

Welburn Hall School

Welburn Hall School is a Special School located near Kirkbymoorside. At present, the school provision is 11-18 for pupils with a range of special educational needs. The school also currently provides residential provision for a proportion of their pupils predominantly those who are in the Sixth Form.

Welburn Hall School comprises a former Country House which occupies an extensive site (76,150 m²) and consists of a total of 16 buildings including a number (e.g. an ornamental folly and boat house) that are not utilised for educational provision but which remain a liability to the School.

The School occupies the two main buildings on the site: -

- The Main Hall, a Grade II listed building that dates, in part, from 1603 but which was further developed in a number of phases after that date. The Hall suffered widespread damage as a result of a fire during the 1930's and was subsequently opened as a School by the County Council in 1951 after extensive refurbishment. The Main Hall comprises teaching, administrative and catering facilities on the ground floor and, mainly, sleeping accommodation to the first and second floors.
- A separate teaching block.

The operational area of the School amounts to a total of approximately 4,000m². Under BB104 (Area Guidance for Special Schools) the recommended floor area would be 2,355.00m² min for a school 90 pupils. This does not include an allowance for residential provision for which there is no area guidance.

As a former Country House, the School is not configured in a way to support the efficient delivery of education, nor does it have the associated building services to fully meet the requirements of the client group served by the School (e.g. limited capacity within lifts).

Heating Infrastructure

The heating at Welburn Hall school is based on separate oil-fired heating systems serving the main hall and the annex teaching block. There is no mains gas supply to the site.

The heating infrastructure is based on an original coal fired heating system, which dates from the 1950's. The original coal fired boilers to the main school block are have been replaced with 2No oil fired boilers, located in a basement plant room adjacent to the front elevation of the main block. A separate oil fired heating system is installed to the annex teaching block.

The primary heating pipework to the main hall building is of cast iron construction, and is understood to be at least 50 years old. The heating pipework provides heating to the main building in 3 separate circuits serving the 3 storey building. The (2No) oil fired boilers to the main hall are understood to be over 30 years old.

The heat emitters to the main hall building are primarily of cast iron type, and are approximately 50 years old. Many of the heat emitters are located behind panelling to reduce visual impact on the listed building and also serve as protection for the building users.

Both the pipework and the ducts are insulated with ACM's (Asbestos Containing Materials) and, therefore, in accordance with the Control of Asbestos Regulations, can only be accessed under controlled conditions.

The original 'Type 2' asbestos survey of the main school block revealed that asbestos is present in many of the ceilings, floors and roof voids. These areas are considered contaminated, and only accessible under controlled conditions, which is extremely disruptive and not possible on a live school site.

Heating System Failures

The oil fired boilers to the main building are understood to be over 30 years old and are considered to be nearing the end of their functional life. The boilers failed on a number of separate occasions during the previous heating season (Fig.1 – Evidence of responsive maintenance orders), leaving the main building without heat. Replacement parts for the boilers are becoming difficult to source and it is considered that the boilers are now obsolete, requiring replacement in the short term.

A significant leak to the primary heating pipework in the main hall occurred in November 2021. The leak resulted in a loss of pressure and a complete failure of the system. The requirement for controlled access to asbestos contaminated ducts meant that it was not possible to locate the leak during the heating season when the school was live. The system was kept operational by continual topping up with mains water during the winter months. This process resulted in a significant increase in the use of mains water during this period.

Two areas were identified as potential locations for the pipework leak. The first being an area adjacent to the passenger lift in the main corridor at ground floor level. A plan was put in place to access this area of duct under controlled conditions during autumn half term period (November 2021). Unfortunately, the leak was not found at this time. The inspection of the pipework and the duct revealed that the pipework was generally extensively corroded (Figs.2/3), and that insulation applied to the pipework was contaminated with 3 types of asbestos (Crocidolite, Amosite and Chrysotile) Fig.4 (Bulk Sample of Asbestos from heating duct). A second attempt was made to repair the heating pipework in a different location (kitchen area) during the Easter holidays 2022. On this occasion, the leak was found, and a repair was completed prior to the school returning following the Easter break. The work involved breaking out a concrete floor slab and removal of fitted kitchen cupboards to access. All the work was completed under controlled conditions under the supervision of an asbestos analyst.

From the investigation and the repair of the heating pipework carried out in the winter of 21/22, it has been established that the pipework is in very poor condition and at risk of catastrophic failure. Such a failure would result in the affected area(s) not being heated and not usable by the School.

Repairs will be extremely problematic given the asbestos contamination within the ducts. In addition, any significant repairs will be extremely disruptive to the school. Many of the ducts are located below the main circulation routes within the hall, requiring closure of these areas to facilitate investigation and repair works. It is likely that the main hall would need to be closed in the event of a failure of the heating system.

Proposals for Heating of Welburn Hall (Main Block)

Given the risk of failure of the heating system to the main hall and the associated threat to educational provision, North Yorkshire County Council have commissioned consultants to advise on the works required to replace the heating infrastructure to the main block at Welburn Hall. The feasibility study will consider the following:

1. Identification of scope of work required including renewal of the heating and hot water systems to the main block
2. Proposed programme including details of phasing of works
3. Establish if any planned work can be completed with the school remaining operational on the site
4. Feasibility cost plan for the proposed works

The following key restrictions will need to be considered:

- Restrictions placed on the work by the listed status of the property
- Asbestos contamination to ducts, floors, walls and roof voids
- Lack of gas connection to the site
- Limitations presented by electrical capacity
- Possible current or future decarbonisation of the heating system

Survey work relating to the heating system are currently ongoing, including investigation of asbestos a number of key areas in the main block.

Temporary Accommodation

In anticipation of significant disruption to the school resulting from the failure of the heating system, North Yorkshire County Council are exploring options for temporary accommodation to maintain educational provision at the site. North Yorkshire County Council are currently engaged with the school, planning authorities and providers to establish the feasibility of installing temporary accommodation on the site to maintain educational provision.

Klargester/Drainage

Welburn Hall does not have a connection to the mains drainage system. Drainage on the site discharges to a packaged treatment plant (Klargester) located to the rear of the site (to the south of

the main hall). Treated water subsequently discharges to the adjacent stream. A holding tank and associated pumps are located adjacent to the Klargestor and the stream to mitigate surcharge in the drainage system and prevent untreated sewage from entering the stream.

It is understood that a significant proportion of the drainage on the site is combined (surface water and foul sewage). This causes the system to back up (surcharge) during periods of heavy rain. The rainwater from car park, the roof areas of the main hall and separate teaching block are understood to discharge to the combined system.

There are a significant number of mature trees on the site, and particularly adjacent to the known drainage routes. Root damage has previously affected the drainage system in a number of locations on the site, requiring specialist repair.

A large number of failures in the drainage system have been experienced by the school in recent past and particularly in the last 12 months (Fig.5). This is caused by blockages in the system and failure of the Klargestor and pumps. The failure of the drainage system threatens educational provision at the site and is a significant drain on the schools responsive maintenance budget.

The existing Klargestor unit is understood to be around 25 years old. The system was designed around the use of the site at the time. It is considered likely that the existing system is unable to provide treatment at the rates required for its current and projected use.

The system needs to accommodate the following students/staff using the site.

Pupils – 100 (including 12 residential)

Staff – 83 (74.55 fte)

It is understood that there is a significant issue with the capacity of the pipework adjacent to the drainage system. In addition, there is historic maintenance issue with root damage to drainage caused by proximity to mature trees on the site. It will need to be investigated if repairs/upgrading of the drainage is required.

It is considered that the existing treatment plant is nearing the end of its functional life. The school has experienced a number of failures due to the capacity of the existing system and drainage defects. The failure of the system threatens educational provision at the school. If the existing Klargestor was to be replaced, it would be necessary to make significant alterations to the drainage on the site to separate the existing combined system to create foul and surface water drainage on the site. This would be required in order to comply with current environmental regulations.

Given the risk of failure of the drainage system and the associated threat to educational provision, North Yorkshire County Council have commissioned consultants to advise on the works required to the drainage system to ensure that the system is functioning as required. The feasibility study will consider the following:

1. Assessment of the condition/capacity of the existing packaged treatment plant.
2. Survey of the site drainage to establish the location and condition of existing drainage.
3. Identification of scope of work required including possible separation of foul and surface water system and work to the treatment plant.
4. Proposed programme including details of phasing of works.
5. Feasibility cost plan

The following key restrictions will need to be considered:

- Restrictions placed on the work by the listed status of the property
- Possible working arrangements for undertaking work on a live site
- Treatment of waste water from the hydrotherapy pool

Survey work relating to the drainage system are currently ongoing, including a topographical and utilities survey. A detailed CCTV survey of the drainage is planned for the forthcoming autumn half term.

Order number	Order date	Site	Description
151324	18/10/2021 12:04	E7004: Welburn Hall School	Please repair no heating to the Accommodation Block (kerosene boiler). Reported by Darren Kendell. Please contact site before attending to arrange access. If possible please attend site regarding this

Appendix 2 – Heating and Drainage – Technical Assessment
29 September 2022

			on a same day response as there are currently children in residence overnight.
151660	21/10/2021 15:19	E7004: Welburn Hall School	Darren Kendall reports: A significant issue with the boiler causing it to be shut down and leaving the site without heating. Thick black smoke is being emitted from the chimney (akin to a coal fire). Please attend on an urgent basis to investigate and repair / replace as appropriate. Tnks Please Note: Please call ahead to ensure access if HCS are unable to attend within the requested time frame as the school will be on half term. For access after 3pm Friday 22/10 please call 07840933125. Tnks
152073	29/10/2021 11:03	E7004: Welburn Hall School	Boiler is running but heat not getting through to parts of the building. HCS currently on site .
152414	03/11/2021 09:39	E7004: Welburn Hall School	Please repair boiler no1 located in the subterranean plant room the motor has failed. Reported by Darren Kendell. Darren has advised that contractors from HCS are currently on site for another job and has asked if they can also look at this issue whilst they are on site.
153090	10/11/2021 00:00	E7004: Welburn Hall School	Investigative work to repair underground pipe leak - Brian Shuttleworth has details
153997	24/11/2021 10:55	E7004: Welburn Hall School	Please repair a radiator located in Classroom 13 which is not heating up (it has been bled by site) - the other radiator located in the classroom is working. Reported by Darren Kendell. Please contact site before attending to arrange access. If possible please attend site regarding this in the next day or so as the weather is due to get colder.
154117	25/11/2021 00:00	E7004: Welburn Hall School	Investigate no heating in main building - Brian Shuttleworth has details
159705	14/02/2022 14:43	E7004: Welburn Hall School	Ongoing issue with air trapped in radiators/cold radiators in the main building, related to an undetected leak. Contact site for access.
161121	04/03/2022 08:56	E7004: Welburn Hall School	Leak in the kitchen coming up from the corner of the floor. Water feels warm. Reported by Dave Smith who said they have had troubles with the heating so could be due to this. Please note the school is covered under structural mass. To arrange access please contact Dave Smith on 07933638907.
161984	16/03/2022 00:00	E7004: Welburn Hall School	Carry out investigative works to find leak in heating system - as per site mtg - Alan Callear - Brian Shuttleworth
162567	23/03/2022 12:29	E7004: Welburn Hall School	Boiler will not turn on.

Fig.1 – Evidence of responsive maintenance orders



Fig2. Asbestos insulation and buried pipes in duct

Note: There are 6No pipes in this duct – 5No are buried under silt/debris



Fig.3 Insulation and buried pipes in contaminated duct

Note: There are 6No pipes in this duct – 3No are buried under silt/debris

Unit 12, Arx House
Technology Centre
James Watt Avenue
East Kilbride
G75 0GD



Tel: 01355 242280

Web: www.hslcompliance.com

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CERTIFICATE OF ANALYSIS

Contact:	Gemma Pickless	Page:	1 of 1 Page(s)
Customer:	North Yorkshire County Council Property Service Property Contracts & Performance County Hall Northallerton DL7 8AD	Date of Issue:	24 November 2021
Site:	Welburn Hall School	Purchase Order:	FOC
Project No:	S21-03014	Customer Ref:	

2 No. Sample(s) submitted on 22 November 2021 by Chris Monaghan
Samples analysed by Caroline Ide

Lab Sample No.	Customer Sample Ref. or Location of Sample	Item Description	Product Type	Results of Asbestos Type(s)
S001	Room ID: 001, Corridor adjacent lift	Asphalt floor screed and bitumen felt	Bituminous Products	No Asbestos Detected
S002	Room ID: 001, Corridor adjacent lift	Hand applied insulation to pipes within floor duct	Thermal Insulation	Amosite, Chrysotile, Crocidolite

Bulk Analyst

Hsl Compliance

NOTES:

The samples detailed above have been analysed qualitatively for asbestos in accordance with In House Method 001 based on HSG248.
Estimates of asbestos content are prohibited under UKAS accreditation by H.S.E. document HSG 248.
Opinions & interpretations such as sample description, product type & certain results parameters are outside the scope of accreditation.
Hsl Compliance accept responsibility only for results obtained from samples as received.
No responsibility is accepted for errors which may have arisen during sampling or transportation of samples by a third party.
Results relate only to the items sampled and tested, also where customers have carried out the sampling "the results apply to the sample as received"

* Sample may not be a representative of material sampled due to very small quantity supplied.
Trace asbestos identified - 1 or 2 fibres - see HSG248, Para 4.23
% Water absorption test carried out in accordance with in-house method M006 based on L143, Cl 16 and is not UKAS accredited.

T022a Bulk Analysis Certificate
Issue No: 6, Dec 2021



Fig.4 Bulk Sample of Asbestos from heating duct (November 2021)

Order number	Order date	Site	Description
153924	23/11/2021 12:09	E7004: Welburn Hall School	High level alarm sounding on the Klargestere. Contact site for access
159071	07/02/2022 09:29	E7004: Welburn Hall School	High level alarm activated on sewage plant. Site advise tank was emptied and serviced last week.
159598	14/02/2022 09:42	E7004: Welburn Hall School	High level alarm has activated again on sewage plant.
160251	21/02/2022 10:00	E7004: Welburn Hall School	Please attend to reports of alarms sounding on both the Klargestere system & on the storm tank - please investigate the root cause & rectify as necessary. Reported by Dave Smith. Please contact site/Dave Smith before attending to arrange access. If possible please attend site on a same day response - access is available between 9am-3pm this week.
162386	22/03/2022 09:03	E7004: Welburn Hall School	High level alarm sounding and lights flashing on Klargestere.
165809	17/05/2022 10:33	E7004: Welburn Hall School	Please attend to a report that the high level alarm is going off on the Klargestere System. Reported by Dave Smith. Please contact site before attending to arrange access. If possible please attend site regarding this on a same day response.
167695	16/06/2022 17:41	E7004: Welburn Hall School	Darren Kendell request HCS to attend site. The pump failure alarm is activated on the sewage plant
168486	27/06/2022 11:10	E7004: Welburn Hall School	Please attend to a report that the high level alarm is going off on the Klargestere System..
168738	29/06/2022 13:00	E7004: Welburn Hall School	High level alarm is sounding on Kalargestere system following attendance 28/6/22.
170062	19/07/2022 09:50	E7004: Welburn Hall School	Please attend to a report that the high level alarm is going off on the Klargestere System - please investigate the root cause & rectify as necessary. Reported by Darren Kendell. Please contact site before attending to arrange access. If possible please attend site regarding this on a same day response.
174064	26/09/2022 09:50	E7004: Welburn Hall School	Darren Kendell reports that a high level alarm as activated on the sewage plant. Over the weekend a power failure in the pool plant room has caused the pool to drain allowing a large volume of water to enter the sewage plant, the water contained chlorine so contractors may need to address that situation also. Darren has asked for HCS to also send JP Pools for a faulty filter pump. Site advised that both tanks are full. Site have isolated everything for now. Please attend site ASAP. Contact Darren on 07840933125 to arrange access.

Fig.5 – Evidence of responsive maintenance orders