

PLANNING BOARD
27 School Street
HILLSBOROUGH, NH
October 18, 2023

TIME: 7:00 p.m. –8:10 p.m.

DATE APPROVED: 11/15/23

MEMBERS: Susanne White- Chairperson, Nancy Egner -Vice Chairperson, Ed Sauer-Second Vice Chairperson, Adam Charrette, Steve Livingston, Bryant Wheeler

EX-OFFICIO: James Bailey III

PLANNING DIRECTOR: Robyn Payson

ALTERNATES: Kim Opperman, Dana Clow, Morgan Tanafon

Excused: Dana Clow, Ed Sauer Kim Opperman, Adam Charrette

Public: Peter Mellen, Dave Lewis

Call to Order:

Chairperson Susanne White called the meeting to order at 7:00 PM and called the roll. She appointed Morgan Tanafon to sit in place of Ed Sauer.

Minutes

09/20/23 Nancy Egner made a motion to approve the minutes. Jim Bailey seconded the motion. The motion carried unanimously.

Work Meeting

Peter Mellen and Dave Lewis of the Water and Sewer Commission came before the Board to discuss concerns that they heard the Planning Board had.

Susanne White said she was stepping out of her Planning Board role for a moment and into her EDC role to say that at the Economic Development meeting they discussed how we can facilitate a partnership between the Water and Sewer Commission and the Select Board, how to make sure there are capital funds available for the work that needs to be done in the future, and if we need to plan for a new treatment plant, how do we do it. She said the EDC considered working with the Planning Commission to see if there were grant funds available. She said they are very happy with the work on Whittemore Street but have concerns about the development of the town and whether there will be long term sewer capacity for new development.

Robyn Payson said that they were looking for projects from Water and Sewer to include in the Capital Improvements Plan.

Peter Mellen asked if this was more of an EDC thing than a Planning Board thing.

Robyn Payson said the CIP was a Planning Board issue.

Steve Livingston who is on the Capital Improvements Plan Committee said he had friends from Weaver Brothers Construction go to Whittemore Street and give him an idea of what it is going to cost to fix the road and run a new sewer line so we can learn what its going to cost per foot. It was a guesstimate for the Capital Improvements Plan.

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Peter Mellen said he would share his thoughts on the subject of a new treatment plant, and Dave Lewis also had some things to share.

Susanne White thanked them for coming and doing this.

Peter Mellen handed out information from when the present treatment plant was built. Peter Mellen spoke about a Sewer Study Committee that had been formed to come up with the plans for the new treatment plant.

Peter Mellen said he saw the role of the Water and Sewer Commission is to maintain and operate the system the Town has. He said the Town owns everything; the Commission just runs it. He said they keep up with the various regulations that are put in place.

He referred to the Wastewater Facility plan document which shows the existing plant took 21 years to build. It also includes how it was funded. It was funded mostly by Federal EPA, some funding was from the state, and there was 1.9 million from the Town. Prior to 1986 there wasn't a Water and Sewer Commission. There was a water precinct with some water commissioners and the sewer was under the purview of the Selectmen. The sewer was a collection system with no treatment which went right into the river. Peter Mellen reviewed the contents of the report (see attached).

Peter Mellen said one of the things the Water and Sewer Commission was doing is replacing the pipes that have been in existence since 1890. He said for the first time they had been able to do something in conjunction with the Town. He said the cooperation between the Water and Sewer Commission and the Board of Selectmen was pretty good.

Peter Mellen said if the Town wants a new plan, they are going to need to do what was done in 1986. He said they have no objection to building a new plant, they just think that the users should not be burdened with that cost.

Susanne White said that was why the Board wanted to start putting projects in the CIP. But since the first plan took so long to build do we want to think about what we are going to need in the future.

Peter Mellen said it wasn't the job of the W/S Commission to do that.

Peter Mellen said in this year's Town Report they talked about the Sewer Rate Study and what their engineer told them to generate enough money to fix some of the pipes over the next 50 years. Peter Mellen reviewed the recommendations on the fees.

Susan White said that we don't expect you to carry all of that cost. She said that they want to make sure there is a partnership in place that will allow us to get information from you about what needs to be done and how much it's going to cost.

Steve Livingston said it would be good to have a member of the Commission on the Capital Improvement Committee for informational purposes.

There was discussion about the capital reserve accounts that the Water and Sewer Commission has.

There was discussion about available capacity he said it was approximately 100,000 gal/day.

Dave Lewis shared a chart showing rainfall and its effect on wastewater.

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Peter Mellen reviewed the recommended fees and increases.

Susanne White talked about the Planned Unit Development overlay zone on Antrim Road. Part of that plan would be to have water and sewer infrastructure there. She said she didn't know how much that would cost.

Dave Lewis said he did. He said it would be approximately four hundred to six hundred dollars per linear foot. He described what that infrastructure would entail.

Peter Mellen said he wasn't sure how water would get up there because they are a gravity system. He said that is something that you would want whoever does the study to look at.

There was a discussion about infrastructure.

Steve Livingston asked if they could add on to the existing system.

Peter Mellen said he didn't think they were building any lagoon plants anymore.

Dave Lewis talked about the technology behind modern Water/Sewer plants.

Jim Bailey said he thinks the Board of Selectmen has had a very good relationship with the Water and Sewer department addressing some of the issues being brought up. He said Water and Sewer came up with a plan for stormwater and they mapped the whole town. They identified Whittemore as the worst part which is why it is scheduled to be fixed first. The Selectmen thought it was a great idea to solve some of these problems. Because the Selectmen do not want to put the full burden on the taxpayers, ARPA funds are going to be used for a part of the project.

Susanne White asked if there was anything that the Economic Development Commission can do to support that or is it between Water and Sewer and the Select Board? She said we don't know what future development is going to be in town, but we don't want to be dealing with restrictions when it comes. What can we do ahead of time to prepare for development?

Peter Mellen handed out a sheet of previous projects (attached) and described how they were paid for. He said with the 25% increase in sewer fees this year and another one in three years, their goal is to have a road project every three years.

There was a discussion about the previous projects.

Susanne White asked if there was anything that the EDC or Planning Board could do to support the Water and Sewer Department.

Peter Mellen said they can appoint a committee and have a study.

Dave Lewis passed out a handout. (attached) about infiltration and inflow. He spoke about a "homeowner's option" to pay for repairs over time to the system on their property.

Jim Bailey said that was something that the Board of Selectmen is looking into.

There was discussion about including sidewalks as part of the plan for improvements on Whittemore Road.

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Bryant Wheeler asked if they had considered underground power. He said it is a big improvement.

There was a discussion about the Whittemore project.

Susanne White thanked Peter and Dave for coming to the meeting.

Subdivision and Site Plan Update

Robyn Payson reviewed the proposed changes to the Site Plan and Subdivision Regulations that came out of the Federal Flood Insurance Program. She also added to the Site Plan Regulations some items from the Subdivision regulations and changes to reflect the statutory changes requiring findings of fact on all approvals.

Nancy Egner made a motion to hold a public hearing to approve the changes to the Subdivision and Site Plan regulations on November 15th. Steve Livingston seconded the motion. The motion carried unanimously.

Meeting of November 1.

Robyn Payson reported that there were no applications for the first meeting in November and asked if the Board would like to cancel the meeting.

Steve Livingston made a motion to cancel the meeting. Morgan Tanafon seconded the motion. The motion carried unanimously.

There being no further business Steve Livingston made a motion to adjourn. Jim Bailey seconded the motion.

Meeting Adjourned 8:10 pm

Respectfully Submitted,
Robyn L. Payson, Planning Director

Wastewater Treatment Facility

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Board of Selectmen

Ervin R. Lachut, Chairman
Adelbert A. Skinner
Michael B. Jones
Peter A. Chamberlin, Administrative Assistant
.....

Sewer Study Committee

Robert J. Johnson, Chairman
Douglas S. Hatfield, Jr.
Donald R. Mellen
Donald E. Knapton, Sr.
Charles W. Allen
Russell S. Galpin
Lawrence O. Fisher
.....

Water and Sewer Commissioners

Donald E. Knapton, Sr.
Donald McCullick
Eugene Edwards
.....

**Daniel D'Onfro's Sons, Inc.
Contractor**

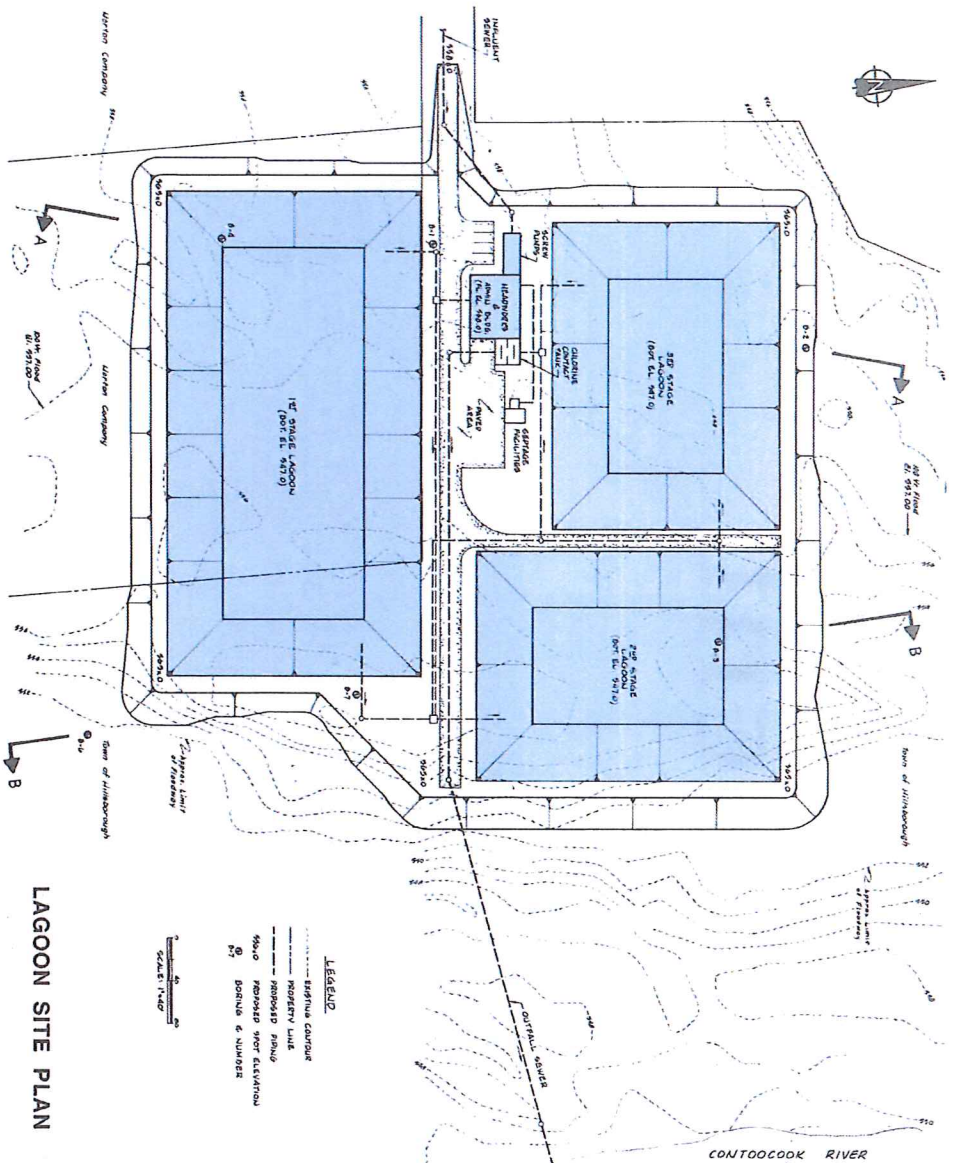
Leominster, Massachusetts
.....

**SEA Consultants Inc.
Engineers/Architects**

Cambridge, Massachusetts
South Portland, Maine
Wethersfield, Connecticut
.....



Hillsborough, New Hampshire



The Hillsborough Wastewater Treatment Facilities are a culmination of over 21 years of wastewater facilities planning. The project was initiated to reduce pollution in the Contoocook River by eliminating raw sewage discharges from the existing sewer system. The obstacles and delays that the project encountered were substantial, but through the efforts of many dedicated individuals in the Town of Hillsborough, the project reached a successful conclusion.

The planning began in 1966 when the Town's consultant completed the first preliminary design of the wastewater collection system. Final design plans and specifications for sewers and a treatment facility were completed and approved by the New Hampshire

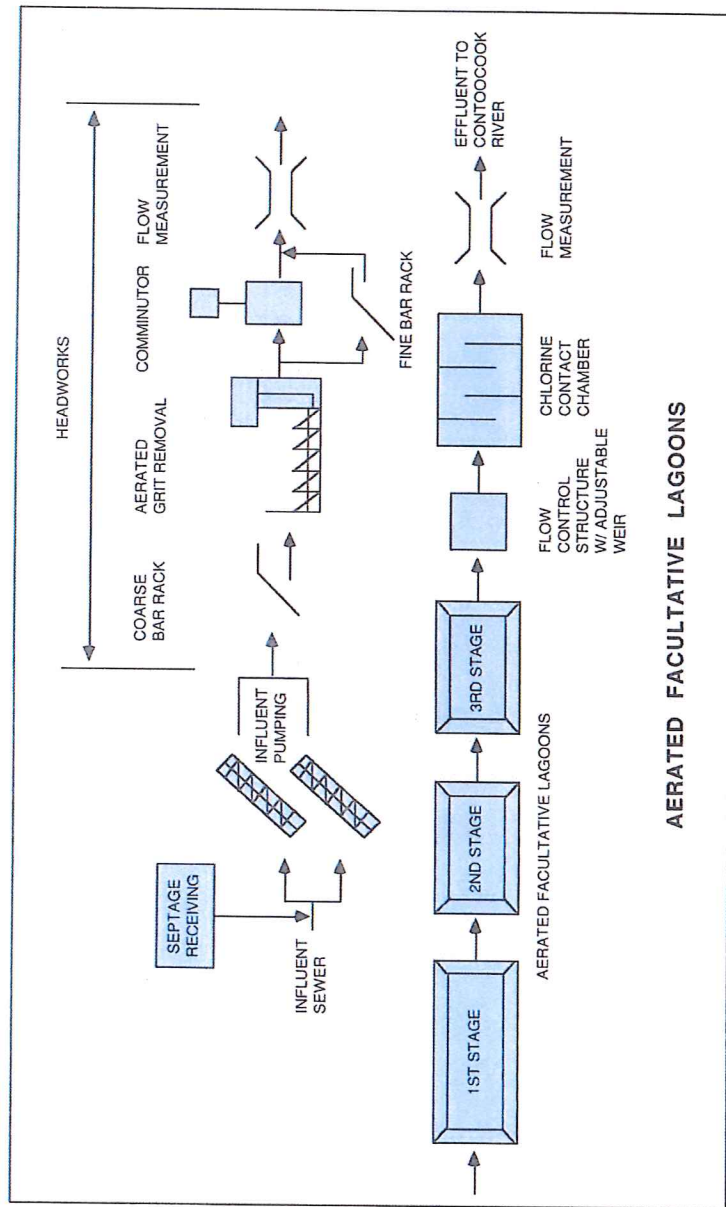
Water Supply and Pollution Control Commission (NHWSPPC) in 1970. The planning and design was financed with an interest free loan from the Federal Housing and Development Program (HUD), but lack of additional federal funds prevented the system's construction. In 1972, the Federal Water Pollution Control Act Amendments, Public Law 92-500 established the federal program that would ultimately provide financing for the project.

A facilities plan was completed to update the 1967 preliminary design report. The design of lateral sewers, interceptors, pumping stations, a siphon, and a wastewater treatment facility was completed. The treatment process was based on Rotating Biological Contactors (RBC's).

Bids were solicited from contractors in the fall of 1982. When the lowest price received was well over the available budget it was apparent that a less costly design was required for the project to continue.

In early 1983, the Town retained S E A Consultants Inc. to provide them with a design that was appropriate for the budget. Bids on two sewer contracts had been received and were within budget. The low bidder on each sewer contract was Daniel D'Onofrio's Sons, Inc. of Leominster, Massachusetts. S E A recommended that the Town award the contracts and construction began in the spring but the town was without a treatment facilities design.

S E A completed a fast track facilities plan to find an acceptable design that would fall within the remaining budget. The report's recommendation called for the use of less costly aerated lagoons in lieu of RBC's.



AERATED FACULTATIVE LAGOONS

In six months S E A completed the final plans of the new facility. Bids were received and the low bidder, Daniel D'Onfro's Sons, Inc., submitted with a bid of \$2,480,000. The bid was within the project budget due to additional funds provided by an amendment to the EPA/State grant, in conjunction with additional bonding authorization from Town Meeting.

The treatment facility began accepting wastewater on September 7, 1986 and by the spring of 1987, the raw sewage discharges to the Contoocook River were finally eliminated.

Prior to this project, over 65 percent of the town was served by an older sewer system which discharged untreated wastewater to the Contoocook River through five outfalls. The project included two pumping stations, a double siphon and dosing chamber under the river, the elimination of some sections of old sewer that contributed excessive infiltration to the system, and over 40,000 linear feet of new interceptor and lateral sewers. The project added about 200 customers to the municipal system. It is a project in which the residents, the Sewer Study Committee members, the Selectmen, the Water and

Sewer Commissioners and all those involved over the years, can feel a sense of accomplishment and pride.

The main treatment facility is a 475,000 gallon per day secondary plant using facultative aerated lagoons for removal of biological material. Air is bubbled through the waste in the lagoons through perforated tubing. This stimulates bacteria that is naturally occurring in wastewater. This bacteria thrives and consumes the pollutants in the water as its food source.

To provide the operator with the flexibility to minimize power costs, the lagoon depths are adjustable via a mechanical weir. When lagoon oxygen requirements decrease due to seasonal variations, the lagoon depths can be dropped from 15 feet to a minimum of 12 feet. This reduces the retention time and the horsepower draw of the air blowers. Another unique feature is the passive solar design incorporated into the southerly building face. This, together with a heat recovery system on the building ventilation system, will reduce heating costs.

The project funding is as follows:

Federal EPA contribution	\$4.2 million
State contribution	\$1.1 million
Hillsborough contribution	\$1.9 million (1)

(1) Financed with a 5 percent Farmer's Home Administration loan.

**Hillsborough, New Hampshire
Wastewater Treatment Facilities
Basic Design Data**

Design Population		
Initial	2,050	
Future	3,150	
Design Wastewater Flows		
Average flow, gallons per day	475,000	
Peak flow, gallons per day	2,500,000	
Design Wastewater Loadings		
BOD, pounds per day	935	
Suspended solids, pounds per day	1498	
Influent Pumps		
Number	2	
Type	2 speed enclosed impeller screw pump	
Lift, feet	28	
Diameter, inches	36	
Capacity per pump, gallons per day	2,500,000	
Bar Screen		
Channel width, feet	1.50	
Bar spacing, inches	1.0	
Method of cleaning	Manual	
Aerated Grit Chamber		
Number of Blowers	1	
Capacity, cubic feet per minute	45	
Unit Dimensions (L x W x D), feet	9.0 x 7.0 x 7.0	
Grit Removal	Bucket Elevator	
Comminuter		
Screen diameter, inches	15	
This unit has a bypass channel with bar rack.		
Bar spacing, inches	0.5	
Flow Measurement (By Parshall Flume)		
Throat width, inches	6.0	
Capacity, gallons per minute	21-1750	
Aerated Lagoons		
Size, feet (L x W)		351 x 135
Lagoon No. 1		179 x 106
Lagoons No. 2, No. 3		12-15
Depth, adjustable, feet		
Capacity, million gallons		7.75
Lagoon No. 1		3.87
Lagoons No. 2, No. 3		
Average Retention Time, days		
Lagoon No. 1		16.3
Lagoons No. 2, No. 3 each		8.1
Lagoon Aeration		
Number of blowers		2
Capacity, cubic feet per minute (each)		450
Chlorine Contact Tanks (2)		
Capacity per unit, gallons		13,127
Unit dimensions (L x W x D), feet		27 x 10 x 6.5
Chemical Feed System		
Chemical		Sodium hypochlorite
Storage capacity, gallons		1400
Number of chemical pumps		2
Capacity of each, gallons per hour		3 to 20
Septic Waste Receiving Facility		
Number of Holding Tanks		2
Capacity, gallons each		4,200
Number of air blowers		1
Blower capacity, cubic feet per minute		45
Sludge Production and Handling		
The aerated lagoon process employed in Hillsborough generates very little sludge. The small amount that is produced is stored in the bottom of the ponds. Sufficient capacity exists for 20 years of storage. At that time, the lagoons would be drained and dredged separately, and the sludge would be landfilled.		

YEAR	DEPT	PROJECT DESC	AMOUNT	WHO PAID	TYPE OF PROJECT
1997	Water	Water Plant	\$3,000,000	2/3 water & 1/3 Town	New Construction
2004	Water	Bible Hill Transmission Main Replacement Bond 1	\$1,792,000	Water User Fees	Upgrade to resolve TTHM & HAA5 Issue
2006	Water	Bible Hill Transmission Main Replacement Bond 2	\$1,200,000	Water User Fees	Upgrade to resolve TTHM & HAA5 Issue
2006	Sewer	WWTF Aeration Upgrade	\$750,000	Town	Upgrade to be able to apply for 600Kgpd permit increase
2008	Water	Water Plant Upgrades	\$240,000	Water User Fees	Upgrade to resolve TTHM & HAA5 Issue
2009	Sewer	WWTF Aeration Upgrade increase cost	\$250,000	Sewer Reserves	Upgrade to be able to apply for 600Kgpd permit increase
2009	Water	Bible Hill Reservoir Improvements	\$307,000	Water User Fees	Upgrade to resolve TTHM & HAA5 Issue
2011	Sewer	WWTF Screw Pump Replacement	\$800,000	Sewer User Fees	Replace worn process component
2011	Water	Install UV System	\$904,000	Water User Fees	Upgrade to resolve TTHM & HAA5 Issue
2012	Sewer	Pipe Burst a section of School Street Sewer Main	\$236,600	Sewer I&I Reduction Capital Reserve	Replace to reduce I&I to gain capacity
2016	Sewer	Lined a section of Henniker Street Sewer Main	\$88,967	Sewer I&I Reduction Capital Reserve	Lined to reduce I&I to gain capacity
2017	Sewer	Replace Section of Sewer Main on Bridge Street	\$350,000	Town	Replace to reduce I&I to gain capacity
2017	Sewer	Replace Section of Sewer Main on Bridge Street	\$300,000	Sewer I&I Reduction Capital Reserve	Replace to reduce I&I to gain capacity
2021	Sewer	Lined a section of Bear Hill Road Sewer Main	\$50,000	Sewer I&I Reduction Capital Reserve	Lined to reduce I&I to gain capacity
2021	Sewer	Lined a section of Preston Street Sewer Main	\$33,865	Sewer I&I Reduction Capital Reserve	Lined to reduce I&I to gain capacity



What is infiltration and inflow?

Infiltration and inflow (I/I) is excess water that flows into sewer pipes from groundwater and stormwater.

Groundwater (infiltration) seeps into sewer pipes through holes, cracks, joint failures, and faulty connections.

Stormwater (inflow) rapidly flows into sewers via roof drain downspouts, foundation drains, storm drain cross-connections, and through holes in manhole covers.

Most I/I is caused by aging infrastructure that needs maintenance or replacement.

