Slaithwaite Reservoir

History & Heritage Notes



The reservoir with sluice tower and spillway

HUDDERSFIELD CANAL SOCIETY
ASHTON-u-LYNE ~ HUDDERSFIELD

Slaithwaite Reservoir

Constructed – 1795-1799 by the Huddersfield Canal Company, supplying the Canal below Lock 24E
Consulting Engineer – Benjamin Outram
Dam Height – 72 ft (22m) Possibly the highest dam constructed at the time
Capacity – 68,200,000 gallons (310,000 m^3) as built

It is uncertain exactly when work commenced on constructing Slaithwaite reservoir, but clearly plans were well advanced by early 1795 when W Elmsall, Agent to the landowner, the Earl of Dartmouth, conveyed his concerns about the dam failing and wrote to the Earl *"… it would sweep away the greater part of the town (Slaithwaite) … "*. The Company engineer, Benjamin Outram, was typically reassuring and stated the downstream dam slope would be so flat *"it could be mowed"*.

At the June 1797 General Assembly of the Canal Company, the Proprietors decided to engage Robert Whitworth Snr. to report on the progress of works along the whole canal. His report that August observed:

"The Reservoir, at Slaighthwaite, will hold Water to the Height of about Twenty Feet, and may require about Fifteen Thousand Cubic Yards of Earth to finish it. This Head, I see by the Section, will be Seventy-two Feet high. The leakage, at present, is rather too much, and as the Water rises it may be expected to increase, but, if it do not leak more than the Supply of the Canal will require, it will do very well."

Unfortunately, leakage in the dam wall was a persistent problem for the Company and in June 1799 the Company Agent, William Bayliffe, had to take measures to prevent water entering the reservoir while the bank was made watertight. However, soon afterwards, that August, the region suffered unprecedented floods, which not only damaged much of the other canal works, but threatened the reservoir dam. Apparently it only held after being cut open in two places to relieve the floodwaters.

Water for the Canal is drawn off from the reservoir via a tunnel, with a regulating valve, constructed through the dam near its base. The original tunnel with a stop-cock



Google Earth® image of Slaithwaite Reservoir. The Huddersfield Narrow Canal is visible bottom right below the Manchester to Huddersfield railway line.

arrangement was either poorly constructed or more likely became damaged as the banking settled, whichever, by June 1803, it was leaking so badly, the Company directed a new tunnel be constructed in more stable ground and the old tunnel stopped up.

The outflow channel from the reservoir divides: the southerly flow enters a long subterranean tunnel to discharge into the Canal below Lock 24E and the northerly flow rejoins the course of the reservoir feeder.

When the noted engineer Thomas Telford produced his report in January 1807 on how to complete the works at Standedge Tunnel, he also made mention of the reservoir:

"*... But the expence of repairing and securing this reservoir at Slaighwaite, will cost above 2000L* (about £75,000 today). *When compleated, it will be useful in regulating the supplies of the canal below that place ...*"

The reservoir is fed by Holme Brook, a tributary of the River Colne, which originates on Slaithwaite Moor and flows down Bradshaw and Merrydale Cloughs. It is almost certain the stream provided water power for early mills in the valley that pre-dated reservoir construction; particularly Clough House Mill, which had its own Mill Pond, overflow and penstock arrangements upstream of the reservoir inlet. The Pond and structures remain visible. Even when the mills converted to steam power, a reliable source of water was essential.

Mill-owners were desperate to ensure any construction work by the Canal Company, especially reservoirs, did not jeopardise their supply and many features of the reservoir were concerned with maintaining this flow. The most obvious is the narrow channel or mill race which runs along the northern bank, allowing a proportion of the inflow to bypass the reservoir. There were, and still are, two outlets feeding the mill race: one from the former Clough House Mill and the other through a pipe just above a formal weir referred to by the Company's John Rooth in his report to the June 1806 General Assembly:

"… a permanent weir has been erected where the water is to be taken into Slaithwaite reservoir, and the bank is cutting through to the north pipe, in order to repair it; …"

The weir is beautifully constructed from substantial, shaped sandstone blocks and is of significant heritage value. Similarly, though far more modest, the outlet from







1. *Reservoir outflow with its access tunnel (1803) leading to the modern regulating valve.*
2. *Outlets feeding the mill race: left, from above the weir, right, from the former Clough House Mill.*
3. *Permanent weir (1806) at the head of the reservoir.*





the former Clough House Mill is defined as a 12" square aperture by four sandstone blocks. By formalising the outlet, the mill owners could accurately gauge the quantity of water flowing into the mill race from that source and the weir and pipe would ensure the supply could be augmented before water entered the reservoir.

The mill race discharges adjacent to the spillway from the reservoir and the water descends by significant waterfalls (the initial fall is particularly spectacular) as it compensates for the reservoir height in re-establishing its natural elevation and joining the river Colne.

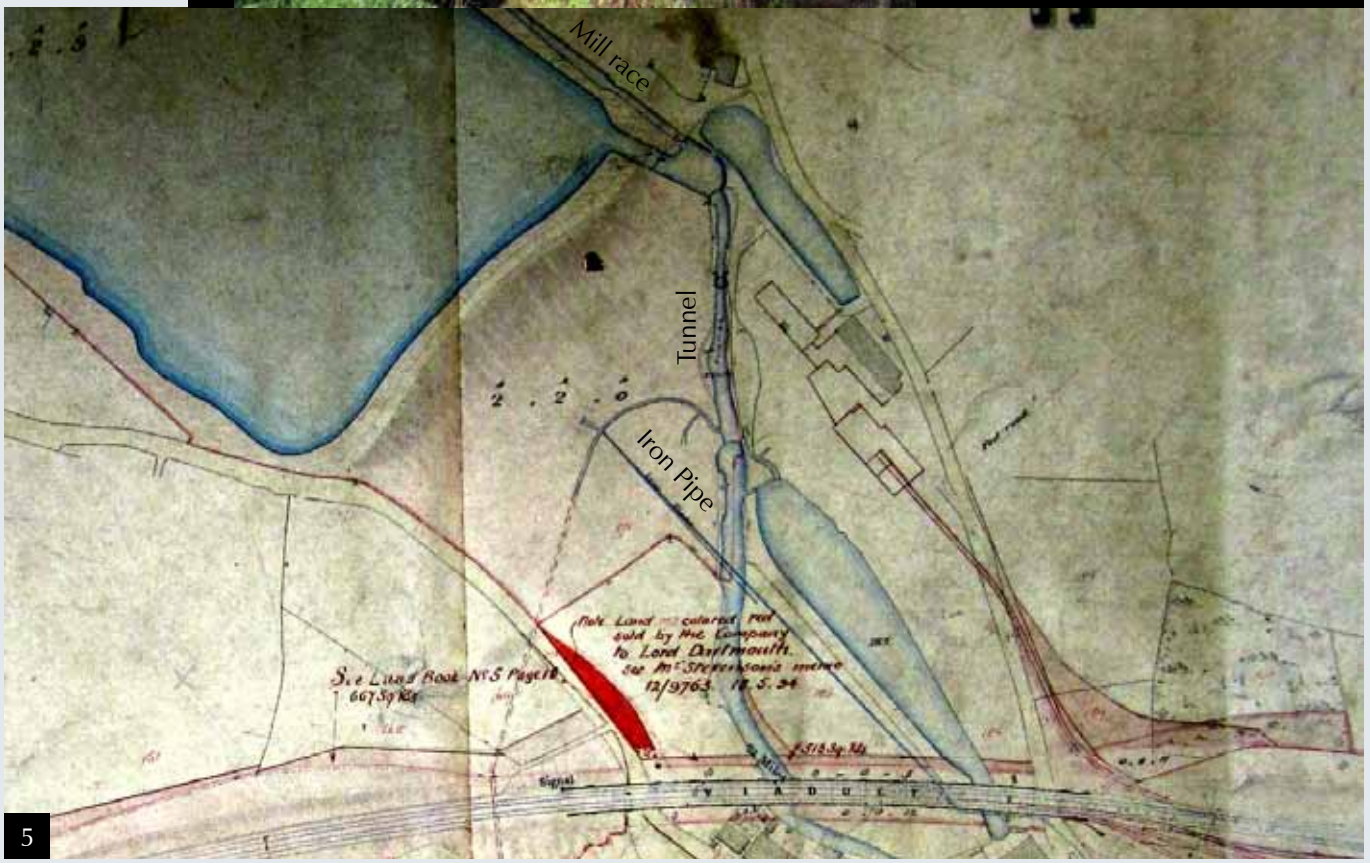
After the initial fall, the water is conveyed along a short channel before taking a further descent into a tunnel. It is worth noting that a piece of narrow gauge rail track appears to have been dumped in the channel. The tunnel's downstream portal features masonry typical of the railway era and a keystone bearing the date 1852. The Canal Company was initially acquired by the Huddersfield and Manchester Railway Company in 1845 before being amalgamated into the London & North Western Railway Company a year later. The LNWR owned the Canal and its associated works up to 1923 and would appear to have constructed the tunnel; most likely to provide a secure channel for the floodwater guarding against the risk of undermining the very steep banking upon which Bank Gate Mill and other buildings had been erected.

A fascinating feature depicted on the LNWR map is an extensive iron pipe connected to the outflow channel which is believed to run as far as Huddersfield Station where the water was used to power a hydraulic turntable mechanism.

It is likely remedial works at the reservoir continued during the following decades and most recently, in 1991, the downstream banking was re-inforced to guard against failure should the reservoir 'over-top' during the most ferocious of storms; the so-called 'once in a thousand year' event when the sluice and spillway would not cope.



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4. Spillway tunnel with a dated keystone.

5. Detail of a LNWR map showing the head of Slaithwaite Reservoir with its associated waterworks. The base map is undated, but the presence of the two single track rail lines, suggests circa 1870. The annotations in red are later additions.



Summary of Heritage Features

1. 1803 outflow tunnel
2. Millowners gauge
3. 1806 Weir
4. 1852 spliway tunnel portal

Also of note:

5. Inlet culvert to mill race
6. Mill pond sluice (former Clough House Mill)

The reservoir supplies the Canal, via an underground channel, below Lock 24E near location 'A'.