Application No: 13/4818C

Location: Sandbach County High School for Girls, Middlewich Road, Sandbach, Cheshire, CW11 3NT

Proposal: The installation of biomass boiler with ancillary plant including flue and the construction of the plan enclosure. Resubmission of 13/3444C

Applicant: Mr John Bailey, Mathieson Biomass Ltd.

Expiry Date: 08-Jan-2014

SUMMARY RECOMMENDATION
Approve subject to conditions
MAIN ISSUES
Principle
Design
Amenity

REASON FOR REFERRAL

The application is referred to Southern Planning Committee due to call in by Councillor Moran ; *"In view of the continued public interest and concern with this unusual application, it is considered that there are a number of key issues that should be debated and tested against appropriate policies by the Planning Committee, in particular those relating to policies GR6 and GR8, as follows:*

1. Adverse impact on the amenity to nearby residents, including excessive operating noise levels from the boiler and extraction equipment, along with the resultant disturbance and harm;

2. Detrimental impact on amenity, again to nearby residents, due to the proximity of the flue/stack to nearby houses;

3. Re-assurance that the emissions from a large scale wood burning boiler would not be excessive and not cause harm through environmental disturbance and/or pollution;

4. That the flue/stack height is adequate to allow proper dispersal of emissions and pollutants, and allowing for the existing roof top plant and telecoms mast;

5. Re-assurance that large volumes of fuel storage, delivery arrangements, ash removal and resultant dust will not cause issues and harm to residents and pets."

DESCRIPTION OF SITE AND CONTEXT

The application relates to Sandbach County High School (for Girls) that is situated to the north of Middlewich Road, the main route leading out to the west out of Sandbach. The school site is situated within the Settlement Zone and the site is a protected area of open space/recreational facility by way of policy RC2 of the Congleton Borough Local Plan. Residential properties predominantly bound the application site to the north, south, east and west. The nearest dwellings are approximately 70 metres to the west and south.

Members will recall deferring this application at February Committee to undertake a Site Visit to an existing Biomass Boiler on school premises in the area.

DETAILS OF PROPOSAL

The application relates to the installation of a biomass boiler with ancillary plant including flue and the construction of the plant enclosure. The proposed boiler and plant within an enclosed space within the school complex and would be positioned towards the southern boundary of the school site to Middlewich Road. The boiler would be a combustion chamber made from fireproof ceramic with a 2-zone step grate, manufactured from solid cast chromium steel with fully automated combustion unit ash removal; fully insulated boiler casing, vertical heat exchanger with automatic mechanical cleaning. It would use wood pellets for fuel.

The boiler itself would be 4.735 metres long, 1.375 metres wide and 1.977 metres high. The boiler is to be contained within a purpose built enclosure with the following construction: blockwork walls 100 mm thick; single ply membrane roof with 18 mm moisture resistant plywood: and louvered access doors to south elevation (assumed no acoustic attenuation).The flue would be 0.3 metres in diameter and 15 metres in height would therefore project visibly 5.85 metres above the present roof height of the school.

This application is a resubmission of 13/3444C that was withdrawn to enable further discussions with Environmental Health Officers.

POLICIES

National Planning Policy

National Planning Policy Framework

Local Plan Policy

GR1 (New Development)
GR2 (Design)
GR6 (Amenity and Health)

RC2 (Protected Areas of open Space)

Emerging Planning Policy

SE1 (Design)
SE 8 (Renewable and Low Carbon Energy)

CONSULTATIONS (External to Planning)

Environmental Health: At a committee hearing on 12 February the decision on this application was deferred in order to find out more information on the technology. Specifically committee members requested that;

- Regulatory Services and Health Officers visit a similar installation
- Planning committee members visit a similar installation
- Further information on noise
- More information on Deliveries
- More information on fuel types
- Further information on the Air Pollution Model / assessment undertaken
- Question on how the new system compares with the existing system
- Ash disposal

Regulatory Services and Health officers visited a Biomass Boiler installed at Upton by Chester High School, Chester. The boiler was a smaller capacity (350mw as opposed to the 800mw proposed at Sandbach School) however the system is comparable in terms of noise and emissions.

Noise

The noise sources related to the installation are as follows:

- Pumps
- Fans
- The fuel delivery auger (intermittent)
- Deliveries of fuel to the site

It was noted that residential properties were in closer proximity (~40m) to this installation than the proposed installation in Sandbach. It was also noted that the building enclosing the boiler is of a similar construction to the proposed building in Sandbach, is surrounded by School classrooms and is in a courtyard enclosed on 3 sides by the higher school buildings so in a similar position to the proposed application boiler within the school premises at the Sandbach site.

Outside the enclosure the noise was barely audible at 5m from the building in any direction. The noise was not audible off site. Within the enclosure, with the plant in operation the noise was primarily pumps and fans, with an intermittent click from the auger feeding fuel to the

boiler. It was noted that ordinary conversation could be held at 1m without having to raise voices.

When entering standby mode, the main fan noise increased slightly for a period of 5 minutes, however conversation was still possible within the enclosure. Once this had passed the unit was in standby and quieter than operation mode.

Fuel deliveries were not witnessed but are understood to be undertaken by blowing fuel pellets from a tanker into the fuel store. Fuel deliveries take place (on average) every 10 days but are less frequent in summer months and perhaps slightly more frequent (8 days) in the coldest parts of winter. Fuel deliveries take place during the daytime only (as would be proposed at Sandbach) and no complaints have been received by the School or Cheshire West and Chester Council.

In summary, it is the EHO view that noise would not cause a nuisance or loss of residential amenity in accordance with the NPPF and Noise Policy Practice Guidance, and no objection is raised on the grounds of noise subject to adequate condition being attached (see below).

Atmospheric Emissions

Particulate emissions (PM_{10} and $PM_{2.5}$) from burning natural gas tend to be extremely low, typically less than 1 mg/MJ. Boilers burning light fuel oil might have emissions around 5 mg/MJ, while those burning heavy fuel oil might be around 50 mg/MJ and coal might be 120 mg/MJ upwards, and significantly higher for larger and older equipment. The proposed boiler at Sandbach has a MAXIMUM emission limit of 30 mg/MJ (in order to comply with the RHI – Renewable Fuel Incentive – requirements).

The proposed boiler has modern abatement equipment to deal with particulates larger than those described above (known as course)

NO_x (Oxides of Nitrogen) emissions are similarly capped by the RHI at 150 mg/MJ however in practice the boiler will not operate near this level. Typical figures for good modern gas boilers tend to fall around 5-20 mg/MJ, oil boilers at perhaps 50-70 mg/MJ.

Please note these are emission levels and can not be directly compared to concentrations.

Both particulates and NO_2 (one element of NO_x) have the potential to cause short and long term health impacts. As such the EU has stipulated limit values for exposure to these pollutants. The limit values are reproduced below:

Pollutant	**Limit Value (Concentration)**	**Relevant Exposure Period**
NO_2	40 ug/m^3	Annual Mean
NO_2	200 ug/m^3	Hourly Mean
PM_{10}	40 ug/m^3	Annual Mean
PM_{10}	50 ug/m^3	24 Hour mean (not to be

		exceeded more than 35 times per year)

If, therefore, the proposed boiler's emissions would cause concentrations of these pollutants to rise over the above limits there would be a concern that human health would be adversely affected.

The proposed boiler in Sandbach will replace an oil fired system which has been in situ for a number of years. As such it is considered the new boiler, whilst not as clean as a comparable gas installation, has potential to be more efficient and comparable emissions if not offer an improvement upon the current oil fired boiler used at the school.

An atmospheric dispersion model was used to ensure that the proposed stack height (15m) was adequate to ensure that any emissions reaching ground level were adequately dispersed to ensure that concentrations are below European health base limit values.

The model used (AERMOD) is approved for use in the UK by the Environment Agency, and the methodology followed is in accordance with DEFRA guidance. Dispersion of pollutants is affected by many factors such as distance from the source, nearby buildings, the terrain, meteorological conditions and other assumptions (such as the chemical conversion rate of NO_x to NO_2).

The model was run for 23 separate receptors to the North, East and South of the source. The West is bounded by open land and there are no receptors. The receptors chosen were the closest ones to the source.

The data input into the model assumes the worst case situation (including the assumption that the boiler will be operated 24 hours a day 365 days per year). In practice the boilers' operation will be during the opening times of the School and Leisure Centre and clearly much less in Summer months. Certification has been provided to show the proposed boiler complies with the emission limits specified above.

The results of the dispersion model predict (with a known uncertainty) that there will be NO exposure at any receptor above the relevant limit values. The degree of change in concentrations (between the existing background without the boiler, and the background + the boiler) is shown to be either imperceptible or small (with one assessed as medium).

The predicted results can be seen in full within the dispersion modelling report (tables 10 – 14). The highest change in concentrations predicted as a result of the boiler is summarised in the table below.

Pollutant	**Predicted increase (ug/m^3)**	**Predicted Total Concentration (ug/m^3)**	**Limit Value (ug/m^3)**
NO_2 Annual Mean	2.98	18.55	40

NO_2 Hourly Mean	27.8	58.94	200
PM_{10} Annual Mean	0.85	14.76	40
PM_{10} 24H Mean	2.3	30.12	50 (35 times per year)

It is therefore the EHO view, based on the above; it is unlikely there will be any exceedances of health based air quality limits due to the installation of the boiler.

This conclusion is based on the boiler being operated as per the information submitted in support of this application, including, the type of boiler, the fuel quality, fuel moisture content and position of the stack and as such, conditions should be attached, to maintain air quality.

Ash Disposal

It has been confirmed that for every tonne of fuel burned, approximately 1KG of ash is generated (equivalent to a bag of sugar). Ash is generated in the fire bed and collected in the Cyclone abatement system. All the ash is disposed of on site, as a fertiliser for gardens etc. In addition ash is collected in the Cyclone Abatement Plant and this is disposed of in the same way.

It is not considered that ash generation is a material issue.

NOISE AND VIBRATION

NOISE MITIGATION SCHEME

The applicant has submitted a scheme of acoustic insulation with the application. The report recommends mitigation designed to ensure that occupants of nearby properties are not adversely affected by noise from the proposed biomass boiler.

The mitigation recommended in the report undertaken by Miller Goodall Reference 100764 shall be implemented prior to the use of the development.

In addition,

Within 6 months of completion and commissioning of the biomass boiler a noise assessment shall be undertaken to validate the noise survey submitted with the application. In the event that the noise survey indicates that additional mitigation would be required this shall be undertaken to the satisfaction of the local planning authority with 3 months. The scope and methodology of the assessment shall be agreed prior to the assessment being undertaken with this Division.

Air Quality Conditions

1. The stack height shall not be less than 15m, and shall be positioned in accordance with revised drawing 3716-302-RevB submitted with the application.

2. The boiler shall be installed in accordance with the manufacturer's recommendations.

3. The boiler shall only be operated using clean wood pellets that comply with a recognised fuel quality standard (such as CEN/TS 14961:2005, or ONAD).

4. The operator shall notify the Local Authority Regulatory Services and Health department of any changes in the fuel type / quality and if required to do so submit a declaration that the new fuel complies with a recognised fuel quality standard (such as CEN/TS 14961:2005, or ONAD) and that emission values (as specified on the Biomass Boiler Information Form) will not be raised.

5. Prior to coming into first use, the method of fuel delivery, to incorporate sheeting and fully enclosed receptacles to minimise spillages and fugitive emissions in all weather conditions shall be submitted to and agreed by the LPA.

6. Prior to coming into first use, the operator shall agree with the Local Authority Regulatory Services and Health department a written maintenance schedule to include removal of ash, inspection, maintenance of particulate arrestment plant, and servicing schedule.

7. The boiler shall be operated in accordance with the above agreements at all times.

8. Any changes / alterations to the maintenance schedule shall be notified to the Local Authority Regulatory Services and Health department

9. There shall be no visible smoke emissions from the boiler flue during normal operation of the plant except during start up procedures, unless otherwise agreed in writing by the LPA.

Reason: To safeguard public health and residential amenity with respect to potential air pollution.

VIEWS OF TOWN COUNCIL

Unless the Council can provide expert opinion giving assurance that both noise and air pollution will be no greater than the levels from existing system, Members object to the proposal. Members expressed serious concern that delivery of large quantities of fuel required for the boiler will add to existing traffic problems on Middlewich Road, and be a risk to school and leisure centre users.

OTHER REPRESENTATIONS

8 letters of objection and a petition of objection with over 80 signatures to the proposal that raise the following;
- Noise and disturbance caused by boiler itself and more HGV visits to the site.
- Visual intrusion of an industrial flue in a residential area and out of character for school.
- Pollution by way of particles and emissions located only 70 metres from residential houses.
- Height of flue insufficient to disperse pollution.
- Health & Safety risk to students at the school.

The full contents of these representations are available to view on the Councils website.

SUPPORTING INFORMATION

Noise Assessment
Emissions Assessment

OFFICER APPRAISAL

Principle of Development

The school site falls within the Sandbach Settlement Zone Line and the proposed development would be situated within the Settlement Zone Line. The site is also designated as an area of protected open space under Local Plan policy RC2 (Protected Areas of Open Space). This policy allows for the development or extension of existing buildings associated with the use of the site, provided that there would be no significant loss of a recreational facility involved or where it would allow for improved facilities on site which would offset any loss the proposal would comply with policy RC2 (Protected Areas of Open Space).

There is some synergy between renewable energy and sustainability in locating such a use; a use that is intended to serve the school. The proposal is broadly supported in paragraphs 97 and 98 of the NPPF that seeks to *"help increase the use and supply of renewable and low carbon energy, local planning authorities should recognise the responsibility on all communities to contribute to energy generation from renewable or low carbon sources."* However, this would depend on the fuel being from a renewable source. The NPPF states applications should be approved *"if its impacts are (or can be made) acceptable."*

The key local considerations in the determination of the application is therefore whether or not the proposal complies with Local Plan policies GR1 (New Development), GR2 (Design) and GR6 (Amenity and Health). It should be noted that the proposal is supported by emerging Policy SE8 (Renewable and Low Carbon Energy) in the Cheshire East Local Plan Strategy Submission Version March 2014.

Design

The existing school complex includes a range of buildings of a functional character. The proposed development functional by nature and only the slim flue would be readily visible. In design terms therefore, it is the view that the proposal would be acceptable having regard to Local Plan policies GR1 (New Development) and GR2 (Design).

Amenity

Clearly the main issue that has led to strong local opposition is concern regarding noise, and more specifically prospective air pollution. The technical detail and nature of the proposed use and the location, the scale of the development and the hours of operation has been rigorously assessed by the Environmental Health Officer.

The Environmental Health Officer is satisfied that the Applicant has addressed concerns in the previous application by increasing the height of the flue. On this basis there would be such a detrimental impact to neighbouring residential amenity to justify refusal as the noise would sit within current ambient noise levels and the emissions would be effectively dispersed. Thus, there are no planning reasons to resist permission. Further to the meeting of Southern Planning Committee in February the EHO has visited a comparable installation in Chester and the findings have been reported earlier in this report, therefore not rehearsed here, with the proposed planning conditions that are proposed to be attached to any approval. It is clear that the proposed heating system would be cleaner in terms of emissions than the present older oil fired system at the school.

As such, subject to the conditions suggested by the EHO the boiler will not have a material impact on neighbouring residential amenity and would comply therefore with Local Plan Policy GR6 (Amenity and Health).

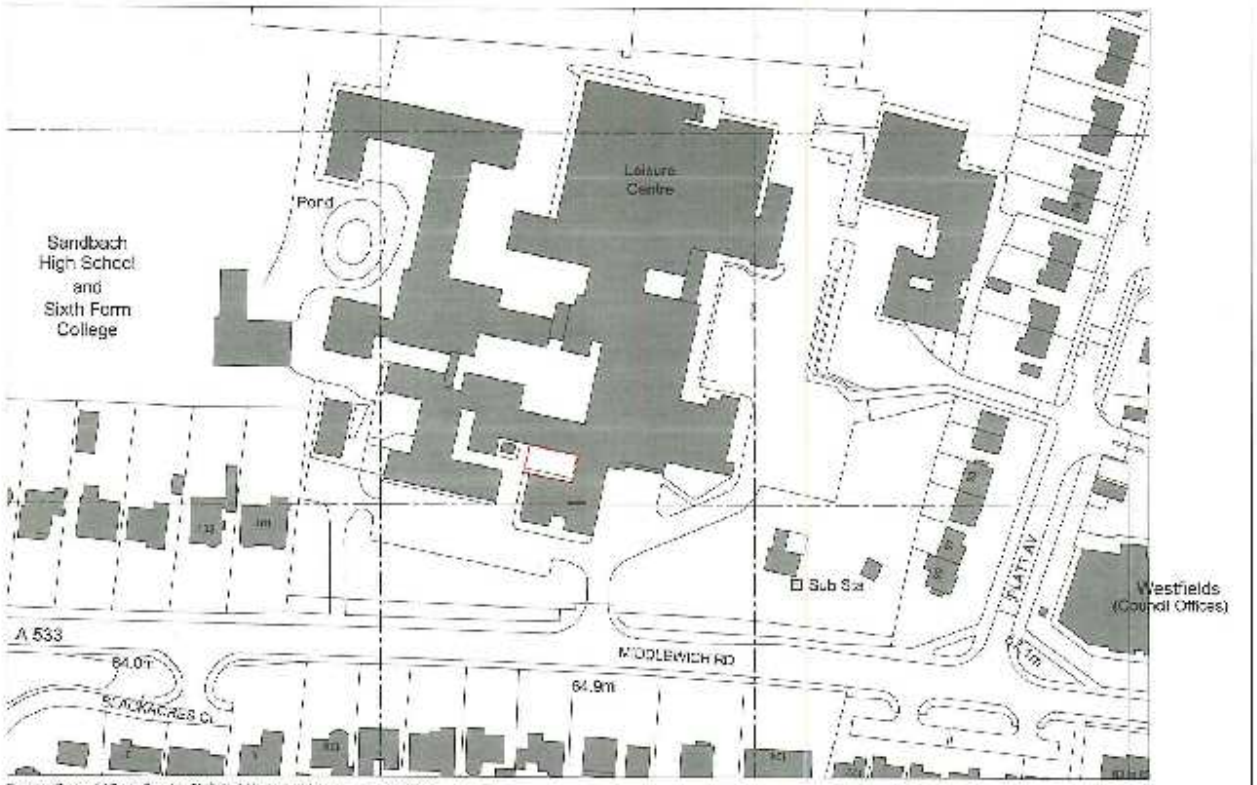
CONCLUSIONS

It is considered that the application proposes an acceptable form of development. On the basis of the very thorough analysis carried out by the EHO, in this context it is unlikely to overly impact on neighbouring residential (by issues of noise, disturbance or emissions) and visual amenity. Therefore, it is considered that the proposal is in accordance with the relevant policies of the Development Plan and is therefore recommended for approval.

RECOMMENDATION - Approve

CONDITIONS

1. Full.
2. Approved Plans.
3. Hours of deliveries.
4. Hours of construction.
5. Stack height.
6. Boiler installation.
7. Boiler operation.
8. Notification of change of fuel.
9. Method of fuel delivery.
10. Maintenance schedule.
11. Operation agreement
12. Alterations to the maintenance schedule subject to notification.
13. Smoke emissions.
14. Noise mitigation scheme.



PLANNING APPLICATION