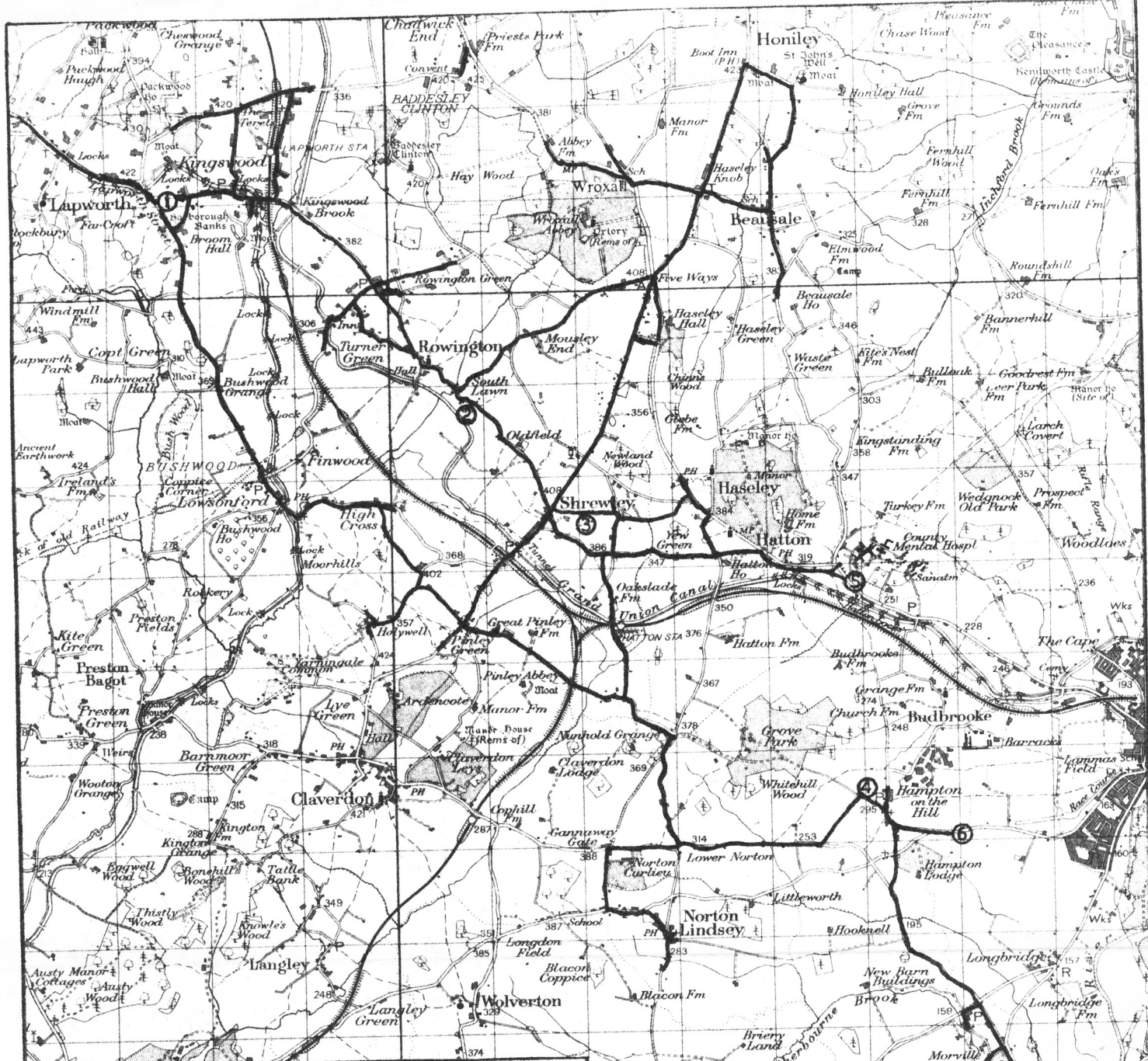


WARWICK
RURAL DISTRICT COUNCIL

WORKS OF WATER SUPPLY
TO THE
WESTERN AREA OF THE RURAL DISTRICT

OFFICIAL INAUGURATION
ON MONDAY, 19th OCTOBER, 1959

DESCRIPTION OF THE WORKS



LEGEND

- ① Lapworth Water Tower
- ② Rowington Pumping Station
- ③ Shrewley Pumping Station
- ④ Hampton Water Tower
- ⑤ Supply to Hatton Reservoirs
- ⑥ Supply to Borough Mains
- ⑦ Supply to Whitnash System

WARWICK RURAL DISTRICT COUNCIL

WESTERN AREA WATER SUPPLY—MAINS PLAN

SCALE : 1 Inch to 1 Mile

J.D. & D.M. WATSON, MM.I.C.E.,

CIVIL ENGINEERS

WARWICK
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DESCRIPTION OF THE WORKS

Warwick Rural District Council

Chairman: Councillor R. R. HALL, J.P.

Vice-Chairman: Councillor E. CADOGAN, J.P.

Counc. A. L. Asquith.	Counc. L. R. Hodson.
P. R. Bedford, T.D.	Mrs. E. A. Hume.
L. Bolton.	A. G. E. Martin.
Capt. G. F. F. Boulton.	V. G. Pegg.
E. Carpenter.	Mrs. L. J. H. Peppercorn.
L. F. Carter.	M. A. Rawlings.
J. W. Cornah.	F. J. Reeve.
V. W. Crowther.	P. G. Smith.
A. E. Ellis.	Mrs. D. M. Syrett.
Mrs. M. Eykyn.	Mrs. J. K. Tompkins, M.B.E.
C. A. Goddard.	Major J. C. Wade, M.C.,
J. S. B. Griffiths.	T.D., J.P., M.A.
J. P. Grundy.	D. P. Whitfield.
W. C. Harris.	Lt. Col. E. C. Wilson.
R. W. Hemmings, J.P.	Mrs. M. G. Wright.
J. Hesketh.	

Clerk of the Council: T. W. H. WATKISS.

Medical Officer of Health: Dr. F. D. M. LIVINGSTONE, M.B., D.P.H.

Engineer and Surveyor: E. A. LYNE.

Consulting Engineers: J. D. & D. M. WATSON, M.M.I.C.E.,
Westminster, S.W.1.

Water Supply

Area covered by Scheme

The scheme provides for a public supply of water to the following Parishes in the Western Area of the Rural District: Baddesley Clinton, Beausale, Budbrooke, Bushwood, Haseley, Hatton, Honiley, Lapworth, Norton Lindsey, Rowington, Sherbourne, Shrewley, Wasperton and Wroxall, also it supplements the existing supply in the Barford, Radford, Whitnash and Tachbrook areas.

History of Scheme

(a) Origin

In 1945, the Council took over and tested a disused private borehole at Shrewley.

In 1947, the Council adopted a scheme of water supply for the Western Area of their District, prepared by their Consulting Engineers.

(b) Shrewley Borehole and Initial Scheme

In 1948, Shrewley borehole was reconditioned and tested. The yield and quality of the water proved to be satisfactory and as a result the Minister authorised the Council to proceed with the first instalment of the Western Area Scheme, called the "Initial Scheme". This part of the Scheme provided for water being taken to Shrewley Common, Hatton Green and Five Ways and was completed in 1952.

(c) Rowington Borehole

While the initial scheme was proceeding the Council decided to prepare for the installation of the remainder of the Western Area Scheme and in 1950 they were authorised to sink another borehole at Rowington to supplement the supply from the Shrewley Borehole.

This borehole was satisfactorily completed in 1955 when the test proved a yield of water beyond all expectations. The Shrewley and Rowington Boreholes together produced 975,000 gallons per day.

(d) Supply to Warwick Corporation

At this time it came to the Council's knowledge that Warwick Corporation were urgently in need of water and a supply was offered

by the Council and accepted by the Corporation which resulted in the laying of a main from the Council's supply at Hatton Green to the Corporation's reservoir at Hatton. This was completed in 1956. The Council is now able to supply Warwick with 300,000 gallons per day.

(e) Completion of Scheme

As a result of the satisfactory yield of the Rowington borehole, the Council proceeded to complete the remainder of the Scheme to supply the Western Area.

Scope of the Scheme

The scheme provided for the construction of two 200,000 gallon water towers, one at Lapworth and one at Hampton-on-the-Hill. It involved the laying of some 34 miles of mains and the erection of a pumping station over the Rowington Borehole where a pumping unit is installed.

Owing to extensive development in the Whitnash Area the Council considered that arrangements ought to be made to supplement the supply from the existing borehole at Whitnash which supplied Whitnash, Barford and Tachbrook. A link main was therefore laid from the new water tower at Hampton-on-the-Hill to Barford. The supply from this main relieved the demand on the Whitnash borehole and enabled a supply to be given to the Parishes of Sherbourne and Wasperton. In addition to this a booster plant is being installed on the Whitnash System to increase the pressure to the higher points where new development has taken place.

Effect of Scheme on Milk Production

The Warwick Rural District is in an area specified by the Minister of Agriculture, Fisheries and Food as an area in which the sale of milk by retail must be limited to the classes of milk which are sold under special designation, namely, T.T., pasteurised and sterilised.

For this purpose an efficient supply of pure and wholesome water is necessary, which many Farmers were having great difficulty in providing and maintaining.

The new public scheme has greatly assisted milk production in this respect.

Technical Details

There is a difference in level of over 300 feet between the highest point of supply, at Lapworth, and the lowest, at Wasperton. Two different levels of supply are therefore necessary.

The low level system, serving Hampton-on-the-Hill and points east and south of Hampton, is fed through a water tower at Hampton 52 feet high. This limits the maximum head on the existing mains in Barford and in the Borough of Warwick to 200 feet.

For the high level system, serving all points west of Hampton-on-the-Hill, borehole pumps at Rowington and Shrewley work in conjunction with a water tower at Lapworth 76 feet high. During the working day, flow from the Lapworth water tower supplements the output of the pumps and at night the pumps replenish the water tower.

Two-thirds of the bulk supply to Warwick Borough Council is taken into the Borough Council's existing reservoir at Hatton and the remaining third will go into a future main at the District boundary at Hampton-on-the-Hill. The supply to Hatton reservoir is continuous and is so throttled that the agreed quantity is delivered in 24 hours. The supply to the Borough at Hampton will be taken only during the working day.

The load on the Council's existing borehole at Whitnash is increasing and with this scheme the Whitnash system is normally relieved of the duty of supplying the village of Barford. In emergency, in some cases part of the Barford supply may be drawn from Whitnash and, in others, part of the Whitnash demand will be met from Western Area sources. The existing Tachbrook reservoir will serve both systems.

For all properties initially served by the new mains, a communication pipe has been laid as far as the curtilage at the Council's expense.

The complete Western Area water supply system functions automatically. Time switches start the pumping units in the two boreholes at various predetermined times during the 24 hours and pressure switches stop them whenever both water towers are full.

To supply the full design demand, the two pumping stations will each operate intermittently for a total of $18\frac{3}{4}$ hours per day. Initially, the day's work may average about 13 hours.

At each pumping station, the duty pumping unit is suspended in the

borehole at a depth of some 500 feet and a standby unit is stowed alongside the borehole. In emergency and in any case after about two year's running, the duty unit will be withdrawn for inspection and overhaul and the standby unit will be lowered in the borehole. This operation will normally be completed in about 48 hours but provision is made for the whole supply to be taken from either borehole for a period of 3 days.

While Shrewley pumping station is out of commission, the only adjustment necessary in order that Rowington pumping station shall maintain full supplies throughout the system is that the supply to the Borough reservoir at Hatton shall be shut off for a few hours each day. The deficiency will be made good at night.

With Rowington pumping station off duty, however, the output of Shrewley pumping station, working 24 hours per day, is inadequate even for the ultimate daily demand of the high level system. The balancing volume of Lapworth water tower is sufficient to maintain peak rates of flow during this contingency and the additional volume stored in the water tower will cover three days deficiency in output. No supply will be given to the Hatton reservoir or to Hampton water tower. Storage in Hampton water tower and in Tachbrook reservoir will provide full supplies for 3 days to the low level system, provided that the supply to the Borough at Hampton is discontinued.

Provision is made for the maintenance of full supplies to both high and low level systems while either water tower is out of use for cleansing.

During a complete power failure, flow from Lapworth water tower will maintain supplies from the high level mains about half a day. Supplies to Hatton reservoirs and to Hampton water tower will have to be stopped and pressures will be lower than normal.

The Western Area Water supply scheme is designed to serve ultimately 8,000 people. This allows for an increase of 40% over the number of residents in properties likely to have been served by the proposed mains as at the 1951 Census.

The agricultural demand is assessed from estimates supplied by the County Agricultural Committee of the maximum demand by farmers in each parish during drought periods. The mean agricultural demand is expected to be much lower than the maximum.

The Council have agreed to supply Warwick Borough Council with up to 300,000 gallons of water per day.

Allowing for domestic consumption at the rate of 30 gallons per head per day, the ultimate total demand is estimated at 676,000 gallons per day.

This daily output will only be needed during periods of drought, when the full estimated agricultural supplies are taken. While the pumps and the distribution system must be capable of supplying at this rate, the average daily consumption will be appreciably lower.

In the early years of operation of the system, the consumption of water will be lower than that for which it is designed.

The consumption of 30 gallons of water per head per day, assumed in estimating the ultimate demand, will only be reached when most of the properties are sewered. Initially, with public sewers available only in Barford and Sherbourne, the average rate is expected to be about 20 gallons per head per day.

Allowing for three quarters of the estimated ultimate maximum agricultural consumption and for the full agreed bulk supply to Warwick Borough, the estimated total initial demand is 528,000 gallons per day.

Licences have been granted for the extraction of 200,000 gallons of water per day from Shrewley borehole and 350,000 gallons per day from Rowington borehole.

The total of 550,000 gallons per day is adequate to meet the initial demand.

After experience has been gained from the continued use of Rowington borehole, it is hoped that the licensed extraction will be increased to 410,000 gallons per day.

The total of 610,000 gallons per day which will then be available, while less than the ultimate maximum demand of 676,000 gallons per day, is unlikely to be exceeded by the ultimate average daily demand.

Water Towers

The two water towers were specially designed owing to the rural surroundings in which it was necessary to place them.

TECHNICAL DATA

BOREHOLES	ROWINGTON	SHREWLEY
Diameters	inches 15 to 12 to 6	8 to 6
Depth of Kemper Marl	feet 772	646
Depth of Keuper Sandstone	feet 228	146
Total Depth	feet 1,000	792
Test Yield	Galls per day 696,000	274,000
 SUBMERSIBLE PUMPING SET		
Make	British Pleuger	Sumo
Horsepower	110	55
Pumping Rate	Galls per hour 26,000	11,000
 WATER TOWERS		
	LAPWORTH	HAMPTON
Top Water Level	feet above 506	350
	Ordnance Datum	
Effective Capacity	gallons 200,000	200,000
Total Height	feet 76	52

WATER MAINS

The total length of mains is approximately 40 miles. Diameters range from 12-inch to 3-inch. The greater part of the length is laid in asbestos-cement pipes, the remainder being of spun cast iron.

CONTRACTORS

BOREHOLES

Shrewley Borehole reconditioning	Deep Well Drilling Co. Ltd., Cowley, Middlesex.
Rowington Borehole drilling and testing	Geo. Lines & Sons Ltd., Solihull.

MAINLAYING

Initial Scheme	5 miles	J. R. E. Taylor, Ltd., Shipston-on-Stour.
Hatton Hill Extension	1 mile	Roads & Sewers, Ltd., Slough
Main Contract	34 miles	David Thomas & Hill, Ltd., Leamington Spa.

WATER TOWERS AND PUMPING STATIONS

Thos. Vale & Sons, Ltd.,
Stourport-on-Severn.