VILLAGE OF COBLESKILL
SCHOHARIE COUNTY, NEW YORK

SUMMARY REPORT
WATER AND SANITARY SEWER MASTER PLAN

FEBRUARY 2012
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I. INTRODUCTION

The Village of Cobleskill desires the creation of a Water and Sanitary Sewer Master Plan. This Master Plan includes the following major components:

- Development of Standard Water and Sewer Project Specifications and Procurement Documents
- Analysis of Demand and Growth Scenarios for Water and Sewer Services.
- Capacity Analysis of Selected Existing Infrastructure
- Prioritization of Pipeline Replacement
- Development of Pipeline Replacement Costs and Financing Strategy

This Summary Report discusses all of the Master Plan components except the standard specification and procurement documents. Those documents will be transmitted to the Village separately. Overall water and sanitary sewer system maps are included in pockets at the end of this document.

II. DEMAND AND GROWTH SCENARIOS

Monthly Water System Operation Reports from January 2008 through December 2010 were analyzed to evaluate current water demand. The reports show that the combined current Average Day Demand (ADD) for the Village of Cobleskill (including miscellaneous outside users and the Warnerville Water District) is 481,000 gallons per day (gpd) and that the combined current Maximum Day Demand (MDD) is 796,000 gpd. Based on the above figures, the MDD to ADD ratio for the overall service area is:

796,000 gpd ÷ 481,000 gpd = 1.65

The following demand and growth scenarios have been considered for the assumed 20-year design period:

- Scenario 1 – No Growth
- Scenario 2 – Little Growth (contained within the Village Boundaries and the Warnerville Water District boundaries)
- Scenario 3 - Moderate Growth (including Rte. 7 East Corridor in the Town of Cobleskill)
- Scenario 4 - Extensive Growth (including Rte. 7 East Corridor in the Town of Cobleskill and West Corridor in the Town of Richmondville west of the Warnerville Water District)

A. Scenario 1 – No Growth

Scenario 1 assumes that water demands and sewer flows will remain essentially unchanged. For the no-growth scenario, the following ADD and the MDD would be used:

ADD1 = 480,000 gpd (0.48 mgd)
MDD_1 = 800,000 gpd (0.80 mgd)

B. Scenario 2 – Little Growth (within the Village Boundaries and the Warnerville Water District boundaries)

Scenario 2 involves growth within the Village, including potential uses for the currently vacant Schoharie County Industrial Park buildings and within the existing boundaries of the Warnerville Water District, including completion of all service connections to existing structures.

It is not likely that any new user(s) of the Industrial Park buildings will use water or sewer services at a higher rate than former tenant Guilford Mills did. Therefore, water demands and sewer flows from 2001 (when Guilford Mills last occupied the site) will be used as worst case scenario for demand growth within the Village Boundaries under Scenario 2. Based on Village records for January 2000 through December 2002, the average day production while Guilford Mills was still in operation (through November 2001) was about 1,000,000 gpd, and the average day production after Guilford Mills had ceased operation (post November 2001) was about 749,000 gpd. The Guilford Mills average day usage is therefore estimated at 250,000 gpd.

It should be noted that Guilford Mills and its predecessor had developed on-site private wells to supplement their process water usage. Unfortunately, the production capacity of those wells was not disclosed by Guilford Mills and is not available.

In addition to the potential growth at the Industrial Park, the Village has signed an inter-municipal agreement with the Town of Richmondville Warnerville Water District to supply a maximum of 125,000 gpd to the Water District. The Warnerville Water District currently only uses an average of 12,000 gpd; however, only half of the existing residences and businesses plus the Cobleskill-Richmondville High School are connected to the system. It is anticipated that if all existing structures were connected to the water system, the water demand for the Warnerville Water District would increase by no more than 13,000 for a total of 25,000 gpd. Therefore, the water demand under Scenario 2 would be:

ADD_2 = 480,000 gpd + 250,000 gpd + 13,000 gpd = 743,000 gpd, say 0.75 mgd
MDD_2 = 750,000 gpd x 1.65 = 1,240,000 gpd, say 1.25 mgd

It should be noted that the Warnerville Water District could use up to 125,000 gpd on a Maximum Day Demand basis.

C. Scenario 3 – Moderate Growth (including Rte. 7 Corridor outside the Village)

Scenario 3 involves Scenario 2 growth plus the creation of a Town of Cobleskill Water and Sewer District from the Village line eastward to the Cobleskill/Schoharie Town line. The preliminary design of the Town of Cobleskill Water and Sewer District project has begun with the support of Schoharie County. Preliminary demand figures obtained from McDonald Engineering indicate that the full build out average day water demand and sewer flows along the Rte. 7 corridor could be as high as 350,000 gpd. As a result, the ADD and MDD under Scenario 3 are anticipated to be:

ADD_3 = 750,000 gpd + 350,000 gpd = 1,100,000, say 1.10 mgd
MDD_3 = 1,100,000 gpd x 1.65 = 1,800,000 gpd, say 1.80 mgd

D. Scenario 4 – Extensive Growth (including Rte. 7 East Corridor in the Town of Cobleskill and West Corridor in the Town of Richmondville west of the Warnerville Water District)

Scenario 4 involves Scenario 3 growth plus the expansion of the Warnerville Water District westward along the NYS Route 7 corridor to the Village of Richmondville boundary line. Expansion of the district westward could be accommodated by the currently unused excess capacity in the Water Supply Permit and Intermunicipal Agreement. Since the excess capacity is on a maximum day basis, the ADD and MDD under Scenario 4 are calculated as follows:

Warnerville Water District Maximum Day Excess Capacity
125,000 gpd – (25,000 gpd x 1.65) = 83,750 gpd

Scenario 4 Demand
MDD_4 = 1,800,000 gpd + 83,750 gpd = 1,880,000 gpd say, 1.90 mgd
ADD_4 = 1,880,000 gpd ÷ 1.65 gpd = 1,140,000, say 1.15 mgd

A summary of the demand and growth scenarios is presented in Table 1.

TABLE 1

SUMMARY OF WATER AND WASTEWATER GROWTH			
SCENARIO	**WATER AVERAGE DAY DEMAND**	**WATER MAX DAY WATER DEMAND**	**WASTEWATER HIGH 30 DAY MEAN FLOW[1]**
1 – No Growth	0.48 MGD	0.80 MGD	1.55 MGD
2 – Little Growth (within Village Boundaries only)	0.75 MGD	1.25 MGD	1.82 MGD
3 – Moderate Growth (Rte. 7 Corridor East of Village Boundary)	1.10 MGD	1.80 MGD	2.17 MGD
4 – Extensive Growth (Rte. 7 Corridor West of Warnerville WD)	1.15 MGD	1.90 MGD	2.22 MGD

(1) For planning purposes the increase in the Wastewater High 30 Day Mean Flow is based upon the Average Day Water Demand.

III. WATER SYSTEM PLANNING

A. Selected Demand / Growth Scenario

Discussion with Village officials has led to the selection of Scenario 4 as the basis for water system planning. A map showing the limits of the Demand/Growth scenarios is presented in Appendix A.

B. Capacity Analysis of Water Supply Source, Treatment Facilities, and Water Storage

1. Water Source

a) General

Water is supplied to the Village by an upland surface water source that feeds two reservoirs and a holding pond. The Dow Reservoir was constructed in 1886 and underwent a substantial renovation in 1983; the Smith Reservoir was constructed in 1967; and the Holding Pond was constructed in 1986. The Dow Reservoir and the Smith Reservoir collect surface water runoff from their own watersheds and the Holding Pond is filled through a fill pipe connecting it to the Smith Reservoir. As indicated in Appendix A of the Emergency Action Plan prepared for the reservoir system, both the Dow and the Smith Reservoirs have undersized spillway systems that should be upgraded.

The Recommended Standards for Water Works, the Design Standards adopted by the New York State Department of Health (NYSDOH), requires that the Safe Yield of the reservoir system "be adequate to meet the maximum projected water demand of the service area based on a one in fifty year drought or the extreme drought of record, and should include consideration of multiple year droughts." A NYSDOH-endorsed twelve year gauging study performed by Lamont, Van De Valk Engineers from 1986 to 1998 reported the reservoir system to have a safe yield of 1.9 MGD. A subsequent study by Barton & Loguidice in 1999-2001 downgraded the estimated safe yield to 1.15 MGD. Further analysis of the reservoir system is beyond the scope of this study; therefore, for the purpose of this report, the reservoir system safe yield is assumed to be 1.15 MGD on an average day basis.

b) Water Source Analysis

Based on the discussion presented above, the Village's surface water supply source has an estimated safe yield of 1.15 GPD, which is the average daily flow that can be supplied by the surface water reservoir system. The demand and growth analysis presented above show that the projected average day demands for Planning Scenarios 1 through 4 are anticipated to be 0.48 MGD, 0.75 MGD, 1.10 MGD, and 1.15 MGD. This shows that the water supply source has sufficient capacity to supply the average day demand under Planning Scenarios 1 through 4, but Scenario 4 would take the reservoir production need to the limit of the reservoir system safe yield. Since some discrepancies exist between the estimated safe yield presented in the 1986-1998 Watershed Production Evaluation Report prepared by Lamont, Van De Valk Engineers and the estimated safe yield presented in the 2002 Barton & Loguidice study, additional evaluation of the reservoir system safe yield may be warranted to verify reservoir system capacity.

While a commonly accepted duration for the useful life for earthen dams is 100 years, proper maintenance can substantially extend the useful life of properly designed and constructed impounding structures. However, both

the useful life of reservoir spillways, intake structures and other appurtenances, and the recommended dredging frequency of reservoirs that impound surface water runoff are only 50 years.

c) Water Source Replacement Cost

The project cost for the replacement of the spillway, intake structure and dredging work for all the reservoirs is anticipated to have a present value of $3.65M (2012 $). The present value of the annual set-aside needed to fund the capital improvements fund for the reservoir spillway, intake structure and dredging work for the two reservoirs and the holding pond at the end of the 50 year useful life is $73,000 (2012 $). As stated above, the set-aside will need to increase by 5 percent each year to compensate for inflation.

2. Water Treatment

a) General

The Water Treatment Plant (WTP) is a conventional filtration plant with the following unit processes and components:

- Raw Water pumps
- Coagulant Feed and Clarifiers
- Multi-Media Filters
- Chlorine Disinfection
- Clearwell

The WTP was originally constructed in 1963 with a design capacity of 1.04 MGD. A major renovation and expansion project was completed in 1990 to increase the plant capacity. A Performance Demonstration Study for the upgraded WTP was conducted from July 1991 through May 1993. The results of the Performance Demonstration Study are presented in the Performance Demonstration Report, Water Treatment Facility Improvements, Village of Cobleskill, Schoharie County, New York, July 1993 prepared by Lamont, Van De Valk Engineers, P.C.

The Performance Demonstration Study established the production capacity of the upgraded WTP at 2.0 MGD with sufficient pre-treatment redundancy. Concurrence with the results of the Performance Demonstration Study was received for NYSDOH in 1995, as indicated in the correspondence presented in Appendix B.

b) Treatment Plant Analysis

The Water Treatment Plant has a rated production capacity of 2.0 MGD, which is slightly above the projected maximum day demand of 1.9 MGD for Scenario 4, the Scenario with the highest projected demand.

A commonly accepted duration for the useful life of a water treatment plant is 50 years. Although the WTP is maintained in good condition, the facility was built in 1963 with a major renovation in 1990. Applying the useful life

duration from the date of the 1990 renovation, the WTP has a little less than 30 years of useful life remaining.

c) Treatment Plant Replacement Cost

The project cost for replacing the WTP at the end of its remaining useful life is anticipated to have a present value of $6.82M (2012 $). The present value of the annual set-aside needed to fund the capital improvements fund for the WTP replacement at the end of its remaining useful life is $227,500 (2012 $). As previously stated, the set-aside will need to increase by 5 percent each year to compensate for inflation.

3. WTP Clearwell

a) General

The WTP clearwell was originally built in the 1960's and was refurbished in the 1988-90 WTP upgrade. The clearwell is a cast-in-place concrete structure that measures 24 feet by 44 feet by 9 feet deep. The clearwell high water elevation is 1154 feet. Based on discussions with the WTP personnel, the water level in the clearwell is allowed to vary by only 1 to 2 feet, due to the need to maintain water in the clearwell for disinfection contact time. Currently, the clearwell is the only storage available for the Village's Low Service Area.

b) Clearwell Analysis

The Village water department completed the NYSDOH required round of E. Coli Source Water Monitoring in 2008, which resulted in a Bin 1 system classification. With a Bin classification of 1, the WTP must achieve a 3-log (99.9%) Giardia removal/deactivation and a 4-log (99.99%) virus removal/deactivation during maximum day demand. Since a 2-log credit is given for the pre-treatment and filtration portion of the treatment process, the additional 1-log Giardia deactivation and 2-log Virus deactivation must be provided through disinfection. The Barton & Loguidice 2004 Facility Plan indicated that the 70,000 gallon clearwell cannot provide the required contact time (CT) for inactivation of those pathogens.

The concentration and contact time required to achieve Giardia deactivation using chlorine can be calculated using the following equation:

$$CT = 0.2828 \times (pH^{2.69}) \times (Cl^{0.15}) \times (0.933^{(T-5)}) \times L$$

Where:

CT = Product of Free Chlorine Residual and Time required

pH = pH of water

Cl = Free Chlorine residual, mg/l

T = Temperature, degrees C

L = Log Removal

Thus, based on a pH of 7.6, a free chlorine residual of 1.0 mg/l, a water temperature or 5°C, and a log deactivation requirement of 1 log, the Giardia CT requirement is calculated as follows:

CT = 0.2828 x (7.62.69) x (1.00.15) x (0.933(5-5)) x 1 = 66.2 min

Based on the above CT requirement for Giardia inactivation and a baffling factor of 0.3 for unbaffled tankage, the maximum allowable flow through the clearwell on a maximum day demand basis is computed as follows:

Q = ((70,000 gal x 0.3) ÷ 66.2 min) = 317 gpm or 457,000 gpd

The above calculations show that the existing clearwell volume cannot achieve the required CT for Giardia deactivation even under current maximum day demand. The total un-baffled volume necessary to achieve the required CT at the WTP design capacity of 2.0 MGD is:

$V_{req'd}$ = ((2,000,000 gpd ÷ 1440 min/day) x 66.2 min) ÷ 0.3 = 310,000 gal

Subtracting the existing clearwell volume, the clearwell volume deficiency is:

V_{def} = 310,000 gal – 70,000 gal = 240,000 gal

The clearwell does not have sufficient volume to provide for the required contact time for chlorine disinfection. Therefore, the clearwell should be used only as a chlorine contact vessel and not as distribution system storage. The WTP Clearwell should be equipped with an open/close control valve that would open to allow flow into the distribution system when distribution storage water level reaches a low level set point and close when the distribution storage water level reaches the high water set point. This mode of operation would be consistent with the recommendation to operate the clearwell as a chlorine contact vessel.

Clearwell improvements should be undertaken immediately in order to comply with the NYSDOH disinfection requirements. It should be noted that it might be possible to significantly reduce the volume required for the new clearwell expansion by adding baffling to the existing clearwell and to the new clearwell expansion or by providing UV disinfection to the treatment process.

c) Clearwell Upgrade and Replacement Cost

The conceptual level project budgets needed for the construction of the additional clearwell volume is anticipated to have a present value of $770,000 (2012 $). This project should be undertaken immediately to bring the WTP into compliance with NYSDOH regulations and secure the delivery of safe drinking water to the water system customers.

A commonly accepted duration for the useful life for tanks is 60 years. Thus, moneys would have to be set aside to secure future funds for the replacement of the new clearwell at the end of its useful life 60 years hence. The present value of the annual set-aside needed to fund the capital improvements fund for the clearwell replacement at the end of the 60 year

useful life is $12,850 (2012 $). As previously stated, the set-aside will need to increase by 5 percent each year to compensate for inflation.

4. Distribution Storage Tanks Analysis

a) General

Finished water storage for the Village water system includes the 70,000 gallon clearwell at the WTP, a 560,000 gallon painted steel ground storage tank near the hospital (Hospital Tank), and a 200,000 gallon painted steel ground storage tank off of North Grand St. (North Grand St. Tank). In addition, SUNY Cobleskill has a 500,000 gallon painted steel tank located at the SUNY ski lodge off of Elm Street, and the Warnerville Water District (WWD) has a 250,000 gallon partially buried concrete tank off of West Fulton Road in Warnerville. Only the clearwell and two of the four tanks are controlled by the Village. See Appendix C for the relative locations of the WTP clearwell and the storage tanks.

Recommended Standards for Water Works (Ten States Standards) requires that distribution storage provides for Average Day Demand plus fire storage. Although volume storage for fire protection should be computed based on Insurance Service Office (ISO) fire flow rating, fire flow volumes can be estimated for planning purposes to range from 90,000 gallons for residential areas to 500,000 or more for certain commercial properties. It should be noted, however, that the fire protection storage volume provided in a distribution system should not be at the expense of the water quality requirements such as chlorine residual and disinfection by-products. An evaluation of the impact of additional storage on these water quality parameters should be conducted in order to size additional distribution storage appropriately.

b) Hospital Tank

The Hospital Tank is a 560,000 gallon painted steel tank constructed in 1949 that originally served as distribution storage for the Low Service Area. It is located just north of the hospital and has a high water surface elevation of approximately 1130 feet, 24 feet lower than the clearwell high water elevation. The Hospital Tank connection main was equipped with an altitude valve, but because it has a much lower high water surface elevation than the clearwell, the tank could not ‘float’ on the clearwell and thus remained full all the time. Due to the health hazard cause by the lack of water turnover in the Hospital tank, the tank was removed from active service by closing the isolation gate valve in the tank connection main. The exterior painting of the tank is in fair condition. The interior painting has not been assessed.

Left unchanged, the high water elevation of 1130 feet in the Hospital Tank would produce static pressures in the Low Service Area of approximately 35 psi at the hospital, 67 psi at the pressure reducing valve vaults on Washington Avenue and 100 psi in the Fairgrounds area. Since the 35 psi system pressure at the hospital would be produced only when the Hospital

Tank is at high water stage, the tank cannot be operated in a way that would allow turnover of the stored water and maintain adequate system pressures.

A distribution storage tank should be placed back into service in the Low Service Area. Using the Hospital Tank would require increasing the tank high water elevation either by raising the height of the existing tank or removing the existing tank and constructing a new taller tank. In either case, the storage tank high water elevation should be maintained below the WTP Clearwell operating water level to maintain gravity flow and avoid pumping costs.

Based on the estimated fire flow volume presented above and the projected in-Village growth average day demand, the total storage for the Village should be 1.2 MG. Assuming that the size of the North Grand Street tank remains unchanged, the Low Service Area tank should have a capacity of 1.0 MG.

Providing distribution storage for the Low Service Area is a high priority.

c) North Grand Street Tank and Booster Pump Station

The North Grand Street Tank is a 200,000 gallon painted steel tank constructed in 1954. It is located on the west side of North Grand Street. The tank has a high water elevation of approximately 1245 feet, 91 feet higher than the clearwell elevation. The North Grand Street tank serves the Village's High Service Area. A booster pump station located on North Grand Street just north of High Street pumps water from the Low Service Area to the High Service Area. Pressure reducing valves located on Washington Avenue and North Street previously allowed water to flow from the High Service Area to the Low Service Area to maintain pressure in the Low Service Area during periods of high demand. However, due to system operation problems cause by the pressure reducing valves, the pressure reducing valves were taken out of service by closing isolation valves in the pressure reducing valve vaults. As a result, the North Grand Street tank only serves the High Service Area.

Based on discussions with the WTP operator, the North Grand Street Tank was repainted in the 1990's. During the repainting project, severe pitting was observed inside the tank, and extensive pit repair work was completed. However, WTP operator has indicated that at least one small hole in the tank wall was found recently and temporarily repaired.

Replacement of the North Grand Street Tank with a similarly sized tank is a High Priority.

d) SUNY Cobleskill Tank

The SUNY Cobleskill tank is owned and controlled by the college and is dedicated to the campus distribution system. The SUNY tank has a base elevation of approximately 1100 feet and a sidewall height of 35 feet, for a High Water Elevation of 1135 feet. Booster pumps also belonging to SUNY Cobleskill draw from the Village distribution system to fill the tank at night,

when demand is lower. A backflow preventer in the booster pump supply line prevents any reverse flow from the SUNY system to the Village's system.

e) Warnerville Water District Tank

The Warnerville Water District tank was constructed in 2003 and is owned and controlled by the Warnerville Water District (WWD) and is dedicated to its distribution system. The WWD tank has a base elevation of approximately 1124 feet and a sidewall height of 30 feet, for a High Water Elevation of 1154 feet. Booster pumps also belonging to WWD draw from the Village's 12-inch main across from the NYSDOT Resident Engineer's Office on Mineral Springs Road to fill the tank based on the water surface elevation in the WWD tank. Flow to the Warnerville Water District is limited to 160 gpm to limit the pressure drop to 4 psi or less in the higher elevation areas of the Village's Low Service Area when the Warnerville booster pumps are running. Check valves in the booster pump station prevent any reverse flow from the Warnerville system to the Village's system.

f) Service Areas Storage Vs. Average Day Demand

A summary table of the storage volume and average day demand in the various service areas served by the Village of Cobleskill water system is presented in Table 2 below:

TABLE 2

SUMMARY OF STORAGE CAPACITY VS. SERVICE AREA DEMAND				
STORAGE FACILITY	**STORAGE CAPACITY (Gal)**	**HIGH WATER ELEVATION**	**AREA SERVED**	**CURRENT ADD SERVED (gpd)**
WTP Clearwell	70,000(1)	1,154 ft	Low Service Area	338,000
Hospital Tank	560,000 (unusable)	1,130 ft	Low Service Area	0
SUNY Cobleskill Tank	500,000	1,135 ft	SUNY Campus	100,000
North Grand St. Tank	200,000	1,245 ft	High Service Area	30,000
Warnerville Tank	250,000	1,154 ft	Warnerville Water District	12,000

(1) Needed for Disinfection Contact Time (CT), thus not available as active storage.

g) Storage Tanks Replacement Cost

The construction costs for water storage tanks vary depending on the construction materials (e.g. painted steel, fused glass coated steel, cast-in-

place concrete, etc). Generally, the conceptual level costs used in the planning stage of water storage tank projects range from $1.75 to $2.25 per gallon depending on tank size and material. In addition to the construction cost, allowances for contingencies and non-construction (e.g. environmental review, engineering, legal, bonding, etc) should be included in the planning budget. The current value conceptual level project budgets needed for the North Grand Street Tank, High Service Area Booster Pump Station, and Hospital Tank replacement are as follows:

0.2 MG N GRAND ST TANK, GLASS COATED STEEL	
Construction	$400,000 (2012 $)
Contingencies	$40,000 (2012 $)
Non-Construction	$130,000(2012 $)
Total N Grand St Tank Cost	$570,000 (2012 $)

N GRAND ST PUMPS STATION	
Construction	$175,000 (2012 $)
Contingencies	$18,000 (2012 $)
Non-Construction	$58,000 (2012 $)
Total Pump Station Cost	$251,000 (2012 $)

1.0 MG HOSPITAL TANK, GLASS COATED STEEL	
Construction	$1,750,000 (2012 $)
Contingencies	$175,000 (2012 $)
Non-Construction	$575,000 (2012 $)
Total Hospital Tank Cost	$2,500,000 (2012 $)

Given condition of the various tanks owned by the Village, the replacement of the distribution storage tanks should be undertaken as soon as feasibly possible. However, because of the high conceptual budget figures presented above, it is recommended that the Village undertake a study to further evaluate the various options available to optimize the use of the existing storage resources.

Commonly accepted duration for the useful life for pump station buildings and storage tanks are 40 and 60 years, respectively. Thus, moneys would have to be set aside to secure future funds for the replacement of those facilities at the end of their useful life. The present value of the annual set-aside needed to fund the capital improvements fund for the replacement tanks at the end of their useful life is as follows:

N Grand St Tank ..... $9,500 (2012 $)

N Grand St Pump Station ..... $6,300 (2012 $)

Hospital Tank ..... $41,700 (2012 $)

As previously stated, the set-aside will need to increase by 5 percent each year to compensate for inflation.

C. Distribution Pressure Analysis

1. Low Service Area

The pressures in the Low Service Area are determined by the water surface elevation in the WTP clearwell. Static pressures in the Low Service Area range from approximately 110 psi near the Super 8 Motel on the east end of the Village to 37 psi near the Cobleskill Hospital. The Water Department has received complaints in the past about loss of pressure at the hospital and at the Middle School. Interviews with the Water Department personnel indicated that some of the pressure problems could be attributed to reduced flow areas caused by mineral deposit in the old 10-inch cast iron transmission main between the Water Treatment Plant and the distribution system and to small diameter cast iron main in the distribution system.

As a first step to address the low pressure problems, the Water Department implemented a program to inject phosphate/polyphosphate to soften/reduce scaling in the pipe followed by flushing of the water mains. Based on reports by Water Department personnel, the program was successful in improving distribution system pressures. Additionally, the Cobleskill-Richmondville Middle School service line was switched from the Low Service Area to the High Service Area.

Some areas remain with marginal pressures during periods of high flows such as hydrant flushing, fire fighting events, or main breaks. However, these areas are generally confined to dead end small diameter mains.

As indicated in the Distribution System Storage Analysis section of this report, the Hospital Tank is valved off and only functions as an emergency fire storage tank.

2. High Service Area

The High Service Area consists of two sub-service areas connected by a single water main along Quarry Street. The High Service Area extends from the Cobleskill-Richmondville Middle School and the area north of Maple Avenue, along Quarry Street all the way to the Overlook Drive residential area to the east (see mapping in Appendix D). Pressures in the High Service Area are determined by the water surface elevation in the North Grand Street Tank. Static pressures in the High Service Area range from 115 psi near the intersection of Washington Street and Maple Road to 50 psi at the eastern end of Quarry Street.

Water from the Low Service Area is pumped to the High Service Area with two 185 gpm booster pumps located in the Golding Pump Station at the intersection of North Grand Street and Maple Road (see schematic drawings in Appendix E). The High Service Area and the Low Service Area are separated by Pressure Reducing Valve (PRV) vaults located at the intersection of Washington Ave. and Maple Road, and at the intersection of North Street and Ridgewood Drive. Although the PRV vaults are still equipped with the PRV's, they are no longer in

use and the connections between the High and Low service areas are now closed off by gate valves.

Although the High and Low Service areas can be and have been operated independently, it is recommended that the PRV's functionality be restored if distribution system storage for the Low Service Area is provided as recommended in this report. If properly set, the PRV's could allow the High Service Area storage tank to supplement the Low Service Area storage tank during very large demand events (such as fire fighting) by allowing flow from the High Service Area to the Low Service area.

Discussions with Village personnel indicated that some low pressure events occur in the eastern portion of the High Service Area area during hydrant flushing. These low pressure events are the result of the single main connecting the eastern portion of the service area. Because a substantial distance separates the eastern portion of the service area from the rest of the service area and because of shallow depth to bedrock, water main looping to alleviate these low pressure events is not feasible.

3. SUNY Cobleskill Service Area

   SUNY Cobleskill (the Village's largest water customer) pumps from the Low Service Area to fill the College Storage Tank. Prior to the water main de-scaling program completed by the Village, the construction of the new 10" main on MacArthur Avenue, and the recent water main improvements near Rose Street, the SUNY Cobleskill booster pumps had to be run during low demand time to prevent low pressures from occurring in the Grandview Terrace area. The pumping restrictions have not been necessary since the completion of those projects.

4. Warnerville Service Area

   The Warnerville Water District also pumps from the Low Service Area to fill its tank. The booster pump station for the Warnerville Water District included a flow limiting valve to prevent pumping in excess of 160 gpm to limit pressure drop on in the Village's Low Service Area. As a result, no pressure problems are caused by the Warnerville booster pumps.

D. Looping Main Analysis

The Village had previously initiated a project to loop dead-end water mains in the distribution system. However, due to budgetary constraints, the project was suspended. A location map showing the Water Main Looping Existing Plan is presented in Appendix F.

The proposed project was intended to improve circulation, redundancy, distribution system pressures, and fire flows. The improved circulation in the distribution system would have improved water quality, including the ability to maintain chlorine residual, and would have reduced the potential for Disinfection Byproduct (DBP) formation. The design plans prepared by C.T. Male Associates for the looping project were

reviewed with the Water Superintendent. A list of the loops proposed by C.T. Male Associates is presented in Table 3.

TABLE 3

EXISTING PLAN FOR WATER MAIN LOOPING			
LOOP ID NO.	**LOCATION**	**LENGTH (ft)**	**SIZE (in)**
1	Highland Terr to Elm St	780	6
2	Elm St to Harder Ave	380	6
3	Washington Hgts to Cleveland Ave	375	6
4	High St to Prospect St	605	4
5	North St to Pine St	515	6
6	Park Pl Stream Crossing (above grade)	50	6
7	Grove St RR Crossing (through ped. crossing)	90	6
8	Spring St to MacArthur RR Crossing	275	12
9	Cherry Ln to Jay St	850	6
10 & 12	Quarry St to Overlook Dr	1040	6
11	Christopher Pl to Grandview Apts	435	6

The proposed looping would generally provide the desired improvements. However, the following modifications are recommended:

- Loop No. 1 should be connected at the end of the 6-inch Highland Terrace water main and extend 600 feet cross-lot to connect to Washington Heights (Low Service area). This modification would not increase the length of pipe required to construct the loop, but would eliminate an additional 200 feet of dead end main.
- Loop No. 3 should be extended to connect to N. Grand Street. This modification would increase the loop length to a total length of 800 feet.
- Loop No. 4 was designed as a 4-inch diameter pipe. The Recommended Standards for Water Works, the NYSDOH adopted design standards, requires that all water mains be 6-inch diameter minimum. Piping for Loop No. 4 should be changed to 6-inch diameter pipe.
- Loop No. 5 pipe size should be upgraded to an 8-inch diameter to improve pressure and flow.
- Loop No. 6 stream crossing should be constructed below grade by directional drilling method. This would provide better protection of the stream crossing during flooding events and would greatly simplify future maintenance/replacement of the Park Place culvert.

- Loop No. 8 is designed as a 12-inch connection. However, discussions with the Water Superintendent indicated that the water main on Spring Street is in fact a 4-inch main. Loop No. 8 should include the replacement of the 4-inch main, which would increase the total pipe length to 580 feet. The additional cost of the 4-inch main replacement could be offset by constructing the looping under the railroad by directional drilling method rather than by jacking and boring, if allowable by the Railroad.
- Loop No. 9 should be eliminated.
- Loops No. 10 & 12 pipe size should be upgraded to an 8-inch diameter to improve pressure and flow.
- Loop No. 11 should be eliminated.

In addition to the above modifications, the following connections are recommended:

- Loop No. 13 should be added in the lower portion of Campus Drive from the Best Western entrance to E. Main Street. This looping should be 10-inch pipe with a length of 850 feet.
- Loop No. 14 should be added to connect Snyder Lane to Pine Street. The looping would be 1,100 feet of 8-inch diameter cross-lot main.
- Loop No. 15 should be added from the Hospital Tank main behind the hospital to Josephine Drive to add a second transmission main and improve pressures. The looping would be 800 feet of 10-inch diameter cross lot main.

A summary of the modified looping plan is presented in Table 4. A location map of the Water Main Looping Modified Plan showing the location of the additional loop on Campus Drive is presented in Appendix F.

The proposed looping of the water distribution system would be a very effective tool to improve water quality, system pressures, and fire flows throughout the system. Looping of the water system should be a higher priority than replacing water mains unless the water mains are experiencing frequent leaks or breakage.

TABLE 4

MODIFIED WATER MAIN LOOPING PLAN			
LOOP ID NO.	**LOCATION**	**LENGTH (ft)**	**SIZE (in)**
1	Highland Terr to Washington Hgts	580	6
2	Elm St to Harder Ave	380	6
3	Washington Hgts to N Grand St	800	6
4	High St to Prospect St	605	6
5	North St to Pine St	515	8
6	Park Pl Stream Crossing (above grade)	50	6
7	Grove St RR Crossing (through ped. crossing)	90	6
8	Spring St to MacArthur RR Crossing	580	12
9	Eliminated	--	--
10 & 12	Quarry St to Overlook Dr	1040	8
11	Eliminated	--	--
13	Campus Dr – Best Western to E Main St	850	10
14	Snyder Ln to Pine St	1100	8
15	Hospital Tank to Josephine Dr	800	10
16	Josephine Dr to Hillside Ave	600	6

The total project cost for all water distribution main looping is anticipated to be $1,914,500 (2012 $), which would require a $16,000 (2012 $) annual replacement fund set-aside. A breakdown per individual loop location is presented in Appendix F.

E. Water Main Replacement Analysis

An inventory of the entire transmission and distribution main system was compiled in order to analyze the system replacement needs. The transmission and distribution mains were divided into segments that would provide flexibility in future replacement projects based on funds available.

The transmission and distribution main piping was analyzed based on the following criteria:

- Size
- Length
- Material
- Age
- Condition
- Hydraulic Capacity
- Leakage
- Criticality

The criteria were compiled for each pipe segment and then used to develop an Overall Serviceability Rating which was used to prioritize water main replacement. The Prioritization Plan spreadsheets are presented in Appendix G. The Prioritization Plan lists the pipe segments in descending order from the high priority replacement to the low priority replacement.

F. Water Main Replacement Cost Analysis

The Village intends to self-finance water main replacement by putting sufficient funds in reserve each year. A financing strategy would need to consider the following:

- Current Replacement Cost
- Replacement Frequency
- Inflation Rate
- Interest Earned on Reserve Fund

A conceptual opinion of cost for the replacement of the transmission and distribution mains, including construction cost, contingencies, and non-construction cost (e.g. environmental review, engineering, permitting, legal, etc) was developed. The total present value of the transmission mains from the WTP and the water distribution system, including pipe size upgrade needed to improve flows and pressure is anticipated to be $25,834,000 (2012 $).

The annual set aside was then calculated by dividing the total replacement cost by an anticipated 120 year useful life for ductile iron pipe. Based on this analysis, the present value of the set-aside needed to replace the entire water transmission and distribution pipe every 120 years is $215,200 annually (2012 $). A detailed analysis for each pipe segment indicating required funds to be set-aside is presented in Appendix H.

G. Financing Strategy

A financial analysis of annual saving needed to fund a Capital Improvements Fund necessary for replacing the existing water mains and completing the recommended looping was performed and is presented in Appendix I. The funding level was based on the assumed total distribution system replacement over a 120-year useful life for new water mains in order to maximize the return on the water main investment. This analysis shows that the annual capital project reserve funding would have to be increased by 5 percent annually to compensate for inflation even if water main replacement projects are undertaken as frequently as every 3 years.

Based on the cost analysis presented in paragraphs E and F above, the annual set-aside needed to fund the capital improvements fund for the recommended water main looping and replacement is $231,200 (2012 $). As previously stated, the set-aside will need to increase by 5 percent each year to compensate for inflation.

IV. SANITARY SEWER SYSTEM PLANNING

A. Capacity Analysis of Wastewater Treatment Plant

The Wastewater Treatment Plant (WWTP) is an Extended Aeration facility with the following unit processes and components:

- Headworks
- Raw Sewage Pumps
- Aeration Basins
- Secondary Clarifiers
- Chlorine Disinfection and De-chlorination
- Aerated Sludge Storage
- Belt Press Sludge Dewatering

The WWTP has undergone several upgrades in the last decade. Some of these improvements include:

Three new influent pumps have been installed;

- The two smaller aeration tanks were modified with new fine bubble diffusers, tank geometry modifications, and new airlift pumps;
- The two smaller clarifiers were modified with new launders, baffles, skimmers, weirs, and sludge collection mechanism;
- A new belt dewatering press has been installed;
- The control building has undergone renovations;
- A new sewage grinder has been installed;
- Enclosed the sludge storage building;
- New grit removal equipment has been installed.

All of these modifications and improvements have been based upon the design hydraulic loadings of:

High 30 Day Mean Flow	1.80 mgd
Peak Hourly Flow	4.50 mgd

The unit process capacity evaluation, included in Appendix H, provides the capacity of the individual unit processes of the WWTP.

There are a couple of components of the WWTP that were not rehabilitated and may need repair/modifications within the next ten years. These include:

- Blast, clean and repaint steel in the large aeration tank;
- Replace clarifier drive, scraper blades and skimmer blades in the large clarifier.

The SPDES permitted High 30-day Mean Flow of the facility is 1.80 mgd. Based upon a review of the report prepared by Barton and Loguidice, dated March 2004 and a review of the monthly reports from 2009 and 2010, it appears that the High 30 Day Mean Flow is 1.55 mgd This suggests that for the High 30 Day Mean Flow there is an excess capacity of 0.25 mgd. The facility's design Peak Hourly Flow is

4.5 mgd and the facility still experiences flows of this magnitude during large wet-weather events.

The facility's average dry weather flow is approximately 0.60 mgd. The average dry weather flow is the wastewater flow through the plant when there is little or no precipitation or snow melt. This indicates that the facility is significantly impacted by infiltration and inflow (I/I). If the Village could reduce the amount of I/I, then it would reduce its peak hourly flows, its maximum day flow and the High 30-day Mean flow. The Village would then realize a greater amount of usable capacity at the WWTP.

Currently, the facility has an excess capacity of 0.25 mgd for the High 30 Day Mean Flow; however the facility does not possess excess capacity for the Peak Hourly Flow. If the Village desired to expand the sanitary sewer collection system area, then the facility would need to be modified to handle increased Peak Hourly Flows. This could be accomplished by reducing Infiltration and Inflow in the collection system, constructing a wet weather equalization tank, or by increasing the Peak Hourly Capacity of the facility.

It is our understanding that occasional wet weather flow excursions will not trigger enforcement actions from NYSDEC. Therefore, although the Village still occasionally experiences significant Peak Hourly Flows, this may not limit the Village's ability to accept more wastewater flow at the WWTP. It is understood that wet weather events are the cause of High 30 Day Mean Flow. The Village should conduct a meeting with NYSDEC to discuss the WWTP's ability to accept more wastewater flow taking wet weather flows into account. It is very beneficial in these discussions if the Village can demonstrate, to NYSDEC, its continuing efforts to reduce I/I in the sanitary sewer collection system.

A side note to this discussion is the possibility of a new brewery opening up and connecting to the WWTP. The effluent from a brewery may contribute very significant biological loadings to the WWTP. Depending on the effluent strength, the CBOD5 loading may increase by 100% to the WWTP. Loadings such as these may impact the operation of the WWTP and the Village may want to evaluate the impact of these loadings on the WWTP. The Village may also want to look at the Sewer Use Ordinance in regards to the requirements for industrial pretreatment and how to handle sewer rates for high strength wastes.

B. Wastewater Treatment Plant Replacement Cost

A commonly accepted duration for the useful life of a wastewater treatment plant is 50 years. Although the WWTP is maintained in good condition, the facility was built in 1977 with a major renovation in 2006. Applying the useful life duration from the date of the 2006 renovation, the WWTP has approximately 44 years of useful life remaining.

The project cost for replacing the WWTP at the end of its remaining useful life is anticipated to have a present value of $28.5M (2012 $). The present value of the annual set-aside needed to fund the capital improvements fund for the WWTP replacement at the end of its remaining useful life is $650,000 (2012 $). As previously stated, the set-aside will need to increase by 5 percent each year to compensate for inflation.

C. Analysis of Impacts of Future Warnerville Sewer District

Based on review of water pumping records, the current Warnerville Water District currently uses approximately 12,000 gpd. On the other hand, the Water District has been approved for up to 125,000 gpd. A district service area expansion is subject to the review/approval of the Village of Cobleskill and NYSDEC. It is anticipated that a future Warnerville Sewer District would have the same service area as the current Water District (see mapping in Appendix K).

Given that creation of a Sewer District could stimulate more development within the current Water District, it is advisable to use the entire approved Water District demand of 125,000 gpd as the Maximum Day basis for Sewer Flow. Based on experience, a Maximum Day Flow of 125,000 gpd translates to a High 30-day Mean flow of about 62,500 gpd.

To allow for the creation of a future Warnerville Sewer District, the WWTP may have been modified to handle increased Peak Hourly Flows. This could be accomplished by reducing Infiltration and Inflow, constructing a wet weather equalization tank or by increasing the Peak Hourly Capacity of the WWTP.

D. Collection System Pump Station Analysis

The sanitary sewer collection system includes two pump stations owned and maintained by the Village, the East End Pump Station (near Barnerville Rd.) and the Fairgrounds Pump Station. The electrical and mechanical systems of both pump stations were upgraded in 2009, and the improvements included the addition of emergency generators at each location.

The pump stations are not equipped with flow meters and thus it is difficult to accurately measure the amount of flow which passes through each pump station. All of the pumps are equipped with hour meters and the hour meter readings are normally recorded on a daily basis. However, all of the pump motors are run by variable frequency drives. These drives alter how fast a pump is operating and the amount of wastewater being pumped. The only way to approximate the amount of wastewater being handled by each pump station is to use the design pumping rate for each station and the amount of time run by each pump.

The East End Pump Station was designed to pump a peak flow of 300 gpm. This equates to an approximate average daily flow of 75 gpm (108,000 gpd).

The Fairgrounds pump station was designed to pump a peak flow of 800 gpm. This equates to an approximate average daily flow of 200 gpm (288,000 gpd).

To accurately assess the flow through each pump station, a temporary flow meter could be installed during the months of March and April when the highest flows are typically received by the WWTP.

Based upon a review of each pump station's hour meter readings from this year, the East End Pump Station ran for a total of 24 hours (12 hours on each pump) in a 24 hour period from March 11 to March 12. The Fairgrounds pump station ran for a total 6 hours (3 hours for each pump) on the same day. Based upon the observed run time, the East End Pump Station is operating near 100% capacity, and the Fairgrounds Pumps Station is operating at about 25% of capacity.

The hour meter readings were not looked at during the flooding events that occurred at the end of August and beginning of September this year. Those events were considered anomalies and disregarded for this analysis.

Note that the capacity of each Pump Station can be increased in the future with impeller and motor upgrades. Although the pumps' capacity can be increased with motor and impeller upgrades, there may be other system factors that limit the amount of increased capacity such as the size of the forcemain and the size of the wetwell.

The capacities of the pump stations are summarized in the table below:

TABLE 5

PUMP STATION CAPACITY		
	CAPACITY (PEAK)	
PUMP STATION	CURRENT	FUTURE
East End PS	0.43 MGD	0.50 MGD
Fairgrounds PS	1.15 MGD	1.50 MGD

E. Analysis of Gravity Collection vs. Pump Stations

We have investigated the potential of eliminating pump stations within the collection system. Critical elevations pertaining to this analysis include the following:

TABLE 6

CRITITAL COLLECTION SYSTEM ELEVATIONS	
Item	Critical Elevation
WWTP Influent Sewer	889.38 ft.
Cobleskill Creek at South Grand St.	885.0 ft.
Cobleskill Creek at Rte. 7 (East End)	873.0 ft.

A schematic drawing illustrating the critical grades within the collection system are presented in Appendix L. Based on the drawing, you can see that running enlarged pipes at minimum slopes from the treatment plant headworks would put the pipes at approximately 6 ft. above the creek bed at the South Grand Street crossing, and approximately 18 ft above the creek bed at the Route 7 crossing. Therefore, elimination of the pump stations is not feasible.

F. Pump Stations Replacement Cost

A commonly accepted duration for the useful life of a sewage pump stations is 50 years. As stated earlier in this report, the mechanical and electrical system portion of the East End and Fairgounds pump stations were replaced in 2009, approximately the mid-point of their useful life. A complete replacement of the pump stations should be planned for the end of the 50-year useful life in approximately 25 years.

The project cost for replacing the entire the East End pump station at the end of its remaining useful life is anticipated to have a present value of $300,000 (2012 $). The present value of the annual set-aside needed to fund the capital improvements fund for the WWTP replacement at the end of its remaining useful life is $12,000 (2012 $).

The project cost for replacing the Fairgrounds pump station at the end of its remaining useful life is anticipated to have a present value of $330,000 (2012 $). The present value of the annual set-aside needed to fund the capital improvements fund for the WWTP replacement at the end of its remaining useful life is $13,200 (2012 $).

As previously stated, the set-asides will need to increase by 5 percent each year to compensate for inflation.

G. Sewer Main Replacement Prioritization

Without having adequate data of the exiting sanitary sewer system, the analysis of the system can only be based on experience of past projects within the Village as well as discussions with Village sewer & highway employees. The analysis is also based on past I/I studies conducted in the Village. Smoke testing reports were reviewed to prioritize the I/I rating. Discussions with Village staff did not indicate any emergency replacement areas, other than usage problems at several locations (i.e., heavy grease build-up). The entire sanitary sewer collection system has been divided up into pipeline segments for the purpose of analysis. To the best of our knowledge, based on available existing data, each segment has been identified by the following parameters:

- Age
- Type
- Size
- Condition
- Criticality
- Replacement Cost
- Overall Replacement Priority

Spreadsheets for the pipeline analysis are included in Appendix M.

H. Sewer Main Replacement Cost Analysis and Financing Strategy

The Village intends to self-finance sewer main replacement by putting sufficient funds in reserve each year. A financing strategy would need to consider the following:

- Current Replacement Cost
- Replacement Program Duration (e.g. 50, 75 or 100 years)
- Inflation Rate
- Interest Earned on Reserve Fund

A conceptual opinion of cost for the replacement of the sanitary collection mains, including construction cost, contingencies, and non-construction cost (e.g. environmental review, engineering, permitting, legal, etc) was developed. The total replacement cost was then divided by an anticipated 120 year useful life for PVC pipe. Based on this analysis, the set-aside required for replacing the entire sanitary sewer collection system every 120 years is $129,500.00 annually (2012 $). A detailed analysis for each pipe segment indicating required funds to be set-aside is presented in Appendix N.

An analysis of the annual savings financing plan necessary to fund a Capital Improvements Fund was performed and is presented in Appendix O. The funding level was based on an assumed total collection system replacement over a 120-year useful life for sanitary sewer mains in order to maximize the return on the sanitary main investment. This analysis shows that the annual capital project reserve funding would have to be increased annually at slightly above the inflation rate even if sanitary sewer main replacement projects are undertaken as frequently as every 3 years.

Keep in mind that the replacement costs are based on replacement of the sanitary sewer only. Replacement cost would be cheaper per lineal foot if replaced as part of a street reconstruction projects where more utilities (water and storm sewer) would be replaced concurrently.

V. CONCLUSIONS AND RECOMMENDATIONS

This Report was developed with the objective of identifying the various elements of the water and sanitary sewer systems and providing guidance to the Village for developing financing strategies to implement a capital asset replacement program. The implementation of the capital asset replacement program will enable the Village to maintain up-to-date systems by preventing aging of capital assets beyond their useful life. The financing strategy aims to evenly distribute the capital asset replacement cost over the useful life of the capital assets.

The annual set-asides presented in this report are based on the generally accepted useful lives of the various capital assets. The actual life of a particular capital asset will vary based on use, maintenance, and upkeep.

Due to the potential variability in the useful life of capital assets and the rate of inflation, a re-assessment of the capital asset replacement prioritization and funding set-aside amounts presented in this report should be performed periodically. This would ensure as capital assets are replaced, their priority rating decreases. It would also help verify that funding of the capital improvement funds is sufficient but not excessive. A 10-year reassessment period is recommended.

A. Water System

Although conceptual in nature, the review of the water system identified the following deficiencies that should be addressed without delay:

- The disinfection capacity of the existing clearwell is insufficient and should be addressed immediately. The disinfection capacity should be increased to match the WTP production capacity of 2.0 MGD. A study to evaluate UV disinfection vs. chlorine contact storage is recommended to determine which option would be the most cost effective.
- The N Grand St Tank only serves the High Service Area of the Village. The tank is in very poor condition and needs to be replaced without delay.
- The Hospital Tank was intended to serve the Low Service Area, but the high water elevation is too low, rendering the Hospital tank unusable and the tank has been taken off line. The tank should be replaced without delay to provide distribution storage, improve pressures, and provide better fire protection in the Low Service Area. A study to determine if incorporating other storage connected to the distribution system would improve storage efficiency should be conducted.

The Modified Water Main Looping Plan presented in the body of this Report should be implemented to reinforce system hydraulically and provide better pressures and fire flows in weakest areas of the system.

The financing strategy presented in the report should be implemented to provide the means necessary to maintain the water system in good working order. A summary of present values for the water system capital assets and the annual set-aside needed to implement the replacement program are presented in Table 7 below:

TABLE 7

SUMMARY OF WATER SYSTEM CAPITAL ASSETS REPLACEMENT FINANCING		
CAPITAL ASSETS	**CAPITAL ASSET PRESENT VALUE (2012 $)**	**ANNUAL SET-ASIDE PRESENT VALUE (2012 $)**
Surface Water Source	$3.65M	$73,000
WTP	$6.82M	$227,500
Additional Clearwell	$0.77M	$12,850
N Grand St Tank	$0.57M	$9,500
N Grand St Pump Station	$0.25M	$6,300
Hospital Tank	$2.50M	$41,700
New Water Main Looping	$1.91M	$16,000
Existing Water Mains	$25.83M	$215,200
Totals	**$42.30M**	**$601,550**

As previously stated, the values of the annual set-aside amounts presented in Table 7 are 2012 dollar values. The annual set-aside will need to be increased at a rate of 5 percent annually to compensate for the loss of purchasing power caused by inflation.

B. Sanitary Sewer System

Although conceptual in nature, the review of the wastewater system identified the following:

1. The WWTP has recently been modified/upgraded to meet its current loadings.

2. Wet weather flow events limit the available useful capacity of the WWTP. Reducing the amount of I/I to the collection system would increase the available capacity of the WWTP.

3. The Village should meet with NYSDEC to discuss the wet weather impacts on the useful capacity of the WWTP before increasing the sanitary sewer collection area.

4. Continue to investigate targeted I/I problem areas (both Village-owned & private) as indicated in past sewer system evaluation studies and make repairs where feasible. The Village may want to consider purchasing or renting a sewer camera to monitor these problem areas as well as to assist with maintaining the overall sanitary sewer system.

5. Implement Sanitary Sewer System Financing Strategy utilizing a useful life of 120 years.

The financing strategy presented in the report should be implemented to provide the means necessary to maintain the sanitary sewer system in good working order. A summary of present values for the water system capital assets and the annual set-aside needed to implement the replacement program are presented in Table 8 below:

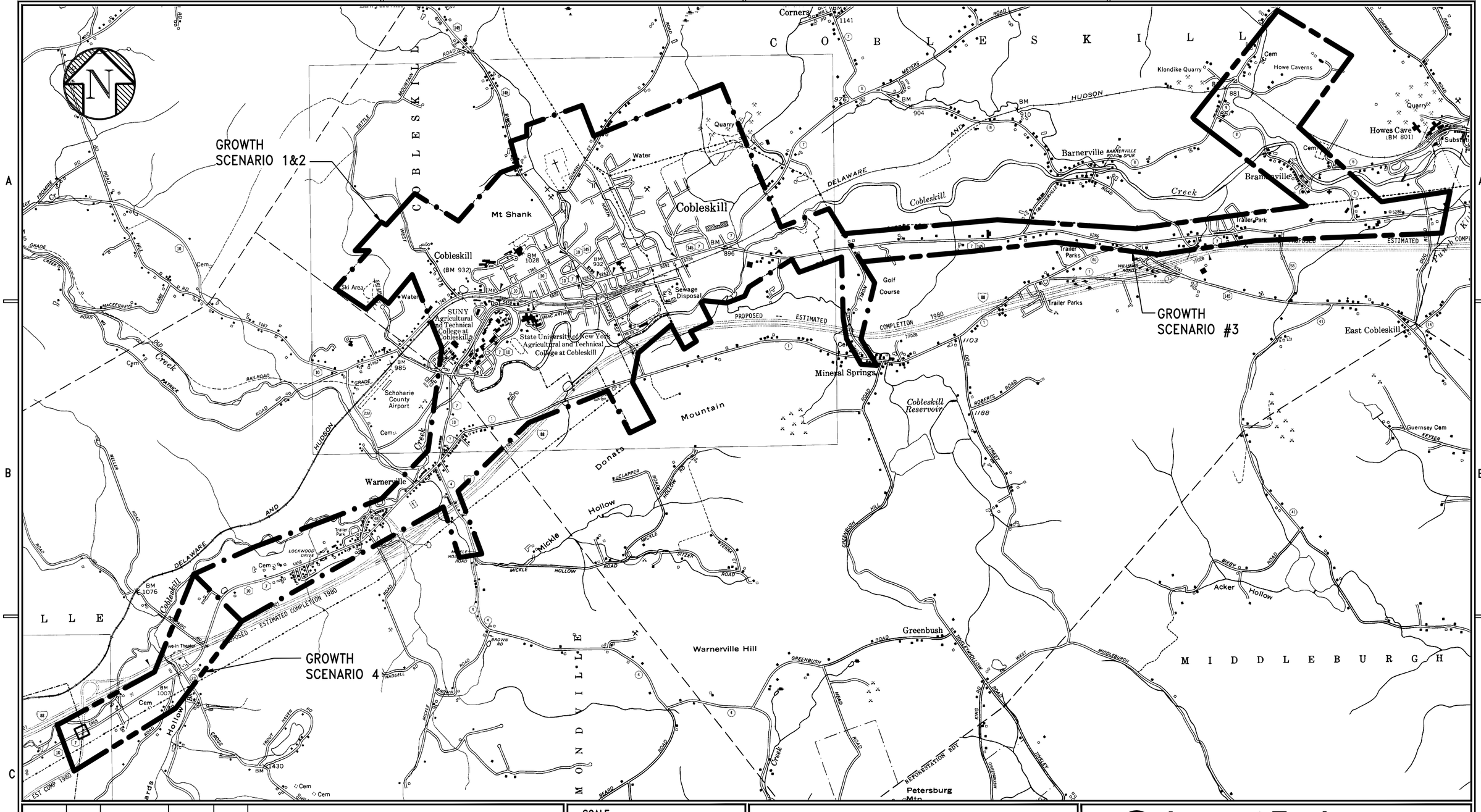
TABLE 8

SUMMARY OF WASTEWATER SYSTEM CAPITAL ASSETS REPLACEMENT FINANCING		
CAPITAL ASSETS	**CAPITAL ASSET PRESENT VALUE (2012 $)**	**ANNUAL SET-ASIDE PRESENT VALUE (2012 $)**
WWTP	$28.5M	$650,000
East End Pump Station	$0.30M	$12,000
Fairgrounds Pump Station	$0.33M	$13,200
Existing Sewer Mains	$15.51M	$129,500
Totals	**$44.64M**	**$804,700**

As previously stated, the values of the annual set-aside amounts presented in Table 8 are 2012 dollar values. The annual set-aside will need to be increased at a rate of 5 percent annually to compensate for the loss of purchasing power caused by inflation.

APPENDIX A

MAPPING OF DEMAND/GROWTH SCENARIOS



ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	1"=3,000'
DRAWN	AHJ
DATE	11/9/11
DESIGNED	MDH

VILLAGE OF COBLESKILL
WATER AND SANITARY SEWER MASTER PLAN

DEMAND/GROWTH SCENARIOS

Lamont Engineers
ENGINEERS • PLANNERS • FACILITY OPERATIONS
548 MAIN ST., COBLESKILL, N.Y. 12043 (518) 234-4028

PROJECT NO.	FILE NAME	SHEET NO.
2011017	CR-WATER	

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APPENDIX B

CORRESPONDENCE REGARDING PERFORMANCE DEMONSTRATION STUDY AND WTP CAPACITY

LAMONT, VAN DE VALK ENGINEERS, P.C.

Engineers • Planners

One Main Street, Box 610, Cobleskill, New York 12043

518 234-4028

FAX 518-234-4613

November 27, 1995

Mayor Greg Flanagan and Board of Trustees
Village of Cobleskill
East Main Street
Cobleskill, NY 12043

Re: Cobleskill, NY Water System Capacity Ratings
NYSDOH Log Nos. 7740-5 (Treatment) and 9733-5 (Supply)

Dear Mayor and Board Members:

I am pleased to say that the New York State Dept. of Health (NYSDOH) has accepted the results of your Water Treatment Plant Performance Demonstration Study and has "acknowledged the filtration plant's capacity as 2.0 million gallons per day (MGD)." (see attached letter from John M. Dunn, P.E., dated November 16, 1995). This addresses the treatment plant aspect of your water system's capacity rating.

I have also enclosed a July 11, 1994 letter from me to the Village, with attached letter from NYSDOH dated July 7, 1994, regarding the Village's water supply capacity rating. Those materials indicate that NYSDOH agreed to a Safe Yield of your water supply system on the order of 1.9 MGD.

I recommend that the Village pursue getting the necessary formal paperwork to document these revised system capacity ratings. I believe this should consist of:

1. A revision to NYSDOH's 9/30/87 "Approval of Plans" (attached) for the new Treatment Plant, raising the approved treatment capacity from the interim 1.04 MGD to 2.0 MGD.

2. A revision to the Village's current (9/09/85) Water Supply Permit from NYS Dept. of Environmental Conservation (NYSDEC) (also attached), which set an interim permitted Safe Yield of 1.02 MGD pending additional safe yield data collection and reporting. This should be revised to at least 1.9 MGD, based on safe yield data to-date.
(Please note that we will be composing another Watershed Production Report Update covering the years of 1993-95 once the 1995 data collection is completed.)

CONSULTING ENGINEERS COUNCIL OF NEW YORK STATE, INC.

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Since the technical work supporting these changes has been done to NYSDOH's satisfaction, the Village may wish to consider applying to NYSDOH and NYSDEC for these ratings increases directly. I spoke with Carl Stefanik, P.E. of the Schoharie County DOH regarding this and he has agreed to advise and assist the Village in this matter. Alternatively, Lamont, VanDeValk can pursue these ratings increases if you so wish.

Finally, I would like to point out that both Jeff Pangman and past Water Supt. John Barber were instrumental in performing the work needed to obtain these increases, and should be commended. Jeff's interest in participating in USEPA/AWWA's Partnership For Safe Water should result in achieving the treatment optimization recommended by Mr. Dunn.

I will await your direction on how you wish to proceed with obtaining the formal rated capacity increases. If you have any questions, please call.

Sincerely,

William A. VanDeValk

William A. VanDeValk, P.E.
Principal Engineer
Lamont, VanDeValk Engineers, P.C.

wv:

Enc.

cc: Board of Trustees (4 copies) - Village of Cobleskill
Sheila Hay, Clerk-Treasurer - Village of Cobleskill
Jeff Pangman, Water Supt. - Village of Cobleskill
Carl Stefanik, P.E. - Schoharie Cty. Dept. of Health
John M. Dunn, P.E. - NYSDOH, Albany

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STATE OF NEW YORK
DEPARTMENT OF HEALTH

Office of Public Health II University Place Albany, New York 12203-3399

Barbara A. DeBuono, M.D., M.P.H.
Commissioner

Karen Schimke
Executive Deputy Commissioner

(1)

November 16, 1995

RECEIVED
NOV 2 1 1995
LAMONT,
VAN DE VALK ENGINEERS, P.C.

Mr. William Van De Valk, P.E.
Lamont, Van De Valk Engineers, P.C.
One Main Street
P.O. Box 610
Cobleskill, NY 12043

RE: Water Treatment Plant
Clarifier Demonstration Study
(C) Cobleskill, Schoharie County

Dear Mr. Van De Valk:

We have reviewed the data submitted to document that adequate clarifier/pre-treatment performance can be obtained with one unit out of service at the 2 MGD rate.

The data indicates that turbidity from raw to clarified water is reduced by 10-55% (35% average). Although reduction in the 60% range is desirable, considering the good (and consistent) raw water quality of Cobleskill's source, we **therefore concur with your determination that sufficient pre-treatment redundancy is achieved. This satisfies our outstanding concerns and we hereby acknowledge the filtration plant's capacity as 2.0 MGD.**

We did note in the August 3 and 16 runs that turbidity reduction across the filters, although meeting code requirements, was not optimized. We strongly urge the Village to review its coagulant feed protocol and make a concerted effort to optimize performance.

If you have any questions, feel free to contact me at (518) 458-6756.

Sincerely,

John M. Dunn, P.E.
Chief, Design Section
Bureau of Public Water Supply Protection

bs/95320PRO0285

cc: Schoharie County Health Department, Attn: Mr. Stefanik
NYSDOH, Attn: Mr. Serrell

R2

(2)

LAMONT, VAN DE VALK ENGINEERS, P.C.

Engineers - Planners

One Main Street, Box 610, Cobleskill, New York 12043

518 234-4028

FAX 518-234-4613

July 11, 1994

Mayor Charles Milton and Board of Trustees
Village of Cobleskill
P.O. Box 169
Cobleskill, NY 12043

Re: Watershed Production Report Update

Dear Mayor and Board Members:

Attached you will find a copy of a July 7, 1994 letter we received from the NYS Department of Health (NYSDOH) regarding our recently submitted Watershed Production Report Update.

I am pleased to say that the NYSDOH agrees with that Report's conclusion that the true Safe Yield of your Watershed/Reservoir system is on the order of 1.9 million gallons per day (MGD), which is considerably higher than your currently permitted 1.04 MGD. Although you must continue to monitor and evaluate this issue, I recommend that you contact NYSDOH to pursue having your Water Supply Permit modified to reflect this increase. If you need any assistance with this issue, please call.

This office will continue to analyze the data and perform the required Report Updates.

Sincerely,

Will VanDeValk

William A. VanDeValk, P.E.
Principal Engineer
Lamont, VanDeValk Engineers, P.C.

wv:

ENC

cc: Mr. Jeff Pangman
Mr. Casey Jones
Ms. Sheila Hay

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CEC NYS
CONSULTING ENGINEERS COUNCIL OF NEW YORK STATE INC

STATE OF NEW YORK
DEPARTMENT OF HEALTH

Center for Environmental Health 2 University Place Albany, New York 12203-3399

Mark R. Chassin, M.D., M.P.P., M.P.H.
Commissioner

Paula Wilson
Executive Deputy Commissioner

OFFICE OF PUBLIC HEALTH
Lloyd F. Novick, M.D., M.P.H.
Director

Diana Jones Ritter
Executive Deputy Director

William N. Stasiuk, P.E., Ph.D.
Center Director

July 7, 1994

Mr. William A. VanDeValk
Lamont, VanDeValk Engineers, P.C.
One Main Street, Box 610
Cobleskill, NY 12043

RE: Log No. 9733-5
Watershed Production
Report Update
NY Water Supply
(V) Cobleskill, Schoharie Co.

Dear Mr. VanDeValk:

We have received and reviewed the above referenced report. We agree, based on the data presented, that the true safe yield of the Cobleskill Watershed/Reservoir system is in the order of 1.9 MGD. To confirm this result, relevant data should continue to be collected and submitted every three (3) years, as per Special Condition 30, WSA No. 7592.

Please contact me at (518) 458-6756 if you have any questions.

RECEIVED
JUL 08 1994
VAN DE VALK ENGINEERS, P.C.

Sincerely,

Stephen S. Marshall
Junior Engineer
Bureau of Public Water Supply Protection

bs/94188PR00242

cc: Schoharie County Health Department, Attn: Mr. Stefanik
NYSDOH, Attn: Mr. Orndorff

STATE OF NEW YORK
DEPARTMENT OF HEALTH
Corning Tower The Governor Nelson A. Rockefeller Empire State Plaza Albany, New York 12237

...d Axelrod, M.D.
...mmissioner

OFFICE OF PUBLIC HEALTH
Linda A. Randolph, M.D., M.P.H.
Director

William F. Leavy
Executive Deputy Director

(3)

RECEIVED
OCT 2 - 1987
BREWER & LAMONT ENGINEERS, P.C.

September 30, 1987

Hon. Leon Wilson
Village of Cobleskill
East Main Street
Cobleskill, NY 12043

Re: WSA #7592; Log #4762-5 & 4976-5
Approval of Plans
Water Filtration Plant Expansion
(V) Cobleskill, Schoharie County

Dear Mayor Wilson:

We have, this day, approved the revised plans and specifications submitted by Brewter & Lamont Engineers, P.C. for a project including filtration plant expansion and appurtenances.

Application for this project was previously made by you and received in this office in November 1986.

We call your attention to Standard Conditions a & b and Special Condition c the enclosed Gen Form 207 entitled, Approval of Plans.

It is imperative that the Village implement and continue a leak detection program, and, continue compliance with Condition #30 of WSA 7592.

A set of the approved plans and specifications is being retained in our files, a second set is being sent to the Schoharie County Health Department and the third set is being returned to your engineer.

You should soon receive notification from the Department of Environmental Conservation on the other aspects of this project.

Very truly yours,

Gilbert M. Faustel, P.E.
Chief, Design Section
Bureau of Public Water Supply Protection

Enclosures

cc: Brewer & Lamont Engineers
Schoharie County Health Department, Attn: Mr. Stefanik
Albany Regional Office, Attn: Mr. Decker
DEC, Attn: Mr. Dean
DEC, Attn: Mr. Stout

A-1

R5

NEW YORK STATE DEPARTMENT OF HEALTH

APPROVAL OF PLANS

FOR PUBLIC WATER SUPPLY IMPROVEMENT

This approval is issued under the provisions of 10 NYCRR, Part 5:

1. Applicant:	2. Location of Works (C, V, T):	3. County:	4. Water District (Specific Area Served)
(V) Cobleskill	(T) Cobleskill	Schoharie	(V) Cobleskill

5. Type of Project:

- ☐ 1 Source
- ☐ 2 Transmission
- ☒ 3 Pumping Units
- ☒ 4 Chlorination
- ☐ 5 Fluoridation
- ☒ 6 Other Treatment
- ☐ 7 Distribution
- ☐ 8 Storage
- ☐ 9 Other

REMARKS:

Treatment processes:
Potassium permanganate
Liquid Alum & Polymer for Coagulation
3-Solids Contact Units for Clarification
4-Dual Media, Air/Water Wash Filters
Caustic Soda for pH adjustment
Fluoridation
Chlorination

y initiating improvement of the approved supply, the applicant accepts and agrees to abide by and conform with the following:

a. THAT the proposed works be constructed in complete conformity with the plans and specifications approved this day or approved amendments thereto.

b. THAT the proposed works not be placed into operation until such time as a Completed Works Approval is issued in accordance with Part 5 of the New York State Sanitary Code.

c. THAT demonstration of higher application rates shall be initiated within 1 year after this project is completed, such study to be conducted in accordance with acceptable criteria and procedures, and, the results summarized and submitted for approval.

ISSUED FOR THE STATE COMMISSIONER OF HEALTH

September 30, 1987
Date

Gilbert M. Faustel, P.E.
Designated Representative

Gilbert M. Faustel, P.E.
Chief, Design Section
Bureau of Public Water Supply Protection
Name and Title (print)

Distribution: White — Applicant; Pink — Central Office (BPWS); Yellow — File (LHO or DHO); Blue — Other

GEN 207
(Rev. 3/78) (881-20)

A-2

GENERAL

6. Type of Ownership:
☒ Municipal ☐ Commercial ☐ 68 Private - Other ☐ 1 Authority ☐ 30 Interstate
☐ Industrial ☐ 9 Water Works Corp. ☐ Private - Institutional ☐ 19 Federal ☐ 40 International
☐ 26 Board of Education ☐ 20 State ☐ 18 Indian Reservation

7. Estimated Total Cost	8. Population Served	9. Drainage Basin
$1m±	5,270	Dow & Smith Brooks

10. Federal Aid Involved?	11. WSA Project?
☒ 1 Yes ☐ 2 No EDA	☒ 1 Yes ☐ 2 No 7592

SOURCE

12.	13. Est. Source Development Cost
☐ Surface Name _____ Class _____	
☐ Ground Name _____ Class _____	

14. Safe yield:	15. Description:
GPD	

TREATMENT

16. Type of Treatment

☐ 1 Aeration ☒ 5 Clarifiers ☒ 9 Fluoridation
☐ 2 Microstrainers ☒ 6 Filtration ☐ 10 Softening
☒ 3 Mixing ☐ 7 Iron Removal ☒ 11 Corrosion Control
☐ 4 Sedimentation ☒ 8 Chlorination ☐ 12 Other

17. Name of Treatment Works	18. Max. Treatment Capacity	19. Grade of Plant Operator Req.	20. Est. Cost
(V) Cobleskill	1.04 GPD	II-A	$1m±

Description: Filter plant expansion & rehabilitation
Hydraulic capacity (piping): 2.5 mgd
Pretreatment capacity: 1.5 mgd
Anticipated plant rating after higher rates are satisfactorily demonstrated: 1.7± mgd (or more).
Ultimate plant rating after this expansion & demonstration may additionally be limited based on the safe yield of the source of supply.

DISTRIBUTION

22. Type of Project	23. Type of Storage (village owned)	24. Est. Distribution Cost
☐ 1 Cross Connection ☐ 3 Transmission	Elevated 0.76 M Gals.	
☐ 2 Interconnection ☐ 4 Fire Pump Cl₂	Underground _____ Gals.	

25. Anticipated Distribution (2006 estimated)	26. Designed for fire flow?
System Demand: Avg. 1.3 GPD Max. 1.7 GPD	☐ 1 Yes ☐ 2 No

27. Description:

A-3

New York State Department of Environmental Conservation

Region IV Headquarters
2176 Guilderland Ave.
Schenectady, NY 12306
(518) 382-0680

Henry G. Williams
Commissioner

4

September 9, 1985

Mr. Leon E. Wilson, Mayor
Village Board-Cobleskill
East Main Street
Cobleskill, NY 12043

Re: UPA #41850333, WSA 7592
Village of Cobleskill
Reservoir Expansion and
Increased Safe Yield

Dear Mr. Wilson:

Enclosed is the referenced permit with 10 additional special conditions and their attachments. Please read the entire permit carefully, because it does not provide for the safe yield anticipated by the original application. Several additional actions and an additional permit application will be necessary to provide the 1.2 mgd safe yield.

Sincerely,

David Stout

David Stout
Sr. Environmental Analyst

DS/til

Enc. (permit w/attachments)

cc: DEC, Albany, Mr. Dean/Mr. Behn w/mailing list
Henry Lamont, BDT Associates, Prof. Engr.
Schoharie Co. Health Dept., Mr. Stefanik
Gilbert Faustel, NYSDOH, Rm 472
George Koch, NYSDEC, Rm. 422
D. Kay Sanford, Stamford
R. Baldwin, Stamford
L. Briand, Reg. 4 Pure Waters
R. Drew, Office of Hearing Officiers
E. Wildore, Village Attorney
DRA File

21

NEW YORK STATE DEPART[illegible]T OF ENVIRONMENTAL CONSERVATION

DEC No. 41850333

Filed Date 6-27-85

PERMIT

UNDER THE ENVIRONMENTAL CONSERVATION LAW
ARTICLE 15, TITLE 15 (WATER SUPPLY) and
Title 5(Protection of Waters)

ISSUED TO

Village of Cobleskill

ADDRESS OF PERMITTEE

Mr. Leon E. Wilson, Mayor, E. Main Street, Cobleskill, NY 12043

LOCATION OF PROJECT

Area A and C at Cobleskill Reservoir (see map attached), SE of Mineral Springs

DESCRIPTION OF PROJECT

Take an additional supply of water up to 20,000 gpd for use in the existing treatment and distribution system by development of a new source of water supply throuch the creation of a 16.4 acre, 0.96 mg reservoir with a 38 foot high earthen dam, NW of Dow Reservoir (at area A). Also as part of the new supply, enlarge the existing Dow Reservoir by 0.26 mg by excavating additional water area at its southerly end. The safe yield of the completed reservoir system will be 1.02 mgd.

COMMUNITY NAME (Village)	TOWN		
Cobleskill	Cobleskill		
COUNTY	FIA COMMUNITY NO.	DAM NO.	PERMIT ISSUE DATE
Schoharie		174A-4836	9/9/85

GENERAL CONDITIONS

1. Prior to starting work on any construction authorized herein, detailed pl[illegible] of the structures proposed to be built and specifications for such w[illegible] all have been submitted to and approved by the Department. Thereafte[illegible] such construction work shall be entirely completed in full accordance with the plans and specifications which have been so submitted and approved.

2. The Department reserves the right to rescind this permit or to take whatever action it may deem suitable and proper if the works authorized to be constructed herein are not initiated by Sept. 30, 1987

3. Section 15-1529 of the Environmental Conservation Law forbids the operation of any of these works until, as constructed, they have been approved by the Department. Such final approval will be given only on written request. In general, such approval will not be given until all provisions affecting quality of the water and safety of the works have been complied with in full.

4. The Department reserves the right to reconsider this permit at any time and after due notice and hearing at that time to continue, rescind or modify this permit in such a manner as may be found to be just and equitable.

5. Granting of this permit does not relieve the applicant of the responsibility of obtaining any other permission, consent or approval which may be required.

6. As a condition of the issuance of this permit, the applicant has accepted expressly, by the execution of the application, the full legal responsibility for all damages, direct or indirect, of whatever nature, and by whomever suffered, arising out of the project described herein and has agreed to indemnify and save harmless the State from suits, actions, damages and costs of every name and description resulting from the said project.

7. By acceptance of this permit the permittee agrees that the permit is contingent upon strict compliance with the special conditions following.

NOTE: Only those special conditions following which have been marked [X] apply.

SPECIAL CONDITIONS

☐ 8. All land within _____ feet of any well shall be protected and controlled in order to prevent pollution of the ground or groundwater by direct ownership of the land or by the acquisition of protective easements or other appropriate measures.

☐ 9. This area shall further be protected from pollution by surface waters originating outside thereof by the construction of suitable diversion ditches or embankments and the development of the water sources shall be so carried out that there shall be no opportunity for pollution entering the water sources.

☐ 10. The physical pumping facilities and controls shall be protected ag[illegible] damage or tampering either by a fence of other suitable enclosure or[illegible] ir manner of construction and installation.

☐ 11. Before any water from the well(s) may be used for any purpose, after prolonged pumping test(s), the applicant shall have caused a sample of the water from each to be collected and analyzed, shall have submitted the results of such analyses to the Department and shall have been advised by the Department either that the water is of a satisfactory sanitary quality or that certain specified treatment or purification thereof is necessary. In this last case such water shall be used only after full compliance with all of the requirements of the Department.

☐ 12. Nothing contained in this permit and approval shall be held to authorize the applicant to supply, sell or distribute water from this source of supply for any purpose unless all such water shall first have been treated and purified by disinfection (and filtration) in a manner satisfactory to the Department.

(SEE REVERSE SIDE)

SPECIAL CONDITIONS, Continued

☐ 13. The Department reserves the right to require the taking of further sanitary precautions or the further treatment or purification of the water from this source should conditions in the future indicate a need for such action.

☐ 14. Granting of this permit by the Department is made subject to the granting of any approval by the (Delaware) (Susquehanna) River Basin C· ission, which may be required under the provisions of the (Delaware) (hanna) River Basin compact.

☐ 15. Individual meters shall be provided to measure all water supplied to each individual customer receiving service from this system. Master meters shall be installed on all sources of supply to measure all water pumped to the system.

☐ 16. A minimum water pressure of 20 pounds per square inch shall be provided to customers at all times. An auxiliary source of power shall be provided to assure continued operation of the water supply during periods of electrical power failure.

☐ 17. An alarm system shall be provided with automatic signaling apparatus which will report when primary source equipment malfunctions. Plans for this alarm system shall be submitted to and approved by the Public Service Commission prior to placing the water supply system in service.

☐ 18. Nothing contained herein shall be held to authorize the permittee to distribute water to any other district or service area which has not already been approved by the Department or its predecessors without having received a further permit from the Department.

☐ 19. Since the area to be served by the facilities permitted herein lies within the 100 year flood plain and since the permittee has agreed to participate in the Federal Flood Insurance Program, all construction related to this permit and all new construction in the area to be served must comply with all construction standards which may be developed in implementing the program.

☐ 20. In the event th any of the wells should fail or the combined yield of the wells should fall below gallons per minute, the Permittee shall install an additional well or take such other appropriate measures as may be directed by the Department. Such additional well, however, shall require an additional permit, for which a regular application shall be made.

☐ 21. The water supply facilities shall be installed prior to the time any purchaser of a residence shall reasonably require a connection to the system. This obligation shall be included as a covenant in the deed conveying each lot to the purchaser and such covenant shall further obligate the Permittee to provide a connection to the water system when reasonably required by each purchaser.

☐ 22. Provisions shall be made to provide an adequate supply of water to those residents whose private well water systems are diminished or rendered non-productive by the use of the wells developed by the Permittee.

☒ 23. Provisions shall be made to minimize erosion during the construction of the project and to prevent increased sedimentation in any water body on or adjacent to the project.

☐ 24. Water used for disinfecting mains, if discharged to area streams, must have a chlorine residual not exceeding 0.05 mg/l at point of discharge.

☐ 25. Upon completion of the construction authorized by this Permit, and the commencement of the taking of supplies of water from the source(s) so authorized, all existing facilities indicated in this application as unnecessary to the future operation of the system shall be permanently disconnected therefrom, the piping plugged, and any wells so disconnected capped and sealed, all in manner satisfactory to the New York State Department of Health. The facilities thus abandoned shall not again be used for public water supply purposes without a further Permit from the Department of Environmental Conservation.

NOTE: The following additional conditions are applicable to this permit:

26. The dam shall be constructed in accordance with plans and specifications as prepared by Brewer and Lamont Engineers, as revised August 20, 1985.

27. Any substantial deviation from the approved construction plans and specifications must be approved by the Department prior to implementation. Minor deviations must be indicated on "as-built" drawings.

28. Within two weeks after completion of the permitted work, the permittee shall notify the undersigned Regional Permit Administrator in writing by certified mail of its completion and shall include with this notification a notarized statement from the design engineer, or engineer supervising the permitted work, that the project has been completely executed under his care and supervision in accordance with the plans and specifications as approved by the Department. All deviations from the approved plans must be represented and noted on "as-built" drawings, which must be attached to the engineer's notifications as necessary to fully represent all such deviations.

29. No water shall be impounded until the Department has issued a "letter of approval to fill".

30. Stream gauging and rainfall data on several appropriate watersheds that contribute to or might be diverted into the existing reservoir system shall be collected on an annual basis. The data shall be reported to the NYS Dept. of Health-Bureau of Public Water Supply, ESP-Room 472-Erastis Corning Tower, Albany, NY 12237 at 3 yr. intervals.

Cont. on attached sheet

William R. Adriance

A nate Reg'l Permit Administrator

ADDRESS 2176 Guilderland Ave., Schenectady, NY 12306

William R. Adriance

CIAL CONDITIONS

31. An evaluation of additional supply alternatives shall begin immediately to provide from 0.5 to 0.8 mgd of source water. Such a report, including a cost analysis, and it's relationship to the current proposal, shall be completed within six months and submitted to this office and the NYSDOH-Bureau of Public Water Supply.

32. The applicant will indicate the preferred alternative or priority plan in Condition 31 within ten months and so notify both the Department of Environmental Conservation and the Department of Health.

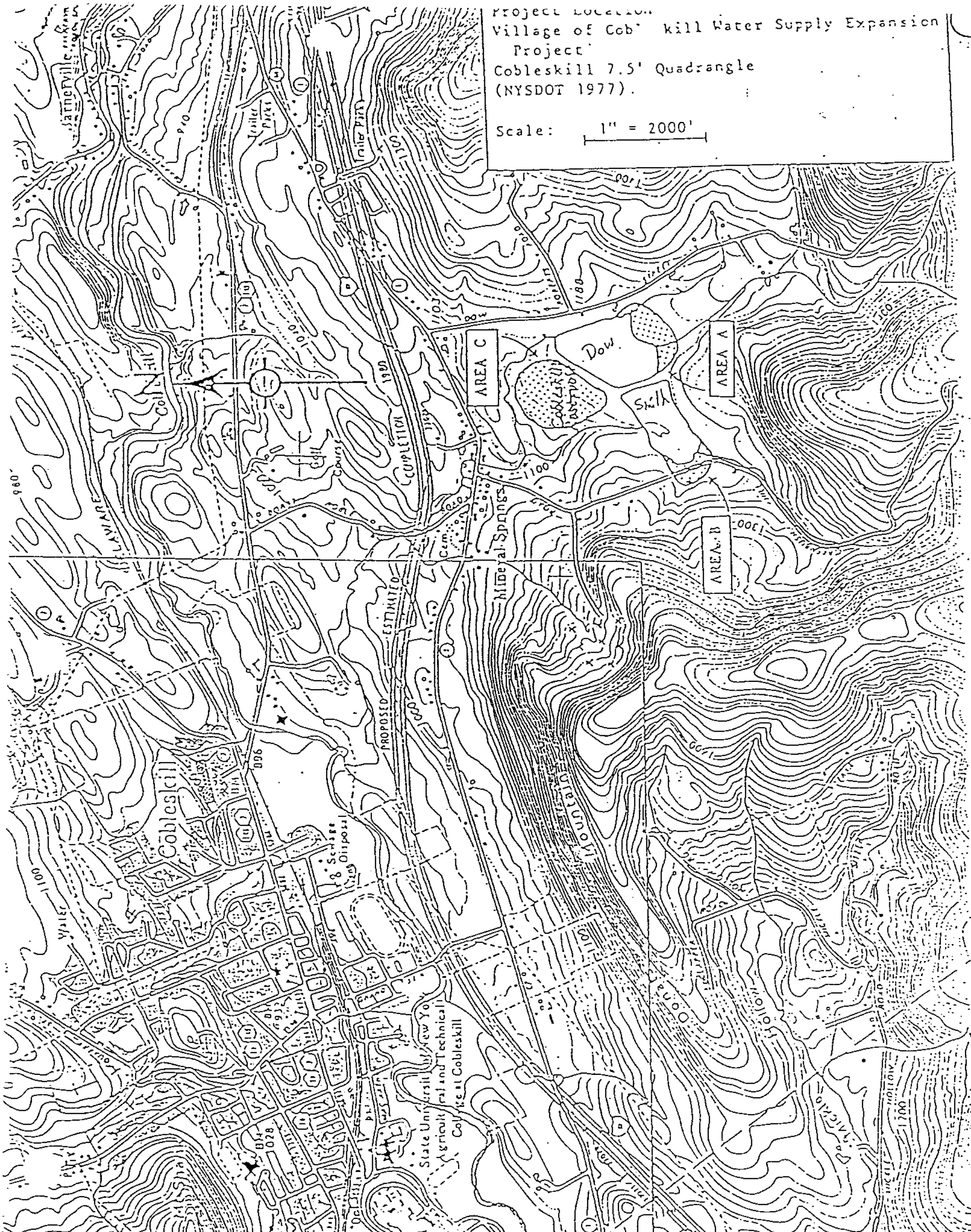
33. The initial design of the new "Reservoir" shall be such that future construction/ expansion of the water supply system can conveniently and safely occur to utilize the maximum safe yield of the total watershed.

34. The Fishery Maintenance and Restocking Plan composed of a fisheries mitigation plan described in the 8/23/85 letter from Terry R. Culp to William VanDeValk and page 2 of a letter dated 8/26/85 from VanDeValk to David Stout shall be followed, refer to letters attached.

35. The pollution control plan to minimize turbidity in the Smith Reservoir as described in P. 2 of the VanDeValk letter dated 8/26/85 to D. Stout shall be followed.

SEQR Note: The Cobleskill Village Board did not determine the type of SEQR Action the project constituted, but issued a notice of negative declaration on 6/24/85 for what DEC considers an Unlisted Action.

PE ISSUE DATE	Reg'l Permit Administrator	ADDRESS
5, -/85	William R. Adriance	2176 Guilderland Ave. Schenectady, NY 12306



Project Location
Village of Cob' kill Water Supply Expansion
Project'
Cobleskill 7.5' Quadrangle
(NYSDOT 1977).

Scale: 1" = 2000'

STATE OF NEW YORK
DEPARTMENT OF HEALTH OFFICE OF PUBLIC HEALTH

CORNING TOWER • THE GOVERNOR NELSON A. ROCKEFELLER EMPIRE STATE PLAZA • ALBANY, N.Y. 12237

DAVID AXELROD, M.D.
Commissioner

LINDA A. RANDOLPH, M.D., M.P.H.
Director

WILLIAM F. LEAVY
Executive Deputy Director

RECEIVED
AUG 2 9 1985
BREWER & LAMONT ENGINEERS, P.C.

August 29, 1985

Mr. David Stout
Senior Environmental Analyst
New York State Department of
Environmental Conservation
2176 Guilderland Avenue
Schenectady, NY 12306

Re: WSA No. 7592
Reservoir Expansion
(Y) Cobleskill, Schoharie County

Dear Mr. Stout:

The documents and exhibits pertaining to the above Water Supply Application have been reviewed by the local public health engineer having jurisdiction and by this office.

We have met with the applicant's engineer to discuss our concerns and the following will summarize our modified position:

A. The applicant should seek the maximum potential yield from the watersheds. This will remove the ambiguity to past applications and is consistent with the applicant's possible two phase proposal of reservoir expansion.

B. Although the total reservoir potential safe yield analysis uses aceptable engineering computations, and is the most conservative of previous studies done on this watershed, it does not, in our opinion, consider two important judgemental factors. First, the watershed is very small (3± square miles) in comparison with the 70± square miles watershed used for computation of the safe yield. Second, the following table shows simplified relationships for reservoir storage versus safe yield:

R7

System	Storage	Safe Yield	Ratio
(V) Cobleskill (1976 O&G report)	172 mg	0.915 mgd	188:1
(V) Cobleskill (CPS-63	213 mg	0.92 mgd	213:1
(V) Cobleskill (1967 NYSDOH analysis)	193 mg	0.84 mgd	230:1
(V) Cobleskill (current report)	315 mg	1.2 mgd	263:1
(C) Oneonta (CPWS-14)	470 mg	1.3 mgd	362:1
New York City	566 bg	1.28 bgd	442:1
(C) Albany (CPWS-43)	12.7 bg	28.4 mgd	448:1

Therefore, it is our opinion that the anticipted safe yield should be down-rated until sufficient stream gauging and rainfall data on the Village of Cobleskill watershed confirms or adjusts the current projections. Our initial down-rating is 15 percent.

This would result in a safe yield related to the proposed initial construction of 0.85 (1.2) or 1.02 mgd, and full development of 0.85 (1.5) or 1.28 mgd.

C. The current report uses average daily demand to assess future needs. We disagree, as per Bulletin 42, New York State Department of Health, items 2.1 and 3.1.1, 1982 edition. Under a maximum future demand of about 1.8± mgd (1.5 mgd projected average demand x 1.25 maximum/average ratio), the current project would be 0.8± mgd deficient, or 0.5± mgd deficient under full development. An additional source(s) of supply is necessary. This could be modified further once the information in item B is available.

D. The need for further sources of supply to satisfy future demands impacts the plan for filter plant expansion or modification, the status of potential groundwater resources, the possibility of diverting additional watersheds to the existing reservoirs, the maximum capacity of the "Holding Pond" and the comparative cost and benefit of each. This must be addressed now in order to advantageously assess or incorporate the present proposal. Depending on the cost benefit of the alternatives, the priority of construction components may need revision.

Based on the preceeding, our position on WSA 7592 is as follows:

Approval of the application with the following conditions:

1. That the request for taking an additional supply be granted equivalent to the maximum safe yield of the total existing watershed. Such amount shall be determined by actual and evaluative data from gauging and rainfall station(s) on the appropriate watersheds. Such data shall be collected on an annual basis and be reported at three-year intervals. Until a determinate figure is established, the interim maximum safe yield of the total watershed shall be 1.02 or 1.28 mgd depending on which phase of the "Holding Pond" is constructed.

2. That the initial design of the new "Holding Pond" shall be such that future construction/expansion can conveniently and safely occur to utilize the maximum safe yield of the total watershed.

3. That the amount of water available for additional customers, or increased use by existing customers, be limited to 20,000 gal/day until Condition 4 and 5 are satisfied.

4. That an evaluation of additional supply alternatives begin immediately to provide from 0.5 to 0.8 mgd of source water. Such a report, including a cost analysis, and it's relationship to the current proposal, shall be completed within six months.

5. That the applicant will indicate the preferred alternative or priority plan in Condition 4 within ten months and so notify both the Department of Environmental Conservation and the Department of Health.

6. That the permit for this application be so written that Condition 3 may be administratively modified, based on the progress, implementation, and necessary construction referred to in Condtions 1, 4 and 5.

Should these conditions not be acceptable to the applicant, this letter will serve as our Notice of Appearance and request for a hearing.

Very truly yours,

Gilbert M. Faustel, P.E.
Chief, Design Section
Bureau of Public Water Supply Protection

cc: DEC, Albany, Attn: Mr. Dean/Mr. Behn
BOT Associates
Mayor & Village Board
Schoharie County Health Department, Attn: Mr. Stefanik
Albany Regional Office, Attn: Mr. Decker

R7

EWER & LAMONT ENGINEERS, P.C.
B D T ASSOCIATES
CONSULTING ENGINEERS PLANNERS
EAST GREENBUSH — COBLESKILL

August 26, 1985

Reply to:
Cobleskill

Mr. David Stout
Sr. Environmental Analyst
Region IV, Division of Regulatory Affairs
New York State Department of
Environmental Conservation
2176 Guilderland Avenue
Schenectady, NY 12306

RE: UPA 41850333
Cobleskill Water System Expansion
Fishery Maintenance & Restocking Plan

Dear Mr. Stout:

This is in response to your letter dated August 1, 1985 concerning handling of fish affected by the above-referenced project. In that letter, you requested we submit a Fishery Maintenance and Restocking Plan which addressed the following three (3) issues:

1. What will be done with the fish presently in Dow Reservoir.

2. What will be done to reestablish a fish population after Dow Reservoir is refilled (i.e. after project completion).

. What will be done to minimize turbidity, sedimentation and other adverse impacts to the fish in Smith Reservoir.

The plan we propose is outlined below, following a brief description of construction requirements which necessitate such a plan.

The Village of Cobleskill has decided that the project to be constructed will consist of the work defined as the Base Bid in the Project Drawings and Specifications. This scope of work requires that approximately 34,500 cubic yards of material be excavated from the southern end of Dow Reservoir. In order to facilitate excavation in this area Dow Reservoir will have to be drained, most likely in its entirety. Due to present unknowns such as the rate at which construction will proceed and the amount of water available in Smith Reservoir later this year, the exact time that Dow will be drained cannot be known for certain at this time and this part of the project must remain flexible so as to minimize the risk of water shortage. However, it is known that Dow Reservoir will be drained either late this fall or early next summer. This leads to the first issue to be addressed: that of what to do with the fish in Dow Reservoir.

Since draining Dow Reservoir is inevitable, the fish presently there will have to be removed and either transferred to another body of

RQ

water or disposed of. In either case the fish should be removed prior to the draining of Dow Reservoir since the reservoir bottom will remain muddy, preventing the use of equipment to collect the fish. Any fish remaining in the mud will deteriorate, adversely affecting water quality once Dow Reservoir is refilled. We propose, therefore, to remove as many fish as is practicable while there is still some water left in the reservoir.

As a result of several conversations with Mr. D. Kay Sanford, a Fisheries Biologist for the New York State Department of Environmental Conservation (NYSDEC) it was decided that the best way to assure proper handling of the fish in Dow Reservoir was to obtain the services of a professional consultant licensed to capture and transport fish. We therefore contacted TERRY R. CULP and ASSOCIATES of Stamford, New York and asked him to work with Mr. Sanford of your Department to develop a fish handling plan acceptable to NYSDEC. Refer to the attached proposal from Mr. Culp dated August 23, 1985. We have received verbal confirmation from Mr. Sanford that the fish handling plan outlined in that proposal is acceptable to him. We feel that this proposal satisfactorily addresses the first issue in our Fishery Maintenance and Restocking Plan.

The second issue to be addressed by our plan is the reestablishment of a fish population in Dow Reservoir. Kay Sanford has said that the Region IV Fisheries and Wildlife Department of NYSDEC will work with the Village to restock Dow Reservoir with a desirable combination of fish species.

The third issue involves protection of the fish population and water quality in Smith Reservoir. Smith Reservoir is connected to Dow Reservoir by means of a 12-inch diameter cast iron pipe. Flow through this pipe is controllable by means of a sluice gate over one end. During construction of the project, this gate will be closed so that work in Dow Reservoir will have no impact on water quality or fish population in Smith Reservoir. The only construction that could affect the water in Smith Reservoir is the installation of a 24-inch diameter connection pipe from Smith Reservoir to the Holding Pond. The actual impact of this construction will depend on the water level in Smith Reservoir at the time the pipe is installed. If the water level is above the lowest level of excavation for this work item a cofferdam will be constructed in Smith Reservoir around the work area. The small volume of water inside the cofferdam will be pumped over the Smith Reservoir embankment and onto the open field where it will spread out and either evaporate, infiltrate, or travel overland away from the reservoir. This dewatering procedure will result in a minimum disturbance of the water in Smith Reservoir. We don't expect any fish to be harmed by this construction activity.

We trust that this plan satisfactorily addresses the concerns which you listed in your letter and will allow the Village to maintain its SEQR negative declaration.

If you have any questions or need any further information please contact me at (518) 234-4681. I am sending a copy of this letter to all those who appeared on your mailing list.

Sincerely,

William A. VanDeValk

William A. VanDeValk
Project Engineer
Brewer & Lamont Engineers, P.C.

WAV:jjp

cc: C. Stefanik, Schoharie Couty Dept. of Health
G. Koch, NYSDEC
G. Faustel, NYSDOH

RR

.11 Main Street
P.O. Box 128
Stamford, New York 12167

Phone(607)652-3563

23 August, 1985

To: William A. VanDeValk, Brewer & Lamont Engineers, P.C.

From: Terry R. Culp

Subject: Cost to collect as many fish as possible from the Cobleskill Water Supply Reservoir (Dow Reservoir) and to transfer all game fish to either Summit Lake, Bear Gulch Lake, or Smith Reservoir, and to destroy (by land-fill) all other fishes collected; collections to be made during Fall 1985.

After discussions with you and Mr. D. Kay Sanford of the N.Y.D.E.C. on 19 August, 1985 I feel the best way to remove the fishes from Dow Reservoir will be by seine and/or boat electrofishing. If conditions permit (i.e. smooth and hard bottom, depth less than 5 feet, and no obstructions), the preferred method to remove the fishes will be by seine net. If conditions do not allow this then boat electrofishing will be used.

Not knowing how many game (or other) fishes presently live in Dow Reservoir or whether seining or boat electrofishing will be required to remove these fishes it is difficult to make an estimate as to the time and cost required. Based on similar work I did last year for the City of Schenectady (through Environmed Associates) I estimate the job to require about ten days and three persons.

Consequently, I could charge time and materials (not to exceed an Upset Fee) or I could do the job for a fixed cost based on ten days of labor for three persons. Attached please find these cost proposals.

I will obtain all necessary permits from NYDEC and work with them as to the placement of all gamefish captured.

cc: Mr. D. Kay Sanford NYDEC

APPENDIX C

DRAWINGS OF STORAGE TANK LOCATIONS AND HYDRAULICS

NORTH GRAND ST. STORAGE TANK WSEL=

HOSPITAL STORAGE TANK WSEL=

EXISTING WATER SERVICE AREA

NORTH GRAND STREET BOOSTER STATION

HIGH SERVICE AREA

SUNY COBLESKILL STORAGE TANK WSEL=

SUNY BOOSTER STATION

WARNERVILLE WD BOOSTER STATION

WARNERVILLE WD STORAGE TANK WSEL=1154±

COBLESKILL WTP CLEARWELL WSEL=1154±

Cobleskill

Barnerville

Mt Shank

Ski Area

SUNY Agricultural and Technical College at Cobleskill

State University of New York Agricultural and Technical College at Cobleskill

Golf Course

Trailer Parks

Sewage Disposal

Mineral Springs

Cobleskill Reservoir

Schoharie County Airport

Warnerville

Nonats Mountain

PROPOSED -- ESTIMATED COMPLETION 1980

ESTIMATED COMPLETION 1980

ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	1"=2,000'
DRAWN	AHJ
DATE	11/9/11
DESIGNED	MDH

VILLAGE OF COBLESKILL
WATER AND SANITARY SEWER MASTER PLAN

EXISTING STORAGE TANKS

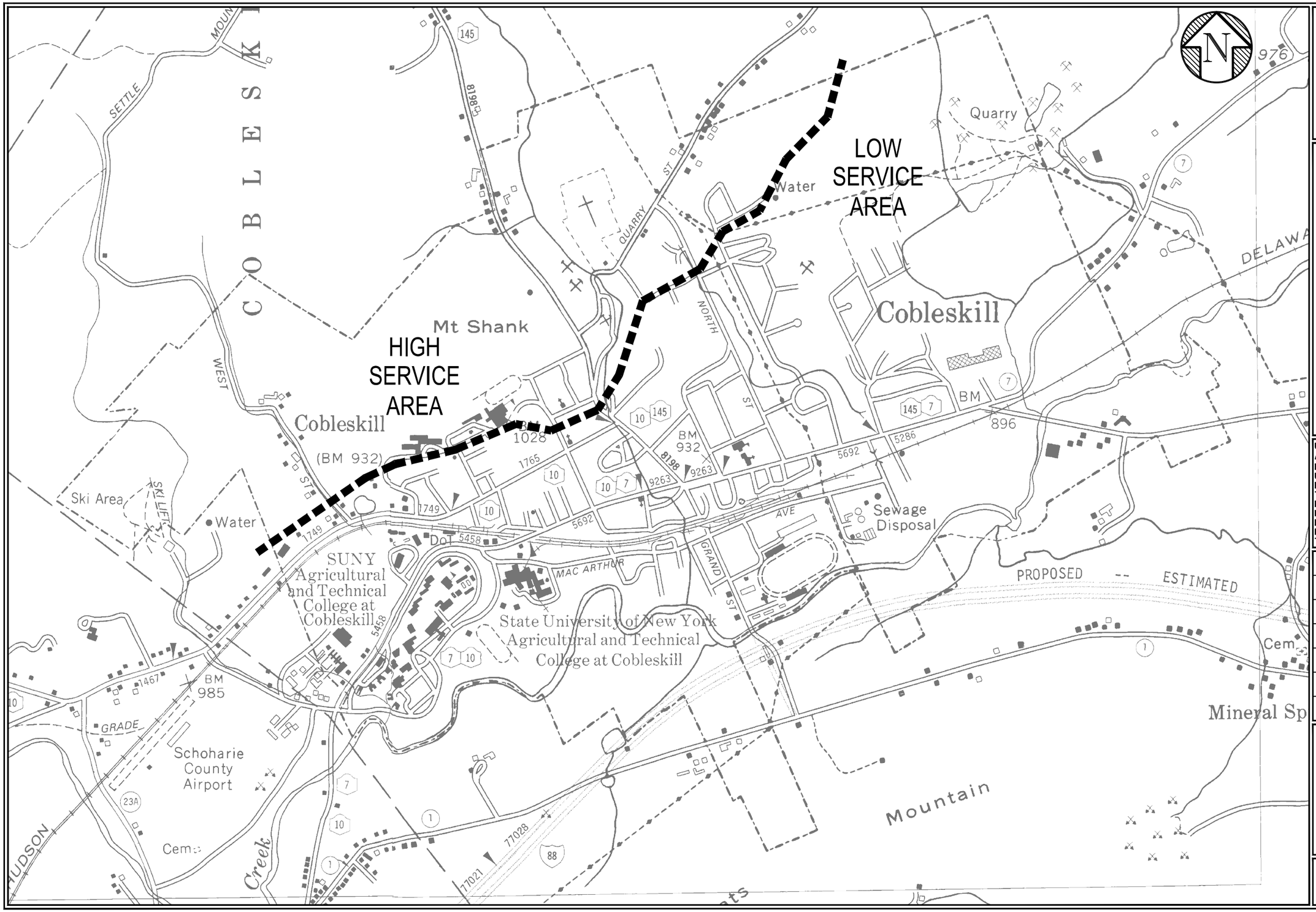
Lamont Engineers
ENGINEERS • PLANNERS • FACILITY OPERATIONS
548 MAIN ST., COBLESKILL, N.Y. 12043 (518) 234-4028

PROJECT NO.	FILE NAME	SHEET NO.
2011017	CR-WATER	

K:\APPS\SDSKPRO\2011017\dwg\CR-WATER.dwg Layout1 11/2/2012 1:35:11 PM

APPENDIX D

MAPPING OF DISTRIBUTION PRESSURE ANALYSIS (HIGH/LOW SERVICE)



Lamont Engineers

COBLESKILL NEW YORK
(518) 234-4028

VILLAGE OF COBLESKILL
WATER & SANITARY SEWER
MASTER PLAN

SCHOHARIE COUNTY NEW YORK STATE

Project Number	2011017
Drawn By	AHJ
Designed By	FV
Checked By	MDH
Date	2/13/12
Scale	NTS
File Name	COVER-C10

Sheet Title

HIGH-LOW
SERVICE
AREA

Sheet No.

APPENDIX __

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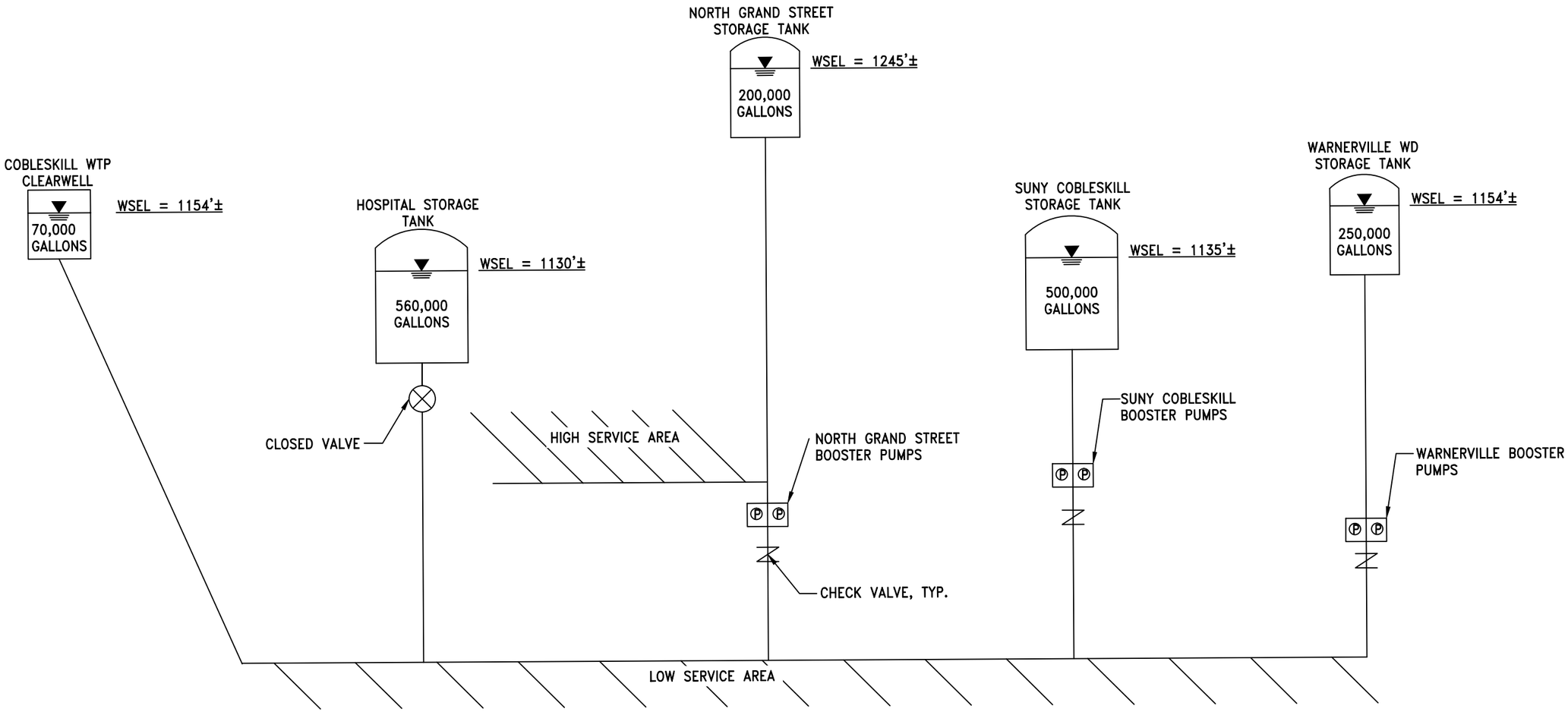
APPENDIX E

STORAGE TANK SCHEMATIC



ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	NTS
DRAWN	AHJ
DATE	11/9/11
DESIGNED	MDH

VILLAGE OF COBLESKILL
WATER AND SANITARY SEWER MASTER PLAN

STORAGE TANK SCHEMATIC

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PROJECT NO.	FILE NAME	SHEET NO.
2011017	CR-WATER	

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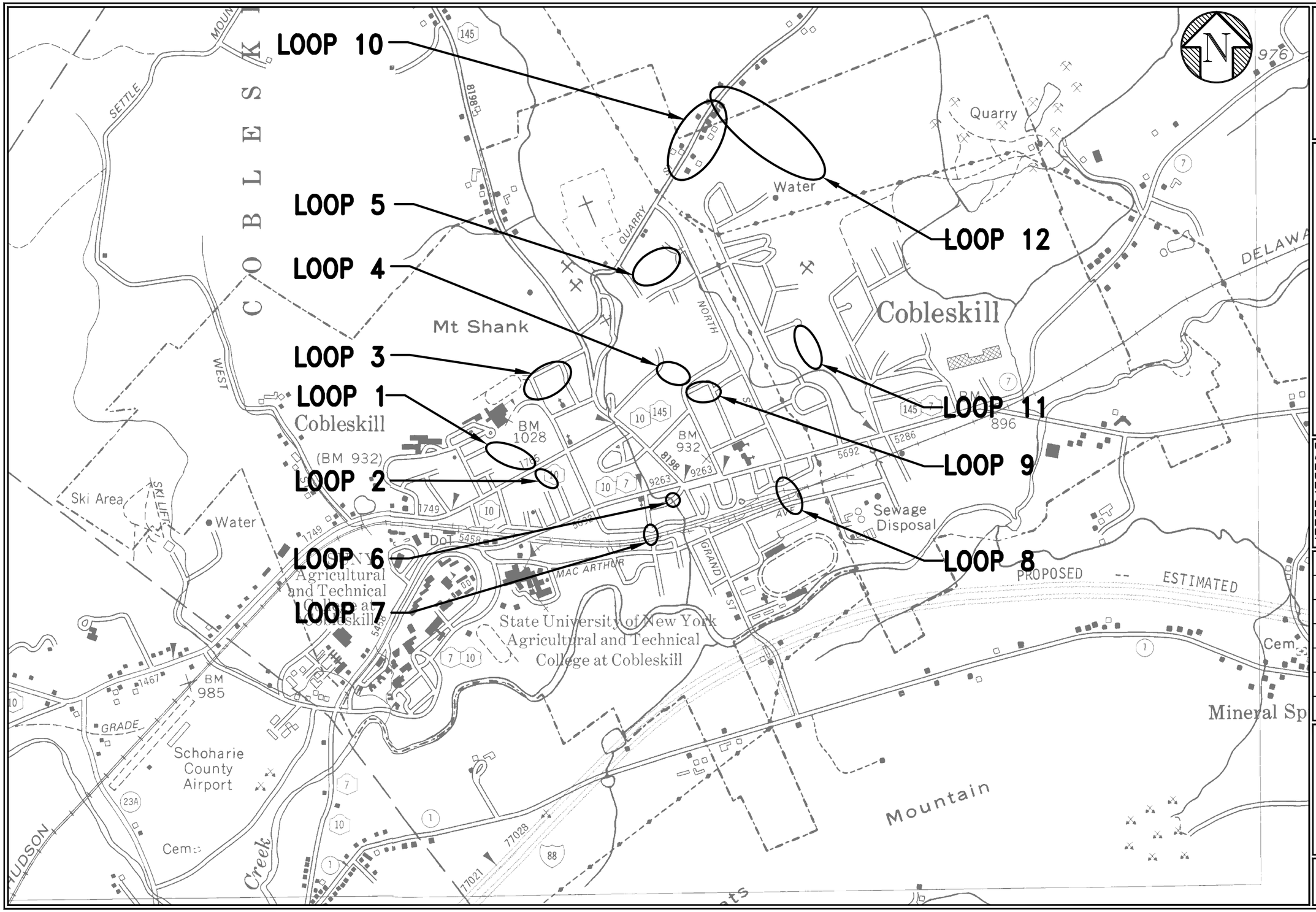
APPENDIX F

MAPPING OF POTENTIAL DISTRIBUTION MAIN LOOPS



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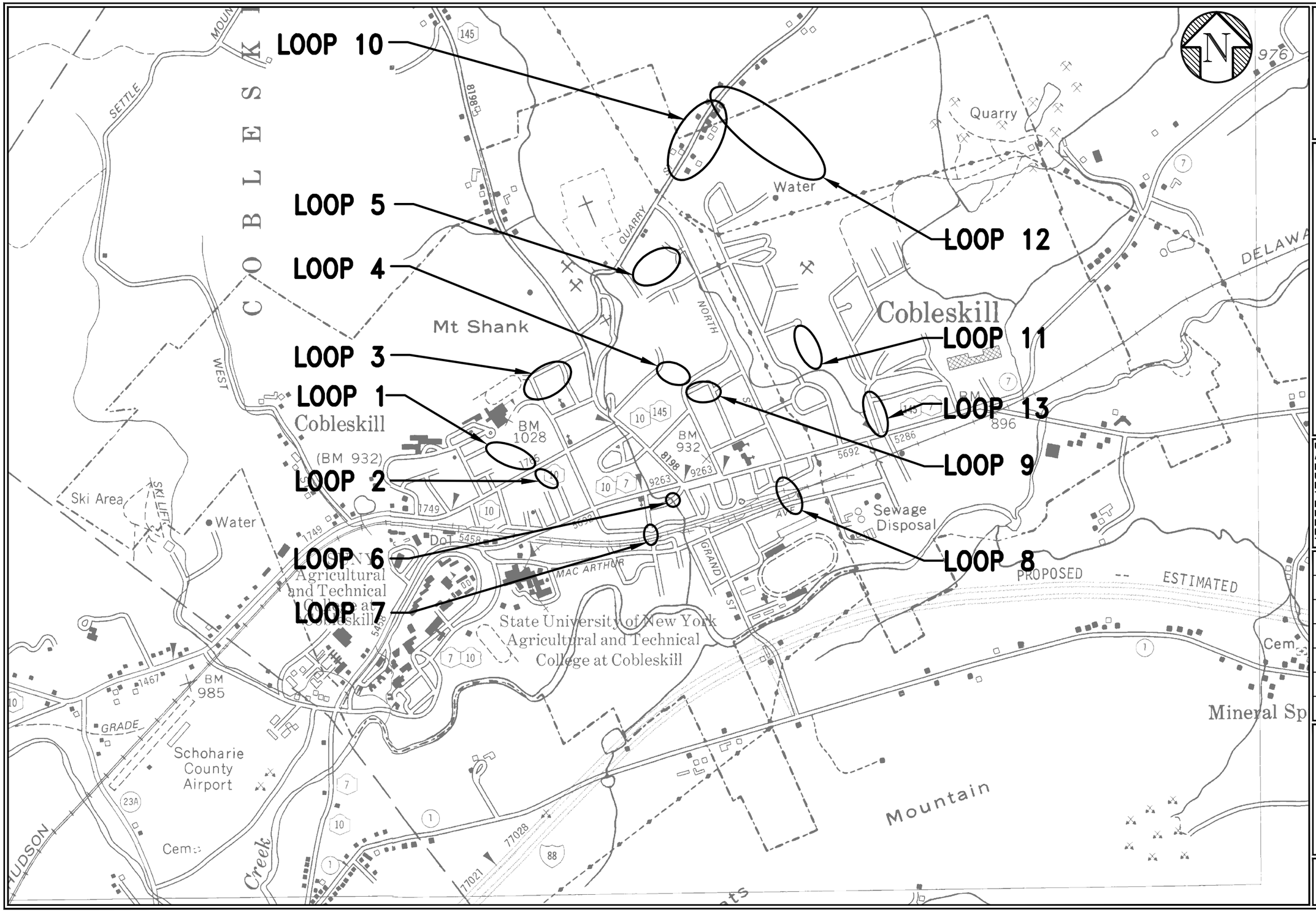
VILLAGE OF COBLESKILL
WATER & SANITARY SEWER
MASTER PLAN
SCHOHARIE COUNTY NEW YORK STATE

Project Number	2011017
Drawn By	AHJ
Designed By	FV
Checked By	MDH
Date	2/13/12
Scale	NTS
File Name	COVER-C10

Sheet Title
LOCATION MAP
WATER MAIN
LOOPING
EXISTING PLAN

Sheet No.
APPENDIX F1

K:\APPS\SDSKPROJ\2011017\dwg\COVER-C10.dwg, LOOPING MAP, 11/2/2012 1:43:15 PM



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VILLAGE OF COBLESKILL
WATER & SANITARY SEWER
MASTER PLAN
SCHOHARIE COUNTY NEW YORK STATE

Project Number	2011017
Drawn By	AHJ
Designed By	FV
Checked By	MDH
Date	2/13/12
Scale	NTS
File Name	COVER-C10

Sheet Title
LOCATION MAP
WATER MAIN
LOOPING
MODIFIED PLAN

Sheet No.
APPENDIX F2

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APPENDIX F
Water Main Looping Costs
Village of Cobleskill Water & Sanitary Sewer Master Plan

Planning Period = 120 Years

Loop ID No.	Location	Size (in)	Length (LF)	Construction Cost ($/LF)	Present Value Construction Cost ($)	Contingency (2012 $)	Non Construction Cost (2012 $)	Total Project Cost (2012 $)
1	Cross Lot - End of Highland Terr Main to Washington Hts	6	580	$140	$81,200	$8,100	$26,800	$116,100
2	Cross Lot - Elm St to Harder Ave	6	380	$145	$55,100	$5,500	$18,200	$78,800
3	Cross Lot - Washington Hts to N Grand St	6	800	$175	$140,000	$14,000	$46,200	$200,200
4	Paper St - High St to Prospect St	6	605	$165	$99,825	$10,000	$32,900	$142,700
5	Cross Lot - North St to Pine St	8	515	$190	$97,850	$9,800	$32,300	$140,000
6	Stream Crossin - Park Pl	6	50	$150	$7,500	$800	$2,500	$10,800
7	RR Crossing - Grove St to Veterans Dr	6	90	$220	$19,800	$2,000	$6,500	$28,300
8	RR Crossing - Spring St to McArthur Dr	12	580	$250	$145,000	$14,500	$47,900	$207,400
9	Cross Lot - Cherry Ln to Jay St	- Eliminated -						
10 & 12	Cross Lot - Quarry St to Overlook Dr	8	1040	$180	$187,200	$18,700	$61,800	$267,700
11	Cross Lot - Christopher Pl to Granview Apts	- Eliminated -						
13	Campus Dr - Best Western to E. Main St	10	850	$165	$140,250	$14,000	$46,300	$200,600
14	Cross Lot - Snyder Ln to Pine St	8	1100	$140	$154,000	$15,400	$50,800	$220,200
15	Cross Lots - Hospital Tank Main to Josephine Dr	10	800	$155	$124,000	$12,400	$40,900	$177,300
16	Cross Lots - Josephine Dr to Hillside Dr	6	600	$145	$87,000	$8,700	$28,700	$124,400
				Total Looping Cost	$1,338,725	$133,900	$441,800	$1,914,500

APPENDIX G

WATER MAIN REPLACEMENT COST & PRIORITIZATION

APPENDIX G
Water Main Replacement Costs and Prioritization Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Index Year: 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Proposed Size (in)	Proposed Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating 1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <100 yrs) 5 = Poor (>100 yrs)	Material /Condition Rating 1 = Good (DIP, HDPE, PVC) 3 = Fair (CIP Good/Fair Condition) 5 = Poor (Tuberculated CIP, ACP)	Hydraulic Rating 1 = Good (FF > 1,000 gpm) 3 = Fair (750 gpm < FF < 1,000 gpm) 5 = Poor (FF < 500 gpm)	Leakage /breakage Rating 1 = Good 3 = Fair 5 = Poor	Criticality Rating 4 = Transmission, no Redundancy 3 = Transmission, with Redundancy 2 = Distribution, Primary 1 = Distribution, Secondary	Overall Serviceability Rating 1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority
1	S. Grand St - MacArthur Ave to Sunshine Dr	CIP	4"	640	12	640	$170	$108,800	1886	100	126	-26	5	5	5	1	2	3.6
2	Park Pl - Veterants Dr to Mill Creek	CIP	4"	310	6	410	$155	$63,550	1886	100	126	-26	5	5	5	1	1	3.4
3	Lark St - Union St to Jay St	CIP	4"	340	6	340	$155	$52,700	1886	100	126	-26	5	5	5	1	1	3.4
4	Lark St - Jay St to North St	CIP	4"	500	6	340	$155	$52,700	1886	100	126	-26	5	5	5	1	1	3.4
5	S. Grand St - Sunshine Dr to Cobleskill Creek	CIP	4"	620	Eliminated		$155	$0	1886	100	126	-26	5	5	5	1	1	3.4
6	Center St - E. Main St to Railroad Ave	CIP	4"	370	6	370	$155	$57,350	1886	100	126	-26	5	5	5	1	1	3.4
7	Railroad Ave - Center St to Division St	CIP	4"	200	6	200	$155	$31,000	1886	100	126	-26	5	5	5	1	1	3.4
8	Division St - E. Main St to Railroad Ave	CIP	4"	400	6	400	$155	$62,000	1886	100	126	-26	5	5	5	1	1	3.4
9	Spring St	CIP	4"	340	12	340	$170	$57,800	1886	100	126	-26	5	5	5	1	1	3.4
10	Veterans Dr - W. Main St to Railroad	CIP	4"	580	6	580	$145	$84,100	1886	100	126	-26	5	5	5	1	1	3.4
11	Grove St - MacArthur Ave to Railroad	CIP	4"	120	6	120	$145	$17,400	1886	100	126	-26	5	5	5	1	1	3.4
12	Everett St - Grove St to Florence St	CIP	4"	410	6	410	$145	$59,450	1886	100	126	-26	5	5	5	1	1	3.4
13	Florence St - MacArthur Ave to Everett St	CIP	4"	130	6	130	$145	$18,850	1886	100	126	-26	5	5	5	1	1	3.4
14	Florence St - South of MacArthur Ave	CIP	4"	220	6	220	$145	$31,900	1886	100	126	-26	5	5	5	1	1	3.4
15	RR Crossing - Rose St to W. Main St	CIP	4"	530	8	630	$230	$144,900	1886	100	126	-26	5	5	5	1	1	3.4
16	WTP Main - WTP to Mineral Springs Rd	CIP	10"	2000	12	2000	$150	$300,000	1886	100	126	-26	5	3	3	1	3	3.0
17	Mineral Springs Rd - WTP Main to Borst Noble Rd	CIP	10"	1600	12	1600	$170	$272,000	1886	100	126	-26	5	3	3	1	3	3.0
18	Borst Noble Rd - Mineral Springs Rd to I-88	CIP	10"	1170	12	1170	$160	$187,200	1886	100	126	-26	5	3	3	1	3	3.0
19	Cross Country - Borst Noble Rd to East St	CIP	10	5750	12	5750	$150	$862,500	1886	100	126	-26	5	3	3	1	3	3.0
20	East St	CIP	10"	500	12	80	$160	$12,800	1886	100	126	-26	5	3	3	1	3	3.0
21	RR Crossing East St to Trestle Ln	CIP	10"	100	Eliminated		$155	$0	1886	100	126	-26	5	3	3	1	3	3.0
22	Trestle Ln	CIP	10"	300	Eliminated		$155	$0	1886	100	126	-26	5	3	3	1	3	3.0
23	Fairgrounds - East St to S. Grand St	CIP	10"	2480	8	1950	$140	$273,000	1886	100	126	-26	5	3	3	1	3	3.0
24	E. Main St - Tressel Ln to North St	CIP	10"	1150	12	1150	$170	$195,500	1886	100	126	-26	5	3	3	1	3	3.0
25	E. Main St - North St to Union St	CIP	10"	880	10	880	$165	$145,200	1886	100	126	-26	5	3	3	1	3	3.0
26	E. Main St - Union St to N. Grand St	CIP	10"	500	10	500	$175	$87,500	1886	100	126	-26	5	3	3	1	3	3.0
27	W. Main St - N. Grand St to Veterans Dr	CIP	10"	600	8	600	$170	$102,000	1886	100	126	-26	5	3	3	1	3	3.0
28	W. Main St - Veterans Dr to Washington Ave	CIP	8"	660	8	660	$160	$105,600	1886	100	126	-26	5	3	3	1	3	3.0

APPENDIX G
Water Main Replacement Costs and Prioritization Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Index Year: 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Proposed Size (in)	Proposed Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating 1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <100 yrs) 5 = Poor (>100 yrs)	Material /Condition Rating 1 = Good (DIP, HDPE, PVC) 3 = Fair (CIP Good/Fair Condition) 5 = Poor (Tuberculated CIP, ACP)	Hydraulic Rating 1 = Good (FF > 1,000 gpm) 3 = Fair (750 gpm < FF < 1,000 gpm) 5 = Poor (FF < 500 gpm)	Leakage /breakage Rating 1 = Good 3 = Fair 5 = Poor	Criticality Rating 4 = Transmission, no Redundancy 3 = Transmission, with Redundancy 2 = Distribution, Primary 1 = Distribution, Secondary	Overall Serviceability Rating 1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority
29	E. Main St - Tressel to Campus	CIP	4"	230	Eliminated		$155	$0	1916	100	96	4	3	5	5	1	1	3.0
30	N. Grand St - Quarry St to 365 N. Grand St	CIP	8"	1610	10	1610	$185	$297,850	1916	100	96	4	3	3	3	1	4	2.8
31	N. Grand St Tank Transmission Main - N. Grand St to Tank	CIP	8"	840	8	840	$175	$147,000	1955	100	57	43	3	3	3	1	4	2.8
32	Quarry St - N. Grand St to Pine St	CIP	8"	1160	8	1160	$175	$203,000	1953	100	59	41	3	3	3	1	4	2.8
33	Elm St - N. Grand St to Washington Ave	CIP	6"	790	12	790	$170	$134,300	1886	100	126	-26	5	3	3	1	2	2.8
34	Elm St - Washington Ave to Rose St	CIP	6"	1060	12	1060	$170	$180,200	1886	100	126	-26	5	3	3	1	2	2.8
35	Elm St - Rose St to Cross Lot Main from W. Main St	CIP	6"	980	12	980	$170	$166,600	1886	100	126	-26	5	3	3	1	2	2.8
36	Fairview Dr - S. Grand St to End	CIP	8"	300	8	300	$150	$45,000	1886	100	126	-26	5	3	3	1	1	2.6
37	Cross Lot - Fairview Dr to Grove St	CIP	8"	650	8	650	$140	$91,000	1886	100	126	-26	5	3	3	1	1	2.6
38	Cross Lot - Grove St to Mallard Ln	CIP	8"	560	8	560	$140	$78,400	1886	100	126	-26	5	3	3	1	1	2.6
39	Mallard Ln	CIP	8"	375	8	375	$150	$56,250	1886	100	126	-26	5	3	3	1	1	2.6
40	N. Grand St - Chapel St to Elm St	CIP	8"	630	10	630	$155	$97,650	1916	100	96	4	3	3	3	1	3	2.6
41	N. Grand St - Elm St to Maple Rd	CIP	8"	460	8	460	$150	$69,000	1916	100	96	4	3	3	3	1	3	2.6
42	N. Grand St - Maple Rd to Quarry St	CIP	8"	880	8	880	$180	$158,400	1916	100	96	4	3	3	3	1	3	2.6
43	North St - E. Main St to Lark St	CIP	8"	530	10	530	$165	$87,450	1886	100	126	-26	5	3	3	1	1	2.6
44	Parkway Dr - Grandview Dr to Eden Park Entrance	CIP	6"	990	6	990	$145	$143,550	1920	100	92	8	3	3	3	1	3	2.6
45	Eden Park - Entrance to Hospital Tank Transmission Main	CIP	6"	500	8	500	$140	$70,000	1920	100	92	8	3	3	3	1	3	2.6
46	France Ln - W. Main St to RR	CIP	6"	420	8	420	$150	$63,000	1886	100	126	-26	5	3	3	1	1	2.6
47	RR Crossing - France Ln to Mallard Ln	CIP	6"	150	8	150	$230	$34,500	1886	100	126	-26	5	3	3	1	1	2.6
48	Mallard Ln - RR Crossing to MacArthur	CIP	6"	90	8	90	$150	$13,500	1886	100	126	-26	5	3	3	1	1	2.6
49	France Ln - Water Main Spur	CIP	6"	140	6	140	$145	$20,300	1886	100	126	-26	5	3	3	1	1	2.6
50	Washington Ave - W. Main St to Elm St	CIP	6"	800	8	800	$160	$128,000	1886	100	126	-26	5	3	3	1	1	2.6
51	Park Pl - S. Grand St to Mill Creek	CIP	6"	200	6	200	$155	$31,000	1886	100	126	-26	5	3	3	1	1	2.6
52	Hospital Tank Transmission Main - Grandview Dr to Tank	CIP	10"	1080	10	1080	$155	$167,400	1948	100	64	36	3	1	3	1	4	2.4
53	W. Main St - MacArthur Ave to Schoharie Co. Hwy. Garage	CIP	8"	680	10	680	$155	$105,400	1945	100	67	33	3	3	3	1	2	2.4
54	W. Main St - Schoharie Co. Hwy. Garage to SUNY	CIP	8"	340	8	340	$150	$51,000	1945	100	67	33	3	3	3	1	2	2.4
55	N. Grand St - Tank Transmission Main to Village Boundary	CIP	6"	270	6	270	$175	$47,250	1953	100	59	41	3	3	3	1	2	2.4
56	Campus Dr - Pleasantview Dr to Best Western	CIP	6"	650	10	650	$155	$100,750	1960	100	52	48	3	3	3	1	2	2.4

APPENDIX G
Water Main Replacement Costs and Prioritization Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Index Year: 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Proposed Size (in)	Proposed Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating (1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <100 yrs) 5 = Poor (>100 yrs))	Material /Condition Rating (1 = Good (DIP, HDPE, PVC) 3 = Fair (CIP Good/Fair Condition) 5 = Poor (Tuberculated CIP, ACP))	Hydraulic Rating (1 = Good (FF > 1,000 gpm) 3 = Fair (750 gpm < FF < 1,000 gpm) 5 = Poor (FF < 500 gpm))	Leakage /breakage Rating (1 = Good 3 = Fair 5 = Poor)	Criticality Rating (4 = Transmission, no Redundancy 3 = Transmission, with Redundancy 2 = Distribution, Primary 1 = Distribution, Secondary)	Overall Serviceability Rating (1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority)
57	Quarry St - Pine St to North St	CIP	6"	1010	8	1010	$185	$186,850	1920	100	92	8	3	3	3	1	2	2.4
58	Quarry St - North St to Village Line	CIP	6"	1060	8	1060	$185	$196,100	1920	100	92	8	3	3	3	1	2	2.4
59	N. Grand St - E. Main St to Chapel St	CIP	6"	690	10	690	$165	$113,850	1886	100	126	-26	3	3	3	1	2	2.4
60	Washington Heights - Elm St to Maple Rd	CIP	6"	510	6	510	$155	$79,050	1930	100	82	18	3	3	3	1	2	2.4
61	Golding School - From Washington Heights	CIP	6"	900	6	900	$175	$157,500	1960	100	52	48	3	3	3	1	2	2.4
62	Cross Lots - End of Highland Ter to Golding School E. P-Lot	CIP	6"	400	6	400	$135	$54,000	1940	100	72	28	3	3	3	1	2	2.4
63	Maple Rd - N. Grand St to Washington Heights	CIP	6"	680	6	680	$145	$98,600	1930	100	82	18	3	3	3	1	2	2.4
64	S. Grand St - E. Main St to MacArthur Ave	CIP	10"	770	10	770	$175	$134,750	1930	100	82	18	3	1	3	1	3	2.2
65	Grandview Dr - Legion Dr to St Christopher Pl	CIP	10"	990	8	990	$150	$148,500	1948	100	64	36	3	1	3	1	3	2.2
66	Grandview Dr - St. Christopher Pl to Hospital	CIP	10"	1340	10	1340	$155	$207,700	1948	100	64	36	3	1	3	1	3	2.2
67	Cross Lot - W. Main St to RR at Agway	CIP	8"	400	10	400	$155	$62,000	1945	100	67	33	3	3	3	1	1	2.2
68	RR Crossing - Agway to Elm St	CIP	8"	230	10	230	$155	$35,650	1945	100	67	33	3	3	3	1	1	2.2
69	Cross Lots - N. Grand St to Cherry Ln	CIP	8"	910	10	910	$155	$141,050	1920	100	92	8	3	3	3	1	1	2.2
70	Cross Lots - Prospect St to St Christopher Pl	CIP	8"	480	10	480	$155	$74,400	1948	100	64	36	3	3	3	1	1	2.2
71	Ridgewood Dr - N.orth St to Grandview Dr	CIP	8"	480	8	480	$150	$72,000	1950	100	62	38	3	3	3	1	1	2.2
72	Campus Dr - Pleasantview Dr to Davies Ln	CIP	8"	630	6	630	$145	$91,350	1960	100	52	48	3	3	3	1	1	2.2
73	Cross Lots - Campus Dr to Best Western	CIP	6"	520	6	520	$145	$75,400	1960	100	52	48	3	3	3	1	1	2.2
74	St. Christopher Pl	CIP	6"	540	6	540	$145	$78,300	1940	100	72	28	3	3	3	1	1	2.2
75	Jay St	CIP	6"	470	6	470	$155	$72,850	1950	100	62	38	3	3	3	1	1	2.2
76	Clinton Cr - N. Grand St to Stream Crossing	CIP	6"	80	6	80	$155	$12,400	1922	100	90	10	3	3	3	1	1	2.2
77	Clinton Cr - West of Mill Creek	CIP	6"	1120	6	1120	$155	$173,600	1922	100	90	10	3	3	3	1	1	2.2
78	Harder Ave	CIP	6"	440	6	440	$145	$63,800	1950	100	62	38	3	3	3	1	1	2.2
79	Lincoln Ave - Elm St to Highland Ter	CIP	6"	530	6	530	$145	$76,850	1940	100	72	28	3	3	3	1	1	2.2
80	Highland Ter - Lincoln Ave to End of Street	CIP	6"	470	6	470	$145	$68,150	1940	100	72	28	3	3	3	1	1	2.2
81	Cleveland Ave - Maple Rd to Snyder Ln	CIP	6"	500	6	500	$145	$72,500	1950	100	62	38	3	3	3	1	1	2.2
82	Pine St	CIP	6"	450	8	450	$145	$65,250	1920	100	92	8	3	3	3	1	1	2.2
83	High St	CIP	6"	840	6	840	$175	$147,000	1950	100	62	38	3	3	3	1	1	2.2
84	Pleasantview Dr - Campus Dr to Crabapple Ln	CIP	6"	940	10	940	$155	$145,700	1964	100	48	52	1	3	3	1	2	2.0

APPENDIX G
Water Main Replacement Costs and Prioritization Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Index Year: 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Proposed Size (in)	Proposed Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating (1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <100 yrs) 5 = Poor (>100 yrs))	Material /Condition Rating (1 = Good (DIP, HDPE, PVC) 3 = Fair (CIP Good/Fair Condition) 5 = Poor (Tuberculated CIP, ACP))	Hydraulic Rating (1 = Good (FF > 1,000 gpm) 3 = Fair (750 gpm < FF < 1,000 gpm) 5 = Poor (FF < 500 gpm))	Leakage /breakage Rating (1 = Good 3 = Fair 5 = Poor)	Criticality Rating (4 = Transmission, no Redundancy 3 = Transmission, with Redundancy 2 = Distribution, Primary 1 = Distribution, Secondary)	Overall Serviceability Rating (1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority)
85	Pleasantview Dr - Crabapple Ln to Gale Dr	CIP	6"	700	10	700	$155	$108,500	1964	100	48	52	1	3	3	1	2	2.0
86	Pleasantview Dr - North of Gale Dr	CIP	6"	380	10	380	$155	$58,900	1964	100	48	52	1	3	3	1	2	2.0
87	Gale Drive	CIP	6"	280	6	280	$145	$40,600	1987	100	25	75	1	3	3	1	2	2.0
88	Washington Heights - North of Maple Rd	ACP	6"	620	6	620	$155	$96,100	1945	80	67	13	3	1	3	1	2	2.0
89	Cross Lot - Meadow Ln to Grandview Dr	CIP	8"	490	8	490	$150	$73,500	1968	100	44	56	1	3	3	1	1	1.8
90	Grandview Dr - Woods Dr to Overlook Dr	CIP	8"	390	8	390	$150	$58,500	1968	100	44	56	1	3	3	1	1	1.8
91	Overlook Dr - Grandview Dr to Paper St	CIP	8"	950	8	950	$150	$142,500	1968	100	44	56	1	3	3	1	1	1.8
92	Woods Dr - Grandview Dr to Van Deusen Dr	CIP	8"	600	6	600	$145	$87,000	1968	100	44	56	1	3	3	1	1	1.8
93	Grandview Apts - Grandview Dr. to Campus Dr.	CIP	8"	1130	6	1130	$145	$163,850	2000	100	12	88	1	3	3	1	1	1.8
94	Crabapple Ln - Pleasantview Dr to Hillside Ave	CIP	8"	620	6	620	$145	$89,900	1964	100	48	52	1	3	3	1	1	1.8
95	Hillside Ave - Crabeapple Ln to Terra Heights Rd	CIP	8"	850	6	850	$145	$123,250	1964	100	48	52	1	3	3	1	1	1.8
96	Terra Heights Rd - Canterbury Dr to Hillside Ave	CIP	8"	330	6	330	$145	$47,850	1964	100	48	52	1	3	3	1	1	1.8
97	Canterbury Dr - Crabeapple Ln to Terra Heights Rd	CIP	8"	850	6	850	$145	$123,250	1964	100	48	52	1	3	3	1	1	1.8
98	Timber Ln - Overlook Dr to Woods Dr	CIP	6"	450	6	450	$145	$65,250	1968	100	44	56	1	3	3	1	1	1.8
99	Van Deusen Dr - Overlook Dr to Woods Dr	CIP	6"	470	6	470	$145	$68,150	1968	100	44	56	1	3	3	1	1	1.8
100	Anthony Cr	CIP	6"	270	6	270	$145	$39,150	1964	100	48	52	1	3	3	1	1	1.8
101	Davies Ln - Campus Dr to Pleasantview Dr	CIP	6"	500	6	500	$145	$72,500	1964	100	48	52	1	3	3	1	1	1.8
102	S. Grand St. - Sunshine Dr to Cobleskill Creek	DIP	12"	640	12	640	$160	$102,400	1985	120	27	93	1	1	1	1	4	1.6
103	S. Grand Street - Cobleskill Creek Crossing	DIP	12"	165	12	165	$180	$29,700	1985	120	27	93	1	1	1	1	4	1.6
104	S. Grand St. - Cobleskill Creek to Mineral Sprgs Rd	DIP	12"	1180	12	1180	$160	$188,800	1985	120	27	93	1	1	1	1	4	1.6
105	Mineral Springs Rd - S. Grand St to Warnerville Pump Sta.	DIP	12"	2050	12	2050	$160	$328,000	1985	120	27	93	1	1	1	1	4	1.6
106	WTP Main - WTP to Mineral Springs Rd	DIP	12"	2000	12	2000	$150	$300,000	1974	120	38	82	1	1	1	1	3	1.4
107	Mineral Springs Rd - WTP Main to Borst Noble Rd	DIP	12"	1600	12	1600	$170	$272,000	1974	120	38	82	1	1	1	1	3	1.4
108	Borst Noble Rd - Mineral Springs Rd to E. Main St	DIP	12"	3930	12	3930	$160	$628,800	1974	120	38	82	1	1	1	1	3	1.4
109	E. Main St - Borst Noble Rd to Forester Rd	DIP	12"	2270	12	2270	$160	$363,200	1974	120	38	82	1	1	1	1	3	1.4
110	E. Main St - Forester Rd to Barnerville Rd.	DIP	12"	1860	12	1860	$160	$297,600	1974	120	38	82	1	1	1	1	3	1.4
111	E. Main St - Barnerville Rd to Tressel Ln	DIP	12"	1600	12	1600	$170	$272,000	1974	120	38	82	1	1	1	1	3	1.4
112	Trestle Ln & East St - MacArthur to E. Main St	DIP	12"	300	12	300	$160	$48,000	1985	120	27	93	1	1	1	1	3	1.4

APPENDIX G
Water Main Replacement Costs and Prioritization Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Index Year: 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Proposed Size (in)	Proposed Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating 1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <100 yrs) 5 = Poor (>100 yrs)	Material /Condition Rating 1 = Good (DIP, HDPE, PVC) 3 = Fair (CIP Good/Fair Condition) 5 = Poor (Tuberculated CIP, ACP)	Hydraulic Rating 1 = Good (FF > 1,000 gpm) 3 = Fair (750 gpm < FF < 1,000 gpm) 5 = Poor (FF < 500 gpm)	Leakage /breakage Rating 1 = Good 3 = Fair 5 = Poor	Criticality Rating 4 = Transmission, no Redundancy 3 = Transmission, with Redundancy 2 = Distribution, Primary 1 = Distribution, Secondary	Overall Serviceability Rating 1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority
113	RR Crossing - Trestle Ln to East St	DIP	12"	100	12	100	$160	$16,000	1985	120	27	93	1	1	1	1	3	1.4
114	East St	DIP	12"	260	12	260	$160	$41,600	1985	120	27	93	1	1	1	1	3	1.4
115	MacArthur Ave - East St to Spring St	DIP	12"	1200	12	1200	$160	$192,000	1985	120	27	93	1	1	1	1	3	1.4
116	MacArthur Ave - Spring St to Fairgrounds 12" Main	DIP	12"	730	12	730	$160	$116,800	1985	120	27	93	1	1	1	1	3	1.4
117	Fairgrounds - MacArthur Ave to S. Grand St	DIP	12"	1070	10	1070	$145	$155,150	1985	120	27	93	1	1	1	1	3	1.4
118	MacArthur Ave - Fairgrounds 12" Main to S. Grand St	DIP	12"	530	12	530	$160	$84,800	1985	120	27	93	1	1	1	1	3	1.4
119	MacArthur Ave - S. Grand St to Florence St	DIP	10"	430	10	430	$165	$70,950	2009	120	3	117	1	1	1	1	3	1.4
120	MacArthur Ave - Florence St to Grove St	DIP	10"	330	10	330	$165	$54,450	2009	120	3	117	1	1	1	1	3	1.4
121	MacArthur Ave - Grove St to Mallard Ln	DIP	10"	540	10	540	$165	$89,100	2009	120	3	117	1	1	1	1	3	1.4
122	MacArthur Ave - Mallard Ln to W. Main St	DIP	10"	1890	10	1890	$155	$292,950	2009	120	3	117	1	1	1	1	3	1.4
123	Barnerville Rd - E. Main St to Price Chopper Plaza	DIP	10"	260	8	260	$160	$41,600	1977	120	35	85	1	1	1	1	3	1.4
124	W. Main St - Washington Ave to Harder Rd	DIP	10"	530	8	530	$160	$84,800	2003	120	9	111	1	1	1	1	3	1.4
125	W. Main St - Harder Rd to Bridge St	DIP	10"	300	8	530	$160	$84,800	2003	120	9	111	1	1	1	1	3	1.4
126	Bridge St - W. Main St to Rose St	DIP	10"	370	8	370	$160	$59,200	2003	120	9	111	1	1	1	1	3	1.4
127	Aker Dr - S. Grand St to Interknitting	DIP	12"	2000	12	2000	$150	$300,000	1974	120	38	82	1	1	1	1	2	1.2
128	Price Chopper Plaza Service (private)	DIP	10"	320	8	320	$160	$51,200	1977	120	35	85	1	1	1	1	2	1.2
129	Elm St - West of Jefferson Ave to West St	DIP	8"	1270	8	1270	$150	$190,500	2004	120	8	112	1	1	1	1	2	1.2
130	West St - Starting at Elm St	DIP	8"	560	8	560	$150	$84,000	2004	120	8	112	1	1	1	1	2	1.2
131	Rose St - Elm St to Bridge St	DIP	8"	580	8	580	$160	$92,800	2003	120	9	111	1	1	1	1	2	1.2
132	Cross Lots - Madison Ter to Golding Dr	DIP	6"	300	6	300	$145	$43,500	2000	120	12	108	1	1	1	1	2	1.2
133	Golding School - Golding Dr & Behind Bldg	DIP	6"	2000	6	2000	$175	$350,000	2002	120	10	110	1	1	1	1	2	1.2
134	Chapel St - N. Grand St to Union St	DIP	8"	780	6	780	$155	$120,900	1996	120	16	104	1	1	1	1	1	1.0
135	Union St - E. Main St to Lark St	DIP	8"	380	8	380	$160	$60,800	1996	120	16	104	1	1	1	1	1	1.0
136	Union St - Lark St to Chapel St	DIP	8"	580	8	580	$160	$92,800	1996	120	16	104	1	1	1	1	1	1.0
137	Union St - Chapel St to Prospect St	DIP	8"	380	8	380	$160	$60,800	1996	120	16	104	1	1	1	1	1	1.0
138	Prospect St - Union St to North St	DIP	8"	870	10	870	$165	$143,550	1996	120	16	104	1	1	1	1	1	1.0
139	North St - Lark St to Prospect St	DIP	8"	1210	10	1210	$165	$199,650	1994	120	18	102	1	1	1	1	1	1.0
140	North St - Prospect St to Ridgewood Dr	DIP	8"	1040	8	1040	$150	$156,000	1994	120	18	102	1	1	1	1	1	1.0

APPENDIX G
Water Main Replacement Costs and Prioritization Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Index Year: 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Proposed Size (in)	Proposed Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating (1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <100 yrs) 5 = Poor (>100 yrs))	Material /Condition Rating (1 = Good (DIP, HDPE, PVC) 3 = Fair (CIP Good/Fair Condition) 5 = Poor (Tuberculated CIP, ACP))	Hydraulic Rating (1 = Good (FF > 1,000 gpm) 3 = Fair (750 gpm < FF < 1,000 gpm) 5 = Poor (FF < 500 gpm))	Leakage /breakage Rating (1 = Good 3 = Fair 5 = Poor)	Criticality Rating (4 = Transmission, no Redundancy 3 = Transmission, with Redundancy 2 = Distribution, Primary 1 = Distribution, Secondary)	Overall Serviceability Rating (1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority)
141	North St - Ridgewood Dr to Quarry St	DIP	8"	1080	8	1080	$150	$162,000	1994	120	18	102	1	1	1	1	1	1.0
142	Legion Dr - North St to Grandview Dr	DIP	8"	690	8	690	$150	$103,500	1995	120	17	103	1	1	1	1	1	1.0
143	Legion Dr - Grandview Dr to E. Main St	DIP	8"	1140	10	1140	$155	$176,700	1995	120	17	103	1	1	1	1	1	1.0
144	Sycamore Ln - Legion Dr to Legion Dr	DIP	8"	640	6	640	$150	$96,000	1995	120	17	103	1	1	1	1	1	1.0
145	Barnerville Rd - E. Main St to Sterling Ins	DIP	8"	1800	8	1800	$150	$270,000	1977	120	35	85	1	1	1	1	1	1.0
146	Springstead Dr - MacArthur Ave to WWTP	DIP	8"	350	8	350	$140	$49,000	1985	120	27	93	1	1	1	1	1	1.0
147	Grove St - South of MacArthur Ave	DIP	8"	530	6	530	$145	$76,850	2008	120	4	116	1	1	1	1	1	1.0
148	Pleasantview Dr - South of Josephine Dr	DIP	8"	120	10	120	$155	$18,600	2003	120	9	111	1	1	1	1	1	1.0
149	Josephine Drive	DIP	8"	300	6	300	$145	$43,500	2003	120	9	111	1	1	1	1	1	1.0
150	Jefferson Ave - Elm St to Madison Ter	DIP	8"	580	8	580	$160	$92,800	2000	120	12	108	1	1	1	1	1	1.0
151	Madison Ter	DIP	8"	420	8	420	$155	$65,100	2000	120	12	108	1	1	1	1	1	1.0
152	Clinton Cr - Stream Crossing at Mill St	HDPE	8"	100	8	100	$160	$16,000	2011	120	1	119	1	1	1	1	1	1.0
153	Cross Lot - Clinton Cr to Washington Ave	HDPE	6"	320	6	320	$150	$48,000	2008	120	4	116	1	1	1	1	1	1.0
154	Cross Lots - Price Chopper Service to Burgin Dr	DIP	6"	600	6	600	$155	$93,000	1977	120	35	85	1	1	1	1	1	1.0
155	Allied Elec & Wohl Plaza	DIP	6"	350	6	350	$155	$54,250	1970	120	42	78	1	1	1	1	1	1.0

Total Pipe Replacement Length (ft) = 114520 ft

Total Constuction Cost = $18,063,950 (2012 $)

APPENDIX H

WATER MAIN ANNUAL FUND REQUIREMENT

APPENDIX H
Water Main Replacement Annual Set-aside Requirement
Village of Cobleskill Water & Sanitary Sewer Master Plan

Planning Period = 120 Years

Priority No.	Location	Present Value Construction Cost ($)	Contingency (2012 $)	Non Construction Cost (2012 $)	Total Project Cost (2012 $)	Funding Set-aside Required (2012 $)
1	S. Grand St - MacArthur Ave to Sunshine Dr	$108,800	$10,900	$35,900	$155,600	$1,300
2	Park Pl - Veterants Dr to Mill Creek	$63,550	$6,400	$21,000	$90,950	$800
3	Lark St - Union St to Jay St	$52,700	$5,300	$17,400	$75,400	$600
4	Lark St - Jay St to North St	$52,700	$5,300	$17,400	$75,400	$600
5	S. Grand St - Sunshine Dr to Cobleskill Creek	$0	$0	$0	$0	$0
6	Center St - E. Main St to Railroad Ave	$57,350	$5,700	$18,900	$81,950	$700
7	Railroad Ave - Center St to Division St	$31,000	$3,100	$10,200	$44,300	$400
8	Division St - E. Main St to Railroad Ave	$62,000	$6,200	$20,500	$88,700	$700
9	Spring St	$57,800	$5,800	$19,100	$82,700	$700
10	Veterans Dr - W. Main St to Railroad	$84,100	$8,400	$27,800	$120,300	$1,000
11	Grove St - MacArthur Ave to Railroad	$17,400	$1,700	$5,700	$24,800	$200
12	Everett St - Grove St to Florence St	$59,450	$5,900	$19,600	$84,950	$700
13	Florence St - MacArthur Ave to Everett St	$18,850	$1,900	$6,200	$26,950	$200
14	Florence St - South of MacArthur Ave	$31,900	$3,200	$10,500	$45,600	$400
15	RR Crossing - Rose St to W. Main St	$144,900	$14,500	$47,800	$207,200	$1,700
16	WTP Main - WTP to Mineral Springs Rd	$300,000	$30,000	$99,000	$429,000	$3,600
17	Mineral Springs Rd - WTP Main to Borst Noble Rd	$272,000	$27,200	$89,800	$389,000	$3,200
18	Borst Noble Rd - Mineral Springs Rd to I-88	$187,200	$18,700	$61,800	$267,700	$2,200
19	Cross Country - Borst Noble Rd to East St	$862,500	$86,300	$284,600	$1,233,400	$10,300
20	East St	$12,800	$1,300	$4,200	$18,300	$200
21	RR Crossing East St to Trestle Ln	$0	$0	$0	$0	$0
22	Trestle Ln	$0	$0	$0	$0	$0
23	Fairgrounds - East St to S. Grand St	$273,000	$27,300	$90,100	$390,400	$3,300
24	E. Main St - Tressel Ln to North St	$195,500	$19,600	$64,500	$279,600	$2,300
25	E. Main St - North St to Union St	$145,200	$14,500	$47,900	$207,600	$1,700
26	E. Main St - Union St to N. Grand St	$87,500	$8,800	$28,900	$125,200	$1,000
27	W. Main St - N. Grand St to Veterans Dr	$102,000	$10,200	$33,700	$145,900	$1,200
28	W. Main St - Veterans Dr to Washington Ave	$105,600	$10,600	$34,900	$151,100	$1,300
29	E. Main St - Tressel to Campus	$0	$0	$0	$0	$0
30	N. Grand St - Quarry St to 365 N. Grand St	$297,850	$29,800	$98,300	$425,950	$3,500
31	N. Grand St Tank Transmission Main - N. Grand St to Tank	$147,000	$14,700	$48,500	$210,200	$1,800
32	Quarry St - N. Grand St to Pine St	$203,000	$20,300	$67,000	$290,300	$2,400
33	Elm St - N. Grand St to Washington Ave	$134,300	$13,400	$44,300	$192,000	$1,600

APPENDIX H
Water Main Replacement Annual Set-aside Requirement
Village of Cobleskill Water & Sanitary Sewer Master Plan

Planning Period = 120 Years

Priority No.	Location	Present Value Construction Cost ($)	Contingency (2012 $)	Non Construction Cost (2012 $)	Total Project Cost (2012 $)	Funding Set-aside Required (2012 $)
34	Elm St - Washington Ave to Rose St	$180,200	$18,000	$59,500	$257,700	$2,100
35	Elm St - Rose St to Cross Lot Main from W. Main St	$166,600	$16,700	$55,000	$238,300	$2,000
36	Fairview Dr - S. Grand St to End	$45,000	$4,500	$14,900	$64,400	$500
37	Cross Lot - Fairview Dr to Grove St	$91,000	$9,100	$30,000	$130,100	$1,100
38	Cross Lot - Grove St to Mallard Ln	$78,400	$7,800	$25,900	$112,100	$900
39	Mallard Ln	$56,250	$5,600	$18,600	$80,450	$700
40	N. Grand St - Chapel St to Elm St	$97,650	$9,800	$32,200	$139,650	$1,200
41	N. Grand St - Elm St to Maple Rd	$69,000	$6,900	$22,800	$98,700	$800
42	N. Grand St - Maple Rd to Quarry St	$158,400	$15,800	$52,300	$226,500	$1,900
43	North St - E. Main St to Lark St	$87,450	$8,700	$28,800	$124,950	$1,000
44	Parkway Dr - Grandview Dr to Eden Park Entrance	$143,550	$14,400	$47,400	$205,350	$1,700
45	Eden Park - Entrance to Hospital Tank Transmission Main	$70,000	$7,000	$23,100	$100,100	$800
46	France Ln - W. Main St to RR	$63,000	$6,300	$20,800	$90,100	$800
47	RR Crossing - France Ln to Mallard Ln	$34,500	$3,500	$11,400	$49,400	$400
48	Mallard Ln - RR Crossing to MacArthur	$13,500	$1,400	$4,500	$19,400	$200
49	France Ln - Water Main Spur	$20,300	$2,000	$6,700	$29,000	$200
50	Washington Ave - W. Main St to Elm St	$128,000	$12,800	$42,200	$183,000	$1,500
51	Park Pl - S. Grand St to Mill Creek	$31,000	$3,100	$10,200	$44,300	$400
52	Hospital Tank Transmission Main - Grandview Dr to Tank	$167,400	$16,700	$55,200	$239,300	$2,000
53	W. Main St - MacArthur Ave to Schoharie Co. Hwy. Garage	$105,400	$10,500	$34,800	$150,700	$1,300
54	W. Main St - Schoharie Co. Hwy. Garage to SUNY	$51,000	$5,100	$16,800	$72,900	$600
55	N. Grand St - Tank Transmission Main to Village Boundary	$47,250	$4,700	$15,600	$67,550	$600
56	Campus Dr - Pleasantview Dr to Best Western	$100,750	$10,100	$33,300	$144,150	$1,200
57	Quarry St - Pine St to North St	$186,850	$18,700	$61,700	$267,250	$2,200
58	Quarry St - North St to Village Line	$196,100	$19,600	$64,700	$280,400	$2,300
59	N. Grand St - E. Main St to Chapel St	$113,850	$11,400	$37,600	$162,850	$1,400
60	Washington Heights - Elm St to Maple Rd	$79,050	$7,900	$26,100	$113,050	$900
61	Golding School - From Washington Heights	$157,500	$15,800	$52,000	$225,300	$1,900
62	Cross Lots - End of Highland Ter to Golding School E. P-Lot	$54,000	$5,400	$17,800	$77,200	$600
63	Maple Rd - N. Grand St to Washington Heights	$98,600	$9,900	$32,600	$141,100	$1,200
64	S. Grand St - E. Main St to MacArthur Ave	$134,750	$13,500	$44,500	$192,750	$1,600
65	Grandview Dr - Legion Dr to St Christopher Pl	$148,500	$14,900	$49,000	$212,400	$1,800
66	Grandview Dr - St. Christopher Pl to Hospital	$207,700	$20,800	$68,600	$297,100	$2,500

APPENDIX H
Water Main Replacement Annual Set-aside Requirement
Village of Cobleskill Water & Sanitary Sewer Master Plan

Planning Period = 120 Years

Priority No.	Location	Present Value Construction Cost ($)	Contingency (2012 $)	Non Construction Cost (2012 $)	Total Project Cost (2012 $)	Funding Set-aside Required (2012 $)
67	Cross Lot - W. Main St to RR at Agway	$62,000	$6,200	$20,500	$88,700	$700
68	RR Crossing - Agway to Elm St	$35,650	$3,600	$11,800	$51,050	$400
69	Cross Lots - N. Grand St to Cherry Ln	$141,050	$14,100	$46,500	$201,650	$1,700
70	Cross Lots - Prospect St to St Christopher Pl	$74,400	$7,400	$24,500	$106,300	$900
71	Ridgewood Dr - N.orth St to Grandview Dr	$72,000	$7,200	$23,800	$103,000	$900
72	Campus Dr - Pleasantview Dr to Davies Ln	$91,350	$9,100	$30,100	$130,550	$1,100
73	Cross Lots - Campus Dr to Best Western	$75,400	$7,500	$24,900	$107,800	$900
74	St. Christopher Pl	$78,300	$7,800	$25,800	$111,900	$900
75	Jay St	$72,850	$7,300	$24,000	$104,150	$900
76	Clinton Cr - N. Grand St to Stream Crossing	$12,400	$1,200	$4,100	$17,700	$100
77	Clinton Cr - West of Mill Creek	$173,600	$17,400	$57,300	$248,300	$2,100
78	Harder Ave	$63,800	$6,400	$21,100	$91,300	$800
79	Lincoln Ave - Elm St to Highland Ter	$76,850	$7,700	$25,400	$109,950	$900
80	Highland Ter - Lincoln Ave to End of Street	$68,150	$6,800	$22,500	$97,450	$800
81	Cleveland Ave - Maple Rd to Snyder Ln	$72,500	$7,300	$23,900	$103,700	$900
82	Pine St	$65,250	$6,500	$21,500	$93,250	$800
83	High St	$147,000	$14,700	$48,500	$210,200	$1,800
84	Pleasantview Dr - Campus Dr to Crabapple Ln	$145,700	$14,600	$48,100	$208,400	$1,700
85	Pleasantview Dr - Crabapple Ln to Gale Dr	$108,500	$10,900	$35,800	$155,200	$1,300
86	Pleasantview Dr - North of Gale Dr	$58,900	$5,900	$19,400	$84,200	$700
87	Gale Drive	$40,600	$4,100	$13,400	$58,100	$500
88	Washington Heights - North of Maple Rd	$96,100	$9,600	$31,700	$137,400	$1,100
89	Cross Lot - Meadow Ln to Grandview Dr	$73,500	$7,400	$24,300	$105,200	$900
90	Grandview Dr - Woods Dr to Overlook Dr	$58,500	$5,900	$19,300	$83,700	$700
91	Overlook Dr - Grandview Dr to Paper St	$142,500	$14,300	$47,000	$203,800	$1,700
92	Woods Dr - Grandview Dr to Van Deusen Dr	$87,000	$8,700	$28,700	$124,400	$1,000
93	Grandview Apts - Grandview Dr. to Campus Dr.	$163,850	$16,400	$54,100	$234,350	$2,000
94	Crabapple Ln - Pleasantview Dr to Hillside Ave	$89,900	$9,000	$29,700	$128,600	$1,100
95	Hillside Ave - Crabeapple Ln to Terra Heights Rd	$123,250	$12,300	$40,700	$176,250	$1,500
96	Terra Heights Rd - Canterbury Dr to Hillside Ave	$47,850	$4,800	$15,800	$68,450	$600
97	Canterbury Dr - Crabeapple Ln to Terra Heights Rd	$123,250	$12,300	$40,700	$176,250	$1,500
98	Timber Ln - Overlook Dr to Woods Dr	$65,250	$6,500	$21,500	$93,250	$800
99	Van Deusen Dr - Overlook Dr to Woods Dr	$68,150	$6,800	$22,500	$97,450	$800

APPENDIX H
Water Main Replacement Annual Set-aside Requirement
Village of Cobleskill Water & Sanitary Sewer Master Plan

Planning Period = 120 Years

Priority No.	Location	Present Value Construction Cost ($)	Contingency (2012 $)	Non Construction Cost (2012 $)	Total Project Cost (2012 $)	Funding Set-aside Required (2012 $)
100	Anthony Cr	$39,150	$3,900	$12,900	$55,950	$500
101	Davies Ln - Campus Dr to Pleasantview Dr	$72,500	$7,300	$23,900	$103,700	$900
102	S. Grand St. - Sunshine Dr to Cobleskill Creek	$102,400	$10,200	$33,800	$146,400	$1,200
103	S. Grand Street - Cobleskill Creek Crossing	$29,700	$3,000	$9,800	$42,500	$400
104	S. Grand St. - Cobleskill Creek to Mineral Sprgs Rd	$188,800	$18,900	$62,300	$270,000	$2,300
105	Mineral Springs Rd - S. Grand St to Warnerville Pump Sta.	$328,000	$32,800	$108,200	$469,000	$3,900
106	WTP Main - WTP to Mineral Springs Rd	$300,000	$30,000	$99,000	$429,000	$3,600
107	Mineral Springs Rd - WTP Main to Borst Noble Rd	$272,000	$27,200	$89,800	$389,000	$3,200
108	Borst Noble Rd - Mineral Springs Rd to E. Main St	$628,800	$62,900	$207,500	$899,200	$7,500
109	E. Main St - Borst Noble Rd to Forester Rd	$363,200	$36,300	$119,900	$519,400	$4,300
110	E. Main St - Forester Rd to Barnerville Rd.	$297,600	$29,800	$98,200	$425,600	$3,500
111	E. Main St - Barnerville Rd to Tressel Ln	$272,000	$27,200	$89,800	$389,000	$3,200
112	Trestle Ln & East St - MacArthur to E. Main St	$48,000	$4,800	$15,800	$68,600	$600
113	RR Crossing - Trestle Ln to East St	$16,000	$1,600	$5,300	$22,900	$200
114	East St	$41,600	$4,200	$13,700	$59,500	$500
115	MacArthur Ave - East St to Spring St	$192,000	$19,200	$63,400	$274,600	$2,300
116	MacArthur Ave - Spring St to Fairgrounds 12" Main	$116,800	$11,700	$38,600	$167,100	$1,400
117	Fairgrounds - MacArthur Ave to S. Grand St	$155,150	$15,500	$51,200	$221,850	$1,800
118	MacArthur Ave - Fairgrounds 12" Main to S. Grand St	$84,800	$8,500	$28,000	$121,300	$1,000
119	MacArthur Ave - S. Grand St to Florence St	$70,950	$7,100	$23,400	$101,450	$800
120	MacArthur Ave - Florence St to Grove St	$54,450	$5,400	$18,000	$77,850	$600
121	MacArthur Ave - Grove St to Mallard Ln	$89,100	$8,900	$29,400	$127,400	$1,100
122	MacArthur Ave - Mallard Ln to W. Main St	$292,950	$29,300	$96,700	$418,950	$3,500
123	Barnerville Rd - E. Main St to Price Chopper Plaza	$41,600	$4,200	$13,700	$59,500	$500
124	W. Main St - Washington Ave to Harder Rd	$84,800	$8,500	$28,000	$121,300	$1,000
125	W. Main St - Harder Rd to Bridge St	$84,800	$8,500	$28,000	$121,300	$1,000
126	Bridge St - W. Main St to Rose St	$59,200	$5,900	$19,500	$84,600	$700
127	Aker Dr - S. Grand St to Interknitting	$300,000	$30,000	$99,000	$429,000	$3,600
128	Price Chopper Plaza Service (private)	$51,200	$5,100	$16,900	$73,200	$600
129	Elm St - West of Jefferson Ave to West St	$190,500	$19,100	$62,900	$272,500	$2,300
130	West St - Starting at Elm St	$84,000	$8,400	$27,700	$120,100	$1,000
131	Rose St - Elm St to Bridge St	$92,800	$9,300	$30,600	$132,700	$1,100
132	Cross Lots - Madison Ter to Golding Dr	$43,500	$4,400	$14,400	$62,300	$500

APPENDIX H
Water Main Replacement Annual Set-aside Requirement
Village of Cobleskill Water & Sanitary Sewer Master Plan

Planning Period = 120 Years

Priority No.	Location	Present Value Construction Cost ($)	Contingency (2012 $)	Non Construction Cost (2012 $)	Total Project Cost (2012 $)	Funding Set-aside Required (2012 $)
133	Golding School - Golding Dr & Behind Bldg	$350,000	$35,000	$115,500	$500,500	$4,200
134	Chapel St - N. Grand St to Union St	$120,900	$12,100	$39,900	$172,900	$1,400
135	Union St - E. Main St to Lark St	$60,800	$6,100	$20,100	$87,000	$700
136	Union St - Lark St to Chapel St	$92,800	$9,300	$30,600	$132,700	$1,100
137	Union St - Chapel St to Prospect St	$60,800	$6,100	$20,100	$87,000	$700
138	Prospect St - Union St to North St	$143,550	$14,400	$47,400	$205,350	$1,700
139	North St - Lark St to Prospect St	$199,650	$20,000	$65,900	$285,550	$2,400
140	North St - Prospect St to Ridgewood Dr	$156,000	$15,600	$51,500	$223,100	$1,900
141	North St - Ridgewood Dr to Quarry St	$162,000	$16,200	$53,500	$231,700	$1,900
142	Legion Dr - North St to Grandview Dr	$103,500	$10,400	$34,200	$148,100	$1,200
143	Legion Dr - Grandview Dr to E. Main St	$176,700	$17,700	$58,300	$252,700	$2,100
144	Sycamore Ln - Legion Dr to Legion Dr	$96,000	$9,600	$31,700	$137,300	$1,100
145	Barnerville Rd - E. Main St to Sterling Ins	$270,000	$27,000	$89,100	$386,100	$3,200
146	Springstead Dr - MacArthur Ave to WWTP	$49,000	$4,900	$16,200	$70,100	$600
147	Grove St - South of MacArthur Ave	$76,850	$7,700	$25,400	$109,950	$900
148	Pleasantview Dr - South of Josephine Dr	$18,600	$1,900	$6,200	$26,700	$200
149	Josephine Drive	$43,500	$4,400	$14,400	$62,300	$500
150	Jefferson Ave - Elm St to Madison Ter	$92,800	$9,300	$30,600	$132,700	$1,100
151	Madison Ter	$65,100	$6,500	$21,500	$93,100	$800
152	Clinton Cr - Stream Crossing at Mill St	$16,000	$1,600	$5,300	$22,900	$200
153	Cross Lot - Clinton Cr to Washington Ave	$48,000	$4,800	$15,800	$68,600	$600
154	Cross Lots - Price Chopper Service to Burgin Dr	$93,000	$9,300	$30,700	$133,000	$1,100
155	Allied Elec & Wohl Plaza	$54,250	$5,400	$17,900	$77,550	$600
	Totals	$18,063,950	$1,807,500	$5,962,100	$25,833,550	$215,200

APPENDIX I

WATER MAIN FINANCING PLAN SPREADSHEETS

APPENDIX I
Water Main Replacement Financing Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Initial Assumptions:

Total Looping and Replacement Cost =	$27,748,050	(2012 $)	Construction Inflation Rate	5.00%	(cost increase)
Required Annual Reserve =	$231,200	(2012 $)	Contribution Escallation Rate =	5.10%	(rate increase)
Program Duration =	120	Years	Interest Rate =	1.50%	(earned on Reserve)
Project Frequency =	3	yrs.	Initial Set-aside Year =	2013	January 1st
Number of Projects =	40		First Project Timing =	4th Year	
Target Project Budget =	$693,600	(2012 $)			

Year Count	Year	Project Cost (2012 $)	Annual Capital Project Reserve Fund Contribution (Future $)	Project Cost (Future $)	Post-Project Reserve Fund Balance (Future $)	Interest Earned in Current Year	Project Funds Available At Year-End (Future $)
1	2013	$0	$231,200	$0	$231,200	$3,468	$234,668
2	2014	$0	$242,991	$0	$477,659	$7,165	$484,824
3	2015	$0	$255,384	$0	$740,208	$11,103	$751,311
4	2016	($693,600)	$268,408	($802,929)	$216,790	$3,252	$220,042
5	2017	$0	$282,097	$0	$502,139	$7,532	$509,671
6	2018	$0	$296,484	$0	$806,155	$12,092	$818,248
7	2019	($693,600)	$311,605	($929,490)	$200,363	$3,005	$203,368
8	2020	$0	$327,497	$0	$530,865	$7,963	$538,828
9	2021	$0	$344,199	$0	$883,027	$13,245	$896,272
10	2022	($693,600)	$361,753	($1,076,001)	$182,024	$2,730	$184,754
11	2023	$0	$380,203	$0	$564,957	$8,474	$573,431
12	2024	$0	$399,593	$0	$973,024	$14,595	$987,620
13	2025	($693,600)	$419,972	($1,245,606)	$161,986	$2,430	$164,415
14	2026	$0	$441,391	$0	$605,806	$9,087	$614,893
15	2027	$0	$463,902	$0	$1,078,795	$16,182	$1,094,977
16	2028	($693,600)	$487,561	($1,441,945)	$140,592	$2,109	$142,701
17	2029	$0	$512,426	$0	$655,127	$9,827	$664,954
18	2030	$0	$538,560	$0	$1,203,514	$18,053	$1,221,567
19	2031	($693,600)	$566,026	($1,669,231)	$118,362	$1,775	$120,138
20	2032	$0	$594,894	$0	$715,031	$10,725	$725,757
21	2033	$0	$625,233	$0	$1,350,990	$20,265	$1,371,255
22	2034	($693,600)	$657,120	($1,932,344)	$96,031	$1,440	$97,472
23	2035	$0	$690,633	$0	$788,105	$11,822	$799,927
24	2036	$0	$725,856	$0	$1,525,783	$22,887	$1,548,669

APPENDIX I
Water Main Replacement Financing Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Initial Assumptions:

Total Looping and Replacement Cost =	$27,748,050	(2012 $)	Construction Inflation Rate	5.00%	(cost increase)
Required Annual Reserve =	$231,200	(2012 $)	Contribution Escallation Rate =	5.10%	(rate increase)
Program Duration =	120	Years	Interest Rate =	1.50%	(earned on Reserve)
Project Frequency =	3	yrs.	Initial Set-aside Year =	2013	January 1st
Number of Projects =	40		First Project Timing =	4th Year	
Target Project Budget =	$693,600	(2012 $)			

Year Count	Year	Project Cost (2012 $)	Annual Capital Project Reserve Fund Contribution (Future $)	Project Cost (Future $)	Post-Project Reserve Fund Balance (Future $)	Interest Earned in Current Year	Project Funds Available At Year-End (Future $)
25	2037	($693,600)	$762,874	($2,236,929)	$74,615	$1,119	$75,734
26	2038	$0	$801,781	$0	$877,515	$13,163	$890,678
27	2039	$0	$842,672	$0	$1,733,349	$26,000	$1,759,350
28	2040	($693,600)	$885,648	($2,589,525)	$55,473	$832	$56,305
29	2041	$0	$930,816	$0	$987,121	$14,807	$1,001,928
30	2042	$0	$978,288	$0	$1,980,215	$29,703	$2,009,919
31	2043	($693,600)	$1,028,180	($2,997,699)	$40,400	$606	$41,006
32	2044	$0	$1,080,618	$0	$1,121,623	$16,824	$1,138,448
33	2045	$0	$1,135,729	$0	$2,274,177	$34,113	$2,308,290
34	2046	($693,600)	$1,193,651	($3,470,212)	$31,729	$476	$32,205
35	2047	$0	$1,254,527	$0	$1,286,732	$19,301	$1,306,033
36	2048	$0	$1,318,508	$0	$2,624,542	$39,368	$2,663,910
37	2049	($693,600)	$1,385,752	($4,017,204)	$32,458	$487	$32,945
38	2050	$0	$1,456,426	$0	$1,489,371	$22,341	$1,511,711
39	2051	$0	$1,530,703	$0	$3,042,414	$45,636	$3,088,051
40	2052	($693,600)	$1,608,769	($4,650,415)	$46,405	$696	$47,101
41	2053	$0	$1,690,816	$0	$1,737,917	$26,069	$1,763,986
42	2054	$0	$1,777,048	$0	$3,541,034	$53,116	$3,594,150
43	2055	($693,600)	$1,867,678	($5,383,437)	$78,390	$1,176	$79,566
44	2056	$0	$1,962,929	$0	$2,042,495	$30,637	$2,073,133
45	2057	$0	$2,063,039	$0	$4,136,171	$62,043	$4,198,214
46	2058	($693,600)	$2,168,253	($6,232,001)	$134,466	$2,017	$136,483
47	2059	$0	$2,278,834	$0	$2,415,318	$36,230	$2,451,548
48	2060	$0	$2,395,055	$0	$4,846,602	$72,699	$4,919,302

APPENDIX I
Water Main Replacement Financing Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Initial Assumptions:

Total Looping and Replacement Cost =	$27,748,050	(2012 $)	Construction Inflation Rate	5.00%	(cost increase)
Required Annual Reserve =	$231,200	(2012 $)	Contribution Escallation Rate =	5.10%	(rate increase)
Program Duration =	120	Years	Interest Rate =	1.50%	(earned on Reserve)
Project Frequency =	3	yrs.	Initial Set-aside Year =	2013	January 1st
Number of Projects =	40		First Project Timing =	4th Year	
Target Project Budget =	$693,600	(2012 $)			

Year Count	Year	Project Cost (2012 $)	Annual Capital Project Reserve Fund Contribution (Future $)	Project Cost (Future $)	Post-Project Reserve Fund Balance (Future $)	Interest Earned in Current Year	Project Funds Available At Year-End (Future $)
49	2061	($693,600)	$2,517,203	($7,214,321)	$222,183	$3,333	$225,516
50	2062	$0	$2,645,580	$0	$2,871,096	$43,066	$2,914,163
51	2063	$0	$2,780,505	$0	$5,694,667	$85,420	$5,780,087
52	2064	($693,600)	$2,922,310	($8,351,478)	$350,920	$5,264	$356,184
53	2065	$0	$3,071,348	$0	$3,427,532	$51,413	$3,478,945
54	2066	$0	$3,227,987	$0	$6,706,932	$100,604	$6,807,536
55	2067	($693,600)	$3,392,614	($9,667,880)	$532,270	$7,984	$540,254
56	2068	$0	$3,565,638	$0	$4,105,892	$61,588	$4,167,480
57	2069	$0	$3,747,485	$0	$7,914,965	$118,724	$8,033,690
58	2070	($693,600)	$3,938,607	($11,191,779)	$780,518	$11,708	$792,226
59	2071	$0	$4,139,476	$0	$4,931,702	$73,976	$5,005,677
60	2072	$0	$4,350,589	$0	$9,356,266	$140,344	$9,496,610
61	2073	($693,600)	$4,572,469	($12,955,883)	$1,113,196	$16,698	$1,129,894
62	2074	$0	$4,805,665	$0	$5,935,560	$89,033	$6,024,593
63	2075	$0	$5,050,754	$0	$11,075,347	$166,130	$11,241,477
64	2076	($693,600)	$5,308,343	($14,998,054)	$1,551,766	$23,276	$1,575,042
65	2077	$0	$5,579,068	$0	$7,154,110	$107,312	$7,261,422
66	2078	$0	$5,863,600	$0	$13,125,022	$196,875	$13,321,898
67	2079	($693,600)	$6,162,644	($17,362,123)	$2,122,419	$31,836	$2,154,255
68	2080	$0	$6,476,939	$0	$8,631,194	$129,468	$8,760,662
69	2081	$0	$6,807,263	$0	$15,567,925	$233,519	$15,801,444
70	2082	($693,600)	$7,154,433	($20,098,827)	$2,857,050	$42,856	$2,899,906
71	2083	$0	$7,519,309	$0	$10,419,215	$156,288	$10,575,503
72	2084	$0	$7,902,794	$0	$18,478,297	$277,174	$18,755,472

APPENDIX I
Water Main Replacement Financing Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Initial Assumptions:

Total Looping and Replacement Cost =	$27,748,050	(2012 $)	Construction Inflation Rate	5.00%	(cost increase)
Required Annual Reserve =	$231,200	(2012 $)	Contribution Escallation Rate =	5.10%	(rate increase)
Program Duration =	120	Years	Interest Rate =	1.50%	(earned on Reserve)
Project Frequency =	3	yrs.	Initial Set-aside Year =	2013	January 1st
Number of Projects =	40		First Project Timing =	4th Year	
Target Project Budget =	$693,600	(2012 $)			

Year Count	Year	Project Cost (2012 $)	Annual Capital Project Reserve Fund Contribution (Future $)	Project Cost (Future $)	Post-Project Reserve Fund Balance (Future $)	Interest Earned in Current Year	Project Funds Available At Year-End (Future $)
73	2085	($693,600)	$8,305,837	($23,266,905)	$3,794,403	$56,916	$3,851,319
74	2086	$0	$8,729,434	$0	$12,580,754	$188,711	$12,769,465
75	2087	$0	$9,174,635	$0	$21,944,101	$329,162	$22,273,262
76	2088	($693,600)	$9,642,542	($26,934,351)	$4,981,453	$74,722	$5,056,175
77	2089	$0	$10,134,311	$0	$15,190,486	$227,857	$15,418,343
78	2090	$0	$10,651,161	$0	$26,069,505	$391,043	$26,460,547
79	2091	($693,600)	$11,194,371	($31,179,878)	$6,475,040	$97,126	$6,572,166
80	2092	$0	$11,765,283	$0	$18,337,449	$275,062	$18,612,511
81	2093	$0	$12,365,313	$0	$30,977,824	$464,667	$31,442,491
82	2094	($693,600)	$12,995,944	($36,094,606)	$8,343,829	$125,157	$8,468,986
83	2095	$0	$13,658,737	$0	$22,127,723	$331,916	$22,459,639
84	2096	$0	$14,355,333	$0	$36,814,972	$552,225	$37,367,196
85	2097	($693,600)	$15,087,455	($41,784,019)	$10,670,632	$160,059	$10,830,692
86	2098	$0	$15,856,915	$0	$26,687,606	$400,314	$27,087,920
87	2099	$0	$16,665,617	$0	$43,753,538	$656,303	$44,409,841
88	2100	($693,600)	$17,515,564	($48,370,225)	$13,555,180	$203,328	$13,758,508
89	2101	$0	$18,408,858	$0	$32,167,365	$482,510	$32,649,876
90	2102	$0	$19,347,709	$0	$51,997,585	$779,964	$52,777,549
91	2103	($693,600)	$20,334,443	($55,994,581)	$17,117,411	$256,761	$17,374,172
92	2104	$0	$21,371,499	$0	$38,745,671	$581,185	$39,326,856
93	2105	$0	$22,461,446	$0	$61,788,302	$926,825	$62,715,126
94	2106	($693,600)	$23,606,979	($64,820,727)	$21,501,378	$322,521	$21,823,899
95	2107	$0	$24,810,935	$0	$46,634,834	$699,523	$47,334,357
96	2108	$0	$26,076,293	$0	$73,410,650	$1,101,160	$74,511,810

APPENDIX I
Water Main Replacement Financing Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Initial Assumptions:

Total Looping and Replacement Cost =	$27,748,050	(2012 $)	Construction Inflation Rate	5.00%	(cost increase)
Required Annual Reserve =	$231,200	(2012 $)	Contribution Escallation Rate =	5.10%	(rate increase)
Program Duration =	120	Years	Interest Rate =	1.50%	(earned on Reserve)
Project Frequency =	3	yrs.	Initial Set-aside Year =	2013	January 1st
Number of Projects =	40		First Project Timing =	4th Year	
Target Project Budget =	$693,600	(2012 $)			

Year Count	Year	Project Cost (2012 $)	Annual Capital Project Reserve Fund Contribution (Future $)	Project Cost (Future $)	Post-Project Reserve Fund Balance (Future $)	Interest Earned in Current Year	Project Funds Available At Year-End (Future $)
97	2109	($693,600)	$27,406,184	($75,038,094)	$26,879,900	$403,198	$27,283,098
98	2110	$0	$28,803,899	$0	$56,086,997	$841,305	$56,928,302
99	2111	$0	$30,272,898	$0	$87,201,201	$1,308,018	$88,509,219
100	2112	($693,600)	$31,816,816	($86,865,974)	$33,460,061	$501,901	$33,961,962
101	2113	$0	$33,439,474	$0	$67,401,435	$1,011,022	$68,412,457
102	2114	$0	$35,144,887	$0	$103,557,344	$1,553,360	$105,110,704
103	2115	($693,600)	$36,937,276	($100,558,223)	$41,489,757	$622,346	$42,112,103
104	2116	$0	$38,821,077	$0	$80,933,180	$1,213,998	$82,147,178
105	2117	$0	$40,800,952	$0	$122,948,130	$1,844,222	$124,792,352
106	2118	($693,600)	$42,881,801	($116,408,713)	$51,265,439	$768,982	$52,034,421
107	2119	$0	$45,068,772	$0	$97,103,193	$1,456,548	$98,559,741
108	2120	$0	$47,367,280	$0	$145,927,021	$2,188,905	$148,115,926
109	2121	($693,600)	$49,783,011	($134,757,636)	$63,141,301	$947,120	$64,088,421
110	2122	$0	$52,321,945	$0	$116,410,366	$1,746,155	$118,156,521
111	2123	$0	$54,990,364	$0	$173,146,885	$2,597,203	$175,744,088
112	2124	($693,600)	$57,794,872	($155,998,808)	$77,540,152	$1,163,102	$78,703,255
113	2125	$0	$60,742,411	$0	$139,445,666	$2,091,685	$141,537,351
114	2126	$0	$63,840,274	$0	$205,377,624	$3,080,664	$208,458,289
115	2127	($693,600)	$67,096,128	($180,588,121)	$94,966,295	$1,424,494	$96,390,790
116	2128	$0	$70,518,030	$0	$166,908,820	$2,503,632	$169,412,453
117	2129	$0	$74,114,450	$0	$243,526,902	$3,652,904	$247,179,806
118	2130	($693,600)	$77,894,287	($209,053,323)	$116,020,770	$1,740,312	$117,761,081
119	2131	$0	$81,866,895	$0	$199,627,977	$2,994,420	$202,622,396
120	2132	$0	$86,042,107	$0	$288,664,503	$4,329,968	$292,994,471

APPENDIX I
Water Main Replacement Financing Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Initial Assumptions:

Total Looping and Replacement Cost =	$27,748,050	(2012 $)	Construction Inflation Rate	5.00%	(cost increase)
Required Annual Reserve =	$231,200	(2012 $)	Contribution Escallation Rate =	5.10%	(rate increase)
Program Duration =	120	Years	Interest Rate =	1.50%	(earned on Reserve)
Project Frequency =	3	yrs.	Initial Set-aside Year =	2013	January 1st
Number of Projects =	40		First Project Timing =	4th Year	
Target Project Budget =	$693,600	(2012 $)			

Year Count	Year	Project Cost (2012 $)	Annual Capital Project Reserve Fund Contribution (Future $)	Project Cost (Future $)	Post-Project Reserve Fund Balance (Future $)	Interest Earned in Current Year	Project Funds Available At Year-End (Future $)
121	2133	($693,600)	$90,430,255	($242,005,353)	$141,419,372	$2,121,291	$143,540,663

APPENDIX J

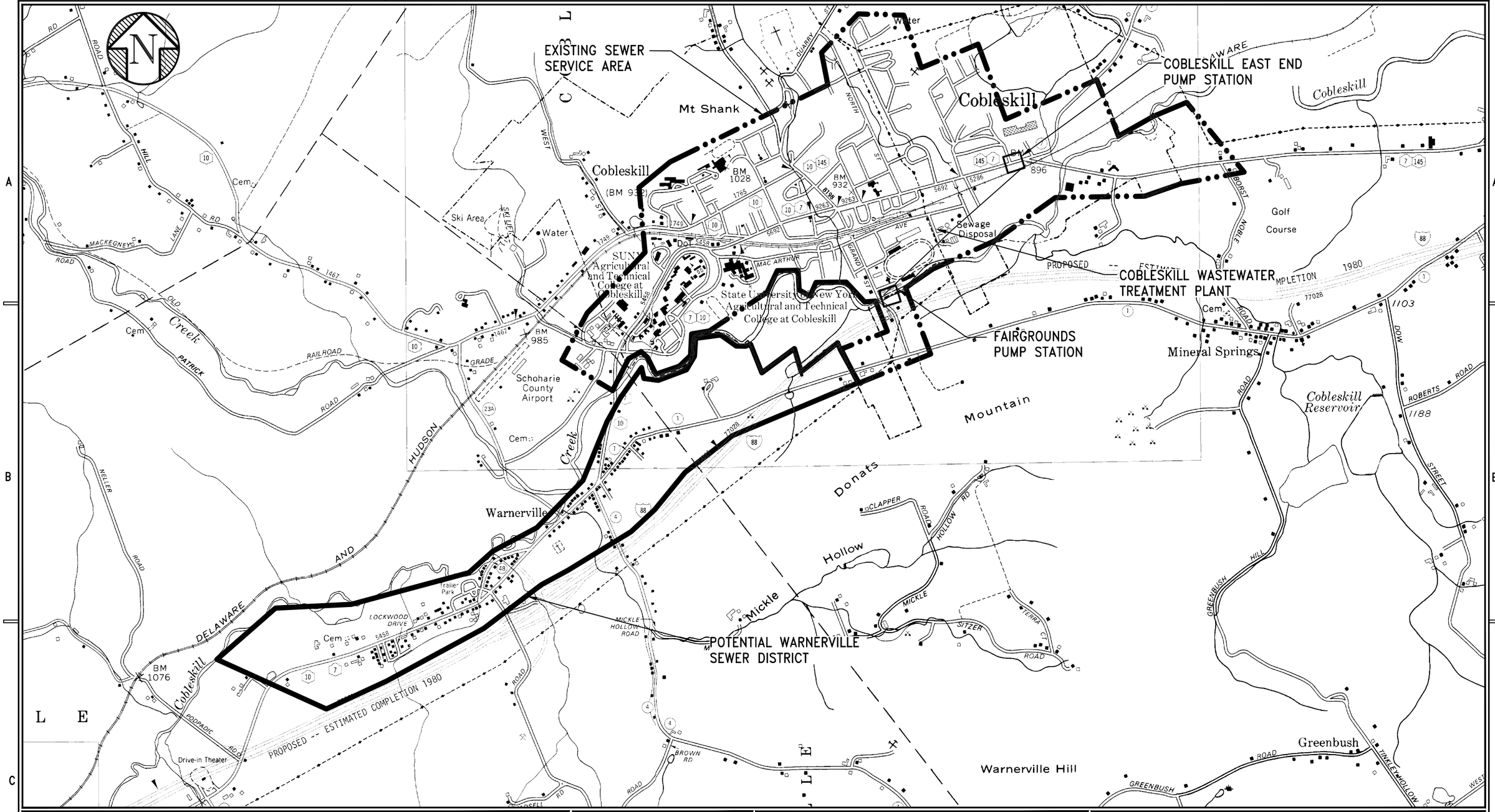
WASTEWATER PLANT CAPACITY ANALYSIS

WWTP UNIT PROCESS CAPACITY EVALUATION

PROCESS	EXISTING CONDITIONS	CAPACITY	SURPLUSS/ DEFICET	STANDARDS	Reference Document
Influent Grinding					
No. of Grinders	2 ea			1 ea	One Duty & One Standby
Flow Capacity of each Unit	4.5 mgd	5.0 mgd	10%		Manufacturer's Data
Grit Removal	8,500 gals			3-5 mins of det time	
	4.5 mgd	4.1 mgd	-10%	@ PHF	sec. 63.3 Ten States Standards
Raw Sewage Pumps					
No. of Pumps	3 ea.			2 ea.	sec. 41.31 Ten States Standards
Combined Pump Capacity (2)	4.5 mgd	4.5 mgd	0%		sec. 42.31 Ten States Standards
Ind. Pump Flow Range	2.25 mgd				
Power	30 HP				
Solids Handlintg	3 in			3 in	sec. 42.33 Ten States Standards
Aeration Tanks					
Number	3 ea				
Total Volume	212,690 CF				
				15 lb BOD5	
Organic Loading	1,014 lb-BOD5/day	3,190 lb-BOD5/day	68%	/day/1000 cf	sec. 92.31 Ten States Standards
Aeration Diffusers	1,444 scfm	3,390 scfm	57%		sec. 92.332 Ten States Standards
					sec. 92.331
Blowers	3,244 scfm	5,200 scfm	38%		& 85.5 Ten States Standards
Settling Tanks					
Number	3 ea				
Total Surface Area	6007 sf				
Total Weir Length	157 ft.				
Weir Overflow Rate @ Peak Hour	4.5 mgd	13.80 mgd	67%	20000 gpd/ft	sec. 72.43 Ten States Standards
Surface Overflow @ Peak Hour	4.5 mgd	6.01 mgd	25%	1000 gpd/sf	sec. 72.21 Ten States Standards
Return Activated Sludge Pumps	2.7 mgd	2.7 mgd	0.00%	.5-1.5 Avg. Daily Flow	sec. 92.41 Ten States Standards
Disinfection					
Chlorine Feeders	4.5 mgd	4.5 mgd	0%		Based upon actual demand
Chlorine Contact Tank	54,600 gals	17.5 mins		15 mins @ PHF	sec. 102.44 Ten States Standards
Dechlorination Injectors	4.5 mgd	4.5 mgd	0%		Based upon actual demand
Post Aeration Tank					
Engineered Design	4.5 mgd	4.5 mgd	0%		Engineered Capacity
Aerobic Digestor					
Tank Volume	24,468 cf				
Per Capita Loading	6800 capita	6525 capita	-4%	3.75 cf/capita	sec. 85.31 Ten States Standards
Belt Filter Press					
Number of Belts		1 ea			
Belt Width		1 meter			
Solids Loading Rate		650 lbs./hr./m		400-700 lbs./hr./m	pg. 21-24 Manual of Practice #8
Hydraulic Loading Rate		28 gpm/m		20-50 gpm/m	pg. 21-24 Manual of Practice #8
Cake Solids(Target Design Value)		20.00 %			

APPENDIX K

FUTURE WARNERVILLE SEWER DISTRICT MAPPING



ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	1"=2,000'
DRAWN	MKS
DATE	11/9/11
DESIGNED	MDH

VILLAGE OF COBLESKILL
WATER AND SANITARY SEWER MASTER PLAN

FUTURE WARNERVILLE SEWER DISTRICT

Lamont Engineers
ENGINEERS • PLANNERS • FACILITY OPERATIONS
548 MAIN ST., COBLESKILL, N.Y. 12043 (518) 234-4028

PROJECT NO.	FILE NAME	SHEET NO.
2011017	CR-SEWER	

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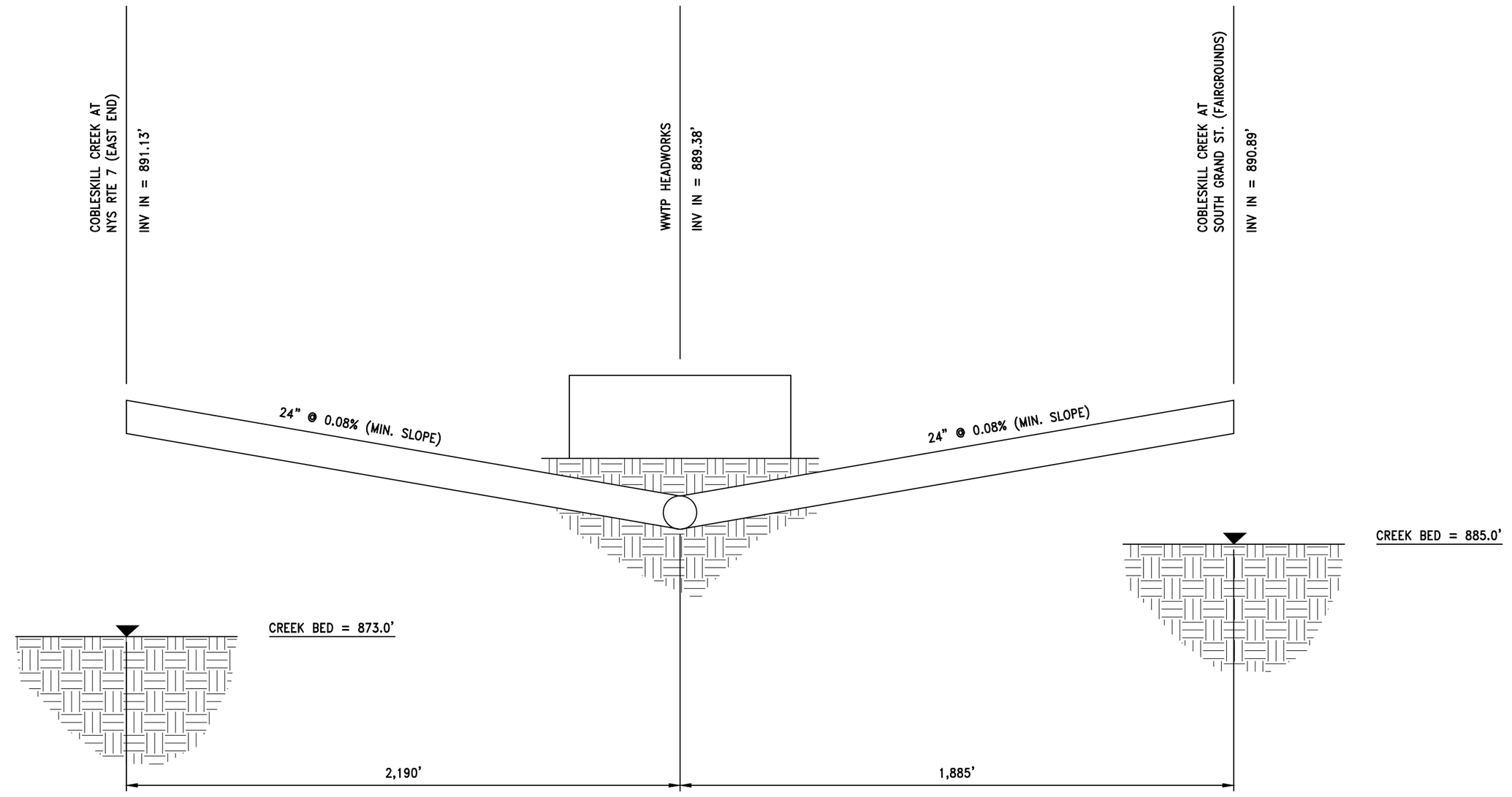
APPENDIX L

SCHEMATIC DRAWING OF SEWER SYSTEM HYDRAULICS



ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

SCALE	NTS
DRAWN	AHJ
DATE	11/9/11
DESIGNED	MDH

VILLAGE OF COBLESKILL
WATER AND SANITARY SEWER MASTER PLAN

GRAVITY SEWER vs FORCE MAIN

Lamont Engineers
ENGINEERS • PLANNERS • FACILITY OPERATIONS
548 MAIN ST., COBLESKILL, N.Y. 12043 (518) 234-4028

PROJECT NO.	FILE NAME	SHEET NO.
2011017	CR-SEWER	

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APPENDIX M

SEWER MAIN REPLACEMENT COST & PRIORITIZATION

APPENDIX M
Sewer Main Replacement Costs and Prioritization Plan
Village of Cobleskill, New York

Index Year 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating 1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <75 yrs) 5 = Poor (>75 yrs)	Material /Condition Rating 1 = Good (PVC, DIP, HDPE, ACP, CIP) 3 = Fair (CIP - Mod. Condition, ACP) 5 = Poor (Clay, tuberculated CIP, ACP)	Hydraulic Rating 1 = Good (oversized, no blockages) 3 = Fair 5 = Poor (undersized or blockages)	I/I Rating 1 = Good 3 = Fair 5 = Poor	Criticality Rating 4 = Essential, no Redundancy 3 = Essential, with Redundancy 2 = Non-essential, with Redundancy 1 = Non-essential, with Redundancy	Overall Rating 1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority
1	South Grand MH CT6 to MacArthur Ave. MH CT 19	ACP	15"	1820	$160	$291,200	1974	100	38	62	1	3	3	4	4	3.8
2	Elm St. Lincoln Ave. MH H1 to Rose St. C59	CLAY	8"	216	$150	$32,400	1920	100	92	8	5	5	5	5	1	3.8
3	MH C10 under railway to MH C12	CLAY	8"	44	$150	$6,600	1920	100	92	8	5	5	5	5	1	3.8
4	MH C16 on Rte 7 to MH C30 @ int. of Washington	CLAY	8"	700	$150	$105,000	1920	100	92	8	5	5	5	5	1	3.8
5	MH D9 to MH D14 on Grand St. @ Chapel	CLAY	8"	636	$150	$95,400	1920	100	92	8	5	5	5	5	1	3.8
6	MH D14 to MH D15 on Grand St. @ Clinton Circle	CLAY	8"	305	$150	$45,750	1920	100	92	8	5	5	5	5	1	3.8
7	MH D15 To MH D16 on Grand St. @ Elm	CLAY	8"	245	$150	$36,750	1920	100	92	8	5	5	5	5	1	3.8
8	MH d16 to MH D25 on Elm @ Maple	CLAY	8"	400	$150	$60,000	1920	100	92	8	5	5	5	5	1	3.8
9	Rte 7 MH D9 @ Grand to MH B7 @ Division	CLAY	8"	315	$150	$47,250	1920	100	92	8	5	5	5	5	1	3.8
10	S. Grand MH D8 to Bulls Head Inn	CLAY	8"	440	$150	$66,000	1920	100	92	8	5	5	5	5	1	3.8
11	MH D3 on S. Grand to MH d39 @ end of Center St.	CLAY	8"	480	$150	$72,000	1920	100	92	8	5	5	5	5	1	3.8
12	MacArthur Ave. MH C2 to MH C4	CLAY	6"	340	$150	$51,000	1920	100	92	8	5	5	5	5	1	3.8
13	MH T5 under R.R. to MH T6	CLAY	15"	50	$150	$7,500	1920	100	92	8	5	5	5	5	1	3.8
14	MH T6 throught lots to MH T7 on Rte 7	CLAY	15"	300	$150	$45,000	1920	100	92	8	5	5	5	5	1	3.8
15	Rte 7 MH T7 to MH B2 @ North St.	CLAY	8"	380	$150	$57,000	1920	100	92	8	5	5	5	5	1	3.8
16	Rte 7 MH B2 to MH B7 @ Division St.	CLAY	8"	9523	$150	$1,428,450	1920	100	92	8	5	5	5	5	1	3.8
17	Rte 7 MHt7 to MH A2 @ Legion Dr.	CLAY	8"	380	$150	$57,000	1920	100	92	8	5	5	5	5	1	3.8
18	MH T1 @ WWTP to South Grand MH CT6	ACP	18"	1650	$150	$247,500	1974	100	38	62	1	3	3	3	4	3.7
19	MH CT19 across MacArthur, Rte. 7, & R.R. to Elm St. MH CT 22	CLAY	8"	845	$150	$126,750	1920	100	92	8	5	5	4	5	1	3.7
20	Elm St. MH CT 22 to Grandview Terrace E. MH 13	CLAY	8"	316	$150	$47,400	1920	100	92	8	5	5	4	5	1	3.7
21	MH ct 22 on Elm to Lincoln Ave H1	CLAY	8"	170	$150	$25,500	1920	100	92	8	5	5	4	5	1	3.7
22	MH CT6 on S. Grand to MH C2 int S. Grand & MacArthur	CLAY	15"	590	$150	$88,500	1920	100	92	8	5	5	4	5	1	3.7
23	MH C2 on S. Grand to MH D9 @ Rte 7	CLAY	10"	640	$150	$96,000	1920	100	92	8	5	5	4	5	1	3.7
24	MH D25 to MH D29 on N. Grand @ Snyder	CLAY	8"	500	$150	$75,000	1920	100	92	8	5	5	4	5	1	3.7
25	Center St. Main	CLAY	8"	350	$150	$52,500	1920	100	92	8	5	5	4	5	1	3.7
26	Division St. Main	CLAY	8"	350	$150	$52,500	1920	100	92	8	5	5	4	5	1	3.7

APPENDIX M
Sewer Main Replacement Costs and Prioritization Plan
Village of Cobleskill, New York

Index Year 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating 1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <75 yrs) 5 = Poor (>75 yrs)	Material /Condition Rating 1 = Good (PVC, DIP, HDPE, ACP, CIP) 3 = Fair (CIP - Mod. Condition, ACP) 5 = Poor (Clay, tuberculated CIP, ACP)	Hydraulic Rating 1 = Good (oversized, no blockages) 3 = Fair 5 = Poor (undersized or blockages)	I/I Rating 1 = Good 3 = Fair 5 = Poor	Criticality Rating 4 = Essential, no Redundancy 3 = Essential, with Redundancy 2 = Non-essential, with Redundancy 1 = Non-essential, with Redundancy	Overall Rating 1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority
27	MH T1 @ WWTP to MH T4 On MacArthur Ave	CLAY	15"	419	$150	$62,850	1920	100	92	8	5	5	4	5	1	3.7
28	MH T4 to T5 through lots	CLAY	15"	195	$150	$29,250	1920	100	92	8	5	5	4	5	1	3.7
29	End of Pine St. to Quarry St.	CLAY	8"	500	$150	$75,000	1920	100	92	8	5	5	4	5	1	3.7
30	Grandview MH A21 to MH A24 @ St. Christophers Pl.	CLAY	8"	635	$150	$95,250	1920	100	92	8	5	5	4	5	1	3.7
31	Rte 7 MH A2 @ Legion Dr. to MH A5	CLAY	8"	600	$150	$90,000	1920	100	92	8	5	5	4	5	1	3.7
32	MH T6 alongside R.R. to pump station	CLAY	8"	2775	$150	$416,250	1920	100	92	8	5	5	5	4	1	3.7
33	MH C12 up Veterans Dr. to MH C16 on Rte. 7	CLAY	8"	486	$150	$72,900	1920	100	92	8	5	5	3	5	1	3.5
34	Rt 7 MH C30 to MH C52 @ end of Harder Ave	CLAY	8"	530	$150	$79,500	1920	100	92	8	5	5	3	5	1	3.5
35	Elm St. MH C59 to MH C48	CLAY	8"	320	$150	$48,000	1920	100	92	8	5	5	3	5	1	3.5
36	MH C37 to MH C43 on Maple	CLAY	8"	835	$150	$125,250	1920	100	92	8	5	5	3	5	1	3.5
37	MH C43 to MH C 45 on Cleveland Ave	CLAY	8"	500	$150	$75,000	1920	100	92	8	5	5	3	5	1	3.5
38	Washington Ave MH C33 to MH C37 @ Maple	CLAY	8"	440	$150	$66,000	1920	100	92	8	5	5	3	5	1	3.5
39	MH C37 to MH C41 @ end of Washington	CLAY	8"	440	$150	$66,000	1920	100	92	8	5	5	3	5	1	3.5
40	MH C33 on Elm to MH C48 on Elm	CLAY	8"	350	$150	$52,500	1920	100	92	8	5	5	3	5	1	3.5
41	MH C33 on Elm to MH C35 on Elm	CLAY	8"	660	$150	$99,000	1920	100	92	8	5	5	3	5	1	3.5
42	MH C17 on Rte 7 through lots to MH C19 on Clinton Circle	CLAY	8"	480	$150	$72,000	1920	100	92	8	5	5	3	5	1	3.5
43	MH D29 to MH D36 @ end on N. Grand St.	CLAY	8"	1625	$150	$243,750	1920	100	92	8	5	5	3	5	1	3.5
44	Quarry St. MH B45 to B39 @ North St.	CLAY	8"	960	$150	$144,000	1920	100	92	8	5	5	3	5	1	3.5
45	Grandview MH A24 to A34 @ Ridgewood Dr.	CLAY	8"	1050	$150	$157,500	1920	100	92	8	5	5	3	5	1	3.5
46	Parkway Drive Into Eden	CLAY	8"	1700	$150	$255,000	1960	100	52	48	5	5	4	4	1	3.5
47	MacArthur Ave MH CT 19 to College	ACP	8"	200	$150	$30,000	1974	100	38	62	1	4	3	3	3	3.3
48	Rte 7 MH C52 to MH C56 @ end of Bridge St.	CLAY	8"	280	$150	$42,000	1940	100	72	28	4	5	3	5	1	3.3
49	Clinton Circle Main	CLAY	8"	657	$150	$98,550	1920	100	92	8	5	5	2	5	1	3.3
50	MH C14 on Veterans to MH C15 Through park	CLAY	8"	315	$150	$47,250	1920	100	92	8	5	5	2	5	1	3.3
51	MH D25 to MH d26 on Maple Rd.	CLAY	8"	240	$150	$36,000	1920	100	92	8	5	5	2	5	1	3.3
52	High St. main	CLAY	8"	675	$150	$101,250	1920	100	92	8	5	5	2	5	1	3.3

APPENDIX M
Sewer Main Replacement Costs and Prioritization Plan
Village of Cobleskill, New York

Index Year 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating 1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <75 yrs) 5 = Poor (>75 yrs)	Material /Condition Rating 1 = Good (PVC, DIP, HDPE, ACP, CIP) 3 = Fair (CIP - Mod. Condition, ACP) 5 = Poor (Clay, tuberculated CIP, ACP)	Hydraulic Rating 1 = Good (oversized, no blockages) 3 = Fair 5 = Poor (undersized or blockages)	I/I Rating 1 = Good 3 = Fair 5 = Poor	Criticality Rating 4 = Essential, no Redundancy 3 = Essential, with Redundancy 2 = Non-essential, with Redundancy 1 = Non-essential, with Redundancy	Overall Rating 1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority
53	MH A4 Under RR to MH A6	CLAY	8"	370	$150	$55,500	1920	100	92	8	5	5	2	5	1	3.3
54	MH A6 down East Terrace	CLAY	8"	530	$150	$79,500	1920	100	92	8	5	4	4	4	1	3.3
55	Harder Ave main	CLAY	8"	420	$150	$63,000	1920	100	92	8	5	5	3	3	1	3.2
56	MH J3 along R.R. to Pump Station	CLAY	8"	900	$150	$135,000	1920	100	92	8	5	4	3	4	1	3.2
57	MH T6 to MH T6A up Spring To MH T6B	CLAY	8"	710	$150	$106,500	1920	100	92	8	5	3	3	4	1	3.0
58	Campus Drive	CLAY	8"	1200	$150	$180,000	1950	100	62	38	3	3	3	4	1	2.7
59	Davies Ln.	CLAY	8"	320	$150	$48,000	1950	100	62	38	3	3	3	4	1	2.7
60	Anthony Circle	CLAY	8"	300	$150	$45,000	1960	100	52	48	3	3	3	4	1	2.7
61	Pleasant View Dr. MH A11 to MH A14 @ Crabapple	CLAY	8"	930	$150	$139,500	1960	100	52	48	3	3	3	4	1	2.7
62	Pleasant View Dr. MH A14 to end	CLAY	8"	680	$150	$102,000	1960	100	52	48	3	3	3	4	1	2.7
63	Crabapple Ln.	PVC	8"	620	$150	$93,000	1960	100	52	48	3	3	3	4	1	2.7
64	Hillside Ave.	PVC	8"	810	$150	$121,500	1970	100	42	58	3	3	3	4	1	2.7
65	Terra Hts.	PVC	8"	300	$150	$45,000	1970	100	42	58	3	3	3	4	1	2.7
66	Canterbury Heights	PVC	8"	830	$150	$124,500	1970	100	42	58	3	3	3	4	1	2.7
67	Lark St. MH B9 to MH B11 @ Jay St.	PVC	8"	470	$150	$70,500	1995	100	17	83	1	1	5	4	1	2.3
68	Grandview MH A34 to MH A44 @ cnr of Overlook	PVC	8"	870	$150	$130,500	1960	100	52	48	5	1	3	2	1	2.3
69	Overlook Main	PVC	8"	920	$150	$138,000	1960	100	52	48	5	1	2	3	1	2.3
70	Woods Drive Main	PVC	8"	600	$150	$90,000	1960	100	52	48	5	1	2	3	1	2.3
71	Timber Ln.	PVC	8"	360	$150	$54,000	1960	100	52	48	5	1	2	3	1	2.3
72	MH CT 13 on Trunk 1 to MacArthur MH F2	PVC	8"	292	$150	$43,800	2009	100	3	97	1	1	5	2	1	2.0
73	Van Deusen Drive	PVC	8"	600	$150	$90,000	1970	100	42	58	1	2	2	3	1	1.8
74	Pump Station to MH J34C on S. Side of Rte 7	PVC	8"	1917	$150	$287,550	1990	100	22	78	1	1	4	2	1	1.8
75	North St. MH B29 to MH B39 @ end @ Quarry St.	PVC	8"	2050	$150	$307,500	1995	100	17	83	1	1	1	5	1	1.8
76	Jay St.	PVC	8"	330	$150	$49,500	1995	100	17	83	1	1	2	3	1	1.7
77	MH F2 on MacArthur to end	PVC	8"	480	$150	$72,000	2009	100	3	97	1	1	2	2	1	1.5
78	From MacArthur MH E1 under R.R. into France Lane	PVC	8"	520	$150	$78,000	2009	100	3	97	1	1	2	2	1	1.5

APPENDIX M
Sewer Main Replacement Costs and Prioritization Plan
Village of Cobleskill, New York

Index Year 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating 1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <75 yrs) 5 = Poor (>75 yrs)	Material /Condition Rating 1 = Good (PVC, DIP, HDPE, ACP, CIP) 3 = Fair (CIP - Mod. Condition, ACP) 5 = Poor (Clay, tuberculated CIP, ACP)	Hydraulic Rating 1 = Good (oversized, no blockages) 3 = Fair 5 = Poor (undersized or blockages)	I/I Rating 1 = Good 3 = Fair 5 = Poor	Criticality Rating 4 = Essential, no Redundancy 3 = Essential, with Redundancy 2 = Non-essential, with Redundancy 1 = Non-essential, with Redundancy	Overall Rating 1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority
79	MH B2 to MH B9 on North St. @ Lark	PVC	8"	500	$150	$75,000	1995	100	17	83	1	1	1	3	1	1.5
80	North St. MH B9 to MH B29 @ Prospect St.	PVC	8"	1350	$150	$202,500	1995	100	17	83	1	1	1	3	1	1.5
81	MH B32 on North St. Through Properties to Pine St.	PVC	8"	1100	$150	$165,000	1995	100	17	83	1	1	1	3	1	1.5
82	Lark St. MH B11 to MH B15 @ Union St.	PVC	8"	260	$150	$39,000	1995	100	17	83	1	1	1	3	1	1.5
83	Grandview Terrace E. MH 13 to Grandview Terrace N MH 18	PVC	8"	540	$150	$81,000	1997	100	15	85	1	1	1	2	1	1.3
84	Grandview Terrace N. sewer	PVC	8"	370	$150	$55,500	1997	100	15	85	1	1	1	2	1	1.3
85	Grandview Terrace E. MH 13 to end on Elm St.	PVC	8"	240	$150	$36,000	1997	100	15	85	1	1	1	2	1	1.3
86	Lincoln Ave. Main	PVC	8"	500	$150	$75,000	1997	100	15	85	1	1	1	2	1	1.3
87	MH CT 12 on Trunk 1 up Mallard La to MacArthur MH E1	PVC	8"	366	$150	$54,900	2009	100	3	97	1	1	2	1	1	1.3
88	(MacArthur)Mallard Ln. MH E1 to MH E3	PVC	8"	470	$150	$70,500	2004	100	8	92	1	1	2	1	1	1.3
89	Chapel St. MH B24 to MH D14	PVC	8"	250	$150	$37,500	1995	100	17	83	1	1	1	2	1	1.3
90	Union St. MH B15 to MH B 18 @ Chapel St.	PVC	8"	590	$150	$88,500	1995	100	17	83	1	1	1	2	1	1.3
91	MH B18 up Union and around Prospect to MH B22	PVC	8"	950	$150	$142,500	1995	100	17	83	1	1	1	2	1	1.3
92	Chapel St. MH B18 to MH B24	PVC	8"	475	$150	$71,250	1995	100	17	83	1	1	1	2	1	1.3
93	Union St. MH B 16A to MH B15 @ Lark	PVC	8"	220	$150	$33,000	1995	100	17	83	1	1	1	2	1	1.3
94	Legion Dr MH A2 to MH All	PVC	8"	580	$150	$87,000	1990	100	22	78	1	1	1	2	1	1.3
95	Legion Dr MH A11 to MH A16	PVC	8"	420	$150	$63,000	1990	100	22	78	1	1	1	2	1	1.3
96	Legion Drive MH A16 to MH A19	PVC	8"	380	$150	$57,000	1990	100	22	78	1	1	1	2	1	1.3
97	Legion Drive MH A18 to MH A20	PVC	8"	130	$150	$19,500	1990	100	22	78	1	1	1	2	1	1.3
98	Legion Dr. MH A11 to MH A13	PVC	8"	400	$150	$60,000	1990	100	22	78	1	1	1	2	1	1.3
99	Grandview Dr. MH A16 to A21	PVC	8"	275	$150	$41,250	1990	100	22	78	1	1	1	2	1	1.3
100	MH A21 on Grandview through lots to Campus Dr.	PVC	8"	960	$150	$144,000	1990	100	22	78	1	1	1	2	1	1.3
101	Rte 7 MH J34 to J 42 @ Walmart	PVC	8"	2500	$150	$375,000	1995	100	17	83	1	1	2	1	1	1.3
102	Highland Heights	PVC	8"	430	$150	$64,500	1997	100	15	85	1	1	1	1	1	1.2
103	MH CT 10 at end of Grove St. to MH C10 on Grove	PVC	8"	333	$150	$49,950	2004	100	8	92	1	1	1	1	1	1.2
104	Bridge St. MH C56 to MH C57 @ end of Rose	PVC	8"	415	$150	$62,250	2010	100	2	98	1	1	1	1	1	1.2

APPENDIX M
Sewer Main Replacement Costs and Prioritization Plan
Village of Cobleskill, New York

Index Year 2012

Priority No.	Location	Material	Existing Size (in)	Existing Length (LF)	Replacement (Construction) Unit Cost ($/LF)	Present Value Replacement Cost ($)	Date of Installation	Useful Life (Yrs)	Age of Infrastructure (Yrs)	Remaining Useful Life (Yrs)	Age Rating 1 = Good (< 50 yrs) 3 = Fair (>50 yrs & <75 yrs) 5 = Poor (>75 yrs)	Material /Condition Rating 1 = Good (PVC, DIP, HDPE, ACP, CIP) 3 = Fair (CIP - Mod. Condition, ACP) 5 = Poor (Clay, tuberculated CIP, ACP)	Hydraulic Rating 1 = Good (oversized, no blockages) 3 = Fair 5 = Poor (undersized or blockages)	I/I Rating 1 = Good 3 = Fair 5 = Poor	Criticality Rating 4 = Essential, no Redundancy 3 = Essential, with Redundancy 2 = Non-essential, with Redundancy 1 = Non-essential, with Redundancy	Overall Rating 1 = Good - Low Replacement Priority 5 = Poor - High Replacement Priority
105	Rose St. MH 57 to MH C59 on Elm	PVC	8"	520	$150	$78,000	2010	100	2	98	1	1	1	1	1	1.2

Total Pipe Replacement Length = 73705 ft

Total Replacement Cost = $11,073,950 (2012 $)

APPENDIX N

SEWER MAIN ANNUAL FUND REQUIREMENT

APPENDIX N
Sanitary Sewer Replacement Annual Set-aside Requirement
Village of Cobleskill Water & Sanitary Sewer Master Plan

Planning Period = 120 Years

Priority No.	Location	Present Value Construction Cost ($)	Contingency (2012 $)	Non Construction Cost (2012 $)	Total Project Cost (2012 $)	Funding Set-aside Required (2012 $)
1	South Grand MH CT6 to MacArthur Ave. MH CT 19	$291,200	$29,100	$87,400	$407,700	$3,400
2	Elm St. Lincoln Ave. MH H1 to Rose St. C59	$32,400	$3,200	$9,700	$45,300	$400
3	MH C10 under railway to MH C12	$6,600	$700	$2,000	$9,300	$100
4	MH C16 on Rte 7 to MH C30 @ int. of Washington	$105,000	$10,500	$31,500	$147,000	$1,200
5	MH D9 to MH D14 on Grand St. @ Chapel	$95,400	$9,500	$28,600	$133,500	$1,100
6	MH D14 to MH D15 on Grand St. @ Clinton Circle	$45,750	$4,600	$13,700	$64,050	$500
7	MH D15 To MH D16 on Grand St. @ Elm	$36,750	$3,700	$11,000	$51,450	$400
8	MH d16 to MH D25 on Elm @ Maple	$60,000	$6,000	$18,000	$84,000	$700
9	Rte 7 MH D9 @ Grand to MH B7 @ Division	$47,250	$4,700	$14,200	$66,150	$600
10	S. Grand MH D8 to Bulls Head Inn	$66,000	$6,600	$19,800	$92,400	$800
11	MH D3 on S. Grand to MH d39 @ end of Center St.	$72,000	$7,200	$21,600	$100,800	$800
12	MacArthur Ave. MH C2 to MH C4	$51,000	$5,100	$15,300	$71,400	$600
13	MH T5 under R.R. to MH T6	$7,500	$800	$2,300	$10,600	$100
14	MH T6 throught lots to MH T7 on Rte 7	$45,000	$4,500	$13,500	$63,000	$500
15	Rte 7 MH T7 to MH B2 @ North St.	$57,000	$5,700	$17,100	$79,800	$700
16	Rte 7 MH B2 to MH B7 @ Division St.	$1,428,450	$142,800	$428,500	$1,999,750	$16,700
17	Rte 7 MHt7 to MH A2 @ Legion Dr.	$57,000	$5,700	$17,100	$79,800	$700
18	MH T1 @ WWTP to South Grand MH CT6	$247,500	$24,800	$74,300	$346,600	$2,900
19	MH CT19 across MacArthur, Rte. 7, & R.R. to Elm St. MH CT 22	$126,750	$12,700	$38,000	$177,450	$1,500
20	Elm St. MH CT 22 to Grandview Terrace E. MH 13	$47,400	$4,700	$14,200	$66,300	$600
21	MH ct 22 on Elm to Lincoln Ave H1	$25,500	$2,600	$7,700	$35,800	$300
22	MH CT6 on S. Grand to MH C2 int S. Grand & MacArthur	$88,500	$8,900	$26,600	$124,000	$1,000
23	MH C2 on S. Grand to MH D9 @ Rte 7	$96,000	$9,600	$28,800	$134,400	$1,100
24	MH D25 to MH D29 on N. Grand @ Snyder	$75,000	$7,500	$22,500	$105,000	$900
25	Center St. Main	$52,500	$5,300	$15,800	$73,600	$600
26	Division St. Main	$52,500	$5,300	$15,800	$73,600	$600
27	MH T1 @ WWTP to MH T4 On MacArthur Ave	$62,850	$6,300	$18,900	$88,050	$700
28	MH T4 to T5 through lots	$29,250	$2,900	$8,800	$40,950	$300
29	End of Pine St. to Quarry St.	$75,000	$7,500	$22,500	$105,000	$900
30	Grandview MH A21 to MH A24 @ St. Christophers Pl.	$95,250	$9,500	$28,600	$133,350	$1,100
31	Rte 7 MH A2 @ Legion Dr. to MH A5	$90,000	$9,000	$27,000	$126,000	$1,100
32	MH T6 alongside R.R. to pump station	$416,250	$41,600	$124,900	$582,750	$4,900
33	MH C12 up Veterans Dr. to MH C16 on Rte. 7	$72,900	$7,300	$21,900	$102,100	$900

APPENDIX N
Sanitary Sewer Replacement Annual Set-aside Requirement
Village of Cobleskill Water & Sanitary Sewer Master Plan

Planning Period = 120 Years

Priority No.	Location	Present Value Construction Cost ($)	Contingency (2012 $)	Non Construction Cost (2012 $)	Total Project Cost (2012 $)	Funding Set-aside Required (2012 $)
34	Rt 7 MH C30 to MH C52 @ end of Harder Ave	$79,500	$8,000	$23,900	$111,400	$900
35	Elm St. MH C59 to MH C48	$48,000	$4,800	$14,400	$67,200	$600
36	MH C37 to MH C43 on Maple	$125,250	$12,500	$37,600	$175,350	$1,500
37	MH C43 to MH C 45 on Cleveland Ave	$75,000	$7,500	$22,500	$105,000	$900
38	Washington Ave MH C33 to MH C37 @ Maple	$66,000	$6,600	$19,800	$92,400	$800
39	MH C37 to MH C41 @ end of Washington	$66,000	$6,600	$19,800	$92,400	$800
40	MH C33 on Elm to MH C48 on Elm	$52,500	$5,300	$15,800	$73,600	$600
41	MH C33 on Elm to MH C35 on Elm	$99,000	$9,900	$29,700	$138,600	$1,200
42	MH C17 on Rte 7 through lots to MH C19 on Clinton Circle	$72,000	$7,200	$21,600	$100,800	$800
43	MH D29 to MH D36 @ end on N. Grand St.	$243,750	$24,400	$73,100	$341,250	$2,800
44	Quarry St. MH B45 to B39 @ North St.	$144,000	$14,400	$43,200	$201,600	$1,700
45	Grandview MH A24 to A34 @ Ridgewood Dr.	$157,500	$15,800	$47,300	$220,600	$1,800
46	Parkway Drive Into Eden	$255,000	$25,500	$76,500	$357,000	$3,000
47	MacArthur Ave MH CT 19 to College	$30,000	$3,000	$9,000	$42,000	$400
48	Rte 7 MH C52 to MH C56 @ end of Bridge St.	$42,000	$4,200	$12,600	$58,800	$500
49	Clinton Circle Main	$98,550	$9,900	$29,600	$138,050	$1,200
50	MH C14 on Veterans to MH C15 Through park	$47,250	$4,700	$14,200	$66,150	$600
51	MH D25 to MH d26 on Maple Rd.	$36,000	$3,600	$10,800	$50,400	$400
52	High St. main	$101,250	$10,100	$30,400	$141,750	$1,200
53	MH A4 Under RR to MH A6	$55,500	$5,600	$16,700	$77,800	$600
54	MH A6 down East Terrace	$79,500	$8,000	$23,900	$111,400	$900
55	Harder Ave main	$63,000	$6,300	$18,900	$88,200	$700
56	MH J3 along R.R. to Pump Station	$135,000	$13,500	$40,500	$189,000	$1,600
57	MH T6 to MH T6A up Spring To MH T6B	$106,500	$10,700	$32,000	$149,200	$1,200
58	Campus Drive	$180,000	$18,000	$54,000	$252,000	$2,100
59	Davies Ln.	$48,000	$4,800	$14,400	$67,200	$600
60	Anthony Circle	$45,000	$4,500	$13,500	$63,000	$500
61	Pleasant View Dr. MH A11 to MH A14 @ Crabapple	$139,500	$14,000	$41,900	$195,400	$1,600
62	Pleasant View Dr. MH A14 to end	$102,000	$10,200	$30,600	$142,800	$1,200
63	Crabapple Ln.	$93,000	$9,300	$27,900	$130,200	$1,100
64	Hillside Ave.	$121,500	$12,200	$36,500	$170,200	$1,400
65	Terra Hts.	$45,000	$4,500	$13,500	$63,000	$500
66	Canterbury Heights	$124,500	$12,500	$37,400	$174,400	$1,500

APPENDIX N
Sanitary Sewer Replacement Annual Set-aside Requirement
Village of Cobleskill Water & Sanitary Sewer Master Plan

Planning Period = 120 Years

Priority No.	Location	Present Value Construction Cost ($)	Contingency (2012 $)	Non Construction Cost (2012 $)	Total Project Cost (2012 $)	Funding Set-aside Required (2012 $)
67	Lark St. MH B9 to MH B11 @ Jay St.	$70,500	$7,100	$21,200	$98,800	$800
68	Grandview MH A34 to MH A44 @ cnr of Overlook	$130,500	$13,100	$39,200	$182,800	$1,500
69	Overlook Main	$138,000	$13,800	$41,400	$193,200	$1,600
70	Woods Drive Main	$90,000	$9,000	$27,000	$126,000	$1,100
71	Timber Ln.	$54,000	$5,400	$16,200	$75,600	$600
72	MH CT 13 on Trunk 1 to MacArthur MH F2	$43,800	$4,400	$13,100	$61,300	$500
73	Van Deusen Drive	$90,000	$9,000	$27,000	$126,000	$1,100
74	Pump Station to MH J34C on S. Side of Rte 7	$287,550	$28,800	$86,300	$402,650	$3,400
75	North St. MH B29 to MH B39 @ end @ Quarry St.	$307,500	$30,800	$92,300	$430,600	$3,600
76	Jay St.	$49,500	$5,000	$14,900	$69,400	$600
77	MH F2 on MacArthur to end	$72,000	$7,200	$21,600	$100,800	$800
78	From MacArthur MH E1 under R.R. into France Lane	$78,000	$7,800	$23,400	$109,200	$900
79	MH B2 to MH B9 on North St. @ Lark	$75,000	$7,500	$22,500	$105,000	$900
80	North St. MH B9 to MH B29 @ Prospect St.	$202,500	$20,300	$60,800	$283,600	$2,400
81	MH B32 on North St. Through Properties to Pine St.	$165,000	$16,500	$49,500	$231,000	$1,900
82	Lark St. MH B11 to MH B15 @ Union St.	$39,000	$3,900	$11,700	$54,600	$500
83	Grandview Terrace E. MH 13 to Grandview Terrace N MH 18	$81,000	$8,100	$24,300	$113,400	$900
84	Grandview Terrace N. sewer	$55,500	$5,600	$16,700	$77,800	$600
85	Grandview Terrace E. MH 13 to end on Elm St.	$36,000	$3,600	$10,800	$50,400	$400
86	Lincoln Ave. Main	$75,000	$7,500	$22,500	$105,000	$900
87	MH CT 12 on Trunk 1 up Mallard La to MacArthur MH E1	$54,900	$5,500	$16,500	$76,900	$600
88	(MacArthur)Mallard Ln. MH E1 to MH E3	$70,500	$7,100	$21,200	$98,800	$800
89	Chapel St. MH B24 to MH D14	$37,500	$3,800	$11,300	$52,600	$400
90	Union St. MH B15 to MH B 18 @ Chapel St.	$88,500	$8,900	$26,600	$124,000	$1,000
91	MH B18 up Union and around Prospect to MH B22	$142,500	$14,300	$42,800	$199,600	$1,700
92	Chapel St. MH B18 to MH B24	$71,250	$7,100	$21,400	$99,750	$800
93	Union St. MH B 16A to MH B15 @ Lark	$33,000	$3,300	$9,900	$46,200	$400
94	Legion Dr MH A2 to MH All	$87,000	$8,700	$26,100	$121,800	$1,000
95	Legion Dr MH A11 to MH A16	$63,000	$6,300	$18,900	$88,200	$700
96	Legion Drive MH A16 to MH A19	$57,000	$5,700	$17,100	$79,800	$700
97	Legion Drive MH A18 to MH A20	$19,500	$2,000	$5,900	$27,400	$200
98	Legion Dr. MH A11 to MH A13	$60,000	$6,000	$18,000	$84,000	$700
99	Grandview Dr. MH A16 to A21	$41,250	$4,100	$12,400	$57,750	$500

APPENDIX N
Sanitary Sewer Replacement Annual Set-aside Requirement
Village of Cobleskill Water & Sanitary Sewer Master Plan

Planning Period = 120 Years

Priority No.	Location	Present Value Construction Cost ($)	Contingency (2012 $)	Non Construction Cost (2012 $)	Total Project Cost (2012 $)	Funding Set-aside Required (2012 $)
100	MH A21 on Grandview through lots to Campus Dr.	$144,000	$14,400	$43,200	$201,600	$1,700
101	Rte 7 MH J34 to J 42 @ Walmart	$375,000	$37,500	$112,500	$525,000	$4,400
102	Highland Heights	$64,500	$6,500	$19,400	$90,400	$800
103	MH CT 10 at end of Grove St. to MH C10 on Grove	$49,950	$5,000	$15,000	$69,950	$600
104	Bridge St. MH C56 to MH C57 @ end of Rose	$62,250	$6,200	$18,700	$87,150	$700
105	Rose St. MH 57 to MH C59 on Elm	$78,000	$7,800	$23,400	$109,200	$900
	Totals	$11,073,950	$1,108,600	$3,323,800	$15,506,350	$129,500

APPENDIX O

SEWER MAIN FINANCING PLAN SPREADSHEETS

APPENDIX O
Sanitary Sewer Replacement Financing Plan
Village of Cobleskill Water & Sanitary Sewer Master Plan

Initial Assumptions:

Total Replacement Cost =	$15,506,350	(2012 $)	Construction Inflation Rate	5.00%	(cost increase)
Required Annual Reserve =	$129,500	(2012 $)	Contribution Escallation Rate =	5.20%	(rate increase)
Program Duration =	120	Years	Interest Rate =	1.50%	(earned on Reserve)
Project Frequency =	3	yrs.	Initial Set-aside Year =	2013	January 1st
Number of Projects =	40		First Project Timing =	4th Year	
Target Project Budget =	$388,500	(2012 $)			

Year Count	Year	Project Cost (2012 $)	Annual Capital Project Reserve Fund Contribution (Future $)	Project Cost (Future $)	Post-Project Reserve Fund Balance (Future $)	Interest Earned in Current Year	Project Funds Available At Year-End (Future $)
1	2013	$0	$129,500	$0	$129,500	$1,943	$131,443
2	2014	$0	$136,234	$0	$267,677	$4,015	$271,692
3	2015	$0	$143,318	$0	$415,010	$6,225	$421,235
4	2016	($388,500)	$150,771	($449,737)	$122,269	$1,834	$124,103
5	2017	$0	$158,611	$0	$282,713	$4,241	$286,954
6	2018	$0	$166,859	$0	$453,813	$6,807	$460,620
7	2019	($388,500)	$175,535	($520,627)	$115,528	$1,733	$117,261
8	2020	$0	$184,663	$0	$301,924	$4,529	$306,453
9	2021	$0	$194,266	$0	$500,718	$7,511	$508,229
10	2022	($388,500)	$204,367	($602,691)	$109,906	$1,649	$111,554
11	2023	$0	$214,994	$0	$326,549	$4,898	$331,447
12	2024	$0	$226,174	$0	$557,621	$8,364	$565,985
13	2025	($388,500)	$237,935	($697,690)	$106,230	$1,593	$107,824
14	2026	$0	$250,308	$0	$358,132	$5,372	$363,504
15	2027	$0	$263,324	$0	$626,827	$9,402	$636,230
16	2028	($388,500)	$277,017	($807,664)	$105,582	$1,584	$107,166
17	2029	$0	$291,422	$0	$398,588	$5,979	$404,567
18	2030	$0	$306,575	$0	$711,142	$10,667	$721,809
19	2031	($388,500)	$322,517	($934,972)	$109,354	$1,640	$110,995
20	2032	$0	$339,288	$0	$450,283	$6,754	$457,037
21	2033	$0	$356,931	$0	$813,968	$12,210	$826,178
22	2034	($388,500)	$375,492	($1,082,346)	$119,324	$1,790	$121,114

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Year Count	Year	Project Cost (2012 $)	Annual Capital Project Reserve Fund Contribution (Future $)	Project Cost (Future $)	Post-Project Reserve Fund Balance (Future $)	Interest Earned in Current Year	Project Funds Available At Year-End (Future $)
23	2035	$0	$395,017	$0	$516,131	$7,742	$523,873
24	2036	$0	$415,558	$0	$939,431	$14,091	$953,522
25	2037	($388,500)	$437,167	($1,252,951)	$137,738	$2,066	$139,805
26	2038	$0	$459,900	$0	$599,704	$8,996	$608,700
27	2039	$0	$483,815	$0	$1,092,515	$16,388	$1,108,902
28	2040	($388,500)	$508,973	($1,450,448)	$167,427	$2,511	$169,939
29	2041	$0	$535,440	$0	$705,378	$10,581	$715,959
30	2042	$0	$563,282	$0	$1,279,241	$19,189	$1,298,430
31	2043	($388,500)	$592,573	($1,679,075)	$211,928	$3,179	$215,107
32	2044	$0	$623,387	$0	$838,494	$12,577	$851,071
33	2045	$0	$655,803	$0	$1,506,875	$22,603	$1,529,478
34	2046	($388,500)	$689,905	($1,943,739)	$275,644	$4,135	$279,778
35	2047	$0	$725,780	$0	$1,005,558	$15,083	$1,020,641
36	2048	$0	$763,520	$0	$1,784,162	$26,762	$1,810,924
37	2049	($388,500)	$803,223	($2,250,121)	$364,027	$5,460	$369,487
38	2050	$0	$844,991	$0	$1,214,478	$18,217	$1,232,695
39	2051	$0	$888,931	$0	$2,121,626	$31,824	$2,153,450
40	2052	($388,500)	$935,155	($2,604,796)	$483,810	$7,257	$491,067
41	2053	$0	$983,783	$0	$1,474,850	$22,123	$1,496,973
42	2054	$0	$1,034,940	$0	$2,531,912	$37,979	$2,569,891
43	2055	($388,500)	$1,088,757	($3,015,377)	$643,271	$9,649	$652,920
44	2056	$0	$1,145,372	$0	$1,798,292	$26,974	$1,825,266

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45	2057	$0	$1,204,931	$0	$3,030,198	$45,453	$3,075,651
46	2058	($388,500)	$1,267,588	($3,490,676)	$852,562	$12,788	$865,351
47	2059	$0	$1,333,502	$0	$2,198,853	$32,983	$2,231,836
48	2060	$0	$1,402,845	$0	$3,634,681	$54,520	$3,689,201
49	2061	($388,500)	$1,475,792	($4,040,893)	$1,124,100	$16,862	$1,140,962
50	2062	$0	$1,552,534	$0	$2,693,495	$40,402	$2,733,898
51	2063	$0	$1,633,265	$0	$4,367,163	$65,507	$4,432,671
52	2064	($388,500)	$1,718,195	($4,677,839)	$1,473,027	$22,095	$1,495,122
53	2065	$0	$1,807,541	$0	$3,302,664	$49,540	$3,352,204
54	2066	$0	$1,901,533	$0	$5,253,737	$78,806	$5,332,543
55	2067	($388,500)	$2,000,413	($5,415,183)	$1,917,773	$28,767	$1,946,540
56	2068	$0	$2,104,435	$0	$4,050,975	$60,765	$4,111,739
57	2069	$0	$2,213,865	$0	$6,325,605	$94,884	$6,420,489
58	2070	($388,500)	$2,328,986	($6,268,752)	$2,480,723	$37,211	$2,517,934
59	2071	$0	$2,450,094	$0	$4,968,027	$74,520	$5,042,548
60	2072	$0	$2,577,498	$0	$7,620,046	$114,301	$7,734,347
61	2073	($388,500)	$2,711,528	($7,256,864)	$3,189,011	$47,835	$3,236,847
62	2074	$0	$2,852,528	$0	$6,089,374	$91,341	$6,180,715
63	2075	$0	$3,000,859	$0	$9,181,574	$137,724	$9,319,298
64	2076	($388,500)	$3,156,904	($8,400,727)	$4,075,475	$61,132	$4,136,607
65	2077	$0	$3,321,063	$0	$7,457,670	$111,865	$7,569,535
66	2078	$0	$3,493,758	$0	$11,063,293	$165,949	$11,229,243

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67	2079	($388,500)	$3,675,434	($9,724,891)	$5,179,786	$77,697	$5,257,482
68	2080	$0	$3,866,556	$0	$9,124,039	$136,861	$9,260,899
69	2081	$0	$4,067,617	$0	$13,328,516	$199,928	$13,528,444
70	2082	($388,500)	$4,279,133	($11,257,777)	$6,549,801	$98,247	$6,648,048
71	2083	$0	$4,501,648	$0	$11,149,696	$167,245	$11,316,941
72	2084	$0	$4,735,734	$0	$16,052,675	$240,790	$16,293,465
73	2085	($388,500)	$4,981,992	($13,032,285)	$8,243,172	$123,648	$8,366,820
74	2086	$0	$5,241,056	$0	$13,607,876	$204,118	$13,811,994
75	2087	$0	$5,513,591	$0	$19,325,584	$289,884	$19,615,468
76	2088	($388,500)	$5,800,297	($15,086,498)	$10,329,267	$154,939	$10,484,206
77	2089	$0	$6,101,913	$0	$16,586,119	$248,792	$16,834,911
78	2090	$0	$6,419,212	$0	$23,254,123	$348,812	$23,602,935
79	2091	($388,500)	$6,753,011	($17,464,508)	$12,891,438	$193,372	$13,084,810
80	2092	$0	$7,104,168	$0	$20,188,978	$302,835	$20,491,812
81	2093	$0	$7,473,585	$0	$27,965,397	$419,481	$28,384,878
82	2094	($388,500)	$7,862,211	($20,217,351)	$16,029,738	$240,446	$16,270,184
83	2095	$0	$8,271,046	$0	$24,541,230	$368,118	$24,909,348
84	2096	$0	$8,701,140	$0	$33,610,489	$504,157	$34,114,646
85	2097	($388,500)	$9,153,600	($23,404,111)	$19,864,135	$297,962	$20,162,097
86	2098	$0	$9,629,587	$0	$29,791,684	$446,875	$30,238,559
87	2099	$0	$10,130,325	$0	$40,368,884	$605,533	$40,974,417
88	2100	($388,500)	$10,657,102	($27,093,184)	$24,538,336	$368,075	$24,906,411

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89	2101	$0	$11,211,272	$0	$36,117,682	$541,765	$36,659,448
90	2102	$0	$11,794,258	$0	$48,453,705	$726,806	$49,180,511
91	2103	($388,500)	$12,407,559	($31,363,747)	$30,224,323	$453,365	$30,677,688
92	2104	$0	$13,052,752	$0	$43,730,440	$655,957	$44,386,396
93	2105	$0	$13,731,495	$0	$58,117,892	$871,768	$58,989,660
94	2106	($388,500)	$14,445,533	($36,307,457)	$37,127,736	$556,916	$37,684,652
95	2107	$0	$15,196,701	$0	$52,881,353	$793,220	$53,674,573
96	2108	$0	$15,986,929	$0	$69,661,502	$1,044,923	$70,706,425
97	2109	($388,500)	$16,818,249	($42,030,420)	$45,494,254	$682,414	$46,176,668
98	2110	$0	$17,692,798	$0	$63,869,467	$958,042	$64,827,509
99	2111	$0	$18,612,824	$0	$83,440,333	$1,251,605	$84,691,938
100	2112	($388,500)	$19,580,691	($48,655,465)	$55,617,164	$834,257	$56,451,421
101	2113	$0	$20,598,887	$0	$77,050,308	$1,155,755	$78,206,062
102	2114	$0	$21,670,029	$0	$99,876,091	$1,498,141	$101,374,233
103	2115	($388,500)	$22,796,870	($56,324,783)	$67,846,320	$1,017,695	$68,864,015
104	2116	$0	$23,982,308	$0	$92,846,322	$1,392,695	$94,239,017
105	2117	$0	$25,229,388	$0	$119,468,405	$1,792,026	$121,260,431
106	2118	($388,500)	$26,541,316	($65,202,977)	$82,598,770	$1,238,982	$83,837,751
107	2119	$0	$27,921,464	$0	$111,759,216	$1,676,388	$113,435,604
108	2120	$0	$29,373,380	$0	$142,808,984	$2,142,135	$144,951,119
109	2121	($388,500)	$30,900,796	($75,480,596)	$100,371,319	$1,505,570	$101,876,889
110	2122	$0	$32,507,638	$0	$134,384,526	$2,015,768	$136,400,294

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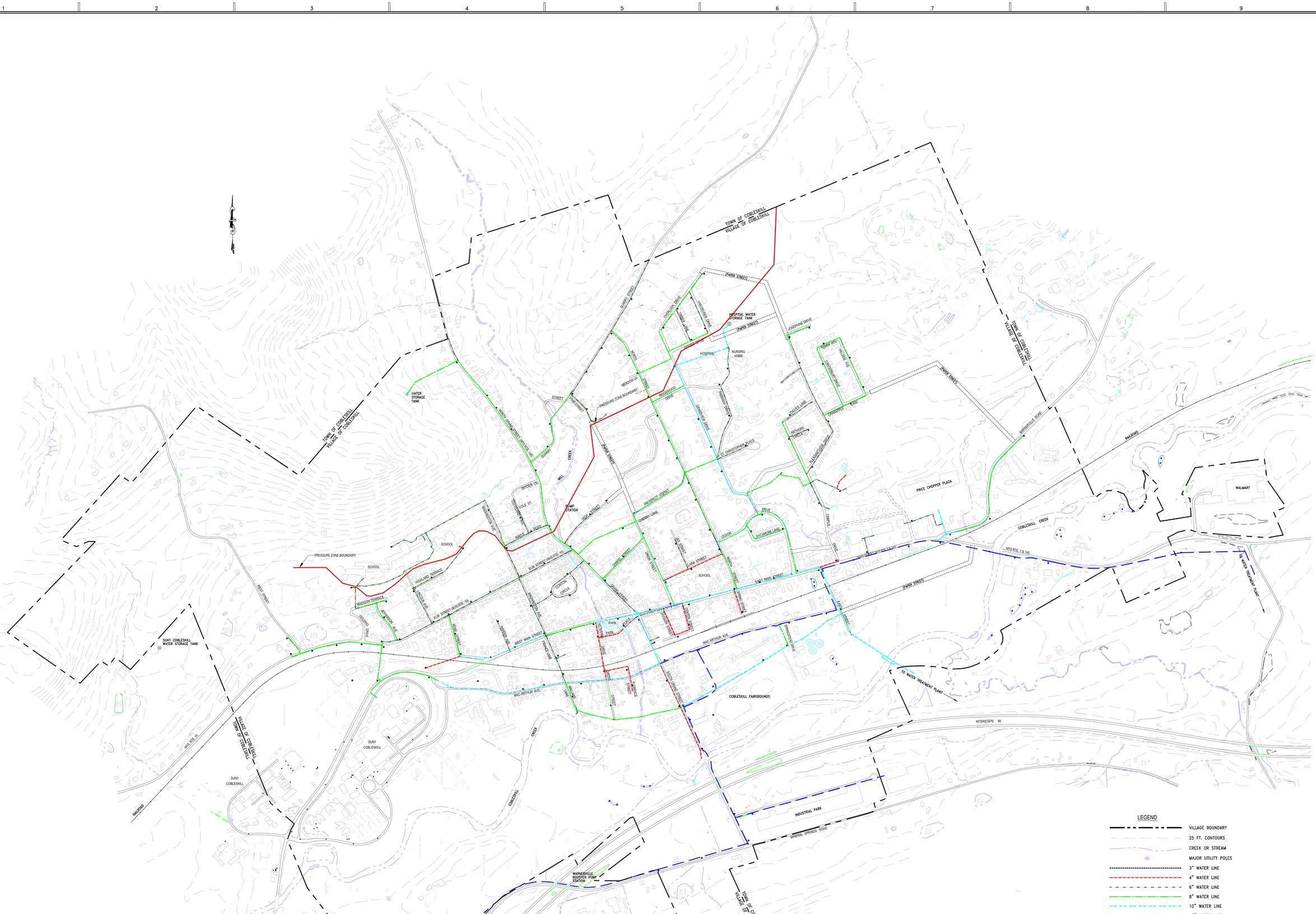
111	2123	$0	$34,198,035	$0	$170,598,329	$2,558,975	$173,157,304
112	2124	($388,500)	$35,976,332	($87,378,225)	$121,755,411	$1,826,331	$123,581,742
113	2125	$0	$37,847,102	$0	$161,428,844	$2,421,433	$163,850,277
114	2126	$0	$39,815,151	$0	$203,665,428	$3,054,981	$206,720,409
115	2127	($388,500)	$41,885,539	($101,151,218)	$147,454,730	$2,211,821	$149,666,551
116	2128	$0	$44,063,587	$0	$193,730,138	$2,905,952	$196,636,090
117	2129	$0	$46,354,893	$0	$242,990,984	$3,644,865	$246,635,849
118	2130	($388,500)	$48,765,348	($117,095,179)	$178,306,017	$2,674,590	$180,980,608
119	2131	$0	$51,301,146	$0	$232,281,754	$3,484,226	$235,765,980
120	2132	$0	$53,968,806	$0	$289,734,786	$4,346,022	$294,080,807
121	2133	($388,500)	$56,775,183	($135,552,306)	$215,303,685	$3,229,555	$218,533,240



LEGEND

- VILLAGE BOUNDARY
- 25 FT. CONTOURS
- CREEK OR STREAM
- MAJOR UTILITY POLES
- 3" WATER LINE
- 4" WATER LINE
- 6" WATER LINE
- 8" WATER LINE
- 10" WATER LINE
- 12" WATER LINE
- HYDRANT

DISCLAIMER:

THIS DRAWING HAS BEEN PREPARED, IN PART, BASED UPON INFORMATION FURNISHED BY OTHERS. WHILE THIS INFORMATION IS BELIEVED TO BE RELIABLE, THE ENGINEER CANNOT ASSURE ITS ACCURACY, AND THUS IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS DRAWING OR FOR ANY ERRORS OR OMISSIONS WHICH MAY HAVE BEEN INCORPORATED INTO IT AS A RESULT. THOSE RELYING ON THIS DOCUMENT ARE ADVISED TO OBTAIN INDEPENDENT VERIFICATION OF ITS ACCURACY BEFORE APPLYING IT FOR ANY PURPOSE.

NOTES: SCALE: 1"=200' CONTOUR INTERVAL: 5'.

MAPPING COMPILED BY TYGA ENGINEERING, SURVEYING, P.C. (TYGA) USING STEREOPHOTOGRAMMETRIC METHODS FROM 1" =1000' SCALE AERIAL PHOTOGRAPHY FLOWN 05/07/96.

MAPPING COMPILED WITHOUT BENEFIT OF A FIELD EST. AREAS OUTLINED AND NOTED INDICATE AREAS OF DOUBTFUL ACCURACY.

THE CONTOURS IN THE AREA LOCATED BETWEEN THE MAPPING LIMITS AND THE EDGE OF MAPPING CAN BE OF QUESTIONABLE ACCURACY DUE TO THE PROCESS OF DTM CONTOUR GENERATION.

MAPPING IS BASED ON HORIZONTAL AND VERTICAL CONTROL COORDINATES PROVIDED BY TYGA.

ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

ISSUE	REV.	LOCATION	DATE	AP'D	REMARKS

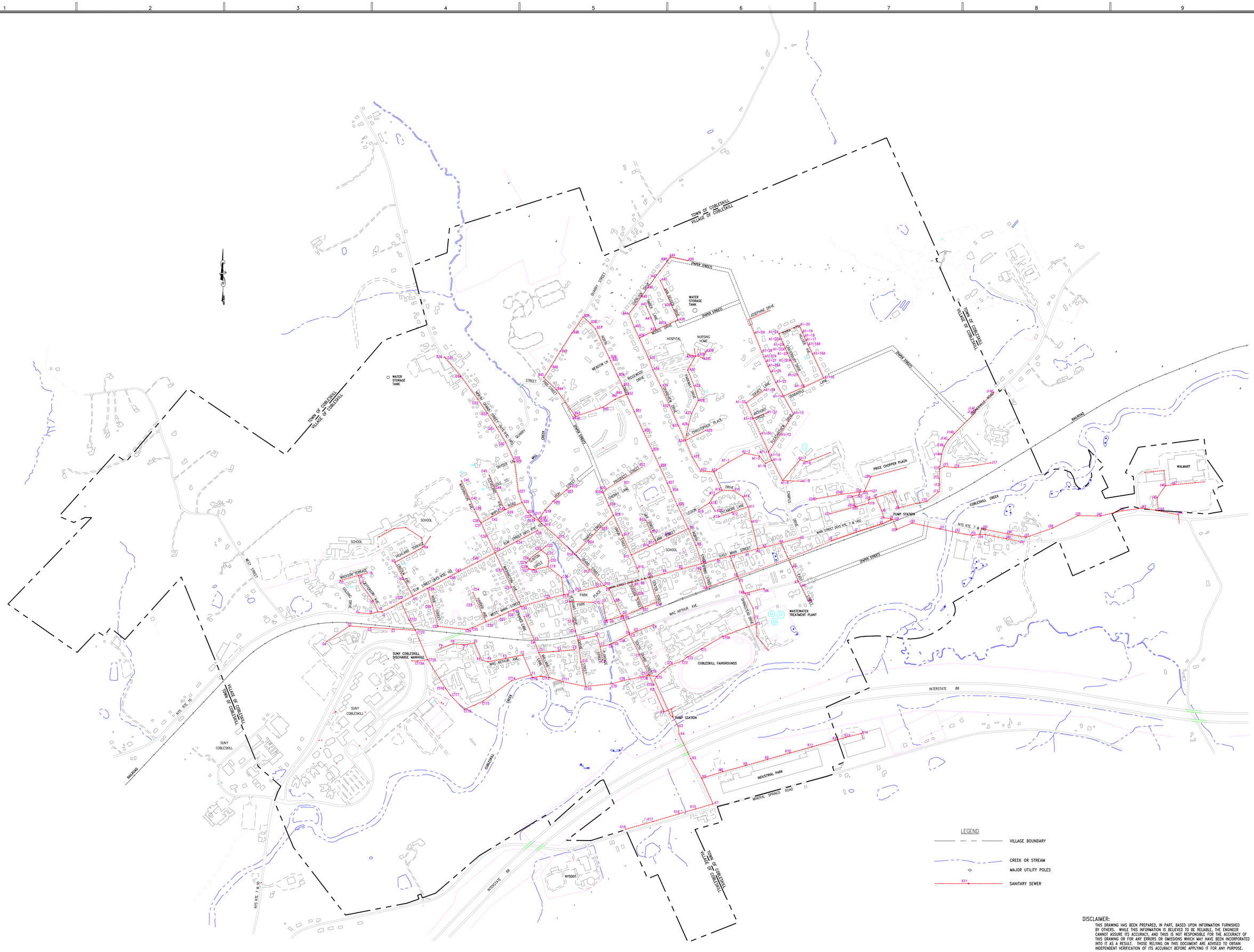
SCALE	1" = 400'
DRAWN	JG
DATE	9/1/11
DESIGNED	JG
CHECKED	MDH

VILLAGE OF COBLESKILL
WATER & SANITARY SEWER
MASTER PLAN
SCHOHARIE COUNTY NEW YORK STATE

WATER SYSTEM BASEMAP

Lamont Engineers
ENGINEERS • SURVEYORS • PLANNERS • FACILITY OPERATIONS
ONE MAIN ST., COBLESKILL, N.Y. 12043 (518) 234-4028

PROJECT NO.	DRAWING NO.	FILE NO.
2011017	BASEMAP	



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