there is a negligible risk that hydrocarbons would be present in the discharge; however, the interceptor does provide an additional level of environmental protection.

The specification of the proposed interceptor is detailed in 16B – Oil Interceptor Details provided in support of the environmental permit application.

9.3 Control of Discharges

Only the appointed person shall have access to the isolation valves and subsequently 'open' and 'close' the discharge as dictated by the site operations and the results of any sampling and analysis as described below.

9.4 Surface Run-off Water Risk Assessment

A Surface Water Discharge Risk Assessment (16A – Surface Water Discharge Risk Assessment) has been provided to demonstrate the likelihood of an onsite pollution event at the unmanned Wellsite resulting in an offsite pollution event. The results are presented within Appendix 4 and demonstrate that the mitigation measures installed at the site are suitable in preventing an offsite pollution event.

A copy of the Surface Water Discharge Risk Assessment is provided within 16A – Surface Water Discharge Risk Assessment provided in support of the environmental permit application.

9.4.1 Maintenance

A maintenance plan for the surface water drainage scheme at the Wellsite will be drawn up and carried out by Wellsite Operators or nominated third party. The maintenance plan shall include details and frequencies of periodic inspections

of all drainage elements. The maintenance plan shall include the removal of any obstructions and silt build-up where necessary and checks on the physical structure of the drainage elements.

10. SAMPLING AND ANALYSIS

Sampling and analysis of the surface run-off water is required to determine whether the surface run-off water at the site has remained free from contamination and to demonstrate to the Environment Agency whether is safe to discharge. It is anticipated that the environmental permit will provide the parameters and concentrations within Schedule 3 to benchmark the results against.

Records of all the sampling, analysis, inspections and interceptor maintenance will be maintained and will be made available to the Environment Agency for inspection where required. The records will include the date, time and all relevant results.

10.1.1 Surface Water Monitoring Sampling Points

Surface water monitoring sampling points have been identified within the Wellsite and their location provided within Table 4.

Sample Point	Sampling Point	Location	NGR
#1	Rodding Point Chamber	Active Area – North West Corner	TBC
#2	Rodding Point Chamber	Active Area – South East Corner	TBC
#3	Inspection Chamber	Immediately prior to interceptor – South East Corner	TBC

Table 4: Information of Surface Water Monitoring Sampling Points

For clarity, the National Grid Reference (NGR) of the sampling points will be determined following the reduction of the wellsite area and installation of the discharge system. Following installation of the discharge system, Table 3 will be updated.

A copy of Site Plan 04F - ZG-ER-WRP1-FH-EPR-04-06 Indicative Site Layout Plan - Retention Phase 500 Scale A2 is provided within Site Plans (04 – Site Plans) provided in support of the environmental permit application.

10.1.2 Parameters

Sampling Parameters			
• Alkalinity	• Copper	• Mercury (Total Hg)	• Sodium
• Aluminium	• Electrical Conductivity	• MTBE	• Sulphate
• Antimony	• Ethyl Benzene	• Nickel	• Sulphur
• Arsenic	• Hardness	• Nitrate	• Toluene
• Benzene	• Iron	• o Xylene	• Total Chromium
• Boron	• Lead	• pH	• Total Petroleum Hydrocarbons
• Cadmium	• m/p Xylene	• Polyaromatic Hydrocarbons	• Total Suspended Solids
• Calcium	• Magnesium	• Potassium	• Turbidity
• Chloride	• Manganese	• Selenium	• Zinc

Table 5: Surface Water Monitoring Sampling Parameters

10.1.3 Frequency

Surface run-off water monitoring is suggested to take place as follows:

- Following the cessation of high risk operations at the Wellsite once all associated equipment and substances have been removed.
- Repeated as necessary until such time whereby the results have been considered to fall within the appropriate standards.
- Monthly thereafter during low risk activities for a period of 3 months.
- Monthly monitoring may be reduced to a 3 monthly monitoring regime subject to Environment Agency approval based on the previous sampling and analysis results.

10.2 Sampling Methodology

The steps below outline how the appointed person shall collect suitable samples and package them as required.

1. All sampling equipment shall be clean, sanitised and in working order prior to use.
2. Handheld meters, if used shall be within their calibration date and have sufficient power supply.
3. Suitable sampling locations shall be identified, ideally fixed and marked as the sample spot for consistency.
4. Water shall be visually inspected and the following details shall be recorded:
    a. Depth of water;
    b. Signs of oil / grease;
    c. Date and time; and
    d. Weather Conditions;
5. Nitrile Gloves shall be applied and sample containers marked-up as necessary detailing the following:
    a. Client Name for Laboratory (Egdon Resources U.K. Limited or Appointed Contractor)
    b. Location (Weaverthorpe Wellsite)
    c. Sample Identification; and
    d. Date and time sample taken.
6. The sample shall be collected from the inspection chamber, below the surface layer. Caution must be taken when sampling in shallow water that debris from the bottom is not disturbed. If disturbance occurs, the sample should be disregarded and retaken.
7. Sample bottles shall be filled completely, so as to removed air when the top is screwed on, unless otherwise stated by the laboratory.
8. Water bottles shall be filled on a flat clean surface.
9. Sample bottles shall be placed into the cool box provided.
10. Beakers shall be filled and hand probes used to measure field water chemistry parameters (pH, electrical conductivity, temperature).
11. Paperwork shall be completed and shall accompanying the samples to the laboratory which shall arrive within 48 hours of being taken.
12. Storage of the samples shall be suitable and include a cool box to store samples at the necessary temperatures.

10.3 Laboratory Analysis

Samples will be collected using specified sampling containers provided by the appointed laboratory and shall be transported to the laboratory (on the same day where possible) in a safe and suitable manner. Duplicate samples may also be taken so as to mitigate against unsuitable or failed samples. Laboratories undertaking testing shall be at least UKAS accredited.

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REFERENCES

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7. Water Act 2003

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