

Visit of the Derby Society of Engineers to the Derby Sewage Disposal Works, Spondon, June 7th, 1915.

SHORT DESCRIPTION OF THE WORKS.

THE Disposal Works at Spondon, designed by Messrs. Jas. Mansergh & Sons, of Westminster, consist of a Pumping Station with main and storm pumps, boiler-house, sludge pumps, viz. :—

Three horizontal cross-compound condensing steam engines, by Yates & Thom, of Blackburn.

Three sets of three-throw single-acting vertical plunger pumps, including air and vacuum vessels, suction and delivery pipes and valves.

Three "Invincible" vertical tandem compound direct-acting condensing centrifugal pumping engines, including all necessary steelwork for supporting same, suction and delivery pipes and valves, gallery, packing stages, staircases and columns, etc.

Capacity of Pumps. Each of the three sets of "main" pumps are capable of raising 600 cubic feet of sewage per minute to a height, including friction, of 26 feet.

Each of the three "storm" pumps are, when running at a speed of 288 revolutions per minute, capable of raising 900 cubic feet of storm water per minute to a height, including friction, of 14 feet.

The Purification Works consist of 6 open septic tanks, each with three divisions, 25' and 60' and 225' long respectively, 37 feet wide, and about 10 feet deep; 30 continuous filters, each 100 feet diameter, with revolving distributors of Adam's "Cressit" and "Adamic" pattern, the filtering material of the first 18 built is hard selected clinker of various sizes and not graded in any way, except that all dust and small pieces (say less than a walnut in size) were kept out. The second instalment of filters, 12 in number, are filled with clean, broken granite, the top layer 1' 3" in depth being broken to 1" to $\frac{1}{2}$ " gauge, and the bottom layer 5' 3" in depth, 2" to 1" gauge, making a total depth of 6' 6".

Six Separator tanks each 28 feet square and 18 feet deep, on the upward flow or Dortmund principle; 6 storm water beds, having a total area of about $5\frac{1}{4}$ acres filled with clinker for a depth of 3' 3", together with a laboratory, and four cottages for the engineman and firemen. The sludge is disposed of on several acres of land trenched out for its reception, being pumped on to the land from the septic tanks by a Tangye's Horizontal "Special" Sludge Pump with 10" diameter buckets and a 36" stroke, and by a motor driven centrifugal pump from the separator tanks. The old sewers were picked up and the sewage first delivered at the new works in April, 1907.

The total area of land acquired by the Corporation for sewage purposes at Spondon is about 218 acres, of which about 147 acres is let to tenants and the remaining 71 acres is taken up by the Pumping Station Buildings, Cottages, tanks, filters, and sludge trenches. The total cost of the works, including land, easements, sewers, disposal works, Engineer's commission, etc., has been about £325,000, and the disposal works themselves having cost about £150,000.

The average dry weather flow of sewage is about $4\frac{3}{4}$ million gallons per 24 hours.