Appendix F

Engineers Report for the Evaluation of Sanitary Sewer in the Ballston Lake Watershed, March 24, 2005

Memo

To: Matthew Rogers, Saratoga Associates

From: Kathryn Cyr, CT Male

CC: Ed Vopelak, CT Male

Date: March 29, 2006

Re: Summary of *Evaluation of Sanitary Sewer in the Ballston Lake Watershed* as related to current/proposed zoning in the Town of Ballston

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This memo is to summarize the C.T. Male report *Evaluation of Sanitary Sewer in the Ballston Lake Watershed,* dated March 24, 2005, as related to the current and proposed zoning with the Town of Ballston.

This report studied the existing development and future development of the parcels within the Ballston Lake Watershed. The study area included portions of Clifton Park and Malta, as well as most of the Town of Ballston. The sewer flow projection tables for the sub-areas within the Town of Ballston were used in the hydraulic model to determine existing demand and future demand under current zoning. The proposed change in zoning of the commercial properties within the Town will not affect the flow projections from the sewer study, since the change in zoning only slightly increases the sanitary sewer flows upon full build-out.

The northern portion of the Town of Ballston, i.e. parcels north of McCrea Hill Road, were not part of the sewer study, since there are existing sanitary sewers serving a portion of these properties. The sanitary sewers in the Route 50/67 area were discussed in the sewer study on Page 11, but no flow projections were made. The undeveloped Rossi property on Route 50 and 67 currently has sanitary sewer service. There is an existing 8" gravity sewer along Brookline Road from the Terrace Pines apartments that can service most of the properties in this area. No flow calculations were performed for these areas, but given the size of the existing sewers, it is likely that all future development could tie into the existing lines.

The potential residential development in the Garrett Road/Mann Road area was not referenced in the sewer study. Based upon this area's proximity to Carpenters Acres and the Route 50/67 corridor, it is likely that the development in this area could be serviced by sanitary sewer.

To summarize, the proposed zoning changes will not affect the results of the March 2005 sewer study. The zoning changes would affect commercial properties, which generally do not contribute high sanitary sewer flows. Most of the zoning changes will occur in the Route 50/67 corridor, which already has several public sanitary sewers, and should be appropriately sized to convey flows under future development conditions.

March 24, 2005

Engineers' Report for *Evaluation of Sanitary Sewer in the Ballston Lake Watershed*

Towns of Ballston, Malta and Clifton Park
Saratoga County, New York

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Related Drawing No: NA

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Evaluation of Sanitary Sewer in the Ballston Lake Watershed

TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
2.0	EXISTING CONDITIONS ASSESSMENT	1
2.1	Project Area Description	1
2.2	Existing Land Use	2
2.2	History of Septic System Failures	4
2.3	Additional Environmental Elements	5
3.0	FLOW PROJECTIONS	6
3.1	Existing Developed Parcels	6
3.2	Potential Development	7
3.3	Growth Rate	8
3.4	Flow Calculations	9
4.0	COLLECTION SYSTEM ALTERNATIVES	11
4.1	Collection System Locations	12
4.2	Force Mains	13
5.0	COST ESTIMATE	15
6.0	SUMMARY/CONCLUSIONS	16

FIGURES

1 Environmental Factors Impeding Development
2 Study Area Breakdown
3 Existing and Potential Development
4 Proposed Sewer Layout

APPENDICES

A Soil Classification
B Flow Calculation Tables
C Site Photographs: Bike Path
D Cost Estimates

1.0 INTRODUCTION

C.T. Male Associates, P.C. was retained by the Saratoga County Sewer District (SCSD) to perform a sanitary sewer analysis of the Ballston Lake Watershed. This watershed is primarily bounded by the Town of Ballston, but includes small portions of the Towns of Clifton Park and Malta. There are few public sanitary sewers servicing the area within the Ballston Lake Watershed, resulting in the use of individual septic systems in the densely populated areas along the Ballston Lake shoreline and the Burnt Hills area. Malcolm Pirnie, Inc. previously studied this watershed for the feasibility of sanitary sewer service in the 1970's to 1980's and recommended that a public sewer system be installed for the properties adjacent to Ballston Lake and for certain sections of Burnt Hills. The recommendation was accepted by the Saratoga County Sewer District No. 1 and designed for construction in the mid-1980's, but further work towards a public sanitary sewer system was ceased when a referendum for the sewer was defeated. As the result of findings of a 2001 report entitled *Watershed Protection and Management Plan for the Ballston Lake Watershed* by the Capital District Regional Planning Commission and due to the high growth potential of the Town of Ballston in part the result of the proposed Luther Forest Technology Park, the Saratoga County Sewer District No. 1 revisited implementing sanitary sewer service to the Ballston Lake area. This report will outline and describe the study area, existing and projected development; estimate projected wastewater flows 20-years into the future; show potential routes for the collection sewers; and develop preliminary cost estimates. Geographic Information Systems (G.I.S) and map overlays will be used to develop flow projections and potential development based upon current zoning regulations. Proposed locations of collection systems and their tie-ins to existing SCSD No. 1 Sewers will be shown, along with comparisons of alternative routes for a north/south force main serving the west side of the Lake.

2.0 EXISTING CONDITIONS ASSESSMENT

2.1 Project Area Description

Ballston Lake is located primarily in the Town of Ballston with the southeastern portion in the Town of Clifton Park in southwestern Saratoga County. The watershed

of the lake encompasses 8,537 acres in both towns. Ballston Lake and its watershed are underlain with glacial till and impervious bedrock, while the soils have a wide variety of characteristics, most of which impede proper septic system function. The lake is approximately 3.5 miles in length and averages 750 feet in width. The surface elevation is 251 feet, with the depth varying greatly from north to south. The south basin has a depth of 120 feet, while the north basin has a depth of 10 feet. The watershed boundary was initially established as the study area, but was extended to the west to meet the Saratoga County Sewer District No.1 boundary, east to Eastline Road and north along Route 50 to the Village of Ballston Spa to encompass potential development. The extended study area also includes a small portion of the Town of Malta adjacent to Eastline Road. The watershed boundary also intersects two areas that are not located within the boundary of the Saratoga County Sewer District No. 1. These are parcels are located in the northwest corner of the watershed, west of Middleline Road and at the far southern reaches of the watershed. Since these parcels are not located within the SCDC No. 1, they will not be studied at this time.

The topography of the study area generally slopes towards Ballston Lake, with steeper slopes immediately adjacent to the lake. Some portions of properties contain steeper slopes that will inhibit potential future development. Areas further away from the lake are generally flat and drain to wetland areas or other tributaries that ultimately drain into Ballston Lake. Heavily wooded areas surround the lake, while the remaining undeveloped areas in the watershed are generally open fields and farmland with sporadic wooded areas.

2.2 Existing Land Use

The study area encompasses mostly residential and undeveloped rural areas, 30% and 57% of the total watershed area, respectively. There are some commercial and industrial properties along Route 50 in the Town of Ballston, along with the Corporate Technology Park on McCrea Hill Road, and Curtis Lumber Industrial Park off Route 67. The two industrial parks contain existing sanitary sewers that connect to the SCSD No. 1 Trunk Sewer at the intersection of Eastline Road and Route 67. All other commercial property is served by private on-site disposal systems, and is located particularly in the Burnt Hills area along Route 50. Developed commercial, industrial, public and community property (i.e. schools) encompass only 5% of the total land within the watershed. The other relatively large portion of land within the

watershed is zoned for agricultural purposes. Most of the farmland is located along Route 50 with some agricultural parcels on the east side of Ballston Lake. This includes 16% of the watershed, but farms do have a potential for residential development based upon current trends.

The watershed contains a significant percentage of rural, undeveloped land, but there are dense areas of residential development along the lake and in the Burnt Hills area. Several subdivisions are either in conceptual design phase or pending approval by the Town of Ballston Planning Board. One such development is Eastline Farms Subdivision along Eastline Road, which could bring 120 more homes into the watershed.

Other than the two industrial parks north of Ballston Lake, there are no other major areas with public sewer systems in the watershed. There are, however, public sanitary sewer systems within the study area, located in the sub-area "Route 50 & 67". Figures 3 and 4 show three such new developments with sanitary sewer: the Beacon Hill Subdivision and the Specialty Silicones Park (Corporate Technology Park), Terrace Pines and the Toscana-Rossi property, which has potential for a large commercial development. The sanitary sewer systems in these three areas connect to the Trunk Sewer at separate locations. The latter two sanitary sewer lines are publicly owned, while the Corporate Technology Park system is privately owned. The SCSD No. 1 Trunk Sewer intersects the study area at Eastline Road and Route 67. This section of the Trunk Sewer is 42-inches in diameter and has a reported capacity of 23.4 MGD (36.2 cfs), and has a reserve capacity of approximately 8.3 MGD (12.8 cfs) based on peak daily flows. Currently this section of the SCSD No. 1 Trunk Sewer conveys all wastewater flows from the Village of Ballston Spa, the Towns Milton, Greenfield and Wilton, and the City of Saratoga Springs west of Lake Lonely. If properties within the Ballston Lake Watershed were to tie into this Trunk Sewer, it would likely have more than enough capacity to carry a reasonable peak flow from the area.[1] There are also several smaller collector sewer systems generally owned by the Town of Clifton Park, east of the lake that eventually tie into the SCSD Trunk Sewer. The Town of Ballston Planning Board has recently been requiring all new subdivisions and

[1] Capacity statement from Table 4-2, Page 2, Reach R-16 of the Malcolm Pirnie, Inc. report entitled *Trunk Sewer System Capacity* dated December 2000.

commercial/industrial parks to construct dry sewers in hopes of connecting the properties to an area-wide sanitary sewer system in the future. Currently the only subdivision with dry sewers is Phases I, II and IV of Seeyle Estates West, located off Lake Hill Road. The location of these dry sewers can be seen in Figure 3.

2.2 History of Septic System Failures

As part of their Sanitary Sewer Feasibility Study, completed in 1977, Malcolm Pirnie performed a sanitary sewer needs study and sent questionnaires to the residents of the Burnt Hills-Ballston Lake Area. The report was focused in the developed areas along the southwest portion of the watershed. The survey asked residents if they have experienced septic system problems in the past, such as sewage present on the ground surface, frequent pumpouts and recent repair. Of the households responding to the questionnaire, 41% experienced no septic system problems, while 34% reported a single problem, 17% reported two problems, and 7.5% reported all three septic system problems listed above. The most adversely affected areas were those in Garrison Manor in Burnt Hills, along Lake Hill Road and directly adjacent to the lake where most of the homes are constructed on smaller lots (¼ ± acres). These areas saw higher rates of failures than the average. During this survey a majority of the respondents expressed support for a public sewerage system, even though it was voted down when it was put forth in a public referendum. Over a twenty year period since this survey (from 1980 to 2000) the population of the Town of Ballston has increased 13.2%, and each most new homes constructed during this period has an on-site disposal system, or one of an alternative design. The exception to this is in Seeyle Estates West, Phases I, II and IV, which have dry sewers and the subdivisions or apartment complexes shown on Figures 3 and 4, which have active sanitary sewers. If this questionnaire were revisited today, it is likely that even higher rates of septic system problems in Burnt Hills and along Ballston Lake.

Ballston Lake is listed as a Class A Lake, meaning it is deemed a suitable supply of drinking water. Even with this classification, the New York State of Environmental Conservation's monitoring of the Lake indicates that nutrient levels consistently exceed the State swimming guidance value and water transparency regularly approaches the lowest level acceptable for swimming. The impact of future development in the watershed without public sewers would likely cause additional water quality degradation. Sources of these nutrient levels (mostly phosphorus and

nitrogen) include pollutant runoff (such as pesticides) and improper or failing septic systems in the watershed which convey waste into the lake or its tributaries. It is reported that at Buell Heights (near a tributary that drains to the southern end of Ballston Lake) septic odors are particularly noticeable during the spring thaw.

2.3 Additional Environmental Elements

The Ballston Lake Watershed contains several State and Federal designated wetlands as shown in Figure 1. Seven tributaries and numerous underwater springs supply water to Ballston Lake. Four of the tributaries enter the lake directly through wetlands. The largest areas of wetlands are located north of the lake and in the southeast corner of the study area just west of the intersection of Eastline Road and Raylinsky Road. Other wetland areas are located sporadically throughout the study area. Development in these delineated wetlands is generally prohibited.

The Ballston Lake Watershed generally contains soils that are not suitable for conventional septic systems. The soils within the watershed tend to have high groundwater tables; many parcels have groundwater levels of from 6 inches to two feet below the surface. When the groundwater table is this high, conventional septic systems will not function properly, introducing pollutants into the groundwater, which enter the wetlands and ultimately the lake. The potential for failing septic systems is a serious water quality and health threat. Each soil type within the study area was investigated and its potential to sustain development is listed in Appendix B. Four soil types were deemed unsuitable for development based upon their characteristics in the *USDA-NRCS Soil Survey for Saratoga County, New York, 2004.* Based upon this survey, the soils have seasonally high groundwater tables above the ground surface. Many of these areas are consistent with wetland soils. These soil groups are: Fl (Fluvaquents), Pm (Palms Muck), Pp (Palms Muck Ponded), and Sn (Sun silt loam). Figure 1 shows the areas that contain unsuitable soils.

Development along steep slopes (>15%) is difficult due to constructability issues and the high erosion potential of the slopes. These areas within the Ballston Lake watershed are shown on Figure 1 and only affect a small portion of the study area where the land slopes steeply towards the lake.

The location of wetlands, unsuitable soils and steep slopes within the study area were overlaid along with the tax parcels within the study area to determine how

much potential growth could be expected. These projections are discussed in the upcoming sections.

3.0 FLOW PROJECTIONS

In order to thoroughly study the Ballston Lake watershed area, tax map data from all three towns in the study area was made available. This tax map data allows for existing and potential sanitary sewer flow projections to be made since the land use, parcel size, zoning and other information is given. Upon review of the expanded study area, it was decided that the study area would be broken down into sixteen smaller study sub-areas based upon geography, topography and where potential sewer lines would be located. These smaller study areas can be seen on Figure 2.

The southwest corner of the study area, which corresponds to the Burnt Hills area, was broken into four smaller study areas, Burnt Hills #1-4. All four of these parcels include dense residential development, with commercial development along the Route 50 corridor. The rest of Route 50, north of the Burnt Hills area, was divided into three smaller study areas: Route 50 #1 & 2 and Route 50 & 67. These areas are primarily rural with sporadic commercial and residential development, the exception being the sub-area Route 50 & 67, which has recently seen development and has many development proposals being reviewed by the Town of Ballston Planning Board. The properties adjacent to Ballston Lake were divided into four smaller study areas: Lake SW, NW, East and C.P. (Clifton Park). These study areas include residential development. The rest of the parcels within the Town of Clifton Park were divided into two smaller study areas: Clifton Park #1 and #2. Both areas include a mixture of residential development and vacant lots. The parcels along Eastline Road that are within the Town of Malta limits are included in the study area Malta. This area includes open fields with sporadic residences. The last three study sub-areas are east of Ballston Lake and are denoted as East #1-3. These areas are primarily rural and undeveloped, with a low number of existing residences.

3.1 Existing Developed Parcels

Within the study area (not including sub-area Route 50 & 67) there are currently approximately 1,900 single family residences based upon tax map data. Along Ballston Lake and in the Burnt Hills area the parcel size is as small as ¼ acre. Rural areas typically see homes on lots of an acre or greater. There are fewer commercial

parcels (142) within the study area. The commercial properties generally serve the needs of residential areas. They include small restaurants, gas stations, retail stores, small office complexes, doctors' offices, churches and car dealerships. On the northern end of Route 50 there are two small motels, the Corporate Technology Park, and Curtis Industrial Park which is located along Route 67. The study area also includes two schools within the Burnt Hills-Ballston Lake School District, the BHBL High School and Francis L. Stevens Elementary School, both of which are located off Lake Hill Road. Other public properties include Town parks and fire houses. The estimated average and peak flows from the existing developed parcels can be seen in Table 1.

3.2 Potential Development

Certain portions of the Ballston Lake Watershed are likely to develop at an impressive rate. Its location near the I-87 corridor, its proximity to both the Cities of Albany and Saratoga Springs and the proposed Luther Forest Technology Park in the Towns of Malta and Stillwater, offer an attractive location for single-family homes to develop. The Town of Clifton Park had a 30.5% population growth from 1980 to 2000, while the Town of Ballston saw only a 13.2% growth rate over the same time period. The Town of Clifton Park is planning on implementing strict zoning laws prohibiting more explosive growth within its jurisdiction, and has few undeveloped areas within the watershed that would support large residential subdivisions. The portion of the study area within the Town of Ballston, on the other hand, is largely undeveloped with significant acreage available for development. The development potential under current zoning laws for all parcels outside the commercial zoning (along Route 50) is contingent upon access to public utilities. If there is no access to public water or wastewater utilities, each residential property must have a 2-acre lot. If access is available to either public water or sanitary sewer the lot can be reduced to one acre.

Wastewater flow projections were based upon the more conservative assumption that either sanitary sewer or water lines would be installed adjacent to the undeveloped parcels. In order to determine the development potential and the number of single family homes that could be developed on each vacant parcel, the undevelopable areas in the parcel (wetlands, unsuitable soils and steep slopes) were removed. The resulting area was then reduced by approximately 25% to account for green space, roads and easements yielding the developable area. It was assumed that each acre of

developable land corresponds to one single family home, which contributes on average 300 gpd to the sanitary sewer system. It was also assumed that based upon current zoning, each developable property would have residential development. The commercially zoned areas in the Burnt Hills area are primarily developed, while some of the large parcels along Route 50 have frontage zoned as commercial, but most of the parcel is located in rural zoning. There are a few instances in which there is a small undeveloped parcel within commercial zoning and it is assumed that a commercial property would develop with a flow rate equal to the average flow rate of the other commercial properties within the area (900 gpd). At this time this assumption is reasonable since it is unknown what type of commercial property may develop in the undeveloped parcels within commercial zoning.

The parcels in the study area located within the Town of Malta are zoned as R-1. Development in lots over 20 acres must abide by open space laws and follow a "cluster development," and the minimum lot size is ¼ acre. The Town of Clifton Park is undergoing a change in its zoning of the area within the Ballston Lake watershed. The zoning change would allow one lot per three developable acres. The Town of Clifton Park Planner has indicated that approximately 400 new homes would be allowed in the Clifton Park portion of the watershed (at full build out) if the proposed zoning changes are implemented.[2] The same flow rate assumptions as used for the Town of Ballston of 300 gpd for residential development and 900 gpd for commercial development were used when applied to Town of Malta or Clifton Park parcels.

3.3 Growth Rate

In order to more realistically project the wastewater flow within the study area twenty years into the future, the growth rate in the Town of Ballston over the past three years was calculated. Based upon assessment records, the number of single family homes in the Town of Ballston in 2002 was 2,539, increased 1.9% in 2003 to 2,588 and increased another 1.1% in 2004 to 2,616. With the proposed Luther Forest Technology Park expected to bring 10,000 jobs to the area within 25 years, the growth rate in certain sections of the study area is likely to be even higher than in past years.

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[2] The Director of the Town of Clifton Park Planning Department, Jason Kemper, was given the boundary of the study area within the Town of Clifton Park. He calculated the projected build-out based on the proposed zoning laws using G.I.S. maps.

It is not likely that the growth rate within the entire study area will be consistent among every area, since the potential for development is higher in some sections of the watershed than others. The areas within the watershed that will likely see a lower growth rate in the next twenty years are those that are currently well-developed: Burnt Hills 1-4 and all four of the lakeside study areas (Lake NW, SW, East and C.P). The annual growth rate assigned to these areas is 1%. The areas along the Route 50 corridor north of the Burnt Hills area (Rte. 50 1 and 2) have a large number of undeveloped parcels and access to existing public water service. The inhibiting factor to high growth in this area will likely be the direct access to I-87, since Ballston Lake provides a natural barrier. The growth rate in these areas is expected to be at a rate of 5% per year. The two other parcels located within the Town of Clifton Park (Clifton Park 1 and 2) have easy access to I-87 and future development at the Luther Forest Technology Park, but the Town is looking to restrict any aggressive growth. The growth rate assigned for these two areas is 5% annually. Lastly, the parcels located east of Ballston Lake (East 1-3 and Malta) have high development potential and limited existing development. These parcels also have easy access to I-87 and the Luther Forest Technology Park, which makes them more appealing than those along Route 50. The growth rate for this area is the highest, at 7% per year. It should be noted that the growth rate is applied over a twenty-year period, and does not necessarily indicate that each year will see the specified growth rate. The high growth rates correspond to areas with low levels of existing development. In these areas, any significant subdivision or development will increase the wastewater flow significantly.

3.4 Flow Calculations

Flow projections were calculated based upon the number of developable parcels within each of the smaller study areas. Each single family home whether existing or proposed was assumed to have a flow rate of 300 gpd, with a peaking factor of 3. Each existing business or commercial property's flow rates were based upon the actual water usage. Direct contact was made where number of employees, students or parishioners was required to confirm population information. Some of the business flow projections relied on building size, and this information was obtained through tax parcel information. The peaking factor for all commercial development is 4. The flow calculation tables for each of the smaller study areas can be found in Appendix B, and the methodology for the calculations is outlined in Sections 3.2 and

3.3. It should be noted that the potential peak flow listed for each of the study areas is for maximum potential build out. Table 1 summarizes the peak flows from each sub-area with the specified growth rate for each of the study areas applied to the existing flow data. The flow at maximum potential build out is also included for comparative reasons. The study area breakdown is available in Figure 2.

Table 1: Flow Projections

Area	Existing Peak Flow (gpd)	Peak Flow in 20 years (gpd)*	Peak Flow at Max Buildout (gpd)
Malta	16,200	62,689	557,820
East-1	27,000	104,481	357,114
Rte 50-2	36,560	96,884	247,655
Clifton Park-2	40,500	107,325	256,500
Lake-NW	54,900	66,978	140,811
Rte 50-1	73,560	194,934	598,434
East-2	81,000	313,446	539,966
Lake-East	89,100	108,702	149,400
Lake-CP	99,900	121,878	135,900
Clifton Park-1	82,800	190,800	190,800
Burnt Hills-1	109,800	133,956	273,521
East-3	124,200	244,800	244,800
Lake-SW	156,000	172,800	172,800
Burnt Hills-2	311,720	380,182	380,182
Burnt Hills-4	325,540	397,159	539,386
Burnt Hills-3	518,860	633,009	896,118
Total	**2,147,640**	**3,330,023**	**5,681,207**

* Peak Flow in 20-years is based upon specified growth rates for each study area, which was discussed in Section 3.3.

** The projected flow in many of the study areas is larger than the flow at maximum potential build out, so the projected flow is equal to the flow at maximum potential build out.

Based upon the varying growth rate over a 20 year period among the parcels within the study area, the peak flow associated with the entire watershed is 3.33 MGD, compared the peak flow associated with a fully built out watershed is 5.7 MGD. The existing flow rate for the entire watershed is 2.15 MGD, so the increased in flow from existing to that in 20 years is 65%, which is to be expected in an area with a high potential for growth and a large number of developable vacant parcels. As stated

before, the SCSD No. 1 Trunk Sewer has the capacity to handle approximately 8.3 MGD more of peak flow, so tying the Ballston Lake Watershed into this sewer should not create any capacity problems. The capacity of the Trunk Sewer, however, will need to be monitored as additional flows are discharged from the areas north of the proposed Ballston Lake sewer connection.

It should be noted that the projected flows for the study area "Route 50 and 67" were not calculated in the same manner as the rest of the study area. Currently there are three public sanitary sewer systems within this area, which can be seen on Figure 4. In order to tie-in existing properties and proposed development, the existing systems will be connected with 8" gravity sewers, which will tie into the Terrace Pines sanitary sewer that ultimately connects to the SCSD #1 Trunk Sewer. Currently wastewater flows into the private Corporate Technology Park system are from the properties along McCrea Hill Road and the Beacon Hill Subdivision. No new development will tie into this private system. Currently the Terrace Pines complex utilizes their sanitary sewer line. The Toscana-Rossi sewer system has been partially constructed, and if the parcel is developed, the sewer line will be extended to the Trunk Sewer. The new areas added to the system are Rolling Brook Meadows (20 homes), Tomaselli Court (12 homes), Currie Court (10 homes) and Carpenters Acres (150 homes). Terrace Pines currently has 192 units and peak flows generate nearly 133 gpm. The four additional subdivisions listed above that will tie into this system will be adequately serviced by the existing sewer line. Any reasonable future development along Route 50 and 67 should also be adequately conveyed by the existing sanitary lines.

4.0 COLLECTION SYSTEM ALTERNATIVES

In order to provide sewer service from the Ballston Lake watershed to the Saratoga County Sewer District No. 1 a series of collection sewers, pump stations and force mains must be constructed. Due to the topography of the area, a combination of gravity and pressure sewers must be used at different locations throughout the watershed. As stated previously, the topography of the watershed slopes towards Ballston Lake, with steep slopes directly adjacent to the lake. The remainder of the area is relatively flat, with drainage patterns towards a series of wetlands that ultimately drain into the lake. Collection systems would likely be constructed in the

public road right-of-ways within areas that are in need of public sanitary sewer. The Malcolm Pirnie reports and designs represent a sound basis for the collection system design; however, they did not incorporate all areas of the watershed that could be serviced by sanitary sewers. The possible locations and alternatives for installation of sewer facilities are described as follows.

4.1 Collection System Locations

Based upon density and potential for development, local collection systems were located along the road and streets in Burnt Hills and along Ballston Lake. Figure 3 shows the areas to be served by the sanitary sewer system; the approximate layout of the collection sewers, whether they would be gravity or pressure sewers, and locations of pump stations. The approximate size of the gravity lines, force main and pump stations are also shown on Figure 4, with the sizing based upon the projected flows twenty years in the future. The actual final locations and sizes will be determined during the design phase.

In order to service the most developed areas and homes surrounding Ballston Lake, several pump stations would be required. The first pump station would be located in northern Burnt Hills in the Parkwood Drive/Forest Road area, with the northern part of Burnt Hills draining by gravity to it. A small force main would connect this area to the main pump station in the Village of Ballston Lake. The second pump station would be located near Garrison Manor and service this portion of Burnt Hills. A second small force main will extend down Lake Hill Road to Seeyle Estates and connect this area to the primary pump station via the gravity sewer along Lake Hill Road. The rest of the Burnt Hills area within the watershed boundary would be serviced by gravity sewers connecting to the primary pump station. Low pressure sewers serviced by individual grinder pumps in each home would pump sewage from the southern end of Ballston Lake along East and West Side Drives. These low pressure sewers connect to gravity sewers which would feed into the Ballston Lake pump station. The area to the south and southeast of Ballston Lake would be serviced by gravity sewers directly tied into the Ballston Lake pump station, while a smaller pump station along Lake Road will connect flows from Hubbs Road area. The Ballston Lake pump station would then pump all the sanitary sewer flows through a large force main which has two alternate locations, eventually tying into the

existing SCSD No. 1 Trunk Sewer to the north. The force main locations will be discussed in an upcoming section.

The other system within this watershed would connect the more northern and eastern properties to the trunk sewer at its intersection with Eastline Road. The northern end of Route 50 (south of the Corporate Technology Park) would be serviced by a gravity sewer that eventually flows over Outlet Road to the Outlet Road pump station. The properties along the northwest corner of the Lake would be serviced by a series of low pressure sewers that would tie into the gravity line that runs north along the existing railroad tracks until it intersects with Outlet Road. The properties along the northeastern portion of Ballston Lake would be serviced with low pressure sewers that intersect a gravity sewer on Lake Road which flows into the Outlet Road pump station. The properties along Sweet Road would flow by gravity onto the Lake Road lines. From the Outlet Road pump station, the flows would be pumped along Lake Road to Eastline Road, which will connect to a gravity main extending from its intersection with Sweet Road. The combined flows will then enter the SCSD No. 1 Trunk Sewer at the Shenantaha Creek Park.

The parcels within the study area "Route 50 & 67" will be connected to the existing Terrace Pines sanitary sewer line via 8" gravity lines along Route 50 and 67. The service area will extend to the Village of Ballston Spa line.

It is recommended that two small areas within the watershed connect into the existing Country Club Acres and Dutch Meadows sewer system, which crosses the Northway and feeds into the County Trunk Sewer. These areas include 12 parcels along Hatlee Road and four parcels along County Route 80 just to the west of Morningdale Court.

4.2 Force Mains

In order to connect the Ballston Lake pump station to the County Trunk Sewer, two alternative locations for a force main have been investigated. Both alternatives would discharge to gravity sewers and run from Curtis Industrial Park to an existing manhole just south of Route 67 on the County Trunk Sewer. A connection to the trunk sewer should be relatively easy since there is a direct route through the Curtis Industrial Park to the Trunk Sewer via an existing road network.

The first alternative route for the force main runs the main along the Delaware and Hudson Railroad bed to the west of Ballston Lake. The force main would run across the Curtis Industrial Park where it will tie into the SCSD No. 1 Trunk Sewer. The railroad currently owns a 50-foot wide property, while just to the west; Niagara Mohawk owns a 70-foot property for a gas transmission main. The gas main is located in an abandoned trolley bed that used to run from Schenectady to Saratoga Springs. This trolley bed is now a bike path maintained by the Town of Ballston. The gas main is approximately 5 feet east of the bike path. In between the railroad bed and the bike path is a series of overhead power lines. The railroad bed and bike path are also separated by a high berm and undergrowth. Communication with the Town of Ballston Building Department indicates that there is a fiber optic line to the east of the railroad tracks within the railroad easement. Appendix C includes photographs that help depict the feasibility of routing the force main through this area. The route of the railroad and bike path is very flat, while the land slopes steeply in many areas from west to east. The route also crosses an unnamed stream between White's Beach Road and Saunders Lane. The gas line is elevated at this point along a small bridge constructed for the bike path. The most plausible location for the force main along this route would be along the western edge of the bike path due to the possible fiber optic line east of the railroad tracks. It is unlikely that Niagara Mohawk will allow construction of a sanitary sewer line within its property, so easements may need to be purchased from adjoining property owners. There are also areas of wetlands and steep slopes just west of the bike path that would be encountered. The stream crossing will be a particular concern, while construction access may be the largest impediment of construction in this area. The only roads in the area are small private roads running west to east from Route 50 to the properties along the lake.

The second alternative would locate the force main along Route 146A to Route 50 to McCrea Hill Road where the forcemain would run east until it intersects the County Trunk Sewer on the Curtis Industrial Park. The existing utilities along Route 50 include a gas line that is generally 11 to 12 feet off the eastern shoulder of the road. Telephone lines are buried directly off the shoulder on the western side of the road. A 12-inch water line is located on the western edge of the right-of-way along Route 50 and Route 146A. The layout of this force main may be difficult due to the existing utilities on both sides of the road. In addition to a force main along this road, a gravity sewer must parallel the force main for the entire route to service the

properties along Route 50 and Route 146A. It is unlikely that both of these sanitary sewer lines will fit properly along the road, so easements would need to be acquired.

When comparing the two alternatives it is noted that both routes will be difficult to design and construct due to existing utilities and physical features. The force main along the bike path will be approximately 23,800 feet and rise only 20 feet, while the route along Route 50 will be 23,000 feet long and would rise approximately 140 feet. The pumps required for Alternative 1 will be smaller and less expensive than the one required pumping along Route 50. Both locations will require extensive investigation of existing utilities and acquisition of easements from adjoining property owners. Construction of the line along Route 50 will be easier than along the bike path with regards to access. Limited clearing and grading along Route 50 will be required, while extensive clearing, grading and wetland/stream protection will be required along the bike path. Based upon the utilities along Route 50 and the smaller pump required for the route along the bike path, at this time we feel that the most plausible route would be Alternative 1.

5.0 COST ESTIMATE

A preliminary cost spreadsheet (Table 2) has been prepared outlining the cost for implementing a public sanitary sewer in the Ballston Lake Watershed. The costs are based upon servicing all areas within the study area. The two forcemain alternatives are also presented. The preliminary cost estimate suggests that Alternative 1 (the forcemain along the railroad bed) is slightly more expensive than Alternative 2 (along Route 50) at $25,597,488 and $25,162,032 respectively based upon 2005 construction costs. These costs do not include energy use and maintenance costs, as well as grinder pumps for those parcels serviced by low pressure sewers. Appendix D also includes the cost estimates for different areas within the watershed to further break down the analysis. The cost analyses for different areas within the watershed do not include the cost of the force main.

Table 2: Cost Estimate

Collection System & Pump Stations	Units	Quantity	Unit Price	Subtotal
8" PVC Gravity Sewer	LF	225,200	$40.00	$9,008,000

12" PVC Gravity Sewer	LF	12,500	$45.00	$562,500
4" Pressure Sewer	LF	29,900	$24.00	$717,600
8" Pressure Sewer	LF	4,300	$30.00	$129,000
10" Pressure Sewer	LF	4,100	$34.00	$139,400
Misc. Bedding & Backfill Material	CY	45,000	$20.00	$900,000
Lateral Connection	EA	2,310	$500.00	$1,155,000
Manholes	EA	700	$1,800.00	$1,260,000
Small Pump Station (50-400 gpm)	EA	4	$100,000.00	$400,000
Land Acquisition for Pump Station	EA	5	$10,000.00	$50,000
Lawn Restoration	MSF	7,500	$100.00	$750,000
Pavement Restoration (including base)	SY	37,150	$35.00	$1,300,250
Stream Crossing Protection	EA	6	$10,000.00	$60,000
Subtotal (No Force Main)				**$16,431,750**
Force Main Alternative #1: Railroad Bed				
14" Forcemain	LF	23,800	$55.00	$1,309,000
18" Gravity Sewer	LF	3,100	$75.00	$232,500
Clearing/Blasting Route	LF	26,900	$25.00	$672,500
Pump Station	LS	1	$400,000.00	$400,000
Alternative #1 Subtotal				$19,045,750
Design, Legal, Financing (20%)				$3,809,150
Contingency (12%)				$2,742,588
Force Main Alternative #1 Total				**$25,597,448**
Force Main Alternative #2: Route 50				
14" Forcemain	LF	23,000	$55.00	$1,265,000
18" Gravity Sewer	LF	7,000	$75.00	$525,000
Pump Station	LS	1	$500,000.00	$500,000
Alternative #2 Subtotal				$18,721,750
Design, Legal, Financing (20%)				$3,744,350
Contingency (12%)				$2,695,932
Force Main Alternative #2 Total				**$25,162,032**

6.0 SUMMARY/CONCLUSIONS

The feasibility of installing a public sanitary sewer system within the Ballston Lake Watershed has been investigated, leading to wastewater flow projections and a preliminary collection system layout. Nearly all of the properties within this study area are serviced by on-site disposal systems, and historically there have been problems with septic systems. Environmental concerns also indicate that the watershed is in need of a public sanitary sewer system, since the area has many unsuitable soils and high groundwater tables. It is also important to note that most of the properties in the study area ultimately drain into Ballston Lake, which has had problems with algae blooms in the summer. This area has a high growth potential, due to its proximity to the Cities of Albany and Saratoga Springs, and the proposed Luther Forest Technology Park in Malta. Development is expected within the Ballston Lake watershed, and without a public sanitary sewer system, more adverse affects to the Lake are likely to occur.

If each existing developed parcel within the study area is tied into the public sewer system, it is estimated that a peak flow of 2.2 MGD would result, while the peak flow from this area twenty years into the future is estimated at 3.3 MGD. The collection system would convey wastewater flows from each parcel in the study area via a system of gravity sewers, small pump stations and forcemains to a larger pump station and forcemain, which will ultimately connect to the Saratoga County Sewer District No.1 Trunk Sewer at the northeastern end of the study area. The flow contributed to the trunk sewer by the Ballston Lake Watershed will be significantly less than the reserve capacity of the sewer.

Prepared By:

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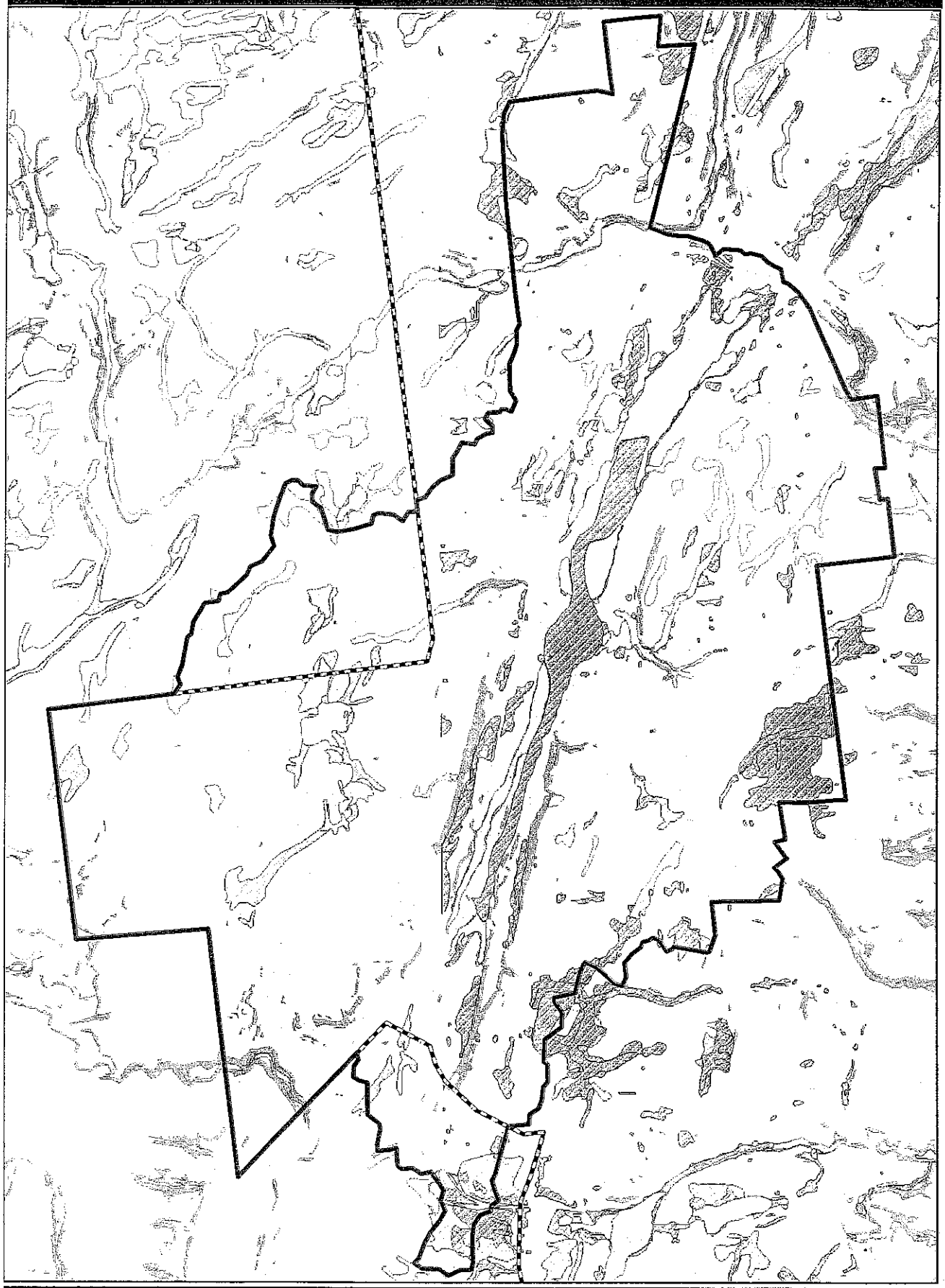
Jr. Civil Engineer

Reviewed and Approved By:

James R. Edwards, P.E.
Project Manager

Figure 1: Environmental Conditions



Study Area
Sewer District Boundary
Tax Parcels for Ballston, Malta & Clifton Park
Slope > 15%, DEM calculation
Unsuitable Soils
All Wetlands, Multiple Sources

N

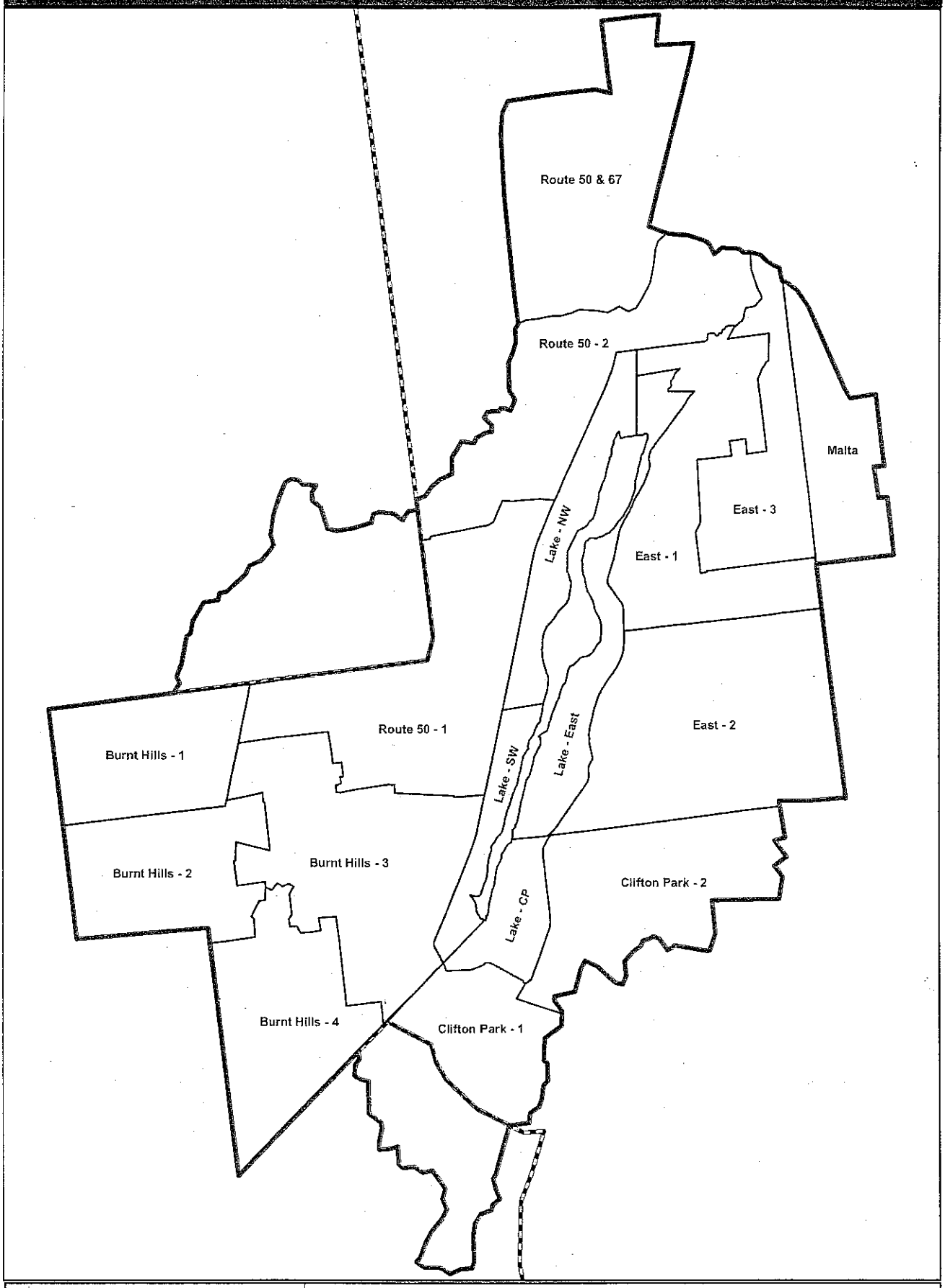
Ballston Lake Watershed Sewer Study: Environmental Conditions

Towns of Clifton Park, Ballston, Malta — Saratoga County, New York

C.T. Male Associates, P.C.
50 Century Hill Drive, Latham, NY 12110
Phone: 518-786-7400 Fax: 518-786-7299

Scale: 1 inch equals 3,000 feet
Project Number: 04.9713
Data Source: Saratoga County, NYSGIS, USGS
Projection: State Plane NAD83 NYE (feet)

Figure 2: Study Area Breakdown



Study Area
District Sub-Area Boundary
Sewer District Boundary
Tax Parcels for Ballston, Malta & Clifton Park

N

Ballston Lake Watershed Sewer Study: Study Area Breakdown

Towns of Clifton Park, Ballston, Malta — Saratoga County, New York

C.T. Male Associates, P.C.
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Scale: 1 inch equals 3,000 feet
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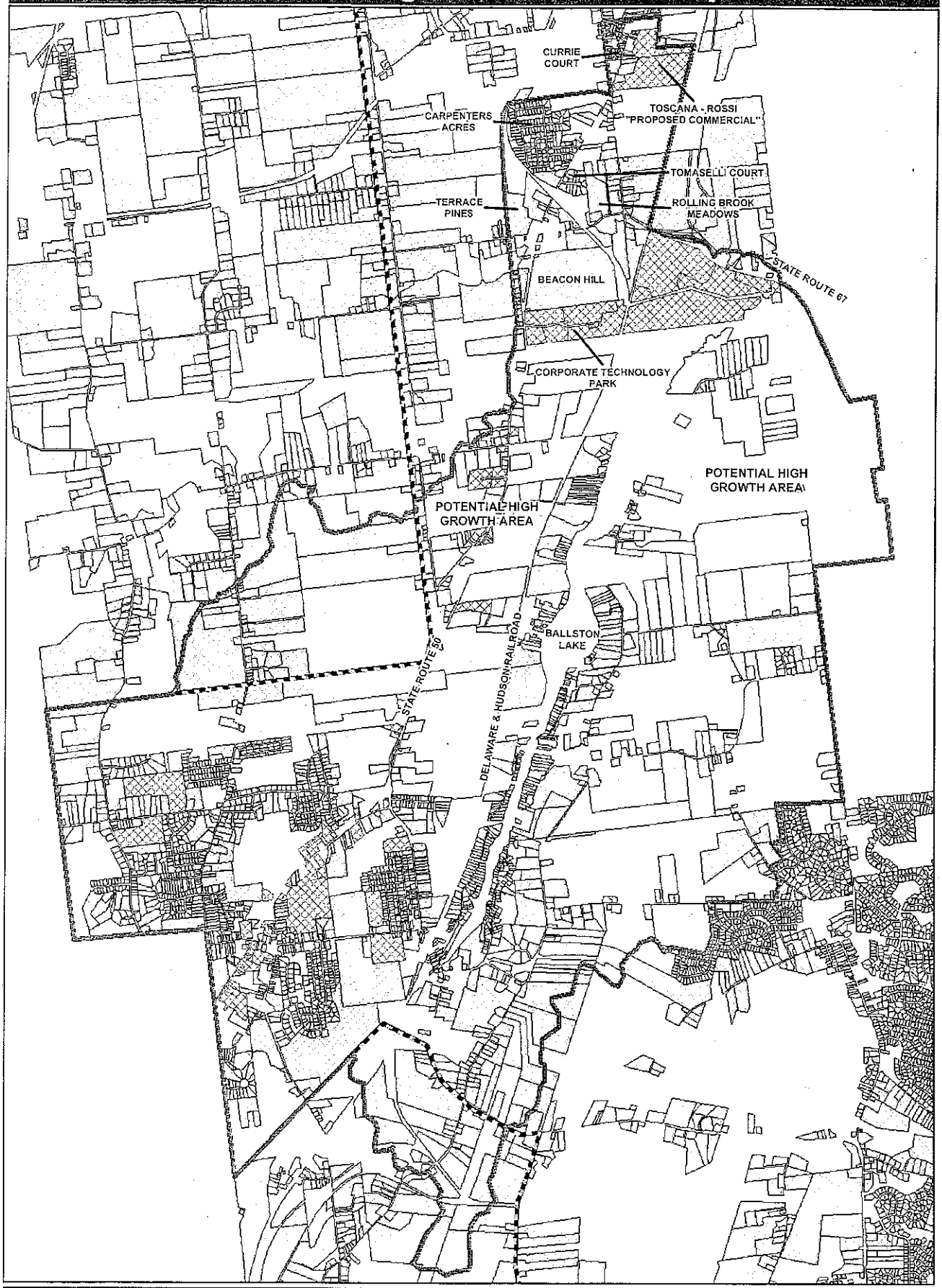
Projection: State Plane NAD83 NYE (feet)

Figure 3: Existing & Potential Development



Study Area
Sewer District Boundary
Developed Commercial & Public Property
Potential High Growth Area
Developed Residential Property
Tax Parcels for Ballston, Malta & Clifton Park

N

Ballston Lake Watershed Sewer Study: Existing & Potential Development

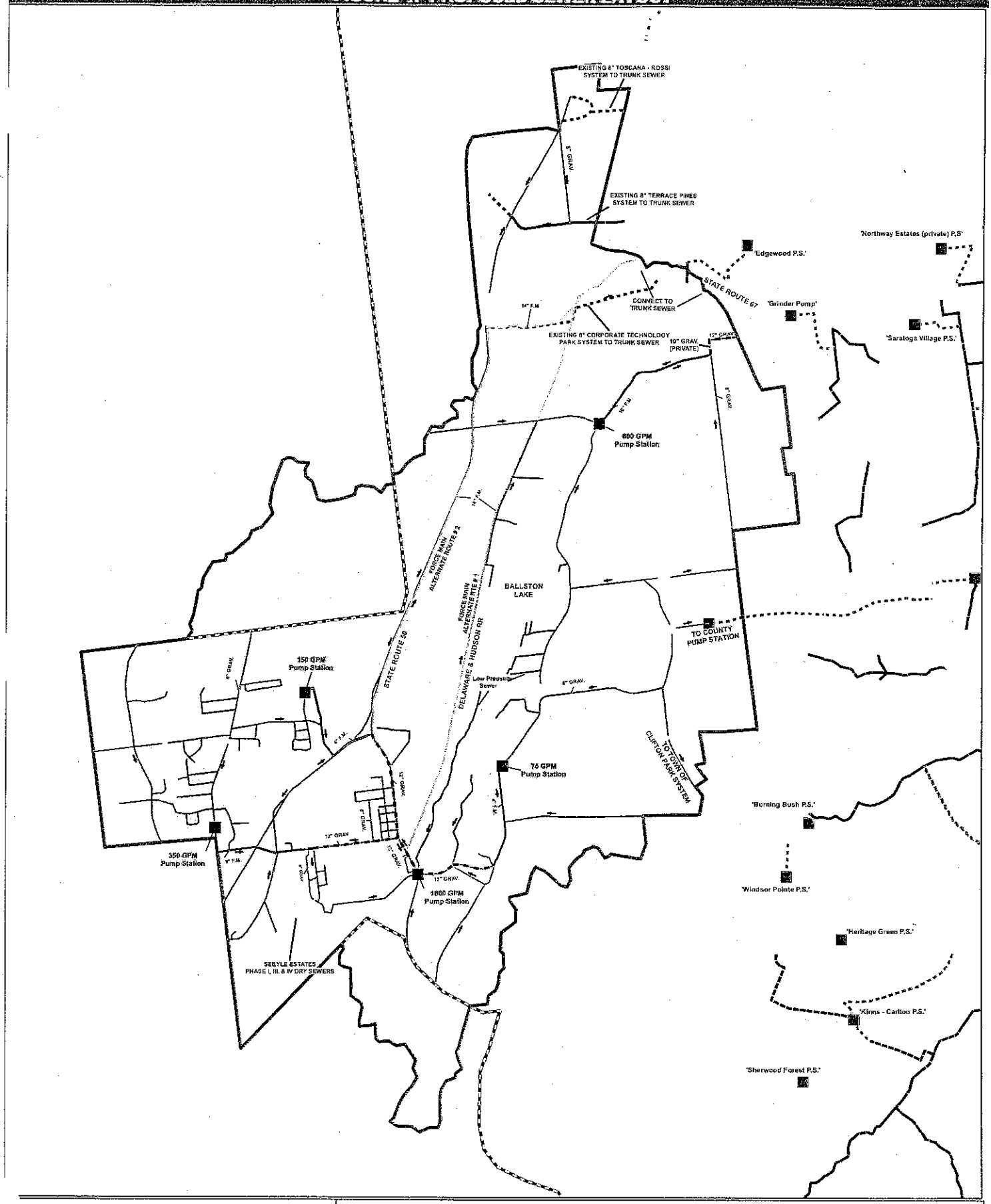
Towns of Clifton Park, Ballston, Malta — Saratoga County, New York

C.T. Male Associates, P.C.
50 Century Hill Drive, Latham, NY 12110
Phone: 518-786-7400 Fax: 518-786-7299

Scale: 1 inch equals 3,000 feet

Project Number: 04.9713
Data Source: Saratoga County, NYSGIS, USGS
Projection: State Plane NAD83 NYE (feet)

FIGURE 4: PROPOSED SEWER LAYOUT



EXISTING

- Pump Stations
- Sewer Lines (Type)
  - force main
  - gravity
  - low pressure
  - pressure
  - Study Area
  - Sewer District Boundary

PROPOSED

- pump stations (MP)
- dry sewer
- Sewer
- Saratoga Interceptor Sewer
- Forcemain
- Ballston Tax Parcels
- Malta Tax Parcels (2003)
- Clifton Park Tax Parcels 2003

Red Line shows Study Area, which was digitized based on the Ballston Lake Watershed Outline and the Sewer District Boundary.

Ballston Lake Watershed Sewer Study: Proposed Location of Sewers

Towns of Clifton Park, Ballston, Malta — Saratoga County, New York

C.T. Male Associates, P.C.
50 Century Hill Drive, Latham, NY 12110
Phone: 518-786-7400 Fax: 518-786-7299

Scale: 1 inch equals 2,500 feet

Project Number: 04.9713
Data Source: Saratoga Co.; NYS GIS; USGS
Projection: State Plane NAD83 NYE (feet)

SOIL CLASSIFICATION TABLE

Symbol	Soil Name	Depth to Bedrock	Depth to GWT	Slope	Very Limited to Development	Not Developable
As	Allis silt loam	1.5- 3.3'	0-1'	0-3%	all buildings	
BtB	Broadalbin silt loam,3 to 8 percent slopes	>5'	1.5-3'	3-8%	basements only	
BtC	Broadalbin silt loam, 8 to 15 percent slopes	>5'	1.5-3'	8-15%	bsements only	
BtD	Broadalbin silt loam, >15% percent slopes	>5'	1.5-3'	15-25%		slope
BvB	Broadalbin-Manlius-Nassau complex, undulating	10" to >5'	1.5->5'	3-8%	basements only	
BvC	Broadalbin-Manlius-Nassau complex, rolling	10" to >5'	1.5->5'	8-15%	basements only	
BvD	Broadalbin-Manilus-Nassau complex, hilly	10" to >5'	1.5->5'	15-25%		slope
CcB	Charlton loam, 3 to 8 percent slopes	>5'	>6'	3-8%		
Cg	Cheektowaga mucky very fine sandy loam	>5'	0.5	0-3%	all buildings	
ChB	Chenango silt loam, loamy substratum, undulating	>5'	>6'	3-8%		
ClB	Claverack laomy fine sand, 0 to 3 percent slopes	>5'	1.5-2'	3-8%	basements only	
Cs	Cosad fine sandy loam	>5'	0.5-1.5'	0-3%	all buildings	
DeA	Deerfield loamy fine sand, nearly level	>5'	1.5-3'	0-3%	basements only	
DeB	Deerfield loamy fine sand, undulating	>5'	1.5-3'	3-8%	basements only	
Fl	Fluvaquents, frequently flooded	>3.3	0'	0-3%		flooded
HoB	Hoosic gravelly sandy loam, undulating	>5'	>6'	3-8%		
HuB	Hudson silt loam, 3 to 8 percent slopes	>5'	1.5-2'	3-8%	basements only	
In	Ilion Silt Loam	>5'	0-1'	0-3%	all buildings	
Lm	Limerick-Saco complex	>5'	0-1.5'	0-3%	all buildings	
Ma	Madalin mucky silty clay loam	>5'	0.5-1'	0-3%	all buildings	
MnB	Manlius-Nassau complex, undulating, rocky	10-40"	>6'	3-8%	basements only	
MnD	Manlius-Nassau complex, hilly, rocky	10-40"	>6'	15-25%		slope
MvA	Mosherville silt loam, 0 to 3 percent slopes	>5'	0.5-1.5'	0-3%	all buildings	
MvB	Mosherville silt loam, 3 to 8 percent slopes	>5'	0.5-1.5'	3-8%	all buildings	
MxB	Mosherville-Hornell complex, undulating	>5'	0.5-1.5'	3-8%	all buildings	
NuB	Nunda silt loam, 3 to 8 percent slopes	>5'	1.5-2'	3-8%	basements only	
OaB	Oakville laomy fine sand, undulating	>5'	>6'	3-8%		
OaC	Oakville laomy fine sand, rolling	>5'	>6'	8-15%		
Pm	Palms Muck (wetland)	>5'	above surface	0-2%		flooded
Pp	Palms Muck Ponded (wetland)	>5'	above surface	0-1%		flooded
Ra	Raynham silt loam	>5'	1-2'	0-3%	basements only	
RhA	Rhinebeck silt loam, 0 to 3 percent slopes	>5'	0.5-1.5'	0-3%	all buildings	
RhB	Rhinebeck silt loam, 3 to 8 percent slopes	>5'	0.5-1.5'	3-8%	all buildings	
SeB	Scio silt loam, 3 to 8 percent slopes	>5'	1.5-2'	3-8%	basements only	
Sn	Sun silt loam	>5'	above surface	0-3%		flooded
Ue	Udorthents, smoothed	>5'	>6'	0-8%		
Wa	Wareham loamy sand	>5'	1.5'	0-3%	basements only	
WnB	Windsor loamy sand, undulating	>5'	>6'	3-8%		

FLOW CALCULATION TABLE:
SUMMARY OF ALL SUB-AREAS

Area	Existing Peak Flow (gpd)	Peak Flow in 20 years (gpd)*	Peak Flow at Max Buildout (gpd)
Malta	16,200	62,689	557,820
East-1	27,000	104,481	357,114
Rte 50-2	36,560	96,884	247,655
Clifton Park-2	40,500	107,325	256,500
Lake-NW	54,900	66,978	140,811
Rte 50-1	73,560	194,934	598,434
East-2	81,000	313,446	539,966
Lake-East	89,100	108,702	149,400
Lake-CP	99,900	121,878	135,900
Clifton Park-1	82,800	219,420	190,800
Burnt Hills-1	109,800	133,956	273,521
East-3	124,200	244,800	244,800
Lake-SW	156,000	190,320	172,800
Burnt Hills-2	311,720	380,182	380,182
Burnt Hills-4	325,540	397,159	539,386
Burnt Hills-3	518,860	633,009	896,118
Total	**2,147,640**	**3,376,163**	**5,681,207**

* Growth rate varies over study area

1%: Burnt Hills 1-4 and Lake NW, SW, East, CP
5%: Rte 50 1 and 2, Clifton Park 1 and 2
7%: East 1-3 and Malta

FLOW CALCULATION TABLE:
BURNT HILLS-1

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No developable Acres	No. Single Family Homes? (1 acre)
Goode Street, Scotchbush Road, Jenkins Road	139	122	0	11	248.-1-81.1	20% bad soils	61	48.8	37
					248.-1-84	20% bad sols	71	56.8	43
					248.-1-36	none	33	33	25
					248.-1-25.1	none	48.5	48.5	36
					248.-1-40.1	80% bad sols	12	2.4	2
					247.-1-5	10% bad soils	25.5	22.95	17
					247.-1-6.111	none	17	17	13
					247.-1-18	none	5	5	4
					247.-1-6.2	80% wetlands	24.5	4.9	4
					248.-1-70.2	none	1.8	1.8	1
					248.-1-74.2	none	1.4	1.4	1
								total	182

Potential Flows:

122 Single Family Homes @ 300 gpd per home	36,600	gpd
182 Potential Single Family Homes with 1 acre zoning @ 300 gpd per home	54,574	gpd
Total Existing Flow:	36,600	gpd
Existing Peak Flow:	**109,800**	**gpd**
Total Potential Flow:	91,174	gpd
Potential Peak Flow:	**273,521**	**gpd**

FLOW CALCULATION TABLE:
BURNT HILLS-2

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	Parcel Lot No.	Description	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Acres	No. Single Family Homes? (1 acre)
Garrison Manor Area	335	321	2	248.-1-58	School Fields	12	256.-1-7	10% steep slopes	61	54.9	41
				257.10-1-46	Homestead Restaurant		256.-1-3.121	15% steep slopes	17.5	14.875	11
							256.-1-3.122	25% steep slopes	6	4.5	3
							257.9-1-42	none	2.2	2.2	2
							257.9-1-44	none	1.5	1.5	1
							248.-1-52.12	none	2.7	2.7	2
							248.-1-104.13	none	5.5	5.5	4
							248.-1-104.12	none	5.25	5.25	4
							248.-1-104.11	10% steep slopes	6	5.4	4
							257.5-1-1.1	none	1.5	1.5	1
							247.20-1-1	none	1.7	1.7	1
							257.10-1-87	none	1.4	1.4	1
									total		76

Potential Flows:

321 Single Family Homes @ 300 gpd per home:	96,300	gpd
76 Potential Single Family Homes @ 300 gpd per home:	22,821	gpd
163 Seat Restaurant @ 35 gpd per seat	5,705	gpd

Total Existing Flow:	102,005	gpd
Existing Peak Flow:	**311,720**	**gpd**
Total Potential Flow:	124,826	gpd
Potential Peak Flow:	**380,182**	**gpd**

FLOW CALCULATION TABLE:
BURNT HILLS-3

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	Parcel Lot No.	Description	Flow (gpd)	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Acres	No. Single Family Homes? (1 acre)
Rte 50. Midline Road, Lake Hill Road & Forest Road	449	415	34	257.-3-7.11	Motel (12 rooms)	1,200	24	257.-2-3	30% wetlands	83	58.1	44
				257.-2-14	Auto Garage	45		257.-5-3	10% steep slopes	124	111.6	84
				257.-2-13	Post Office	500		257.-5-8	none	8	8	6
				257.8-1-1.1	Church	3,060		257.-3-17	none	42	42	32
				248.-2-59	Upholstery Store	60		257.-4-1.1	50% wetlands, steep slopes	47	23.5	18
				257.-3-7.3	Professional Park	600		257.-4-5	25% wetlands	10	7.5	6
				257.-3-14	Office	300		257.-4-1.2	60% wetlands, steep slopes	45	18	14
				248.-2-40	Terry Morris Car Dealer	525		248.-2-38.1	none	15.75	15.75	12
				248.-2-49	Boat Shop	2,120		248.-2-46	50% wetlands, bad soils	9.5	4.75	4
					total	8,410		257.-2-3	25% wetlands	83	62.25	47
								257.-2-4.1	50% wetlands	10.5	5.25	4
								257.-2-14	none	5.4	5.4	4
								248.-2-77	none	2.5	2.5	2
								248.-2-78	50% wetlands, bad soils	2.9	1.45	1
								248.14-2-43.1	25% wetlands	16	12	9
								248.14-2-42	none	11	11	8
								248.14-2-41.1	none	4.75	4.75	4
								248.14-2-40.1	none	3	3	2
								248.14-2-39.1	none	3.5	3.5	3
								257.-3-12	none	15	15	11
								248.20-1-19	10% steep slopes	3	2.7	2
								248.-2-83	none	4.8	4.8	4
								257.-3-7.3	none	4.5	4.5	3
								257.-3-7.11	none	3.6	3.6	3
											total	323
					High School:	1280	students & employees					
					Stevens Elementary:	582	students & employees					

Potential Flows:

415 Single Family Homes @ 300 gpd per home:	124,500	gpd
323 Potential Single Family Homes @ 300 gpd per home:	96,953	gpd
1862 Students & Employees @15 gpd per person:	27,930	gpd
Existing Businesses:	8,410	gpd
24 Lots for Potential Businsees, 900 gpd average on existing lots	21,600	gpd
Total Existing Flow:	160,840	gpd
Peak Existing Flow:	**518,860**	**gpd**
Total Potential Flow:	279,393	gpd
Potential Peak Flow:	**896,118**	**gpd**

FLOW CALCULATION TABLE:
BURNT HILLS-4

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	Parcel Lot No.	Description	Flow (gpd)	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Acres	No. Single Family Homes? (1 acre)
Rte 50, Rte 110 and Lake Hill Road	358	294	53	257.10-2-63.1	United Methodist Church	1,800	5	257.-5-38.112	30% steep slopes	24.75	17.325	13
				257.6-2-2	Burnt Hills Lanes	1,125		257.-5-15	none	4	4	3
				257.6-3-3.1	Sam's Chinese	3,000		257.-5-54	15% steep slopes	105	94.5	71
				257.10-1-55	Gas Station	800		257.-5-42	none	2.25	2.25	2
				257.10-1-61	Dunkin Donuts	1,460		257.14-1-41	none	1.4	1.4	1
				257.-5-26	Car Dealership	120				total		90
				257.14-1-40	Bank	105						
				257.14-1-39	Plaza (12 Units)	1,200						
				257.14-1-4	Bar/Tavern	400						
				257.14-1-5	Café	1,575						
				257.14-1-6	Gas Station/Office	1,000						
				257.10-2-37	Gas Station/Pizza Place	1,325						
				257.10-2-36	CVS	150						
				257.10-2-35	Burnt Hills Hardware	75						
				257.10-2-68	Office Building	400						
				257.10-2-70	Plaza (7 Units)	700						
					total	15,235						

Potential Flows:

294 Single Family Homes @ 300 gpd per home	88,200	gpd
90 Potential Single Family Homes @ 300 gpd per home	26,882	gpd
Existing Businesses:	15,235	gpd
37 Potential Businesses. Average of existing businesses is 900 gpd, assume this for potential businesses	33,300	gpd
Total Existing Flow:	103,435	gpd
Existing Peak Flow:	**325,540**	**gpd**
Total Potential Flow:	163,617	gpd
Potential Peak Flow:	**539,386**	**gpd**

FLOW CALCULATION TABLE:
ROUTE 50-1

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	Parcel Lot No.	Description	Flow (gpd)	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Acres	No. Single Family Homes? (1 acre)
Rte 50 from 146A to Connolly	74	40	19	248.-2-72	Trailer Park	5,000	20	248.-2-21.11	10% steep slopes, 15% wetlands, bad soils	290	217.5	163
				248.-2-8.1	Westwood Motel	2,500		248.-2-14.21	5% wetlands, steep slopes	75	71.25	53
				239.-1-24	Auto Repair	60		248.-2-74	25% wetlands, bad soils	101	75.75	57
				238.-2-33	Karate School	330		248.-1-29.1	20% wetlands, bad soils	58	46.4	35
				238.-2-25	Triple Crown Motel	1,500		248.-1-29.3	none	24.5	24.5	18
					total	9,390		248.-1-25.1	none	48.5	48.5	0
								248.-2-81	40% wetlands, bad soils	38	22.8	17
								248.-2-70	30% wetlands, bad soils	27	18.9	14
								248.-2-66	25% wetlands, bad soils	90.5	67.875	51
								248.-2-79	none	13	13	10
								239.-1-33	none	40	40	30
								239.-1-23.11	none	43	13	10
								239.-1-22	40% wetlands, steep slopes	46	27.6	21
								248.-2-8.1	none	9.5	9.5	7
								249.-4.5	none	6.5	6.5	5
								248.-2-9	none	12	12	9
								249.-4-2	10% wetlands	14.5	13.05	10
								248.-2-14.22	none	11	11	8
								239.-1-23.21	80% wetlands	16.5	3.3	2
								238.-2-37	none	9	9	7
											total	527

Potential Flows:

40 Single Family Homes @ 300 gpd per home	12,000	gpd
527 Potential Single Family Homes @ 300 gpd per home	158,158	gpd
Existing Businesses	9,390	gpd
14 Potential Business Lots, 900 gpd average of existing lots	12,600	gpd
Total Existing Flow:	21,390	gpd
Existing Peak Flow:	**73,560**	**gpd**
Total Potential Flow:	192,148	gpd
Potential Peak Flow:	**598,434**	**gpd**

FLOW CALCULATION TABLE:
ROUTE 50-2

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	Parcel Lot No.	Description	Flow (gpd)	No. Developabl e Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Acres	No. Single Family Homes? (1 acre)
Rte 50 from Connolly to McCrea												
Hill Road & Curtis Lumber	71	36	20	239.-1-40.12	Super 50 Way	30	8	238.-2-26.2	none	64	64	48
				239.-1-40.2	By George Food	300		239.-1-14.111	40% wetlands, bad soils	52	31.2	0
				239.-1-40.11	Saratoga Hardware	60		239.-1-10.32	40% wetlands, bad soils	24	14.4	11
				239.-1-47	Ice Cream/Mini Golf	500		239.-1-10.31	none	18	18	14
				239.-1-55	Auto Repair	30		239.-1-10.21	none	35	35	26
				239.-1-10.14	N.A. Services Group	120		239.-1-6.1	15% bad soils	69	58.65	44
					total	1,040		239.-1-1	15% wetlands, bad soils	91	77.35	58
								228.-3-51	10% wetlands	26	23.4	18
											total	219

Curtis Industrial Park and Specialty Silicones connected to Trunk Sewer

Potential Flows:

36 Single Family Homes @ 300 gpd per home:	10,800	gpd
219 Potential Single Family Homes @ 300 gpd per home:	65,565	gpd
Existing Businesses (minus those currently serviced by Trunk Sewer):	1,040	gpd
4 Potential Business lots, 900 gpd average:	3,600	gpd
Total Existing Flow:	11,840	gpd
Existing Peak Flow:	**36,560**	**gpd**
Total Peak Flow:	81,005	gpd
Potential Peak Flow:	**247,655**	**gpd**

FLOW CALCULATION TABLES:
LAKE-NW

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Acres	No. Single Family Homes? (1 acre)
Whites Beach, Connolly, Saunders, Powers, Outlet Roads	71	61	1 (Parking Area)	12	239.-1-6.2	75% wetlands, bad soil	62.5	15.625	12
					239.-1-14.121	80% wetlands, bad soil	18	3.6	3
					239.-1-17.1	none	6	6	5
					239.-1-73	20% wetlands, bad soil	19	15.2	11
					239.-1-71	10% wetlands, bad soil	16	14.4	11
					239.17-1-8	none	8	8	6
					239.17-1-9	none	4.5	4.5	3
					239.17-1-10	none	5	5	4
					239.-1-21	20% wetlands, bad soil	29	23.2	17
					249.5-1-27	none	5.75	5.75	4
					249.5-1-14.111	none	14	14	11
					249.5-1-25.22	10% wetlands	12	12	9
								total	95

Potential Flows:

61 Single Family Homes @ 300 gpd per home:	18,300	gpd
91 Potential Single Family Homes @ 300 gpd per home:	28,637	gpd
Total Existing Flow:	18,300	gpd
Existing Peak Flow:	**54,900**	**gpd**
Total Potential Flow:	46,937	gpd
Potential Peak Flow:	**140,811**	**gpd**

FLOW CALCULATION TABLE:
LAKE-SW

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Single Family Homes? (1 acre)
West Side Drive	127	109	2	6	257.12-2-14	100% wetlands	7	0
					257.12-2-15	85% wetlands	4	0
					249.-1-33.1	25% wetlands	5.5	3
					249.-1-34	50% wetlands	8	3
					249.17-1-20	75% wetlands	6.5	0
					249.-1-26	50% wetlands	25	8
							total	14

2 Lots with Existing Commerical Space assume 3000 sf and 0.1 gpd per sf

Potential Flows:

127 Single Family Homes @ 400 gpd per home:	50,800	gpd
14 Potential Single Family Homes @ 400 gpd per home:	5,600	gpd
3 Existing and Potential Businesses @ 0.1 gpd per sf:	900	gpd
Total Existing Flow:	51,700	gpd
Existing Peak Flow:	**156,000**	**gpd**
Total Potential Flow:	56,400	gpd
Potential Peak Flow:	**172,800**	**gpd**

FLOW CALCULATION TABLES:
LAKE-EAST

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Parcels	No. Single Family Homes? (1 acre)
Lake Road and side streets									
to lake	136	99	0	9	249.17-2-13.1	10% steep slopes	7	6.3	5
					249.-2-24	10% steep slopes	33	29.7	22
					249.-2-27.1	10% steep slopes	20.5	18.45	14
					249.-2-30	10% steep slopes	5	4.5	3
					249.-2-32.1	none	12.5	12.5	9
					249.10-1-6	none	2	2	2
					249.10-1-5	none	3.5	3.5	3
					249.10-1-7	none	2.5	2.5	2
					249.10-2-1	none	2.5	2.5	2
								total	61

Potential Flows:

99 Single Family Homes @ 300 gpd per home:	29,700	gpd
61 Potential Single Family Homes @ 300 gpd per home:	20,100	gpd
Total Existing Flow:	29,700	gpd
Existing Peak Flow:	**89,100**	**gpd**
Total Potential Flow:	49,800	gpd
Potential Peak Flow:	**149,400**	**gpd**

FLOW CALCULATION TABLE:
EAST-1

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Acres	No. Single Family Homes? (1 acre)
Sweet, Lake & Lazar Roads	53	30	0	23	239.-2-10.12	none	11	11	8
					239.-2-10.11	none	14	14	11
					239.-2-9	10% bad soils	8.5	7.65	6
					239.-2-11.1	10% wetlands	60	54	41
					239.-2-12	5% wetlands	50	47.5	36
					239.-2-44	10% wetlands	27	24.3	18
					239.-2-14.2	10% wetlands	28	25.2	19
					239.-2-17.1	10% steep slopes, bad soil	56	50.4	4
					239.2-45.3	25% wetlands, bad soil	16	12	9
					239.-2-45.2	15% bad soils	16	13.6	10
					239.-2-45.1	25% steep slopes, bad soil	16	12	9
					239.-2-8.1	10% steep slopes, bad soil	15	13.5	10
					239.-2-23.14	15% steep slopes, wetlands	18.5	15.725	12
					239.-2-23.13	10% steep slopes	13	11.7	9
					239.-2-25.111	10% wetlands	34.5	31.05	23
					239.-2-25.112	none	6	6	5
					239.-2-25.12	none	5	5	4
					239.-2-36	none	11	11	8
					239.-2-37.214	none	4	4	3
					239.-2-37.1	10% bad soils	21	18.9	14
					239.-2-38	20% bad soils	29	23.2	17
					239.-2-39	30% wetlands, bad soils	93.5	65.45	49
					239.-2-5.12	15% bad soils	67	56.95	43
								total	367

Potential Flows:

30 Single Family Homes @ 300 gpd per home:	9,000	gpd
367 Potential Single Family Homes @ 300 gpd per home:	110,038	gpd
Total Existing Flow:	9,000	gpd
Existing Peak Flow:	**27,000**	**gpd**
Total Potential Flow:	119,038	gpd
Potential Peak Flow:	**357,114**	**gpd**

FLOW CALCULATION TABLES:
EAST-2

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Acres	No. Single Family Homes? (1 acre)
Diamond & Benedict Roads	125	90	0	26	249.-2-20	10% wetlands, bad soil	95	85.5	9
					249.-2-19.1	10% wetlands	83	74.7	56
					249.-3-47	none	31	31	23
					249.-3-59.1	none	91	91	68
					249.-2-13.1	none	16	16	12
					249.-3-46	none	61	61	46
					249.-2-12	none	48	48	36
					249.-2-11.12	10% steep slopes	45	40.5	30
					249.-3-66.11	10% bad soils	53	47.7	36
					249.-3-61	none	19	19	14
					249.-3-37	15% wetland	27	22.95	17
					249.-3-72.1	5% wetland	29	27.55	21
					249.3-22	85% wetland	32	4.8	4
					249.-3-33	85% wetland	23	3.45	3
					249.3-20	75% wetland	81	20.25	15
					249.-3-23	90% wetland	50	5	4
					249.-3-30.2	85% wetland	11	1.65	1
					249.-3-31.1	70% wetland	13	3.9	3
					249.-3-19	25% wetland	30	22.5	17
					249.-3-9.1	none	13.5	13.5	10
					249.-3-.9.2	none	6	6	5
					249.-3-72.2	none	7	7	5
					249.-3-6	none	81	81	61
					249.-3-66.14	10% bad soils	10	9	7
					249.-2-48	10% wetlands	5	4.5	3
					249.-3-65	none	6	6	5
								total	510

Potential Flows:

90 Single Family Homes @ 4=300 gpd per home:	27,000	gpd
510 Potential Single Family Homes @ 4=300 gpd per home:	152,989	gpd
Total Existing Flow:	27,000	gpd
Existing Peak Flow:	**81,000**	**gpd**
Total Peak Flow:	179,989	gpd
Total Peak Flow:	**539,966**	**gpd**

FLOW CALCULATION TABLES:
EAST-3

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	No. Developable Parcels	Parcel Lot No.	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Acres	No. Single Family Homes? (1 acre)
Eastline Road from Miller Road to Rte 67	23	9	7	5	239.-2-6.1	25% wetlands, bad soils	129	96.75	121
					239.-2-7.1	35% wetlands, bad soils	150	97.5	73
					239.-2-4.151	10% bad soils	54	48.6	36
					228.-3-26.1	35% wetlands	37	24.05	18
					239.-2-4.136	none	8	8	6
								total	255

Businesses include Curtis Lumber property and 2 potential churches.
No extra business development possible.

Eastline Farms (20,000 sf lots)
assume this under existing development

Potential Flows:

130 Single Family Homes @300 gpd per home:		39,000	gpd
134 Potential Single Family Homes @ 300 gpd per home:		40,200	gpd
Existing/Potential Churches:		1,800	gpd
	Total Existing Flow:	40,800	gpd
	Existing Peak Flow:	**124,200**	**gpd**
	Total Potential Flow:	81,000	gpd
	Potential Peak Flow:	**244,800**	**gpd**

FLOW CALCULATION TABLE:
MALTA

Streets	No. Parcels Total	No. Single Family Homes	No. Businesses or Town Property	No. Developable Parcels	Parcel Owner	Any Undevelopable Areas in Parcel?	No. Acres	No. Developable Acres	No. Single Family Homes? (See Malta Zoning Calcs)
Eastline Road from Miller Road to Rte 67	24	18	1 (Park Road)	6	Mitchell Farm	10% bad soils/wetlands	121	108.9	218
					Howansky	5% steep slopes	118	112.1	224
					Bailey	10% bad soils/steep slopes	36	32.4	65
					Ringler	10% wetlands	30	27	54
					Reese	none	10.5	10.5	21
					Pellerin	none	10	10	20
								total	602

Potential Flows:

18 Single Family Homes @ 300 gpd per home:	5,400	gpd
602 Potential Single Family Homes @ 300 gpd per home:	180,540	gpd
Total Existing Flow:	5,400	gpd
Existing Peak Flow:	**16,200**	**gpd**
Total Flow Residential:	185,940	gpd
Peak Flow Residential (3):	557,820	gpd
Total Peak Flow:	**557,820**	**gpd**

FLOW CALCULATION TABLE:
LAKE-CLIFTON PARK

Streets	No. Parcels	No. Existing Homes	No. Potential Homes
E Side Drive	132	111	40

Potential Flows:

111 Existing Single Family Homes @ 300 gpd per home:	33,300	gpd
40 Potential Single Family Homes @ 300 gpd per home:	12,000	gpd
Total Existing Flow:	33,300	gpd
Existing Peak Flow:	**99,900**	**gpd**
Total Potential Flow:	45,300	gpd
Potential Peak Flow:	**135,900**	**gpd**

FLOW CALCULATION TABLE:
CLIFTON PARK-1

Streets	No. Parcels	No. Existing Homes	No. Business/Town Property	No. Potential Homes
Ashdown & Ballston Lake Roads	94	72	5	120

Potential Flows:

72 Existing Single Family Homes @300 gpd per home:	21,600	gpd
120 Potential Single Family Homes @300 gpd per home:	36,000	gpd
5 Businesses @900 gpd per business (average from previous areas):	4,500	gpd
Total Existing Flow:	26,100	gpd
Existing Peak Flow:	**82,800**	**gpd**
Total Potential Flow:	62,100	gpd
Potential Peak Flow:	**190,800**	**gpd**

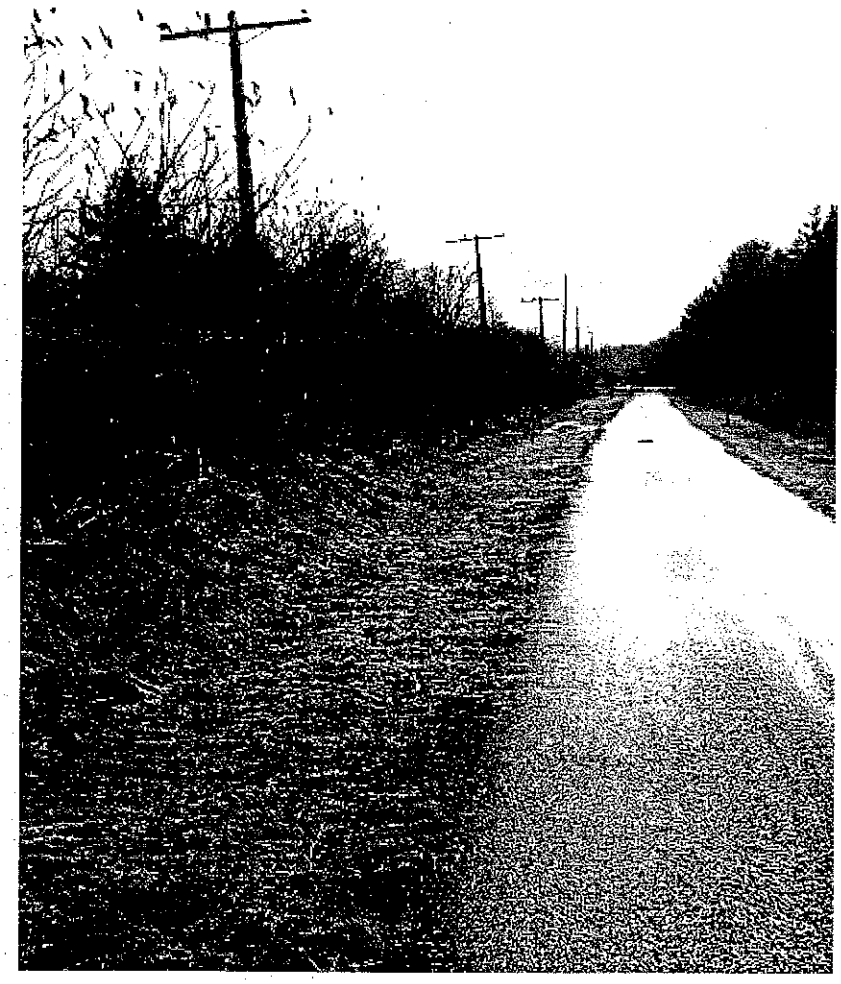
FLOW CALCULATION TABLE:
CLIFTON PARK-2

Streets	No. Parcels	No. Existing Homes	No. Potential Homes
Hubbs & Hatlee Roads	69	45	240

Potential Flows:

45 Existing Single Family Homes @ 300 gpd per home:	13,500	gpd
240 Potential Single Family Homes @ 300 gpd per home:	72,000	gpd

Total Existing Flow:	13,500	gpd
Existing Peak Flow:	**40,500**	**gpd**
Total Potential Flow:	85,500	gpd
Potential Peak Flow:	**256,500**	**gpd**



- Image 1: Along bike path looking south, red flag indicates location of gas main.

- Image 2: Along bike path looking east at railroad tracks.

- Image 3: On bike path bridge over unnamed stream towards railroad bridge.

SUMMARY
CONSTRUCTION COST ESTIMATE OF SANITARY SEWER SERVICE IN THE BALLSTON LAKE WATERSHED
TOWNS OF BALLSTON, CLIFTON PARK & MALTA

Collection System & Pump Stations	Units	Quantity	Unit Price	Subtotal
8" PVC Gravity Sewer	LF	225,200	$40.00	$9,008,000
12" PVC Gravity Sewer	LF	12,500	$45.00	$562,500
4" Pressure Sewer	LF	29,900	$24.00	$717,600
8" Pressure Sewer	LF	4,300	$30.00	$129,000
10" Pressure Sewer	LF	4,100	$34.00	$139,400
Misc. Bedding & Backfill Material	CY	45,000	$20.00	$900,000
Lateral Connection	EA	2,310	$500.00	$1,155,000
Manholes	EA	700	$1,800.00	$1,260,000
Small Pump Station (50-400 gpm)	EA	4	$100,000.00	$400,000
Land Acquisition for Pump Station	EA	5	$10,000.00	$50,000
Lawn Restoration	MSF	7,500	$100.00	$750,000
Pavement Restoration (including base)	SY	37,150	$35.00	$1,300,250
Stream Crossing Protection	EA	6	$10,000.00	$60,000

Subtotal (No Force Main) **$16,431,750**

Force Main Alternative #1: Railroad Bed

14" Forcemain	LF	23,800	$55.00	$1,309,000
18" Gravity Sewer	LF	3,100	$75.00	$232,500
Clearing/Blasting Route	LF	26,900	$25.00	$672,500
Pump Station	LS	1	$400,000.00	$400,000

Alternative #1 Subtotal	$19,045,750
Design, Legal, Financing (20%)	$3,809,150
Contingency (12%)	$2,742,588
Force Main Alternative #1 Total	**$25,597,488**

Force Main Alternative #2: Route 50

14" Forcemain	LF	23,000	$55.00	$1,265,000
18" Gravity Sewer	LF	7,000	$75.00	$525,000
Pump Station	LS	1	$500,000.00	$500,000

Alternative #2 Subtotal	$18,721,750
Design, Legal, Financing (20%)	$3,744,350
Contingency (12%)	$2,695,932
Force Main Alternative #2 Total	**$25,162,032**

BURNT HILLS NORTH
CONSTRUCTION COST ESTIMATE OF SANITARY SEWER SERVICE IN THE BALLSTON LAKE WATERSHED
TOWNS OF BALLSTON, CLIFTON PARK & MALTA

	Units	# Units	Cost Per Unit	Subtotal
8" PVC Gravity Sewer	LF	50,700	$40.00	2,028,000
4" Pressure Sewer	LF	5,100	$26.00	132,600
Lateral Connection	EA	355	$500.00	177,500
Manholes	EA	145	$1,800.00	261,000
Minor Pump Station	EA	1	$100,000.00	100,000
Land Acquisition for Pump Station	EA	1	$10,000.00	10,000
Lawn Restoration	MSF	1,500	$100.00	150,000
Pavement Restoration (including base)	SY	7,400	$35.00	259,000
Stream Crossing Protection	EA	1	$10,000.00	10,000

Area Subtotal	3,128,100
Design, Legal, Financing (20%)	625,620
Contingency (12%)	450,446
Burnt Hills North Total	**4,204,166**

BURNT HILLS WEST
CONSTRUCTION COST ESTIMATE OF SANITARY SEWER SERVICE IN THE BALLSTON LAKE WATERSHED
TOWNS OF BALLSTON, CLIFTON PARK & MALTA

	Units	# Units	Cost Per Unit	Subtotal
8" PVC Gravity Sewer	LF	23,400	$40.00	936,000
8" Pressure Sewer	LF	2,500	$30.00	75,000
Lateral Connection	EA	220	$500.00	110,000
Manholes	EA	70	$1,800.00	126,000
Minor Pump Station	EA	1	$100,000.00	100,000
Land Acquisition for Pump Station	EA	1	$10,000.00	10,000
Lawn Restoration	MSF	700	$100.00	70,000
Pavement Restoration (including base)	SY	3,440	$35.00	120,400
Stream Crossing Protection	EA	1	$10,000.00	10,000

Area Subtotal	1,557,400
Design, Legal, Financing (20%)	311,480
Contingency (12%)	224,266
Burnt Hills West Total	**2,093,146**

BURNT HILLS SOUTH
CONSTRUCTION COST ESTIMATE OF SANITARY SEWER SERVICE IN THE BALLSTON LAKE WATERSHED
TOWNS OF BALLSTON, CLIFTON PARK & MALTA

	Units	# Units	Cost Per Unit	Subtotal
8" PVC Gravity Sewer	LF	57,200	$40.00	2,288,000
12" PVC Gravity Sewer	LF	5,400	$45.00	243,000
4" Pressure Sewer	LF	410	$24.00	9,840
8" Pressure Sewer	LF	1,800	$30.00	54,000
Lateral Connection	EA	590	$500.00	295,000
Manholes	EA	180	$1,800.00	324,000
Minor Pump Station	EA	1	$100,000.00	100,000
Land Acquisition for Pump Station	EA	1	$10,000.00	10,000
Lawn Restoration	MSF	1,700	$100.00	170,000
Pavement Restoration (including base)	SY	8,600	$35.00	301,000
Stream Crossing Protection	EA	1	$10,000.00	10,000

Area Subtotal	3,804,840
Design , Legal, Financing (20%)	760,968
Contingency (12%)	547,897
Burnt Hills South Total	**5,113,705**

BALLSTON LAKE SOUTH AND CLIFTON PARK
CONSTRUCTION COST ESTIMATE OF SANITARY SEWER SERVICE IN THE BALLSTON LAKE WATERSHED
TOWNS OF BALLSTON, CLIFTON PARK & MALTA

	Units	# Units	Cost Per Unit	Subtotal
8" PVC Gravity Sewer	LF	23,000	$40.00	920,000
12" PVC Gravity Sewer	LF	4,450	$45.00	200,250
4" Pressure Sewer	LF	14,000	$24.00	336,000
Lateral Connection	EA	450	$500.00	225,000
Manholes	EA	100	$1,800.00	180,000
Minor Pump Station	EA	1	$100,000.00	100,000
Land Acquisition for Pump Station	EA	2	$10,000.00	20,000
Lawn Restoration	MSF	1,650	$100.00	165,000
Pavement Restoration (including base)	SY	8,120	$35.00	284,200
Stream Crossing Protection	EA	1	$10,000.00	10,000

Area Subtotal	2,440,450
Design, Legal, Financing (20%)	488,090
Contingency (12%)	351,425
Ballston Lake South and Clifton Park Total	**3,279,965**

BALLSTON LAKE NORTH AND EAST
CONSTRUCTION COST ESTIMATE OF SANITARY SEWER SERVICE IN THE BALLSTON LAKE WATERSHED
TOWNS OF BALLSTON, CLIFTON PARK & MALTA

	Units	# Units	Cost Per Unit	Subtotal
8" PVC Gravity Sewer	LF	70,800	$40.00	2,832,000
12" PVC Gravity Sewer	LF	2,600	$45.00	117,000
4" Pressure Sewer	LF	10,400	$24.00	249,600
10" Pressure Sewer	LF	4,100	$34.00	139,400
Lateral Connection	EA	700	$240.00	168,000
Manholes	EA	210	$1,800.00	378,000
Minor Pump Station	EA	1	$100,000.00	100,000
Land Acquisition for Pump Station	EA	1	$10,000.00	10,000
Lawn Restoration	MSF	2,450	$100.00	245,000
Pavement Restoration (including base)	SY	12,100	$35.00	423,500
Stream Crossing Protection	EA	2	$10,000.00	20,000

Area Subtotal	4,682,500
Design, Legal, Financing (20%)	936,500
Contingency (12%)	674,280
Ballston Lake North & East Total	**6,293,280**