

WASTEWATER case study 98-2

CLAYTON COUNTY, GA

Application of Municipal Solutions for Forest Land Treatment



Clayton County
Water Authority's E.L. Huie
Land Treatment System
is over 4,000 acres.

**Project:**

Clayton County
Water Authority's
E.L. Huie
Land Treatment
System

Engineer:

Robert & Company

Product:

Senninger
5023-1-3/4" EFF
F-luent-Master™
Impact Sprinkler

Installation Date:

1981

Clayton county is located just south of Atlanta, Georgia and straddles the eastern Continental Divide. The majority of the streams in that area originate within Clayton county. Streams located on the eastern side of the county flow toward the Atlantic Ocean. Streams located on the western side flow toward the Gulf of Mexico. These streams, however, are insufficient to meet the demands of the growing county population.

Clayton County Water Authority initiated a study in 1974 analyzing wastewater discharge in the basin area. They projected the impact over the next 20 years. Considerations included topography, soil analysis, hydraulic loading, and costs of wastewater treatment options. Land treatment using spray irrigation was identified as a cost-effective means of treating wastewater. In 1980 Clayton county began implementing treated wastewater for irrigation instead of discharging it into the basin.



Land treatment using irrigation
is a cost effective means of
treating wastewater.

System Design

Clayton County Water Authority E.L. Huie Land Treatment System encompasses 4,000 acres. Approximately 2,700 acres are irrigated with 2.52 inches applied per week. Two facilities use activated sludge to pretreat the wastewater. It is then pumped seven miles to the storage ponds. The storage ponds accommodate twelve days of flow from the pre-treatment facility. The 1,500 hp pumps move the wastewater to the land treatment site.



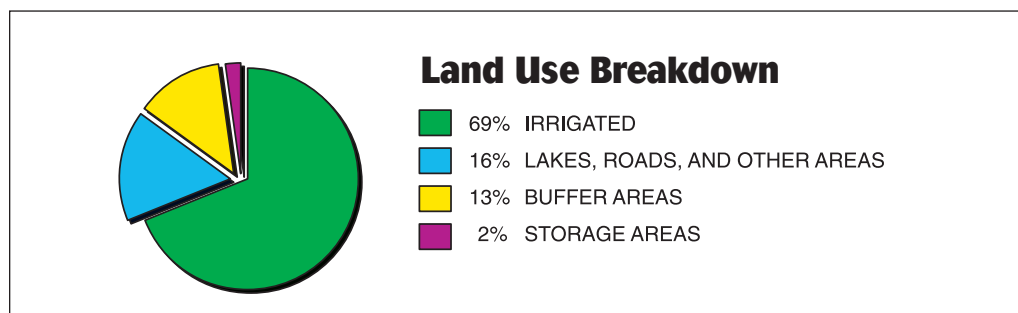
The storage ponds can hold twelve days of design flow (19.5 mgd)

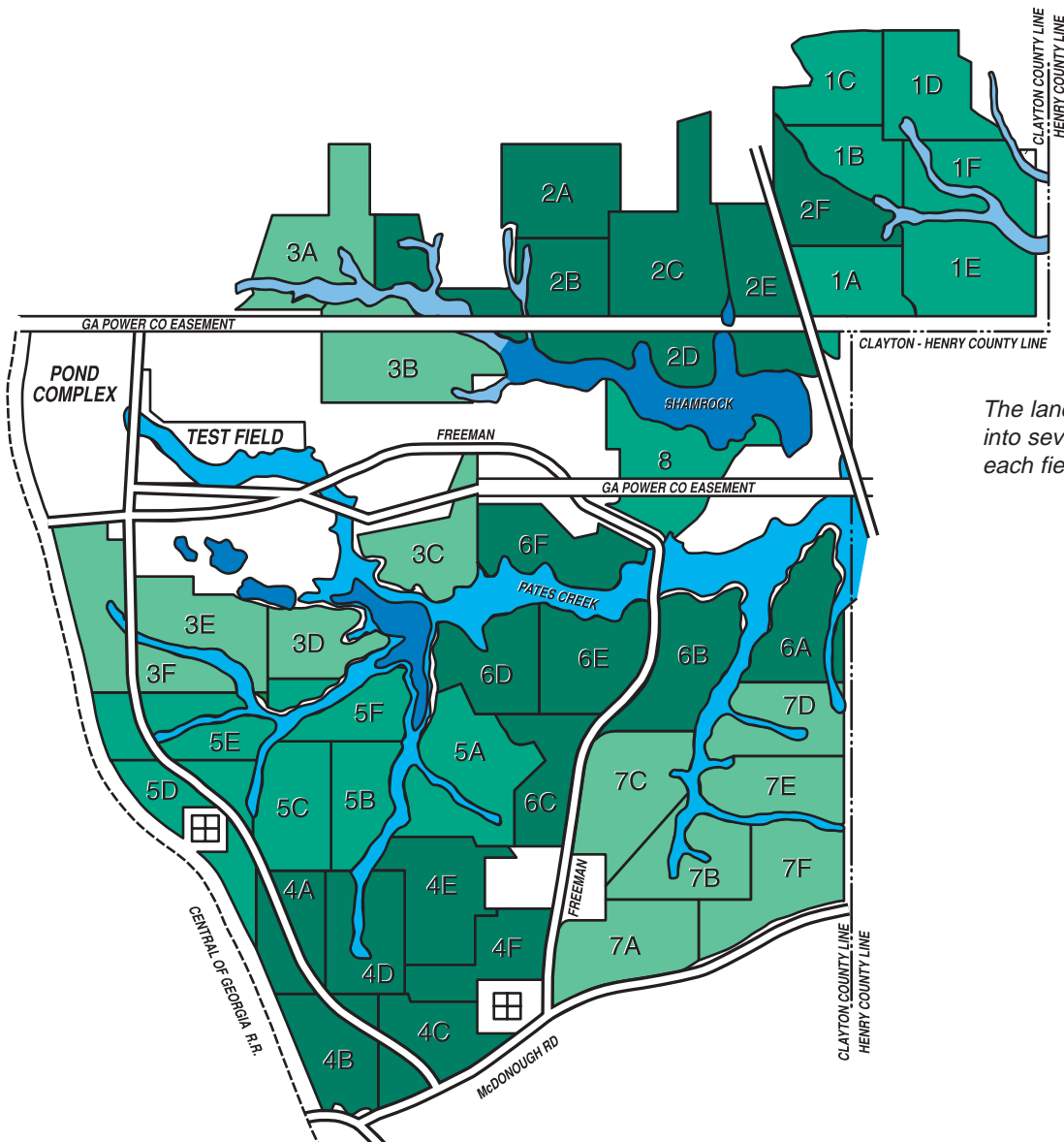


1,500 hp pumps move the wastewater to the land treatment site.

The spray irrigation system is designed as solid set with main lines and laterals installed below the frost line at least 1.64 feet in depth to protect against damage of heavy equipment. Galvanized steel risers approximately 3.6 feet high employ an impact sprinkler for application of the wastewater. Flow control valves have been installed to maintain optimum operating flow of sprinkler units. There are drains installed in the irrigation system, just below ground level, located in the lower lying areas. This enables the water to drain from the risers when freezing temperatures are forecast. Approximately 19,446 sprinklers are used to apply wastewater to the land treatment area.

The land treatment area is divided into seven fields with six blocks comprising each field. The irrigation system is designed to operate five of the six blocks one day a week. The sixth block is used as a rotation block in case of required fieldwork such as harvesting or repairs. An seventh block was recently added to increase the flexibility of the system.





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The specially designed 5023 F-luent-Master™ single nozzle sprinkler is ideal for the disposal of effluent by land treatment methods in accordance with EPA guidelines. It is suitable for use on solid set systems, or with minor modifications, on center pivots or other mechanical-move systems.

Features of the Senninger 5023 F-luent-Master™:

- ▲ Flow range: 6 - 18 gpm
- ▲ Sprinkler base pressure: 25 - 70 psi
- ▲ 23° angle of trajectory
- ▲ High-impact engineering-grade thermoplastic construction provides excellent corrosion resistance
- ▲ Sprinkler cap is lavender to correspond to industry standards denoting non-potable water
- ▲ Splasharm spring and bearing enclosed for protection against contamination
- ▲ Springs and fulcrum pin are top quality stainless steel – absolutely no brass components
- ▲ The nozzle / barrel cylinder combination minimizes obstruction from water-borne materials
- ▲ Two-year warranty on materials, workmanship and performance



The sprinkler is a Senninger 5023 single nozzle F-luent-Master™, specially designed for effluent solutions.

Summary

The Clayton County Water Authority's E.L. Huie Land Treatment System helps meet growing water demands by converting wastewater into reclaimed water. This eliminates the effect of discharging into the basin. The recycled wastewater helps the forest grow while being filtered naturally by the trees and soil.

Completion Date	Oct. 1981
Crop	Forest Biomass
Site Acreage	4,000 acres
Distribution	2.52 inches/wk
Irrigated Acreage	2,700
Sprinklers	19,446
Storage Pond Capacity	12 days/design 19.5 mgd

For specification assistance, contact the engineering department at:



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