

JAE/8903 31 March 2020

Kerry Kirwan Heritage Development Officer Middlewich Town Council & Middlewich Heritage Trust Rm 1, Town Hall Victoria Building, Lewin Street Middlewich CW10 9AS

By email: heritage@middlewich.org.uk

Dear Kerry,

RE: <u>Murgatroyd's Brine Pump, Middlewich</u>

Further to your instructions Thomasons attended Murgatroyd's Brine Pump, Middlewich on 23 July 2019 in order to undertake a re-inspection of the building following removal of the gantry. We were also instructed to attend the steel fabricator's shop in Warrington where the removed gantry was being restored.

We previously undertook an inspection of the building in October 2017 and our findings from then were incorporated in to the repair scheme prepared by Buttress.

Background

Murgatroyd' Brine Works is designated a Scheduled Monument by Historic England. The Reason for Designation reads as follows:

Murgatroyd's Brine Works are scheduled for the following principal reasons:

* Survival: the remains survive well and retain both upstanding structures and below ground archaeological deposits that together illustrate the development in the pumping and transferring of brine throughout the plant's lifetime

* Rarity: the brine pumps, shaft, pump house, gantry, header tank, electrical pumps, power distribution transformer and power house are a very rare survival of a `wild' brine pumping plant that retains most of the typical features of a late 19th/20th century installation

* Documentation: a modern archaeological building survey has been undertaken which adds to the site's history.

* Potential: this site clearly has the potential to enhance our understanding of the C19 & C20 salt extraction industry in general, and in particular how this element of the industry was developed and improved during the period of brine work's lifetime.

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The Pump House is described as follows:

This is a single-storey, multi-phase building enclosing brine pumps for raising the brine to the surface, inspection hatches and the lower part of the timber head gantry. It is aligned east-west, measures approximately 12m by 5m, and is built largely of brick but with timber stud framing supporting asbestos sheeting on part of the south elevation. The roof is pitched and of asbestos sheeting. The western gable is the only original gable wall and it contains the original access, now boarded, which was afforded through a double door beneath a two-rowlock segmentally-arched brick lintel. The north elevation has an original window opening, now boarded, beneath a lintel of similar design to that above the west gable door. There is a wide central doorway with asbestos cladding over an earlier timber door. The doorway retains its original lintel formed of a single I-section steel beam. Adjacent to this door a brick base for a large brine storage tank has been inserted into the fabric of the pump house. The eastern gable is entirely rebuilt in buffcoloured brickwork and contains a small brick outshut that was formerly a porch or cloakroom to the pump house. The outshut has a door in its south end and a blocked doorway in its north end. The south elevation has an off-centre door that gives access though the timber stud framing into the building. There is a boarded window in the asbestos sheeting to the right of this door and a boarded window beneath a modern concrete lintel to the left of the door.

Observations

For the purpose of this report the terms left, right, front and rear are used in the sense that one is standing in the area in front of the building facing the front elevation with the main access doors.

Front elevation

During our initial visit in October 2017 we noted a number of areas where there was cracking to the brickwork of the external walls of the building and also corroded steelwork. These aspects were generally still to be repaired at the time of our 2019 inspection; it was noted however that the structural defects had not become significantly worse during the intervening time. Various cracking was noted in the external walls. This is shown in the photographs below:





Cracking was noted above the front lefthand window inside the building but was not evident externally.



Deteriorated pointing in pike of front gable, no cracking noted externally.



No significant structural defects in rear wall.







Corrosion of steel beam above opening in lefthand elevation.

Cracking due to corroding lintel above pedestrian door at rear of building.



Severely corroded beam ends protruding through wall. Beams formerly supported the brine tank.





Internal and external cracking below brine tank resulting from corroding steelwork embedded within walls.

During our 2019 inspection we also visited the gantry at the fabricator's workshop. This inspection confirmed the poor condition of the steel and timber members from which it was constructed. A sample of the defects is shown below:





Rotten timber at approximately mid-height of the leg.

Bent / buckled tie rods.





Distortion of steel member due to expansive forces of corrosion.

Discussion and Conclusions

The overall condition of the building housing Murgatroyd's Brine pump was in keeping with the time since work was last undertaken. Steel members that had not been adequately protected again corrosion exhibited extensive corrosion and the expansive forces resulting from this had caused cracking in the masonry walls.

Replacement and/or treatment of the steelwork has been sufficient to prevent ongoing corrosion and thus will also prevent further cracking from occurring relating to these members. It should be noted however that as the brine well remains open there may be a higher than normal salinity in the ambient atmosphere and hence regular inspection of the steelwork should be undertaken and any indications of corrosion should be treated promptly to prevent extensive future deterioration setting in.

The majority of the steelwork of the gantry has been replaced. In agreement with Historic England the new steelwork and the reused steelwork has been galvanised in order to increase the longevity of the members. The timber frame of the gantry had suffered from extensive wet rot and has thus been replaced.

Cracking to the building and repointing works have been undertaken as part of the refurbishment works so the building is now considered to be a good structural condition.

We trust that the above addresses your current requirements, however if you require any further clarification, please do not hesitate to contact the undersigned.

Yours sincerely,

Save Entwistle

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