



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

MGT Teesside Limited

Tees Renewable Energy Plant

Tees Dock

Grangetown

Middlesborough

TS6 6UD

Variation application number

EPR/TP3538GF/V004

Permit number

EPR/TP3538GF

Tees Renewable Energy Plant

Permit number EPR/TP3538GF

Introductory note

This introductory note does not form a part of the notice.

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 2 of the notice comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on Best Available Techniques (BAT) Conclusions. We have reviewed the permit for this installation against the revised BAT Conclusions for the large combustion plant sector published on 17th August 2017. Only activities covered by this BAT Reference Document have been reviewed and assessed.

This variation makes the below changes following the review under Article 21(3) of the Industrial Emissions Directive (IED) and the consolidation of the Environmental Permitting Regulations that came into force on the 4 January 2017:

- Revised emission limits and monitoring requirements for emissions to air applicable from 17 August 2021 in table S3.1a;
- Inclusion of an improvement condition (IC4) requiring a plan characterising the fuel to be in place to comply with the requirements of BAT 9.
- Inclusion of an improvement condition (IC5) requiring submission of the net electrical efficiency % of the plant and provision of details regarding energy efficiency measures that will be in place to comply with BAT 2, BAT 12 and Table 8.
- Inclusion of an improvement condition (IC6) requiring submission of monitoring standards for the substances specified to comply with BAT 4.
- Amendment of preoperational condition (POC4) requiring submission of an Environment Management System (EMS) that incorporates the requirements of BAT 1 and sets out procedures for operation during 'Other Than Normal Operating Conditions' (OTNOC) in accordance with BAT 10.
- Inclusion of process monitoring for energy efficiency in table S3.3.
- Permit condition 2.3.7 has been included in the permit with corresponding improvement condition IC7 requiring the operator to submit a report in relation to potential black start operation of the plant.
- Condition 4.2.5 has been added which sets out reporting requirements for waste accepted at this installation. This condition should have been included in the permit previously and was left out in error.

The rest of the installation is unchanged and continues to be operated as follows:

The Tees Renewable Energy Plant (Tees REP) is located on land adjacent to the main southern dock at Teesport on the south bank of the River Tees in the Borough of Redcar and Cleveland (centred at NGR NZ 54300 23230). The site is to be operated by MGT Teesside Limited.

The permit is for a power station with an aggregated thermal input of 699.49MW, generating about 300MW of electrical power. The combustion unit will be fuelled by approximately 1,200,000 - 2,400,000 tonnes of wood pellets and wood-chip per year, from short rotation forestry and uses circulating fluidised bed (CFB) technology. The wood-chip and wood pellets are both derived from virgin timber and have a similar composition.

The wood chip will be pre-dominantly imported from the North American and South American continent and delivered to the site by ship into Teesport docks. The installation includes a series of hoppers and conveyors that transport the wood chip from the deep water quay to the wood storage buildings on the Tees REP site. The unloading operation will be conducted by a third party. The hoppers and conveyors are deemed to be under the operational control of MGT Teesside Limited and are included within this Permit.

The installation will also include a wood chip dryer. The thermal load of the dryer will be approximately 3.2MWth and this load will be met via steam extraction from the steam cycle of the biomass power plant. The plant therefore operates as a Combined Heat and Power (CHP) facility by meeting heating needs. There is an emission point from the wood chip dryer. The air from the drying chamber will contain dust from the wood chip. These emissions will be mitigated through the installation of fabric filters or an equivalent system. The emission point has been referenced in table S3.1.

The wood-chip is transferred onto conveyor systems within the wood storage buildings and fed into the combustion unit. As discussed previously the plant will also be fuelled by wood pellets.

Steam generated at the combustion unit is used to rotate a steam turbine which produces electricity which is fed into the National Grid.

After passing through the steam turbine, the steam is cooled by air cooling technology.

The installation includes a gas oil fuelled auxiliary boiler for use during the main boiler start-up. Gas oil is also used during start up to ignite the boiler and heat up the fluidised bed.

The installation also includes a gas oil stand-by generator for use in emergencies to provide for essential systems in the event of mains power supply interruption. The plant will operate 24 hours a day, 7 days a week.

Emissions from the Installation.

Emissions to air are combustion gases, pre-dominantly carbon dioxide, carbon monoxide, dust and oxides of nitrogen with lower levels of hydrogen chloride and sulphur dioxide. Air dispersion modelling provided with the application predicted all emissions to be insignificant. Dioxins and metal emissions will also be insignificant.

Selective non-catalytic reduction (SNCR) abatement is installed to control emissions of oxides of nitrogen. Acidic gases (hydrogen and sulphur dioxide) are to be controlled on an as needed basis through the injection of solid calcium hydroxide. This was the most appropriate measure when considered against a range of alternatives. Bag filter abatement is used to control emissions of dust.

Emissions to water are from the demineralisation water generation plant, backwash boiler blow down recovery, and wash waters from cleaning the heat recovery unit (HRU) and the fly ash silo. These emissions will be treated onsite and discharged into the River Tees at Release Point W1. Surface water (from a surface water holding pond) and surface water and rain water from roofs (which will be subject to oil interceptors and solid filtration as appropriate) will also be discharge to the watercourse via Release Point W1.

There are several sites protected under the Habitats Regulations within 10 km of the Installation, all of which are part of the Teesmouth & Cleveland Coast, and Tees and Hartlepool Foreshore and Wetlands. They include Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites. The closest site is approximately 1,150 metres west of the Installation.

Raw materials stored on site and used by the installation are virgin wood chip, wood pellets, ammonia (SNCR injection), solid calcium hydroxide, lubricating oil, biodiesel and dosing chemicals. Wood chip and wood pellets are stored in 16 storage silos.

Waste ash is produced at the site and will be removed from the site by road tankers for disposal and/or re-use.

As this Installation has not yet been built, an Environmental Management System is not in place. Preoperational condition 4 requires the operator to provide one 3 months prior to the start of operations. This is a new LCP that has not yet been constructed. When it is built it will be expected to be ELV compliant upon commencement of operations.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	Date	Comments
Application received EPR/TP3538GF/A001	Duly made 12/02/2009	Application for 810MW thermal input Biomass Power Plant
Additional information received	30/04/2009	Request dated 02/04/09
Additional information received	18/06/2009	Request dated 06/05/09
Additional information received	02/09/2009	Request dated 06/05/09
Permit determined EPR/TP3538GF	23/12/2009	Permit issued to MGT Teesside Limited.
Application EPR/TP3538GF/V002 (variation and consolidation)	Duly made 07/07/2015	Application to update the permit in line with the requirements of IED, to allow the burning of wood pellets, to include a wood pellet dryer and to update the installation boundary.
Additional information received	15/07/2015	Response to request for further information (RFI) dated 10/07/15. Confirmation that wood pellets are derived from virgin timber.
Additional information received	21/07/2015	Response to request for further information (RFI) dated 10/07/15. Details regarding the condition of the land to be included in the installation boundary.
Additional information received	27/08/2015	Further information regarding who is responsible for unloading fuel.
Variation determined EPR/TP3538GF	24/09/2015	Varied and consolidated permit issued in modern condition format. Variation effective from 24/09/15.
Variation Application EPR/TP3538GF/V003	Duly made 14/11/2017	Application to update registered office address, increase the rated thermal capacity and stack height of auxiliary boiler, add a discharge of process water to the river Tees and amend the site boundary.
Additional information received	15/12/2017	Air dispersal modelling results from cumulative operations received.
Additional information received	08/01/2018	Confirmation of thermal input, auxiliary boiler start up and site boundary vacant areas received.
Additional information received	12/01/2018	Confirmation of requested monitoring changes received.
Additional information received	24/01/2018	Confirmation of emission point locations received.
Variation determined EPR/TP3538GF Billing Ref: BP3339JA	27/02/2018	
Regulation 61 Notice sent to the Operator	01/05/18	Issue of a Notice under Regulation 61(1) of the EPR. Environment Agency initiated review and variation to vary the permit under IED to implement Chapter II following the publication of the revised Best Available Techniques (BAT) Reference Document for large combustion plant.
Regulation 61 Notice response.	31/12/18	Response received from the Operator.
Additional information received	21/11/19	Compliance and operating techniques identified in response to the BAT Conclusions 4, 6, 7, 8, 9, 12, 13, 16, 17, 24, 25, 26, 27 and details regarding energy efficiency.

Status log of the permit		
Description	Date	Comments
Additional information received	10/12/19	Compliance and operating techniques identified in response to the BAT Conclusions 7, 12 and 26.
Variation determined EPR/TP3538GF/V004 (Billing ref: EP3403BP)	17/02/20	Varied and consolidated permit issued. Effective from 17/02/20

End of introductory note

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/TP3538GF

Issued to

MGT Teesside Limited (“the operator”)

whose registered office is

8 White Oak Square

London Road

Swanley

England

BR8 7AG

company registration number 06574235

to operate a regulated facility at

Tees Renewable Energy Plant

Tees Dock

Grangetown

Middlesborough

TS6 6UD

to the extent set out in the schedules.

The notice shall take effect from 17/02/20

Name	Date
Maxine Evans	17/02/20

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/TP3538GF

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/TP3538GF/V004 authorising,

MGT Teesside Limited (“the operator”),

whose registered office is

8 White Oak Square

London Road

Swanley

England

BR8 7AG

company registration number 06574235

to operate a regulated facility at

Tees Renewable Energy Plant

Tees Dock

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Middlesborough

TS6 6UD

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Maxine Evans	17/02/20

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
 - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

- 1.2.1 The operator shall:
- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
 - (b) take appropriate measures to ensure the efficiency of energy generation at the permitted installation is maximised;
 - (c) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
 - (d) take any further appropriate measures identified by a review.
- 1.2.2 The operator shall review the viability of Combined Heat and Power (CHP) implementation at least every 4 years, or in response to any of the following factors, whichever comes sooner:
- (a) new plans for significant developments within 15 km of the installation;
 - (b) changes to the Local Plan;
 - (c) changes to the BEIS UK CHP Development Map or similar; and
 - (d) new financial or fiscal incentives for CHP.

The results shall be reported to the Agency within 2 months of each review, including where there has been no change to the original assessment in respect of the above factors.

1.3 Efficient use of raw materials

- 1.3.1 The operator shall:
- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
 - (b) maintain records of raw materials and water used in the activities;
 - (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
 - (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities;
 - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
 - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.
- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 For the following activities referenced in schedule 1, table S1.1: LCP403. The activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” dated December 2015 or any later version unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.4 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.5 For the following activities referenced in schedule 1, table S1.1: LCP403. The end of the start up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP403. The following conditions apply where there is a malfunction or breakdown of any abatement equipment:
- Unless otherwise agreed in writing by the Environment Agency:

- (i) if a return to normal operations is not achieved within 24 hours, the operator shall reduce or close down operations , or shall operate the activities using low polluting fuels;
- (ii) the cumulative duration of breakdown in any 12-month period shall not exceed 120 hours; and
- (iii) the cumulative duration of malfunction in any 12-month period shall not exceed 120 hours.

2.3.7 The emission limit values from emission points A1 listed in table S3.1 and S3.1a of Schedule 3 following the issue of a Black Start Instruction by the National Grid shall be disregarded for the purposes of compliance whilst that instruction remains effective in accordance with the report submitted in response to improvement condition IC7.

2.3.8 Waste shall only be accepted if:

- (a) it is of a type and quantity listed in schedule 2 table S2.2; and
- (b) it conforms to the description in the documentation supplied by the producer and holder.

2.3.9 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

- (a) the nature of the process producing the waste;
- (b) the composition of the waste;
- (c) the handling requirements of the waste;
- (d) the hazardous property associated with the waste, if applicable; and
- (e) the waste code of the waste.

2.3.10 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.1a and S3.2.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 The emission values from emission point A1 in schedule 3 tables S3.1 and S3.1a, measured during periods of abatement equipment malfunction and breakdown shall be disregarded for the purposes of compliance with Tables S3.1 and S3.1a emission limit values.

- 3.1.4 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
 - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.
- 3.3.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
 - (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
 - (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1, S3.1a, and S3.2; and
 - (b) process monitoring specified in table S3.3;
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continuous), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.1a and S3.2 unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring for Large Combustion Plant

- 3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive and the Large Combustion Plant Best Available Techniques Conclusions.
- 3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:
- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
 - (b) implement the approved proposals.
- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, table(s) S3.1 and S3.1a; the Continuous Emission Monitors shall be used such that:
- (a) for the continuous measurement systems fitted to the LCP release points defined in table(s) S3.1 and S3.1a the validated hourly, monthly, yearly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;

- (b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;
- (c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;
- (d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;
- (e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period. Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and
- (f) any day, in which more than three hourly average values are invalid shall be invalidated.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

- (a) be legible;
- (b) be made as soon as reasonably practicable;
- (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
- (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
- (b) the resource efficiency metrics set out in schedule 4 table S4.2;
- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

- (d) where condition 2.3.6 applies, the cumulative duration of breakdown and cumulative duration of malfunction in any 12 month period.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
 - (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
 - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.
- 4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter, if during that quarter the total amount accepted exceeds 100 tonnes of non-hazardous waste or 10 tonnes of hazardous waste.
- 4.2.6 Within 10 days of the notification of abatement equipment malfunction or breakdown (condition 2.3.6) the operator shall submit an Air Quality Risk Assessment as outlined in the IED Compliance Protocol (condition 2.3.2).

4.3 Notifications

- 4.3.1 In the event:
- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
 - (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
 - (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
 - (d) of any malfunction or breakdown of abatement equipment relating to condition 2.3.6, the operator shall notify the Environment Agency within 48 hours unless notification has already been made under (a) to (c) above.
- 4.3.2 Any information provided under condition 4.3.1(a)(i), 4.3.1(b)(i) where the information relates to the breach of a condition specified in the permit, or 4.3.1(d) where the information relates to malfunction or breakdown of abatement equipment shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

- 4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
 - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- Where the operator is a corporate body other than a registered company:
- (c) any change in the operator's name or address; and
 - (d) any steps taken with a view to the dissolution of the operator.
- In any other case:
- (e) the death of any of the named operators (where the operator consists of more than one named individual);
 - (f) any change in the operator's name(s) or address(es); and
 - (g) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.
- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 4.3.7 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:
- (a) a decision by the Secretary of State not to re-certify the agreement;
 - (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
 - (c) any subsequent decision by the Secretary of State to re-certify such an agreement.
- 4.3.8 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR1	Section 1.1 A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	LCP403: Circulating fluidised bed (CFB) boiler for production of steam and electricity.	The entire combustion plant with an aggregate thermal input capacity of 699.49MW, including air supply system, boiler, power plant (including CFB boiler, auxiliary boiler and emergency back-up generator), facilities for the treatment of exhaust gases, stacks, devices and systems for controlling combustion conditions. Auxiliary boiler (30.19 MWth) from loading of gas oil to boiler to export of steam to the CFB system for up to 12 hours during plant start-up and for a maximum of 500 hours per year, as a rolling average over a period of three years.
Directly Associated Activity			
AR2	Wood chip dryer	Equipment for removal of moisture from received wood chips using heat from steam extracted from the steam turbine.	Includes the point of steam extraction and connecting supply pipe work to the dryer. Transfer of wood chips between 'wet' wood chip storage area and 'dry' wood chip storage area.
AR3	Firewater pump	Pumping of firewater in the event of an emergency.	Operation of firewater pump for regular testing of firewater system and for pumping firewater in the event of an emergency.
AR4	Storage and movement of ash	Storage of ash within designated hoppers.	From transfer of ash from CFB boiler to discharge into road container for transport off-site.
AR5	Water demineralisation plan	Demineralisation of water supply to boiler for steam production.	From receipt of water from mains supply to discharge of water to boiler plant.
AR6	Fuel storage and movement	Storage of biomass fuel wood chip and loading to CFB boiler.	Storage of biomass fuel within dedicated buildings, loading of biomass fuel on to conveyor and transfer by conveyor to silos which feed the CFB boiler.
AR7	Gas oil storage and handling	Storage of gas oil within dedicated bulk storage tank.	Off-loading of gas oil from road tanker to dedicated storage tank and transfer by pipe to combustion plant.
AR8	Fuel unloading and transfer	Movement of wood-chip from deep water quay to site.	Loading biomass fuel into hoppers at quay and movement of wood-chip by a series of conveyors and hoppers to the biomass fuel storage buildings on site.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	Part B of the application form	20/11/08
Schedule 5 Notice Request dated 02/04/09	Response to question 1 detailing process control.	02/09/09
Application for Variation EPR/TP3538GF/V002	Parts C2 and C3 of the application form and referenced supporting information.	08/06/15
Additional Information	Response to request for further information (RFI) dated 10/07/15. Confirmation that wood pellets are derived from virgin timber.	15/07/15
Additional Information	Response to request for further information (RFI) dated 10/07/15. Details regarding the condition of the land to be included in the installation boundary.	21/07/15
Additional Information	Further information regarding who is responsible for unloading fuel.	27/08/15
Additional Information	Provision of the following report in response to the requirements of POC14: 'Tees Renewable Energy Plant – Combined Heat and Power Ready Assessment (Document reference 508044-1, dated 21/09/15)', allowing for the discharge of POC14 (24/09/15) prior to issue of this variation (EPR/TP3538GF/V002).	21/09/15
Application for Variation EPR/TP3538GF/V003	Parts C2 and C3 of the application form and referenced supporting information.	05/10/17
Additional Information	Confirmation of thermal input for Auxiliary boiler and CFB boiler.	08/01/18
Additional Information	Confirmation of locations of emission points.	24/01/18
Additional Information	Response to POC2 providing a BAT review of the final power station design.	01/06/18
Response to regulation 61(1) Notice – request for information dated 01/05/18 EPR/TP3538GF/V004	Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17th August 2017.	31/12/18
Additional Information	Compliance and operating techniques identified in response to the BAT Conclusions 4, 6, 7, 8, 9, 12, 13, 16, 17, 24, 25, 26, 27 and details regarding energy efficiency.	21/11/19
Additional Information	Compliance and operating techniques identified in response to the BAT Conclusions 7, 12 and 26	10/12/19

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	The Operator shall submit a written report to the Environment Agency for approval detailing the assessments made during the commissioning period in line with the report submitted in response to POC6, as approved by the Environment Agency. These assessments shall include, but not be limited to, the optimisation of SNCR, and emission abatement additives; comparison of process parameters with those laid out within the Permit Application; efficiency of fugitive emission and noise controls; the calculated net thermal inputs of all combustion equipment and continuous emission monitoring results must be logged. Any changes proposed or done as a result of the commissioning of the plant shall be detailed within the report. The report shall include a record of any changes made and an improvement programme and a timetable for implementation for any proposed changes. The report shall be implemented in accordance with the Environment Agency's written approval.	3 months after start of operations
IC2	<p>The Operator shall submit a report to the Environment Agency detailing the metals content of the emissions to air through A1 stack. The metals tested should include, but not be limited to; cadmium, mercury, chromium, arsenic, vanadium, copper, zinc, nickel and lead. The analysis shall be carried out during the combustion of woods from distinct geographical areas and be representative of the full range of wood received as fuel at the site. At least 3 separate analysis campaigns shall be completed. The report shall indicate the geographical source and the nature of the wood that was burnt during each air emission analysis period.</p> <p>The report shall also include a plan for on-going analysis of the metals content of emissions from A1 stack. As a minimum this plan shall include metal analysis of air emissions for all wood sourced from distinct geographical areas other than those assessed during the initial sampling period.</p> <p>The report shall include proposals for how metals are to be monitored from stack A1 and propose emissions limits based on actual emissions and the need to protect the environment. It shall include a timetable for implementation of the proposed monitoring arrangements. The report shall be implemented in accordance with the Environment Agency's written approval.</p>	6 months after completion of commissioning
IC3	The Operator shall submit a report to the Environment Agency detailing an assessment of the operational % conversion efficiency of the power station. Where the calculated operational % conversion efficiency is lower than 36% the Operator shall assess how the conversion efficiency can be improved. The report shall also include the energy efficiency information outlined in sections 2.7.1 and 2.7.2 of the Horizontal Guidance note IPPC H2: Energy Efficiency. A written report summarising the assessment including an improvement programme, with a timetable for implementation, for any improvements identified shall be submitted to the Environment Agency for approval. Any improvements shall be implemented in accordance with the Environment Agency's written approval.	12 months after start of operation
IC4	<p><u>BAT Conclusion 9</u></p> <p>The operator shall submit a procedure for approval outlining how the Biomass will be characterised in line with Best Available Techniques Conclusion 9 in order to improve general performance of combustion and to reduce emissions to air. This shall include characterisation of all substances/parameters as specified for Biomass under this BAT conclusion. The procedure must include, but is not limited to, the following elements:</p> <p>i) Initial fuel characterisation;</p>	01/06/21

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	ii) Regular testing of the fuel quality to check that it is consistent with the initial characterisation and according to the plant design specifications; and iii) Subsequent adjustments of the plant settings as and when needed and practicable.	
IC5	<p><u>BAT Conclusions 2, 12, Table 8</u></p> <p>The operator shall provide a report detailing the net electrical efficiency for the plant, which shall be in accordance with the BAT-AEEL range specified in table 8 of the Large Combustion Plant (LCP) BAT Conclusions document, which for this plant is between 28-38%.</p> <p>The report shall also detail the energy efficiency measures that will be in place at the installation. The techniques shall be an appropriate combination of those listed under BAT 12 of the LCP BAT Conclusions document.</p>	01/06/21
IC6	<p><u>BAT Conclusion 4</u></p> <p>The operator shall submit a plan outlining the monitoring standards that will be in place for NH₃, NO_x, CO, SO₂, HCl, HF and Dust.</p>	01/06/21
IC7	<p>A written report shall be submitted to the Environment Agency for approval. The report shall contain an impact assessment demonstrating that there is no significant environmental risk associated with black start operations and propose a methodology for minimisation of environmental impact during such a period of operation and for reporting instances of black start operation.</p> <p>The plant can be operated as set out in condition 2.3.7 of the permit once the report has been approved by the Environment Agency. The methodology for operation and reporting set out in the report shall be implemented by the Operator from the date of approval by the Environment Agency.</p>	12 months from variation issue
IC8	<p><u>Air emission points</u></p> <p>The Operator shall carry out an assessment of the impact of dust emissions from air emission points from vents associated with biomass storage and handling areas. The assessment shall use the Environment Agency H1 tool or equivalent. A report on the assessment shall be submitted to the Environment Agency for approval.</p> <p>In the event that the assessment shows that an environmental standard could be exceeded, the report shall include proposals for further investigative and improvement works.</p>	4 months prior to start of operations

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
Preoperational Conditions POC1, POC5, POC9, POC13 and POC14 confirmed completed and therefore, deleted from the permit through PR/TP3538GF/V004.	
POC2	At least 4 months prior to commencement of operations at the site the Operator shall send to the Environment Agency a BAT review for the final power station design for approval. This shall include an assessment of raw material delivery, storage, handling, conveying, drying, milling, burning, emissions control and details of waste production. It shall also contain an assessment of the operation of the boilers and turbines against the BAT Conclusions and the relevant, prevailing Environment Agency Sector Guidance Notes.
POC3	At least 3 months prior to the start of operations at the site the Operator shall send a Noise Management Plan to the Environment Agency at the Reporting Address. The plan shall include revised noise modelling based on the manufacturer's sound power level data of the installed equipment. Operations at the site shall not commence until the Noise Management Plan is approved in writing by the Environment Agency.
POC4	At least 3 months prior to start of operations at the site the Operator shall produce the site's Environment Management System (EMS) including an Accident Management Plan. The EMS shall be developed in line with the requirements set out in "Getting the basics right – how to comply with your environmental permit" and EPR1.01 Technical Guidance Note Combustion Activities, dated March 2009. It shall also meet the requirements of BAT 1 points (i) – (xvi) and BAT10 as specified in the Large Combustion Plant BAT Conclusions document. The Operator shall indicate whether the Environment Management System has been accredited by an external body or if appropriate submit a schedule by which the EMS will be subject to accreditation.
POC6	At least 2 months prior to the start of operations at the site the Operator shall submit a written commercialisation monitoring plan to the Environment Agency. The plan shall include details, but not be limited to, how the Operator will assess the optimisation of SNCR, and the use of /optimisation of emission abatement additives; monitor process variables and compare to those laid out within the Permit Application; assess efficiency of fugitive emission and noise controls; and analyse continuous emission monitoring results and how they relate to process conditions.
POC7	At least 1 month prior to start of operations at the site the Operator shall submit a written energy efficiency plan for approval to the Environment Agency at the Reporting Address. The energy efficiency plan should be in line with the requirements set out within Section 1.1 of the IPPC Technical Guidance Note EPR1.01 - Combustion Activities dated March 2009.
POC8	At least 1 month prior to start of operations at the site the Operator shall send details on how the waste produced at the site will be minimised and how any waste produced will be re-used, recycled and/or disposed. The report shall include an assessment of whether the proposed routes represent the Best Environmental Option for each waste. Where potential improvements are identified the Operator shall propose a time-tabled plan to implement such improvements.
POC10	At least 1 month prior to start of operations at the site the Operator shall submit a written Fire Prevention Plan for approval to the Environment Agency.
POC11	At least 1 month prior to start of operations at the site the Operator shall submit a written definition of the Start up and Shut down thresholds for approval by the Environment Agency and obtain the Environment Agency's written approval to them.
POC12	At least 4 months prior to the start of operations the Operator shall carry out an assessment to identify measures to reduce the risk of a pollution incident caused by flooding, produce a flood protection management plan and an improvement programme covering any measures identified in the assessment. A written report summarising the assessment and an improvement programme, with timetable for

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
	implementation for any measures identified, shall be implemented in accordance with the Environment Agency's written approval.

Table S1.5 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum start up load” Load in MW and as percent of rated power output (%) and/or steam/hot water flow rate in xx/xx and as percent of rated thermal output (%) and/or discrete processes	“Minimum shut-down load” Load in MW and as percent of rated power output (%) and/or steam/hot water flow rate in xx/xx and as percent of rated thermal output (%) and/or discrete processes
A1	In line with POC11	In line with POC11

Schedule 2 – Raw materials and fuels

Raw materials and fuel description	Specification
Virgin wood chip	Wood chip derived from virgin timber
Virgin wood pellets	Wood pellets derived from virgin timber
Gas oil	Less than 0.1% w/w sulphur content

Limited to the relevant exempt biomass codes listed below that qualify as biomass under point (b) (v) of paragraph (31) of Article 3 of Directive 2010/75/EU of European Parliament and of the Council of 24 November 2010 on industrial emission (Integrated Pollution and Control) and are included in the application or otherwise approved in writing by the Environment Agency.	
Maximum quantity	75,000 Tonnes per year
Waste code	Description
10	Wastes from thermal processes
10 01	Wastes from power stations and other combustion plants
10 01 03	Fly-ash from untreated wood
10 01 01	Bottom ash from untreated wood
10 01 24	Sands from fluidised beds

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/m ³	Monthly mean of validated hourly averages	Continuous	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/m ³	Daily mean of validated hourly averages	Continuous	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	300 mg/m ³	95%ile of validated hourly averages within a calendar year	Continuous	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Sulphur Dioxide (SO ₂)	53 mg/m ³	Monthly mean of validated hourly averages	Continuous	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Sulphur Dioxide (SO ₂)	165 mg/m ³	Daily mean of validated hour averages	Continuous	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Sulphur Dioxide (SO ₂)	300 mg/m ³	95%ile of validated hourly averages within a calendar year	Continuous	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Dust	10 mg/m ³	Monthly mean of validated hourly averages	Continuous	EN 14181

Table S3.1 Point source emissions to air						
- emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Dust	10 mg/m ³	Daily mean of validated hourly averages	Continuous	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Dust	40 mg/m ³	95 th ile of validated hourly averages within a calendar year	Continuous	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Hydrogen Chloride (HCl)	20 mg/m ³	Daily mean of validated average hourly averages	Continuous	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Ammonia (NH ₃)	5 mg/m ³	Average over monitoring period Or Annual average	Continuous	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Metals	Note 1	Note 1	Note 1	Note 1
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Oxygen	-	-	Continuous As appropriate to reference	EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Water vapour	-	-	Continuous As appropriate to reference	EN 14181

Table S3.1 Point source emissions to air						
- emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
M1 [As approved in writing following the completion of POC9]	Stand-by generator	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	-	-	-	-
M1 [As approved in writing following the completion of POC9]	Stand-by generator	Sulphur Dioxide (SO ₂)	-	-	-	-
M1 [As approved in writing following the completion of POC9]	Stand-by generator	Dust	-	-	-	-
M2 [Point M2 on site plan in schedule7]	Auxiliary boiler	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	-	-	-	-
M2 [Point M2 on site plan in schedule7]	Auxiliary boiler	Sulphur Dioxide (SO ₂)	-	-	-	-
M2 [Point M2 on site plan in schedule7]	Auxiliary boiler	Dust	-	-	-	-
M3 [Point M3 on site plan in Schedule 7]	Wood chip dryer	Dust and water vapour	-	-	-	-

Note 1: As approved in writing following the completion of IC2.

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/Nm ³	Monthly mean of validated hourly averages	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/Nm ³	Daily mean of validated hourly averages	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	300 mg/Nm ³	95%ile of validated hourly averages within a calendar year	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/Nm ³	Yearly average	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Carbon monoxide	80 mg/Nm ³	Yearly average	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Sulphur Dioxide (SO ₂)	53 mg/Nm ³	Monthly mean of validated hourly averages	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Sulphur Dioxide (SO ₂)	85 mg/Nm ³	Daily mean of validated hourly averages	Continuous	In accordance with IC6

Table S3.1a Point source emissions to air						
- emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Sulphur Dioxide (SO ₂)	300 mg/Nm ³	95%ile of validated hourly averages within a calendar year	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Sulphur Dioxide (SO ₂)	50 mg/Nm ³	Yearly average	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Dust	10 mg/Nm ³	Monthly mean of validated hourly average	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Dust	10 mg/Nm ³	Daily mean of validated hourly averages	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Dust	40 mg/Nm ³	95%ile of validated hourly averages within a calendar year	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Dust	10 mg/Nm ³	Yearly average	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Hydrogen Chloride (HCl)	12 mg/Nm ³	Daily mean of validated hourly averages	Continuous	In accordance with IC6

Table S3.1a Point source emissions to air						
- emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Hydrogen Chloride (HCl)	5 mg/Nm ³	Yearly average	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Ammonia (NH ₃)	5 mg/Nm ³	Yearly average	Continuous	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Metals	Note 1	Note 1	Note 1	Note 1
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Hydrogen Fluoride (HF)	<1 mg/Nm ³	Average over the sampling period	A least once per year	In accordance with IC6
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Mercury (Hg)	5 µg/Nm ³	Average over the sampling period	A least once per year	EN 13211
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Flow	-	-	Continuous As appropriate to reference	EN ISO 16911 and M2
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Water vapour	-	-	Continuous As appropriate to reference	BS EN 14181

Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
A1 [Point A1 on site plan in schedule 7]	LCP No. 403 Circulating fluidised bed boiler on biomass	As required by the Method Implementation Document for BS EN 15259	-	-	Pre-operation and when there is a significant operational change	BS EN 15259

Note 1: As approved in writing following the completion of IC2.

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
W1 [position as indicated in approved response to POC1 submitted on 13/03/19 – CAR1: TP3538GF/032984]	Total suspended solids	Surface water from non-operational areas, site effluent from demineralisation plant, boiler blowdown and wash waters from cleaning heat recovery unit (HRU) and fly ash silo.	30 mg/ml	24-hour flow proportional sample	Weekly	BS EN 872
	Oil		5 mg/l	24-hour flow proportional sample	Weekly	IP 426
	pH		6 - 9	24-hour flow proportional sample	Weekly	ASTM D1783
	Nitrate		70 mg/l	24-hour flow proportional sample	Monthly	BS EN ISO 13395

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
LCP 403	Net electrical efficiency	Once within 4 months after commissioning and then after each modification that could significantly affect these parameters	EN Standards or equivalent	-

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Oxides of nitrogen	A1	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
		Every year where there is a yearly average	1 January
Carbon Monoxide	A1	Every year where there is a yearly average	1 January
Sulphur dioxide	A1	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
		Every year where there is a yearly average	1 January
Hydrogen Chloride	A1	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
		Every year where there is a yearly average	1 January
Hydrogen Fluoride	A1	Annually	1 January
Dust	A1	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
		Every year where there is a yearly average	1 January
Mercury	A1	Annually	1 January
Ammonia	A1	Annually	1 January
Emissions to water Parameters as required by condition 3.5.1	W1	Every 6 months	1 January, 1 July

Table S4.2 Resource Efficiency Metrics	
Parameter	Units
Electricity Exported	GWhr
Heat Exported	GWhr

Table S4.2 Resource Efficiency Metrics	
Parameter	Units
Mechanical Power Provided	GWhr
Fossil Fuel Energy Consumption	GWhr
Non-Fossil Fuel Energy Consumption	GWhr
Annual Operating Hours	hr
Water Abstracted from Fresh Water Source	m ³
Water Abstracted from Borehole Source	m ³
Water Abstracted from Estuarine Water Source	m ³
Water Abstracted from Sea Water Source	m ³
Water Abstracted from Mains Water Source	m ³
Gross Total Water Used	m ³
Net Water Used	m ³
Hazardous Waste Transferred for Disposal at another installation	t
Hazardous Waste Transferred for Recovery at another installation	t
Non-Hazardous Waste Transferred for Disposal at another installation	t
Non-Hazardous Waste Transferred for Recovery at another installation	t
Waste recovered to Quality Protocol Specification and transferred off-site	t
Waste transferred directly off-site for use under an exemption / position statement	t

Table S4.3 Large Combustion Plant Performance parameters for reporting to DEFRA		
Parameter	Frequency of assessment	Units
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NO _x for each LCP	Annually	t
Total Emissions to Air of SO ₂ for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP	Annually	hr

Table S4.4 Reporting forms		
Media/ parameter	Reporting format	Agency recipient
Air & Energy	Form IED AR1 – SO ₂ , NO _x and dust mass emission and energy. Form as agreed in writing by the Environment Agency.	National and Area Office
LCP	Form IED HR1 – operating hours. Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form IED CON 1 – continuous monitoring. Form as agreed in writing by the Environment Agency.	Area Office

Table S4.4 Reporting forms		
Media/ parameter	Reporting format	Agency recipient
CEMs	Form IED CEM – invalidation Log. Form as agreed in writing by the Environment Agency.	Area Office
LCP	Form IED BD1 - cumulative annual rolling malfunction and breakdown hours. Form as agreed in writing by the Environment Agency.	Area Office
Air	Form IED MF1 – pollutant concentrations when during any day with malfunction or breakdown of abatement plant. Form as agreed in writing by the Environment Agency.	Area Office
Air	Form IED PM1 - discontinuous monitoring and load. Form as agreed in writing by the Environment Agency.	Area Office
Resource Efficiency	Form REM1 – resource efficiency annual report Form as agreed in writing by the Environment Agency.	National and Area Office
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	National and Area Office
Water 1	Form water 1 or other form as agreed in writing by the Environment Agency	Area Office

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	
Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Part C Malfunction or Breakdown of LCP abatement equipment

Permit Number	
Name of operator	
Location of Facility	
LCP Number	
Malfunction or breakdown	
Date of malfunction or breakdown	

(a) Notification requirements for any malfunction and breakdown of abatement equipment as defined by the Industrial Emission Directive*.	
To be notified within 48 hours of abatement equipment malfunction and breakdown	
Time at which malfunction or breakdown commenced	
Time at which malfunction or breakdown ceased	
Duration of the breakdown event in hours and minutes	
Reasons for malfunction or breakdown	
Where the abatement plant has failed, give the hourly average concentration of all measured pollutants.	
Cumulative breakdown operation in current year (at end of present event)	
Cumulative malfunction operation in current year (at end of present event)	
Name**	
Post	
Signature **	
Date	

* See section 3.6 and Appendix E of ESI Compliance Protocol for guidance

** authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“Air Quality Risk Assessment” has the meaning given in Annex D of IED Compliance Protocol for Utility Boilers and Gas Turbines.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

ash” or “ashes” means all ashes derived from the combustion process on the installation and includes pulverised fuel ash (PFA) and furnace bottom ash (FBA).

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“average over the sampling period” means the average value of three consecutive measurements of at least 30 minutes each [or as agreed in writing with the Environment Agency].

“average of samples obtained during one year” means the average of the values obtained during one year of the periodic measurements taken with the monitoring frequency set for each parameter.

“background concentration” means such concentration of that substance as is present in:

for emissions to surface water, the surface water quality up-gradient of the site; or

for emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge.

BAT” means best available techniques

“biomass” means:

- (a) vegetable matter from agriculture and forestry;
- (b) vegetable waste from the food processing industry, if the heat generated is recovered;
- (c) fibrous vegetable waste from virgin pulp production and from production of paper from pulp, if it is co-incinerated at the place of production and the heat generated is recovered;
- (d) cork waste; and
- (e) wood waste with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coating, and which includes in particular such wood waste originating from construction and demolition waste.

“base load” means: (i) as a mode of operation, operating for >4000hrs pa; and (ii) as a load, the maximum load under ISO conditions that can be sustained continuously, i.e. maximum continuous rating.

“Black Start” means the procedure to recover from a total or partial shutdown of the UK Transmission System which has caused an extensive loss of supplies. This entails isolated power stations being started individually and gradually being reconnected to other power stations and substations in order to form an interconnected system again.

“breakdown” has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“calendar monthly mean” means the value across a calendar month of all validated hourly means.

“CEN” means Comité Européen de Normalisation.

“Combustion Technical Guidance Note” means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27th July 2005 published by Environment Agency.

“commissioning” means testing of the installation that involves any operation of a Large Combustion Plant referenced in schedule 1, table S1.1.

“daily average” means the average over a period of 24 hours of validated hourly averages obtained by continuous measurements.

“disposal” means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“DLN” means dry, low NO_x burners.

“emergency plant” means a plant which operates for the sole purpose of providing power at a site during an onsite emergency and/or during a black start and which does not provide balancing services or demand side response services.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“Energy efficiency” means the annual net plant energy efficiency, the value for which is calculated from the operational data collected over the year.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

“large combustion plant” or “LCP” is a combustion plant or group of combustion plants discharging waste gases through a common windshield or stack, where the total thermal input is 50 MW or more, based on net calorific value. The calculation of thermal input, excludes individual combustion plants with a rated thermal input below 15MW.

“low polluting fuels” means biomass or coal with an average as-received sulphur content of less than 0.4% by mass as described in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“malfunction” has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“MCR” means maximum continuous rating.

“MSDL” means minimum shut-down load as defined in Implementing Decision 2012/249/EU.

“MSUL” means minimum start-up load as defined in Implementing Decision 2012/249/EU.

“Natural gas” means naturally occurring methane with no more than 20% by volume of inert or other constituents.

“ncv” means net calorific value.

“Net electrical efficiency” means the ratio between the net electrical output (electricity produced minus the imported energy) and the fuel/feedstock energy input (as the fuel/feedstock lower heating value) at the combustion unit boundary over a given period of time.

“non-emergency plant” means a plant which provides balancing services or demand side response services.

“operational hours” are whole hours commencing from the first unit ending start up and ending when the last unit commences shut down.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“SI” means site inspector.

“Standby fuel” means alternative liquid fuels that are used in emergency situations when the gas fuel which is normally used, is not available.

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

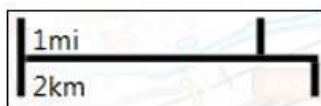
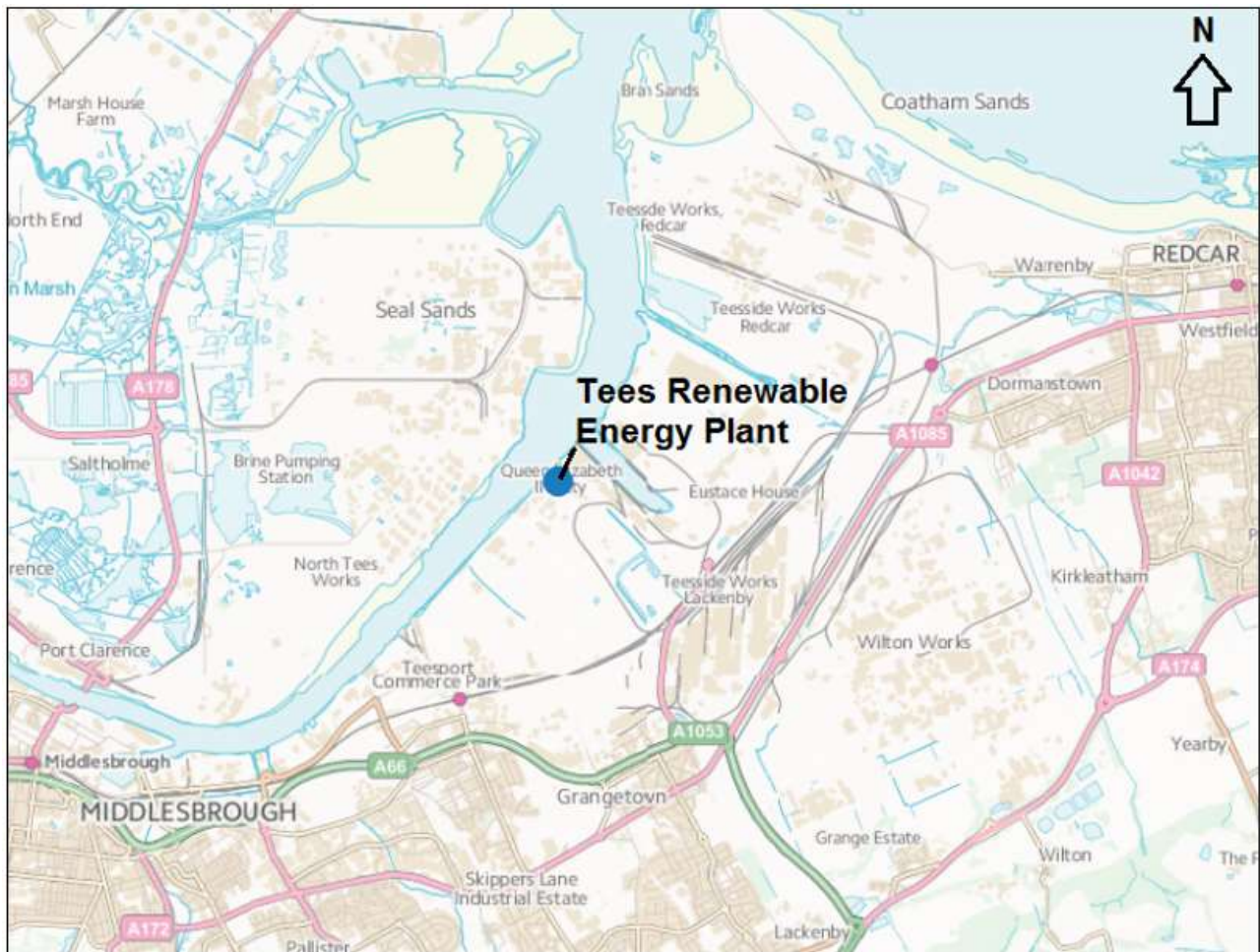
- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition engine combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; and/or
- in relation to emissions from combustion processes comprising a gas turbine with a waste heat boiler, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry, unless the waste heat boiler is operating alone, in which case, with an oxygen content of 3% dry for liquid and gaseous fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

“year” means calendar year ending 31 December.

“yearly average” means the average over a period of one year of validated hourly averages obtained by continuous measurements.

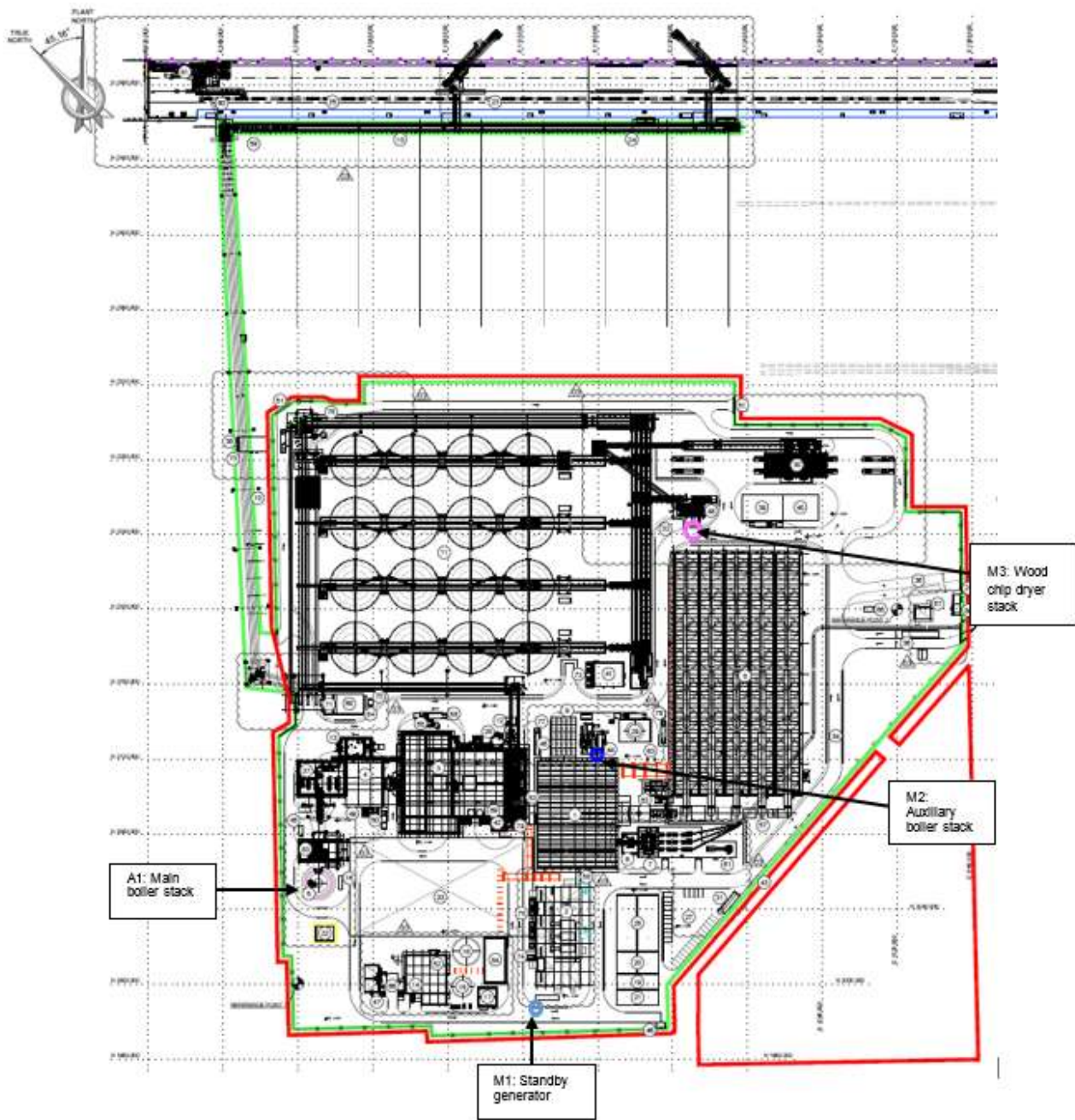
Schedule 7 – Site plan

Site Location Plan



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Installation Boundary Plan



END OF PERMIT