Engineering Report

South and Center Chautauqua Lake Sewer Districts
Chautauqua County, NY

Sanitary Sewer Reconstruction
March 2009

General

The South and Center Chautauqua Lake Sewer Districts (S&CCLSD) was formed in 1969 and consolidated a number of existing sanitary sewer systems along the eastern/southern end of Chautauqua Lake in Chautauqua County, NY. Two of the largest such systems are in the Villages of Lakewood and Celoron and areas adjacent in the Town of Busti and, more significantly, in the Town of Ellicott. The bulk of these collection systems, totaling in excess of 50 miles of sewers, were originally constructed in the 1930s and 40s (some even in the very early 1900's) and utilized vitrified clay tile as the predominate sewer pipe material of that period, with some transite pipe also used.

The S&CCLSD is proactive with asset management and has completely assessed the condition of these 70 year old sewers. The wastewater industry standard assessment rating system, NAAPI, was used by S&CCLSD exam-certified technicians to rate faults documented by internal television inspections of all sewers. Many expensive repairs were made during the past six (6) years, including both open cut and cast in place Insituform liners, as a consequence of findings.

There remain in excess of 150 locations, mostly 3 to 6 feet in length that must be fixed. This is due to the high risk of complete failure and/or causing sewer blockages, resulting on more back ups in homes and spills from manholes that reach the Chautauqua Lake Watershed. A plan and schedule, through year 2020, shows that $2,041,500 of open cut repair work is essential and $400,000 of contracted work was budgeted in 2009. Contract Bid Documents were 85% complete when the American Recovery and Reinvestment Act (ARRA) of 2009 was approved by Congress.

Open cut sewer repairs are very labor intensive and appear to fit the intent of the ARRA program precisely for immediate creation of private sector jobs. Consequently, we have prepared this application in the spirit of immediate job creation, as a public economic benefit to our ratepayers and to preserve our ability to serve commerce and institutions.

We have included all critical contract work sewer fixes scientifically identified in this application and also included some sewer replacement areas that are more extensive than just a 3 to 6 foot needed fix. Also, not included with this application, but identified herein for your consideration is that approximately 200 old brick manholes (1700 total vertical feet, 4 foot diameter) need relining at an estimated contract cost of

about $560,000. This work could be quickly added to the 85% complete Bid Documents if ARRA funding would support this labor intensive work.

The S&CCLSD has 5106 accounts of which 221 are non-residential. Annual revenue from user charges and fees in 2008 was $2,736,240 and this is diminishing presently due to business and industrial slowdowns. All debt service was retired in March, 2009 and the present reserve, approximately equal to 2008 revenue, represents about 25% of improvements necessary to preserve infrastructure over the next 10 years.

Project Planning Area

The portions of the Districts' current service area described above are among the oldest and most densely populated. They have historically demanded the most attention from the Districts' maintenance crews. As the crews serviced these sections of pipe they discovered the cause of most of the trouble was from protruding taps catching foreign materials and soils entering the sewers where large cracks and other faults allowed such occurrences. Although some root infestation does occur, these are easily identified by televising and cutting regularly, as needed. However, protruding taps catch roots and debris and limit or prohibit root cutting and high pressure sewer hydraulic cleaning/vacuuming efficiency. The protruding taps and broken pipe sections sometimes result in back-ups in homes due to clogs in the public sewer for the service area described under General above.

To determine the extent of the problems and assist in formulating an approach as to how to repair these persistent problem sections of sewer pipe, the Districts acquired two closed circuit robot camera systems. Since 2003, the Districts have, itself, inspected more than 300,000 feet of its collection system. The attached maps depict the areas that have been inspected with deficiencies identified from results of video surveys of the pipe interior in the project planning area.

Existing Facilities

The attached maps show an extensive sanitary sewer collection system as it currently exists within these densely developed settlements of Celoron, Lakewood and adjoining areas. Record drawings of the installation of these collection network components indicate that the original piping material is mostly vitrified clay tile and some transite pipe. The clay pipe was made in three foot lengths with joints sealed with fibrous material. This 70 year old piping was placed in its original trench most likely without the benefit of a select bedding and backfill material typically used today. Damage was caused to pipe by improper bedding and careless backfill, cracking pipe sections and causing loss of pipe wall due to collapse. Although wye fittings for home and business service lateral connections were installed to serve each lot, the Villages, in particular, did not insist that contractors connecting homes utilize the wye fittings on the public sewer. Instead, they just broke a hole in the public sewer and jammed a lateral part way in, partially blocking the public sewer back in the 1930's and 40's.

The results of interior pipe video inspection have led to the discovery of:

- 95 significantly protruding taps
- 52 severely damaged short sections of pipe (mostly 3 to 6 feet in length, a few up to 12 feet)
- 6 longer reaches of severely damaged pipe (30 feet to 360 feet, 1099 feet total length)
- The need for one new manhole required at the end of a line

The above represents our request for your consideration to support funding of contracted work under ARRA at an estimated cost of $2,584,300, including contingencies and engineering services with construction observation. The attached maps identify the location of the defects and define a degree of damaged pipe severity from Grade 1, the least severe to a Grade 5, the most urgent to repair.

These problem areas not only allow the entrance of material that can and have clogged the pipes, breaches in the pipe can also contribute a large volume of infiltration of water that can further consume the pipes capacity to handle sewage flows as well as to over tax the Districts' pumping and treatment facilities. Potential contamination of ground water due to exfiltration also occurs during periods of low ground water tables. Although literally hundreds of faults are documented, the Districts have the equipment and experienced staff to repair all other defects using insertion repair fiberglass/resin linings. Some of this work has been done and the balance will be done by staff at S&CCLSD.

Need for Project

The occurrence of backups in the collection system mains pose significant health risk to the individual property owners since often times the sewage will back up into homes and basements before it relieves itself out the top of manholes. The potential for a wider spread exposure to the hazards of untreated sewage then results when sewage overflows out the system from manholes and then flows into drainageways and ultimately into the waters of Chautauqua Lake. Also, as sewage backups are deemed urgent because of its potential health risks, maintenance crews are dispatched regardless of the hour or the day which puts significant strain on the Districts' overtime budget.

Presently, when there is sewage backup, notices are received, the Districts dispatches the high pressure (2000 psi, 80 gpm) flush truck and crew (2-4 staff, more staff required on roadways during high traffic conditions) and clears the problem. This occurs as needed and frequency varies from once every two months to as much as several times in one week. The Districts have a regular program to flush many sewer reaches at least annually, while other areas are cleaned based on sewer robot televising

inspections. The proposed project will reduce the current sewer flushing program and expensive overtime emergency responses and, over 20-25 years, pay for itself in costs saved. The repairs identified in this report that cannot be fixed by the Districts installing a liner patch must be made by open cut methods with installation quality control inspection, including surface restoration, of roadways and some lawns.

Alternatives Considered

The existence of the problem areas as well as the nature of each defect has been well documented. Knowing the details of the defect such as a longitudinal crack, a hole, an open joint or a missing piece of pipe allows the designer to consider a number of alternative repair methods. Alternatives are: Do nothing, which is not in the best interest of public health, environmental protection and asset management; Undertake in-situ lining repairs by Districts' staff and equipment where such repairs can legitimately be made; Or, make open cut repairs where lining work cannot be performed. Liners, such as cast-in-place pipe, fold and reform or HDPE slip-lining, are not practical for the work in project areas. This is because the types of faults identified for this project cannot be repaired by these methods cost effectively. The longer runs of sewer, 30 feet to 360 feet, would require numerous open cut fixes before liners could be installed for the same overall cost as replacement with new pipe.

Selection of an Alternative/Recommendation

The recommended repair alternative must be specific to each defect, however a number of very similar defects have been found to exist. It is recommended that open cut sewer repair and surface restoration contracts be offered to qualified contractors for bidding. All repairs shall be performed with SDR 35 PVC for both public sewer work and lateral reconnections to PVC wyes. Elastomeric couplings with stainless steel bands shall connect new pipe to existing. Proper undercutting, bedding and backfill with compaction shall be used in all areas. Roadway backfill must be thoroughly consolidated to avoid road surface settlement after construction. Road surfaces shall be restored to Village and Town standards with provisions to assure temporary surfacing, when asphalt proportioning plants are closed during cold weather, is durable and maintained. The Sewer Districts do not have the equipment, skilled underground construction experienced personnel or adequate staff to even consider undertaking the highly dangerous work of such open cut repairs.

Conclusion

In order to assure the long term health and safety of the residents of the project service area and to protect the water quality of Chautauqua Lake and its tributaries, the South and Center Chautauqua Lake Sewer District should seek loans or grants to assist in the funding of the repair of defective sewer pipe sections as detailed in this report. As the contamination to the environment and the potential risk to people in the community are currently ongoing, this work to repair these system defects should proceed immediately.

The S&CCLSD has file documentation from NYSDEC (3/19/09) that no permit is required for the project and that it is classified SEQR as Type II (no further action required, 3/13/09.) All open cut repair work areas were previously disturbed when sewers were built in the 1930's and 1940's and, as thus, have no archeological or historical significance, consequently, this project can go out to Bid at once.

We believe this project should receive full consideration for ARRA funding since it will provide local construction, trucking and manufacturing (gravel, stone, bituminous and concrete products) jobs immediately. S&CCLSD plans to bid 4 separate contracts so smaller, qualified, local underground contractors in the region may take advantage of this economic opportunity to keep their skilled workmen employed during the present slowdown in the economy. The long term benefits of the project to existing residential and business customers will be reflected in less disruption from sewer cleaning efforts and significant capital and overtime savings as ratepayers.

Steven Vanderbrook, P.E.
Stearns & Wheler, LLC

James E. Murphy, P.E.
Director, S&CCLSD

JEM/ch

South & Center Chautauqua Lake Sewer Districts
Gravity Sewer Spot Repairs Celoron & Ellicott
Contract 2009-1

ID No.	Repair No.	Mini System	Repair Length	Existing Size/Type	Approx. Depth	Surface	Road Jurisdiction	Bid						.0	0
1	**1**	**1**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
2	**2A**	**1**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
3	**2B**	**1**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
4	**2C**	**1**	**3'**	**8" VCP**	**10'**	**Bituminous**	**Ellicott**	**$**		9,	0	0	0	.	
5	**3**	**1**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
6	**4**	**1**	**3'**	**8" VCP**	**10'**	**Bituminous**	**Ellicott**	**$**		9,	0	0	0	.	
7	**5**	**2**	**6'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		8,	5	0	0	.	
8	**6**	**2**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
9	**15**	**5**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Celoron**	**$**		7,	5	0	0	.	
10	**35**	**5**	**6'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
11	**35A**	**5**	**6'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
12	**7**	**5**	**6'**	**8" VCP**	**5'**	**Bituminous**	**County**	**$**		7,	0	0	0	.	
13	**9**	**6**	**6'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
14	**8A**	**6**	**6'**	**8" VCP**	**7'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
15	**8B**	**6**	**3'**	**8" VCP**	**7'**	**Bituminous**	**Ellicott**	**$**		6,	5	0	0	.	
16	**10A**	**6**	**6'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
17	**10B**	**6**	**6'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
18	**18**	**7**	**6'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		7,	5	0	0	.	
19	**11A**	**8**	**6'**	**8" VCP**	**8'**	**Lawn**	**Ellicott**	**$**		7,	5	0	0	.	
20	**11B**	**8**	**12'**	**8" VCP**	**8'**	**Lawn**	**Ellicott**	**$**		9,	5	0	0	.	
21	**12**	**8**	**6'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		8,	5	0	0	.	
22	**14**	**9**	**6'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		8,	5	0	0	.	
23	**14A**	**9**	**6'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		8,	5	0	0	.	
24	**16**	**9**	**32'**	**8" VCP**	**7'**	**Bituminous**	**County**	**$**	1	3,	5	0	0	.	
25	**13**	**10**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		6,	5	0	0	.	
26	**13A**	**10**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		6,	5	0	0	.	
27	**13B**	**10**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		6,	5	0	0	.	
28	**17**	**11**	**3'**	**6" VCP**	**5'**	**Bituminous**	**Celoron**	**$**		6,	5	0	0	.	
						TOTAL	**$**	**2**	**1**	**9,**	**5**	**0**	**0**	.	

South & Center Chautauqua Lake Sewer Districts
Gravity Sewer Spot Repairs Lakewood
Contract 2009-2

ID No.	Repair No#	Mini System	Repair Length	Existing Size/Type	Approx. Depth	Surface	Road Jurisdiction	Bid						.0	0
29	**19**	**15**	**3'**	**8" VCP**	**7'**	**Bituminous**	**Lakewood**	**$**		6,	5	0	0	.	
30	**20**	**15**	**3'**	**8" VCP**	**4'**	**Bituminous**	**Lakewood**	**$**		6,	0	0	0	.	
31	**21**	**15**	**6'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**		8,	5	0	0	.	
32	**23A**	**17**	**3'**	**8" VCP**	**10'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
33	**23B**	**17**	**3'**	**8" VCP**	**10'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
34	**22A**	**17**	**3'**	**8" VCP**	**7'**	**Bituminous**	**Lakewood**	**$**		6,	5	0	0	.	
35	**22B**	**17**	**6'**	**8" VCP**	**7'**	**Bituminous**	**Lakewood**	**$**		7,	5	0	0	.	
36	**31**	**18**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**		7,	5	0	0	.	
37	**30**	**19**	**9'**	**18"VCP**	**8'**	**Bituminous**	**Lakewood**	**$**	1	3,	0	0	0	.	
38	**25A**	**19**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Lakewood**	**$**		7,	5	0	0	.	
39	**25B**	**19**	**3'**	**8" VCP**	**10'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
40	**25C**	**19**	**3'**	**8" VCP**	**10'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
41	**26**	**19**	**10'**	**8" VCP**	**6'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
42	**27**	**19**	**10'**	**8" VCP**	**6'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
43	**28**	**19**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**		7,	5	0	0	.	
44	**24A**	**19**	**6'**	**8" VCP**	**10'**	**Bituminous**	**Lakewood**	**$**	1	0,	0	0	0	.	
45	**24B**	**19**	**6'**	**8" VCP**	**10**	**Bituminous**	**Lakewood**	**$**	1	0,	0	0	0	.	
46	**24C**	**19**	**6'**	**8" VCP**	**10**	**Bituminous**	**Lakewood**	**$**	1	0,	0	0	0	.	
47	**29**	**19**	**30'**	**8" VCP**	**4'**	**Lawn**	**Lakewood**	**$**	1	1,	0	0	0	.	
48	**33**	**20**	**3'**	**8" VCP**	**6'**	**Lawn**	**Lakewood**	**$**		5,	5	0	0	.	
49	**32**	**20**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**		7,	5	0	0	.	
50	**34**	**20**	**3'**	**8" VCP**	**8'**	**Bitum./Concrete**	**STATE**	**$**		7,	5	0	0	.	
							TOTAL	**$**	**1**	**8,**	**0**	**0**	**0**	.	

South & Center Chautauqua Lake Sewer Districts
Protruding Tap Repairs
Contract 2009-3

ID No.	Repair No#	Mini System	Repair Length	Existing Size/Type	Approx. Depth	Surface	Road Jurisdiction	Bid						.0	0
51		**2**	**3'**	**8" VCP**	**7'**	**Bituminous**	**Ellicott**	**$**		8,	0	0	0	.	
52		**2**	**3'**	**8" VCP**	**8'**	**Lawn/Bit**	**Ellicott**	**$**		9,	0	0	0	.	
53		**2**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		8,	0	0	0	.	
54		**3**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		8,	0	0	0	.	
55		**4**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		8,	0	0	0	.	
56		**4**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Ellicott**	**$**		9,	0	0	0	.	
57		**5**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Ellicott**	**$**		9,	0	0	0	.	
58		**5**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		8,	0	0	0	.	
59		**5**	**3'**	**8" VCP**	**10'**	**Bituminous**	**Ellicott**	**$**	1	1,	0	0	0	.	
60		**5**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**		8,	0	0	0	.	
61		**6**	**3'**	**8" VCP**	**7'**	**Lawn**	**Ellicott**	**$**		7,	0	0	0	.	
62		**6**	**3'**	**8" VCP**	**7'**	**Bituminous**	**Ellicott**	**$**		8,	0	0	0	.	
63		**6**	**3'**	**8" VCP**	**7'**	**Bituminous**	**Ellicott**	**$**		8,	0	0	0	.	
64		**7**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		8,	0	0	0	.	
65		**8**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	**$**		8,	0	0	0	.	

South & Center Chautauqua Lake Sewer Districts
Protruding Tap Repairs
Contract 2009-3

ID No.	Repair No#	Mini System	Repair Length	Existing Size/Type	Approx. Depth	Surface	Road Jurisdiction	Bid	.0	0
66		**8**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Ellicott**	$ 8,000.00		
67		**9**	**3'**	**8" VCP**	**7'**	**Bituminous**	**Celoron**	$ 8,000.00		
68		**9**	**3'**	**8" VCP**	**11'**	**Bituminous**	**Celoron**	$ 11,000.00		
69		**11**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Celoron**	$ 9,000.00		
70		**11**	**3'**	**8" VCP**	**4'**	**Bit/Gravel**	**Celoron**	$ 7,500.00		
71		**13**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Celoron**	$ 9,000.00		
72		**13**	**3'**	**8" VCP**	**7'**	**Lawn**	**Celoron**	$ 7,000.00		
73		**15**	**3'**	**8" VCP**	**7'**	**Lawn**	**Lakewood**	$ 7,000.00		
74		**15**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Lakewood**	$ 8,000.00		
75		**15**	**3'**	**8" VCP**	**7'**	**Bituminous**	**Lakewood**	$ 8,000.00		
76		**15**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
77		**15**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Lakewood**	$ 9,000.00		
78		**15**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Lakewood**	$ 9,000.00		
79		**15**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Lakewood**	$ 8,000.00		
80		**15**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Lakewood**	$ 8,000.00		
81		**15**	**3'**	**8" VCP**	**5'**	**Bituminous**	**Lakewood**	$ 7,500.00		
82		**15**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
83		**15**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
84		**15**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
85		**15**	**3'**	**8" Transite**	**7'**	**Bituminous**	**Lakewood**	$ 8,000.00		
86		**15**	**3'**	**8" Transite**	**7'**	**Bituminous**	**Lakewood**	$ 8,000.00		
87		**15**	**3'**	**8" Transite**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
88		**15**	**3'**	**8" Transite**	**7'**	**Bituminous**	**Lakewood**	$ 8,000.00		
89		**15**	**3'**	**8" Transite**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
90		**15**	**3'**	**8" Transite**	**6'**	**Bituminous**	**Lakewood**	$ 8,000.00		
91		**15**	**3'**	**8" Transite**	**6'**	**Bituminous**	**Lakewood**	$ 8,000.00		
92		**15**	**3'**	**8" Transite**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
93		**15**	**3'**	**8" Transite**	**7'**	**Bituminous**	**Lakewood**	$ 8,000.00		
94		**15**	**3'**	**8" Transite**	**7'**	**Bituminous**	**Lakewood**	$ 8,000.00		
95		**15**	**3'**	**8" Transite**	**7'**	**Bituminous**	**Lakewood**	$ 8,000.00		
96		**15**	**3'**	**8" Transite**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
97		**16**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Lakewood**	$ 9,000.00		
98		**16**	**3'**	**8" Transite**	**6'**	**Bituminous**	**Lakewood**	$ 8,000.00		
99		**16**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Lakewood**	$ 8,000.00		
100		**16**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Lakewood**	$ 9,000.00		
101		**16**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Lakewood**	$ 8,000.00		
102		**16**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Lakewood**	$ 8,000.00		
103		**16**	**3'**	**8" Transite**	**7'**	**Bituminous**	**Lakewood**	$ 8,000.00		
104		**16**	**3'**	**8" Transite**	**7'**	**Bituminous**	**Lakewood**	$ 8,000.00		
105		**16**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	$ 8,000.00		
106		**17**	**3'**	**8" Transite**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
107		**17**	**3'**	**8" Transite**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
108		**17**	**3'**	**8" Transite**	**8'**	**Bituminous**	**Lakewood**	$ 9,000.00		
109		**17**	**3'**	**8" Transite**	**7'**	**Bituminous**	**Lakewood**	$ 8,000.00		

South & Center Chautauqua Lake Sewer Districts
Protruding Tap Repairs
Contract 2009-3

ID No.	Repair No#	Mini System	Repair Length	Existing Size/Type	Approx. Depth	Surface	Road Jurisdiction	Bid						.0	0
110		**18**	**3'**	**8" VCP**	**7'**	**Bituminous**	**Lakewood**	**$**		8,	0	0	0	.	
111		**19**	**3'**	**8" VCP**	**7'**	**Bituminous**	**Lakewood**	**$**		8,	0	0	0	.	
112		**19**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Lakewood**	**$**		8,	0	0	0	.	
113		**19**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
114		**19**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
115		**19**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
116		**20**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
117		**20**	**3'**	**8" VCP**	**9'**	**Lawn**	**Lakewood**	**$**		8,	0	0	0	.	
118		**20**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
119		**20**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
120		**20**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
121		**20**	**3'**	**8" VCP**		**Bituminous**	**Lakewood**	**$**		8,	0	0	0	.	
122		**20**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
123		**20**	**3'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
124		**20**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
125		**20**	**3'**	**8" VCP**		**Bituminous**	**Lakewood**	**$**		8,	0	0	0	.	
126		**20**	**3'**	**8" VCP**	**6'**	**Bituminous**	**Lakewood**	**$**		8,	0	0	0	.	
127		**20**	**3'**	**8" VCP**		**Bit/Gravel**	**Lakewood**	**$**		8,	0	0	0	.	
128		**21**	**3'**	**8" VCP**	**6'**	**Lawn/Bit**	**Lakewood**	**$**		8,	0	0	0	.	
129		**22**	**3'**	**8" VCP**	**8'**	**Concrete/Bit**	**Lakewood**	**$**		9,	0	0	0	.	
130		**22**	**3'**	**8" VCP**	**8'**	**Concrete/Bit**	**Lakewood**	**$**		9,	0	0	0	.	
131		**22**	**3'**	**8" VCP**	**9'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
132		**22**	**3'**	**8" Transite**	**8'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
133		**22**	**3'**	**8" Transite**	**8'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
134		**22**	**3'**	**8" Transite**	**8'**	**Bituminous**	**Lakewood**	**$**		9,	0	0	0	.	
135		**22**	**3'**	**8" Transite**	**7'**	**Bituminous**	**Lakewood**	**$**		8,	0	0	0	.	
136	**10 Other Protruding Taps Identified But Not Listed Here**							**$**	9	0,	0	0	0	.	
							TOTAL $	**8**	**0**	**8,**	**0**	**0**	**0**	.	

South & Center Chautauqua Lake Sewer Districts
137-139: Remove 6" Pipe & Install 8"
140-145: Replace Damaged Pipe
Contract 2009-4

	Repair No#	Mini System	Repair Length	Existing Size/Type	Approx. Depth	Surface	Road Jurisdiction	Bid						.0	0
137	**1**	**5**	**6'**	**8" VCP**	**6'**	**Lawn/Bit**	**Celoron**	**$**		7,	5	0	0	.	
138	**2**	**4**	**325'**	**8" VCP**	**6'**	**Bituminous**	**Ellicott**	**$**	6	2,	0	0	0	.	
138a	**Manhole 7' - 9'**							**$**		5,	0	0	0		
139	**3**	**18**	**10'**	**8" VCP**	**8'**	**Bituminous**	**Lakewood**	**$**	1	0,	0	0	0	.	
140	**4A**	**5**	**200'**	**8" VCP**	**7'**	**Lawn**	**Ellicott**	**$**	2	8,	0	0	0	.	
141	**4B**	**5**	**6'**	**8" VCP**	**6'**	**Lawn**	**Ellicott**	**$**		6,	5	0	0	.	
142	**4C**	**5**	**6'**	**8" VCP**	**7'**	**Lawn**	**Ellicott**	**$**		6,	5	0	0	.	
143	**4D**	**5**	**370'**	**8" VCP**	**7'**	**Lawn**	**Ellicott**	**$**	5	1,	0	0	0	.	
144	**4E**	**5**	**6'**	**8" VCP**	**7'**	**Lawn**	**Ellicott**	**$**		6,	5	0	0	.	
145	**4F**	**5**	**142'**	**8" VCP**	**7'**	**Lawn**	**Ellicott**	**$**	2	0,	0	0	0	.	
						SUB TOTAL	**$**	**2**	**0**	**3,**	**0**	**0**	**0**	.	

ADDITIONAL REPAIR LENGTH AT SEWER REPAIR LOCATIONS:

ID No.	PIPE SIZE	APPROXIMATE DEPTH	ESTIMATED LENGTH	UNIT BID PRICE	BID (length x Unit Bid)						.0	0
146	**8"**	**0 - 6'**	**120'**	**$500.00**		6	0,	0	0	0	.	
147	**8"**	**6' - 8'**	**250'**	**$600.00**	1	5	0,	0	0	0	.	
148	**8"**	**8' - 10'**	**200'**	**$800.00**	1	6	0,	0	0	0	.	
149	**8"**	**10' - 12'**	**80'**	**$1,000.00**		8	0,	0	0	0	.	
150	**18"**	**8' - 10'**	**10'**	**$1,000.00**		1	0,	0	0	0	.	
				SUB TOTAL **$**	**4**	**6**	**0,**	**0**	**0**	**0**	.	

ADDITIONAL SURFACE RESTORATION LENGTH AT SEWER REPAIR LOCATIONS

ID No.	SURFACE TYPE	ESTIMATED Length	UNIT BID PRICE	BID (length x Unit Bid)						.0	0
151	**LAWN**	**150'**	**$100.00**		1	5,	0	0	0	.	
152	**GRAVEL**	**50'**	**$100.00**			5,	0	0	0	.	
153	**BITUMINOUS**	**400'**	**$300.00**	1	2	0,	0	0	0	.	
154	**BITUMINOUS**	**50'**	**$500.00**		2	5,	0	0	0	.	
	OVER CONCRETE		**SUB TOTAL** **$**	**1**	**6**	**5,**	**0**	**0**	**0**	.	
	TOTAL OF BID PROPOSAL		**$**	**2,**	**0**	**4**	**1,**	**5**	**0**	**0**	.	