



## **Coal Products Limited**

**Immingham Briquetting Works – Environmental Permit Application**

### **Appendix F – Additional Information**

**June 2023**



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## Document Control Sheet

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## 1 Introduction

Bureau Veritas has been commissioned by Coal Products Ltd (CPL) to undertake updates to their Environmental Permit (EP) variation application<sup>1</sup> following a response from the Environment Agency on the submitted application in April 2022.

On the 17<sup>th</sup> May 2023, the Environment Agency (EA) issued an email requiring more information on the application to ensure the application is duly made. This information request include:

1. *Form C2 Question 6 - Environmental risk assessment,*

*The Air Quality Dispersion Modelling Report dated April 2022, is missing a couple of local wildlife a sites: Rosper Road Pools and Homestead park pool from its list of ecological receptors. These need to be included in the report, and modelling.*

*The environmental risk assessments provided also do not assess uncontrolled or unintended ('fugitive') emissions or environmental risks due to accidents, these should be assessed following our guidance: <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>*

2. *Form C6 – Variation to a point source emission to water from an installation – please complete the relevant sections of this form*

*<https://www.gov.uk/government/publications/application-for-an-environmental-permit-part-c6-varying-a-water-discharge-activity-and-groundwater-point-source-activity>*

In addition, the "Application for an environmental permit Part F1 – Charges and declarations" form has been updated in line with the additional payment which was made on the 31<sup>st</sup> May 2023.

This report is an addendum to, and should be read in conjunction with, the permit variation application submitted in April 2022<sup>1</sup>, which addresses the wider assessment and impacts on the environment. This report addresses the additional request made by the environment agency as detailed above.

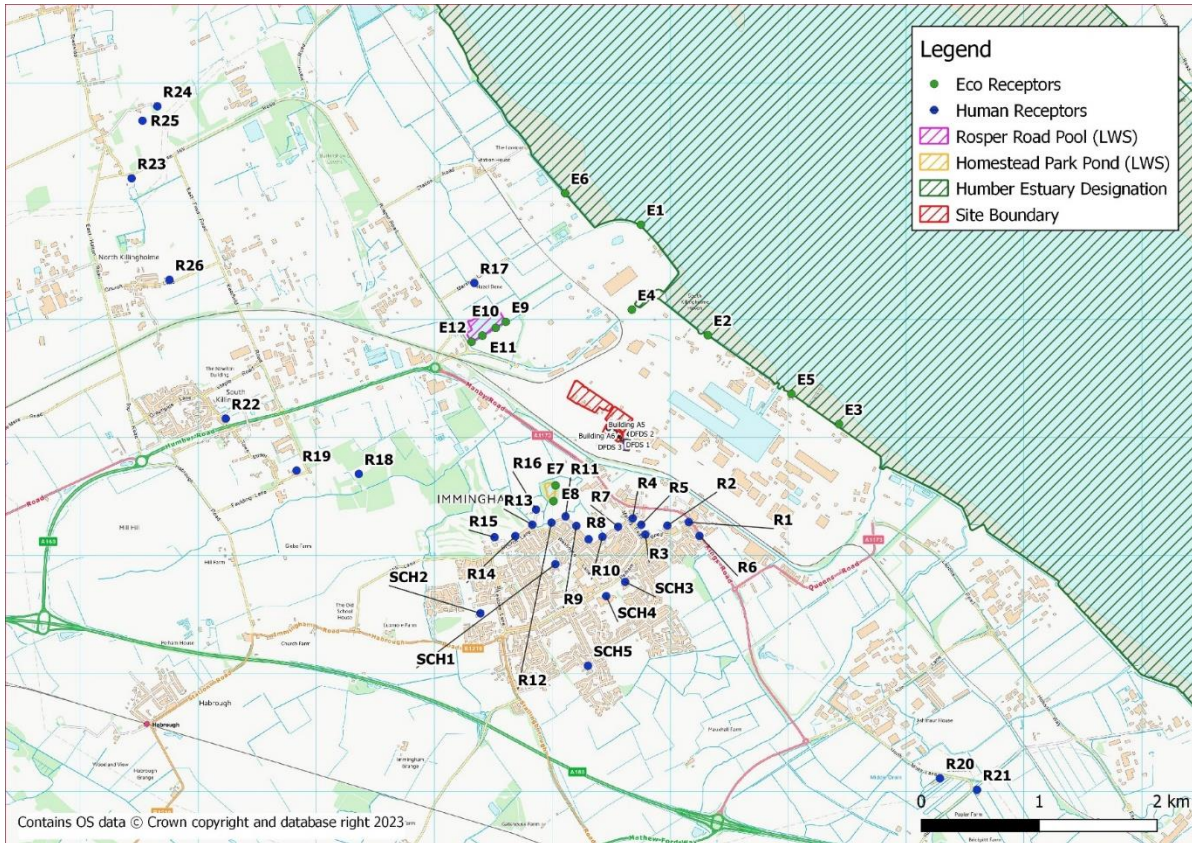
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<sup>1</sup> AIR10541342\_CPL Permit Variation\_Final\_i2

## 2 Assessment of Impact at Additional Local Wildlife Sites

Figure 2.1 below illustrates the location of all modelled receptors. Please note only modelled results for receptors E7 – E12 have been included within this addendum. For results for all other receptors detailed in Figure 2.1 please see the Air Quality Assessment<sup>2</sup> submitted in April 2022 (Appendix B).

Figure 2.1 – Location of Modelled Receptors



### 2.1.1 Ecological Receptors

The Environment Agency's AER Guidance provides the following detail regarding consideration of ecological receptors:

- Check if there are any of the following within 10 km of your site (within 15 km if you operate a large electric power station or refinery):
  - Special Protection Areas (SPAs)
  - Special Areas of Conservation (SACs)
  - Ramsar Sites (protected wetlands)
- Check if there are any of the following within 2 km of your site:
  - Sites of Special Scientific Interest (SSSIs)

<sup>2</sup> AIR10541342\_CPL Permit Variation\_Final\_i2

- Local Nature Sites (ancient woods, local wildlife sites, Sites of Nature Conservation Importance (SNCIs) and national and local nature reserves).

Following the above guidance, and request from the Environment Agency (EA) the following additional ecological receptors were considered in the assessment, shown in Table 2.1 and Figure 2.1.

Two local wildlife sites were included as part of this addendum:

- **Homestead Park Pond** – This local wildlife site is mostly semi-improved grassland with some scatter scrub with standing water. For this assessment the habitat is defined as semi-improved grassland.
- **Rosper Road Pool** – Designated for birds of interest, however the ecological site for this assessment is based on the marshy grassland used by some species of bird.

**Table 2.1 – Assessed Ecological Receptors**

ID	Receptor Description	Easting (m)	Northing (m)	Height (m)
E7	Homestead Park Pond (LWS)	518028	415593	0
E8	Homestead Park Pond (LWS)	518010	415460	0
E9	Rosper Road Pool (LWS)	517606	416978	0
E10	Rosper Road Pool (LWS)	517521	416927	0
E11	Rosper Road Pool (LWS)	517408	416861	0
E12	Rosper Road Pool (LWS)	517317	416809	0

## 2.1 NO<sub>x</sub> Impacts at Ecological Receptors

Table 2.2 details the results of the impact assessment for NO<sub>x</sub>, with an assessment against both the long-term annual mean (30 µg/m<sup>3</sup>), and the short term 24-hour mean (75 µg/m<sup>3</sup>) Critical Levels (CL<sub>e</sub>) for ecological receptors.

**Table 2.2 – NO<sub>x</sub> Impacts at Ecological Receptors**

Receptor	Annual Mean				24-hour Mean			
	PC µg/m <sup>3</sup>	PEC µg/m <sup>3</sup>	% PC of CL <sub>e</sub>	% PEC of CL <sub>e</sub>	PC µg/m <sup>3</sup>	PEC µg/m <sup>3</sup>	% PC of CL <sub>e</sub>	% PEC of CL <sub>e</sub>
E7	0.18	18.90	0.6%	63.0%	2.23	39.66	3.0%	52.9%
E8	0.15	18.87	0.5%	62.9%	2.10	39.53	2.8%	52.7%
E9	0.05	16.66	0.2%	55.5%	0.88	34.10	1.2%	45.5%
E10	0.05	16.66	0.2%	55.5%	0.96	34.18	1.3%	45.6%
E11	0.05	16.66	0.2%	55.5%	1.06	34.28	1.4%	45.7%
E12	0.05	16.66	0.2%	55.5%	1.03	34.25	1.4%	45.7%

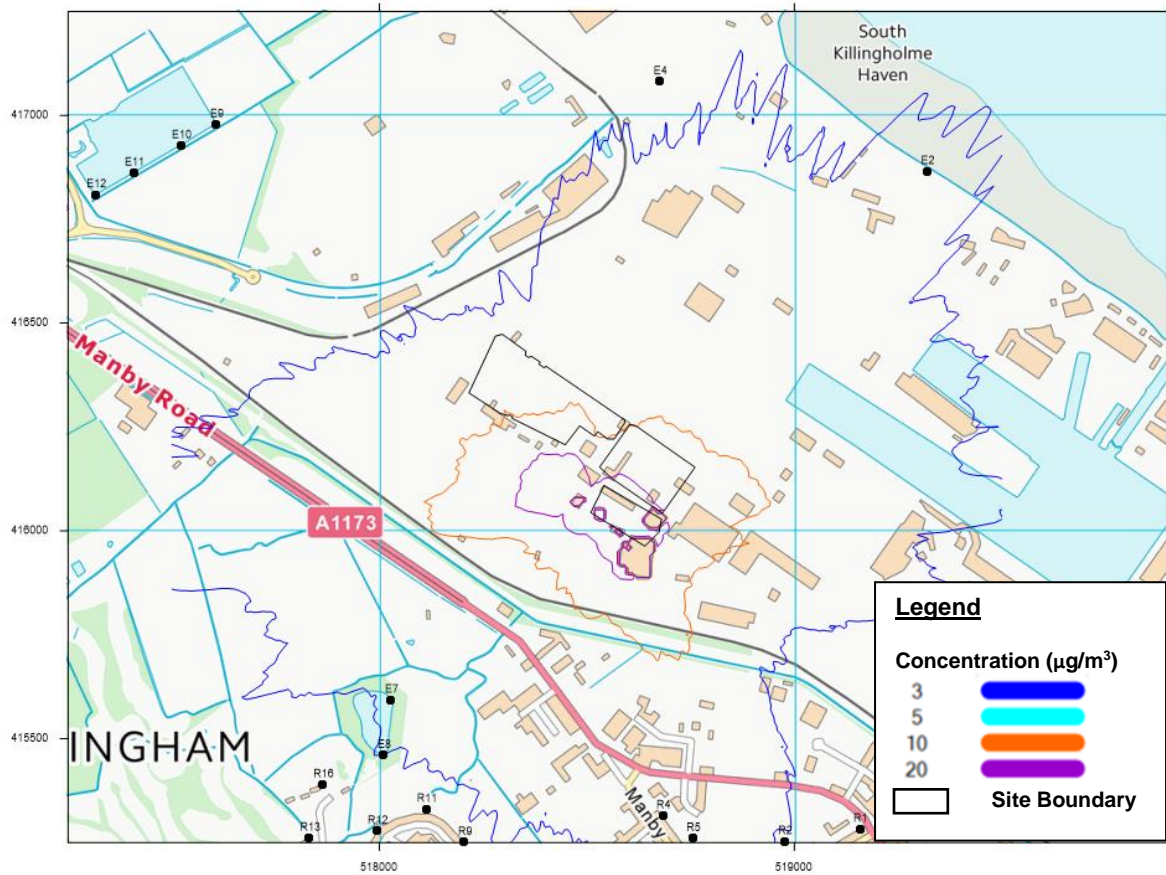
CL<sub>e</sub> = Critical Level; PC = Process Contribution; PEC = Predicted Environmental Concentration (PC + Background)

The above tables indicate there are no observed exceedances of the annual mean or 24-hr mean CL<sub>e</sub> for NO<sub>x</sub> at the additional ecological receptors.

A Concentration isopleth for the 24-hour mean NO<sub>x</sub> process contribution is presented in Figure 2.2.



Figure 2.2 – 100 Percentile 24-hour mean NO<sub>x</sub> Process Contribution Isopleth (µg/m<sup>3</sup>) for 2018



## 2.2 SO<sub>2</sub> Impacts at Ecological Receptors

Table 2.3 details the results of the impact assessment for SO<sub>2</sub>, with an assessment against the long-term annual mean (20 µg/m<sup>3</sup>) CL<sub>e</sub> for ecological receptors.

Table 2.3 – SO<sub>2</sub> Impacts at Ecological Receptors

Receptor	Annual Mean			
	PC µg/m <sup>3</sup>	PEC µg/m <sup>3</sup>	% PC of CL <sub>e</sub>	% PEC of CL <sub>e</sub>
E7	0.08	8.33	0.4%	41.6%
E8	0.06	8.31	0.3%	41.6%
E9	0.03	7.17	0.1%	35.8%
E10	0.02	7.16	0.1%	35.8%
E11	0.02	7.16	0.1%	35.8%
E12	0.03	7.17	0.1%	35.8%

CL<sub>e</sub> = Critical Level; PC = Process Contribution; PEC = Predicted Environmental Concentration (PC + Background)

The above table indicates that long term Predicted Environmental Concentrations (PECs) of SO<sub>2</sub> are comfortably below the respective assessment metric at all additional ecological receptors considered in the assessment, with results no more than 41.6% of the CL<sub>e</sub> for the annual mean.

## 2.3 Deposition Impacts at Ecological Receptors

The impact assessment for ecological receptors also includes an assessment of pollutants deposited to land in the form of nitrogen deposition and acid deposition. Nitrogen deposition results are shown in Table 2.4, whilst the results for acid deposition are shown in Table 2.5.

The results for acid deposition are presented in line with the Critical Load Function Tool as contained on the Air Pollution Information System (APIS) website<sup>3</sup>. As described on APIS: “the Critical Load Function is a three-node line on a graph representing the acidity critical load. Combinations of deposition above this line would exceed the critical load, while all areas below or on the line represent an “envelope of protection” where critical loads are not exceeded”. Therefore, where ‘no exceedance’ is stated with regard to acid deposition, it denotes no exceedance of the critical load function.

The results for nitrogen deposition show that, whilst exceedances are predicted at each additional receptor point, this is due to the existing background deposition rate, which is already in exceedance. The PC makes up less than 0.27% of the overall result at all additional ecological receptors considered, so the contribution from the plant can be considered not significant.

**Table 2.4 – Nitrogen Deposition Rates at Ecological Receptors (kg N ha<sup>-1</sup> yr<sup>-1</sup>)**

Receptor ID	CL	PC	%PC of CL <sub>min</sub>	Background Deposition rate	PEC	%PEC of CL <sub>min</sub>
E7	10	0.027	0.27%	16.58	16.61	166.1%
E8	10	0.021	0.21%	16.58	16.60	166.0%
E9	10	0.007	0.07%	16.58	16.59	165.9%
E10	10	0.007	0.07%	16.58	16.59	165.9%
E11	10	0.007	0.07%	16.58	16.59	165.9%
E12	10	0.007	0.07%	16.58	16.59	165.9%

CL = Critical load – the CL selected for each designated site relates to its most N-sensitive habitat (or a similar surrogate) listed on the site citation for which data on Critical Loads are available and is also based on a precautionary approach using professional judgement.  
PC = Process contribution  
PEDR = Predicted environmental deposition rate (PC + background)

With regards to acid deposition results, again the contribution from the Site is very low at all additional ecological receptors. The PC expressed as a % of the critical load function (as provided on APIS) is less than 0.2% at all additional ecological receptors. These results can therefore be described as not significant.

**Table 2.5 – Acid Deposition Rates at Ecological Receptors (Sulphur and Nitrogen) (keq ha<sup>-1</sup> y<sup>-1</sup>)**

Receptor ID	PC	Background	PEC	% PC of CL function	% Background of CL function	% PEC of CL function	Impact
E7	No Exceedance	1.51	1.52	0.2	29.8	30.0	Not significant
E8	No Exceedance	1.51	1.52	0.2	29.8	30.0	Not significant
E9	No Exceedance	1.51	1.51	<0.1	<29.8	<30.0	Not significant

<sup>3</sup> <http://www.apis.ac.uk/critical-load-function-tool>

Receptor ID	PC	Background	PEC	% PC of CL function	% Background of CL function	% PEC of CL function	Impact
E10	No Exceedance	1.51	1.51	<0.1	<29.8	<30.0	Not significant
E11	No Exceedance	1.51	1.51	<0.1	<29.8	<30.0	Not significant
E12	No Exceedance	1.51	1.51	<0.1	<29.8	<30.0	Not significant

CL = Critical load  
PEC = Predicted environmental concentration (PC + background)  
No exceedance as per the output of the critical load function tool available on APIS

## 2.4 Conclusion

Detailed dispersion modelling has been undertaken for operational emissions to air from the existing plant, using ADMS dispersion modelling software. Release rates for NO<sub>x</sub>, SO<sub>x</sub> and PM for all plant emissions included within the assessment have been derived using the information provided by CPL, as summarised in the Air Quality Assessment submitted in April 2022 (Appendix B).

For concentrations in air at the additional ecological receptors, no exceedances have been predicted at the two LWS. For deposition results, neither of the LWSs assessed are above the 1% significant threshold and, as such, the critical loads for nitrogen or acid are not expected to be exceeded.

It can therefore be considered that the air quality impacts of the existing and new plant at the Immingham Briquetting Works can be considered as not significant for concentrations in air at the two LWS. With regard to deposition results, nitrogen and acid deposition results can be described as not significant at the two LWS.

### 3 Environmental Risk Assessment - Uncontrolled or Unintended ('fugitive') Emissions and Accidents

CPL recognises the importance of managing all potential risks of their operations and have processes and procedures in place, aiming to achieve continuous improvement with regard to environmental performance. The current regeneration plant is operated in accordance with the requirements of an environmental management system (EMS) that is maintained under the site Environmental Permit. The EMS will be amended to include the proposed plant. This will include updates to the emergency response and training procedures and the plant maintenance and inspection schedule. The procedures put in place will be designed to reduce the potential risks associated with uncontrolled or unintended emissions and accidents.

An emergency plan (Appendix E) has been prepared for the proposed installation prior to plant start-up which details the necessary actions required to respond to uncontrolled/unintended emissions and accidents. There is a schedule laid out for unplanned maintenance which covers breakdown of plant and other emergencies such as accidents on site. Such issues that require operator intervention outside of the routine maintenance program will be identified by the operator and an appropriate response initiated. The proposed plant will also include a PLC controlled automatic shut-down system.

Preventative measures are also in place across the site to ensure uncontrolled/unintended emissions and accidents are minimised. The spent activated carbon will be delivered to site (and the treated activated carbon returned to the customer) in 1 m<sup>3</sup> bags. The bags will be stored under cover in dedicated warehouse to reduce the potential for uncontrolled emissions. The proposed building will have an impermeable, concrete, floor that is bunded (stub wall around the floor area) to retain spillages in the building. The production plant is located above ground and will be subject to a planned preventative maintenance regime. There are no surface water drains on the proposed site and clean rainwater from building roof and yard areas runs-off the site to soak-away to the undeveloped land to the south. All waste material (treated and untreated) will be stored in bags within the building, on impermeable hard standing with sealed drainage to minimise any impact from spillages.

Table 3.1 and Table 3.2 provide a detailed risk assessment summarising the key potential sources of uncontrolled/unintended emissions and accidents. In conclusion, based on the preventative measures in place on site, including the provision of an emergency plan and structured approach to training and maintenance, and an evaluation of the risks, as seen below, it is considered that the risks associated to uncontrolled/unintended emissions and accidents is low.

Table 3.1 – Risk Assessment – Uncontrolled or Unintended Emissions

Hazard	Receptor	Pathway	Risk Management Technique	Probability of Exposure	Consequence	Overall Risk
Dust from HTC activities	Local business employees Residents (closest residential receptor is 660m south of site)	Windborne	Raw material is delivered, stored and handled wet and is non-dusting. Stored in a purpose built storage area. Raw Material inventory is always less than 30 tonnes at any time. Finished product is pelletised and packed in large bags in an enclosed building and is produced at a minimum moisture content of 10%. Process is PLC controlled, manned at all times and is a batch process with automatic and operator shutdown at any stage – with a very limited inventory in process at any time	Minor very localized dust is possible under extraordinary situation – material is non-hazardous	Increased nuisance to residents and workers	Low
Dust from Caustic Wash activities	Local business employees Residents (closest residential receptor is 660m south of site)	Windborne	Raw material is pre wetted prior to delivery into the process by flexible IBC The input is a by batch and manually controlled by operators to ensure no emission. The impregnation plant is housed in an enclosed building. Product has a minimum moisture content of 10%. Localised dust extraction and collection available if required	Minor very localized dust is possible under extraordinary situation	Increased nuisance to residents and workers	Low
Odour from HTC activities	Local business employees Residents (closest residential receptor is 660m south of site)	Windborne	Raw material inventory is kept low in a well ventilated purpose built storage area. Operators are experienced in handling materials with potentially strong odours. Controlled wetting procedures in place	Highly unlikely in a well ventilated area	Increased nuisance to residents and workers	Low
Odour from Caustic Wash activities	Local business employees Residents (closest residential receptor is 660m south of site)	Windborne	Operators are experienced in handling materials with potentially strong odours. Regular inspections Wetting if required.	Highly unlikely in a well ventilated area	Increased nuisance to residents and workers	Low
Flooding	Local port area	Port Drainage System Drains blocked	System is fully integrated into the Port surface drainage system. Operations can be shutdown quickly and suspended. Effluent system discharge can be stopped remotely. Effluent system has sufficient capacity for operations to shutdown safely	Previous flood events on the Dock have not affected the site other than cessation of operations.	No significant risk	Low

**Table 3.2 – Risk Assessment - Accidents**

Hazard	Receptor	Pathway	Risk Management Technique	Probability of Exposure	Consequence	Overall Risk
Site Accidents from HTC and Caustic Wash activities	Land Groundwater Workers on site	Equipment failure, PLC failure, plant equipment hitting plant equipment causing liquid spills	Process is PLC controlled, manned at all times and is a batch process with automatic and operator shutdown at any stage – with a very limited inventory in process at any time. Prior to the dryer the process is all liquid phase with limited inventory – accidents would result in minor spills. Written emergency plan to deal with liquid spills which would be contained on the site	Potential every 100 times of operation i.e. 3 times per annum	Minor spill of process liquor which has no exposure hazard to the environment	Low
Site Accidents from water discharge	Land Groundwater	Equipment failure, PLC failure, plant equipment hitting plant equipment causing liquid spills	Discharge is a pumped with a reserve of discharge water capacity available at all times. Equipment failure/spills can be contained onsite. The site has a number of interconnected containment pits within the drainage system which are pumped. Written emergency plan. Effluent plant is monitored daily	Potential every 100 times of operation i.e. 3 times per annum	Minor spill of process liquor which has no exposure hazard to the environment	Low
Fire	Local business employees Residents (closest residential receptor is 660m south of site)	Airborne smoke, odour	Process is liquid phase and unlikely to support combustion until the dryer. The dryer has very limited inventory (less than 500 kgs) is batch operated by operator command and PLC controlled. Any fire would very small and easily doused with water sprays. Finished product is a minimum of 10% moisture and does not combust readily.	Potential every 100 times of operation i.e. 3 times per annum	Limited potential and any event would be very small scale	Low
Flooding	Local business employees Residents (closest residential receptor is 660m south of site)	Drains	All process equipment has been raised above ground level - to protect against equipment failure	Highly unlikely	Limited potential for accidental discharge	Low

## 4 Form C6 – Associated Information

The second point of request from the EA mentioned above was the completion of the Form EPC: Application for an Environmental Permit – Part C6 varying a water discharge activity or groundwater activity (point source discharge) or point source emission to water from an installation. This section provides further information in reference to specified questions and responses provided within the completed Part C6 form.

### 4.1 Question 3b

The daily maximum volume of effluent discharge has been calculated based on the daily volumes of discharge at the site exceeding 1,000m<sup>3</sup> a day in 2019.

- In 2019 the maximum daily effluent discharge was 1,840m<sup>3</sup> with the maximum 7 day rolling average being 1,107m<sup>3</sup>
- In 2020 the maximum daily effluent discharge was 1,103m<sup>3</sup> with the maximum 7 day rolling average being 879m<sup>3</sup>
- In 2021 the maximum daily effluent discharge was 1,206m<sup>3</sup> with the maximum 7 day rolling average being 826m<sup>3</sup>

It is understood the maximum daily discharge will likely be similar to that of 2020 and 2021 and therefore the stated maximum daily effluent discharge as part of the C6 form is 1,200m<sup>3</sup>.

### 4.2 Question 3f

The maximum rate of discharge in litres per second is based on the maximum daily effluent discharge of 1,200m<sup>3</sup>.

1 litre of water = 0.001m<sup>3</sup>

1,200m<sup>3</sup> discharge in a day = 0.01389m<sup>3</sup> per second

0.01389m<sup>3</sup> = **13.89 litres per second.**

The maximum volume of non-rainfall dependant effluent that will be discharged daily is based on the operational discharge of the new plant.

The operation of the HTC plant will result in 456m<sup>3</sup>/annum of discharge.

**This is equivalent to 1.25m<sup>3</sup> daily discharge.**

### 4.3 Question 9h

Figure 4.1 below illustrates the location of the;

- Inlet Sampling Monitoring Point
- Surface Water Sewage Entry Point,
- Flow Monitoring Point,
- Effluent Sampling Monitoring Point, and,
- Open Pipe discharge point.

Figure 4.1 – Location of Effluent Points

