WEALDEN WORKS 3RS PERMIT VARIATION APPLICATION EPR/CB3308T/V002

RESPONSE TO SCHEDULE 5 NOTICE DATED 16TH FEBRUARY 2022

JER8584
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15 March 2022

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Prepared for:

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1 INTRODUCTION

1.1.1 This document provides the response to the Schedule 5 Notice for more information issued on 16/02/2022. The notice sets out further information required by the Environment Agency (EA) to determine an application for permit EPR/CB3308T/V002 relating to Britaniacrest Recycling Limited.

1.1.2 Section 2 of this document sets out each question in the Schedule 5 Notice followed by the response.

2 SCHEDULE 5 RESPONSES

2.1 Abatement

Question 1: Confirm whether the configuration of the dosing of activated carbon and acid gas reagent is single or combined feed and provide a justification for the proposal

2.1.1 Activated carbon and the acid gas reagent (hydrate lime) are separately dosed. Dosing of hydrated lime is linked to the emissions monitoring whereas activated carbon will be controlled at a rate determined during commissioning. Separate feed systems allow each reagent to be separately controlled.

2.2 Monitoring

Question 2: Confirm whether a backup CEMS system will be installed. If this is not the case, please provide information about the mechanisms that would be proposed to ensure that the backup limits for particulates, carbon monoxide and Total Organic Carbon are not exceeded.

2.2.1 Application form C3, Appendix 6, question 7 confirms that a duplicate (replacement) CEMS will be used in the event of a failure.

2.3 Fire Prevention Plan

Question 3: There are two areas vulnerable to fire in bunkered storage arrangements, satisfactory solutions to cleaning these areas on a regular basis should be provided:

a) corners of the bunker; and

b) the base of the bunker.

Section 5.3.1 of the FPP states that mixing the waste with the crane enables waste from the base of the bunker to be brought to the surface. However, there is normally a buffer at the base of the bunker, which prevents the grabs from coming into contact with the floor of the bunker causing damage. This area is likely to contain waste that has been stored for in excess of the recommended time duration.

2.3.1 During normal operation the level in the bunker will fluctuate and particularly during weekends or other periods when there are fewer or no deliveries, the level of waste within the bunker will reduce. As the waste levels reduce waste from corners will drop away and will be mixed with other wastes and fed into the furnace.

2.3.2 Waste at the base of the bunker will become compacted, excluding oxygen, and will be moist and therefore any self-heating would be less prone to combustion. Operational experience would indicate that fires in bunkers are not generally started by waste stored at the base of the bunker.

2.3.3 During major plant shutdowns the waste at the bottom (including corners near the base) will be dug out so as far as is practicable and be subsequently processed once the plant re-starts.

Question 4: The maximum pile width and length within the Fire Prevention Plan needs to be specified in line with section 9.1 of the FPP web guidance for waste stored on site other than that stored within the bunker.

You must consider the 'Fire Prevention Plans: environmental permits' guidance (updated 11/01/2021) on GOV.UK.

The FPP guidance states that for all waste piles, the maximum length or width allowed (whichever is longest) is 20 meters. The table in section 9.1 outlines the maximum volumes for each type of waste. If your waste piles contain a mixture of combustible wastes, you should work out the maximum limits based on the type of waste that makes up most of a mixed pile.

2.3.4 The precise dimensions of waste piles are not currently defined and therefore the submitted FPP only confirmed the maximum pile height and volume. However, we can confirm that all waste piles would be less than the maximum dimensions specified in FPP guidance i.e. the maximum length or width of any pile will be 20m.

2.4 Surface Water Emissions

Question 5: Please update the surface water plan to show the proposed location of the interceptor, discharge point and attenuation pond for surface water collection.

The supporting document specifies that emissions of uncontaminated surface water run off will be discharged via an interceptor and attenuation pond. However, the drainage plan does not show the location of this discharge point, the interceptor or the attenuation pond. These features will also need to be within the permit boundary.

2.4.1 Drawing 3 (drainage plan) submitted with the application identifies a 1,800m^3 tanked attenuation system. Drawing 3 also shows the location of two separators, depicted by the symbol (S) on the diagram. We can confirm that the separators will be full retention ESR bypass separators with capacity for silt and oil.

2.4.2 The plan has been updated to indicate the location of the discharge point from the installation (see revised Drawing 3 attached to this document). The surface water release point is marked with a green dot and labelled W1 on the plan.

2.5 Energy Efficiency

Question 6: Provide additional information on why the data included in the R1 assessment for primary and secondary air use is appropriate.

The combined total air is significantly less than the values included for other R1 applications for sites with a* similar *technology proposed. Please justify where the figures come from and why they are considered appropriate for the R1 assessment.

2.5.1 The primary and secondary air data that informed the R1 assessment was based on mass balance information provided by one of the potential technology providers for the plant. However, the decimal place on the air volumes was misplaced and they should have been 1,000 times larger. We apologise for the error and have corrected this in a revised version of the R1 spreadsheet (see Appendix A).

2.5.2 It should be noted that the R1 calculation is not particularly sensitive to primary and secondary air flows. However, the impact of the revised data has resulted in a small improvement to the R1 value. It should be noted that this is a design phase calculation only. The applicant is committed through the planning system to maintain R1 status and an operational R1 application based on the measured performance of the plant will be submitted following the first year of commercial operation.

Question 7: Please update the Article 14 assessment to address the following points:

a) The search radius for potential heat users should be updated to 15km unless there is adequate justification as to why 10km is applicable rather than 15km as per table 5 in the Article 14 guidance.

b) The Primary Energy Savings (PES) are greater than 10% and therefore a Cost Benefit Analysis should be carried out.

The land North of Horsham was identified as a potential heat user and therefore a Cost Benefit Analysis (CBA) should be carried out. The calculated PES is greater than 10% the scheme is classed as high efficiency co-generation so the operator has to do a CBA.

2.5.3 The CHP ready assessment considered heat demands within the 10km required by the EA CHP ready guidance. If the search radius is increased to 15km as set out within the Energy Efficiency Directive then the heat demands are as shown in Figure 2-1and Figure 2-2.

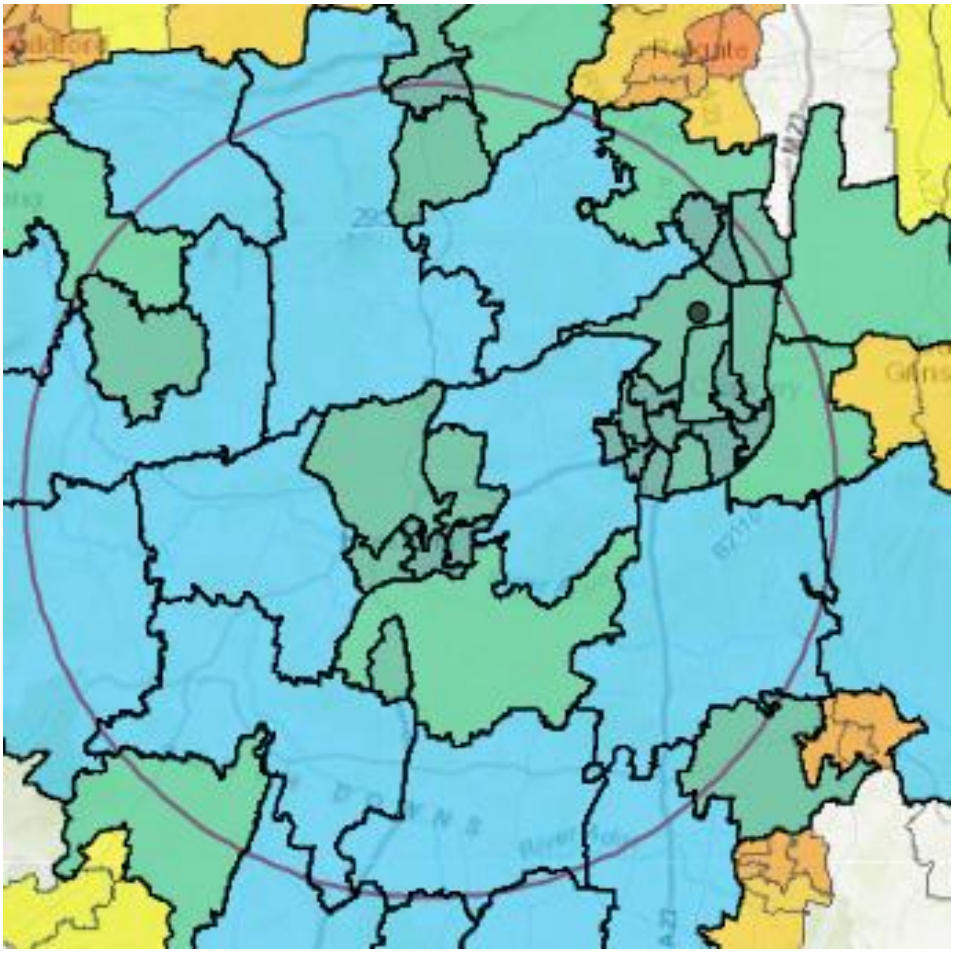


Figure 2-1 Map of potential heat loads within a 15km radius of the proposed development.

Sector Totals | Large Heat Load Sites (1)

The table below shows the sector totals within your search area.

Sector Name	Share	Total MWh
Communications and Transport	3.91%	82,189 MWh
Commercial Offices	0.3%	6,318 MWh
Domestic	92.83%	1,953,184 MWh
Education	0.54%	11,423 MWh
Government Buildings	0.01%	147 MWh
Hotels	0.59%	12,351 MWh
Large Industrial	1.09%	22,919 MWh
Health	0.07%	1,397 MWh
Other	0.06%	1,364 MWh
Small Industrial	0.24%	5,030 MWh
Prisons	0%	0 MWh
Retail	0.22%	4,652 MWh
Sport and Leisure	0.1%	2,198 MWh
Warehouses	0.04%	759 MWh
District Heating	0%	0 MWh
Total heat load in Area		**2,103,932 MWh**

Figure 2-2 Potential heat loads within a 15km radius of the proposed Wealden 3Rs facility by sector

2.5.4 Figure 2-2 shows the potential heat loads within the 15km search radius. It shows that the largest potential heat users are domestic, with an approximate requirement of 1,953,184MWh, and comprising of more than 92% of the total heat demand. A single large heat load has been recorded within the search area. Although identified as an 'unknown operator', the mapping would indicate the heat load is associated with Gatwick Airport, just over 10km from the facility and has a total demand of 78,568MWh.

2.5.5 It is recognised that the Primary Energy Savings calculations are above 10% however at this stage a potential user has not been secured. Discussions have been held regarding the supply of heat from the facility to the land North of Horsham development. However, the promoters of this scheme have confirmed they would not take heat from the Wealden 3Rs facility.

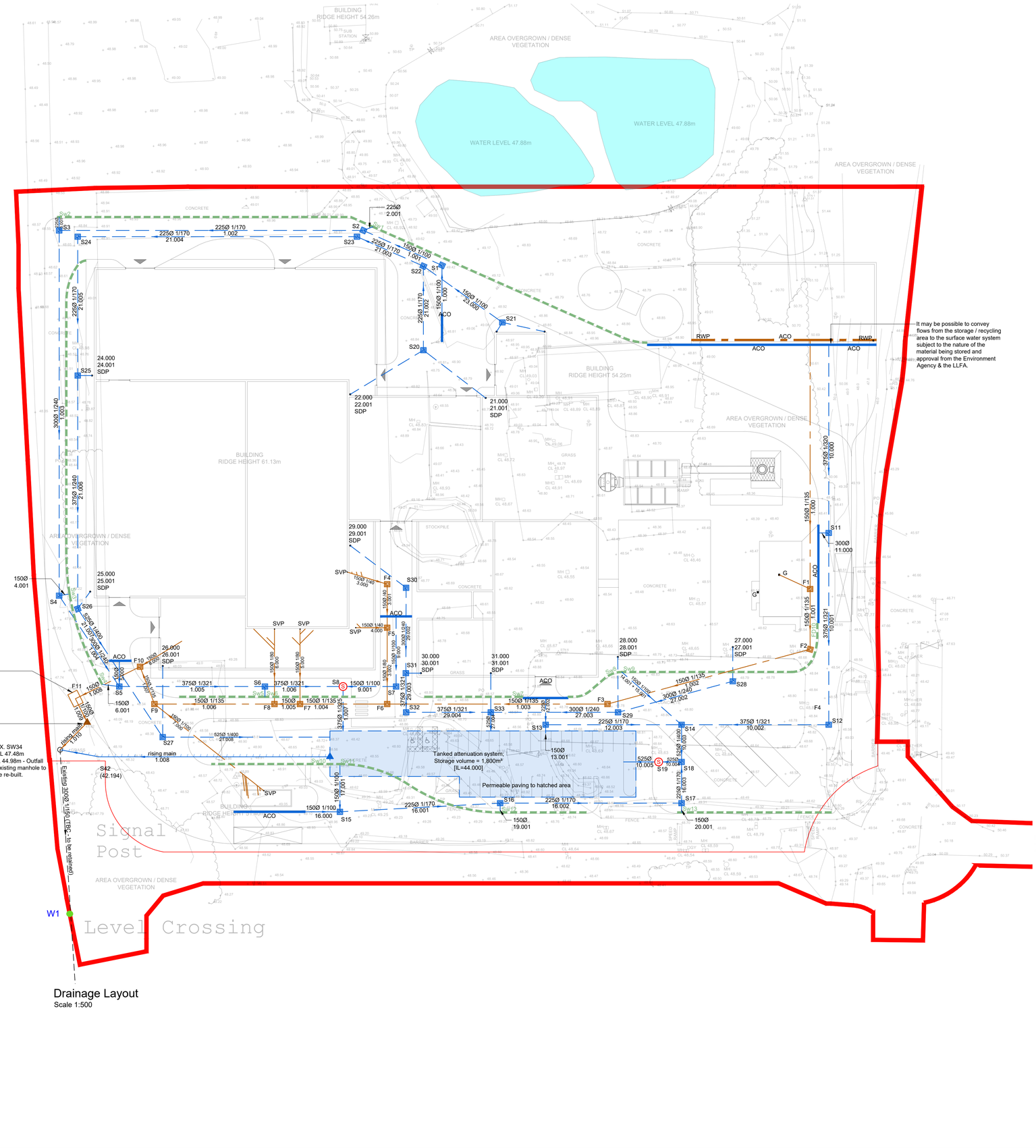
2.5.6 Whilst the land North of Horsham scheme is therefore not a viable CHP option, Britaniacrest Recycling Limited is in discussions with an alternative heat and the probability of heat use is high. At the potential heat user's request, however, details of these proposals are currently commercially confidential. As soon as the heat user is secured, a cost benefit assessment will be provided.

2.6 Waste Storage

Question 8: Please confirm the maximum volume of asbestos waste that will be stored on the site at any one time.

2.6.1 At anytime there will be no more than a single 35 yard skip for asbestos waste present on the site. This equates to a maximum volume of no more than 27 m^3.

Drawing 3 – Drainage Plan



Drainage Layout
Scale 1:500

10m SCALE 1:500

Gravel areas indicated on the Architect's layout have been taken as 100% impermeable within the drainage model, due to the lack of filtration in the underlying Wealden Clay strata. This allowance simulates the gravel areas being fully saturated prior to the modelled storm events.

The surface water attenuation has currently been designed using cellular storage, although other forms of attenuation may be suitable. Soakaways have not been used in the design. Refer to paragraph 2.8 of the RPS Surface Water Drainage Strategy **NK018074-RPS-EFW-XX-RP-D-DS001**

The contractor is to survey all drainage connection points to satisfy himself all inverts used in the design are accurate. Any descrepancies are to be reported to the engineer immendiately where further advice will be given.

All slot drains to be Gatic CastSlot (concrete service yard) or Gatic Unislot (all other locations), with access and silt boxes as required by the manufacturer - e.g. head of runs, at pipe outlets etc.

All drainage branch lines to be a 150Ø minimum unless noted otherwise.

All internal drainage to have rocker pipe installed on the line of the external envelope to accommodate any potential differential settlement.

The M+E engineer is to ensure that all internal branch lines have roddable access points with air admitance valves / ventillaiton stacks to atmosphere to ensure blockages do not occur. All fittings to be double sealed.

All foul and/or internal manholes to have double sealed covers. All covers located within floor slab or pedestrian areas to have recessed covers with infill to match surrounding finish.

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Notes

1. This drawing has been prepared in accordance with the scope of RPS's appointment with its client and is subject to the terms and conditions of that appointment. RPS accepts no liability for any use of this document other than by its client and only for the purposes for which it was prepared and provided.
2. If received electronically it is the recipients responsibility to print to correct scale. Only written dimensions should be used.
3. This drawing should be read in conjunction with all other relevant drawings and specifications.

Site Boundary

Key:

- ***mmØ 1/300 9.001 — SW Sewer (I/D & Gradient)
- Perforated Filter Drain
- Swale
- SW HDPE Rising Main (O/D & Gradient)
- S2 — SW Manhole
- (11.60) — SW Pumping Station with Inlet Invert
- ***mmØ 1/300 — Existing Surface Water pipe
- ***mmØ 1/100 9.001 — FW Sewer (I/D & Gradient)
- F2 — FW Manhole
- SW Slot Drain
- FW Slot Drain
- 9.001 — MicroDrainage model pipe number
- S — Separator - Vortex or Class 1 Bypass (refer to RPS drainage strategy report **NK018074-RPS-EFW-XX-D-DS001** - Section 4.5
- Non-return valve
- G — Trapped Gully
- SDP — Syphonic Primary Downpipe
- SVP — Soil Vent Pipe
- CL — Cover Level
- IL — Invert Level
- BD — Back Drop

Rev	Description	By	Ckd	Date
P05	Drawing updated with current corporate branding.	MF	WL	04.09.20
P04	Drainage layout updated to reflect revised Site Layout.	MF	WL	13.03.18
P03	Drainage proposals amended to reflect the revised Proposed Site Layout.	LAM	WL	14.02.18
P02	Drainage outfall strategy revised to single outfall at Culvert A following comments made by the LLFA and subsequent drainage survey. Proposed discharge restricted to QBar equivalent Greenfield Runoff Rate for all storms; proposed attenuation volume increased to suit. Temporary flooded volumes indicated. Slotdrain added at Gatehouse.	LAM	WL	31.05.17

MAKING COMPLEX EASY

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Client: BRITANIAGREST RECYCLING

Project: Sussex EfW

Title: Drainage Layout

RPS Project Number	Scale @ A1	Date Created
NK018074	1:500	16.11.2016
Task Team Manager	**Information Author**	**Task Information Manager**
SN	LAM	WL

Status: S3

Document Number: NK018074-RPS-EFW-XX-DR-D-0300 P05
Project Code - Originator - Zone - Level - Type - Role - Drawing Number

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Appendix A
UPDATED R1 CALCULATION

PROFORMA FOR DETERMINING ENERGY EFFICIENCY USING R1

2	**Site name, address and grid reference**	Wealden Works 3Rs Facility, former Wealden Brickworks, Langhurstwood Road, Horsham, West Sussex, RH12 4QD, Grid	**EPR Permit reference (if known)**		EPR/CB3308TD				
3	**Operator name**	Britaniacrest Recycling Ltd	**Application fee (£)**		0 - included in permit fee				
4	**Details of who to contact if we have any queries regarding this form**	Jennifer Stringer stringerj@rpsgroup.com							
5	**What data has been used in the application? →**		Design data						
6	Indicative R1 factor (subject to confirmation)	0.88	Quantity in reporting year	Units	U_c	Properties (Average over reporting year)	Units	Note which parameters that have been estimated	Reference to Supporting information
7	Climate change correction factor (optional)	1							
8	R1 after CCF adjustment	0.88							
9	1. Gross electricity meter (Electricity produced at turbine)		195200	MWh				Estimated from design c	Drawing 6 Sankey Diag
10	2. Electricity exported - Net input/output meter		170400	MWh				Estimated from design c	Drawing 6 Sankey Diag
11	3. Electricity imported - Net input/output meter		130	MWh				Estimated import	
12	4. Other fuel inputs								
13		4.1 Light fuel oil		litres		0.93	kg/l		
14						42800	kJ/kg		
15		4.2 Natural gas		Nm^3		34200	kJ/Nm^3		
16									
17		4.3 LPG		Nm^3			kg/Nm^3		
18							kJ/kg		
19		4.4 Other fuels similar to light fuel oil	234200	litres		0.853970965	kg/l		
20						42570	kJ/kg	Estimated fuel consump	Table 2-3 Supporting In
21	5. Primary combustion air (as supplied to furnace)		599980408	m^3		1.225	kg/Nm^3		
22						145	°C		
23						121.2	kJ/kg	Based on typical design	
24	6. Secondary combustion air (as supplied to furnace)		340386868	m^3		0.834	kg/Nm^3		
25						150	°C		
26						126.25	kJ/kg	Based on typical design	
27	7. Recycled flue gas (as supplied to furnace)			m^3			kg/Nm^3		
28							°C		
29						0	kJ/kg		
30	8. Heat exported outside R1 boundary								
31		8.1 steam exported		tonnes			°C		
32							kPa		
33							kJ/kg		
34		condensate returned		tonnes			°C		
35							kPa		
36							kJ/kg		
37		8.2 hot water exported		tonnes			°C		
38							kPa		
39							kJ/kg		
40		hot water returned		tonnes			°C		
41							kPa		
42							kJ/kg		
43									
44	9. Internal steam use								
45		9.1 for soot blowing (no backflow)		tonnes			°C		
46							kPa		
47							kJ/kg		
48		9.2 for steam driven devices		tonnes			°C		
49							kPa		
50							kJ/kg		
51		backflow as steam		tonnes			°C		
52							kPa		
53							kJ/kg		
54		9.3 for trace heating		tonnes			°C		
55							kPa		
56							kJ/kg		
57		backflow as condensate		tonnes			°C		
58							kPa		
59							kJ/kg		
60		9.4 for re-heating flue gas		tonnes			°C		
61							kPa		
62							kJ/kg		
63		backflow as condensate		tonnes			°C		
64							kPa		
65							kJ/kg		
66		9.5 for concentration processes		tonnes			°C		
67							kPa		
68							kJ/kg		
69		backflow as condensate		tonnes			°C		
70							kPa		
71							kJ/kg		
72		9.6 for building, equipment, tank heating		tonnes			°C		
73							kPa		
74							kJ/kg		
75		backflow as condensate		tonnes			°C		
76							kPa		
77							kJ/kg		

	A	B	C	D	E	F	G	H	I
78		9.7 for deaeration and demineralisation		tonnes			°C		
79							kPa		
80							kJ/kg		
81		backflow as condensate		tonnes			°C		
82							kPa		
83							kJ/kg		
84		9.8 other internal applications, in line with commission guidance, to be specified		tonnes			°C		
85							kPa		
86							kJ/kg		
87		backflow as condensate		tonnes			°C		
88							kPa		
89							kJ/kg		
90		9.9 other internal applications, in line with commission guidance, to be specified		tonnes			°C		
91							kPa		
92							kJ/kg		
93		backflow as condensate		tonnes			°C		
94							kPa		
95							kJ/kg		
96	10. Use of condensing energy from steam in flue gas			GJ					
97	11. Superheated steam at boiler outlet		733880	tonnes		429.17	°C		
98						6370	kPa		
99						3245.7	kJ/kg	Based on typical design	
100	12. Boiler feedwater		737568	tonnes		130	°C		
101						7644	kPa		
102						551.393	kJ/kg	Based on typical design	
103	13. Boiler Efficiency (Design)		87%	±	1.5%			Estimated from design s	Drawing 6 Sankey Diag
104	**Instructions for completing this spreadsheet**								
105	1.	Ensure that you have completed the first three rows of the application form							
106	2.	This form should be accompanied by supporting information for the figures quoted. Where this information is in the permit application, reference to the relevant sections of the application can be made.							
107		A Sankey diagram (or equivalent) reflecting the boundaries of the installation used as well as any references to physical properties is the absolute minimum that should be provided for an application based on design information							
108	3.	We have colour coded the cells in this spreadsheet to assist you in completing this form, an explanation of the colour codes is provided below. The colour will disappear when data has been entered.							
109		Blue cells require data that is essential for the R1 calculation, where information on uncertainty of the data is available it would be useful (but not mandatory) for this to be included for these parameters.							
110		Beige Cells indicate that any data entered will be used in the R1 calculation. They have been used where there is a choice of inputs but not all plants will have data for all the input options.							
111		Where you are entering data into beige cells you need to make sure that you enter data into all the beige cells associated with the input as they are all needed for carrying out the calculation.							
112		Yellow cells have been used to provide flexibility to include fuels or energy uses not identified elsewhere. Supporting information to explain why the standard fields were not appropriate or adequate will need to be provided where these cells are used.							
113		Data entered in uncoloured cells are not used when calculating the R1 energy efficiency factor but can be completed to provide a more complete data set.							
114		Data in the purple cell for the CCF factor is optional. If used the way it was calculated must be explained in supporting information							
115	4.	Ensure the temperatures entered into cells F19 and F22 (and F25) are the actual temperatures of the heated air in ^{o}C.							
116		The spreadsheet uses these values to calculate the specific enthalpy associated with heating the air from ambient 25 ^{o}C in cells F20 and F23 (and F26).							
117	5.	Densities used in cells F18 and F21 (and F24) should be at the temperatures at which the flows quoted in C18 and C21 (and C24) are reported.							
118		The spreadsheet multiplies these pairs of entries to generate a mass of air.							
119	6.	If you believe that any of the information that you have submitted in this application form is commercially confidential please identify the confidential information and the grounds on which you believe it to be confidential in your covering letter							
120	LIT 5753								
121	EAD/0812/xls/v3								

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RESPONSE TO SCHEDULE 5 NOTICE DATED 16TH FEBRUARY 2022

2022-03-15

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