



# **AIR QUALITY AND EMISSIONS MITIGATION STATEMENT**

**Proposal for installation of a new 210 kW Biomass  
Boiler**

**REVISED 21/01/2021**

**(SITE LOCATION)**

**Pearson Packages Ltd, Benington Road, Butterwick,  
Boston, Lincolnshire, PE22 0EX**

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## **1. Introduction**

This Air Quality and Emissions Mitigation Statement has been prepared by Andrius Lescinskas, Glen Farrow UK Ltd, in support of the full Planning Application for a new 210kW Biomass Boiler at Pearson Packages Ltd, Benington Road, Butterwick, Boston, Lincolnshire, PE22 0EX.

The planning application is prepared by Mr. Lee Ward, Hayward Architects Ltd. who already been in touch with local authorities.

We been advised to use the Air Quality and Emissions Mitigation guidance “ED054-Draft-East-Midlands-Air-Quality-Network-PLANNING-GUIDANCE-v3” to complete the planning application.

The purpose of this statement is to identify the environmental impact of the development to surrounding area.

## **2. The Site and Surroundings**

### **2.1. Location**

The application site is situated within the Butterwick area, Boston Borough Council, Lincolnshire.

The area is a rural village and dispersed. The local area has variety of farms and commercial properties and dwellings. There is an open area (fields) to the North of the proposed boiler location and a farm approx. 200 m North East direction.

### **2.2. The Site**

The site comprises of steel construction warehouses, sheds and a farm house at the road side of the farm.

The farm main activities are manufacturing wooden crates for vegetable and fruit transport and storage. The does not have any architectural merit as existing.

### **3. Access**

Site can be accessed via Benington Road. The route to site would be from A52 via Butterwick Road or A52 to Mill Lane, then Benington Road for light vehicles. The installation would not require a new access from the main or site roads. All the deliveries of fuel and maintenance will be utilising the existing access and this will be very low in volume. The Biomass Boiler and all associated equipment will be unloaded via a HIAB attached to the delivery lorry and forklifts available on site, which is a one-off delivery. Fuel will mainly be sourced from site activities.

### **4. Design**

#### **4.1. Description of the Application Proposal**

As mentioned previously, the project involves the installation of 1x 210kW Biomass Boiler (Make - GlenFarrow UK Ltd, Model - GF210), and new heating system in the workshop. Currently there is no heating system in the warehouse/workshop and during the seasonally colder weather the only source of heating is portable diesel/kerosene and electric heaters. The Biomass Boiler will have an application to be accredited to the Renewable Heat Incentive (RHI) submitted after installation, which is a UK Government scheme set up to encourage uptake of renewable heat technologies amongst householders, communities and businesses through financial incentives. It is the first of its kind in the world and the UK Government expects the RHI to contribute towards the 2021 ambition of 12% of heating coming from renewable sources.

The Biomass Boiler will be fuelled with clean and dry wooden logs and/ or cereal crop straw sourced from site activities/own land.

#### **4.2. Scale and Appearance**

The Biomass Boiler will be placed on an existing concrete floor nearby the warehouses and workshops. It will be heating a warehouse/workshop nearby. The Biomass Boiler is 1.58m wide, 2.79 m long and 2 m high, excluding flue and pipework. The Boiler will require clearance 0.5 m from the wall. The flue will be attached to the boiler and will be 7 m high (total height of the ground level 9 m).

Please find the elevation drawing attached.

The Biomass Boiler has a blue colour framework clad with brushed stainless steel. The flue will be stainless steel finish.

Figure 1 Biomass Boiler GF210



(Installed boiler Elsewhere)

### 4.3. Layout

The Biomass Boiler will be situated outside in the yard, facing the yard (South West), for ease of loading.

## 5. Air Quality and Emissions Mitigation

### 5.1. Development Classification

The development will not lead to significant change in road traffic flows as the fuel will be sourced from own produce and additional fuel deliveries will be on rare occasions. The servicing and maintenance traffic will not affect traffic as well. However, the development may affect air quality with as it is Biomass Boiler.

Because the development doesn't fall into the DfT guidance, we are using DEFRA approved tools for Biomass Boilers instead to determine impact to air quality.

Proposed Boiler site is not within AQMA boundaries.

### 5.2. Mitigation

The purpose of mitigation is to avoid, reduce and where possible remedy or offset, any significant, negative (adverse) effects on the environment arising from the proposed development. Mitigation is thus not solely concerned with "damage limitation", but may also consider measures that could compensate for unavoidable residual effects.

#### 5.2.1. Emissions

The Glen Farrow GF210 Biomass Boiler has been tested for particulate matter and nitrogen oxides in the emissions and passed RHI requirements. *Please refer to "Emission Certificate" supplement.*

The emissions produced by operating the proposed biomass boiler will be discharged into atmosphere at 9 m height and according to DEFRA Biomass Desktop Screening Tool v7 is sufficient to minimise effect to the background pollution levels

#### 5.2.2. Desktop Screening Tools

DEFRA Biomass Emissions Screening Tool indicates if full Air Quality assessment is required for proposed stack height.

The nearest grid coordinate background pollution values were used - N 345500 E 528500 from DEFRA background pollution mapping section.

The tallest building in the yard is Shed located 20 metres to the west of the proposed boiler location and measures 8 m tall to the ridge. The background emissions data and building height and proposed stack height were entered to DEFRA Biomass Emissions Screening Tool to determine maximum allowed stack emission rate.

We compare proposed biomass boiler emission rates with calculated target rates:

GF210 Biomass Boiler emission rates:

PM - 56.5 mg/m<sup>3</sup>; NO<sub>x</sub> 115.3 mg/m<sup>3</sup> @ STP 273K, 101.3kPa, 11% oxygen

PM – 40.2 g/hr (**0.01118 g/s**); NO<sub>x</sub> 82.1 g/hr (**0.0228 g/s**) @ STP 273K, 101.3kPa, 11%

Oxygen

From Biomass Emissions Screening tool target emission rates @ 9m stack height:

PM<sub>10</sub> – **0.013 g/s**

NO<sub>x</sub> Annual Mean Objective – **0.0635 g/s**

NO<sub>x</sub> 1-Hour Mean Objective – **0.0329 g/s**

GF210 emission rates are below target emission values, therefore it is not likely that objectives for PM10, NO<sub>2</sub> (NO<sub>x</sub>) Annual and NO<sub>2</sub> (NO<sub>x</sub>) 1 – Hour mean will be exceeded. For this reason, flue extension or full air quality assessment is not required.

*Please refer to “Biomass Emissions Screening Tool v7” supplements.*

### **5.2.3. Installation works**

The Biomass Boiler delivery will involve a single Articulated Lorry with standard 40 ft flat bed trailer. The vehicle will have a HIAB attachment, which will be used to unload boiler and some of the material of the trailer. During the installation, one 7.5t goods lorry will deliver the pipework and fittings required for the installation, one van will deliver the pipe lagging and one further lorry to deliver and collect the lifting equipment. Three engineers will commute to site with three vans for around ten working days and one engineer in a van to lag the pipework once installed. This amount of traffic will not cause noticeable mitigation in the busy farming area.

The installation works will include installing pipework, assembling the flue and support. Most of the pipework will be installed internally to the premises heated. The lengths of pipe will be cut to length and installed using crimped press fittings.

### **5.2.4. Boiler Operation**

To achieve correct performance of the Biomass Boiler, the operatives will be trained by an experience Glen Farrow commissioning engineer, provided with contacts for assistance via telephone call or additional post installation visits and offered a Biomass Boiler servicing package.

### **5.2.5. Noise**

During the installation highest noise source will be a 4" grinder operating cutting the pipework. Because of site location and nature, this noise will not stand out of the background noises existing in the farm. Most of the tools to be used will be battery powered light hand tools. This is all temporary noise, emitted during installation only.

The workshop heaters – Fan Coil Units, will produce up to max 53 dB(A) sound pressure when operational

The boiler burner fan can produce up to 87.5 dB(A) sound pressure. To mitigate the sound pressure and for other safety reasons, the fan is enclosed with a cover which reduces the sound levels. The fan opening is facing floor which provides further reduction to sound levels. The buildings and stored product – vegetable crates will shield sound emitted from the boiler.



## 6. Conclusions

The proposed installation will provide a sustainable, renewable heat source for the workshop premises and eliminating requirement for fossil fuels use for heating. The proposed development also will significantly reduce the fuel and wood / straw removal costs. The heating system will also increase the productivity of workers and will help to protect the produce from frost damage.

The proposed installation is unlikely to exceed stack and noise emission limits.

For these reasons we would request that the planning permission would be granted for new Biomass Boiler installation.