

TOWN OF DRYDEN

TOMPKINS COUNTY, NEW YORK

April 2006

ENGINEER'S REPORT

**Proposed Town of Dryden
Pinckney Road Sewer District**

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Table of Contents

SECTIONS

	Page
Section 1 - Introduction	1
Section 2 - History of Sewer Service	1
Section 3 - Existing Wastewater Collection System	1
Section 4 - Service Area	2
Section 5 - Design Considerations	2
Section 6 - Proposed Collection System	4
Section 7 - Estimate of Project Cost	4
Section 8 - Method of Financing Project Costs	5
Section 9 - Supplemental Costs	6
Section 10 - Cost of the District to a Typical Property	7

APPENDICES

Appendix A - Boundary Description, Town of Dryden, Pinckney Road Sewer District

MAPS

Sewer Service Areas Map

Map of Proposed Pinckney Road Sewer District and Plan of System to be Constructed

SECTION 1 – INTRODUCTION

Interest has been expressed from persons owning land and businesses along Hall Road for the extension of public sewer to their neighborhood. The Town Board authorized this Engineering Report to provide the information necessary to describe the extension of wastewater collection facilities to Hall and Pinckney Roads for public review and comment prior to a public hearing. The following pages indicate the basic information needed to assess the project and costs so both the landowners and the Town Board may express comments. The Board will complete a review of environmental impacts pursuant to Article 8 of the Environmental Conservation Law and determine whether to proceed with an order to form the district. Pursuant to Article 12-A of New York State Town Law, the Town may adopt an order to form the District and, following the necessary public hearings, may adopt a resolution forming the District. If established by the resolution, the Board's determination will be subject to a permissive referendum.

SECTION 2 – HISTORY OF SEWER SERVICE

With the exception of Wilcox Press all developed properties within the proposed district are served by on-site septic systems. The existing Monkey Run Sewer District is immediately adjacent to the proposed district. Wilcox Press connected to this system as an out of district user with a private pump station and force main in 1992. The existing wastewater collection system in the Town of Dryden is composed of six districts; Monkey Run Sewer District, Royal Road Sewer District, Sewer District #1, Sewer District #2 (Varna Sewer District), Snyder Hill Sewer District and Turkey Hill Sewer District (See attached Sewer Service Areas Map). The Varna Sewer District, Monkey Run Sewer District, Royal Road Sewer District and the Turkey Hill Sewer District (which share the Varna Sewer Pump Station) will be impacted by the proposed district. The extension of municipal services will allow for the best use of the commercial lands without creating possible adverse sanitary conditions. Furthermore, septic system separation distances to well water supplies render some lots too small to be practically developed.

SECTION 3 – EXISTING WASTEWATER COLLECTION SYSTEM

The Varna Sewer District consists of eight-inch diameter asbestos cement pipe (ACP) along NYS Route 366 (Dryden Road) and Forest Home Drive. The Varna pump station located on Forest Home Drive has two 535 gallon per minute (gpm) submersible pumps which pump wastewater from the Varna, Monkey Run, and Turkey Hill Sewer Districts to a sewer transmission main located at Cornell University. Wastewater eventually flows to the Ithaca Area Wastewater Treatment Facility (IAWWTF).

The Monkey Run Sewer District system connects to the eight-inch ACP mains in the Varna Sewer District near the old railroad overpass on NYS Route 366. Eight and ten-inch gravity sewer mains follow the abandoned railroad right-of-way and NYS Routes 366 & 13 to the New York State Electric and Gas Facility. The Lower Creek Road Pump Station collects sewage from an 8-inch gravity system on the north side of Fall Creek and pumps it through a 6-inch force main to the 10-inch gravity main on the old railroad grade on the south side near its intersection with Route 13.

The Turkey Hill Sewer District connects to the Monkey Run system at four locations and the Varna system at one location. The District consists of eight-inch diameter gravity mains which provide service to portions of NYS Route 366, Turkey Hill Road, Forest Lane, and Mount Pleasant Road.

SECTION 4 – SERVICE AREA

The proposed service area includes a total of eight tax parcels encompassing 77 acres. Land within the district is zoned M-A (retail, manufacturing, industrial). The total 2005 assessed value of all land and improvements within the proposed district is \$9,122,081 and is itemized in Table 1.

Table 1 - Properties in the Service Area

Parcel No.	Owner	Use	Assessment	Acreage
52.-1-1.11	Saunders Concrete Co.	Ind.	\$365,000	20.11
52.-1-4.111	281 Development Co.	Ind.	\$70,000	1.21
52.-1-4.12	Marchell, John T.	Comm	\$440,000	1.38
52.-1-4.122	281 Development Co.	Vac	\$35,000	2.25
52.-1-4.2	Seneca Supply & Equip.	Comm	\$345,000	2.43
52.-1-4.32	Wilcox Press	Ind.	\$4,700,000	21.95
52.-1-4.52	281 Development Co.	Ind.	\$480,000	3.57
52.-1-5	NYSEG	Ind.	\$2,687,081	23.99
		Total	\$9,122,081	76.89

The attached “Map of Proposed Pinckney Road Sewer District and Plan of System to be Constructed” identifies the boundary of the proposed district and the parcels to be benefited. Wilcox Press currently has sewer service as an “Out of District Contract User” to the Monkey Run Sewer District. Wilcox Press connects to the Monkey Run Sewer District by a pump station and 6-inch force main. The force main connects to Monkey Run’s Lower Creek Road Pump Station 6-inch force main at the intersection of the railroad grade and Route 13. None of the properties included in the proposed district are within the Tompkins County Agricultural District No. 1.

SECTION 5 – DESIGN CONSIDERATIONS

Sewer Flows

Although wastewater flow may range from 70% to 130% of actual water consumption it is general engineering practice to assume average wastewater flow equals average water consumption for estimating purposes. Therefore estimated water use and available water use records have been used to estimate average wastewater flow. Estimated average daily and annual water use is summarized in the following Table:

Table 2 – Estimated Water Use

Parcel No.	Owners name	Use	Estimated Average Daily Water Use (gpd)	Estimated Annual Water Use (gallons)
52.-1-1.11	Saunders Concrete Co.	Ind.	5,000	1,825,000
52.-1-4.111	281 Development Corp	Ind.	30	10,950
52.-1-4.12	Marchell, John T	Comm.	90	32,850
52.-1-4.122	281 Development Corp	Vac. Comm.	180	65,700
52.-1-4.2	Seneca Supply & Equip.	Comm.	225	82,125
52.-1-4.32	Wilcox Press	Ind.	7,700	2,800,000
52.-1-4.52	281 Development Corp	Ind.	75	27,375
52.-1-5	NYSEG	Ind.	1,200	438,000
			14,500	5,282,000

The average estimated water use in the proposed district is 14,500 gallons per day (gpd). This includes an average of 7,700 gpd for Wilcox Press and the 6,800 gpd as estimated in the “Pinckney Road Water District Engineer’s Report” dated April 2006.

With the exception of Wilcox Press all of the users in the proposed district operate during regular business hours, six to seven days per week. Wilcox Press operates 18 to 24 hours per day seven days per week. Based on an 18-hour day for Wilcox Press and a nine-hour day for other customers, the average hourly wastewater flow is approximately 1183 gallons per hour (gph). The peak hourly flow, the average hourly flow multiplied by a peak factor of 3.5, is 4,143 gph.

In accordance with the Recommended Standards for Sewage Works, “no public gravity sewer conveying raw sewage shall be less than eight-inches in diameter”. An eight-inch sewer has approximately a 20,800-gph capacity. Therefore the peak hourly flow listed above indicates that eight-inch diameter sewers are adequate to serve the Pinckney Road Sewer District.

System Capacity

The downstream sewer system (including both force and gravity mains as well as the Varna pump station) has the capacity to accept the anticipated flows from the proposed District. The current agreement with the IAWWTP allows for the treatment of 0.26 million gallons per day (mgd). The historical daily flow to the plant from the Dryden Sewer Districts is approximately 0.14 mgd thereby providing adequate capacity for the additional flow of 0.01mgd from the District.

SECTION 6 – PROPOSED COLLECTION SYSTEM

Gravity Collection

Eight-inch PVC gravity collection mains will service five tax map parcels located on Hall Road and two parcels adjacent to the abandoned railroad as illustrated on the “Map of Proposed Pinckney Road Sewer District and Plan of System to be Constructed”. Approximately 270 feet of eight-inch PVC main extended from Hall Road will service one parcel on Pinckney Road. The gravity sewers slope to a proposed pump station.

Pump Station/Forcemain

Two 300 gpm submersible pumps located in a large below-ground pump station adjacent to the abandoned railroad will pump the collected wastewater from the service area through a six inch PVC force main connected to the 6-inch SDR 18 PVC force main serving Wilcox Press. The pumps will be designed to operate in conjunction with the Lower Creek Road Pump Station.

Approximately 850 feet of the sewer facilities will be constructed within the Hall Road right-of-way. The balance will run through permanent utility easements to be secured with the individual property owners within the District.

SECTION 7 – ESTIMATE OF PROJECT COST

The Town of Dryden is allocated 0.26 mgd treatment capacity at the IAWWTP. The Town purchases treatment capacity as needed based on a surcharge of \$80,000 per unit (1 unit = 99,050 gpd). Based on the estimated average wastewater flow of new users only (6,800 gpd) the district must purchase approximately 0.07 of a unit = \$5,600.

The 6” force main currently serving Wilcox Press is subject to an agreement between the Town of Dryden and Wilcox Press. The agreement states that the Town may purchase portions of the sewer facilities in the event that a sewer district is formed which includes Wilcox Press land (tax map parcel 52.-1-4.32). The agreement indicated Wilcox Press would be reimbursed the original construction cost including engineering, legal and other necessary expenses according to a 10-year depreciation schedule. Wilcox Press’ sewer facilities were constructed in 1992 and are now more than 11 years old. Therefore the Town will assume ownership of the portions of the Wilcox Press facilities required for this extension at no cost.

Table 3 – Estimated Project Cost

Item	Estimated Quantity	Unit	Cost per Unit	Item Total
6" PVC Force Main	1,930	LF	\$40	\$77,200
8" PVC Pipe	3,092	LF	\$45	\$139,140
4" PVC Lateral	200	LF	\$30	\$6,000
Pump Station	1	EA	\$75,000	\$75,000
Manholes	10	EA	\$2,500	\$25,000
Subtotal				\$322,340
Construction Contingency @			12%	\$38,680
Total Construction Cost				\$361,020
Engineering, Planning, Design, and Construction @			18%	\$64,980
Legal, Bonding, and Administration @			5%	\$18,050
Acquisition of Wilcox Press Facilities				\$0
Treatment Plant Capacity Purchase				\$5,600
Total Estimated Project Cost				\$449,650

SECTION 8 – METHOD OF FINANCING PROJECT COSTS

The benefited landowners within the District Extension will finance the total project cost. The project will be financed by the Town of Dryden through issuance of serial bonds to mature in annual installments and paid by the benefited landowners of the proposed district extension.

The estimated annual payment for a 20-year bond issue is calculated as follows:

Principal	\$449,650
Interest Rate	5.5%
Term (Years)	20
Capital Recovery Factor (C.R.F.)	0.0837
Annual Payment	\$37,636

Annual payments will be assessed to all properties within the district per the following benefit formula:

- 50% of Annual Payment based on Total Assessed Value of property in the District
- 35% of Annual Payment based on Acreage of property in the District
- 15% of Annual Payment based on Units within the District (1 Unit per parcel)

Each benefited property in the district must pay a proportionate share of the Annual Payment. Based on present land use and assessed values the first year charge for each property is summarized in the following table:

Table 4 – Estimate of First Year Charge

Parcel No.	Owners name	Use	Assesment	Acreage	Equiv. Consump. Units	Debt Service Assessment	Debt Service Acreage	Debt Service Units	Total Debt Service First Year
52.-1-1.11	Saunders Concrete Co.	Ind.	\$365,000	20.11	1	\$981	\$3,445	\$706	\$5,131
52.-1-4.111	281 Development Corp	Ind.	\$70,000	1.21	1	\$188	\$207	\$706	\$1,101
52.-1-4.12	Marchell, John T	Comm.	\$440,000	1.38	1	\$1,182	\$236	\$706	\$2,124
52.-1-4.122	281 Development Corp	Vac. Comm.	\$35,000	2.25	1	\$94	\$385	\$706	\$1,185
52.-1-4.2	Seneca Supply & Equip.	Comm.	\$345,000	2.43	1	\$927	\$416	\$706	\$2,049
52.-1-4.32	Wilcox Press	Ind.	\$4,700,000	21.95	1	\$12,626	\$3,760	\$706	\$17,092
52.-1-4.52	281 Development Corp	Ind.	\$480,000	3.57	1	\$1,289	\$612	\$706	\$2,607
52.-1-5	NYSEG	Ind.	\$570,000	23.99	1	\$1,531	\$4,110	\$706	\$6,347
			\$7,005,000	76.89	8	\$18,818	\$13,172	\$5,645	\$37,636

The assessment for the NYSEG parcel was reduced to \$570,000 to exclude the assessed value of the existing substation.

SECTION 9 – SUPPLEMENTAL COSTS

These costs are in addition to the annual capital repayment cost.

A. One-Time Service Connection Costs

Customers will be responsible for the installation of the service line from the sewer main to their building. The costs associated with the service connection are estimated below and will vary for each parcel.

Bolton Point -Inspection Fee	\$170
4” PVC sewer lateral from main to building (cost will vary depending on size and length of service line and depth to bedrock, if encountered) estimated average: 100 lf @ \$20/lf.	\$2,000
Total	\$2,170

B. Sewer Use Fee

The sewer use charge is based on metered water use. The customer will be charged per the following schedule, which includes operation and maintenance of the sewer system.

<u>Gallons Consumed</u>	<u>Flat Rate per Quarter</u>
0-10,000	\$16.00 (base charge)
10,001 and over	\$1.60/1000 gallons

In addition each district in the Town of Dryden is required to finance a share of the costs to operate and maintain (O&M) the Varna Pump Station based on the ratio of district wastewater flow to total wastewater pumped. Costs exceeding the surcharge revenues will be financed based on the proportions established for capital repayment. Repayment occurs one year after the

expenses occur, therefore the first year the district is formed O&M charges will not be assessed to the district.

SECTION 10 – COST OF THE DISTRICT TO A TYPICAL PROPERTY

The cost of the District to the typical property is the estimated amount that the owner of the property within the District will be required to pay for debt service, sewer use, operation and maintenance in the first year following the formation of the District.

In accordance with Town Law §209-a and §209-d the following costs are for the typical property. A mode-average assessment value of approximately \$350,000 was calculated using the assessment values listed in Section 4 rounded to the nearest \$50,000. The closest user to this assessment is Seneca Supply and Equipment so the total first year debt service of \$2,049 was used. Utilizing Seneca Supply Equipment's quarterly water usage of 20,531 gallons equates to an annual sewer use charge of approximately \$132.

Therefore the cost of the District to the typical property is \$2,181.