WATER SUPPLY

BACKGROUND

The existing water supply of the Borough of Brielle is obtained from three wells:

WELL #1: the oldest of the wells supplying water, is located on Union Lane, and extends into the Kirkwood formation.

WELL #2: began productive operation in 1951, it also is located on Union Lane but extends into the Englishtown formation.

WELL #3: began productive operation in 1967. This well is situated on Old Bridge Road and, like Well #2, it extends into the Englishtown formation.

All wells pump to ground water storage, and then to elevated tanks. Distribution thereafter is accomplished by gravity.

Well #1 and Well #2 discharge into the aeration reservior at the Union Lane facility, while Well #3 discharges into a similar arrangement at the Old Bridge Road Location. Although the two facilities function independently, they could be used together in case of emergency.

CAPACITY

Due to the excessive demand currently being placed upon available water supplies within the Englishtown formation, the capacities of both Wells #2 and #3 have been declining considerably. The Kirkwood well has a high iron content, and is therefore utilized only during peak demand periods. Such emissions are usually comprised of a 2 to 1 (Englishtown-Kirkwood) mixture.

As an illustration, Well #2 has seen its available capacity decrease by some 50% since its installation in 1951.

WATER USE

Since 1968, the per capita consumption of water has risen from 93 gallons per day to 110 gallons per day, a startling jump of 18.3%. During July of 1974, maximum per capita demand reached 184 gallons daily.

FACILITIES DETERMINATION

Since protective services such as those provided by the fire department are of paramount importance to the safety of residents, facilities installation must be determined by peak demand rather than by a simple average, thereby increasing costs dramatically. In addition, best estimates indicate that it would also cost in the neighborhood of

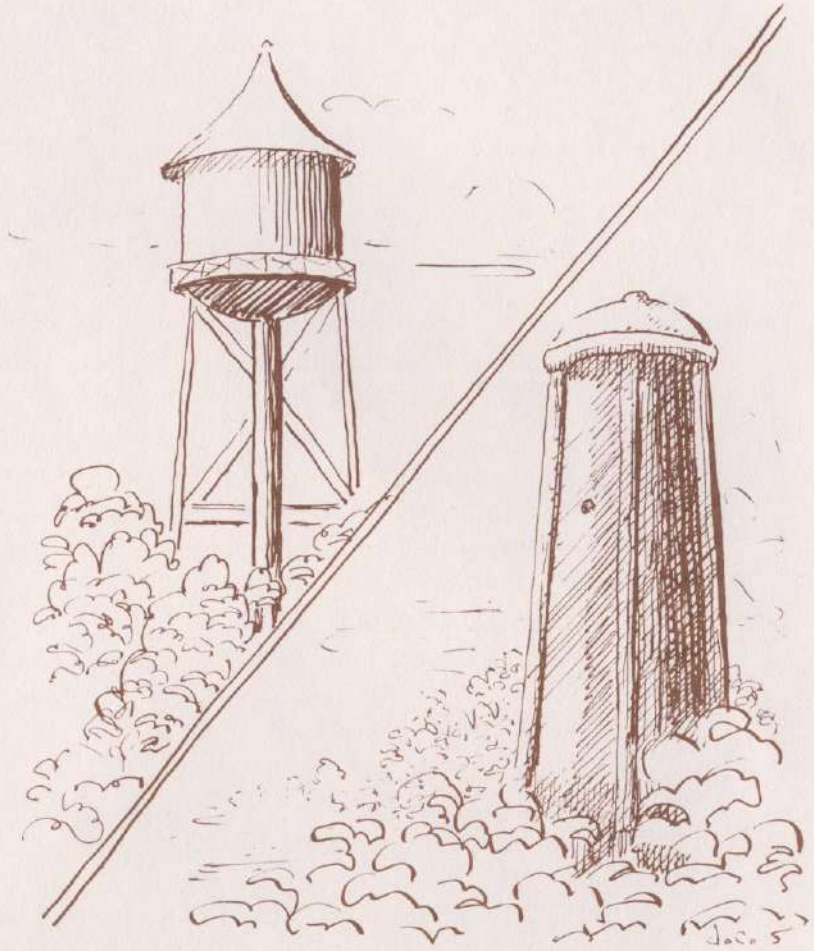
FACILITIES DETERMINATION (continued)

$500,000 to provide proper equipment to remove the iron inherent in the water derived from the Kirkwood formation.

As an adjunct, peak demand periods usually occur when there has been a significant decrease in rainfall activity. At these times, resultant increases in such use activities as lawn-sprinkling contribute greatly to the peak demand. This is reinforced by a simple statistical examination: during the *summer* months, *water consumption* is increased *100 percent*, but the Borough population *increases* only by approximately *11 percent*.

DIVERSION RIGHTS

Diversion rights, stipulated by state authorities, regulate the amount of water that can be taken from a particular strata during a given time period (usually a month). Since many towns pump from the same strata, these rights prevent any one town from pumping to the detriment of its neighbors. Excessive removal of available water from a given strata could conceivably result in salt water encroachment within the strata. (See Geohydrologic Section illustration)



Left, elevated tank for wells #1 and 2 Union Lane.
Right, elevated tank for well #3 Old Bridge Road.

POPULATION/CONSUMPTION COMPARISONS

The following table graphically demonstrates the historical and projected relationship between population and water consumption:

YEAR	SUMMER POPULATION	MAXIMUM CONSUMPTION (million gal./month)
1974	4,500	25.0*
1980	5,100	35.2
1985	5,600	37.6

* indicates that diversion rights of 23.5 gallons per month were exceeded.

WATER CONSUMPTION (Annual Basis)

YEAR		MILLIONS OF GALLONS
1974	state diversion rights	276
1985	estimated annual demand	242

From these statistics, it can be derived that, if taken on an annual basis, the year 1985 would show a demand of 242 million gallons. Thus, if Brielle *did not have* its present *high summer peak demand, there would be no water problem*. However, as mentioned, capacity of the water delivery system must be predicated upon peak demand, or else serious health and safety hazards would be created.

THE FORECAST

Because of the excessive use of ground water, it is entirely possible that by 1985, the available supply would be considerably less than demand. Such a situation could force the state to drastically lower diversion rights, since salt water encroachment on the fresh water supply would seriously affect water quality.

Thus, estimates of supply and demand indicate that Brielle, as well as other contiguous communities, must develop the Manasquan River as a water supply. Land for such use in the upper river area has already been purchased by the state. Development of this supply, however, will be quite expensive, even with several towns sharing the total costs. A by-product of such a long-term solution is the resultant abandonment of short-run answers, such as a new well and related facilities that would provide a solution into the 1980's. The inherent cost for a short-term solution is estimated at more than $1,000,000!

Upper Manasquan River, State recommended source of future water supply.

TRADE-OFFS

Trade-offs to the upper river project include the short-term solution mentioned before, but the installation cost is lost after ten years. The other alternative might be to drastically curtail summer water usage by such methods as are listed below:

- Eliminate or curtail sprinkling
- Permit car washing by pail only
- Require pools to be filled by early May
- Other miscellaneous steps deemed necessary