

## Appendix A - Kenilworth Leisure Redevelopment – Sustainability M&E options – Current Status

Item	Comments	Abbey Fields	Castle Farm
Combined Heat & power:	Combined heat and power require a high-water usage to be beneficial to the M&E design. Therefore, it has been included at Abbey Fields where there will be two swimming pools, but it has not been recommended for implementation at Castle Farm, as this is a “dry side” facility.	✓	x
Air Source heat pumps – air temperature	Localised air source heat pumps for air temperature have been included within both schemes as “best practice*” since the RIBA 2 concept design was developed.	✓	✓
Voltage optimisation	Voltage optimisation has been included within both schemes as “best practice*” since the RIBA 2 concept design was developed.	✓	✓
LED lighting	LED lighting has been included within both schemes as “best practice*” since the RIBA 2 concept design was developed.	✓	✓
Lighting controls	Lighting controls have been included within both schemes as “best practice*” since the RIBA 2 concept design was developed.	✓	✓
Power Factor Correction	Power factor correction has been included within both schemes as “best practice*” since the RIBA 2 concept design was developed.	✓	✓
Energy Metering	Energy metering has been included within both schemes as “best practice*” since the RIBA 2 concept design was developed.	✓	✓
Heat Recovery Ventilation	Heat recovery ventilation has been included within both schemes as “best practice*” since the RIBA 2 concept design was developed.	✓	✓
High Efficiency Motors & Inverter Drives	High efficiency motors & inverter drives have been included within both schemes as “best practice*” since the RIBA 2 concept design was developed.	✓	✓
Intelligent Building Management System	An intelligent building management system has been included within both schemes as “best practice*” since the RIBA 2 concept design was developed.	✓	✓
Hydrogen ready boilers	It was requested by Project Board that these were reviewed, and the project team are currently looking at the availability and affordability of hydrogen ready boilers. Initial thoughts are that whilst available in the residential market, the commercial offering is significantly more limited.	x	x

PV Panels	<p>PV panels have been included within the RIBA 3 design at Castle Farm, following acceptance at Project Board.</p> <p>Following the approval to proceed with the re-design at Abbey Fields, the design team are now investigating the possibility of including PV on the new roof at Abbey Fields. However, it is yet to be confirmed if this is possible. The project team will advise further once the concept design for Abbey Fields is complete.</p>	?	✓
All Electric Supply	<p>The project team are currently reviewing the possibility of converting from a Gas &amp; Electric supply at Castle Farm, to purely an electric supply. Whilst there would be a capital cost increase, the significant impact will be on the operational running costs due to the price difference between a unit of gas vs electric. However, the positive of using this approach is that the supply of all energy could be renewable if a renewable supplier was used for the purchase of electricity.</p>	x	?
Air Source heat pumps – Water temperature	<p>Air source heat pumps have been rejected at both sites for two reasons. Firstly, this system requires a significant increase in plant room space due to the large volumes of what that need to be stored, which was not possible at Abbey Fields due to the restricted footprint of the site and at Castle Farm it was not deemed to be an efficient product due to the limited water requirements.</p> <p>Secondly, it was estimated that there would have been a capital cost increase of £425,000 with a 34-year payback which was deemed to not be affordable within the current budgetary constraints of the project.</p>	x	x
Ground Source heat pumps – Water temperature	<p>Ground source heat pumps have been rejected at both sites for two reasons. Firstly, this system requires a significant increase in plant room space due to the large volumes of what that need to be stored, which was not possible at Abbey Fields due to the restricted footprint of the site and at Castle Farm it was not deemed to be an efficient product due to the limited water requirements. In addition, at Abbey Fields, a Scheduled Ancient Monument (SAM) site, it was considered that significant grounds at the site would have been rejected as part of the Scheduled Monument Consent as it was non-essential.</p>	x	x
Water Source heat pumps – Water temperature	<p>Like the heat pumps above, water source too would have required significant storage space. In addition, at Castle Farm it was considered</p>	x	x

	that the water space available was not suitable for this technology due to its limited size and its local ecological value.		
Sustainable gas supplier	The members working group previously requested the project team to investigate whether it was possible to purchase gas purely from a renewable source, like is possible with Electric. However, the project team have been unable to find any supplier that guarantees that its Gas supply is from renewable sources.	x	x
Solar Thermal –hot water generation	Solar thermal works in a similar way to PV, but instead of producing electricity it heats water. It was deemed that including PV at both sites would be more beneficial than using the roof space available for hot water generation.	x	x
Biomass Boiler – hot water generation	Biomass boilers were not considered as viable options at either site due to the large and imposing massing, as well as their complicated maintenance strategies. Furthermore, the biomass is used for hot water generation, as per the CHP and therefore cannot be used in conjunction with a CHP unit.	x	x
Wind Turbines - electricity generation	WDC have previously considered wind turbines for various schemes within the District and additional studies have also been conducted to appraise the suitability of wind turbines for our area. The upshot of these studies has concluded that there is not enough wind in this area to justify the effective use of this type of provision within the District.	x	x

\*By best practice we mean that the item would not be required to meet current building regulations, but that the technology is commonly used across developments and therefore has been included within the base design.