MEMORANDUM

From:	Head of Housing & Environmental Health	**To:**	Head of Development Control
Author:	Fiona Goode	**FAO:**	Gary Osmond
Extension:	8308	**Extension:**	8490
My Ref:	EPCST/16/03004	**Your Ref:**	F/16/78608
Date:	08 September 2016	**cc:**	

F/16/78608 - Construction of stand alone Energy Centre including a Combined Heat and power engine, boilers, pumps, ancillary equipment and 15 meter high flue together with installation of a District Heating Network and provision of landscape screening.

FLEMING PARK LEISURE CENTRE, PASSFIELD AVENUE, EASTLEIGH, SO50 9NL

Thank you for consulting this Service on the above application. I have reviewed the information provided and wish to make the following comments:

Based on the information provided as part of this application it is our understanding that the following plant is proposed for the energy centre:

- 4x 500kW boilers
- 1x 240kW CHP engine

It is our understanding that each unit will have a single flue however these flues will be connected within a single stack/ chimney.

Therefore my comments are based on the assumption that this is the plant that will be installed and operated as part of the energy centre. Any proposed changes to the plant will require a re-consultation to Environmental Health and may require an amended planning application.

Air Quality:

The combustion gases emitted by Combined Heat and Power systems (CHP) and boilers have an impact on air quality. The exact impact depends upon the performance of the plant, and the dispersion of the emissions from the plant. The dispersion of emissions will be effected by the height and design of the chimney stack/ flue.

The regulation of CHP plant is dependent on the size of the plant. Any plant less than 20MW (thermal capacity), as it is understood to be the case with this application, are regulated under the Clean Air Act by the Local Authority (Environmental Health). Under this legislation the Local Authority are required to approve the chimney height. The chimney also needs to be separately approved by Development Management.

This application is supported by chimney stack height calculations. These calculations have been carried out following the methodology set out in HMIP technical guidance note (Dispersion) D1. The calculations are based on the original plant specifications (3x 1000kW boilers and 1x 240kW CHP engine).

The minimum chimney height has been calculated as 13.69m, but given the uncertainty around the operation of the energy centre and the final plant specification not being confirmed at this time chimney height of 15m has been specified for planning purposes.

We do not have any objections to the proposed chimney height of 15m on air quality grounds. However as the regulator under the Clean Air Act once detailed design of the plant is finalised we will require the chimney height calculations to be updated and submitted to us for approval. Please note it is an offence under the Clean Air Act to operate this type of CHP system without approval from the Local Authority.

This application is also supported by an air quality assessment (Air Quality Assessment - Job No 239802-08 - July 2016 - ARUP). This assessment was undertaken on the assumption that the plant in the energy centre would comprise 3x 1000kW boilers and 1x 688kW CHP unit. As no information was supplied to the air quality consultants relating to the proposed operation of the equipment the assessment was undertaken assuming all plant would operate continuously to try and represent a worst case scenario.

The assessment undertakes dispersion modelling to determine pollutant concentrations associated with the proposed energy centre and compares these results to relevant assessment criteria. The maximum process contribution to annual mean NO2 concentrations has been predicted, as has the maximum process contribution to hourly mean NO2 concentrations. Specific sensitive receptors have been identified and the model shows that at all receptors there will be a negligible impact in relation to both annual and hourly mean NO2 concentrations.

As the model is based on different energy consumption levels and ratio of boiler to CHP than is now proposed, it will need to be updated and re-run once the plant is finalised.

It is also my understanding the energy centre will operate on a variable basis. It may be the case therefore that only one plant unit will be operating due to low demand. The emissions associated with each unit will be vented through the proposed 15m high chimney. The chimney height has been calculated so emissions will be appropriately dispersed when all plant units are operational. Therefore if less plant is operating emission velocity will decrease and emission temperatures may decrease more rapidly, which may result in less efficient dispersion and potentially an increase in ground level concentrations of pollutants.

Therefore the updated air quality assessment will need to take into account proposed operational patterns to ensure the appropriate dispersion of pollutants when less plant units are utilised as well as when all plant units are utilised. It may be necessary for the detailed design to considered a split or aggregated flue design solution within the chimney stack in order to achieve the correct dispersion.

Therefore based on the above I recommend the following conditions:

AIR QUALITY
Development shall not begin until the developer has provided an air quality assessment that demonstrates that the impacts of pollutants from plant associated with the Energy Centre have been considered. This assessment must give due consideration to the technical specifications of the plant units and the proposed minimum and maximum operational emission outputs. If necessary, the report shall include a scheme of mitigation measures for minimising the impacts of these pollutants, this scheme must be submitted for approval by the Local Planning Authority. All works, which form part of the scheme approved by the Local Planning Authority, must be completed before any of the permitted development is operational (unless agreed by the Local Planning Authority) The scheme shall be fully implemented, unless varied with the written permission of the Local Planning Authority in advance of implementation.

PLANT VARIATION
No additional CHP plant, boilers or other equipment shall be installed without the prior written approval of the LPA
Reason - Additional Plant will impact on pollutant emissions

Noise:

Due to the plant being proposed for the Energy Centre there is the potential that the noise associated with this plant will impact on nearby residents as well as users of the leisure centre facilities and bowls club.

This application is support with a noise assessment, Planning Report: Noise - R01-NH - March 2015 - ARUP. This noise assessment was primarily written for the redevelopment of Fleming Park Leisure Centre although it does provide some consideration to the noise impacts from the energy centre.

The assessment does not include any detail relating to the plant proposed at the Energy Centre, and as there is no detail relating to the proposed hours of operation the assessment therefore assumes that plant will only be operational between 07:00 and 23:00. On this basis we are also assuming that the plant will only be operational between these hours, and our comments and subsequently conditions reflect this. If it is proposed to operate plant outside of these hours then an updated noise assessment will be required that looks at the night-time noise impacts.

The noise impacts to the nearest residential properties are the only receptors considered. There has not been any consideration of the impacts to leisure centre, sports field or bowls club users.

The assessment has been carried out in line with BS4142:2014 and has established a daytime noise limit for plant 1m from the facade of the Energy Centre building. The limit established is 83dBA, we do not have any objections to this limit to protect nearby residents from daytime noise impacts.

However, given the proposed noise limit and the lack of detailed plant assessment it is likely that users of the leisure centre, sports fields and bowls club will be impacted by noise and mitigation measures may needed to be considered to reduce these impacts.

Therefore based on the above we recommend the following conditions:

PLANT AND EQUIPMENT
The siting and installation of plant and equipment, including process vents and exhausts, which gives rise, or is likely to give rise, to noise shall be approved in writing by the Local Planning Authority.
Reason: To protect the amenities from noise

NOISE LEVELS
The combined level of break-out of noise from the Combined Heat and power engine, boilers, pumps, and ancillary equipment (including any associated plant, machinery and/or equipment) shall not exceed agreed sound levels. These levels shall be agreed prior to the commencement of operation and determined at free field locations to be agreed with the Local Planning Authority.
Reason: To protect the amenities from noise

NOISE ASSESSMENT
Prior to commencement of operation a noise assessment scheme that demonstrates that the installed plant, and equipment complies with the agreed combine level of break-out noise is required to be submitted for approval by the Local Planning Authority.

HOURS OF OPERATION
The use hereby permitted shall not be operational outside the following times Monday - Sunday 07:00 hours - 23:00 hours.

If operating outside of these times a noise assessment will be required that demonstrates that the impacts of noise from the Energy Centre have been considered during the hours of proposed operation. The report shall include a scheme of mitigation measures. All works, which form part of the scheme approved by the Local Planning Authority, must be completed before the operation of the Energy Centre outside of the hours 07:00 - 23:00.

Should you wish to discuss the matters raised here I shall of course be pleased to do so.

Fiona Goode
Scientific Officer